Graphical user interface, application

Description automatically generated

**Modules:**

1. Essentials
2. Risk
3. Symptoms
4. Aedes Mosquito
5. Self-care
6. Prevention
7. Interesting Facts

\* Yellow highlight = correct answer

## Module 1: Essentials

1. How does a person get dengue? (Can choose more than one) (1-3)
   1. Through mosquito bites
   2. Through blood transfusions
   3. Through breastfeeding
   4. Through food and water
   5. Through sex

Explanation: Dengue is primarily spread through mosquitoes carrying the virus, notably by Aedes mosquitoes. Infections through blood transfusions and breastfeeding are rare. Dengue cannot be transmitted through food, water nor sex.

1. Can a person get dengue fever more than once? (4)
   1. Yes
   2. No

Explanation: It is possible to be infected up to four times as there are four strains of the dengue virus circulating around the world.

1. Can a person die from dengue? (5)
   1. Yes
   2. No

Explanation: Since 2007, the annual dengue deaths have increased 65.5%, from 24,500 to 40,500 deaths in 2017 globally.

1. Apart from fever, what is/are the symptom(s) of dengue? (Can choose more than one)
   1. Nausea
   2. Rash
   3. Muscle and joint pain
   4. Vomiting

Explanation: All these are possible symptoms of dengue. Dengue can be easily mistaken for a common cold. Hence, it is important to monitor your symptoms and inform the doctors.

1. What is/are the warning sign(s) for dengue that requires immediate medical attention? (Can choose more than one) (6)
   1. Abdominal pain
   2. Blood in stool/vomit
   3. Bleeding gums/nose
   4. Persistent vomiting/diarrhoea
   5. Drowsiness or irritability

Explanation: All these are warning signs of dengue fever. If a warning sign appears, patients must immediately see a doctor to avoid severe complications and the risk of death.

1. Dengue symptoms can be mistaken for the common cold. In addition to having symptoms, how do we know if we need to see a doctor for dengue? (Can choose more than one)
   1. If you live or travelled in areas with dengue reports
   2. Experience any dengue warning signs
   3. Increase appetite

Explanation: It is always a good practice to consult a doctor if you are unsure about your health, especially if you suspect yourself might have dengue.

1. How long do the symptoms of dengue usually last? (1)
   1. Around one day
   2. Around one week
   3. Around two weeks
   4. Around one month

Explanation: As the symptoms of dengue last around a week, it is important to seek early medical help, monitor the symptoms and warning signs that appear, and schedule ample time for rest.

1. If diagnosed with dengue, which drug(s) must be avoided? (1)
   1. Ibuprofen/Aspirin
   2. Paracetamol (Acetaminophen)
   3. Statins
   4. Blood pressure lowering medicine

Explanation: Ibuprofens and aspirins may worsen dengue symptoms and increase the risk of bleeding in dengue patients

1. How do we take care of ourselves or someone with dengue? (Can choose more than one) (7)
   1. Stay hydrated
   2. Monitor for warning signs
   3. Attend all follow up appointments
   4. Take Ibuprofen
   5. Strenuous exercise

Explaination: Patients with dengue should get as much rest as possible while staying hydrated. They may take paracetamol to control the fever but must avoid ibuprofens and aspirins. Also, patients must attend all of their follow-up appointments to monitor their disease condition.

1. What medicine can cure dengue? (8)
   1. Antibiotics
   2. Paracetamol
   3. Vitamin C supplements
   4. None of the above

Explanation: As of 2021, there is no direct cure or treatment for dengue. Paracetamol may alleviate dengue symptoms such as fever, it alone does not cure dengue nor replace seeking medical help.

1. What can patients consume to cure dengue? (8)
   1. Papaya leaf extract
   2. Guava juice
   3. Alkaline water
   4. Crab soup
   5. Isotonic drinks
   6. None of the above

Explanation: As of 2021, there is no direct cure or treatment for dengue. Though papaya leaf extract has been shown to increase platelet count, they alone do not cure dengue nor replace seeking medical help.

1. Since there is no cure for dengue, can patients just treat themselves at home without seeking medical care? (4)
   1. Yes
   2. No

Explanation: Patients with dengue need to seek medical care regularly so that the doctors can monitor their condition closely as severe dengue can progress rapidly within a day.

1. Dengue is cured once the fever disappears. (1)
   1. True
   2. False

Explaination: The most dangerous stage of dengue usually comes after the fever disappears. It is important to monitor for dengue warning signs and seek emergency medical care immediately if patients experience them.

1. How can we protect ourselves from Aedes mosquitoes? (Can choose more than one) (1)
   1. Apply screens or netting to windows or doors
   2. Wear long sleeves and long pants when going outdoor
   3. Use insect repellent when going outdoor
   4. Avoid travels to areas with dengue outbreaks

Explanation: All of these are the recommended measures to prevent mosquito bites.

