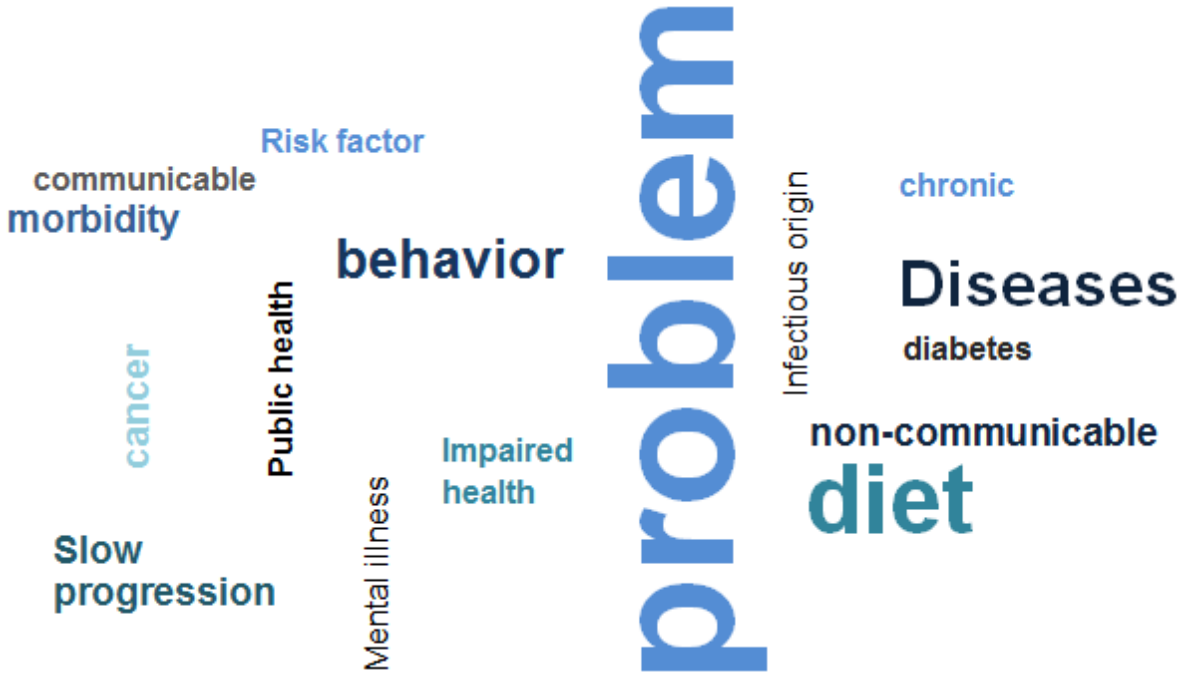
FACILITATOR GUIDE



Overview of Evaluating Surveillance Systems

Created: 2013

Overview of Evaluating Surveillance Systems. Atlanta, GA: Centers for Disease Control and Prevention (CDC), 2013.

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Overview of Evaluating Surveillance Systems

Learning Objectives

- Using a sample evaluation report of a noncommunicable disease (NCD) surveillance system, identify how the components were described and evaluated.

Estimated Completion Time

- 120 minutes (90 minutes interactive presentation; 30 minute skill assessment)

Training Techniques

- Content and examples will be presented using lectures and group discussion. Participants will complete the skill assessment in small groups.

Suggested Readings

- NCD Training Modules: NCD Surveillance and Evaluating Programs

Materials and Equipment

For the Facilitator:

- PowerPoint file for presentation
- Flip chart and markers

For the Participant:

- Participant Guide
- Sample Evaluation Report

References and Resources

- Centers for Disease Control and Prevention. Updated guidelines for evaluating public health surveillance systems: recommendations from the guidelines working group. MMWR 2001;50(No. RR-13).
- Barbour, Kamil, PhD, Evaluation of a National Surveillance of Arthritis in the U.S.: National Health Interview Survey. Arthritis Epilepsy and Quality of Life Branch, Division of Adult and Community Health, NCCDPHP, 2010.

Preparation Checklist

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

___ Review slides
___ Make sure you have made enough copies of the evaluation report for the skill assessment

FONT GLOSSARY

The following fonts are used in this guide:

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

ICON GLOSSARY

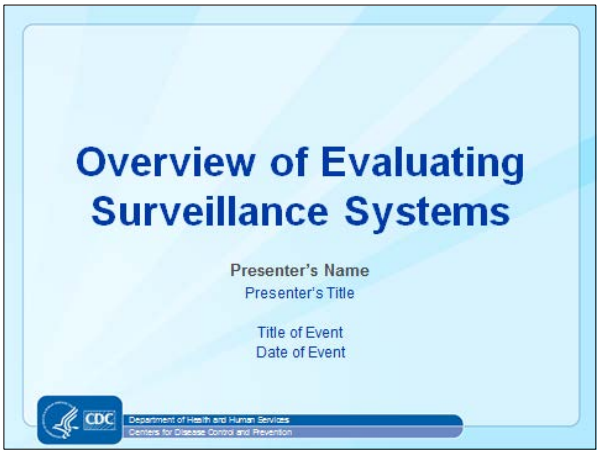
The following icons are used in this guide:

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

MODULE CONTENT

Duration/ Slide Number	What To Do/What To Say

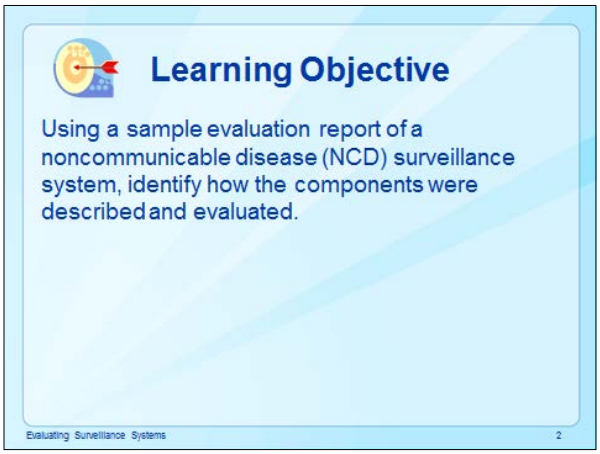
2 minutes



- **Welcome participants to this lesson. Introduce yourself if you are a new facilitator.**
- **Tell participants that this lesson will take approximately 2 hours to complete.**
- **Explain that this module will teach them the CDC Framework for Evaluating Surveillance Systems.**
- **Explain that after learning the lesson content they will complete a skill assessment individually.**

1 minute

Slide 2

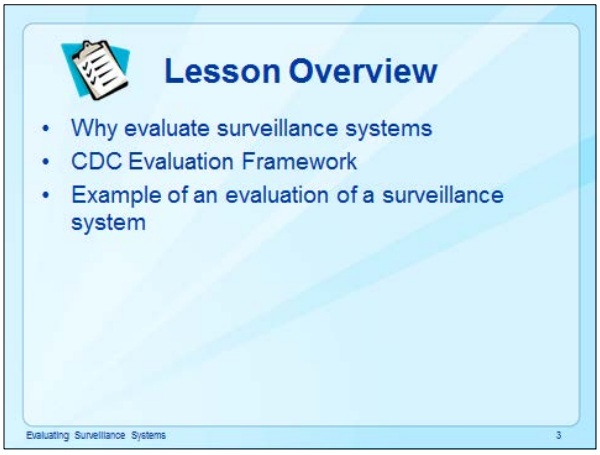


- **Read the learning objective.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 3

