

MIC@Home

Symptoms typically appear 4 to 7 days after being bitten, and include a sudden onset of fever which can last up to a week, severe headache, joint and muscle pain, and skin rashes. Although there's no specific treatment for dengue fever, close monitoring of your blood tests might be warranted to indicate safe recovery. Thankfully, patients admitted under the MIC@Home programme can receive routine blood tests at home. If necessary, transport can also be arranged to and from the hospitals for various scans and procedures.

HealthXchange SingHealth

To recover from dengue fever fast, it is important to maintain adequate hydration, keep symptoms under control and get sufficient bed rest.

Dengue fever is caused by the dengue virus transmitted from the bite of an infected Aedes mosquito. There are no specific medications or antivirals to treat dengue fever so treatment is directed towards the relief of symptoms.

"We advise dengue patients to rest and drink plenty of fluids to prevent dehydration from high fever, poor oral intake or vomiting. Paracetamol can be taken for the fever and to reduce joint pains. However, pain-relievers such as aspirin and ibuprofen should be avoided as they may increase bleeding complications,".

Dengue fever usually lasts between 2 to 7 days. Most people recover from dengue infection without requiring hospital admission.

4 Things to do to recover from dengue fever fast

1. Maintain adequate hydration

Drink plenty of fluids (water, isotonic drinks, fruit juices and soup) to maintain hydration. Avoid tea, coffee, alcohol and soft drinks with high sugar content which may cause dehydration. If you are unable to drink due to nausea or vomiting, fluids may be given intravenously by drip.

2. Keep symptoms under control

Fever and joint pains can be relieved by taking paracetamol. Medications may be prescribed for nausea, vomiting and if there are itchy rashes. Rashes usually resolve on their own over two to three weeks. Avoid pain-relievers and anti-inflammatory drugs such as aspirin, ibuprofen, diclofenac, naproxen and mefenamic acid) as they may cause gastric ulcers and subsequent bleeding in your stomach or intestines. Some of these medications may thin the blood and increase chances of bleeding leading to complications requiring hospital admission. If unsure, please consult your doctor.

3. Avoid bleeding

Rest in bed, reduce risk of falls and injuries to avoid risk of unnecessary bleeding. Intramuscular injections should be avoided. If you develop bleeding, bruises or swellings while recovering from dengue fever, please contact your doctor or nurse immediately.

4. Foods to eat and avoid

When asked about foods to eat for healing, Dr Pushpalatha answered, "There are no specific foods to eat or avoid, however the common dictum when one falls sick from any illness applies such as avoid raw, greasy or fat, spicy foods. Light and easy to digest food is advised when one is sick."

Please see a doctor immediately if you develop any of following symptoms:

1. Severe abdominal pain
2. Persistent vomiting
3. Vomiting blood
4. Black and tarry stools
5. Bleeding from the nose or gums
6. Drowsiness or irritability
7. Pale, cold, or clammy (sweaty) skin
8. Difficulty breathing

FAQs about dengue fever

1. What are the symptoms for dengue fever?

Dengue fever symptoms include: Fever (which can last up to 7 days), Intense headache with pain behind the eyes, Body aches and joint pain, Rashes, Loss of appetite, Nausea and vomiting, Mild bleeding (such as nose or gum bleeds) or easy bruising

2. How is dengue fever diagnosed?

As dengue fever symptoms are similar to other viral illnesses such as influenza, typhoid fever, malaria and mosquito borne infections like Chikungunya and Zika, your doctor will conduct clinical assessments and blood tests at regular intervals to determine which stage of dengue you are at. Tests include:

1. Full blood count: To assess blood concentration, platelet count and white blood cells
2. Dengue diagnostic tests: To confirm the dengue diagnosis
3. Kidney and liver tests: To check for dehydration, kidney and liver function
4. Other tests: Based on your condition

3. If I have dengue, will I spread it to others?

Dengue fever does not spread directly from person to person. However, a person with dengue fever can infect a mosquito when he or she is bitten and infected mosquitoes in turn can infect healthy people by biting them.

4. Can I get dengue fever again if I've been infected before?

There are 4 strains of the dengue virus: DEN-1, DEN-2, DEN-3 and DEN-4. Once you recover from one strain, you are unlikely to contract the same strain as your body would have built immunity against it. However, you may get dengue fever again from the other dengue strains.