1. How do we prevent Aedes mosquitoes from breeding? (Can choose more than one) (1)
   1. Dispose water collecting rubbish (eg. can, bottle, plastic bag) properly
   2. Apply abate powder in still water such as water container
   3. Clean and cover water containers regularly
   4. Apply chlorine or insecticides to lakes or rivers

Explanation: Aedes mosquitoes breed in still/dead water sources like man-made containers and pots instead of running water sources like lakes and rivers. As such, it is important to clean or remove sources of still/dead water to prevent Aedes mosquito breeding.

## Module 2: Risk

1. The total number of dengue cases worldwide has \_\_\_\_\_ over time. (4)
   1. decreased
   2. increased

Explanation: Since the year 2000, the number of dengue cases around the world has risen 8-fold from over half a million to 5.2 million in 2019.

1. In 2019, there were \_\_\_ deaths due to dengue in Malaysia. (25)
   1. 0
   2. 56
   3. 144
   4. 182

Explanation: The number of death due to dengue has been high since 2014 to 2019, registering around 147-336 deaths per year.

1. How many times can a person get dengue? (4)
   1. 1
   2. 2
   3. 3
   4. 4

Explanation: It is possible to be infected with dengue up to four times as there are four strains of the dengue virus circulating around the world.

1. Only children and the elderly are at risk of dying from dengue. (10)
   1. True
   2. False

Explanation: Though children and the elderly face have higher risks of dengue mortality, dengue deaths are still common among adults. Hence, it is important that all patients seek medical help when in suspicion of being infected with dengue.

1. Your chances of severe dengue are lower if you had dengue in the past. (4)
   1. True
   2. False

Explanation: Severe dengue is more common among people with previous dengue infections. Hence, it is important to monitor your symptoms for dengue warning signs when in suspicion of having dengue.

1. People with chronic disease are at a higher risk of having severe dengue. (11-13)
2. True
3. False

Explanation: People with chronic diseases such as diabetes, obesity and hypertension are more likely to have severe dengue. Hence, it is important to seek medical help early when having symptoms.

## Module 3: Symptoms

1. You can have dengue without fever. (14)
2. True
3. False

Explanation: It is possible to not experience a fever during dengue infections.

1. It is unlikely to die from dengue if my symptoms are mild. (14)
2. True
3. False

Explanations: You may start with mild symptoms but severe dengue can rapidly develop following that and may lead to death. Therefore, dengue patients must be aware of the warning signs and symptoms of dengue and seek immediate medical care if they appear.

1. Apart from fever, what is/are the symptom(s) of dengue? (Can choose more than one)
   1. Nausea
   2. Rash
   3. Muscle and joint pain
   4. Vomiting

Explanation: All these are possible symptoms of dengue. Dengue can be easily mistaken for a common cold. Hence, it is important to monitor your symptoms and inform the doctors.

1. What is/are the warning sign(s) for dengue that requires immediate medical attention? (Can choose more than one) (6)
   1. Abdominal pain
   2. Blood in stool/vomit
   3. Bleeding gums/nose
   4. Persistent vomiting/diarrhoea
   5. Drowsiness or irritability

Explanation: All these are warning signs of dengue fever. If a warning sign appears, patients must immediately see a doctor to avoid severe complications and the risk of death.

1. How long do the symptoms of dengue usually last? (1)
   1. Around one day
   2. Around one week
   3. Around two weeks
   4. Around one month

Explanation: As the symptoms of dengue last around a week, it is important to seek early medical help, monitor the symptoms and warning signs that appear, and schedule ample time for rest.

1. Apart from the typical dengue symptoms, what are additional signs to look out for in children or infants? (Can choose more than one) (1)
   1. Less active
   2. Unusual bruising
   3. Decreased urination
   4. Poor appetite
   5. None of the above

Explanation: Dengue symptoms among children and infants can be difficult to recognise. Hence, it is recommended to consult a medical professional if you are unsure of your child’s symptoms.

## Module 4: Aedes Mosquito

1. Aedes mosquitoes are only active during dusk (sunsets).
2. True
3. False

Explanation: Aedes mosquitoes frequently feed at both dusk (sunset) and dawn (sunrise).

1. Exercise increases the chances of attracting Aedes mosquitoes. (15, 16)
   1. True
   2. False

Explanation: Aedes mosquitoes are attracted carbon dioxide and heat which are released during exercise.

1. Aedes mosquitoes prefer biting women.
   1. True
   2. False

Explanation: As of 2021, it remains unclear if Aedes mosquitoes prefer to bite one gender over another. Though studies have shown a preference for pregnant women over non-pregnant women, it is unclear if this difference also exist between men.

1. Aedes mosquitoes are attracted to dark-coloured clothing. (17)
   1. True
   2. False

Explanation: Aedes mosquitoes are more attracted to dark colours compared to lighter colours.

1. Aedes mosquitoes prefer blood type O over all other blood types. (18, 19)
   1. True
   2. False

Explanation: Having a specific blood type does not excuse proper dengue prevention. While some studies have shown Aedes mosquitoes preferring blood type O, this was only true when compared to blood type A. It remains unclear if these same mosquitoes prefer blood type O over blood type B or AB.