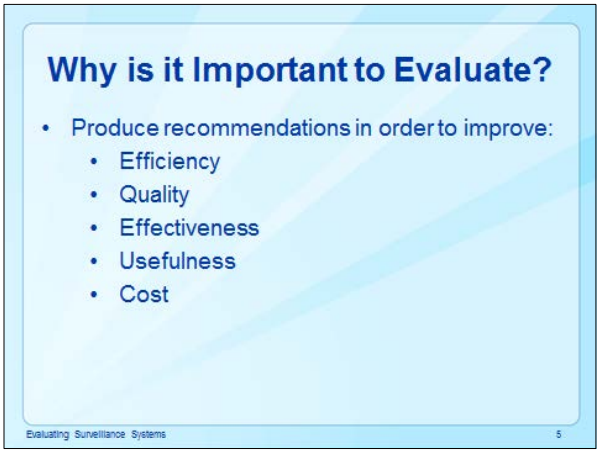
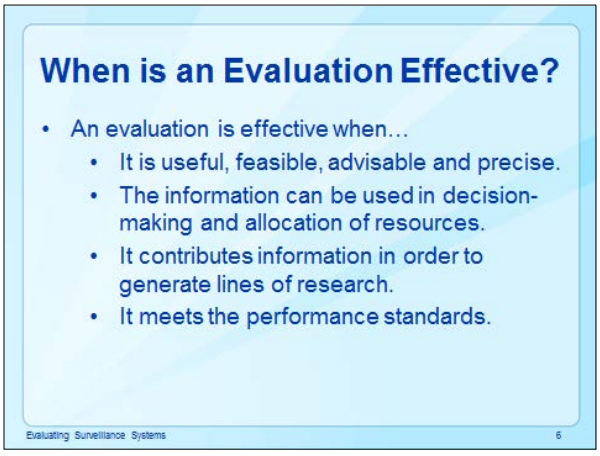


- **Tell participants that we will first discuss the importance of evaluating surveillance systems and then review the CDC Evaluation Framework and discuss the differences in the 6 steps.**
- **Explain that throughout the discussion, you will be using an example of an evaluation of a surveillance system.**
- **Explain that they will practice what they learn at the end of the lesson by reviewing a sample evaluation report.**

2 minutes

Slide 4

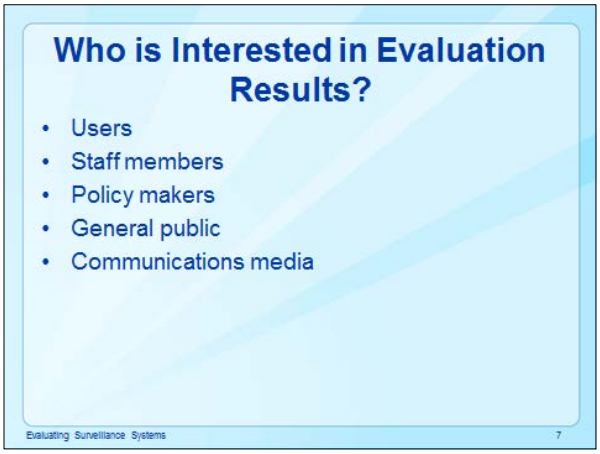
- **Remind participants what they have learned in previous lessons about surveillance systems. Ask someone to give you an example of a surveillance system used in their country.**

Duration/ Slide Number	What To Do/What To Say
	• **Explain that you will now begin with a discussion of why it is important to evaluate surveillance systems.**
2 minutes **Slide 5**	
Question **2 minutes**	• **Ask:** Why is it important to evaluate a surveillance system? • **Show answers on slide, one bullet at a time.**
Slide 6	
Question	• **Ask:** When is an evaluation effective? (Or ask: what makes an evaluation effective?). • **Show answers on slide, one bullet at a time.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 7

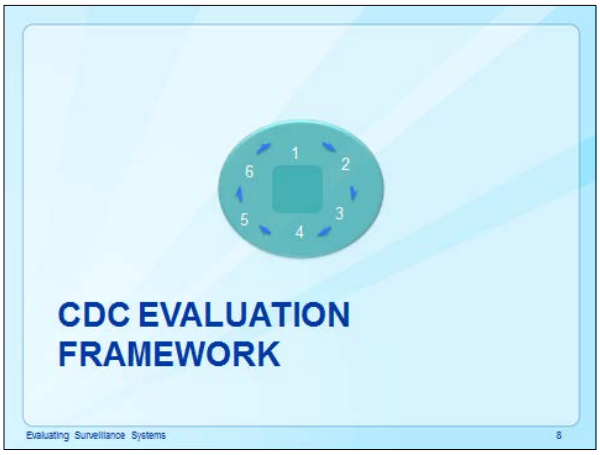


Question

- **Ask:** Who is interested in evaluation results?
- **Show answers on slide, one bullet at a time.**

1 minute

Slide 8

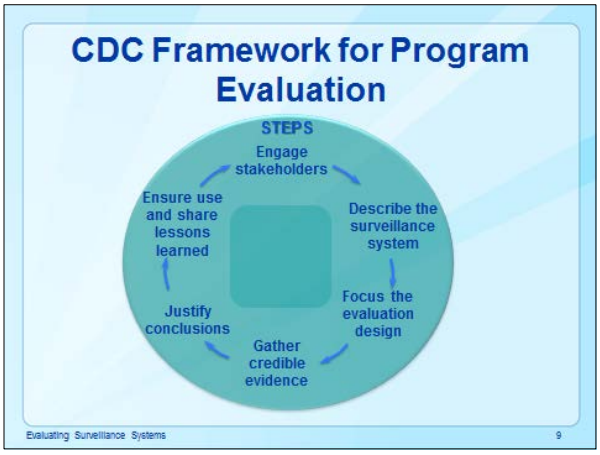


- **Tell participants that the overall steps they learned about during program evaluation are the same here, but some of the details are different. Tell them that you will review the steps and discuss the details about each step.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 9

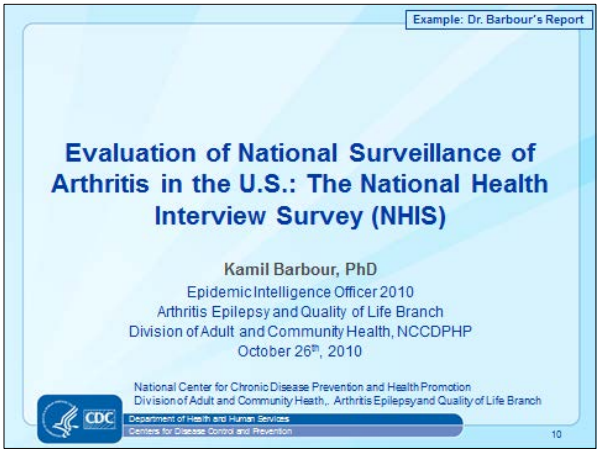


Question

- **Ask for a volunteer to read each step of the CDC evaluation framework for evaluating a surveillance system.**
- **Ask:** Which step appears to be a bit different? (**Answer***: Describe the surveillance system instead of "program").*
- **Tell participants that during this lesson we will be looking at an evaluation of a surveillance system that was conducted by an EIS officer.**

1 minute

Slide 10



- **Introduce the evaluation by Dr. Kamil Barbour, EIS Officer at CDC. Dr. Barbour performed an evaluation of the National Surveillance of Arthritis in the U.S. using the National Health Interview Survey (NHIS).**

Duration/ Slide Number	What To Do/What To Say

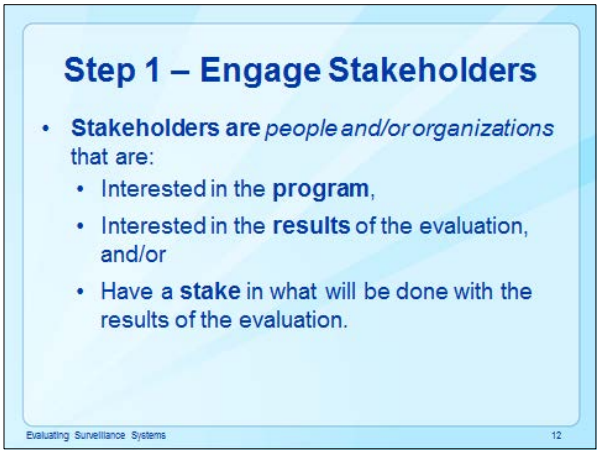
1 minute

Slide 11

- **Read the components of Dr. Barbour's report and highlight that the 6 sections correspond to the 6 steps of the Evaluation Framework.**

2 minutes

Slide 12



- **Tell participants that you will first discuss step 1 – engage stakeholders.**

Question

- **Ask:** Who are possible stakeholders for a surveillance system? How do we engage them?
- **Remind participants what stakeholders are by revealing the bullets on the slide.**
- **Tell participants that you will show them the stakeholders that Dr. Barbour used in his evaluation on the next slide.**

Duration/ Slide Number	What To Do/What To Say

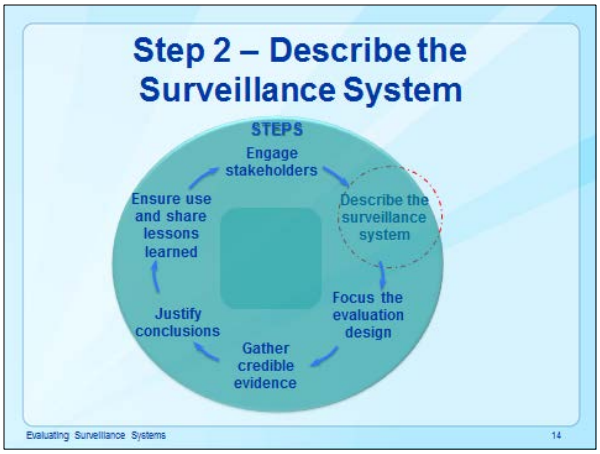
1 minute

Slide 13

- **Read the stakeholders for this evaluation.**
- **Ask:** Which of the stakeholders do you think would be interested in the <u>results</u> of the national arthritis surveillance system evaluation? Which stakeholders would be interested in the arthritis surveillance <u>program</u>? Which stakeholders would have a stake in what was done with the <u>results</u> of the evaluation?