"First-time dengue infections can be severe, especially among the elderly and those with pre-existing medical conditions. But repeat dengue infections have been associated with higher

risk of severe dengue (also known as dengue haemorrhagic fever and dengue shock syndrome) which can be fatal,” explained Dr Pushpalatha. “So it is important that everyone be vigilant in the prevention of dengue.”

Severe Dengue

Severe dengue initially presents with the common symptoms of dengue fever such as fever, intense headache, aches and pains, loss of appetite, nausea, vomiting, skin rashes and leukopenia (reduction in white blood cells). A positive tourniquet test is also a sign of dengue fever.

After several days, usually 3-7 days after the onset of symptoms, the patient may display the warning signs of severe dengue. These warning signs typically accompany a decrease in temperature (below 38 deg C) and include:

1. Severe abdominal pain
2. Rapid breathing
3. Persistent vomiting
4. Blood in vomit
5. Fluid accumulation in the body
6. Mucosal (gums and nose) bleeding
7. Liver enlargement
8. Rapid decrease in platelet count
9. Lethargy, restlessness

“A patient with these warning signs of severe dengue requires urgent medical attention,”.

What happens if the patient develops severe dengue?

If the patient develops severe dengue, there will be bleeding spots on the skin and other parts of the body and leakage of blood plasma. Severe dengue fever can damage the lungs, liver or heart. Blood pressure can drop to dangerous levels, causing shock and, in some cases, death. The symptoms of severe dengue include:

1. Severe skin bleeding with spots of blood on the skin (petechiae) and large patches of blood under the skin (ecchymoses)
2. Black stools
3. Blood in urine (hematuria)
4. Severe blood plasma leakage
5. Respiratory distress
6. Impairment of liver, heart and/or other organs
7. Changes in mental state with impaired consciousness

Patients who develop warning signs (in particular lethargy and persistent vomiting) and those with a low platelet count and high hematocrit (elevated red blood cell count) are at very high risk of developing very severe dengue, organ failure or even death.

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What is dengue fever?

Dengue fever is an illness caused by dengue virus, which is carried and spread by the Aedes mosquitoes. These viruses cause the body to bleed easily and may affect other organ systems.

What are the signs and symptoms of dengue fever?

The common symptoms are:

1. Fever
2. Headache
3. Muscle and joint aches
4. Rash-different types of rash which may itch and appear a few days after the onset of fever
5. Bleeding tendency- from nose, gums or other parts of the body due to low platelets. Platelets are one of the blood components which help to clot and prevent excessive bleeding. Normal levels range from 150,000 to 450,000 per millilitre.
6. Bruises from minor knocks and bumps.

Sometimes, dengue infection can present in a more serious form, known as Dengue Hemorrhagic Fever (DHF) or Dengue Shock Syndrome (DSS). Serious complications can occur resulting in:

1. Widespread bleeding
2. Low blood pressure or shock due to bleeding or leaking blood vessels
3. Organ failure
4. Death (The risk of dying from dengue complications is very low; less than one to five percent if supportive treatment is given early)

Dengue Fever - Treatments

Majority of the cases are mild, self-limiting and require no hospitalisation.

Assessment:

1. Blood test is done daily to assess the platelet level and concentration (as it can be normal during the first few days of fever)
2. Blood test can also be done at the polyclinics or general practitioner (GP) clinics

There is no antibiotic or antiviral medication for dengue fever. The treatment is mainly supportive and for relief of symptoms. The main components of management of dengue fever are:

1. Fluid or water replacement
 - Children about one year old or weigh more than 10kg should drink at least one litre of fluids a day.
 - Children who weigh more than 40kg or adults should drink at least two litres of fluids a day.
- This is because
- Fever increases water loss from your body.

- Dengue fever causes the blood vessels to be leaky and increases water loss from the blood circulation.

2. Symptom relief and fever control

- Painkillers (eg. paracetamol) may be given to relieve pain and control fever.
- Avoid aspirin (or other medications such as ibuprofen and diclofenac suppositories that affect the platelet functions) as it can increase the risk of bleeding.
- Medications may be given for nausea and vomiting.

3. Bleeding prevention and control

- Rest in bed and reduce activities like running around and avoiding sports to reduce the risk of falls and injury.
- Avoid brushing your teeth and traumatising your nose (eg. from digging) when your platelet counts drop below normal levels.
- If superficial bleeding occurs, apply firm pressure to the bleeding point for several minutes. For nosebleeds, use fingers to apply pressure to the upper part of the nasal bridge (by squeezing) and lean forward.

