



DENGUE SURVIVAL GUIDE

- A BUMI SEHAT PUBLICATION -





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Special Hug to Ibu PatyCakes of Bali Silent Retreat

Special Thanks to Ibu Suzy Hutomo of The Body Shop



THE BODY SHOP



Do not use chemical mosquito repellents on babies and small children. It is better to choose clothing that covers their arms and legs, as well as bed nets as the primary form of protection.

For children over age 3, you may use natural mosquito repellents made with essential oils.

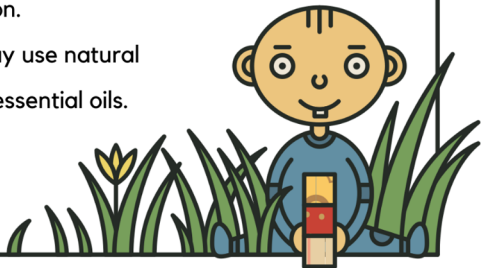


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Disclaimer

This booklet is meant to inform people
as much as possible about the dengue virus.
Outbreaks of dengue fever have been more frequent,
and affect more and more people.
The knowledge here is not offered as a prescription;
it is meant to inform individuals
so that they may find their own inner knowing,
and make wise choices.

Dengue Survival Guide

What is Dengue?

Dengue fever, also called ‘Break Bone Fever,’ *demam berdarah* or *DB* in Indonesia. It is a tropical viral disease and quite new to Indonesia; the first cases were reported in the 1960s. In the Philippines the disease was first seen about 1954. This may be due the fact that, prior to that, dengue was not recognized as a specific disease. Or... because mosquitoes carrying the dengue virus have found new breeding areas in plastic rubbish harboring even small amounts of standing water. Dengue infections and epidemics are on the rise due to the increase of the modern plastic mess.

There are several types of mosquitoes that can transmit the disease, of which there are four varieties. If you survive one type of dengue fever, then you typically have lifelong immunity to *that* variety only. Sadly, if you then contract a second type later in life, it may result in much more serious complications. Humans are usually infected with the dengue virus from the bite of the female *Aedes* type of mosquito, principally *Aedes aegypti*, also famous for spreading Yellow Fever, Chikungunya and Zika virus. To the *Aedes aegypti* mozzie, we humans are her favorite snack.

Etiology of Dengue Fever

Dengue fever and dengue hemorrhagic fever are caused by the arthropode-borne dengue virus (DENV); transmitted by the *Aedes aegypti* or the *Aedes albopictus* (aka Asian Tiger) mosquito. To date, four antigenically related but distinct virus serotypes (DENV-1, 2, 3 and 4) have been identified as belonging to the genus *Flavivirus* in the *Flaviviridae* family. Infection with one DENV serotype produces only specific antibody against that particular kind of dengue and provides immunity to only that serotype for life. Later infections by other types of dengue virus can cause more serious complications. The three factors that have important roles in the transmission of dengue virus infection are human, virus, and vector.

The current dengue epidemic has become a focus of International public health awareness. Unlike malaria, which is more prevalent in remote areas, cases of dengue are distributed mostly in urban and suburban areas, because mosquitoes love to breed in stagnant water held by plastic garbage. This has made dengue more lethal as outbreaks are difficult to control in highly populated areas and cities.

J Nat Med. 2013; 67(4): 677–689.

Published online 2013 Apr 17. doi: 10.1007/s11418-013-0767-y.



Aedes Aegypti

Notice the white markings on the legs of the Aedes aegypti mosquito.

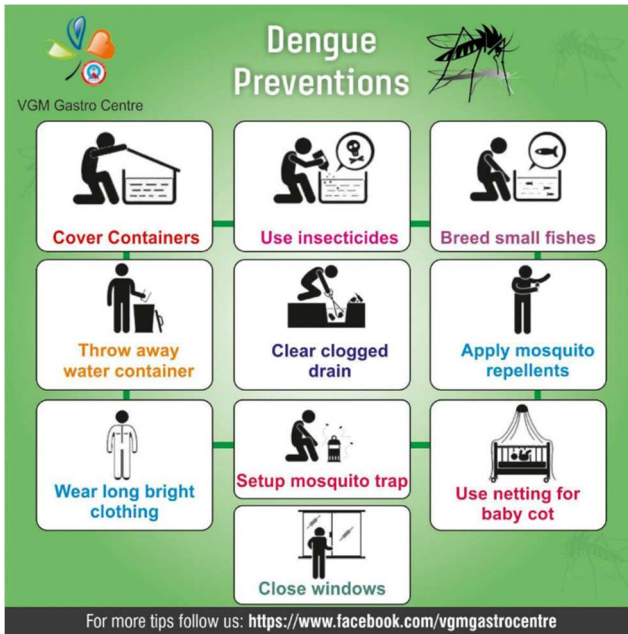
Markings on the thorax of Aedes aegypti mosquito look like a lyre. Only the female mosquitoes bite mammals; they need to feed on blood in order to mature their eggs and reproduce.

If a mosquito bites you, please, slap her and kill her before she lays her eggs and produces more hungry disease spreading mosquitoes!

The Aedes mosquitoes generally feed at dawn and dusk, they prefer to hang out in shady areas, including indoors, and they thrive on cloudy weather. However, be warned, these mosquitoes will bite you all year long and at any time of day or night.

Dengue Prevention

Mosquito control is the best way to prevent the spread of viral dengue disease.



Cities and villages that are suffering from epidemics of dengue often employ the fogging and spraying of insecticides. Though quite toxic, it is the most common practice used to try and reduce the population of mosquitoes that spreads the disease. Although this practice is not 100% effective to kill larvae and adult mosquitoes. In my experience, even after our village was recently fogged, mosquitoes remained prolific. A more common sense and less toxic approach is to eliminate the places where mosquitoes breed.



Dengue Vector is Mosquitoes

A vector is an organism, typically a biting insect, that transmits a disease or parasite from one animal or plant to another.

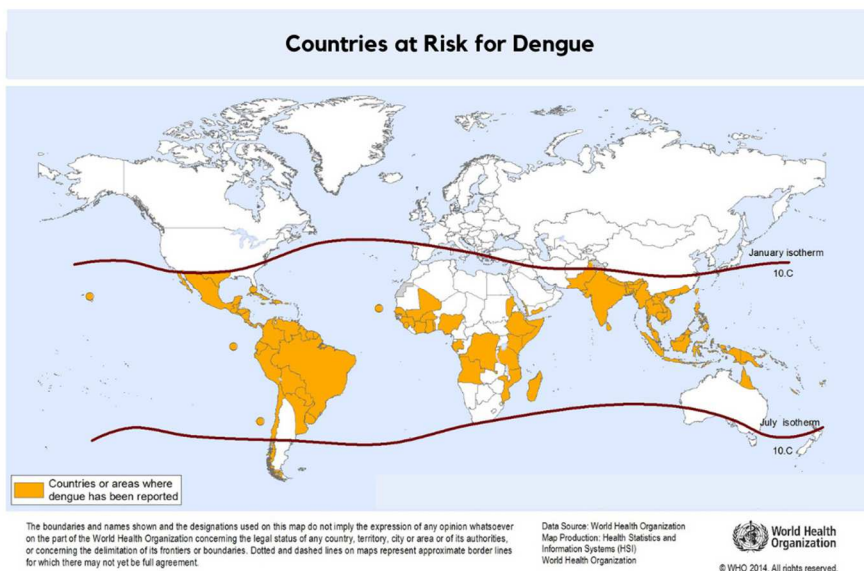
Dengue is the world's fastest growing vector borne disease. According to the Centre for Disease Control about 2.5 billion people, or 40% of the world's population, live in areas of dengue transmission: Tropical areas like Africa, Asia, the Pacific, the Caribbean and the Americas. The World Health Organization estimates that between 50 and 100 million cases occur every year, with about 500,000 of the more dangerous dengue hemorrhagic fever cases and 22,000 deaths, mostly children, elders and those people who are not physically strong.

Remember, mosquitoes breed in stagnant water. All garden ponds should contain fish, to eat the mosquito larvae. Make sure you feed your fish sparingly, so they will eat all the mosquito larvae.

Do not ignore things that may harbor small amounts of water where mosquito larvae live: flower vases, uncovered urns, barrels, buckets, old tires, or anything containing standing water. Eliminate stagnant water in gutters and flower/plant pots that are not well drained. Also, do not leave wet leaves, rubbish or plastic bags lying

around, mozzies love to breed in any little bit of standing water. There are larvicide chemicals that may be purchased and added to ponds. Read the packaging carefully to make sure these chemicals will not kill your fish. Also, be careful when using any chemicals around ponds where children may play.

