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Vaccine Preventable Diseases

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Vaccine Preventable Diseases

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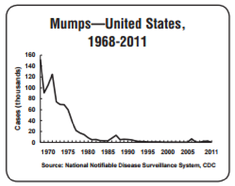
Overview of the Issue

What is it?
- Vaccine preventable diseases are illnesses that can be defended against with vaccines. Vaccines are drugs that make a person immune to an illness using the body's natural defense mechanisms.

Why is it important?
- Prevents unnecessary illness, disability, and death
- Without vaccines, epidemics of preventable diseases could return

How does it impact health?
- Immune system creates "Memory Cells" that remember the diseased bacteria and destroys it before the person becomes sick (Centers for Disease Control (CDC), 2013)
- Healthier living
- Examples:



Since 1989 when two doses of MMR vaccine were recommended for school-aged children, the number of reported mumps cases steadily declined, from 5,712 cases in 1989 to 258 cases in 2004. (CDC, 2012a)

- 800,000-1.4 million people suffer from chronic Hepatitis B and have liver complications. (CDC, 2015c)
- Each year in the United States, 1 million people get shingles and some will have severe pain that can continue even long after their rash clears up. (CDC, 2015c)

This is a case of Shingles (Pettersson, 2013).

Health Indicators

The Direct and Indirect Impacts

Direct Impacts
- Mortality Rates
- Life Expectancy

Indirect Impacts
- Unemployment Rates
- Educational Attainment
  - Disabilities
  - Cost

16 children die every hour from measles.

(CDC, 2015b)

Determinants of Health

Policy
- Vaccines are required for schools and childcare centers (CDC, 2015a)
- Vaccines are required for certain jobs

Biology and Genetics
- Allergies prevent people from receiving vaccines
- People with weakened immune systems cannot receive vaccines (CDC, 2015d)

Health Services
- Availability of vaccines
- Cost of vaccines

Individual Behavior Choices
- Not to be immunized
- Not to have children immunized

Benefits of Vaccines

Vaccines can save children's lives
- According to Shot@Life, vaccines save roughly 285 children every hour (Should Any Vaccines, 2015)

The ingredients used in vaccines are safe in the small amounts that are used.
- Ingredients that are used can be harmful, but they are used in such small amounts that they are unharmful to patients and are proven to be safe in the human body.
- The FDA requires up to ten years of testing and approval before it can be licensed, and is further monitored when given to patients.

Reactions to vaccines are extremely uncommon
- The most common side effect to vaccines is anaphylaxis, a severe allergic reaction, and this occurs only in about one per million vaccinations.

Vaccines protect the community
- Children and adults who cannot be vaccinated due to medical, religious, or philosophical exemptions, rely on the vaccinated community to prevent contraction of vaccine-preventable diseases.

Vaccines save money and time
- "Children under five with the flu are contagious for about eight days, and cost their parents an average of 11 to 73 hours of wages (about $222 to $1,456) and $300 to $4,000 in medical expenses" (Should Any Vaccines, 2015).

Vaccines have put an end to smallpox and other diseases such as polio
- The last case of smallpox in the United States was in 1948, and the last case in the world was 1977 in Somalia (CDC, 2007).
- The CDC states that many vaccine-preventable diseases are still prevalent in the United States or "only a plane ride away."

Economic Benefits
- The CDC estimates that children vaccinated between 1994 and 2014 have yielded a net savings of $1.38 trillion in "societal costs" and that $6.2 billion could be saved in treatment costs if vaccines were more prominent in the world's most impoverished countries. (Should Any Vaccines, 2015)

Note. Adapted from "Should Any Vaccines Be Required for Children?" (2015).

"Negative Views" of Vaccines

Vaccines can cause serious and sometimes fatal effects
- According to the CDC, all vaccines carry a risk of a life-threatening allergic reaction (anaphylaxis) in about one per million children. (Should Any Vaccines, 2015)

The government should not intervene in personal medical choices.
- Mandatory vaccines infringe upon constitutionally protected religious freedoms.
- Some people believe that medical decisions should be left to the parents or caregivers.