1 minute

Slide 14

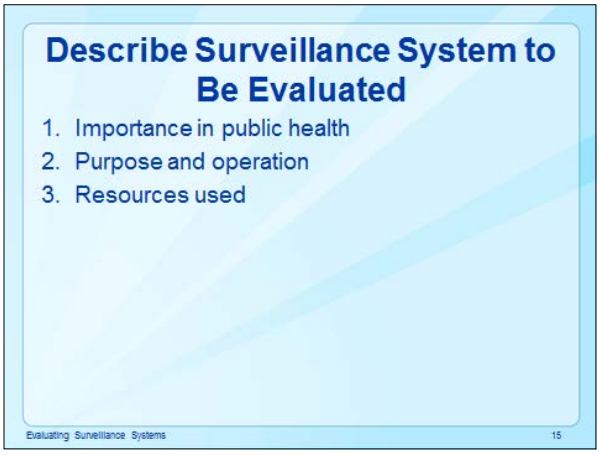


- **Tell participants that you will now go over the second step in the evaluation framework – describe the surveillance system.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 15

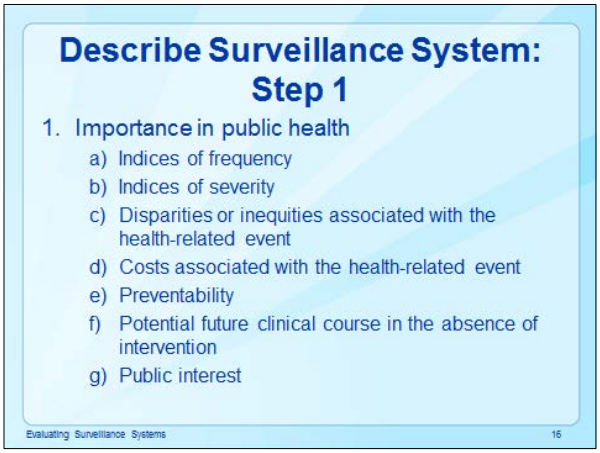


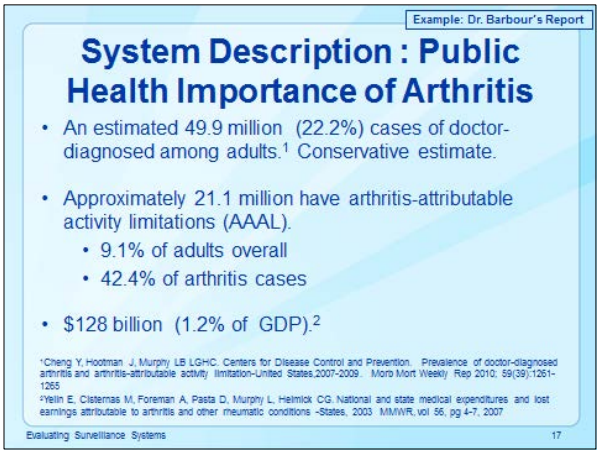
Question

- **Tell participants to think about how they described the program to be evaluated when they learned how to evaluate a program.**
- **Ask:** Does anyone know the 3 main areas you will need to describe in step 2 for evaluation of a surveillance system?
- **Read the slide.**
- **Explain that the first one describes the importance of the health-related event under surveillance; the second one describes the purpose and operation of the surveillance system, and the third one describes the resources used to operate the surveillance system.**
- **Click on next slide to explain #1 in more detail.**

2 minutes

Slide 16

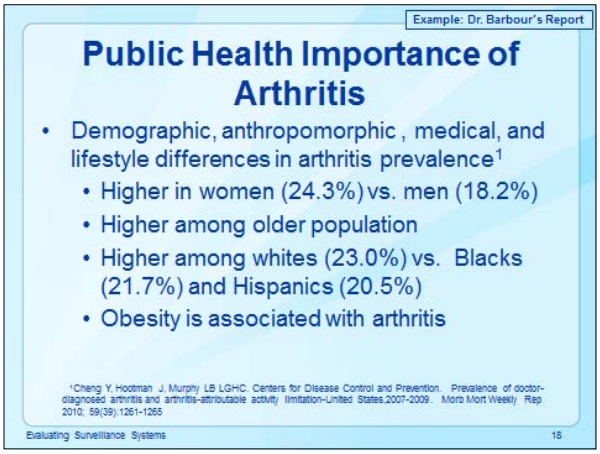


Duration/ Slide Number	What To Do/What To Say
	• **Tell participants that to describe the importance of the health event in public health, there are 7 categories that they can address.**
	• **Explain that they do not have to describe all 7 categories.**
Question	• **Ask:** Does anyone know what categories you can address under "importance in public health"?
	• **Reveal answers one at a time and ask participants to help you define each one.**
2 minutes **Slide 17**	
	• **Explain that in this section of Dr. Barbour's report he describes the public health importance of arthritis.**
	• **Read the bullets from the report.**
Question	• **Ask participants to refer to the previous slide in their Participant Guide that lists the criteria for importance in public health.**
Question	• **Ask:** Which criteria did Dr. Barbour include on this slide? • **Answer**: *Severity and cost.*

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 18

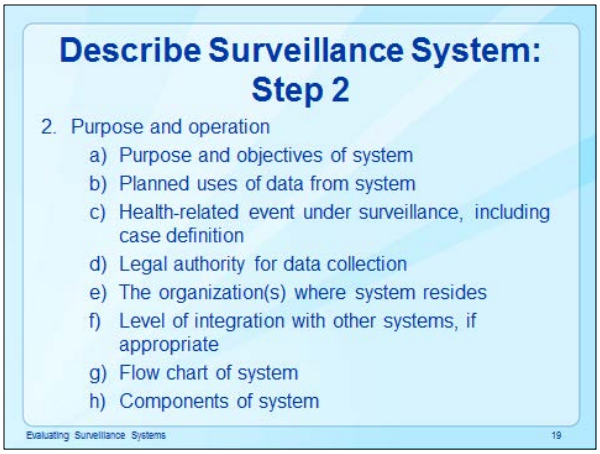


Question

- **Ask participants to refer to the criteria for importance in public health.**
- **Ask**: Which criteria did Dr. Barbour include on this slide?
- **Answe**r*: Disparities or inequities associated with the health-related event, potential future clinical course in the absence of intervention (i.e., obesity)*

2 minutes

Slide 19



- **Tell participants that the next section under step 2 is to describe the purpose and operation of the surveillance system.**

Question

- **Ask:** Does anyone know what categories you can address under "purpose and operation"?
- **Explain that they do not have to describe all 8**

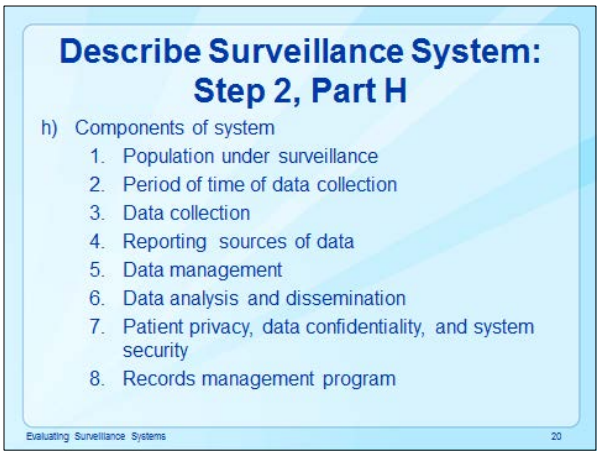
Duration/ Slide Number	What To Do/What To Say

categories.

