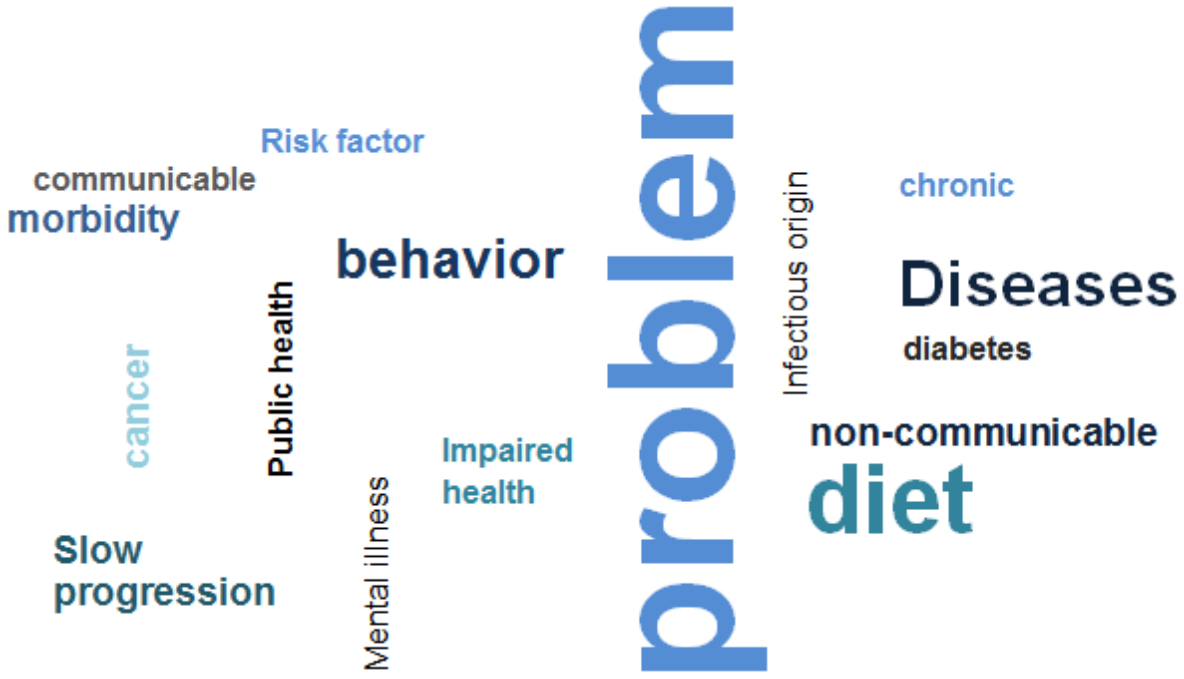
PARTICIPANT GUIDE



Introduction to NCD Epidemiology

Created: 2013

Introduction to NCD Epidemiology. Atlanta, GA: Centers for Disease Control and Prevention (CDC), 2013.

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Introduction to NCD Epidemiology

LEARNING OBJECTIVES

- At the end of the training, you will be able to describe how you will use epidemiology to address a public health problem.

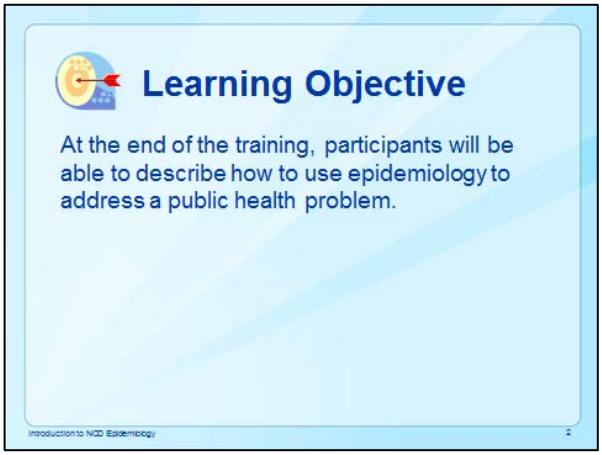
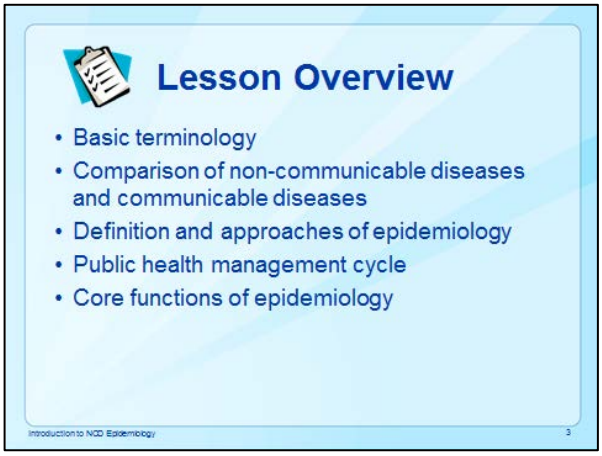
ESTIMATED COMPLETION TIME