Note: Seek medical attention whenever there is evidence of bleeding.

When do you or your child need to return to the hospital?

- Blood platelets count less than 80,000.
- Bleeding from the nose or gums without any injury.
- Unwell (lethargic, drowsy or have breathing difficulty).
- Vomiting or poor feeding/drinking.
- Severe abdominal pain and giddiness.

Note: Hospitalisation may be considered when you or your child is presented with the above conditions.

Assessment, observation and treatment during hospitalisation

- Blood tests are done daily to assess the platelet level and blood concentration.
- Vital signs (eg. pulse rate or blood pressure) are monitored to detect any potential complications of dengue fever.
- Intravenous fluid (drip) may be required.
- Platelets or blood transfusion may be given if there is spontaneous bleeding.
- Admission and treatment in a high dependency or intensive care unit for artificial ventilation, blood pressure support and other measures may be necessary for patients who are critically ill.

When can you or your child go home?

- Current hospital guidelines allow children who are well and have a rising platelet trend or platelet above 80,000 to be discharged. For adults, our doctors will assess each patient and advice on suitability for discharge.
- After discharge, a repeat blood test (details included with discharge letter) should be done as and when instructed by your medical team.

- A further week of rest at home with no strenuous physical activities may be advised as some patients may feel very tired.

Dengue Fever - FAQ

1. Can you or your child spread dengue to others?

No. Dengue fever is not transmitted by direct spread from one person to another. It is transmitted by infected mosquito bites. Hence, persons in the same vicinity may come down with dengue fever.

2. Can you or your child be infected again?

Yes. There are four strains of dengue viruses. Infection with one strain will provide protection against only that particular strain. Future infection by other strains is possible. Currently, there is no vaccine available for dengue fever.

3. How to reduce the chances of being infected by dengue fever?

Singapore is in the tropical region where *Aedes aegypti* mosquitoes live. The best prevention is to get rid of mosquito breeding places:

- Change water in vases or bowls (including pet water containers) on alternate days.
- Remove water from flower pot plates on alternate days.
- Turn over all water storage containers.
- Cover bamboo pole holders when not in use.
- Cover rarely used gully traps.
- Add prescribed amounts of Temephos sand granular insecticide in roof gutters at least once a month.
- Cover toilet bowls and floor traps when away from home for a few or more days.
- Fit all floor traps with anti-mosquito valves.
- Air-conditioning or window/doors with mosquitoes screens can reduce the risk of being bitten by mosquitoes.

Using mosquito repellents containing DEET as the active ingredient on exposed skin and clothing can also decrease the risk of being bitten by mosquitoes. However, it is important to note:

- Children below two months old should avoid DEET mosquito repellent.
- Children below three years old should avoid eucalyptus oil.
- Children above two months old should use mosquito repellent with a lower concentration of DEET between seven to 20%.
- Pregnant women should reduce the usage of DEET mosquito repellent and apply on clothing instead.
- Mosquito repellent with DEET in concentration between 20 to 30% is only suitable for adults.

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Dengue is a disease by the dengue virus, which is transmitted to humans via the bite of an infective mosquito. There are four different serotypes of dengue virus (DENV1 to 4) circulating in

the world, including Singapore. Hence, individuals can be infected with dengue up to four times.

What are the symptoms of Dengue?

The symptoms of Dengue typically appear 4 to 7 days after being bitten (ranges from 3 to 14 days).

- Sudden onset of fever for 2 to 7 days
- Severe headache, pain behind the eyes
- Joint and muscle pain
- Skin rashes
- Mild bleeding (such as nose or gum bleed, or easy bruising of the skin)

If you think you have dengue fever, seek medical attention at your primary care doctor. Use mosquito repellent regularly if you are diagnosed with dengue or suspected to have dengue, to protect your loved ones and others living around you. Repellents containing DEET (N,N-diethyl-m-toluamide), Picaridin or IR3535 as the active ingredient are the most effective in repelling mosquitoes.

What are the potential complications of Dengue?