The covid-19 global pandemic has closed most tourism around the world. Unfortunately, swimming pools are being left unmaintained and pose a significant threat of becoming breeding places for mosquitoes. If you see unmaintained pools or reflecting ponds, be sure to point out the issue to the management.



Aedes aegypti is a truly awful mosquito, they have moved all over the world in the last 20 to 30 years. In fact, it is considered to be the most widespread mosquito species. As global warming increases the temperature of our planet, dengue fever becomes a bigger problem, spreading to Europe and North America.

Personal Protection

In Indonesia and the Philippines we shower two times per day, in the morning and late afternoon/evening. Getting the sweat off of our bodies makes us less tasty to mosquitoes. Mozzies are attracted to ammonia (excreted in our sweat and urine), carbon dioxide (we exhale it), lactic acid (released in sweat) and octenol (found in our breath and sweat). Our warm bodies emit these common mosquito-attracting chemicals, especially when we sweat.

If you are going to be outside in areas endemic to mosquitoes, especially around sunset: shower, wear long sleeves, long pants and socks, use mosquito repellent. Natural mosquito repellents contain essential oils that confuse the mosquitoes and are quite effective, but need to be applied and frequently reapplied to exposed skin. Some healthcare professionals advise people to use a mosquito repellent that contains DEET.

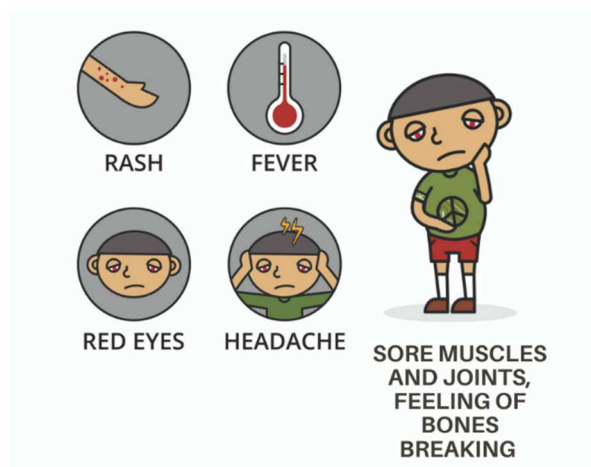
Keep a mosquito net over your bed. Close the net well before sunset, because that is when mosquitoes are looking for quiet dark, protected places to lay in wait. They are waiting for your warm mammalian body to emit attractive odors, so they may feed on you.

Dengue Diagnosis ~ Do I Have Dengue?

If you experience symptoms: sudden fever for 2-7 days, weakness, fatigue, lethargy, restlessness, heartburn along with skin bleeding (such as mosquito bites); rash on the face, skin, chest, arms/legs; nosebleeds/bleeding gums. Please have a blood test immediately. If the symptoms are severe, you can go into shock.

There are two specific blood tests for dengue fever. The most accurate is the NS1 test (In Bali the NS1 Dengue test is available at Prodia, Ananta, Quantum and Pita Labs, as well as most of big labs in Bali). The NS1 test can detect dengue on the first day of infection. The traditional IGM or Antigen test won't get a positive reading until four to six days after symptoms are felt.

Dengue can often be diagnosed by an experienced healthcare provider from a CBC (Complete Blood Count), also known as Darah Lengkap-DL and by checking to see if the patient's platelets are diminished, along with an observation of symptoms.



Is There A Cure?

Because a virus causes dengue fever, there is no specific modern medicine or antibiotic to treat it. Currently, the typical modern medical approach for treatment of dengue is concerned with relief of the symptoms. Rest and fluid intake for hydration is important. There are effective natural methods of restoring a dengue patient's platelets to within the normal range. These will be discussed later.

Is There A Vaccine?

In December 2015 the Philippines became the first country in Asia to license the use of a vaccine for dengue prevention.

Dengvaxia consists of an attenuated yellow fever virus that expresses genes of each of the four types of dengue virus. Some scientists were concerned, because the dengue virus is peculiar: The first infection is rarely fatal, but a second or subsequent infection with a different dengue virus type can lead to much more serious manifestation of the disease. This is because of what is called antibody-dependent enhancement (ADE), in which the immune response to the first virus amplifies the effect of the second type of dengue virus.

By November of 2017 the Philippines suddenly halted the dengue vaccine program because it was found that children who had never previously been infected with the dengue virus were at risk for

extreme exacerbation of dengue symptoms if they were given Dengvaxia. By then about 830,000 school children, age 9 or older, in the Philippines had been vaccinated with one or more shots of Dengvaxia.

In September 2018, DOH Undersecretary Enrique Domingo told reporters that 130 vaccinated children had died; 19 of those had dengue, meaning ADE possibly played a role. As of August 2019, over 600 people, mostly children, who had received at least a single dose of the vaccine had died, though their deaths were not necessarily caused by the vaccine itself, it was suspect. The DOH has since banned the vaccine's use and sale in the Philippines.

Researchers feel it will take several more years before this vaccine prevention tool is analyzed, clinically tested and proven to be safe and effective enough to be administered to all age groups. The potential benefits of a dengue vaccine must outweigh the risks and side effects.¹

Aspirin Can be Dangerous if You are Infected by the Dengue Virus.

This is because it is a blood thinner. Aspirin, Ibuprofen and nonsteroidal anti-inflammatory drugs should be avoided, as these drugs may worsen the bleeding tendency associated with multiple dengue virus infections.² Patients may be given Paracetamol preparations to deal with the fever symptoms if dengue is suspected. Doctors should be very careful when prescribing medicines. Any medicines that decrease platelets should be avoided.

When is Dengue Dangerous?

People who suffer from dengue fever may become very unwell, but have little or no risk of death; unless they are very young, old, weak, malnourished, dehydrated, or immune compromised and

¹ <https://www.sciencemag.org/news/2019/04/dengue-vaccine-fiasco-leads-criminal-charges-researcher-philippines>.

² Mayo Clinic Patient Care and Health Information
<https://www.mayoclinic.org/diseases-conditions/dengue-fever/diagnosis-treatment/drc-20353084>

develop **Dengue Hemorrhagic Fever (DHF)** or **Dengue Shock Syndrome (DSS)**.

These cases are at grave risk! For some people, death can occur quite suddenly: if the patient's platelet count drops too far below the normal range of 150 to 450 (in lay language). In medical terms: 150,000 to 450,000 per micro liter of blood is normal. Below 50,000 platelets per micro liter is considered very dangerous. This is called **thrombocytopenia**. Doctors in Indonesia and the Philippines will normally put a patient in the hospital if his or her platelet count drops below 100,000 per micro liter; in lay terms: below 100.

If a clinical diagnosis is made early, a health care provider can treat DHF using fluid replacement therapy. Faster recovery is observed when patients are treated with traditional/heritage plant medicines, which help the body build and increase platelets. Management of DHF, once the patient's platelets drop significantly, generally requires hospitalization.

In general, dengue is a self-limiting acute febrile illness followed by a phase of critical defervescence (reduction/abatement of fever), in which patients may improve, **or** progress to a severe form known as Dengue Hemorrhagic Fever (DHF). Severe illness is characterized by hemodynamic disturbances (relating to blood flow), increased vascular permeability (leaking blood vessels), hypovolemia (decreased volume of circulating blood in the body), hypotension (abnormally low blood pressure) and shock (an acute medical condition associated with a fall in blood pressure; marked by cold, pallid skin, irregular breathing, rapid pulse, and dilated pupils).

Why do People Who Have Contracted the Dengue Virus Suffer From Low Platelets, Also Called: Thrombocytopenia?

- Dengue virus induces bone marrow suppression.
Since bone marrow is the manufacturing center of blood cells, its suppression causes deficiency of blood cells leading to low platelet count. Anemia and spontaneous severe bleeding are the other resultant factors of bone marrow suppression.
- When vascular endothelial cells infected with the dengue virus get mixed in our blood stream, they tend to destroy platelets (our

blood clotting cells). This causes thrombocytopenia (abnormally low platelets) in dengue fever patients. We need our platelets for proper blood flow and to prevent hemorrhage.