- 2 hours, 25 minutes (*110 minutes interactive presentation; 35 minutes Skill Assessment*)

REFERENCES AND RESOURCES

- Gregg, M.B. (Ed.). 2008. Field Epidemiology (3rd ed.). New York: Oxford University Press.
- Porta, M and Last, J.M. (Ed.). 2008. A Dictionary of Epidemiology (5th ed.). New York: Oxford University Press.
- Office of Workforce and Career Development. 2006. Principles of Epidemiology in Public Health Practice (3rd ed.). Atlanta: CDC.
- McKenna et al. 1998. Current Issues and Challenges in Chronic Disease Control. In: Chronic Disease Epidemiology and Control. Washington:

MODULE CONTENT

Slide	Notes
	
	

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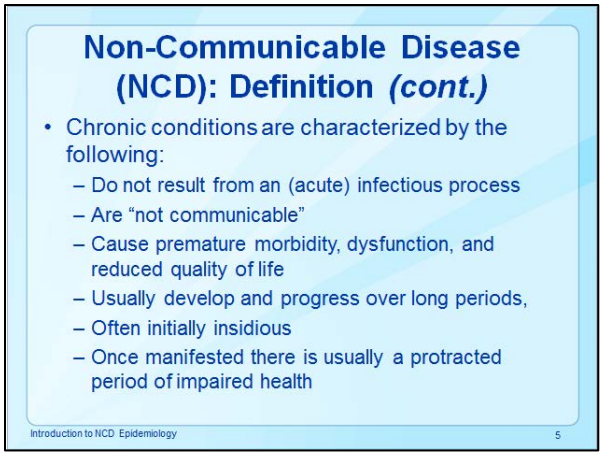
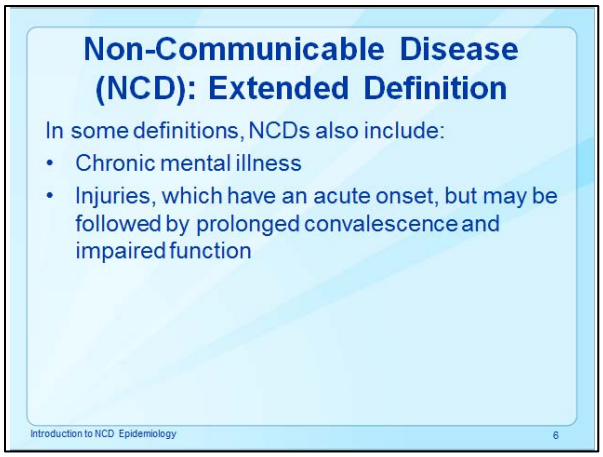
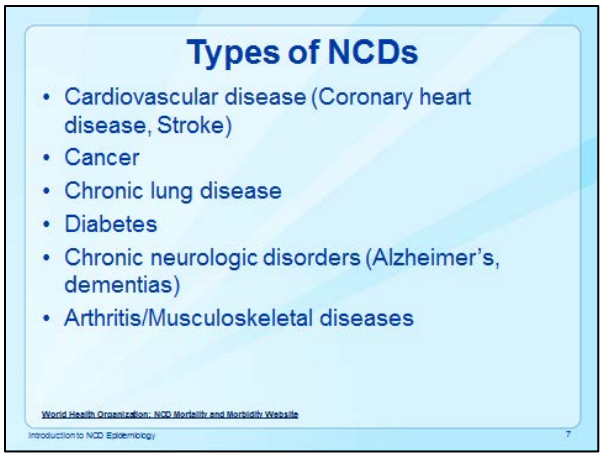




Key Point: There are a variety of opinions about this definition in the field and there is not 100% agreement; for example, some would argue that HIV is a chronic condition.



