FACILITATOR GUIDE

Risk factor

communicable
morbidity

behavior

problem

Infectious origin

chronic

Diseases

diabetes

Public health

cancer

Mental illness

Impaired
health

non-communicable

diet

Slow
progression

NCD Surveillance in Public Health

Created: 2013

Table of Contents

NCD Surveillance in Public Health

LEARNING OBJECTIVES

At the end of the training, participants will be able to:

- Identify whether a non-communicable disease (NCD) surveillance system is active or passive;
- Draw a diagram of the flow of data through an NCD surveillance system; and
- Identify possible sources of selection bias and information bias for an NCD surveillance system.

ESTIMATED COMPLETION TIME

- 4 hours *(2 hours, 30 minutes interactive presentation; 1 hour, 30 minutes Skill Assessment)*

TRAINING TECHNIQUES

- Content and examples will be presented using *lectures, group work,* and *class presentations.* Assessment will be conducted using *group exercises* with sample surveillance system information.

PREREQUISITIES

- ***Prioritizing Public Health Problems***

MATERIALS AND EQUIPMENT

For the Facilitator:

- PowerPoint file for presentation

For the Participant:

- Participant Guide

REFERENCES AND RESOURCES

- WHO/WPRO. A Guide to Establishing Event-Based Surveillance. http://www.wpro.who.int/emerging_diseases/documents/eventbasedsurv/en/
- WHO. Ionizing Radiation: IPHECA. http://www.who.int/ionizing_radiation/research/chernobyl/en/
- WHO GTSS http://www.cdc.gov/tobacco/global/gtss/index.htm (data tool link towards the bottom of the Slide)
- Nsakashalo-Senkwe M, Siziya S, Goma FM, Songolo P, Mukonka V, Babaniyi O. Combined prevalence of impaired glucose levels or diabetes and its correlates in Lusaka urban district, Zambia: a population based survey. Int Arch Med. 2011 Jan 12;4(1):2.

- Padrão P, Damasceno A, Silva-Matos C, Laszczyńska O, Prista A, Gouveia L, Lunet N. Alcohol consumption in Mozambique: regular consumption, weekly pattern and binge drinking. *Drug Alcohol Depend.* 2011 May 1;115(1-2):87-93.
- Principles and Practice of Public Health Surveillance Lisa M. Lee, Steven M. Teutsch, Stephen B. Thacker, Michael E. St. Louis (2010)
- Teutsch, S.M.; and Churchill RE. (Eds). Principles and Practice of Public Health Surveillance. 2nd ed. New York, NY: Oxford University Press. (2000)
- Choi, B.C.; McQueen, D.V.; Puska, P.; Douglas, K.A.; Ackland, M.; Campostrini, S; and Torres R.E. (2008). Enhancing global capacity in the surveillance, prevention, and control of chronic diseases: seven themes to consider and build upon. In Journal of Epidemiology & Community Health, 62(5):391-397.
- Chowdhury. P.; Balluz, L.; Town, M.; Chowdhury, F.M.; Bartolis, W.; Garvin, W.; Akcin, H; Greenlund, K.J.; and Giles, W. (2010). Surveillance of certain health behaviors and conditions among states and selected local areas – Behavioral Risk Factor Surveillance System, United States, 2007. In Morbidity and Mortality Weekly Report Surveillance Summaries, (Feb) 5;59(1):1-220.
- Ehrlich, J.R.; Schwartz, N.J.; Ng, C.K.; Kauffman, E.C.; and Scherr, D.S. (2009). The impact of multiple malignancies on patients with bladder carcinoma: a population-based study using the SEER database. In Advance Urology, 406965.
- Kazaura, M.R.; Kombe, D.; Yuma, S.; Mtiro, H.; and Mlawa, G. (2007). Health seeking behavior among cancer patients attending Ocean Road Cancer Institute, Tanzania. In East African Journal of Public Health, 4(1):19-22.
- INDEPTH. (2010) Available from: http://www.indepth-network.org/ [Accessed on June 10, 2010]. DSS network.
- McQueen, D.V.; and Puska, P. (2003). Global Behavioral Risk Factor Surveillance. New York: Kluwer Academic/Plenum Publishers.
- Mokdad, A.H. (2009). The Behavioral Risk Factors Surveillance System: past, present, and future. In Annual Reviews of Public Health, 30:43-54.
- Ngom, P.; Binka, F.N.; Phillips, J.F.; Pence, B.; and Macleod, B. (2001) Demographic surveillance and health equity in sub-Saharan Africa. In Health Policy and Planning; 16(4): 337-344.
- Ng, N.; Hakimi, M.; Van Minh, H.; Juvekar, S.; Razzaque, A.; Ashraf, A.; Ahmed S.M., Kanungsukkasem, J.; Soonthornthada, K.; and Huu Bich, T. (2009). Prevalence of physical inactivity in nine rural INDEPTH Health and Demographic Surveillance Systems in five Asian countries. In Global Health Action, 2: 10.3402.

PREPARATION CHECKLIST

The following are action items to be completed by the facilitator prior to training:

___ Review slides

___ Provide a local example of a surveillance system for slide 18
and be prepared to discuss system stakeholders.

___ Provide a local example of a population-based surveillance system for discussion
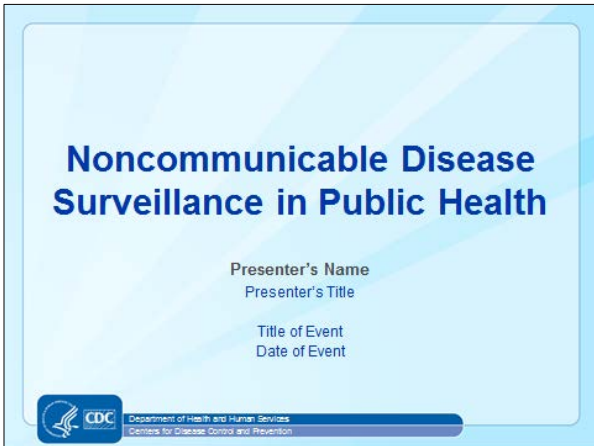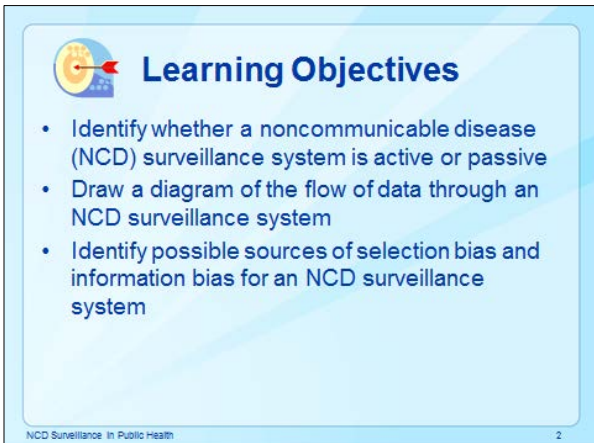related to slide 26.

FONT GLOSSARY

The following fonts are used in this guide:

Font Type	Font Meaning
Plain	Script
Bold	**Instructions**
Italics	*Answers*

ICON GLOSSARY

The following icons are used in this guide:

Image Type	Image Meaning
? Question Icon	Question for facilitator to ask participants.

Duration/ Slide Number	What To Do/What To Say
2 minutes Slide 1	

- **Introduce yourself to participants if you are a new facilitator.**

- **Tell participants that this lesson will take approximately 4 hours to complete.**

- **Lead a brief discussion on how knowing about NCD surveillance can help them in their work (e.g., to help them monitor and evaluate prevention and control measures).**

- **Explain that at the end of the lesson they will complete a skill assessment with a small group.**

| 1 minute

Slide 2 | |

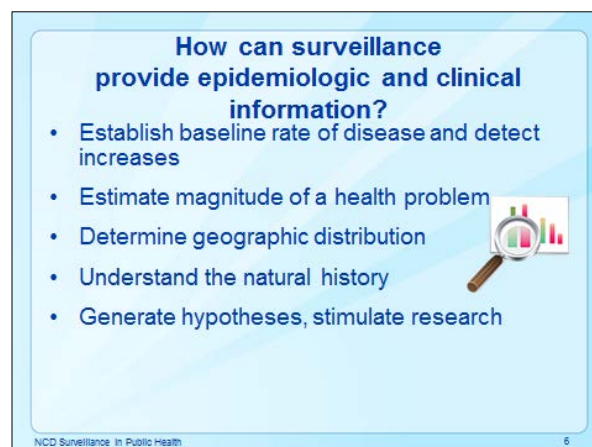| Duration/ Slide Number	What To Do/What To Say
	• **Direct participants to Slide 1 in their Participant Guides.** • **Read the learning objectives from the slide.**
1 minute **Slide 3**	 • **Read the slide.**
2 minutes **Slide 4** **?** **Question**	 • **Explain that surveillance data are data for <u>action</u>. Data are collected so that they can be used to implement change.** • **Say:** This presentation begins by reviewing the basics of surveillance (definition and purpose), talking about chronic disease surveillance in particular. • **Ask:** What is surveillance?

Duration/ Slide Number	What To Do/What To Say
2 minutes **Slide 5**	
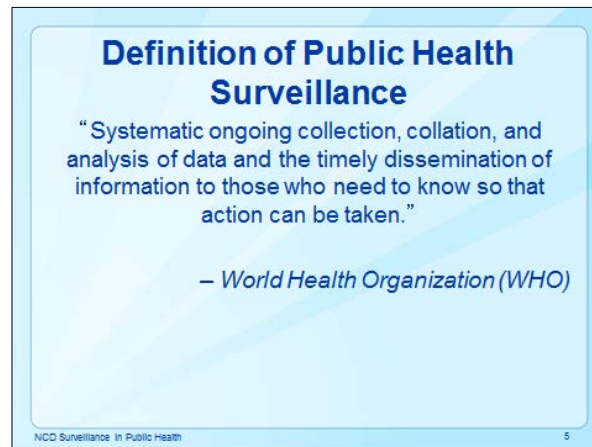
Question

- **Ask:** What is the purpose of surveillance?

- **CLICK to show WHO definition.**

- **Read the definition.**

- **Explain that all components (collection, collation, analysis and dissemination) are necessary. Explain what "action" means.**

- **Stress that surveillance needs to be ongoing.**

Duration/ Slide Number	What To Do/What To Say
5 minutes **Slide 6**	

Question

- **Explain to participants that surveillance can provide different types of information.**

- **Ask:** How can surveillance provide epidemiologic and clinical information?

Duration/ Slide Number	What To Do/What To Say
? Question	• **CLICK to show the possible answers. Discuss each point.** • **Explain/discuss what a "hypothesis" is; use simple terms, such as "is there a relationship between X & Y"?** • **Ask:** Who can provide an NCD example of how surveillance can give you data to generate a hypothesis and further research?
5 minutes **Slide 7**	How can surveillance help inform public health efforts? • Evaluate control measures • Monitor changes in chronic disease presentation or infectious agents • Detect changes in health practices • Facilitate planning NCD Surveillance in Public Health 7
? Question	• **Ask:** How can surveillance help inform public health efforts? • **CLICK to show the possible answers.** • **Explain that epidemiologic and clinical information feed into the third aspect of informing public health efforts – all of these activities provide data for action.**

2 minutes
 	
Slide 8
	Examples of NCD Surveillance Data
	Diagnoses
	  • Type 2 diabetes
	  • Stage IV ovarian cancer
	Conditions
	  • Screening results (e.g., elevated glucose levels)
	  • Overweight/Obesity
	Lifestyle factors
	  • Smoking habits
	  • Dietary intake
	  • Physical activity
	