- Even the antibodies that are produced after infection of dengue virus can contribute to destruction of platelets, thus lowering the platelet count. Studies suggest that dengue virus can even bind to platelets of human blood in the presence of virus-specific antibodies. It is as if the dengue virus attacks our thrombocytes and destroys them from within.
- Leucopenia, a reduction in the number of white blood cells is typical in dengue patients, and puts people at increased risk for other infections, including bacterial infections.

Symptoms of Dengue

- First stage of Dengue often begins 2 to 4 days after exposure to a mosquito carrying the virus. Symptoms may include sudden fever, facial flush, itching, apathy, lethargy, flu-like symptoms, headache, muscle pain, nausea, vomiting and/or diarrhea, swelling of glands in the neck. Lab tests may show low white blood cell count.



- During this first stage, if the patient begins to take natural remedies, as described in this book, dengue fever is much easier to manage.
- The traditional IGM or Antigen test for a conclusive diagnosis of dengue, will get a positive reading four to say six days after symptoms are felt.

- The NS1 test can detect dengue on the first day of infection. Complete Blood Count test (CBC) shows low platelets.
- In moderate dengue infection cases, with no severe symptoms, all symptoms usually go away after the fever subsides.
- Second stage of dengue: After some days you may begin to have warning signs: irritable, restless, sweating, loss of appetite, joint pain and body aches, hence the name 'Break Bone Fever'. Patient is unable to maintain regular activities. The fever usually continues and may be around 39° to 40°, as high as 41° C. If the patient begins to have convulsions at this stage, consider it an acute warning that there may be other complications. With these symptoms, the patient should be seeing a doctor and having lab tests, and/or checking into the hospital.
- Dengue Hemorrhagic Fever or Dengue Shock Syndrome occurs after 3-6 days or more of fever. At this time, fever may decrease. This may mislead the family to believe that the patient is heading towards recovery. In fact, this may be a dangerous wait-and-see period that requires high vigilance from caregivers. By now blood tests should be done (CBC/ Darah Lengkap), to determine if the patient's thrombocytes (platelets) and white blood cells are below normal.
- In severe cases, the patient's condition may suddenly deteriorate. She/he may have abdominal pain, vomiting (even blood in vomit), fluid retention in abdomen and lungs, rapid breathing, bleeding gums, fatigue. After days of fever, temperature may drop, followed by signs of circulatory failure; patient may rapidly go into a critical state of shock. If one or more of these symptoms is present, seek help at the hospital.
- Dengue Shock Syndrome (DSS) is characterized by bleeding that appears as tiny spots of blood on the skin (petechia) also called

Dengue Skin Rash. Sometimes larger patches of blood under the skin (ecchymosis) are seen. In this state, even minor injuries may cause bleeding. Bleeding may come from the gums, nose and/or vagina. Symptoms may also include blood in the urine, fluid accumulation in the abdomen and lungs, low blood pressure, high pulse rate, enlarged liver. If the patient is not already in the hospital, take them immediately.

- Most patients recover following appropriate medical treatment. Recovery is supported by hydration and bringing up the patient's platelet count.

How to Tell When Dengue Progresses Into Hemorrhagic Fever (DHF)?

The early stage of Dengue *without* warning signs is usually identified by the presence of a fever, which could be mild or high (37.5°-40° C/99.5°-104° F), and two or more of the following: nausea or vomiting; a rash that causes the face to redden and red patches to develop on arms, legs, chest, and back; body ache and pain; low white blood cell count; swelling of glands in the neck and behind the ears.

Dengue Hemorrhagic Fever is suspected if early stage symptoms of dengue fever are present, plus any one of the following warning signs.

- Severe and continuous pain in abdomen.
- Bleeding from the nose, mouth and gums, vagina or skin bruising.
- Frequent vomiting with or without blood.
- Black stools, like coal tar.
- Excessive thirst (dry mouth).
- Pale, cold skin.
- Restlessness, or sleepiness.
- Reduced flow of urine.
- Rash.

Dengue shock syndrome symptoms are the same as dengue hemorrhagic fever plus:

- Weak rapid pulse.
- Reduced blood pressure.
- Cold, clammy skin and restlessness.
- Fast breathing.

Note: No one with dengue gets ALL the symptoms; there are so many. It can be confusing, especially for people who live alone and are trying to determine if they need help. If you are asking yourself, “Do I need help?” The answer is, YES! Be aware that any one of the warning signs means the patient needs help to recover.

What if I Get Dengue During Pregnancy?

Even in pregnancy, the main form of treatment is to relieve symptoms and keep the mother-to-be well hydrated and nourished. This will prevent pre-eclampsia, pre-term labor or problems with the placenta, which could lead to having a low birth weight baby. The good news is that pregnant women who are well nourished generally enjoy, what I call, an immune-happy state. They fall ill less often and recover fast while pregnant.

Symptoms can usually be managed by taking Paracetamol (acetaminophen), which is considered to be safe during pregnancy. Drink plenty of fluids and rest as much as you can. Be sure you continue to eat, even if it is only porridge; your baby needs you to stay nourished. You may need to be monitored closely by your doctor to be sure that you do not develop a severe form of dengue hemorrhagic fever.

If you develop severe dengue, you will need to be treated in hospital and given fluids via a drip to prevent dehydration and stabilize your blood pressure. Women who go into labor while having dengue are at increased risk of heavy postpartum bleeding (hemorrhage), and may need blood transfusions.

To improve your platelet count: if you suspect you have dengue, do not wait; immediately begin to drink guava juice and papaya leaf juice, papaya leaf tea and/or papaya enzymes, to maintain your platelets at a normal level.

The Obgyns and midwives I have consulted all feel that papaya and guava will have no ill effect on the pregnancy or the baby.

With treatment, most pregnant dengue patients make a safe recovery and are usually well enough to leave hospital after a few days. Having an ultrasound scan can reassure the mother that the baby's condition is well.

Very, very rarely, if the baby is born while the mother is suffering from an acute infection of the dengue virus, the baby could also contract dengue. There are only a few documented cases of this. It is not sure if babies can get vertical transmission of the dengue virus from mother. It is more likely that if a newborn baby contracts dengue, that she was bitten by a mosquito carrying the dengue virus. Make sure to use a mosquito net!

My own experience helping mothers with dengue has involved three cases. The first one was able to get her platelet count up to normal, just the day before she delivered safely at the midwifery clinic. Baby and mother were perfectly healthy. Mother sustained no significant blood loss.

In the second case, the mother's platelets were still abnormally low when labor commenced. To be on the safe side, we accomplished the birth at the hospital, in the care of both a midwife and an Obgyn. The mother safely delivered a big baby weighing 4.2 kg with no complications. The midwife and doctor were very vigilant making sure the mother would not hemorrhage by administering IM pitocin (antihemorrhagic medication) immediately upon the birth of the baby.

In the third case, the midwives were called to the home of a Balinese woman who had been diagnosed four days earlier with dengue. We found her in strong labor, with a significant petechia, dengue skin rash. This mother had not taken any of the platelet building plant medicines provided by the clinic when she was first diagnosed with dengue. The midwives could be sure by her condition that her platelets had decreased and she was at risk for dengue shock syndrome. The husband would not allow his wife to be transported by ambulance to the hospital. The backup Obgyn was consulted by phone.

He advised the midwives to proceed with caution, as there was no alternative. The birth happened quickly and, thankfully, with no complications (the ambulance was kept close on standby). Precautions to prevent postpartum hemorrhage were taken immediately after the baby's birth. The family made the *Beras angkak* and juiced papaya leaves for the mother. Her appetite was good, she ate porridge and breastfed her big healthy baby girl.

Temu kunci (finger root) was also given with fresh juice of guava. Prodia lab was called to the house, and a positive diagnosis was made for dengue hemorrhagic fever. Plant medicines were continued and the mother's platelets increased over the following two weeks. Exclusive breastfeeding went very well.

I tell these stories to help mothers suffering with dengue fever in late pregnancy to focus on quick recovery using plant medicines. Fear can only make the situation worse.

In the current Covid-19 pandemic, hospitals will not allow a new mother seeking hospitalization for treatment of dengue fever, to bring her baby into hospital with her. Even if the baby is fully breastfeeding. This is more reason to be very vigilant in seeking help early, before symptoms are acute. Early diagnosis makes it possible for the mother to be treated with the plant remedies. If administered early and diligently, the patient's platelets will recover quickly, and sometimes hospitalization is not necessary.

When determining if a patient belongs in hospital, seek the advice of a doctor, who will determine via the science of your lab results, what is the best course of treatment.