- **Reveal answers one at a time and ask participants to help you define each one.**
- **For letter "h", turn to next slide for more details.**

2 minutes

Slide 20

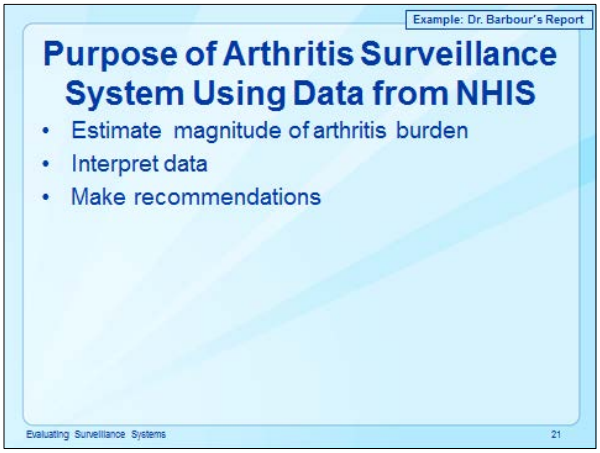


Question

- **Ask:** What do you think you will describe for "components of system"?
- **Read bullets one at a time and discuss through questioning. Continue to use example from previous slide.**

2 minutes

Slide 21



Question

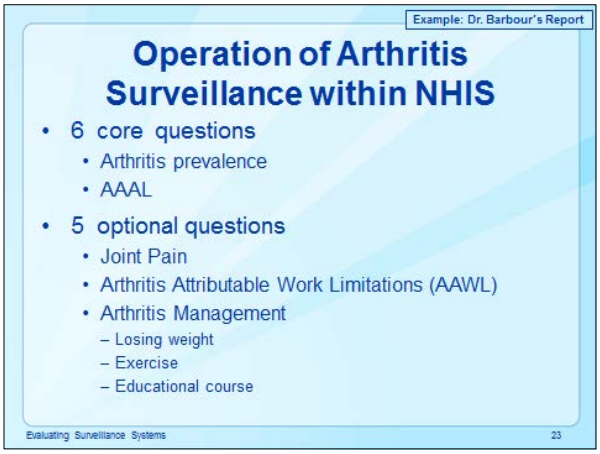
- **Ask participants to refer to the previous 2 slides in the Participant Guide.**
- **Point out that in this section of Dr. Barbour's report he**

Duration/ Slide Number	What To Do/What To Say
	covers item 2a: purpose and objective of the system. His description is as follows: "to estimate the magnitude of various measures of arthritis burden in the U.S. population and use the data to interpret and make recommendations for use in public health action to reduce arthritis burden."
2 minutes **Slide 22**	
	• **Explain that in this section of the evaluation, Dr. Barbour discusses the components of the system. In describing the NHIS, he mentions that it is "**an annual, multi-purpose, nationally-based, in-person, household interview survey conducted by the National Center for Health Statistics (NHCS) among 35,000-40,000 households (75,000-100,000 individuals) across the country." **He explains that** "the sampling plan follows a multi-stage probability design that permits the representative sampling of households and non-institutional group quarters. Sampling is redesigned every decennial census. Minority groups including blacks, Hispanics, and Asians are oversampled."
Question	• **Ask participants to refer to the slide that lists the criteria under section 2h.** • **Ask: What criteria does Dr. Barbour include in this evaluation?** • **Answer**: *Population under surveillance: 35,000-40,000 households (75,000-100,000 individuals) across the country.* o *Period of time of data collection : annual* o *Reporting sources of data: household interview* o *Data collection: stratified, multi-stage probability design*

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 23

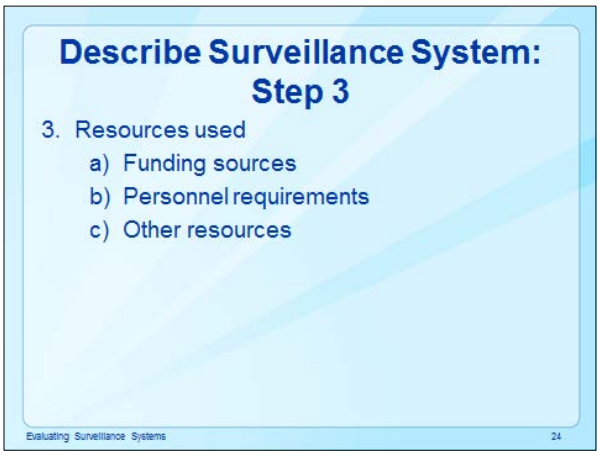


Question

- **Explain that in this section of the evaluation report, Dr. Barbour describes the NHIS core questions that are asked annually and the optional questions that are asked every 3 years.**
- **Ask**: What criteria does Dr. Barbour cover in this section of the evaluation report?
- **Answer***: Period of time of data collection, data collection, and reporting sources of data.*

2 minutes

Slide 24



Question

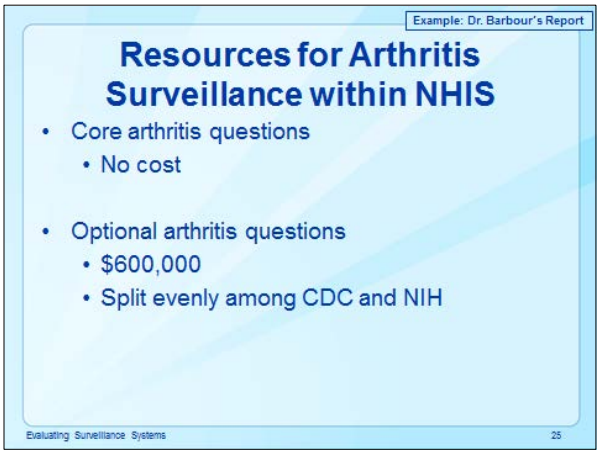
- **Explain that the next section under describe the purpose and operation of the surveillance system is item 3 – resources used.**
- **Ask:** What do you think you will describe for "resources used"?

Duration/ Slide Number	What To Do/What To Say

- **Read bullets one at a time and discuss through questioning.**
- **Explain that other resources may include cost of travel, training, supplies, equipment services (telephone, mail).**
- **Tell participants that you will look at what Dr. Barbour included in his evaluation report.**

1 minute

Slide 25

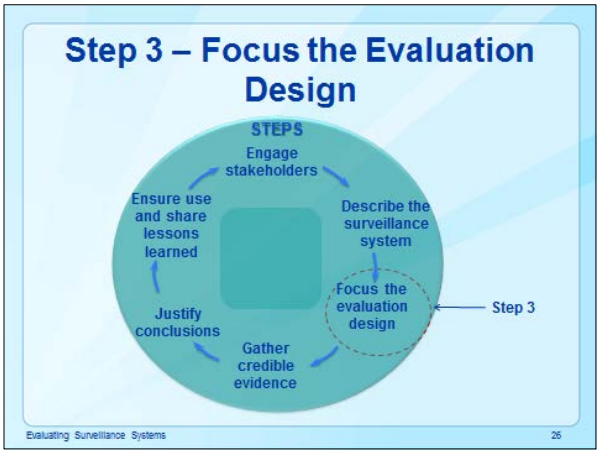


Question

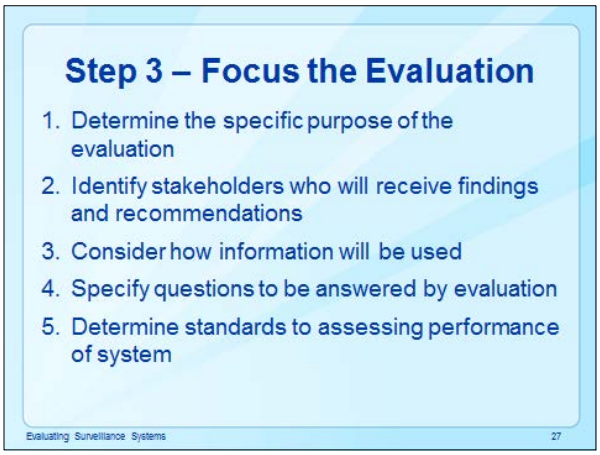
- **Ask:** What resources does Dr. Barbour include in this section of his report?
- **Answer**: *Cost ($600,000) and funding sources (CDC and NIH)*