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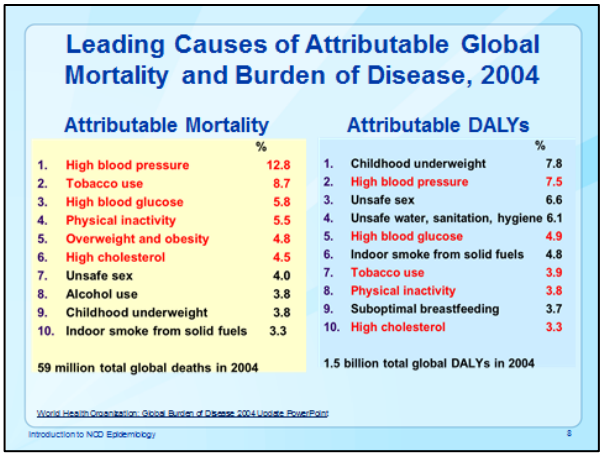
Leading Causes of Attributable Global Mortality and Burden of Disease, 2004
Attributable Mortality
%
1. High blood pressure 12.8
2. Tobacco use 8.7
3. High blood glucose 5.8
4. Physical inactivity 5.5
5. Overweight and obesity 4.8
6. High cholesterol 4.5
7. Unsafe sex 4.0
8. Alcohol use 3.8
9. Childhood underweight 3.8
10. Indoor smoke from solid fuels 3.3
59 million total global deaths in 2004
Attributable DALYs
%
1. Childhood underweight 7.8
2. High blood pressure 7.5
3. Unsafe sex 6.6
4. Unsafe water, sanitation, hygiene 6.1
5. High blood glucose 4.9
6. Indoor smoke from solid fuels 4.8
7. Tobacco use 3.9
8. Physical inactivity 3.8
9. Suboptimal breastfeeding 3.7
10. High cholesterol 3.3
1.5 billion total global DALYs in 2004
World Health Organization: Global Burden of Disease: 2004 Update PowerPoint
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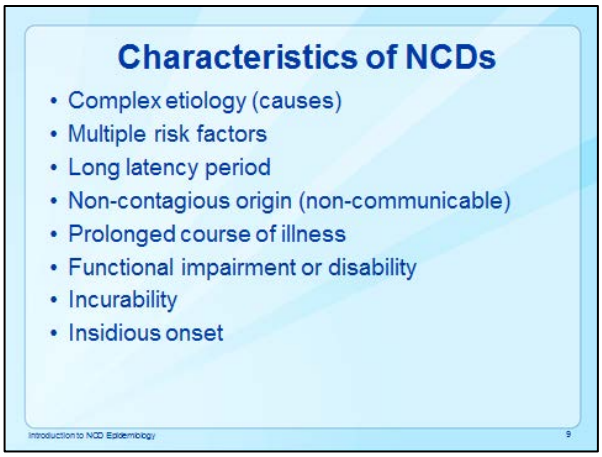
Characteristics of NCDs
• Complex etiology (causes)
• Multiple risk factors
• Long latency period
• Non-contagious origin (non-communicable)
• Prolonged course of illness
• Functional impairment or disability
• Incurability
• Insidious onset
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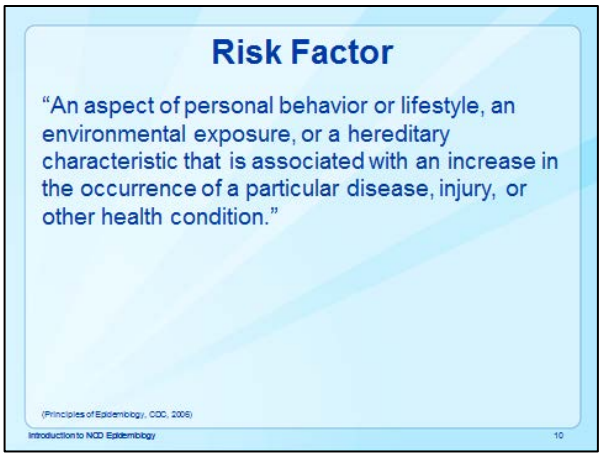
Risk Factor
"An aspect of personal behavior or lifestyle, an environmental exposure, or a hereditary characteristic that is associated with an increase in the occurrence of a particular disease, injury, or other health condition."
(Principles of Epidemiology, CDC, 2006)
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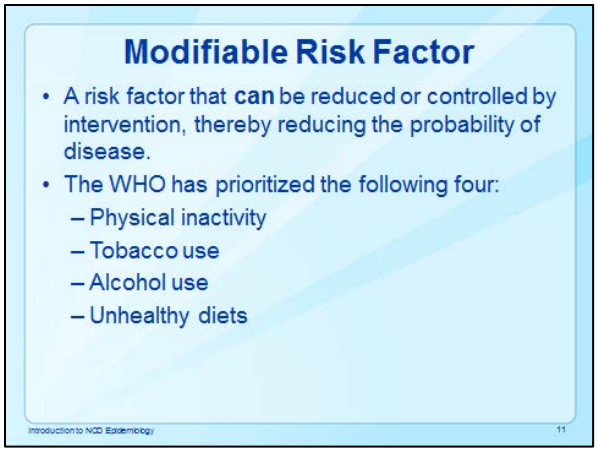
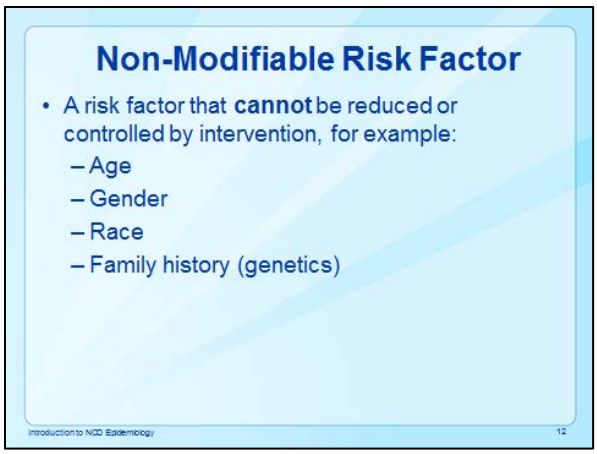
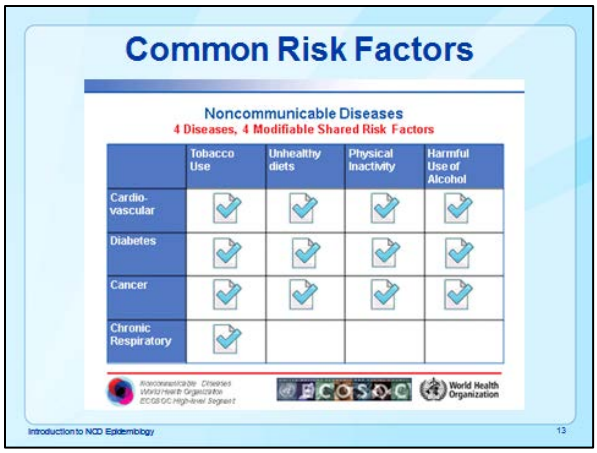
Slide	Notes