Breastfeeding and Dengue

Remember that the many germ fighting components of human milk will help protect babies from viruses (and bacteria). This does not mean your baby cannot get dengue fever; you must protect him or her from being bit by mosquitoes. Breastfeeding is still considered safe if the mother is infected with dengue. Research suggests that this risk of transmission of dengue virus from mother to the baby through breast milk is very low.

The benefits of breastfeeding during maternal infection are much higher than the chances of infection to the baby. Also, you cannot give your family members dengue by kissing or cuddling. Dengue is transmitted by the bite of an Aedes mosquito who is infected with the dengue virus, it cannot spread directly from person to person.

Natural Solutions if You are Infected with the Dengue Virus

Water

You must drink 1.5-2 litres of pure water a day to stay hydrated and to reduce the discomforts of dengue symptoms. Also, water reduces the toxin load that can complicate the impact of the virus on your body.

Young Coconut Water



What my Filipino mother calls: ‘Water From Heaven.’ When we drink it, we are not only hydrating our bodies, we are nourishing our cells with bio-available vitamins and minerals, that are easy to digest and assimilate, and it keeps ones electrolytes in balance.³

Red Yeast Rice ~ *Beras angkak*

Some healthcare practitioners do not recommend it in pregnancy, simply due to lack of research. My experience has been that it is effective and without significant risk to the baby in the third trimester.

³ 8 Science-Based Health Benefits of Coconut Water
https://www.healthline.com/nutrition/8-coconut-water-benefits#TOC_TITLE_HDR_1

Beras angkak is an effective first line of defense for increasing platelets in patients with dengue fever. It is available in small bulk bags in the Traditional Chinese medicine pharmacies and some health food stores.

Red Yeast Rice is called *Beras angkak* in Indonesia and Malaysia, in China it is known as Ang Khak or *Hong Qu*, in Japan by the name *Koji* or *Beni Koji*. Europeans know it as *Rotschimmelreis* and in the USA it is named *Red Mold Rice*.

It is made by growing/fermenting the yeast *Monascus purpureus* on parcooked rice, giving it a deep scarlet or purple color.

Historical evidence in China, going back 2,000 years, describes the use of *Beras angkak* as a traditional medicine to improve digestion and revitalize blood. All over Asia, it is employed as a way of adding color and preserving foods, and for brewing wine and vinegar. Research is being carried out to understand the role of *Beras angkak* in the reduction of cholesterol and hyperlipidemia (abnormal levels of fat in the blood). *Beras angkak* has naturally occurring *Lovastatin*, known to be helpful in the treatment and prevention of stroke, cancer, osteoporosis, Alzheimer's disease, dementia and age related macular degeneration (blurry vision and loss of vision).⁴

Preparation: *Beras angkak* is found on line, in some health food stores and most Chinese pharmacies. I recommend keeping some in your freezer, just in case a family member or friend comes down with symptoms of dengue fever.

It is sold in loose dry portions about the size of one's fist (approx. 20 grams). Prepare *Beras angkak* medicinal tea for people suffering from dengue in this way:

Bring 6 cups of water to a boil in a non-aluminum pot. Add the dry *Beras angkak* and let gently boil for another 3 to 5 minutes. Strain the deep red/brown 'tea' into clean jars with lids. For children and some adults, I add a little honey.

⁴ REVIEW of THE STUDIES on THE RED YEAST RICE (*Monascus purpureus*)
Turkish Electronic Journal of Biotechnology Vol 2, 37-49, 2004 © Biotechnology
Ass. Accessed 24/3/2016: <http://www.biyotekder.hacettepe.edu.tr/f.pdf>

Dosage: As soon as the first batch of *Beras angkak* tea is cool enough to drink, the patient should begin sipping it, taking as much as possible, without inducing vomiting. Try to get the patient to drink a jar of the *Beras angkak* tea every 2 to 3 hours, until the 6 jars you prepared are finished. If the patient's thrombocytes remain below normal, make a second batch of this medicinal tea, and encourage him or her to drink all of it.

Treatment and Prevention of Dengue with Homeopathy

For those not familiar with homeopathy: Very simply, it's a system of medicine that treats the patient with highly diluted substances to trigger the body's natural immune system of healing.

Tjokorda Gede Kerthyasa, an Australian-qualified Balinese Doctor of Homeopathy, has studied dengue fever intensively and treated patients successfully with homeopathic medicine for years. Tjokorda Gede says that some herbal remedies are also very effective.

“Dengue is a virus which is constantly mutating
and has a wide range of symptoms.

It's a very elusive, adaptive, chameleon type of virus.”

~ Tjokorda Gede, Doctor of Classical Homeopathy

Coping with Dengue & Building Thrombocytes/Platelets with Natural Plant Medicines

According to a World Health Organization (WHO) fact sheet dated December 2008: 80% of the population in some Asian and African countries depends on traditional medicine as their primary health care due to economic and geographical constraints.⁵

⁵ Use of traditional medicine in middle-income countries : a WHO-SAGE study.
<https://academic.oup.com/heapol/article/31/8/984/2198144>

As a healthcare professional in Indonesia and the Philippines, where dengue is a widespread and common problem, I witness much success in combating the disease using plant remedies.⁶ Most doctors will encourage the patient's family to provide the traditional plant remedies, even while the patient is in the hospital.

Sadly, I have also witnessed the death of close friends, in the prime of their lives, from dengue hemorrhagic fever (DHF) that progressed into dengue shock syndrome (DSS).

After more than four years, I am still mourning the loss of a wonderful young mother, who had her beautiful baby at Bumi Sehat. Six months after becoming a mother, she was hospitalized in Sumatra for dengue hemorrhagic fever. They did all they could in the modern medical model to save her. I often wonder.... What if she had fallen ill in Bali, and we midwives and more open-minded doctors had provided her with herbal/plant remedies to rebuild her platelets? Would our dear Ibu Icha be alive today, enjoying her daughter growing up? We will never know.

I am the granddaughter of a traditional healer, midwife (Hilot or Dukun), Vicenta Munar Lim, from the Cordillera Mountain region of the Philippine islands. She taught me to make friends with the plants, for they can heal us when administered with LOVE. Guided by the memory of my Lola Vicenta, I routinely study and recommend herbal/plant remedies to dengue patients to rebuild their platelets.

Evidence shows that some plant remedies prevent dengue hemorrhagic fever from progressing to dengue shock syndrome. Clearly, in the absence of modern medical solutions for dengue, we need our plant allies. Recommending plant remedies is not the same as prescribing a drug. When recommending a plant medicine, empirical (verifiable by observation or experience rather than theory) evidence of effectiveness is shared. The individual and family, armed with knowledge, can make informed choices for self-treatment.

⁶ Usage of Traditional and Complementary Medicine among Dengue Fever Patients in the Northeast Region of Peninsular Malaysia.
<https://pubmed.ncbi.nlm.nih.gov/31303853/>

To help reduce the suffering from dengue fever, I recommend giving the patient *Beras angkak* plus choose two or more plant allies in this book, to rebuild platelets and stop the damaging effects of the virus. People who suspect they have contracted the dengue virus should not wait to become very sick, begin taking two or more plant remedies right away. For example, begin immediately to take *Temu kunci* (finger root) in capsules and/or spice your food generously with the fresh root and drink guava juice. Supportive plant foods, like daily fresh squeezed orange juice, tulsi tea or pesto made with fresh basil leaves, are good to help prevent dengue fever from progressing into dengue hemorrhagic fever or dengue shock syndrome.

I have organized the plant medicines in order of most useful, easiest to find and easiest to prepare and take.

A scholarly overview of plant medicines, published by the Journal of Natural Medicines, can be found on line at:
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3765846/>⁷

Papaya ~ *Carica papaya*



Papaya belongs to family *Caricaceae*. It is an erect, fast-growing and unbranched tree or shrub indigenous to Central America and cultivated in most tropical countries for its edible fruits, which improve digestion and are full of vitamins.

Papaya leaf has been used traditionally as a natural cure in the treatment of dengue fever.