1 minute

Slide 26



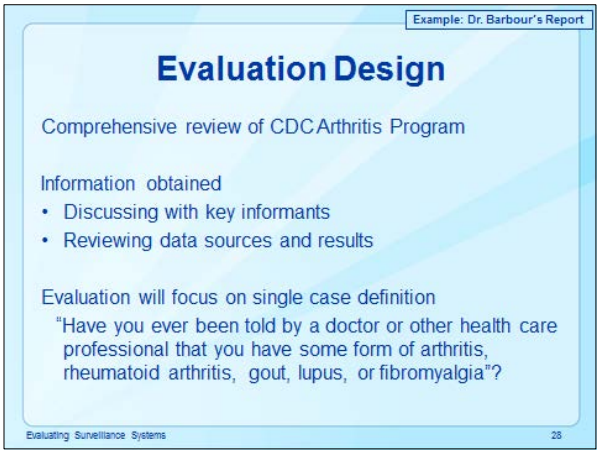
- **Briefly summarize what steps they have taken thus far in the Evaluation Framework.**
- **Tell participants that you will now go over the third step**

Duration/ Slide Number	What To Do/What To Say
	in the evaluation framework – focus the evaluation design.
2 minutes **Slide 27**	 • **Say:** The purpose of evaluating a surveillance system is to promote the best use of public health resources by ensuring that important problems are under surveillance and that the surveillance system is operating effectively.
Question	• **Ask participants to think about what they did when they focused the evaluation design for program evaluation and whether those are applicable to surveillance system evaluation.** • **Discuss what focus the evaluation means by revealing bullets one at a time.** • **Tell participants that you will next look at Dr. Barbour's evaluation report.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 28



- **Tell participants to refer to the criteria for step 3.**

- **Say:** In Dr. Barbour's report, he explains the purpose of the evaluation is to "provide a comprehensive review of CDC's Arthritis Program's national surveillance of arthritis, designed to assess arthritis prevalence and other measures of arthritis burden".

- **Say:** Dr. Barbour explains that the "information for this report was gathered by speaking with key informants involved in surveillance, and by reviewing data sources and results."

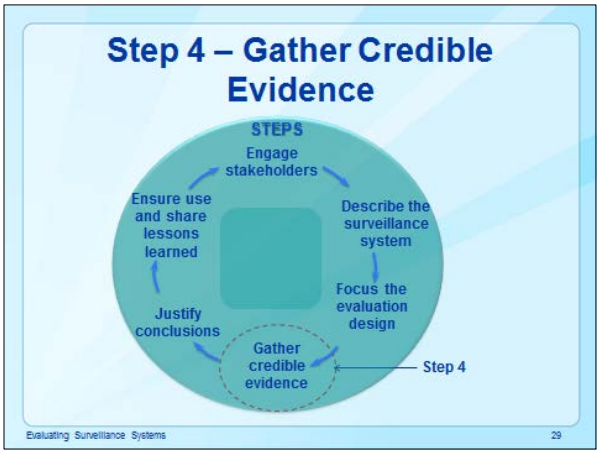
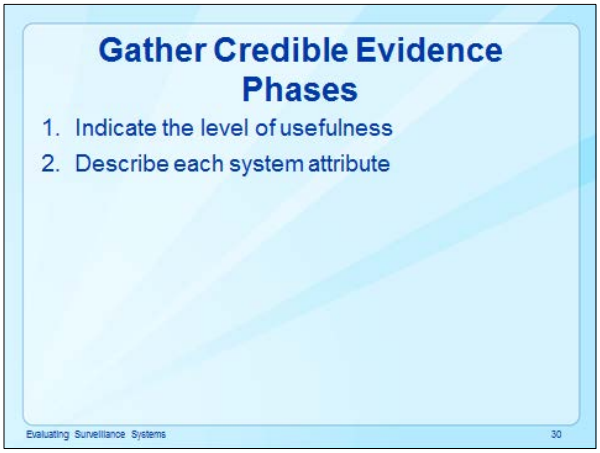
- **Say:** Dr. Barbour explains that this evaluation will focus on one of the various arthritis burden measures: the case definition question from the 6 question core module. Respondents are prompted at the beginning of the arthritis section to not include back or neck related arthritis or symptoms. Arthritis prevalence is assessed with a single question: "Have you ever been told by a doctor or other health care professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia"?

Question

- **Ask:** What criteria under step 3 does the information on the slide cover?

- **Answer***: #3 – specify the questions that will be answered by the evaluation*

- **Point out that the criteria for identifying stakeholders was met when he listed the stakeholders in the first section of the report.**

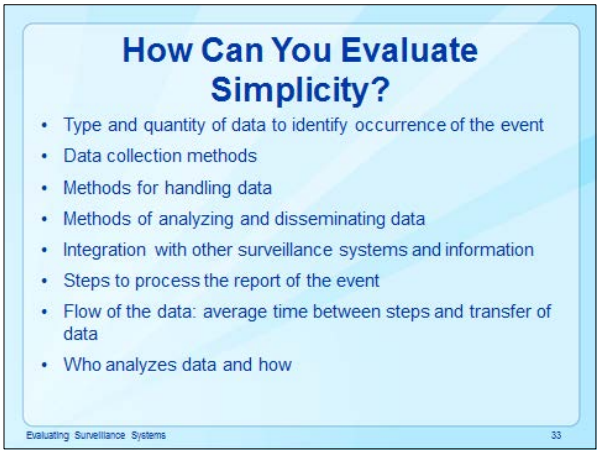
Duration/ Slide Number	What To Do/What To Say
Question	• **Ask:** Which additional criteria could Dr. Barbour have included in this section of the report? • **Answer**: *What will be done with the information gathered from the evaluation; determine standards for assessing the performance of the system.*
1 minute **Slide 29**	 • **Briefly summarize where they are in the Evaluation Framework thus far.** • **Tell participants that you will now go over the fourth step in the evaluation framework – gather credible evidence.**
1 minute **Slide 30**	 • **Explain that this step in the evaluation framework is quite different from step 4 in program evaluation.** • **Read the 2 items it includes.**

Duration/ Slide Number	What To Do/What To Say
	• **Explain that you will next describe these 2 in greater detail.**
2 minutes **Slide 31**	
Question	• **Ask:** When is a surveillance system useful? • **Reveal and discuss possible answers on slide.**
2 minutes **Slide 32**	
	• **Explain that the fulfillment of certain system attributes affects the usefulness and performance of the surveillance system.**
Question	• **Ask:** can anyone name some attributes? • **Read the 9 system attributes and tell participants you will next explain each one.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 33



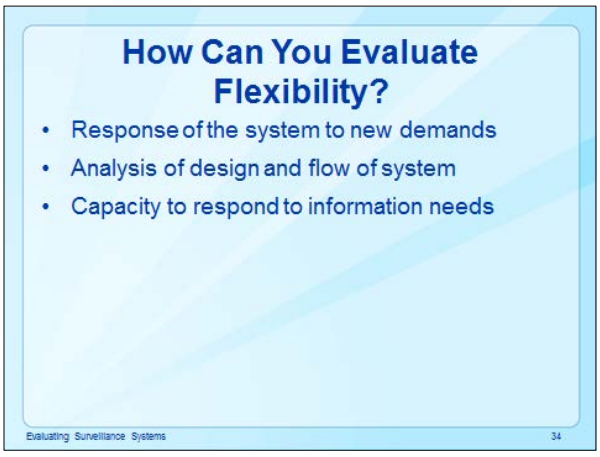
- **Explain that there are many methods to use to evaluate simplicity.**

Question

- **Ask participants how they would evaluate simplicity.**
- **Reveal answers on slide and briefly explain each one.**

2 minutes

Slide 34



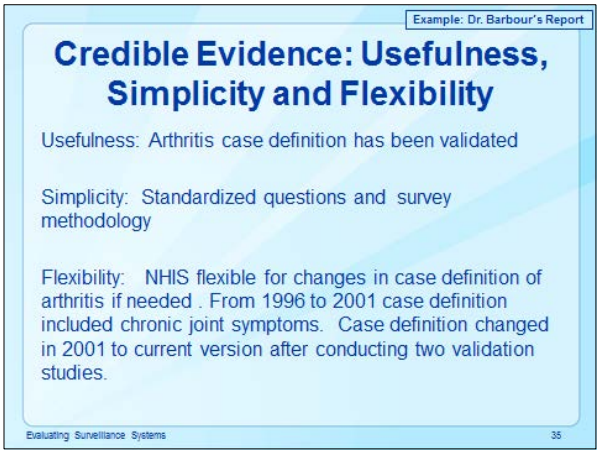
Question

- **Ask participants how they would evaluate flexibility.**
- **Reveal answers on slide and briefly explain each one.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 35



- **Explain that in Dr. Barbour's report he provides credible evidence on usefulness, simplicity, and flexibility.**

- **Say**: In Dr. Barbour's report, he explains the following:
  In terms of usefulness, the NHIS case definition for arthritis accurately and precisely assessed the national prevalence of self-reported doctor diagnosed arthritis, which is published regularly.

