

Community Based Infection Control

containable or controllable when appropriate measures are taken.

Introduction

The primary role of an infection control program and its practices is to decrease the risk of facility acquired infection, both by staff members and by residents.

Basic Understandings

An 'infection' is the invasion and multiplication of microorganisms in or on body tissues that produce signs and symptoms as well as an immune response.

'Microorganisms' exist anywhere in the environment: in water, soil, and on body surfaces such as the skin, mouth, intestinal tract, etc. Most microorganisms are harmless and some are beneficial in that they perform essential functions in the body. Some are 'normal flora' in one part of the body but produce infection in another. They vary in their 'virulence' (their ability to produce disease) and they vary in the 'severity' of the diseases they produce and their degree of communicability.

A 'pathogen' is a microorganism that causes disease and 'pathogenicity' is the ability to produce disease.

If an infection causes no signs or symptoms, it is called 'subclinical' or 'asymptomatic.' The presence of organisms in body secretions or excretions that does not cause illness is called 'colonization.' A 'carrier' is a person that harbors a specific infectious agent and serves as a potential source of infection yet does not manifest any clinical signs of disease.

Influenza, Pneumonia, Shingles, Hepatitis B (HBV), Herpes, VRE (Vancomycin Resistant Enterococci), MRSA (Methicillin Resistant Staphylococcus Aureus), AIDS, (Auto Immune Deficiency Syndrome), HIV (Human Immune Virus), Pulmonary TB (tuberculosis) and, the common cold, are all infectious diseases of concern in that they are prevalent in the United States. They are of concern to all ages but of special concern with the very young who have not yet fully developed their immune system and with the elderly whose immune systems may be compromised due to varying diseases or the due to the normal aging process.

Not all of these diseases are curable, but all are

Pathogens

Before we talk about infection control, first we should look at "pathogens," or what causes infections.

There are five major types of pathogens - viruses, bacteria, rickettsiae, fungi and protozoa.

Although one of the smallest microorganisms **viruses** are the cause some of the most common illnesses such as colds, flu, herpes and some of the most feared contagious diseases such as small pox, hepatitis, and AIDS. Viruses have either their own RNA or DNA, but not both. They rely on their host to supply their missing RNA or DNA. And, viruses are visible only with electron microscopes.

Bacteria, larger than viruses, can be viewed by ordinary light microscopes and have their own RNA and DNA, both. Bacteria can be harmful or helpful, and often both. Such as E. Coli which is helpful and needed in the intestine, but harmful when it invades other areas such as the bladder. E. Coli is a common cause of UTIs, sinusitis and wound infections.

Staphylococcal, streptococcal and pneumococcal infections are all infections you are probably familiar with and all are caused by bacteria.

Rickettsiae are parasite microorganisms that are carried by insects. These organisms do not cause harm to the insects themselves, but cause diseases in those that the insect bites thus facilitating transfer of the organism from the insect to the animal (human or otherwise) that they bite. Malaria, and Rocky Mountain Spotted Fever are caused by Rickettsiae.

A **fungus** is a vegetable organism that subsists on organic matter (plant or animal). Sometimes we see fungus infections as yellowed nails, sometimes we see fungus infections as opportunistic 'overgrowth' infections occurring after a course of antibiotics. An example of an overgrowth infection is thrush to the mouth or throat. Valley Fever or San Joaquin Fever (coccidioidomycosis) is caused by the fungus 'coccidioides immitis.' And many allergies are caused by fungi and molds. As with bacteria, fungi are not all always harmful. Yeasts are fungi. Some yeasts are used to make breads rise. Mushrooms and truffles are fungi. Molds are also fungi, penicillin is derived from a mold and the blue in bleu cheese or Roquefort cheese is a mold.

Protozoa are one celled animals that can live