	NCD Surveillance in Public Health 8

Duration/ Slide Number	What To Do/What To Say
? **Question**	• **Ask:** What are some examples of the types of information that can be collected with public health surveillance? • **Solicit responses and show answers on the slide.** • **Explain that the data collected from NCDs can be based on diagnoses, as for communicable diseases, but can also entail collection of information about conditions or lifestyle factors.** • **Explain the difference between clinical and epidemiologic (surveillance) "diagnoses".** • **Read the examples on the slide.**

5 minutes
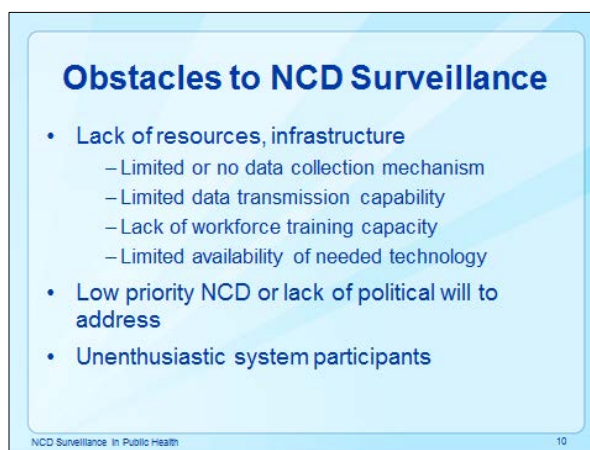 	
Slide 9
	Similarities of Infectious Disease and NCD Surveillance
	• Document prevalence of disease
	• Document risk factors
	• Can be used to describe time trends
	• Can include a variety of data including:
	    – Laboratory data
	    – Self report data
	    – Medical record data
	
	NCD Surveillance In Public Health 9

? **Question**	• **Read the first bullet on the slide.** • **Ask participants to provide you with additional similarities.** • **Solicit responses and click on the slide to reveal the remaining bullets.**

Duration/ Slide Number	What To Do/What To Say
2 minutes **Slide 10**	

?

Question

- **Ask:** What are some obstacles to NCD surveillance? **(To get participants moving, you can ask for volunteers to write obstacles on a flip chart.)**

- **Read the slide.**

- **Note: Additional obstacles are lack of time and burden on the person providing the information to the person collecting the data.**

- **Explain that in addition to a lack of resources, if the political climate does not welcome interventions for a given health concern, it may hinder surveillance efforts, even if the health problem impacts many people.**

  Also, if stakeholders impacted by a surveillance system (such as physicians or laboratories) do not feel that the system is important, they may be resistant and noncompliant, which is a major obstacle to collecting representative data.

Duration/ Slide Number	What To Do/What To Say
1 minute **Slide 11**	

- **Say:** We will now talk about the structure and function of surveillance systems. This includes population, data collection, and data compilation, analysis, and dissemination.

5 minutes **Slide 12**	

- **Explain that the population under surveillance is the first component. Different surveillance systems conduct surveillance among populations with different characteristics. National surveillance is intended to capture the health status among the population of an entire country.**

Question

- **Ask:** What are some populations under surveillance you can think of?

- **CLICK to show high-risk categories.**

| Duration/ Slide Number	What To Do/What To Say
	• **Possible answer:** *Populations may include occupation-based populations (e.g., coal miners, factory workers); populations with a specific health status (e.g., pregnancy clinics, specialty referral centers); or populations in specific geographic areas (such as difficult to access populations, e.g., rural highlands).*
3 minutes **Slide 13**	
	• **Explain that data is collected about the health status of the defined population of interest, usually by district, regional, or national health departments or other health related organizations. These departments use established, standard methods, which may be paper-based or electronic, depending on the technology available.**
	• **Say:** For some NCDs or health conditions, there may be laboratory involvement in surveillance. For example, with diabetes, lab tests would document status of glucose levels.

Duration/ Slide Number	What To Do/What To Say

3 minutes

Slide 14
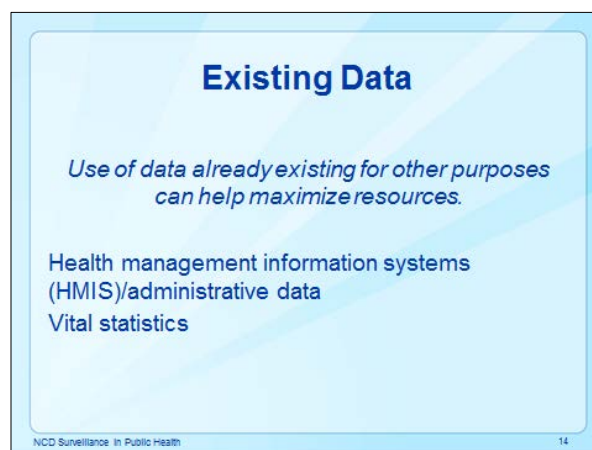
- **Say:** If collecting new data is not feasible due to issues such as cost, or if it is not needed to address the question of interest, you can use data that has already been collected by other organizations who keep health-related information about populations.

- **Say:** New data should only be collected if existing data cannot meet the need.

- One way to do this is to utilize HMIS, or administrative data, from hospitals and other patient-based organizations.

  In countries with adequate vital records keeping, vital registries such as death certificate data can also be used to conduct surveillance for major causes of death within the population. We will discuss this in more detail in a future lesson.