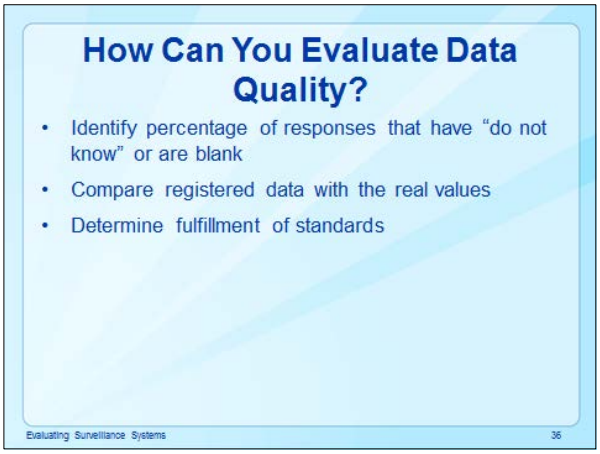
  Regarding simplicity, this surveillance system uses an existing data collection infrastructure with standardized questions and standardized survey methodology.

  This surveillance system is relatively flexible. From 1996 to 2001, the case definition included self-report of chronic joint symptoms in the last 30 days, in addition to self-report of doctor-diagnosed arthritis. However, due to variability in state estimates of arthritis prevalence, the validity and reliability of the chronic joint symptoms section of the case definition was questioned and removed in 2001.

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 36

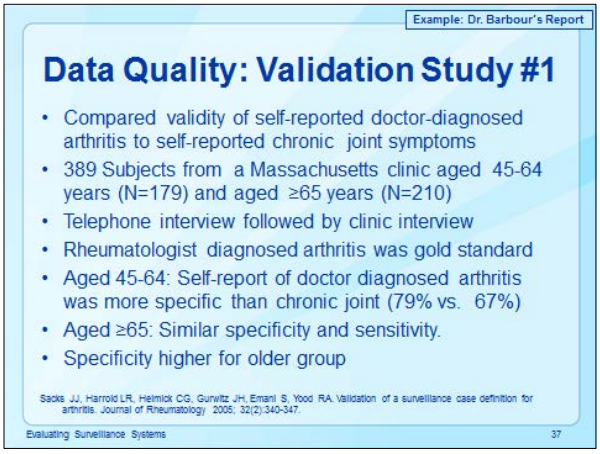


Question

- **Ask participants how they would evaluate quality of data.**
- **Reveal answers on slide and briefly explain each one.**

2 minutes

Slide 37

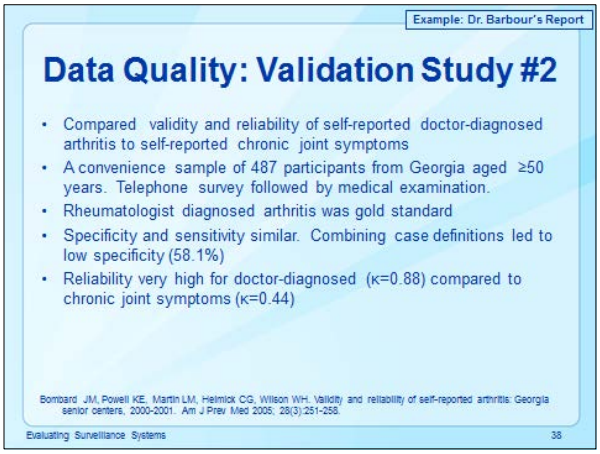


- **Explain that in this slide and the next slide, Dr. Barbour evaluates Data Quality.**
- **Review briefly.**

Duration/ Slide Number	What To Do/What To Say

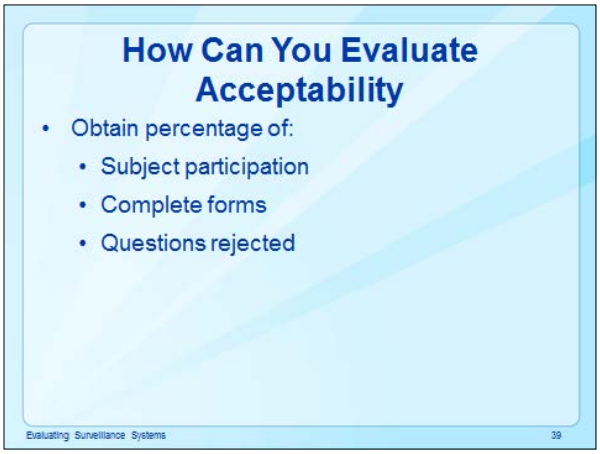
2 minutes

Slide 38



2 minutes

Slide 39



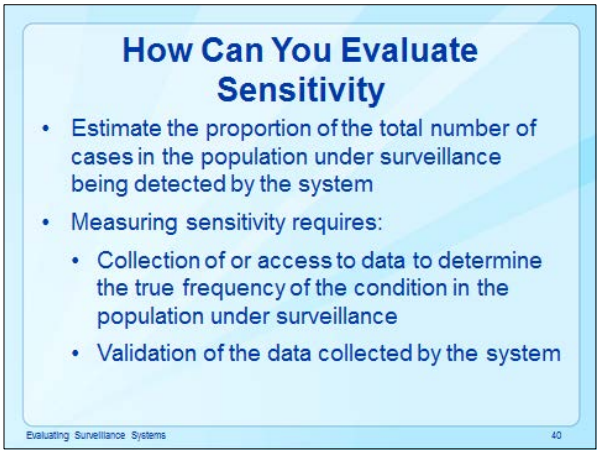
Question

- **Ask participants how they would evaluate acceptability.**
- **Reveal answers on slide and briefly explain each one.**
- **Explain that Dr. Barbour discussed acceptability later on in the evaluation report.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 40

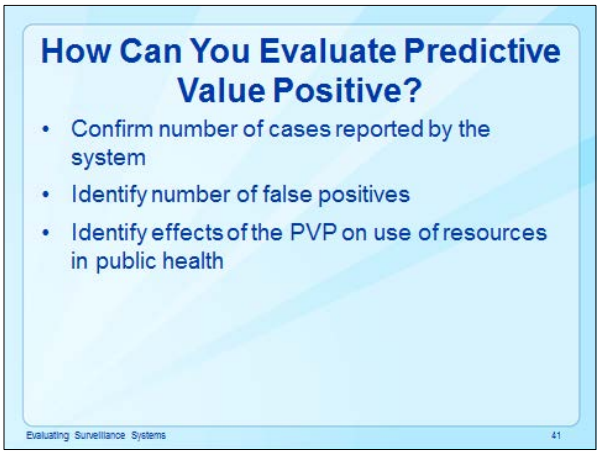


Question

- **Ask participants how they would evaluate sensitivity.**
- **Reveal answers on slide and briefly explain each one.**

2 minutes

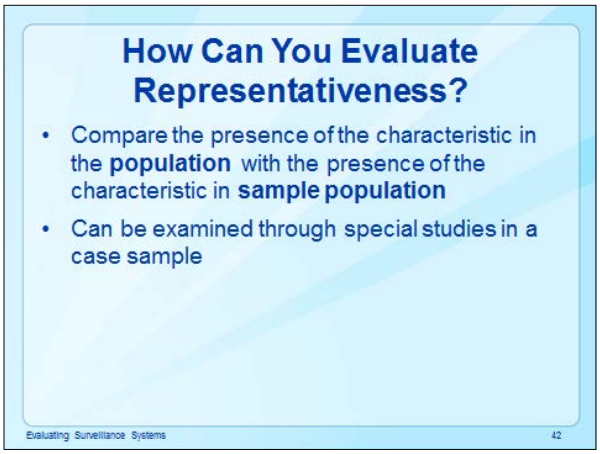
Slide 41



- **Explain what is meant by PVP, or predictive value positive.**
- **Say:** PVP is the proportion of reported cases that actually have the health-related event under surveillance.

