Dengue

Dengue is transmitted by the bite of a mosquito infected with one of the four dengue virus serotypes. It is a febrile illness that affects infants, young children and adults with symptoms appearing 3-14 days after the infective bite.

Dengue is not transmitted directly from person-to-person and symptoms range from mild fever, to incapacitating high fever, with severe headache, pain behind the eyes, muscle and joint pain, and rash. There is no vaccine or any specific medicine to treat dengue. People who have dengue fever should rest, drink plenty of fluids and reduce the fever using paracetamol or see a doctor.

Severe dengue (also known as dengue hemorrhagic fever) is characterized by fever, abdominal pain, persistent vomiting, bleeding and breathing difficulty and is a potentially lethal complication, affecting mainly children. Early clinical diagnosis and careful clinical management by trained physicians and nurses increase survival of patients.

What is dengue fever and severe dengue?

Dengue is a vector-borne disease transmitted by the bite of an infected mosquito. There are 4 serotypes of the virus that causes dengue. These are known as DEN-1, DEN-2, DEN-3, DEN-4.Severe dengue is a potentially lethal complication which can develop from dengue infections. It is estimated that there are over 50-100 million cases of dengue worldwide each year and 3 billion people living in dengue endemic countries.

Where does the disease occur?

Dengue is mainly transmitted by a mosquito (*Aedes aegypti*) and is distributed across all tropical countries (map available). *Ae. aegypti* and other species such as*Ae. albopictus* are highly adaptive and their combined distribution can spread dengue higher up north across Europe or North America during summer. (Note: Travellers already infected with the virus also spread the disease when they get bitten by the local *Aedes* mosquito population). Dengue outbreaks can occur anytime, as long as the mosquitoes are still active. However, in general, high humidity and temperature are conditions that favour mosquito survival, increasing the likelihood of transmission.

What are the symptoms of dengue fever and severe dengue?

Dengue fever

Dengue causes flu-like symptoms and lasts for 2-7 days. Dengue fever usually occurs after an incubation period of 4-10 days after the bite of the infected mosquito. High Fever (40°C/ 104°F) is usually accompanied by at least two of the following symptoms:

- Headaches
- Pain behind eyes
- Nausea, vomiting
- Swollen glands
- Joint, bone or muscle pains
- Rash

Severe dengue

When developing into severe dengue, the critical phase takes place around 3-7 days after the first sign of illness. Temperature will decrease; this does **NOT** mean the person is necessarily recovering. On the other hand, special attention needs to be given to these warning signs as it could lead to severe dengue:

- Severe abdominal pain
- Persistent vomiting
- Bleeding gums
- Vomiting blood
- Rapid breathing
- Fatigue/ restlessness

When severe dengue is suspected, the person should be rushed to the emergency room or to the closest health care provider as it causes:

- Plasma leaking that may lead to shock and/or fluid accumulation with/without respiratory distress;
- Severe bleeding;
- Severe organ impairment.

What is the treatment for dengue?

There is no vaccine or specific medication for dengue fever. Patients should seek medical advice, rest and drink plenty of fluids. Paracetamol can be taken to bring down fever and reduce joint pains. However, aspirin or ibuprofen should not be taken since they can increase the risk of bleeding. Patients who are already infected with the dengue virus can transmit the infection via*Aedes* mosquitoes after the first symptoms appear (during 4-5 days; maximum 12). As a precautionary approach, patients can adopt measures to reduce transmission by sleeping under a treated net especially during the period of illness with fever. Infection with one strain will provide life-time protection only against that particular strain. However, it is still possible to become infected by other strains and develop into severe dengue. When warning signs of severe dengue are present (listed above), it is imperative to**consult a doctor** and seek hospitalization to manage the disease. With proper medical care and early recognition, case-fatality rates are below 1%. However, the overall experience remains very discomforting and unpleasant.

What should I do if I suspect I have dengue?

If you suspect you have dengue you need to see a doctor immediately. To diagnose dengue fever, your doctor will:

- Evaluate your signs and symptoms;
- Test your blood for evidence of a dengue virus;
- Review your medical and travel history.

Persons who had travelled to dengue endemic countries during the past two weeks should inform the doctor about it.

Who spreads dengue and severe dengue?

Dengue is spread through the bite of the female mosquito (*Aedes aegypti*). The mosquito becomes infected when it takes the blood of a person infected with the virus. After about one week, the mosquito can then transmit the virus while biting a healthy person. The mosquito can fly up to 400 meters looking for water-filled containers to lay their eggs but usually remains close to the human habitation.

Aedes aegypti is a **daytime feeder**: The peak biting periods are early in the morning and in the evening before dusk.

Dengue cannot be spread directly from person to person. However, a person infected and suffering from dengue fever can infect other mosquitoes. Humans are known to carry the infection from one country to another or from one area to another during the stage when the virus circulates and reproduces in the blood system.

Aedes aegypti has evolved into an intermittent biter and prefers to bite more than one person during the feeding period. This mechanism has made *Aedes aegypti* a very highly efficient epidemic vector mosquito.

Where do the mosquitoes breed?

The mosquitoes thrive in areas close to **human population** (urban areas). The dengue mosquito lays its eggs in **water-filled containers** inside the house and surrounding areas of dwellings (this includes non-used bottles, containers, discarded waste, tyres etc… which hold water). The eggs hatch when in contact with water. Eggs can withstand very dry conditions and survive for months. Female mosquitoes lay dozens of eggs up to 5 times during their lifetime. Adult mosquitoes "usually" rest **indoors** in dark areas (closets, under beds, behind curtains). Here it is protected from wind, rain and most predators, which increases its life expectancy and the probability that it will live long enough to pick up a virus from one person and pass it on to the next.

What can be done to reduce the risk of acquiring dengue?

The best preventive measure for areas infested with *Aedes* mosquito is to eliminate the mosquitoes' egg laying sites – called source reduction. Lowering the number of eggs, larvae and pupae will reduce the number of emerging adult mosquitoes and the transmission of the disease. Examples of the following habitats are listed:

- Indoor
  - Ant traps
  - Flower vases and saucers
  - Water storage tank (domestic drinking water, bathroom, etc…)
  - Plastic containers
  - Bottles
- Outdoor
  - Discarded bottles and tins
  - Discarded tyres
  - Artificial containers
  - Tree holes, potholes, construction sites
  - Drums for collecting rainwater
  - Shells, husks, pods from trees
  - Leaf axils of various plants
  - Boats, equipment

Items that collect rainwater or are used to store water should be covered or properly discarded. The remaining essential containers should be emptied and cleaned and scrubbed (to remove eggs) at least once a week. This will avoid the adult mosquitoes to emerge from the egg/ larva/ pupa stage. In fact, the community participation is the key to dengue prevention. As every household aims to reduce vector density, the transmission rate will decrease or maybe even stop.

Personal and household protection

Protecting yourself from mosquito bites is most effective by reducing exposed skin to mosquitoes to bite on. Long-sleeved clothing and mosquito repellents (containing DEET, IR3535 or Icaridin) are the most viable options.

Window and door screens, air conditioning reduces the risk of mosquitoes coming into contact with the household members. Mosquito nets (and/or insecticide-treated nets) will also provide additional protection to people sleeping during the day, or protect against other mosquitoes which can bite at night (such as malaria). Household insecticides aerosols, mosquito coils or other insecticide vaporizers maybe also reduce biting activity.

Courtesy:

http://www.who.int/denguecontrol