Control of acute infectious disease is one of the oldest public health practices. It just as important today as new infectious diseases such as SARS and Monkeypox emerge to take the place of those diseases brought under control.

**Key Words**

AIDS, HIV, False & True Positives, High Risk groups, High Risk behaviors, quarantine, incidence, prevalence, chronic, acute, incubation period, antibody, disease, vaccine, immunity, Pasteur, eradication, cost-benefit, law & regulations, high risk populations, sexually transmissible disease, SARS.
Vaccine Preventable Childhood diseases

Despite many resources devoted to full immunization of children by 2 years of age, the U.S. still lags behind many developed and under-developed countries. You should be able to discuss why strategies that work in almost every other country fail in the US. Are the issues cultural, behavioral, failure of communication, or political?

HIV as a model:

for a recently emerged (within the last 20 years) disease of public health significance. It also provides a model to study issues of policy, politics and practice.

TB was under control 15 years ago

Students should be able to describe why, despite availability of effective antibiotics, this disease has become less controllable and more widespread in the U.S.

Objectives: After reviewing these three groups of infectious diseases the student should be able to discuss policymaking approaches used to control infectious disease outbreaks in a community. (S)he, will review when and how quarantine may be useful in protecting the community from particular individuals with these diseases, based on the use of modern epidemiologic principles. Students should be able to describe how the community models for control of HIV, STDs, TB, and Immunizations have changed since W.W.II, yet why these diseases still remain problems.

References


Reading:

Introduction to Public Health: Schneider Chapters 9 & 10
Essays - Number 7

This presentation covers three infectious disease areas that continue as public health problems, despite advances in epidemiology and microbiology. One of these diseases, Tuberculosis, has been present (seen through anthropological studies) for millennia while HIV infection has only been recognized for the last 20 years. Look at the UNAIDS Page and its links.

The discussion on Tuberculosis identifies the populations at risk and the problems of dealing with a well known chronic disease, studied for many years, but still ineffectively controlled. HIV identified only since 1982, provides a model for the positive and negative activities in developing policies to control it.
The **Immunization** discussion discusses problems with the use of technology to prevent, rather than control, long standing communicable diseases.

Find the [CDC home page](https://www.cdc.gov) on the web. Then, using the publications link review recent issues of the **MMWR** relating to the topics for this session and be prepared to discuss them in class. Also look at the home page of the [National Center for Infectious Diseases](https://www.cdc.gov) and review issues of [Emerging Infectious Diseases](https://www.cdc.gov). Be prepared to discuss how the issues presented by the lecturers might impact on newly emerging diseases. Be prepared to enumerate recently discovered infectious diseases. What do West Virus, SARS, Monkeypox and HIV have in common?

**Tuberculosis**

**Wendy Heirendt** : Disease Control Specialist, Virginia Department of Health

Review the presentation on [Tuberculosis Infection and Disease](https://www.cdc.gov). Then look at the example of goal setting to reduce TB incidence and be prepared to discuss the epidemiological basis for such goal setting. Also, review at the CDC web pages devoted to [TB, HIV & STDs](https://www.cdc.gov). Finally look at a discussion of a recent [TB outbreak in New York](https://www.cdc.gov). Where was the information published? Why do you think I selected this topic? Consider why TB persists today with all our antibiotics. Take a look at the Global Issues defined by the [WHO](https://www.who.int).

**HIV disease**

**Caryn Weir-Wiggins**, Office of HIV Programs

**An example of development of Public Policy.**

1. Review Changes in Sexually Transmissible diseases since W.W. II. Further, look at the attached map of syphilis in Portsmouth and be prepared to answer the question posed. How effective do you believe Condoms are (See what the CDC site says about condoms and STDs. Where did you look?). Latest from the [AMA](https://www.ama-assn.org).  
2. Review Caryn’s outline on HIV infection & disease.  
3. Examine [this table](https://www.cdc.gov) and be prepared to discuss why HIV Premarital Blood testing was not passed by the Virginia Legislature.  
4. When was HIV infection first recognized in the US?

**HIV Web Sites**

- [Aids Clinical Trials Information Services](https://clinicaltrials.gov)  
- [East Harlem HIV Care Network](https://www.eastharlemhivcare.org)  
- [Medscape HIV/AIDS](https://emedicine.medscape.com)  
- [University of California (SF)](https://www.ucsf.edu)  
- [CDC](https://www.cdc.gov)

**Immunization Programs:**

**C.M.G. Buttery MD MPH**

Look at this [History Factlet](https://www.cdc.gov). Has anything changed? Look at the [Immunization Recommendations](https://www.cdc.gov) for 2003 for children and consider some of the [issues to consider](https://www.cdc.gov) in immunizing a population. Also, scan the Information CDC’s [National Immunization Program](https://www.cdc.gov) web.

