

Public Health and Infectious Diseases: Part 3

Chain of Causation:

- Agent, Host, Environment
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Chain of Infection:

1. Pathogen
 - infectious agent
2. Reservoir
 - where pathogen can live
3. Means of Transmission
 - Food, air, contact, etc.
4. Susceptible Host
 - Immunity level

****Goal is to interrupt the chain of infection to stop disease spread**

How do infections spread?

- Air, touch, contaminated water or food, vectors, sexual contact

Interrupt the chain of infection

- Kill pathogen with antibiotics
- Eliminate reservoir
- Prevent transmission
- Increase resistance of host through immunizations, lifestyle modification

The Public Health Approach

1. Define the health problem
2. Identify the risk factors
3. Develop and test community-level interventions
4. Implement interventions
5. Monitor interventions

Conquest of Infectious Disease

- Due to public health in action!

Prevention

- Primary – prevent disease
- Secondary – minimize the severity of illness
- Tertiary – minimize the disability, rehabilitation

What leads to new infectious diseases?

- Human activities cause ecological damage
- Close human contact with wildlife
- Modern agricultural practices
- International travel
- International distribution of food and exotic animals
- Breakdown of social restraints on sexual behavior and drug use

Public Health Response to Emerging Diseases

- Global surveillance
- List notifiable diseases
- Improve public health capacity
- Veterinary surveillance
- Reduce inappropriate use of antibiotics
- Need for new vaccines
- Need for new antimicrobial drugs
- Control of vector-borne and animal-borne diseases
- Future: improve personal health and use lifestyle modification for public health

Epidemic of Chronic Disease

- Identify risk factors
- Observe long term trends
- Example: heart disease, Framingham study in 1948 tied cholesterol with cardiovascular disease

In epidemic situations we need to ask

- Who is getting the disease?
- When did they get the disease?
- Where is the disease occurring?