⁷ Potential anti-dengue medicinal plants: a review
Siti Latifah Abd Kadir, Harisun Yaakob, and Razauden Mohamed Zulkifli
Nat Med. 2013; 67(4): 677–689. Published online 2013 Apr 17.
doi: 10.1007/s11418-013-0767-y

The extract of the leaves of this plant (juiced or squeezed out with water) exhibited potential activity against dengue fever by increasing the platelet count and white blood cells (aka neutrophils), in blood samples of patients.⁸

Increased platelets are key to avoiding internal and external bleeding in dengue fever patients, thus avoiding progression to the severe illness of DHF and DSS. Papaya leaf and fruit contains high levels of vitamin C, this helps stimulate the immune system, plus the antioxidant effect helps to reduce oxidative stress and eliminate excess toxins in the blood.

Preparation:

Note: only the leaf material is used, not the leaf spines or sap. Papaya leaves (of any variety) should be well washed, crushed with a mortar and then squeezed through a clean, damp cloth to extract the juice. Another method is to put the leaves in a blender with some water, blend, then pour through a sieve and drink. The extract should be consumed fresh and raw, without adding water, salt or sugar; adding a little honey is ok.

Dosage: 10-15 ml twice a day for adults and 5-10 ml for children between the ages of 5 and 12. Results are often seen in 2 to 3 days. We recommend the patient continue to take the papaya juice for a day or more longer. It is very bitter.

A story from India about the use of papaya leaves in the treatment of DHF (thanks to Ibu Cat Wheeler of Bali):

Dr. Sanath Hettige of Sri Lanka was prompted to search for a dengue fever remedy when his wife, a Senior Medical Officer at the Intensive Care Unit of Sri Jayewardenepura Hospital, expressed helplessness at the many deaths from dengue she saw on her ward. He came across an online posting which recommended the use of papaya leaf juice for dengue fever.

⁸ Carica papaya extract in dengue: a systematic review and meta-analysis.
<https://pubmed.ncbi.nlm.nih.gov/31601215/>

A laborer working on his land contracted dengue soon afterward and Dr. Hettige tested it on him, with his permission. When the man rapidly recovered, he decided to try it on other patients.

In the pilot study, 24 dengue fever patients consented to participate in the research. Twelve patients were given the papaya leaf extract and twelve controls were not given the juice. It was significant to observe that the platelet count increased in all twelve patients after two doses of papaya leaf juice; they all recovered without needing to go to hospital.

Dr Hettige's latest research on randomized controlled clinical trials of over 70 dengue patients (including children) has found that all patients who consumed papaya leaf extract recovered fully within two days without requiring hospital admission. The results are highly significant when compared with the control group who did not consume papaya leaf extract. According to Dr Hettige, the leaf extract increases the white blood cells and blood platelets and normalizes the clotting profile, which are major aspects of the disease.

Papaya leaf extract also helps repair the damage caused to liver cells by dengue fever. Doctor of Traditional Chinese Medicine in Jakarta, Reza Gunawan, recommends papaya leaf capsules to patients recovering from dengue, after they are released from the hospital.

More research on the effectiveness of papaya leaf extract:
www.hindawi.com/journals/ecam/2013/616737 ⁹ (accessed 3/2016).

⁹ Carica papaya Leaves Juice Significantly Accelerates the Rate of Increase in Platelet Count among Patients with Dengue Fever and Dengue Haemorrhagic Fever Evidence-Based Complementary and Alternative Medicine Volume 2013 (2013), Article ID 616737, 7 pages Soobitha Subenthiran,¹ Tan Chwee Choon,² Kee Chee Cheong,³ Ravindran Thayan,⁴ Mok Boon Teck,¹ Prem Kumar Muniandy,¹ Adlin Afzan,¹ Noor Rain Abdullah,¹ and Zakiah Ismail¹

Finger root -- Temu kunci, Boesenbergia rotunda



Commonly called *Temu kunci* in Indonesia and *Krachai* in Thailand.

Boesenbergia rotunda belongs to family Zingiberaceae. It is a medicinal and culinary root also known as Chinese ginger, found throughout Asia. The activity of some compounds extracted from *B. rotunda* for the inhibition of dengue virus protease has been tested

on the dengue virus.

Ethno botanist Dale Millard introduced me to the *Temu kunci* root as a solution for dengue. He says, "In simple terms, the dengue fever virus penetrates the cell nucleus and reprograms the nucleus to replicate the virus. The nucleus then bursts the cell membrane and releases the virus into the bloodstream. The flavonoids in the *Temu kunci* root inhibit re-entry of the viruses into new cells. Clinical research shows that the flavonoids found in *Bosenbergia rotunda* have low toxicity and a strong inhibitory effect against the dengue virus." The sooner a person infected with the dengue virus can begin to take *Temu kunci*, the better.

Ibu Ni Wayan Lilir, a traditional Balinese herbalist, agrees that *Temu kunci* is a potent weapon against dengue fever. She dries and powders the root, making it easily available for use in cooking or medicine.

Research on the many medicinal uses of Temu kunci:
<http://www.hindawi.com/journals/ecam/2012/473637/>¹⁰
(accessed 3/2016).

¹⁰ Boesenbergia rotunda: From Ethnomedicine to Drug Discovery
Evidence-Based Complementary and Alternative Medicine
Volume 2012 (2012), Article ID 473637, 25 pages
Tan Eng-Chong,1,2 Lee Yean-Kee,2,3 Chee Chin-Fei,2,3,4 Heh Choon-
Han,2,3,5 Wong Sher-Ming,6,7 Christina Thio Li-Ping,1,2,6 Foo Gen-
Teck,2,7 Norzulaani Khalid,6,7 Noorsaadah Abd Rahman,2,3 Saiful Anuar
Karsani,2,6 Shatrah Othman,1,2 Rozana Othman,2,5 and Rohana Yusuf1,2

Preparation: *Temu kunci* is most easily taken in powdered form when made into capsules. To use fresh *Temu kunci* in early stage of dengue, make a *jamu* by scrubbing about 300 grams of the fresh root; put this through a juicer or blender, or smash it finely in a mortar and pestle with a little water. Mix this concentrate with up to 1 liter of room temperature water. You may sweeten with honey.

Dosage: 2 to 3 capsules of powdered *Temu kunci* can be taken 3 to 4 times per day. You may also take *Temu kunci* capsules to prevent dengue. Fresh *Temu kunci jamu* may be taken 3 times a day in 250 ml doses. Do not heat.

Sambiroto (or Sambiloto) ~~ Creat (common Western name) ~~ Andrographis paniculata



Sambiroto, *Andrographis paniculata*, belongs to family *Acanthaceae*. It is an erect annual herb, growing up to about 1 meter or less in height. It is quite commonly found in gardens in Bali and throughout Indonesia and the Philippines, native to India and Sri Lanka and cultivated widely throughout Asia.

In Malaysia it is called *Hempedu bumi*, in Sanskrit it is, *Kiratatika*. It is likely the bitterest tasting herb on earth!

Sambiroto extract of *A. paniculata* is known to have a high antiviral inhibitory effect on DENV-1. *Sambiroto* is a febrifuge (fever reducer); it is a carminative (soothes belly aches), anti-inflammatory, antiviral and supports the liver. In addition, traditional healers recommend that people eat a leaf a day to cleanse our blood, so that we will not be appetizing to mosquitoes.

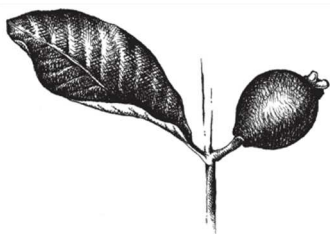
Preparation: *Sambiroto* may be made into a tea or by *meremas* (squeezing or mashing with clean hands into drinking water); strain and drink small amounts. It is so bitter that it is nearly impossible for

a sick person to drink it. It is much easier to take the dried herb in capsules.

Dosage: 2 capsules 3 times per day, until all symptoms of dengue subside and then take 1 capsule 2 times per day, for a few extra days. Beware that *Sambiroto* is an appetite suppressor, so do not take in large amounts, especially when recovering from dengue, for you can lose weight.

Sambiroto, *Andrographis paniculata* has been found to be effective in the prevention and treatment of early onset of Covid-19 (coronavirus). Thailand has cleared the use of *A. paniculata* for Covid-19 treatment.¹¹ A significant study supporting the effectiveness of *A. paniculata*, aka Sambiloto, against Covid-19 was done in Indonesia: The coronavirus disease 2019 main protease inhibitor from *Andrographis paniculata* (Burm.F) Ness.¹²

Guava ~ Sotong ~ Jambu biji ~ Psidium guajava



Guava, *Psidium guajava* belongs to family *Myrtaceae*. It is an evergreen shrub or small tree indigenous to Mexico, the Caribbean and Central and South America. It is cultivated widely in tropical and subtropical regions around the world, including Indonesia and the Philippine Islands.