Duration/ Slide Number	What To Do/What To Say
5 minutes **Slide 15**	
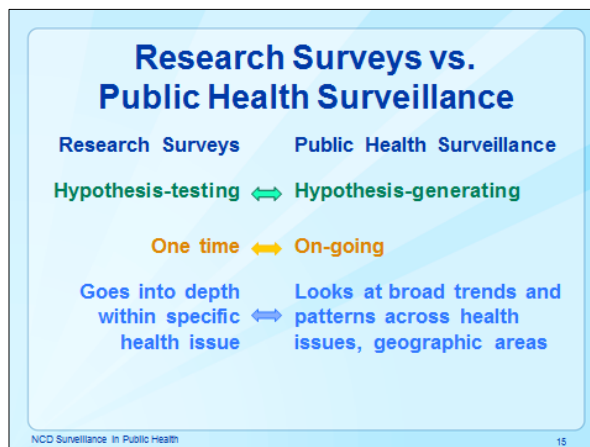
- **Say:** If existing data are not the best option to meet surveillance data needs, and you need to collect more information than what is routinely reported to the health department or laboratory, you can initiate regular questionnaires as part of public health surveillance. Though these questionnaires may seem similar to existing research surveys, they are different in a number of ways.

- **Explain the difference between a research survey and public health surveillance as given on the slide.**

3 minutes **Slide 16**	

- **Explain that it is important to remember that surveillance is more than just data collection. It is a full cycle that involves competently processing, analyzing, interpreting, and using the information before repeating**

Duration/ Slide Number	What To Do/What To Say

the cycle again.

- **When discussing the bullets, include these points:**

  o Data analysis, interpretation, dissemination MUST BE TIMELY.

  o It is not advisable to collect data if you do not also have the means to competently complete the analysis, interpretation, and dissemination of the results, and implement interventions.

  o Collecting and analyzing excellent data will not help your current population if there is nothing you can do about the health problem in **a timely manner**, either due to a lack of resources or because a feasible intervention does not exist. However, understanding gaps in knowledge or funding can lead to better health in the future, so spend money wisely and understand surveillance limitations before collecting data.

  o It is equally important that you are collecting data you actually <u>need</u> to address the question/requirement.

2 minutes

Slide 17
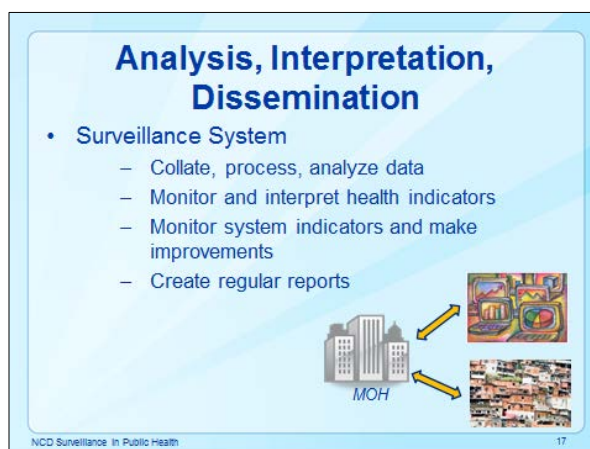
- **Explain that one stage of the surveillance process is to manage and use the data. This includes the process of compiling data reported from different departments to a central surveillance system, "cleaning," analyzing, and interpreting the data, as noted by the functions listed on the slide.**

Duration/ Slide Number	What To Do/What To Say
5 minutes **Slide 18**	

?
Question
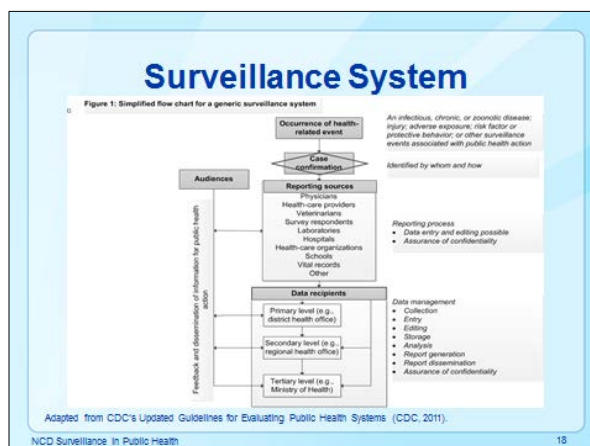
- **Ask participants to refer to slide #17 in their participant workbook.**

- **Ask:** Is this flow chart applicable to your work?

- **Explain that, among other options, a surveillance system may be structured to collect data on a variety of diseases nationally, or it may be structured to collect data on a specific disease or condition.**

?
Question

- **Ask for a volunteer to briefly explain the simplified flow chart of this generic surveillance system.**

- **Explain that for national surveillance, local reporting sites can be hospitals, clinics, and doctor's offices. If a case of a reportable disease is seen at one of these sites, a report should be submitted to the local public health office. Each local office is part of a network within a district, and each local office reports to their own district public health office. Each district will compile information for their district and will also report the cases that are reported to the tertiary level (central level) – to the public health office at the Ministry of Health (MOH).**

Duration/ Slide Number	What To Do/What To Say
? Question	• **Ask:** Can you give an example of a local or district level surveillance system? • **Explain that for disease or condition specific surveillance, reporting sites may report directly to a surveillance office or desk within the MOH or another health-related department, often located at the national level.** • **Explain how data flow through a surveillance system.** • **Point out that the public health action (to the left of the diagram) is designed to have an impact on the occurrence of the event in the population. Point out that this "action" can involve creating or revising interventions or policies by programmatic staff.**
5 minutes **Slide 19**	 • **Explain that stakeholders play a key role in assuring that a surveillance system functions at all levels.** • **Read the slide.** • **Say:** If you share data, it will encourage more stakeholders to become involved. • **Give a local example (e.g., cancer registry).**
? Question	• **Ask:** Who are the stakeholders? • **Explain that stakeholders should be engaged in all levels of system implementation and evaluation, as they provide vital input to ensure that the surveillance**

Duration/ Slide Number	What To Do/What To Say

system addresses appropriate questions and that its findings are useful.