Key Point: If you have an intervention for physical inactivity and tobacco use you can make progress on four key NCDs. You don't need to plan separate interventions for each NCD or each risk factor.

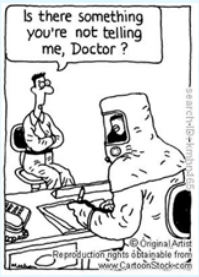
Slide	Notes

Communicable Disease: Definition

- An infectious disease transmissible (as from person to person) by direct contact with an affected individual or the individual's discharges or by indirect means (as by a vector)
- Examples:
  - Measles
  - Dengue
  - Typhoid

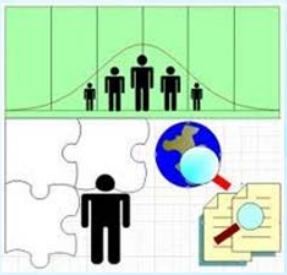
Merriam-Webster Communicable Disease Definition Website

Non-Communicable Diseases vs Communicable Diseases



- How do they differ regarding:
  - Infectiousness?
  - Risk of Disease?

What is Epidemiology?



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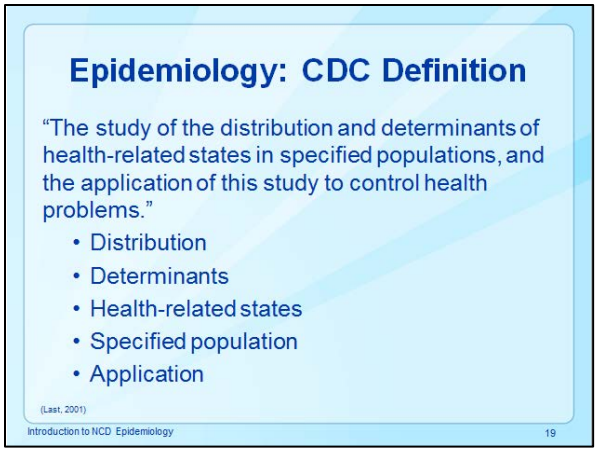
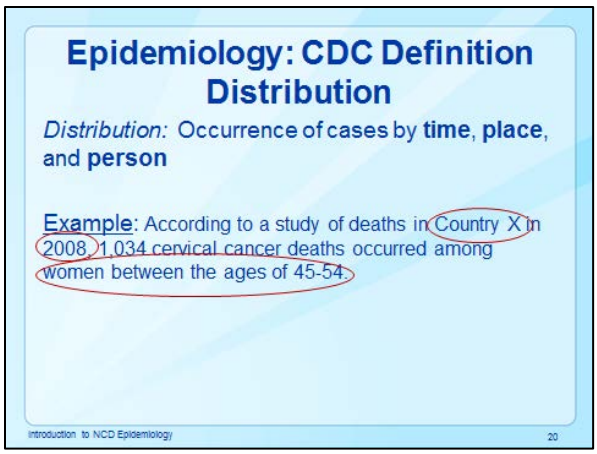
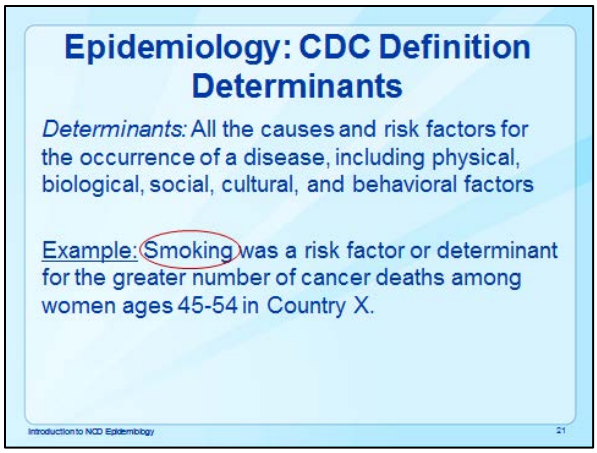




Key Point: Think of determinants as the "how" and the "why."