First-time dengue infections can be severe, especially among the elderly and those with pre-existing medical conditions and repeat dengue infections have been associated with a higher occurrence of severe dengue. In rare cases, dengue fever may progress to dengue haemorrhagic fever or dengue shock syndrome. These are severe forms of the infection that can result in death. Symptoms of severe dengue may include:

- Bleeding (e.g. gum or nose bleed, black stool, blood in vomit or stool)
- Persistent vomiting
- Abdominal pain or tenderness
- Restlessness or lethargy

Warning signs usually begin 1 to 2 days after your fever has subsided. If you have any of these warning signs, seek medical attention immediately. Severe dengue is considered an emergency and requires immediate medical care.

How do I prevent Dengue?

1. Mosquito Bite Prevention

You can prevent mosquito bites by applying mosquito repellent, wearing long, covered clothing, sleeping under mosquito nets or in rooms with wire-mesh screens or air-conditioned rooms.

You should use mosquito repellents containing DEET (N,N-diethyl-m-toluamide), picaridin or IR3535 as the active ingredient, as they are more effective and/or have longer mosquito repelling effects than “natural” repellents that use plant-based extracts, such as citronella, eucalyptus, and other essential oils. Use mosquito repellent regularly if you are living in or visiting either dengue clusters or areas with higher *Aedes aegypti* mosquito population.

You should download NEA's myENV mobile app (iOS, Android), which provides users with updates on dengue clusters and areas with higher *Aedes aegypti* mosquito populations.

2. Mosquito Breeding Prevention

Preventing the spread of dengue is also about maintaining vigilance in your environment. The Aedes mosquito has a distinctive black and white striped body, and prefers to breed in clean, stagnant water. By frequently checking and removing stagnant water from your home, you can help to prevent the spread of dengue fever. For more advice on preventing Aedes mosquito breeding, you can visit the National Environment Agency website.

3. Dengue Vaccine

The Health Sciences Authority (HSA) has approved a dengue vaccine, Dengvaxia, for individuals aged 12 to 45 years old. This is the only licensed dengue vaccine in Singapore. Dengvaxia can be useful for individual protection for persons in this age range who have been previously infected with dengue.

The vaccine is NOT recommended for those without prior dengue infection. If you are keen to be vaccinated for personal protection, consult your doctor as to whether Dengvaxia is appropriate for you.

How is Dengue treated?

There is no specific treatment for dengue fever, or its more serious forms, dengue haemorrhagic fever and dengue shock syndrome. Treatment for dengue is supportive. In more severe cases, you may be hospitalized for aggressive emergency treatment, including fluid and electrolyte replacement, and/or blood transfusions.

Gleneagles Hospital

How is dengue fever diagnosed?

Testing for dengue fever is done to determine whether a person with signs and symptoms, and recent potential exposure, has been infected with the dengue virus. The infection is difficult to diagnose without laboratory tests because symptoms may initially resemble those of other diseases.

Your doctor will assess your symptoms and your medical history. If the clinical suspicion of dengue fever is high, blood tests would be undertaken. These include a full blood count and may include the following:

- Dengue virus antigen detection (NS1): This detects the NS1 protein of the dengue virus, which is secreted into the blood during dengue infection. NS1 is detectable during the acute phase of dengue virus infections, usually during the febrile period or up to the first 7 days of symptoms. It can be as sensitive as molecular tests during this period.
- Antibody tests: This is a dengue test for IgM antibodies. Dengue virus-specific IgM and neutralising antibodies typically develop toward the end of the first week of illness. They are generally positive starting 4 – 5 days after the onset of symptoms, and continue for approximately 12 weeks afterwards, but may persist longer.

- Dengue test for IgG antibodies: Antibodies are produced more slowly in response to an infection. Typically, the level rises with an acute infection, stabilises, and then persists long-term. Individuals who have been exposed to the virus prior to the current infection maintain a level of IgG antibodies in the blood.

How is dengue fever treated?

It is essential to see a doctor if you think you have dengue fever.

Dengue fever can develop into more complicated conditions such as dengue haemorrhagic fever or dengue shock syndrome (resulting in bleeding, breathlessness and low blood pressure). These conditions can become life-threatening if medical attention is not sought early.

There is no specific medication for dengue fever, and treatment will be directed towards relieving the symptoms. In most instances, you will need to rest and drink extra fluids to avoid dehydration from vomiting and high fever.

You should avoid other over-the-counter pain medications such as aspirin and ibuprofen as they can increase the risk of bleeding complications.

Should symptoms worsen, go to your nearest Urgent Care Centre (UCC) immediately if you notice the following:

- Severe abdominal pain
- Persistent vomiting or nausea
- Vomiting blood
- Extreme lethargy