1 minute

Slide 20

- **Explain that in the next section we will discuss operational aspects of surveillance. This includes data sources, types of surveillance, and the potential for bias.**
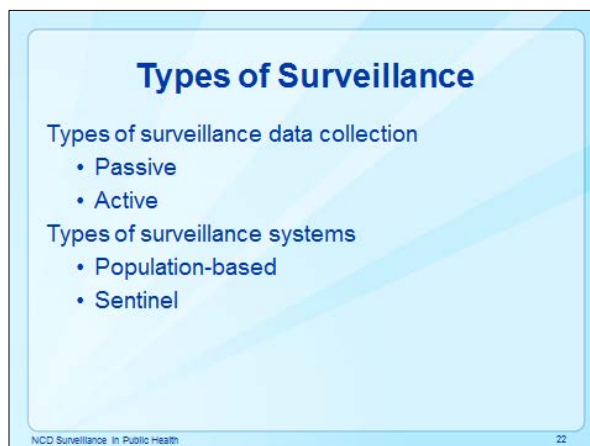
5 minutes

Slide 21

Question

- **Ask participants for examples of priority data sources of NCD surveillance.**
- **Click on the slide until all the examples appear.**
- **Explain that many other sources of data are possible.**
- **Explain that the sources on this slide are examples to provide context from where the data may come from, but we will not provide details in this lesson. Another lesson is dedicated to data sources for surveillance.**

Duration/ Slide Number	What To Do/What To Say
? **Question**	• **Ask:** For your country, what information is already available to use without doing additional data collection?
2 minutes **Slide 22**	 • **Say:** In general, we can categorize the methods of <u>collecting data</u> for surveillance into two main types: passive or active. There are many ways of structuring a given surveillance system, but the general types of surveillance <u>systems</u> can include population-based and sentinel surveillance. We will talk about the methods of data collection and the structure of systems over the next few slides.
2 minutes **Slide 23**	 • **Explain that passive surveillance is the most common form of surveillance. Examples include HMIS (Health Management Information Systems), hospital and clinic records.** • **Explain the content on the slide. Emphasize that the**

Types of Surveillance

Types of surveillance data collection
- Passive
- Active

Types of surveillance systems
- Population-based
- Sentinel

NCD Surveillance In Public Health   22

Passive Surveillance Defined

"Passive" initial report for public health authorities

Most common type of data collection
- Healthcare providers and laboratories submit standard forms
- Can rely on data collected for other reasons

NCD Surveillance In Public Health   23

Duration/ Slide Number	What To Do/What To Say

term <u>passive</u> is used to convey the idea that health authorities take no action while waiting for report forms to be submitted.

5 minutes

Slide 24

?

Question

- Ask participants for some advantages and disadvantages of passive surveillance and examples.
- Click on the slide until answers appear.

2 minutes

Slide 25

?

Question

- **Ask:** What is active surveillance?
- **CLICK to show bullets.**
- **Read the slide.**

Duration/ Slide Number	What To Do/What To Say
5 minutes **Slide 26**	

?
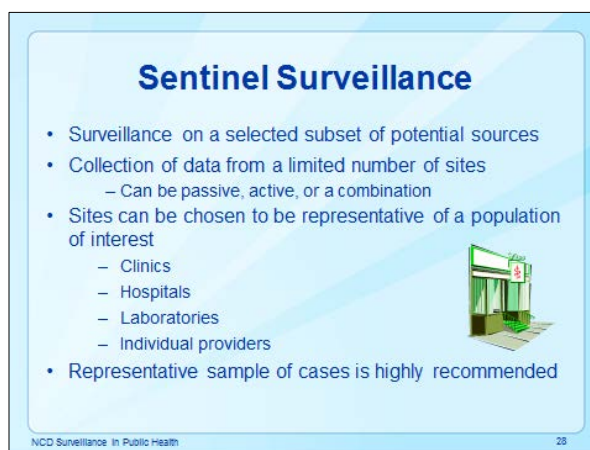
Question

- **Ask participants for some advantages and disadvantages of active surveillance and examples. Examples can include for annual surveys: United States and Jordan Behavioral Risk Factor Surveillance Systems, and WHO STEPS. For disease registries, you can use Ocean Road Cancer Registry (Tanzania) and SEER United States.**

- **Click on the slide until answers appear.**

| **3 minutes**

Slide 27 | |

- **Explain that now we will transition from data collection methods to talking about the different general structure a surveillance system may have.**
- **Read the information on the slide.**
- **Provide a relevant, local example of national surveillance.**

Duration/ Slide Number	What To Do/What To Say
5 minutes **Slide 28**	

- **Explain that sentinel surveillance is usually conducted as part of a population-based surveillance system.**
- **Read the slide.**

5 minutes **Slide 29**	

- **Explain that sentinel systems are smaller and more flexible and therefore are useful for establishing surveillance if there is no existing surveillance system for a disease or condition, or if a system has been disrupted.**

- **Say:** Although sentinel systems can be expensive, they are less expensive than data gained through active surveillance of the total population, and the data can be of higher quality than those collected through passive systems.

- **Say:** It is logistically easier to obtain higher quality

Duration/ Slide Number	What To Do/What To Say
	information from a smaller population in sentinel systems, and more information can be collected on demographic and other factors of importance.

?

Question

- **Ask:** What might the disadvantages be?

- **Possible answer:** *One disadvantage of sentinel systems is that it is difficult to ensure the sites are representative of the population, and it is expensive to establish and maintain the sentinel network, especially compared to passive surveillance.*

- **Ask:** Can you give an example? (Other example answers:

  - Demographic surveillance systems (DSS) are sentinel systems, however, they are mainly managed and run by academic institutions for primarily research instead of surveillance. (references provided above)

  - Generalizability: data obtained from the sentinel sites is not usually representative of the country.

  - Data from sentinel sites may not be available publicly limiting their use for public health impact.)

- **Click on the slide and briefly discuss the example.**

3 minutes

Slide 30

Dissemination of Information

- To which groups of people should surveillance results be distributed?
- Decision-makers (policy makers as well as heads of surveillance, epidemiology, or public health offices)
- Participating providers/reporters, colleagues
- The population under surveillance (the community)

NCD Surveillance in Public Health   30

?