Then look at the list of addenda found at the end of the table. How do you think this addenda
affects use of the table of immunization by practitioners? Now consider why the U.S. immunization levels are so poor compared with many other countries, and what could be done to improve them. Read the article on Registries from the AJPM (Am.J.Prev.Med 2003:23(3)P278-280). Review the CDC Publications list for immunization issues and review some of the materials available before coming to class. Remember that Adult Immunizations are equally important, particularly for the elderly (>65 and those with Chronic diseases).

Look at the Flu/Pneumonia Fact Sheet. The AMA has developed A Site for immunizations. Review the progress in Worldwide Polio Eradication and consider what makes this program effective outside the U.S., and what constraints are present in completing the work. Finally, take a look at the issues developed by the All KIDS Count project of the RWJFoundation. Look at the CDC discussion of Immunization Registries.

An interesting look at history - Smallpox in 1806. Consider whether medicines are loosing their effectiveness. Two final important sites for public health professions is the National Center for Infectious Diseases and the WHO Immunization Program.

Late Breaking Links. Severe Morbidity and Mortality Associated with Influenza in Children and Young Adults --- Michigan, 2003

Past Bookmarks

2004 Bookmarks

---

<table>
<thead>
<tr>
<th></th>
<th>Positive</th>
<th>Negative</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease Present</td>
<td>Sensitivity</td>
<td>False-</td>
<td></td>
</tr>
<tr>
<td>Not Present</td>
<td>False+</td>
<td>Specificity</td>
<td></td>
</tr>
</tbody>
</table>

TEST

<table>
<thead>
<tr>
<th>Disease</th>
<th>Positive</th>
<th>Negative</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>196</td>
<td>4</td>
<td>200</td>
</tr>
<tr>
<td>Not Present</td>
<td>19996</td>
<td>979804</td>
<td>999800</td>
</tr>
</tbody>
</table>
Prevalence = 2/1000, Sensitivity = 0.98, Specificity = 0.98

What can you deduce about the ability to provide useful information by mass testing a population for a rare disease e.g. all people applying for a marriage license for HIV?

NATIONAL NEWS: Measles warning after MMR setback
By Clive Cookson, Science Editor
Copyrighted: Financial Times; Aug 08, 2003

Britain is at high risk of measles re-establishing itself as an endemic disease, according to a new study.

*Loss of public confidence in the combined measles mumps rubella vaccine is leading to more local outbreaks of measles, public health researchers report in the journal Science. These outbreaks were approaching the "critical point" at which they would no longer fizzle out.*

"My hope is that this is a warning signal for parents," said Vincent Jansen of Royal Holloway, University of London, the study leader. "We are approaching the danger zone where measles could once again become an endemic disease in the United Kingdom."

Before vaccination started in the late 1960s, Britain had about 800,000 cases and 100 deaths a year from measles. Vaccination rates rose from about 50 per cent in 1968 to 76 per cent in 1988. These had led to a steady decline in measles cases.

The introduction of MMR in 1988 caused a further increase in the measles vaccination rate. This wiped out measles as an endemic disease. But people continued to bring the virus into Britain from abroad, causing small outbreaks. The study shows that these have become significantly more numerous and larger since 1998, as publicity about the unproven side-effects of MMR - particularly autism - has put parents off vaccinating their children.

There were 71 measles cases in 2001 and 308 in 2002. The largest outbreak affected about 100 people.

"If this pattern continues, the increasing number of unvaccinated people could lead to an increase in the number of susceptible children, which in turn could lead to measles re-establishing itself as an endemic disease," said Mary Ramsay, of the Health Protection Agency, another author of the Science paper. "This is why it’s vitally important to reassure parents that MMR is the safest and most effective method of protecting our children."
The key figure of the spreading ability of a disease is its "reproductive number". The researchers say this has risen from 0.47 in 1995-1998 to 0.82 in 1999-2002. If the number exceeds one, measles will no longer disappear after each mall outbreak, as it does now.

Dr Ramsay said it was impossible to predict when this might happen. "We do know, however, that some parts of the country such as London, where MMR vaccination rates have been low for longer periods of time, are at more risk of seeing larger outbreaks in the future," Dr Ramsay said. Measles outbreaks usually occur in late winter or spring. The virus is highly contagious, spread through respiratory droplets. It causes a high fever and characteristic rash. Deaths usually occur through secondary complications.

**Immunization:**

Thinks about the four focuses by age group

- Preschool
- Adolescent/Youth
- Adult
- Older populations.

What is herd immunity? How does it differ for different infectious diseases?

Where can you find different levels of immunity & why?

What are barriers to immunity?

- In the family
- Among individuals?
- By access to care
- By beliefs & misconceptions
- By medical care providers
- By age (6-24 months and over 65 years)
- By geography
- By record system
- By third party payers.
- Missed Opportunities