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Introduction to Infection Prevention & Control in Healthcare Settings

URC

Infection Prevention Background

Numerous reasons for increase in infectious disease outbreaks:

- Rapid population growth & increased poverty
- Changes in technology driven medical procedures
- Environmental decline and climate changes
- Improved transportation and changes in land use patterns
- Inadequate public health infrastructure (war, economic decline)
- In appropriate use of antibiotics
- Deficient disease control and disease prevention

Learning Objectives

By the end of the session, participants will be able to:

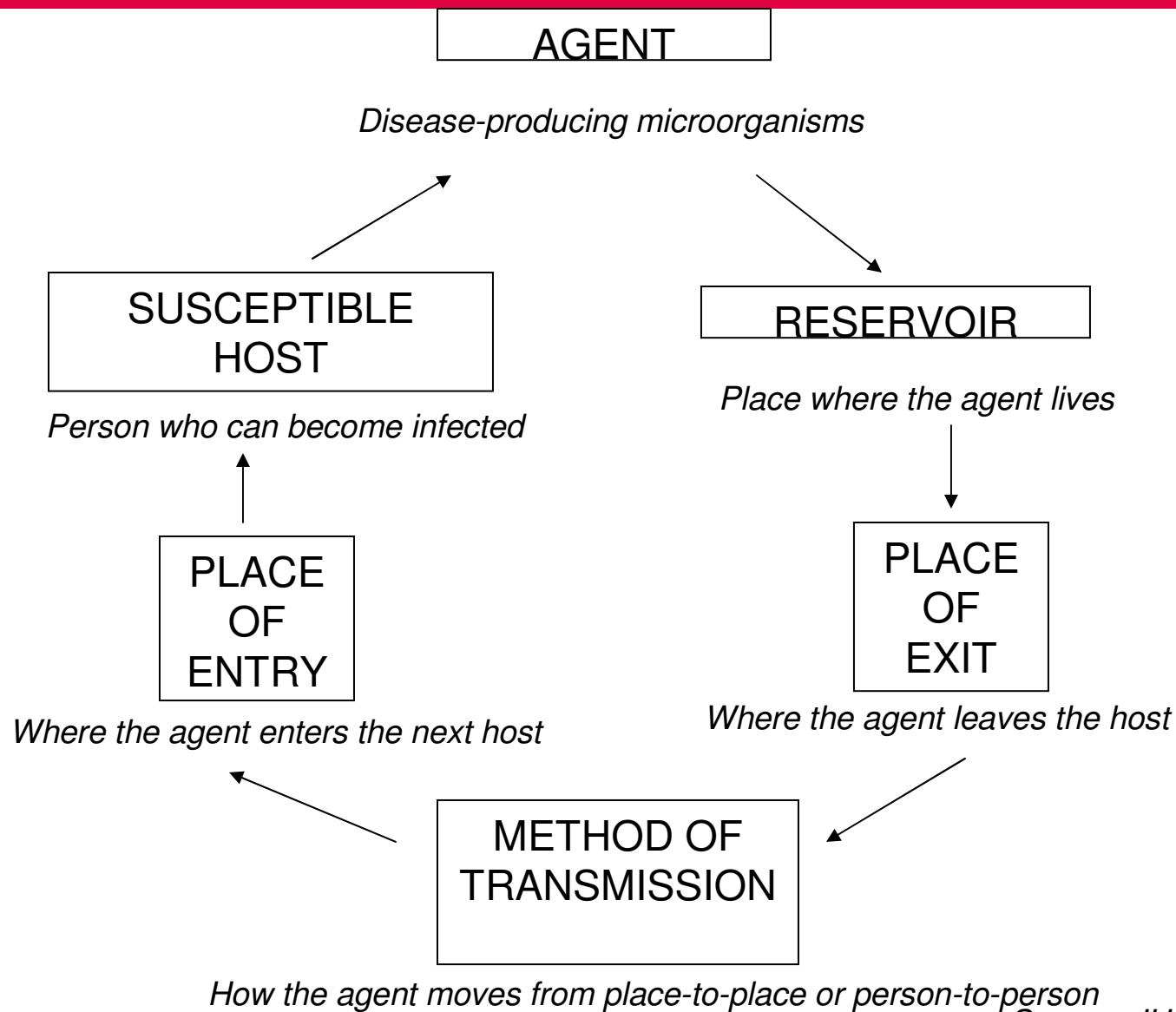
- Describe the reasons for increase in disease outbreaks
- Discuss how healthcare staff, patients, and community are at risk for infection
- Define nosocomial infection & discuss how to prevent them at your facility
- Discuss components of national policies for infection prevention & control and implementation plan