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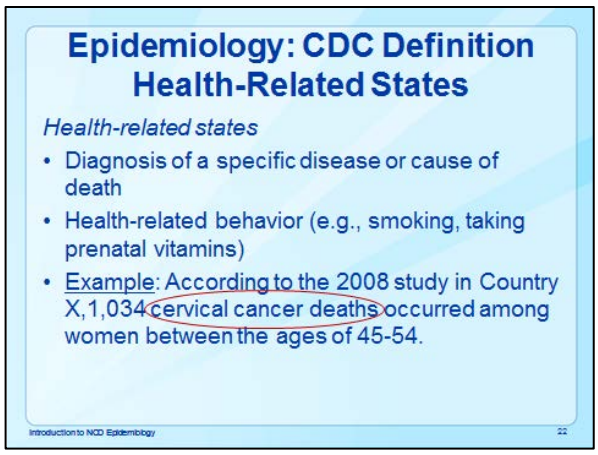
Epidemiology: CDC Definition
Health-Related States
Health-related states
• Diagnosis of a specific disease or cause of death
• Health-related behavior (e.g., smoking, taking prenatal vitamins)
• Example: According to the 2008 study in Country X, 1,034 cervical cancer deaths occurred among women between the ages of 45-54.
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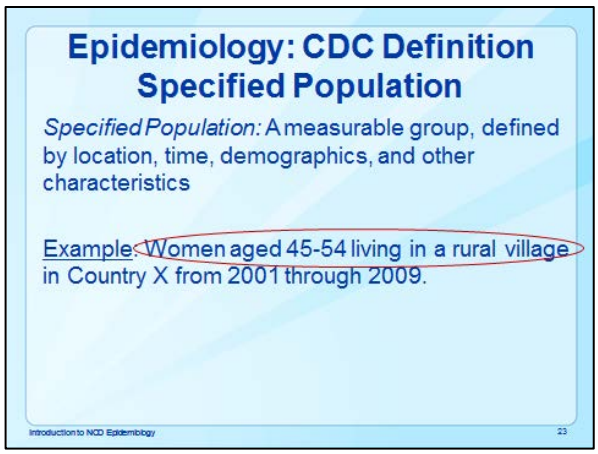
Epidemiology: CDC Definition
Specified Population
Specified Population: A measurable group, defined by location, time, demographics, and other characteristics
Example: Women aged 45-54 living in a rural village in Country X from 2001 through 2009.
