

Cross Infection in Hospitals (2)

By

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Sources and Modes of Cross Infection.

Any patient admitted to the Hospital is prone to cross infection by the reason of his primary disorder, more particularly in the case of a child. The most prevalent type of cross infection is respiratory which manifests itself in a variety of forms such as common cold, nasopharyngitis, sinusitis and so on. It can bring about gastro-intestinal disturbances in children. Diphtheria and virus infections also occur and very often, owing to their high infectivity, cause out-breaks which are difficult to control. Haemolytic streptococci, pneumococci and staphylococci are the most frequent casual bacteria.

The other forms of infection are gastro-intestinal *e.g.*, the dysenteries, gastro-enteritis and typhoid; secondary wound infection and infection of the skin and mucous membrane.

The *source* of infection is always some person who is discharging the living pathogenic organisms. The *cause* of the disease travels from the source of infection to the next victim. Effective control depends upon the knowledge of the cause of the infection, its exact sources, and its modes of transfer.

The source of infection in a hospital may belong to:

1. **Cases of Disease:** Recognised cases in which infection is evident by its signs and symptoms are the most important sources of infection where isolation and concurrent disinfection are inadequate.

2. **Mixed Cases:** A typical or walking case; owing to triviality of symptoms or the lack of proper care, infection fails to be recognised—move about freely and scatter pathogens.

3. **Abortive Cases:** Cases which may fail to develop the typical clinical symp-

toms and are so often undiagnosed and properly isolated.

4. The patient in the prodromal stage, where early symptoms are not distinctive and diagnosis and isolation may be delayed although the person is already infectious.

5. **Carriers:** A carrier is a person who harbours and discharges living pathogenic organisms although he is free from any effect of infection. Carriers are not detected frequently until they have passed the disease on to others. The person may be a **CHRONIC CARRIER**—in whom the carrier state persists for long periods; **TEMPORARY CARRIER**—who discharges organisms for a short period only; **CONVALESCENT CARRIER**—who after his apparent recovery from an attack still harbours the infectious organisms or a **CONTACT CARRIER**—who acquires and harbours pathogens for a while as a result of close contact with a case of infectious disease. Chronic carriers are very rare but convalescent carriers occur commonly in diphtheria and scarlet fever.

The spread of infection is by the secretions, excretions, and discharges of patients, staff and visitors.

(a) **Respiratory:** Nose and Throat secretions; ear and mastoid discharges; sputum.

(b) **Gastro Intestinal and Urinary:** Faeces, vomit, urine.

(c) **Cutaneous:** Discharges from septic skin lesions; mucous membrane, *e.g.*, conjunctiva, vagina.

(d) **Wounds:** Discharges from septic wounds, burns, and abscesses.

Modes of Cross Infection

Modes of spread of infection are the means by which organisms pass from the

source to the victim of infection. In hospitals spread of infection may be by direct contact, by a variety of vectors (mediate infection) by droplets and dust. The direct modes of infection include all those methods by which the organisms pass directly from one individual to another and include actual body contact, transfer by infected hands, by saliva and other body discharges and transfer by contaminated objects—fomites.

Contact and Mediate Infection

By Persons: The skin particularly the fingers and hands of patients and staff is liable to contamination by contact with their own and other persons' infected secretions, excretions and discharges; or with articles and dust contaminated by these. Fingers and hair bear upon them organisms identical with those found in the throat and nose of the individual. Nurses, on account of their work, are especially liable to respiratory tract infections and septic skin conditions. Infective pus from these lesions may be carried on to the fingers.

By Clothes: Personal clothes of hospital staff may become contaminated with discharges, during their ward duties, and may thus carry infection to others. Clothes of persons harbouring pathogenic organisms become heavily contaminated e.g., haemolytic streptococci in the nose and throat especially handkerchiefs, the pockets in which they are carried and the masks they are using. Blankets, screen clothes and bed clothes cause a major portion of cross infection.

By Ward Articles: Every article in a ward, unless properly sterilized, has living bacteria on it due to settling of infected dust, handling by persons, contaminated by infected excretions, of the

patient or staff. There is risk that they may transfer pathogenic organisms from one person to another through respiratory, gastro-intestinal and urinary tracts or wounds and abscesses.

By Food and Insects: Food and milk, unless kept scrupulously clean in covered containers in a cool place, are liable to contamination and the bacterial content increases with storage. Flies and insects act as mechanical vectors for these organisms from faecal matter to food.

Droplet and Dust Borne Infection: During talking, coughing or sneezing minute droplets containing bacteria are projected from the mouth and nose for two to six feet through the air. These droplets may either infect another man or wound in close proximity, or may fall on sterile materials, instruments, ward equipment, bed clothes or on to the floor and finally contribute to the bacterial content of the ward dust. Some droplets may evaporate and leave suspended in the air droplet nuclear, which can transmit infection for a considerable distance especially when ventilation is inadequate.

Floor dust, dust from window ledges and bed clothes, particularly blankets, often contain large number of pathogenic bacteria, which may remain alive and infective for weeks or even months in a dry state. Dry sweeping and bed making increases considerably the bacterial content of the air and eventually the dust settles on ward articles, on patients themselves, or may be inhaled by persons in the ward. Wards, where patients with upper respiratory and ear infections are nursed, have higher bacterial content in their floor sweepings.

(To be continued)

Good Relationships (3) — (Contd. from page 71)

The "personality" of the hospital depends on the human contacts made through the good will and keen interest of the staff, who may be said to be the living spirit of the hospital. The hospital

exists for the patient. He comes to be cared for and the nurse's reactions are vital to the reputation of the hospital.

(To be Continued)