Question

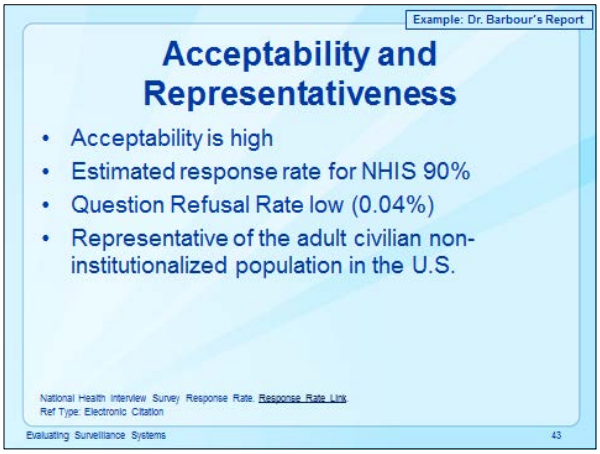
- **Ask participants how they would evaluate PVP.**
- **Say:** In assessing PVP, primary emphasis is placed on the confirmation of cases reported through the surveillance system. You would also identify the number of false positives.

Duration/ Slide Number	What To Do/What To Say
	• **Reveal answers on slide and briefly explain each one.** • **Say:** In terms of PVP's effect on resources, a low PVP means that noncases might be investigated, which can lead to unnecessary use of resources: a high value can lead to fewer misdirected resources. • **Explain that Dr. Barbour did not evaluate sensitivity or PVP.**
2 minutes **Slide 42**	 • **Explain that a surveillance system is representative when it precisely describes the occurrence of events in time and the distribution in the population according to place and person.**
Question	• **Ask participants how they would evaluate representativeness.** • **Reveal answers on slide and briefly explain each one.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 43

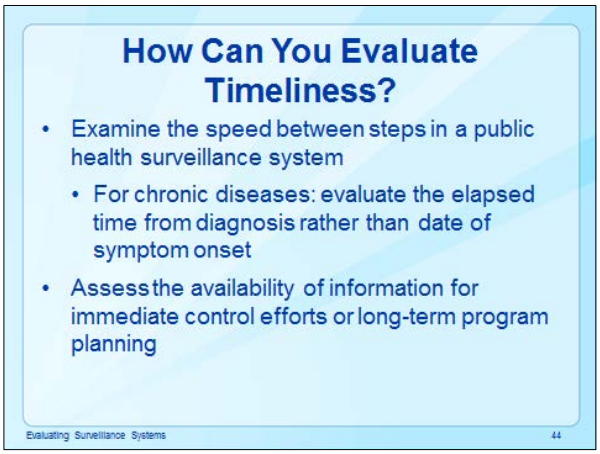


- **Explain that Dr. Barbour discussed acceptability and representativeness on the same slide.**

- **Say:** Acceptability for the NHIS Arthritis Surveillance System is high. The estimated response rate is 90% of all eligible households in the sample. The question refusal rate is low; only 0.04% of respondents refused to answer the case-finding question. This sample is representative of the adult civilian non-institutionalized population in the U.S.

2 minutes

Slide 44



- **Explain that timeliness reflects the speed or delay between steps in a surveillance system.**

Question

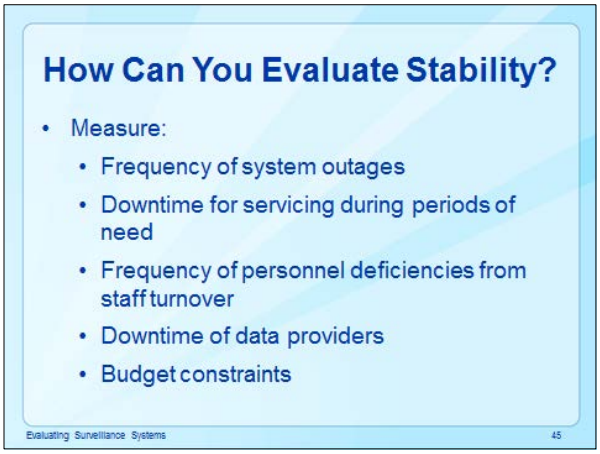
- **Ask participants how they would evaluate representativeness.**

- **Reveal answers on slide and briefly explain each one.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 45



- **Explain that the stability of a surveillance system refers to its resilience to system changes, and that it can be demonstrated by the duration and consistent operation of the system.**

- **Explain that stability also can be reflected in the extent of control over costs and system changes that the sponsoring agency maintains**.

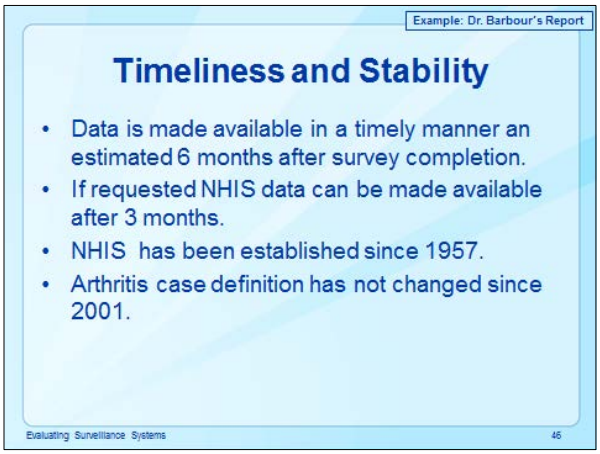
Question

- **Ask participants how they would evaluate stability.**

- **Reveal answers on slide and briefly explain each one.**

2 minutes

Slide 46



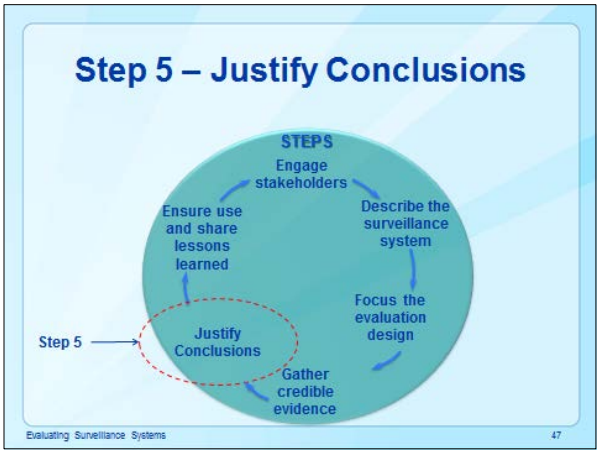
- **Explain how Dr. Barbour evaluated timeliness and stability.**

Duration/ Slide Number	What To Do/What To Say

- **Say:** In regards to timeliness, data can be made available 6 months after survey completion. If requested, data from NHIS can be made available after 3 months. The NHIS surveillance system is also stable. Since NHIS was established in 1957, surveillance has been conducted annually, and the arthritis case definition question has not changed since 2001.