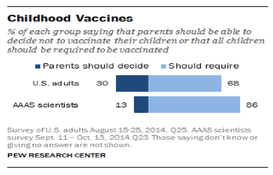
Vaccines are unnatural, and natural immunity is more effective than vaccination.
- Some anti-vaccinators believe that vaccines go against the body's natural immunity process which is a natural thing, and vaccines are artificial.

Diseases that vaccines target have essentially disappeared
- This is due to the fact that we have dismissed certain diseases by vaccination against it so it is no longer prevalent. The disease did not just disappear on its own, it was eliminated from the population from vaccines.

"It is against my religion"
- There does not appear to be a formal antivaccine doctrine in any of the major religions except from the Dutch Reformed Church.

Note. Adapted from "Should Any Vaccines Be Required for Children?" (2015).

This graph is a recent study done by Pew Research Center to determine what percentage of parents thought that their child should or should not be vaccinated. (Funk, Rainie, Smith, Olmstead, Duggan, & Page, 2015)



To find out more information scan the QR codes below:

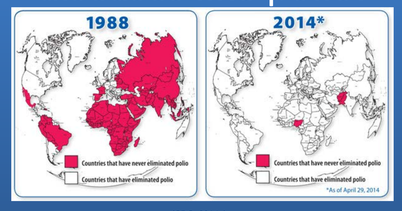
Interactive map of vaccine-preventable diseases:

Why being vaccinated is important:

Who should not be vaccinated:

Take a quiz to see what vaccines you might need:

Vaccines can end diseases like polio:



(CDC, 2014a)

Strategies to Reduce Incidence of Vaccine Preventable Diseases

Strategies include the following:
- Improving quality and quantity of vaccination delivery
  - Having enough vaccinations that are both safe and effective
- Minimizing financial burdens for needy individuals
  - Cost is a large factor preventing widespread immunization.
- Increasing community awareness, participation, education, and partnership
  - Many individuals have misconceptions of vaccinations.
- Improving disease monitoring and vaccination coverage
  - Tracking and targeting areas of increased risk and breakout
- Developing new or improved vaccines and improving the use of vaccines
  - Increasing the safety, reliability, and effectiveness of vaccinations

Note. Adapted from "Vaccinations: The Expanding Role of Pharmacists" (Terrie, 2010).

Role of Pharmacists in the U.S.

Pharmacists' Legal Authority to Administer Vaccines
- Each state has laws and regulations governing pharmacy practice, concerning areas such as:
  - Types of vaccinations
  - Patient age requirements
  - Pharmacist education/qualification requirements

Note. Adapted from "Vaccinations: The Expanding Role of Pharmacists" (Terrie, 2010).

Vaccine Administration Training
- Pharmacists must display competence all of the following areas:
  - Epidemiology of and patient populations at risk for vaccine-preventable diseases
  - Public health goals for immunization (e.g., local, regional, state, and federal)
  - Vaccine safety (e.g., risk–benefit analysis)
  - Screening for contraindications and precautions of vaccination in each patient
  - Vaccine stability and transportation and storage requirements
  - Immunologic drug interactions
  - Vaccine dosing (e.g. immunization schedules, patient immunization records, proper dosing intervals, and feasibility of simultaneous administration of multiple vaccines)
  - Proper dose preparation and injection technique
  - Signs and symptoms of adverse reactions to vaccines, adverse reaction reporting, and emergency procedures (e.g. BCLS and ACLS)
  - Documentation
  - Reporting to the primary care provider or local health department
  - Billing

Note. Adapted from American Society of Health-System Pharmacists (2003).

Pharmacist Promotion:
- Pharmacists who are not involved in vaccine administration can be involved in the following:
  - History and screening
  - Patient counseling
  - Documentation
  - Formulary management
  - Administrative measures
  - Public education

Note. Adapted from "Vaccinations: The Expanding Role of Pharmacists" (Terrie, 2010).

This is a case of Chickenpox (Chickenpox, 2015)

Vaccinations Overseas

Needs for Pharmacists:
- Education
  - Knowledge on the benefits of vaccines
  - Ability to educate the public of their need for vaccinations
- Resources and equipment to perform vaccinations
  - Having enough vaccines for the public
  - Ability to travel to the towns and cities at risk

Needs for Public:
- Understanding of the importance of vaccinations
- Access to health care and clinics

Areas affected by Malaria (Isovolunteers, 2013).

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