Purpose of Infection Prevention and Control

- To prevent infections in healthcare staff
- To provide high quality care
- To prevent the spread of infections from health care facilities to the community
- To prevent the spread of antibiotic-resistant microorganisms
- To lower the cost of health care services To prevent post procedure infection

Source: EngenderHealth, 2001

Disease Transmission Cycle

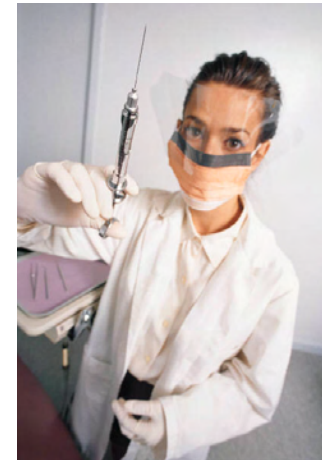


Spread of Infectious Disease

- Airborne e.g. tuberculosis
- Blood or bodily fluids e.g. HIV
- Direct contact with open wound or indirect contact through contaminated object e.g. Staphylococcus
- Fecal-oral e.g. typhoid, hepatitis A
- Food-borne e.g. Salmonella
- Animal or insects e.g. rabies, malaria, dengue

Who Is At Risk?

- Healthcare Staff
- Clients/ Patients
- Community



Infection Risk for Healthcare Staff

- Exposure on a daily basis for not only clinicians, but staff who process instruments, clean up after procedures, & dispose of waste are also at risk.
- Exposure can occur through:
 - Cutting or piercing of skin by contaminated instruments
 - Splashing of fluids on mucous membranes
 - Broken skin from cuts, scratches, rash, acne, fungal infections, etc.



Infection Risk for Clients

Clients are at risk when:

- Healthcare providers don't adequately wash their hands
- Clients aren't adequately prepared before a procedure
- Instruments and other items aren't appropriately cleaned or sanitized



Source: EngenderHealth,⁹2001

Infection Risk for Communities

Communities are at risk from:

- Improper disposal of medical waste such as contaminated dressing or sharps, needles, syringes, etc.
- Waste often found by children in open dumps and spread out on the ground where people may come in contact with it.
- Infected healthcare workers who may also spread infection to their friends and families



Source: Engender Health, 2001

Definition of Nosocomial Infection

“An infection occurring in a patient in a hospital or other health care facility in whom the infection was not present or incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge, and also occupational infections among staff of the facility.”

Source: Bemenson, 1995

Other definition

- Nosocomial infections are infections that occur after 48 hours of hospitalization

Source: unkown

Why Are Nosocomial Infections on The Rise?

- Healthcare workers constantly exposed to infected people and materials
- Patients are already sick and more susceptible to infection
- Sick patients may have easily transmittable infections
- Treatment often provided to multiple patients in small physical space during short period of time
- Invasive procedures that enable introduction of microorganisms
- Increased bacterial resistance to antibiotics (WHO)