1 minute

Slide 47

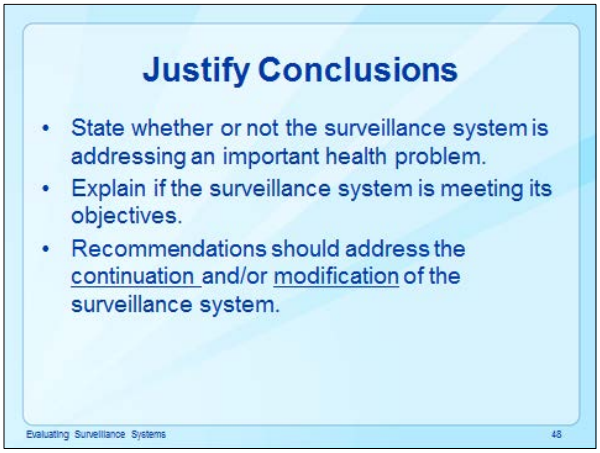


- **Briefly summarize where they are in the Evaluation Framework thus far.**

- **Tell participants that you will now go over the fifth step in the evaluation framework – justify conclusions.**

2 minutes

Slide 48

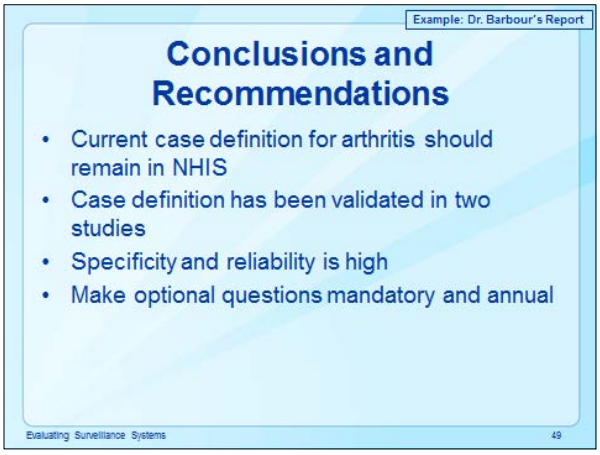


- **Read and explain the slide.**

Duration/ Slide Number	What To Do/What To Say

2 minutes

Slide 49

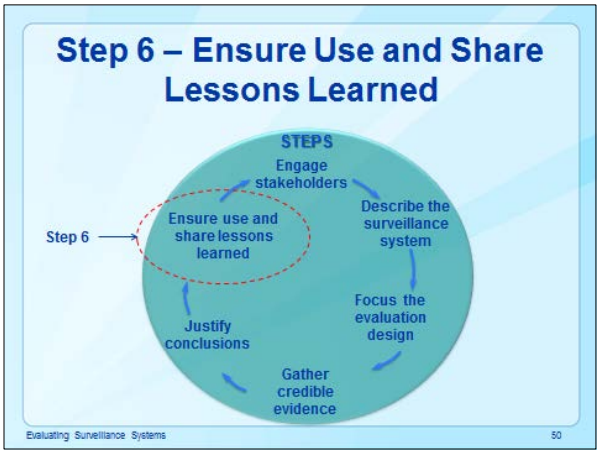


- **Explain the conclusions and recommendations made by Dr. Barbour.**

- **Say:** The current question used in NHIS to estimate arthritis prevalence in the U.S. population should remain in the survey. The question has been validated in 2 studies and the specificity and reliability of the case definition is high. A recommendation would be to make the optional questions mandatory and administered annually, which would provide greater statistical power to evaluate arthritis related burden, and the frequency of specific activities performed to alleviate arthritis-associated symptoms.

1 minute

Slide 50



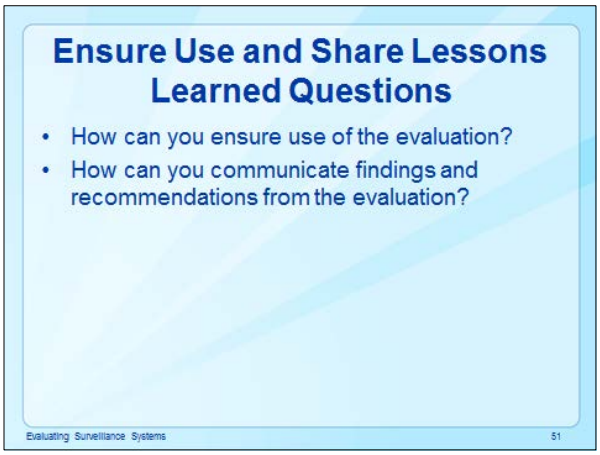
- **Briefly summarize where they are in the Evaluation Framework thus far.**
-
- **Tell participants that you will now go over the sixth and final step in the evaluation framework – ensure use and**

Duration/ Slide Number	What To Do/What To Say

share lessons learned.

2 minutes

Slide 51

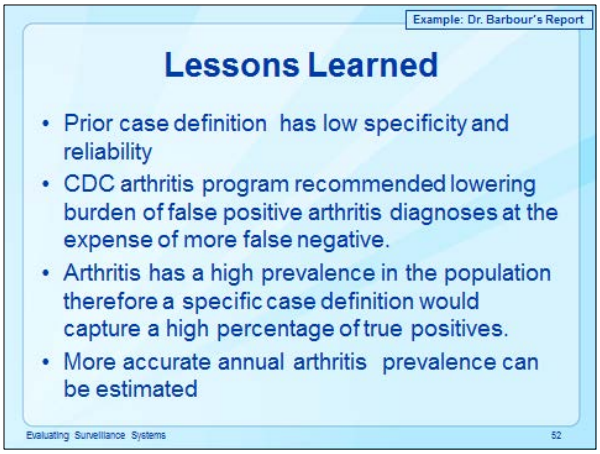


Question

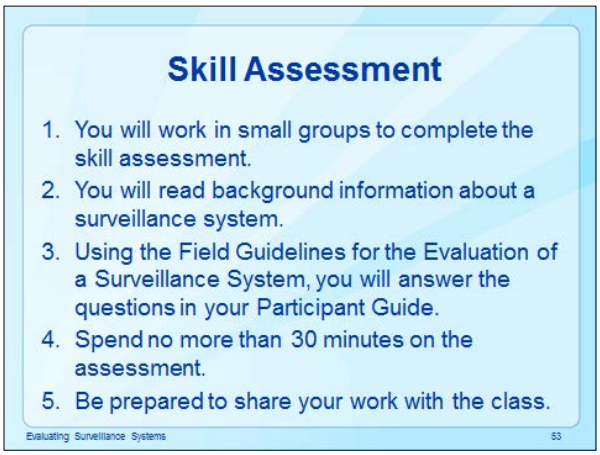
- **Ask participants the question on the slide.**
- **Ensure the point is made that the recommendations are to be disseminated to stakeholders and actively interpreted for all appropriate audiences.**
- **Tell participants that in a moment you will talk about how to present the evaluation in a report and in a PowerPoint presentation.**

2 minutes

Slide 52



- **Explain the lessons learned from this report.**
- **Say:** The prior case definition of arthritis that included chronic joint symptoms, while sensitive, had low specificity and reliability, and therefore was excluded. CDC's Arthritis Program recommended lowering the burden of false positive arthritis diagnoses at the expense of more false negatives.

Duration/ Slide Number	What To Do/What To Say
	Arthritis has a high prevalence in the population; therefore, a specific case definition would capture a high percentage of true positives. More accurate annual arthritis prevalence can be estimated.
30 minutes **Slide 53**	 • **Read the instructions to the participants.** • **Have participants continue working in the same groups they worked in for the previous lessons.** • **Tell participants what slide to turn to in their Participant Guide.** • **Tell participants to spend no more than 30 minutes on the assessment.** • **Hand out the sample surveillance report.** • **Walk around the room and assist the groups as needed.**

SKILL ASSESSMENT (FROM PARTICIPANT GUIDE)

Activity

Instructions:

- You will work in small groups to complete the skill assessment.
- Your group will read a report about an evaluation of a surveillance system and answer the questions below.
- Spend no more than 30 minutes completing the assessment.
- Be prepared to share your work with the rest of the class.

Answer the following questions:

1. What stakeholders did the evaluator include in the report?

2. Which tasks and sub-tasks under step 2 (System Description) did the evaluator include in the evaluation report?

3. Which tasks and sub-tasks under step 2 did the evaluator omit but should have included? Please explain.

(Continued on next page)

4. How did the evaluator describe the components of the system (step 2, item h)?

5. How did the evaluator describe the system resources?

6. For step 3 (Focus the Design), which tasks did the evaluator describe? Which tasks did the evaluator omit but should have included?

7. How did the evaluator describe

8. evaluate the following?

   - usefulness:

   - simplicity:

- flexibility:

- data quality:

- acceptability:

- sensitivity:

- predictive value positive:

- representativeness:

- timeliness:

- stability:

9. Summarize the evaluation recommendations and lessons learned in the space below.

10. How would you recommend that the evaluator ensure use of evaluation findings?