Guava leaf extract has been tested in vitro and shown to inhibit the growth of the dengue virus and to improve declining levels of platelets.

Water boiled with guava leaves was used to avoid bleeding in DHF and increased platelet counts. Guava, the ripe fruit or juice, has

¹¹ <https://www.straitstimes.com/asia/se-asia/thailand-clears-use-of-herbal-medicine-for-covid-19-treatment>

¹² [Downloaded free from <http://www.japtr.org> on Tuesday, November 24, 2020, IP: 185.217.117.122]

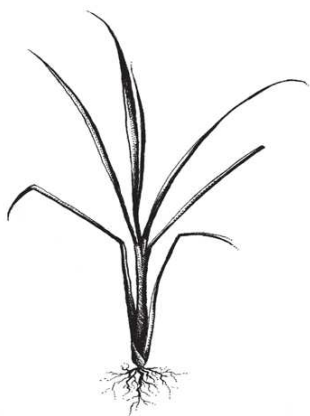
healed many people that I personally know who were suffering from DHF.

When dengue fever patients are confined to hospital and given only IV support, their platelet levels continue to drop. At the very least, concerning plant medicines, many doctors believe that these patients should be given guava juice to bring their platelets back up to normal.

Preparation: If one can only get the boxed juice of *guava* (*jus jambu*) to give to dengue fever patients, it is still a blessing. Fresh fruit of guava may be mashed and juiced. Guava leaves can be boiled as a strong tea (decoction). The more traditional way to make leaf medicines is called *meremas* (extraction): Pick and wash the young leaves, then knead them with one's right hand in clean drinking water, until water is nice and green, strain and drink.

Dosage: Juice and tea of the guava may be taken as desired. Staying hydrated is a very good idea when suffering from any viral infection. The extract of guava leaves may be taken 10-15 ml twice a day for adults and 5-10 ml for children between the ages of 5-12. It should be noted that guava seeds and the extract of the leaves can be very constipating.

Lemon Grass ~ Cymbopogon citratus



Aromatic and delicious, *Lemon grass*, *Cymbopogon citratus*, belongs to family *Poaceae*. It is a grass species; a tropical plant from Southeast Asia, often used in cooking and as tea. The antiviral activity of *Cymbopogon citratus* may not outweigh the cytopathic (could damage cells) effects in large doses. However, as a kitchen spice and occasional tea, it does protect us from viruses.

Lemonade and Orange Juice ~ fresh and natural

The rich mixture of antioxidants and vitamins found in orange, lemon and lime make it ideal for treating symptoms of dengue fever and lessening the discomforts associated with any virus. Citrus juice helps to promote antibodies of the immune system, increases urination, inspires the release of toxins and stimulates cellular repair due to vitamin C's crucial role in the creation of collagen.

In our family, we drink the juice of freshly squeezed orange (jeruk manis) or lime (jeruk nipis) every morning.

Preparation: Simply squeeze the juice and serve. In Indonesia we like to mix the juice of sweet oranges with some boiled hot water to make it like a pleasant tea. In the Philippines we prefer *Calamansi* (a small sweet lime-like citrus), mixed in hot water and served with honey on a stormy day.

Dosage: As much as you like.

Neem ~ Azadirachta indica

Azadirachta indica belongs to the family *Meliaceae*. It is fast-growing tree, growing to a height of 15–20 meters. It is native to India and Pakistan and grows throughout tropical and semi-tropical regions. We see neem trees growing all over Asia along roadsides, though I would not pick these leaves for medicinal use, as they may contain toxins from the exhaust of cars and motorbikes.

It was shown that the aqueous extract of neem inhibited the dengue virus. Neem Leaves are a common traditional prescription for a variety of ailments, and dengue fever is no exception.

Preparation: Steeping neem leaves and then drinking the subsequent brew has been shown to increase both blood platelet count and white blood cell count. Two of the most dangerous side effects of the dengue virus are reduced platelets and reduced white blood cells. Brewed neem leaf tea can improve the immune system and return your strength much faster than many other home remedies.

Dosage: Drink neem tea as you wish, staying hydrated and enjoying the healing effects.

Tulsi ~ Ocimum sanctum (Sacred basil)

Ocimum sanctum belongs to family *Labiatae*. It is an aromatic herb and shrub; native to the tropical regions of Asia and the Americas. I have many wonderful *tulsi* plants in my garden. *Tulsi* is sacred to the Divine Mother, and is said to increase our loving tendencies.

Tulsi tea is traditionally prepared by boiling the leaves of *Ocimum sanctum*; acts as a preventive medicament against fevers. Tulsi leaves (Sacred basil) are known to be an important immune-boosting plant ally.

Tulsi has long been recommended in Ayurvedic medicine for the treatment of dengue fever as it is antiviral, typhoid because it is antimicrobial, and malaria for it destroys the malaria protozoa.

Preparation: A tea may be steeped with the fresh or dried leaves. Mixed with Lemon Grass it makes a delightful antiviral beverage. One may also just chew the leaves. The traditional and enjoyable Ayurvedic way to prepare Tulsi medicine is to crush 20 or more fresh leaves with a mortar and pestle, add 1 tsp of honey.

Dosage: Sip as much Tulsi tea as you like. Consume the Tulsi and honey 4 to 5 times per day and every hour if you are seriously ill.

Basil ~ Kemangi ~ Ocimum basilicum



Basil is antiviral. When dengue season comes around I make sure we always have a jar of my pesto waiting in the refrigerator for everyone to enjoy. In our family Pesto, made with Basil and Tulsi leaves picked fresh from our garden, is a favorite. Classically, Pesto is used to flavor pasta. It can be used on salads and steamed vegetables.

For a quick snack, it makes a wonderful spread on toast. This vibrant green food is great in helping alleviate anemia.

Ibu Robin's Pesto recipe ~~

a medicine and delicious food

1 cup cashew nuts.

5 cloves garlic, peeled and crushed (garlic is also medicinal, but it is optional).

1 ½ to 2 cups virgin olive oil.

2 1/2 cups (well packed) freshly picked Basil and/or Tulsi leaves.

Juice of 6 calamansi or juice of 6 *Jeruk nipis* (Bali limes).

Salt to taste (about ½ tsp).

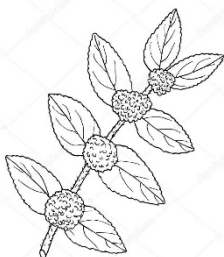
- Gently braise the cashew nuts and garlic in 2 tbsp of the olive oil until lightly golden.
- Put all the ingredients in the blender or food processor and pulse until all are ground together.
- Enjoy!



*** Basil essential oil also has natural insecticidal properties that will make you less attractive to mosquitoes. Rub the crushed leaves or the essential oil on your skin as a preventative strategy!

Asthma plant ~ *Tawa-tawa* ~ *Euphorbia hirta*

Asthma-plant



Euphorbia hirta, called Asthma plant, *Koko kahiki* in Hawaii, belongs to family *Euphorbiaceae*. It is a common weed in garden beds, garden paths and wastelands and is found throughout Indonesia (Bali, Java, and Sumatra), Peninsular Malaysia, the Philippines, and Vietnam.

The water decoction of leaves from *Tawa-tawa*, also known as *gatas-gatas*, is used in the Philippines as a folk medicine to treat dengue fever. The traditional healers, known as *Hilots*, say: “Internal hemorrhaging will stop and dengue fever will be cured after 24 hrs.” However, the mechanism of action is still unknown; the antiviral properties and its ability to increase blood platelets are currently being investigated.

Tawa-tawa Tea boosts platelet production. A study with rabbits given *Tawa-tawa* at San Pedro College in the Philippines showed a 194% increase in platelet production.

The tea obtained from boiled leaves of *Tawa-tawa* was used by the Bumi Wadah disaster relief team on Leyte Island (responding to super typhoon Haiyan) when some of the volunteer disaster relief medical team fell sick with dengue hemorrhagic fever. It was a super effective cure.

Tawa-tawa is a natural anxiety reducer. It is a bronchodilator, making it easier for us to breathe; this means that it can be used to treat asthma and bronchitis.

Use the fresh sap of the pounded *Tawa-tawa* plant to treat boils, wounds, warts, fungi and rashes. Note: It will turn deep blue when applied to skin.