Question

- **Ask:** Who should receive feedback from surveillance?

- **CLICK to show three groups that should be kept aware of surveillance results. The class may have additional**

Duration/ Slide Number	What To Do/What To Say

suggestions.

5 minutes

Slide 31

- **Read the first bullet. Note that the level of technical information should be different, depending on the audience. For example, the head of the epidemiology office can read a highly technical report, but someone who is responsible for allocating funding and resources needs to know the bottom line about what interventions to support.**

- **Read the second bullet. Explain that feedback to participants in the system encourages them to continue reporting.**

- **Read the third bullet. Note that for a general or public audience, the message should be tailored to what is most useful information for them. For example, explain basic facts about a health problem and any steps they can take to prevent this health problem among them.**

- **Explain that the target population has the right to know the results of surveillance and that the citizens will trust government more if it shares the data.**

Duration/ Slide Number	**What To Do/What To Say**

2 minutes

Slide 32

- **Say:** Surveillance attempts to gain an accurate cross-section – or picture – of the health status of a population, but sometimes the accuracy of surveillance data is compromised by bias.

- **Say:** Bias is a systematic error in the collection or use of data. It may lead to an over- or under- estimate of a problem. It may also lead to false conclusions. Incorrect conclusions may lead to misdirected public health interventions.

- **Say:** Today we will focus on two main types of bias: selection and information bias.

3 minutes

Slide 33

| Duration/ Slide Number	What To Do/What To Say
? **Question**	• **Explain that selection bias refers to how the population is "selected" into being observed in the system and is one way that the picture of the population's health can be rendered inaccurate.** • **Ask:** What can cause selection bias? • **CLICK to show examples** • **Explain that much of the population either does not have the resources to access medical care or there is not medical care available. If you gather information on the occurrence of disease at a point of medical care, then much of the population is not being represented.** • **Explain that if a system recruits providers that are easily accessed (convenient), without taking into consideration the population that visits those providers and whether it represents the target population overall, the cases captured may not represent the characteristics of the cases actually occurring in the population.**
3 minutes **Slide 34**	
? **Question**	• **Explain that information bias occurs when the collected information contains inaccuracies such as missing data or poor responses, which can lead to false conclusions. Like any bias, this distorts the picture of your population's health.** • **Ask:** Can you give an example of information bias?

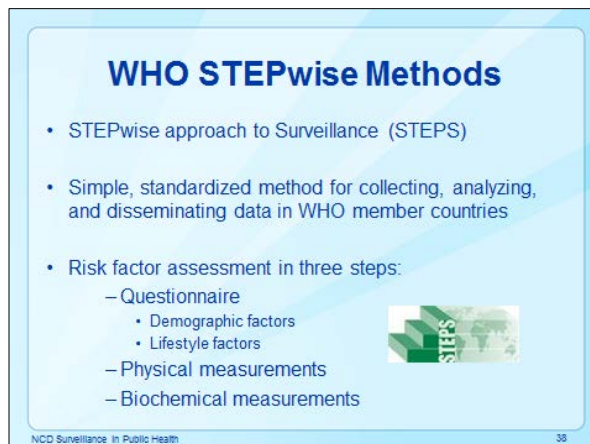| Duration/ Slide Number	What To Do/What To Say

	• **Explain that there are many kinds of information bias, but the ones we tend to be concerned about are the ones that make comparison groups (e.g., exposed and non-exposed, or sick and non-sick) look more different from each other than they actually are.**
	
	• **Other examples include**
	   o **Data recording errors**
	   o **Data entry errors**
	   o **Interviewer bias**
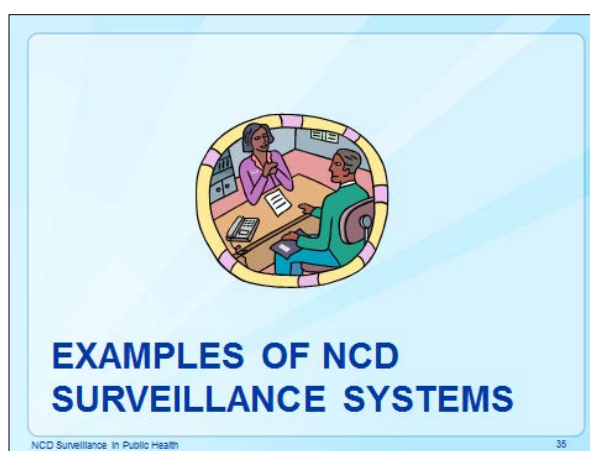
1 minute **Slide 35**	
	• **Explain that in this last section, we will look at some examples of NCD data collection and surveillance systems.**
3 minutes **Slide 36**	
	• **Explain that the GTSS was developed by WHO, CDC, and the Canadian Public Health Association (CPHA).**