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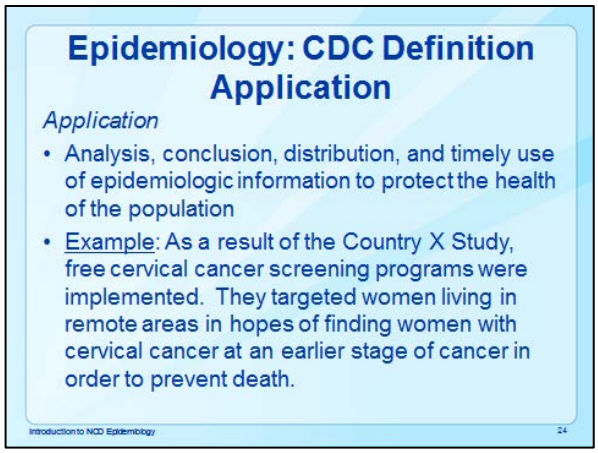
Epidemiology: CDC Definition
Application
Application
• Analysis, conclusion, distribution, and timely use of epidemiologic information to protect the health of the population
• Example: As a result of the Country X Study, free cervical cancer screening programs were implemented. They targeted women living in remote areas in hopes of finding women with cervical cancer at an earlier stage of cancer in order to prevent death.
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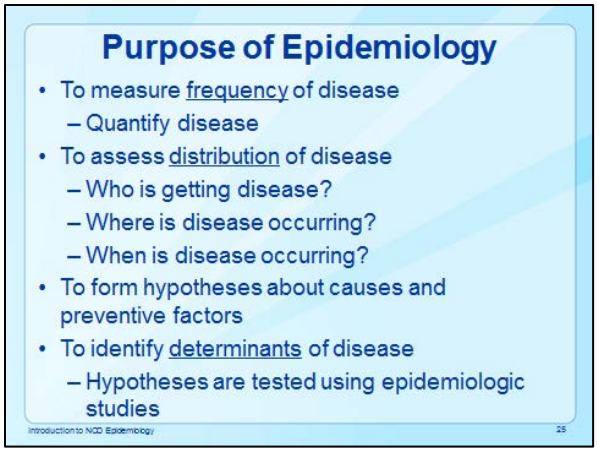
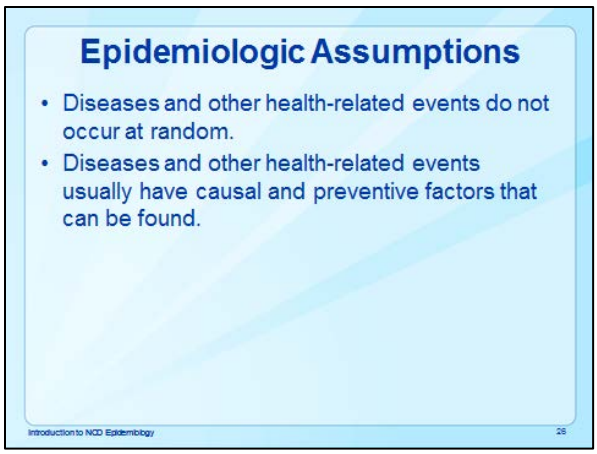
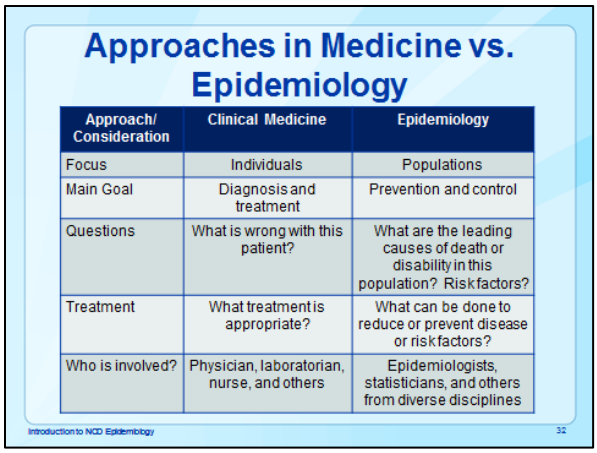
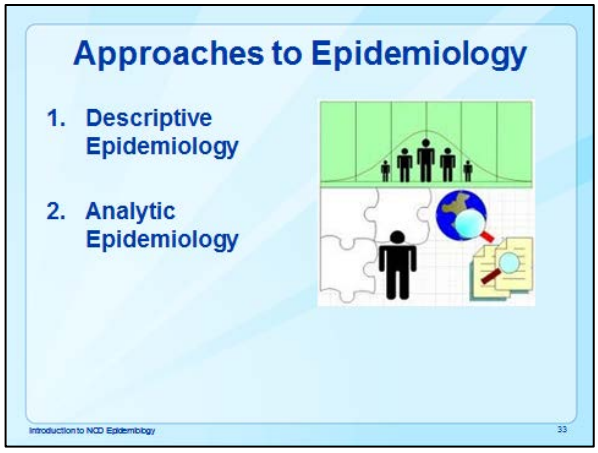