Preparation: Steep 1 tsp of dried leaves or 2 tsp of the fresh *Tawa-tawa* leaves in 1 cup of hot water for approximately 10 minutes to make a tea. *Tawa-tawa* capsules can also be found online.

Dosage: *Tawa-tawa* is a powerful herb and should be taken only for short periods of time. You should not use it for more than 24 hours in large doses, or up to a maximum 2 or 3 days, in smaller doses, in the beginning stages of Dengue Fever.

Balinese or Javanese long pepper ~ Tabia bon ~ Piper retrofractum



Piper retrofractum belongs to family *Piperaceae*. It is a flowering vine native to Southeast Asia and cultivated in Indonesia and Thailand mostly for its fruit. Please plant this wonderful vine along your garden walls, for she has become classified as an endangered plant.

The extract, or a tea made with water, can be sprayed on standing water to eradicate mosquito larvae.

Research conducted in India has confirmed the anti-dengue activity of *Piper retrofractum*. It was found effective using both ethanol and water extraction methods.

Recovering from Dengue

REST... REST and REST & HYDRATE! Eat as much and as often as you can. Dengue causes rash and anorexia. Even months later, appetite can still be impaired. Even if you do not feel like eating and/or drinking, you must force yourself to stay hydrated and nourished. When a person with dengue fever has become dehydrated and emaciated, he or she ends up in the hospital. Find foods that are bland and easy to digest. A healthy chicken & rice porridge is nutritious and easy on the palate and digestion.

Foods that can be eaten by patients with dengue:

- Young Coconut Water: The healthy calories, electrolytes and minerals found in young coconut water help nourish and support fluid replacement for dengue patients. Be sure to eat the soft coconut meat too.

- Orange & Lime: Two of the best fruits for people with dengue fever. Sweet orange or lime, also lemon, squeezed and mixed with hot water, for a soothing drink, may be flavored with honey. Citrus is rich in vitamin C, which helps in the recovery of antibodies.
- Dragon Fruit: This exotic fruit is full of fiber and vitamin C, plus, it feels quite gentle when eaten.
- Porridge: Remember to always prepare pureed and soft foods for yourself or for others with dengue fever. Porridge is easily swallowed and digested, and has plenty of fluids.
- Moong dal (mung dhal): Soak equal parts moong dal (kacang hijau) with water for an hour. Add a pandan leaf and cook until very tender and soupy. Add more water if needed. You may make it savory by adding grated turmeric and a pinch of salt. If you prefer sweet and spicy, have this easily digested, high protein soup with coconut milk (santen), sweeten lightly with gula Bali (coconut sugar) and spice with grated ginger root.
- Ginger water: Basically, dengue patients need lots of fluids. Give warm ginger water as a reinforcement to the body and help reduce the effects of nausea that often are experienced.
- Fresh figs or soaked dried figs.
- Steamed organic Vegetables.
- Fruit juices: Enjoy fruit juices such as watermelon, guava, kiwi, papaya and dragon fruit. Fruits rich in vitamin C are a must for dengue patients. It helps in the production of lymphocytes and strengthens the immune system of the body.
- Vegetable juices: Imbibe after you feel more solid in your body. You don't want to push the rich vegetable juices too soon, as it may cause you to vomit. Carrot, cucumber, and green leafy vegetables juice are fantastic in providing the basic nutrients that the human body needs. You can dilute the juice, to tolerate better.
- Green juices, spirulina, chlorophyll and moringa leaf: In capsule or powdered and added to smoothies, helps to rebuild your blood. Good quality natural vitamins, that are bioavailable, should be taken.

Foods to avoid:

While suffering from dengue fever, saturated fats, refined sugars and processed junk food, deep fried foods and spicy foods need to be avoided. Please read the labels on all packaged foods; they will often contain saturated fats and refined sugars!

Dengue Fever and Covid-19

The SARS-CoV-2, aka Covid-19 virus, has caused a global pandemic, and thrown all of our lives into a tailspin of stress and sorrow, and for many people, grief. Healthcare professionals are concerned about co-epidemics causing confusion, human suffering and burdening healthcare systems in areas affected by DENV also known as dengue.

Common symptoms of dengue fever, muscular pain, malaise, rash, fever, can make it difficult to distinguish between dengue fever and Covid-19 infection. To further the confusion, patients suffering from dengue fever may test positive for Covid-19, later findings can show undetectable IgG and IgM for SARS-CoV-2, meaning that there is a possibility of dengue causing false positive test results of Covid-19. More studies are needed to confirm or overrule this theory.¹³

In Indonesia it has been found that there seems to be a serological overlap between the two diseases: dengue fever and Covid-19. Covid-19 patients have presented with dengue-like symptoms and initially show false positive dengue serology results. Some patients' lab results showed reduced platelets (thrombocytopenia).

As respiratory symptoms developed, and pointed to possible Covid-19 infection, some patients were eventually diagnosed with Covid-19. One patient was found to be co-infected with both DENV and Covid-19.¹⁴

¹³ A Patient With Dengue Fever and covid-19: Coinfection or Not?
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7723426/> (sourced February 2021)

¹⁴ Dengue serology in Indonesian COVID-19 patients: Coinfection or serological overlap? <https://www.sciencedirect.com/science/article/pii/S2214250920302353> (sourced February 2021)

To be clear, it has been found that patients with dengue may test positive for covid-19, even if they do not have covid. Conversely, patients suffering from Covid-19 may be mistakenly diagnosed with dengue. Also, it is possible for a patient to suffer from both dengue and Covid-19.

This makes it urgently important that we all do our best to prevent dengue virus by being very vigilant to identify and illuminate mosquito vectors, wear mosquito repellent and cover your arms and legs with long clothing at dusk. Also sleep with a mosquito net.

A Last Note

Rarely, dengue fever may cause bald spots, which usually resolve by themselves. If you choose traditional medication, see a Doctor of Traditional Chinese Medicine about the dengue alopecia; they may be able to help you recover your hair faster.

Blessings of Health,

Ibu Robin & Team Bumi Sehat

Other Infections Humans Get From Mosquitoes

Chikungunya

(Pronounced: chik-en-gun-ye) Symptoms of this alphavirus usually manifest 3 to 7 days after being bitten by *Aedes aegypti* or *Aedes albopictus* mosquitoes, the same mosquitoes that transmit dengue virus.

The most common symptoms of Chikungunya are fever, joint pain, joint swelling, headache, muscle pain and rash. Outbreaks have occurred in Africa, Asia, Europe, and the islands of the Indian and Pacific Oceans.

Diagnosis is made by blood test; but all too often, the reagent needed to test for Chikungunya virus is not available. This is because there are so many suspected cases lately that the labs run out of reagent. If one has the classic dengue-like 'break bone' pain with fever, it could be Chikungunya. Most people who suffer from it are better within a week. Occasionally, a person who has recovered from Chikungunya may continue to experience joint pain for many weeks.

The symptoms can be debilitating; some patients tell me Chikungunya is much more painful than dengue fever. The good news is that this disease is hardly ever fatal; Chikungunya almost never causes hemorrhagic symptoms. Only the very young, very old, and people with serious preexisting health conditions like high blood pressure, diabetes and heart disease, need to worry.

Treatment: Rest and drink plenty of water, and the herbs and juices that are described in this book. The patient may take Paracetamol (acetaminophen) to help cope with the pain and fever.

Malaria

The World Health Organization estimates that in 2013 malaria caused 198 million clinical episodes, and 500,000 deaths. Humans are infected with malaria parasites via the bite of the *Anopheles* mosquito. The incubation period in most cases varies from 7 to 30 days. The shorter incubation periods are observed most frequently with *P. falciparum* (the more serious kind of malaria) and the longer ones with the less serious types.

People who get malaria have symptoms of high fevers, shaking chills, and flu-like illness. Although malaria can be a deadly disease, illness and death from malaria can usually be prevented. Two important currently used antimalarial drugs are derived from plants whose medicinal values had been noted for centuries: *artemisinin* from the *Qinghaosu* plant (*Artemisia annua*) and quinine from the cinchona tree (*Cinchona* spp). If you have been traveling in malaria-endemic areas and you become ill, be sure to tell your doctor that you are at risk for malaria, so that you receive the proper tests for diagnosis.