Duration/ Slide Number	What To Do/What To Say
	• **Read the purpose given on the slide.**
	• **Explain that standard sampling methodology and survey instruments have been developed, and countries can choose to administer "core" questionnaires as well as additional surveys, according to their time, interest, and resources.**
1 minute **Slide 37**	
	• **Say: Data from all four surveys are available for public use from the WHO website. This screen shot shows the interactive data tool that can be used. The website for this tool is provided in the Participant Guide.**
	• **Here are some examples of uses of GTSS:**
	○ **Global Youth Tobacco Survey used to examine effect of prices on cigarette use. Nikaj, S. and Chalooupka, FJ. The effect of prices on cigarette use among youths in the Global Youth Tobacco Survey. Nicotine and Tobacco Research. 2013 May 24 (Epub ahead of print).**
	○ **Global adult Tobacco survey used to examine smoking prevalence. Kishore L, Jena PK, Bandyopadhyay C, Swain M, Das S, and Banerjee I. Hardcore smoking in three South-East Asian countries: results from the global adult tobacco survey. Asian Pac J Cancer Prev. 2013; 14(2):625-30.**
	○ **To inform researchers of data editing influences on prevalence estimates. Lam E, Role I, Shin M, and Lee KA. Inpact of data editing methods on estimates of smoking prevalence, Global Youth Tobacco Survey, 2007-2009. Preventing Chronic Disease. 2013 Mar; 10: E38.doi: 10.5888/pcd10. 120202.**
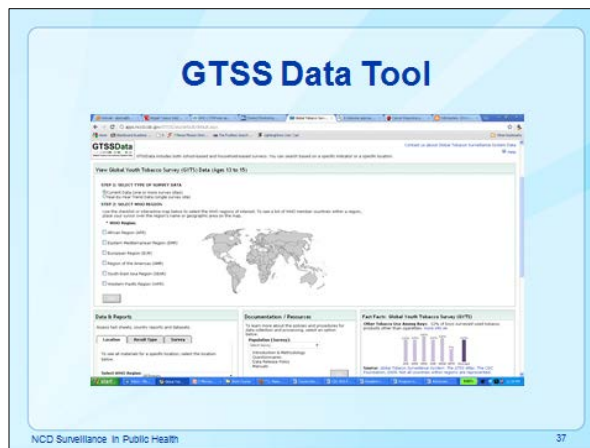
Duration/ Slide Number	What To Do/What To Say
	o **Prevalence of smoking and knowledge and attitudes. Saulle R et al. Global Health Professions Student Survey (GHPSS) multicenter Italian survey: smoking prevalence, knowledge and attitudes, and tobacco cessation training among third-year medical students. Tumori. 2013 Jan-Feb;99(1):17-22. Doi: 10. 1700/1248. 13782.**

3 minutes

Slide 38

WHO STEPwise Methods

- STEPwise approach to Surveillance (STEPS)
- Simple, standardized method for collecting, analyzing, and disseminating data in WHO member countries
- Risk factor assessment in three steps:
  - Questionnaire
    - Demographic factors
    - Lifestyle factors
  - Physical measurements
  - Biochemical measurements

- **Explain that the WHO STEPwise approach to surveillance provides an entry point for low and middle income countries to get started on chronic disease surveillance activities. It is also designed to help countries build and strengthen their capacity to conduct surveillance. The goal is that WHO STEPwise is that the surveys will be repeated every 3-5 years. However, that may be difficult for low and middle income countries who lack resources. But WHO STEPwise is important because surveys used for research often occur one time. Surveys used for surveillance are used to monitor specific behaviors, diseases, and conditions over time (increases, decreases) and can be used to examine the impact of interventions.**

- **Explain that STEPS methodology covers three different levels of steps of risk factor assessment.**

- **These steps are:**

  1. **Questionnaire**
  2. **Physical measurements**

Duration/ Slide Number	What To Do/What To Say
	3. **Biochemical measurements**
	• **Explain that the questionnaire is aimed at demographics and lifestyle factors.**
3 minutes **Slide 39**	
	• **Explain that this slide gives two examples of how different countries have used STEPwise methods.**
	• **First example explanation: In Zambia, based on increasing impaired glucose levels in older age groups, the investigators recommended targeting young and middle-aged adults for prevention-based interventions.**
	• **Second example explanation: In Mozambique, forty percent of the current drinkers reported to have had at least one binge drinking occasion in the previous week. The prevalence of current drinking increased with age and education among women, and with income among men. No consistent pattern was observed in binge drinking by education level among either gender, or by annual income among men, but it was significantly less frequent among more affluent women.**
? **Question**	• **Ask:** What examples do you have of STEPwise?
	• **Provide participants to the WHO link:** Global Health Observatory Data Repository for NCDs/ risk factors: http://apps.who.int/gho/data/?vid=2469

Duration/ Slide Number	What To Do/What To Say
10 minutes **Slides 40-46**	

- **Tell participants that they will now participate in the Review Game.**

- **Note: Adjust number of questions depending on number of tables and teams. If participants are already at small tables, you may keep them together as a team. Otherwise, divide the class into teams of four or five participants.**

- **After participants are in their teams, ask each team to (quickly) give you a team name. Record team names on a flip chart.**

- **Tell participants to discuss answers in their teams before providing them out loud. Correct answers will receive 2 points. You may give 1 point for partially correct answers.**

- **Begin by clicking on the following slides, one question at a time.**

- **To reveal the answers, click on the slide after the question appears (and participants answer the question).**

Duration/ Slide Number	What To Do/What To Say

- **CLICK to display each answer.**

- **CLICK to display each answer.**

Duration/ Slide Number	What To Do/What To Say
	• **CLICK to display each answer.**
	• **Tell participants that they will now practice what they learned.**
	• **Explain that they will work in their small groups to complete the skill assessment.**
90 minutes (60 minutes assessment; 30 minutes review) **Slide 47** **Activity**	
	• **Read the skill assessment instructions to the participants.**
	• **Keep participants in the same small groups they worked with during the previous lessons.**
	• **Tell them to turn to the appropriate Slide in their Participant Guide. Explain that they should spend approximately 1 hour on the assessment.**
	• **Hand out flip chart paper on which to draw the flow of surveillance data (question 2).**
	• **Tell participants to begin.**
	• **Walk around the room and assist the groups as needed.**
	• **Reconvene the groups and ask each group to provide the answers to the questions. Encourage the other groups to provide feedback to their colleagues.**
	• **Refer to the next Slides to see the Skill Assessment from the Participant Guide with possible answers.**

Activity

Instructions:
1. Read the information below about an NCD surveillance system.
2. Work with your group to the answer the questions that follow.
3. Be prepared to share your responses with the rest of the class.

System description

The National Cancer Surveillance System (NCSS) is a population-based cancer registry that serves to capture specific cancer diagnoses. Participating hospitals and providers were selected to represent the nation's population in terms of geographic distribution and urban/rural setting, and have agreed to voluntarily participate in the registry. Providers are provided no compensation for their participation.