Key Point: Coordination between clinical practitioners and epidemiologists is critical; individual data or clinical data from the individuals needs to first be obtained from the clinical practitioners.

Slide	Notes


Approaches to Epidemiology
1. Descriptive Epidemiology
2. Analytic Epidemiology
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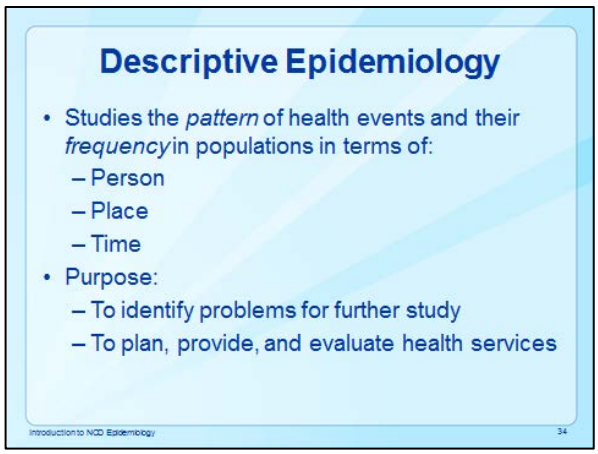
Descriptive Epidemiology
• Studies the pattern of health events and their frequency in populations in terms of:
– Person
– Place
– Time
• Purpose:
– To identify problems for further study
– To plan, provide, and evaluate health services
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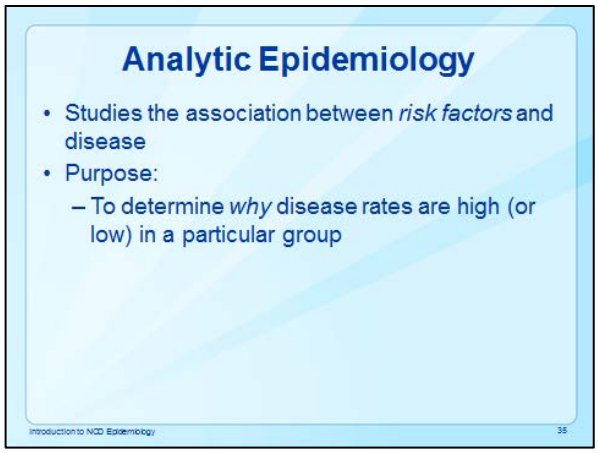
Analytic Epidemiology
• Studies the association between risk factors and disease
• Purpose:
– To determine why disease rates are high (or low) in a particular group
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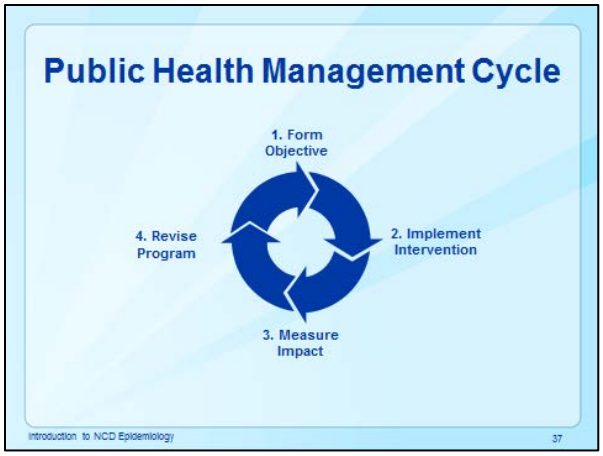
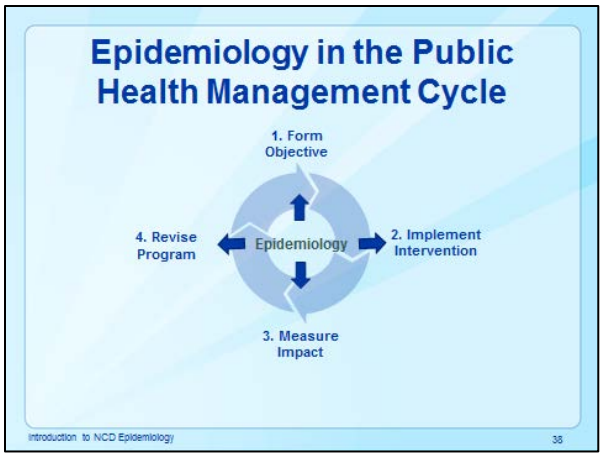
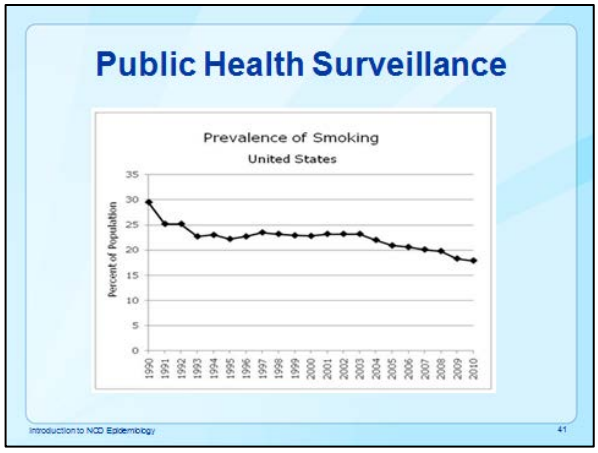




Key Point: Although there are only 4 steps in the cycle, there are many steps leading up to each. For example, you might test an intervention before you implement one.