Prevention: When working in the tsunami zone in Aceh, many of the Bumi Sehat team took the medicine *Malarone* to prevent malaria. For some of our team this caused nightmares and a general unwell feeling. Others of us on the tsunami relief team ate leaves of the *Sambiroto/Sambiloto* (*Andrographis paniculata*) daily, as a preventative. Though the taste of the leaves was quite terrible, it was far nicer than having malaria. Having treated patients in Aceh with Malaria, believe me, it is a horrible disease. Thankfully it is not endemic to Bali.

Yellow Fever

Another virus transmitted to humans via the bite of an infected *Aedes aegypti* mosquito. Yellow fever is a problem in South America and Africa. You won't need to worry about it in Asia; we have enough to worry about already, unless you have recently traveled to those countries.

Yellow fever is diagnosed by the patient's physical symptoms along with travel history considered; laboratory tests can be done. There is a vaccine for Yellow fever. My siblings and I received the vaccine as children, as we traveled with my father who was in the military. For some reason, the Yellow fever vaccine was much more painful than all the others; it felt as if a thick syrup was being injected into our arms. My youngest brother was so afraid of this vaccine that he flailed about and savagely kicked several doctors each time they tried to administer it to him!

There have been reports of rare, but serious, adverse effects following yellow fever vaccination, including anaphylaxis, yellow fever vaccine-associated neurologic disease, and yellow fever vaccine-associated viscerotropic disease (attacking the internal organs). There are many questions concerning this vaccine.

When infected with the Yellow fever virus, the majority of people do not get ill or become only mildly ill. Those who do develop symptoms will notice them 3 to 6 days after being bitten. The initial symptoms include sudden onset of fever, chills, severe headache, back pain, all-over body aches, nausea and vomiting, fatigue and weakness. Most people improve after the initial presentation. About 15% of people infected, after a brief remission of hours to a day, progress to develop a more severe form of the disease. The severe form of yellow fever is characterized by high fever, jaundice, bleeding, and eventually shock and failure of multiple organs. No wonder my father insisted the military vaccinate us for it!

Treatment: Rest, fluids, hospitalization if severe symptoms arise and prayer. Patients must avoid aspirin and other non-steroidal anti-inflammatory drugs (e.g. ibuprofen, naproxen), which may increase the risk of bleeding.

Zika

Zika virus is transmitted to humans via the bite of an infected *Aedes* mosquito. The most common symptoms of Zika are conjunctivitis (red eye), fever, rash and joint pain. The illness is usually mild, with symptoms lasting for several days to a week after being bitten.

People infected with Zika virus usually do not get sick enough to go to the hospital, and they very rarely die of Zika. For this reason, many people might not realize they have been infected. Once a person has been infected, he or she is likely to become immune to future infections. Outbreaks of Zika have been reported in tropical Africa, Southeast Asia, and the Pacific Islands.

The most frightening thing about the Zika virus is that it is can be spread from a pregnant woman to her developing fetus. Zika has been linked to microcephaly, a serious birth defect of the brains of babies whose mothers contracted Zika virus while pregnant. Problems have been detected among fetuses and infants infected with Zika virus before birth, such as absent or poorly developed brain structures, defects of the eye, hearing deficits, and impaired growth. The CDC recommends special precautions for pregnant women. Women who are pregnant should not travel to areas with Zika outbreaks. If you must travel to or live in one of these areas, talk to your healthcare provider first and strictly follow steps to prevent being bitten by mosquitoes.

Resources Within Bali

- Mosquito Lady Consulting
Trudy Rilling-Collins, Founder
"Environmentally Responsible Mosquito Control" WITHOUT the use of toxic chemical pesticides!
Mosquito Control Services
trudy@mosquitolady.com
WhatsApp: +62 812 3744 5358
<http://mosquitolady.com>
- Yayasan Bumi Sehat Valentino Memorial Lab.
Klinik Bumi Sehat, Banjar Nyuh Kuning, Mas, Ubud, Bali.
Lab open Monday-Friday from 9:30 AM to 2 PM.
Phone: (0361) 970002 or (0361) 972969
- Dengue Survival Kit ~ Available at Bumi Sehat.
Contact: Saffira +62 813 3110 9261
- Prodia Labs in Bali will send a technician to your house to draw blood and test for Dengue.
Phone: (0361) 261001 or (0361) 7807801 in Ubud, for home service.
- Nadis Herbal ~ Ibu Lilir grows Temu Kunci plants and sells them for cultivation in home gardens.
"Every household should have one," she advises.
Contact Ibu Lilir at nadisherbal@yahoo.com
- Christine Foster ~ herbalist, encapsulating Indonesian heritage herbal medicines.
luhbulan@me.com
- *Beras Angkak* to build platelets, available at Bali Buda and at Traditional Chinese Medicine Pharmacies (Apotik Cina).
Online: <https://www.balijiwa.net/product-page/red-yeast-rice-angkak-250g>.
- Doctor of Homeopathy, Tjokorda Gede Kerthyasa
tjokmahatma@hotmail.com

Some Research

This is a good link to an article in Bahasa Indonesia:

8 Manfaat Angkak Bagi Kesehatan – Obat Demam Berdarah

<http://manfaat.co.id/manfaat-angkak>(accessed 1/2021)

Combination of Angkak (Red Yeast Rice), Red Guava (*Psidium guajava* Linn) Leaf Extract and Red Guava Fruit Juice Increase Thrombocyte in Quinine-Exposed Rats

IOSR Journal Of Pharmacy (e)-ISSN: 2250-3013, (p)-ISSN: 2319-4219 www.iosrphr.org Volume 5, Issue 4 (April 2015), PP. 01-06
<http://www.iosrphr.org/papers/v5i4/A0540106.pdf> (accessed 1/2021)

Effects of Medicinal Plants on Dengue: Review Article

PharmacologyOnLine Newsletter ~ 2013 ~ vol.3 ~ 1-7

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http://pharmacologyonline.silae.it/files/newsletter/2013/vol3/PhOL_2013_3_N001_001_Parvaiz.pdf (accessed 1/2021)

Symptoms of Dengue

- First stage of Dengue often begins 2 to 4 days after exposure to a mosquito carrying the virus. Symptoms may include sudden fever, facial flush, itching, apathy, lethargy, flu-like symptoms, headache, muscle pain, nausea, vomiting and/or diarrhea, swelling of glands in the neck. Lab tests may show low white blood cell count.
- During this first stage, if the patient begins to take natural remedies, as described in this book, dengue fever is much easier to manage.
- The traditional IGM or Antigen test for a conclusive diagnosis of dengue, will get a positive reading four to six days after symptoms are felt.
- The NS1 test can detect dengue on the first day of infection. Complete Blood Count test (CBC) shows low platelets.
- In moderate dengue infection cases, with no severe symptoms, all symptoms usually go away after the fever subsides.
- Second stage of dengue: After some days you may begin to have warning signs: irritable, restless, sweating, loss of appetite, joint pain and body aches, hence the name 'Break Bone Fever'. Patient is unable to maintain regular activities. The fever usually continues and may be around 39° to 40°, as high as 41° C. If the patient begins to have convulsions at this stage, consider it an acute warning that there may be other complications. With these symptoms, the patient should be seeing a doctor and having lab tests, and/or checking into the hospital.
- Dengue Hemorrhagic Fever or Dengue Shock Syndrome occurs after 3-6 days or more of fever. At this time, fever may decrease. This may mislead the family to believe that the patient is heading towards recovery. In fact, this may be a dangerous wait-and-see period that requires high vigilance from caregivers. By now blood tests should be done (CBC/ Darah Lengkap), to determine if the patient's thrombocytes (platelets) and white blood cells are below normal.
- In severe cases, the patient's condition may suddenly deteriorate. She/he may have abdominal pain, vomiting (even blood in vomit), fluid retention in abdomen and lungs, rapid breathing, bleeding gums, fatigue. After days of fever, temperature may drop, followed by signs of circulatory failure; patient may rapidly go into a critical state of shock. If one or more of these symptoms is present, seek help at the hospital.
- Dengue Shock Syndrome (DSS) is characterized by bleeding that appears as tiny spots of blood on the skin (petechia) also called *Dengue Skin Rash*. Sometimes larger patches of blood under the skin (ecchymosis) are seen. In this state, even minor injuries may cause bleeding. Bleeding may come from the gums, nose and/or vagina. Symptoms may also include blood in the urine, fluid accumulation in the abdomen and lungs, low blood pressure, high pulse rate, enlarged liver. If the patient is not already in the hospital, take them immediately.
- Most patients recover following appropriate medical treatment. Recovery is supported by hydration and bringing up the patient's platelet count.