Data collection

Local health departments collect data from participating physicians and hospitals. Reporting can take place through any one of three methods:
- mail-in of a standard form
- fax-in of a standard form
- telephone surveillance office and verbally provide the required information

Each participating provider or hospital is asked to report cases monthly, including when there are zero cases diagnosed. Data collected include age, address, occupation, marital status, weight, height, smoking status and history, previous cancer history, diagnosis, site and stage of cancer diagnosed.

Local health departments note that many providers do not report on a monthly basis. Sometimes a provider appears to "save up" cases and will mail in forms every few months on an irregular basis. Although local surveillance officers spend most of their time handling infectious disease outbreaks, one local officer has noted that she doesn't have the capacity to make copies of reporting forms when they run out, and doesn't know if the hospital in her jurisdiction does either. Additionally, the postage for regular reporting can add up, and the postal system is hard to rely on, especially during seasons when water and mud make roads between localities difficult to travel.

When their schedule allows, local surveillance officers follow up on incomplete forms or with providers who have consistently not reported.

Data collation, analysis, and interpretation

Local health offices accept forms from participating providers, and are required to enter the data into a database at their local office, and then submit forms to the district-level health offices, as well as the database (when possible). While all local health offices have computers, only 23% of local health offices nationally have computers systems that are 5 years old or less. District surveillance officers have noted that they often receive hard copies of NCSS surveillance forms hand-delivered when local health officers travel to district offices for meetings.

District surveillance offices are required to enter all data into an electronic database and perform basic analyses showing percent of cases that are male and female, percent of cases in standard age groups, and number of cases diagnosed thus far this year compared to the number diagnosed by the same time the previous year and 3 years ago (which marked the beginning of the NCSS). While all surveillance officers have computers, not all of them have training on manipulating databases or creating tables and graphs. District officers are required to send a semi-annual report, accompanied by the database, to the national level. The report is sent by fax and email, and the database is sent by email only.

At the national level, data are collated from all districts. National level analysts have access to the original data forms upon request: they may ask the district office to send copies, or call the district surveillance officer to ask for clarifications. Data are analyzed by available "person" and "place" characteristics, and an annual surveillance summary is created highlighting any changes in trends during the current year compared to the previous three years for which data are available.

Information dissemination

The yearly surveillance summary is published in the national epidemiology bulletin. Additionally, a "lay-person friendly" version of trends and basic risk factors gleaned from the data are posted on the Ministry of Health website. For the most recent annual surveillance summary, a press release highlighting the main findings was issued.

Up until now no public health action has been taken on the basis of the surveillance data, but national level surveillance officers plan to use the evidence gathered thus far to highlight the importance of specific types of cancers in the country as a whole in order to advocate for funding to strengthen the surveillance network. They hope that a strong NCSS network would be a good conduit for disseminating prevention information to the population at risk.

1. **Is this surveillance system active, passive, or a combination?**

   The system is passive, with active components when surveillance officers follow up on missing information or reports.

2. **Draw a diagram representing the flow of data from the source, to the point where data are analyzed, to the point of dissemination of information and results.**

   Possible Answer:
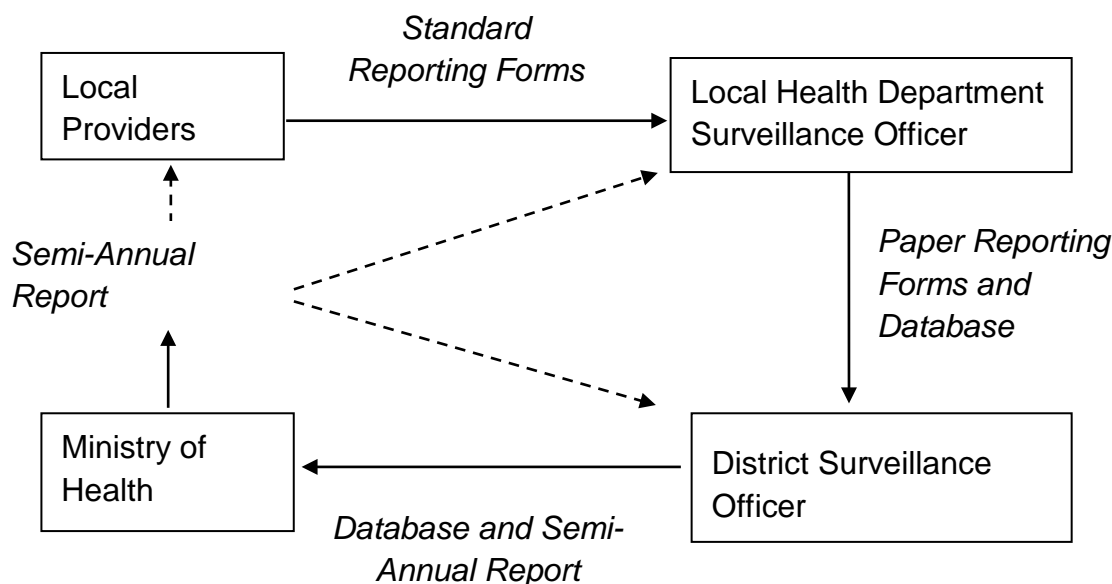
3. **List at least one possible source of selection bias and one possible source of information bias in this system.**

   Possible Answer:
   Selection bias – The information given states that the selected hospitals and providers were chosen to be representative of the population in the country, so we can assume selection bias is low. However, we do not know whether they were randomly selected, which would help ensure objective representativeness. There could be some characteristic about the participating providers that makes the patients seen there differ from the general population.

   Information bias – The most likely source of information bias is from hospitals and providers that do not end up reporting, especially those who are in remote areas or areas where transporting data forms is difficult. The information that does end up in the surveillance system may under-represent populations in these areas.