Slide	Notes


Public Health Surveillance
Prevalence of Smoking
United States
Percent of Population
35
30
25
20
15
10
5
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
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2002
2003
2004
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2007
2008
2009
2010
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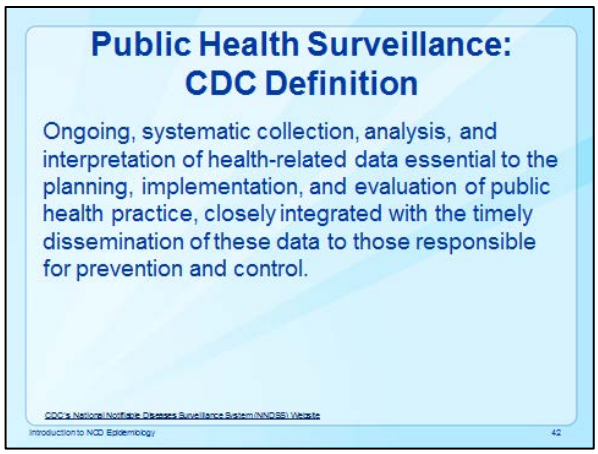
Public Health Surveillance:
CDC Definition
Ongoing, systematic collection, analysis, and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevention and control.
CDC's National Notifiable Diseases Surveillance System (NNDSS) Website
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Investigation
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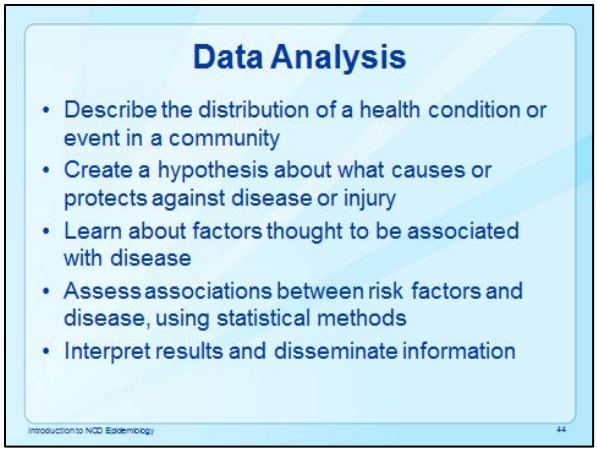
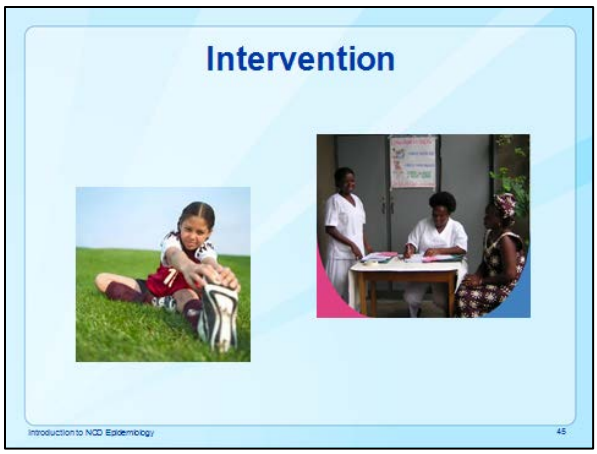
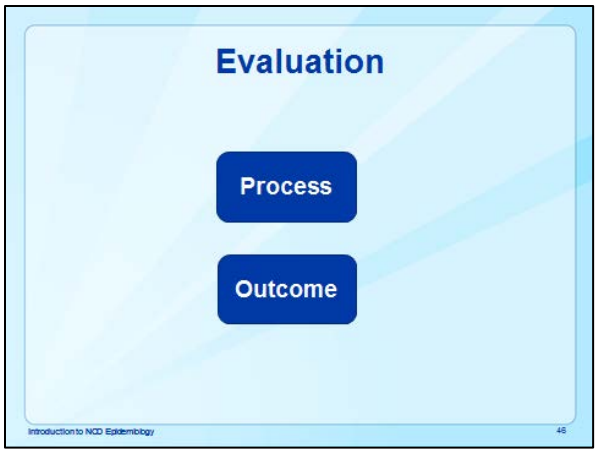


Key Point: Epidemiology is used in the design and implementation of interventions by describing patterns of disease. This provides information on who, where, and when to focus interventions.





Key Point: A process evaluation assesses the operation of the project while an outcome evaluation assesses changes in health.

Slide	Notes

Communication
International Journal of
Epidemiology
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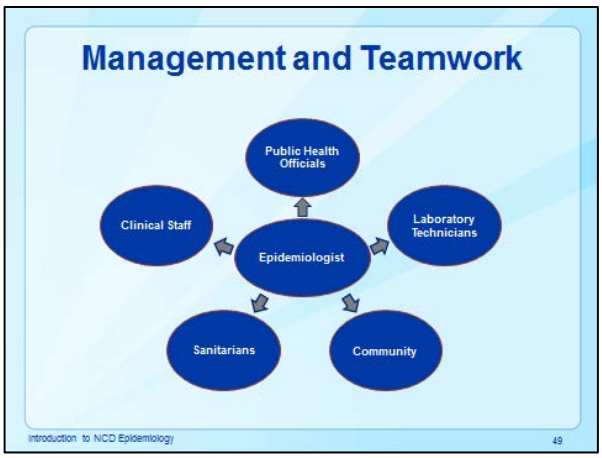
Management and Teamwork
Public Health Officials
Clinical Staff
Laboratory Technicians
Epidemiologist
Sanitarians
Community
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Review: Functions of Epidemiology
Public Health Surveillance
Investigation
Data Analysis
Intervention
Evaluation
Communication
Management and Teamwork
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Half-Truths and Misunderstandings

HALF-TRUTH:
Everyone has to die of something

Half-Truths and Misunderstandings: Reality

Name	Jonas Justo Kassa
Age	65
Country	United Republic of Tanzania
Diagnosis	Diabetes

Reality: death is inevitable but it does not need to be slow, painful, or premature

Skill Assessment

1. Work in small groups to complete the assessment.
2. Discuss a local health problem and describe which **functions of epidemiology** to use to address the problem.
3. Assign a member of your group to record your responses.
4. Spend 20 minutes completing the assessment.
5. Be prepared to share your work with the class.