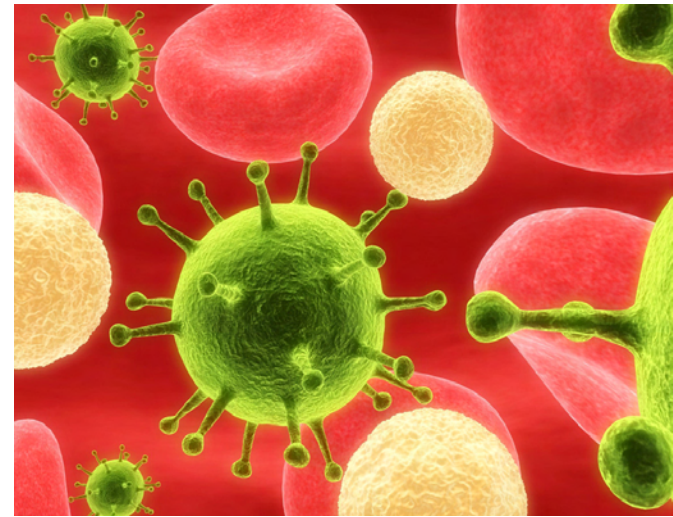
Source: EngenderHealth, 13 2001

Consequences of Nosocomial Infections

- Longer in-patient stay
- Contributes to patient stress and long-term morbidity
- Major cause of patient mortality
- Higher costs for patients and health facilities, loss of work productivity
- Shifts emphasis from preventive to curative care

Most Common Types of Nosocomial Infections

- Lower respiratory tract infections – Staphylococcus, Streptococcus, Klebsiella, pneumococcus
- Urinary tract infections – E. coli
- Intravenous line sepsis
- Burn patients – secondary infection
- Infections of surgical wounds



Lower Respiratory Tract Infections

- WHO Simplified Criteria:
“Respiratory symptoms with at least two of the following signs appearing during hospitalization”:
 - Cough
 - Purulent sputum
 - New infiltrate on chest radiograph consistent with infection

How to Prevent Nosocomial Infections

- Everyone plays a role, even non-clinicians
- Administration & management need to take the lead
 - ensure appropriate policies in place
 - Limit duration of hospital in-patient stay
 - Allocate sufficient resources for infection prevention & control
 - Provide ongoing staff training & supervision
 - Ongoing monitoring & evaluation

Role of National Department of Health in Infection Prevention & Control

- Create national objectives consistent with other national health care objectives
- Develop and continually revise standards of care, surveillance, and prevention
- Monitor incidence of infections and effectiveness of health interventions
- Oversee & ensure consistency of initial and refresher training programs
- Support health care facilities to monitor and improve the incidence of nosocomial infections and systemic factors e.g. diabetes

Major Components of the South African National Infection Prevention and Control Strategy (*April 2007*) 1.

Seven strategic areas of action:

1. Early detection of infections through active surveillance and monitoring
2. Addressing health care worker needs and requirements
3. Reduce risk through implementation of guidelines
4. Reduce reservoirs of infection

Source: WHO, 2004

Major Components of the South African National Infection Prevention and Control Strategy (*April 2007*) 2.

Seven strategic areas of action cont.:

5. Best use of antibiotics
6. Management and organization of appropriate structures for infection and prevention
7. Research and Development

SA Infection Prevention and control policy (*April 2007*)

- Purpose – to set minimum standards for the effective prevention and management of health care associated infections.
- Objectives – prevent/minimize environmental hazards associated with microbes; optimize infection prevention and control and resources ; control and minimize transmission; improve infection control surveillance
- Roles and responsibilities at different levels of the health care system clearly outlined

SA Guidelines on Infection Prevention and control for TB in health care facilities (*June 2007*)

The guidelines aim to provide understanding on the following:

- TB transmission in health care facilities
- Infection prevention and control procedures to reduce the risk of *M. tuberculosis* transmission in health care facilities
- Protection of health care workers and staff through VCT, increasing awareness of TB and preventive action
- Importance of TB infection control in drug rehabilitation centres, correctional services, detention centres and other facilities where large numbers of possible HIV or TB infected people gather
- Issues on MDR-TB and XDR-TB

Key Indicators for Tracking National-Level Infection Control Programs

- Indicators for global reporting (e.g. case detection rates, infection incidence & prevalence, treatment success rates)
- Incidence & prevalence of disease by demographic groups
- Occurrence of epidemics or outbreaks
- Inventory of IC equipment & supplies and drugs for treatment of infectious disease

Discussion Questions

- What infection control practices at your facility increase the risk of nosocomial infection? How can you help reduce those risks?
- Who is in charge of infection control at your facility? Do you know what your roles & responsibilities are?
- Discuss the national infection & prevention control policies & guidelines in your country. Is there anything you would improve?