



In 2006, a friend of mine went to the General Hospital in our town to treat dysentery, which he contracted by eating contaminated salad. Of course, he got better. But something else happened: he was admitted in the hospital two weeks later and diagnosed with pneumonia, which on retrospection, he had incidentally contracted when on admission for dysentery.

When he was carrying out his project research

later the subsequent year, he ironically focused on microorganisms that could be isolated in hospital environment. You can guess what his result showed: numerous numbers of pathogenic microbes littered the hospital environment and objects.

His result showed that fomites (inanimate objects) around the hospital were the major sources of infection transmissions between the staff and patients. These fomites include surgical instruments, door knobs, toilet seats, beds and mattresses, drugs/treatment trays, laboratory/ward coats and many others. The result was so outrageous that he was disallowed from completing his sample collection and directly threatened by senior management of the hospital to discourage him from publicizing the result. It was that bad!

But that has been the way of things for a long time, even despite the repeated emphasis laid on how John Lister's use of aseptic techniques in hospitals as far back as the 18th century. Hospitals have never been safe, not completely anyway, and it may never change. The only unfortunate thing is that people seem to be ignorant of this, which complicates issue.

Hospital acquired infections (HAIs) or popularly called nosocomial infections are notorious, because of their increasingly resistant nature to drugs and other antimicrobial treatments. They are caused usually by hardened microbes which have been exposed severally to treatment and have survived. But their incidences are aided, mostly by carelessness on the part of the hospital management and a bizarre I-don't-care-attitude on the part of

professionals who should know better.

Generally, factors aiding spread of nosocomial infections as given in Burton and Engelkirk's *Microbiology for the Health Sciences* include:

the failure of healthcare personnel to follow infection control guidelines; an increased number of immunocompromised patients;

the indiscriminate use of antimicrobial agents, which has resulted in an increase in the number of drug-resistant and multi-drug-resistant pathogens;

a false sense of security about antimicrobial agents, leading to a neglect of aseptic techniques and other infection control procedures;

lengthy, more complicated types of surgery.

overcrowding of hospitals and other healthcare facilities as well as shortages of staff.

increased use of less-highly trained healthcare workers, who are often unaware of infection control procedures.

increased use of anti-inflammatory and immunosuppressant agents, such as radiation, steroids, anticancer chemotherapy, and antilymphocyte serum.

overuse and improper use of indwelling medical devices.

Of course, people can argue till tomorrow that they don't usually contract infections from hospitals, but questions should be asked how they know they didn't when they never thought it is possible. Recently, attentions have shifted from persistent training of hospital personnel on how to prevent spreading of nosocomial infections to the patients and their relatives on how to avoid contracting infections in hospitals.

To know how to prevent contracting HAIs, we have to be familiar with the various ways infections can be transmitted in the hospital. It is like taking a revision course in different types of infectious diseases, and based on this, infections could be air/droplet-borne, blood/body fluid-borne, formite-borne, food/water-borne, and many other types of 'borne'. Knowing how an infection would be transmitted is the best approach to know how to prevent it.

Most of these infections, especially formite and food borne infections, could be prevented by observing simple hand-washing routine, except air-borne and sexual-borne infections. Hand-washing is perhaps the most effective means of preventing hospital-acquired infections after contact with either the patient or any inanimate object in a hospital environment. Washing hands everytime after visiting hospital may look like a case of paranioa, but having lifestyle of being careful within a healthcare facility is now becoming necessary due to the increased in incidence of nosocomial infections in recent years.

Hand-washing has been deemed necessary whenever one does some activities. As said in Burton and Engelkirk's *Microbiology for the Health Sciences*, these are common sense procedure everyone should follow.

Wash your hands before you:

Prepare or eat food.

Treat a cut or wound or tend to someone who is sick.

Insert or remove contact lenses.

Wash your hands after you:

Use the restroom.

Handle uncooked foods, particularly raw meat, poultry, or fish.

Change a diaper.

Cough, sneeze, or blow your nose.

Touch a pet, particularly reptiles and exotic animals, even your dogs and cats.

Handle garbage.

Tend to someone who is sick or injured.

Also, you should wash your hands in the following manner to ensure adequate sterility:

Use warm or hot, running water.

Use soap (preferably an antibacterial soap).

Wash all surfaces thoroughly, including wrists, palms, back of hands, fingers, and under fingernails (preferably with a nail brush).

Rub hands together for at least 10 to 15 seconds.

Of course, hand-washing is very necessary in preventing transmission of diseases and infections outside the hospitals as well, and people should religiously do it after being exposed to potentially contaminated materials or infected people before using their hands to eat, pick their noses or ear, scratch the skin, touch their eyes (or change contact lenses as stated above) and many other things.

Airborne/droplet-borne infections are perhaps the most difficult to control, either within the hospital or outside of it. This is because the direction of flow of air is usually unpredictable. These infections can be spread by coughing, sneezing, talking and other actions that can release pathogens into the air. Prevention is usually by wearing a nose-mask if (or necessary when) visiting a patient. Ideally, patients with potentials for transmitting dangerous airborne infections like tuberculosis and pertussis are kept in isolation, and special protective gadgets are needed to be able to interact with them.

Unfortunately, one might not even be with an infected patient to contract this type of infection. I will give two examples of this. Years ago, my father had an acute respiratory infection which involves sneezing, coughing, runny nose and teary eyes. It wasn't really pleasant. So, on the day I took him to the hospital, he sneezed heavily, just once, while waiting for our turn with the doctor and that was it. I apparently didn't want to 'embarrass' my dad by covering my nose in the presence of people and that was my undoing, because three days later, I came down with exactly the same symptoms and I had to go for the same treatment he had. On another occasion, a friend of mine contracted pertussis when a patient that was being wheeled to intensive care unit coughed as they passed him by while in the waiting room. At that moment, a handkerchief would have prevented that transmission. So one has to be careful, and not hesitate or be embarrassed to avoid contracting unwanted illnesses.

Blood borne infections are totally avoidable for those visiting the patients, maybe not entirely for those taking care of them, and certainly not entirely for the health-care personnel involved. Care must also be taken during interactions to avoid contact with blood. Other body fluids can transmit infections when cleaning up patients, or as improbable as it might sound, having sexual intercourse with them. Incidences of HAIs through sex between patient-patient, patient-personnel and personnel-personnel are not uncommon anymore and all these should be avoided to reduce or eradicate hospital-acquired STIs.

Food-borne infections in hospital environment are prevalent in hospitals with commercial cafeteria where patients' food can be bought and interaction with hospital personnel is inevitable; workers' kitchen where personnel foods are prepared and; eating room where hospital personnel mingle. People on visitation can easily contract infectious diseases in food cafeteria because of the persistent unethical behaviour of doctors and nurses with the habit of wearing ward-coats to where people eat.

In conclusion, food-borne infections can be prevented by:

- Using high-quality, fresh food.

- Properly refrigerating and storing food.

- Properly washing, preparing, and cooking food.

- Properly disposing of uneaten food.

- Thoroughly washing hands and fingernails before handling food and after visiting a restroom.

- Properly disposing of nasal and oral secretions in tissues and then thoroughly washing hands and fingernails.

- Covering hair and wearing clean clothes and aprons.

- Providing periodic health examinations for kitchen workers.

- Prohibiting anyone with a respiratory or gastrointestinal disease from handling food or eating utensils.

- Keeping all cutting boards and other surfaces scrupulously clean.

Rinsing and then washing cooking and eating utensils in a dishwasher in which the water temperature is greater than 80⁰ C

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