1. If a mosquito bites dengue patient, the mosquito could become infected and spread the virus to others through bites. (4)
2. True
3. False

Explanation: When mosquitoes bite dengue patients during the first week of infection, they can carry the virus from its host’s blood and spread it to other people they bite. Hence, it is important to prevent mosquito bite when infected with dengue to avoid spreading to others.

1. Aedes mosquitoes can also spread chikungunya, yellow fever, and the Zika virus. (4, 20, 21)
2. True
3. False

Explanation: Not only it is possible for Aedes mosquitoes to spread other viruses, they can also carry multiple viruses simultaneously, infecting people with more than one disease including dengue.

## Module 5: Self-Care

1. Since there is no cure for dengue, can patients just treat themselves at home without seeking medical care? (4)
   1. Yes
   2. No

Explanation: Patients with dengue need to seek medical care regularly so that the doctors can monitor their condition closely as severe dengue can progress rapidly within a day.

1. Dengue is cured once the fever disappears. (1)
   1. True
   2. False

Explaination: The most dangerous stage of dengue usually comes after the fever disappears. It is important to monitor for dengue warning signs and seek emergency medical care immediately if patients experience them.

1. If diagnosed with dengue, which drug(s) must be avoided? (1)
   1. Ibuprofen/Aspirin
   2. Paracetamol (Acetaminophen)
   3. Statins
   4. Blood pressure lowering medicine

Explanation: Ibuprofens and aspirins may worsen dengue symptoms and increase the risk of bleeding in dengue patients.

1. Dehydration can be present when having dengue. What is/are symptom(s) of dehydration? (Can choose more than one) (1)
   1. Dark yellow urine
   2. Sleepiness
   3. Lost of appetite
   4. Cough

Explaination: Severe dehydation can occur from vomitting or not drinking enough fluid, which is harmful to the body. Hence, it is crucial that dengue patients drink enough fluid and be aware of symptoms of severe dehydration.

1. What is/are symptom(s) of dehydration among children/infants? (Can choose more than one) (1)
   1. No tears while crying
   2. Dry diapers for 3 hours
   3. Excessive crying
   4. Red face

Explaination: Lack of tears or diapers that stay dry for more than 3 hours are the symptoms of dehydration among children/infants.

1. How do we take care of ourselves or someone with dengue? (Can choose more than one) (7)
   1. Stay hydrated
   2. Monitor for warning signs
   3. Attend all follow up appointments
   4. Take Ibuprofen
   5. Strenuous exercise

Explaination: Patients with dengue should get as much rest as possible while staying hydrated. They may take paracetamol to control the fever but must avoid ibuprofens and aspirins. Also, patients must attend all of their follow-up appointments to monitor their disease condition.

1. Exercise can boost dengue recovery.
   1. True
   2. False

Explaination: “Sweating it out” does not boost dengue recovery. Instead, dengue patients should get as much rest as they could. Exercising may also attract mosquitoes to bite the patients.

## Module 6: Prevention

1. Essential oils are better mosquito repellents chemicals like DEET or icaridin. (1, 22, 23)
2. True
3. False

Explanation: Essential oils such as citronella oil or peppermint oil are not recognised as effective mosquito repellents. It’s recommended to use insect repellents containing DEET, icaridin, IR3535, oil of lemon eucalyptus (not to be mistaken for lemon eucalyptus essential oil), Para-menthane-diol, or 2-undecanone.

1. Electronic mosquito repellents (EMRs) that emit ultrasounds are effective Aedes mosquito repellents. (24)
   1. True
   2. False

Explanation: As of 2021, majority studies have shown that commercial EMR products are ineffective in repelling mosquitoes. Though some studies reported efficacy, these conditions were achieved in combination with other proven mosquito deterrence products.

1. Only the government is responsible for dengue prevention.
   1. True
   2. False

Explanation: There are many ways to prevent dengue at home. These methods include installing screens or nettings to doors or windows, properly disposing water collecting rubbish, and cleaning water containers regularly. Everyone can play their role to prevent dengue.

1. How can we protect ourselves from Aedes mosquitoes? (Can choose more than one) (1)
   1. Apply screens or netting to windows or doors
   2. Wear long sleeves and long pants when going outdoor
   3. Use insect repellent when going outdoor
   4. Avoid travels to areas with dengue outbreaks

Explanation: All of these are the recommended measures to prevent mosquito bites.

1. How do we prevent Aedes mosquitoes from breeding? (Can choose more than one) (1)
   1. Dispose water collecting rubbish (eg. can, bottle, plastic bag) properly
   2. Apply abate powder in still water such as water container
   3. Clean and cover water containers regularly
   4. Apply chlorine or insecticides to lakes or rivers

Explanation: Aedes mosquitoes breed in still/dead water sources like man-made containers and pots instead of running water sources like lakes and rivers. As such, it is important to clean or remove sources of still/dead water to prevent Aedes mosquito breeding.

## Module 7: Interesting facts

1. Except Antarctica, dengue can be found in every continent. (26, 27)
   1. True
   2. False

Explanation: Due to climate change, Aedes mosquitoes have adapted themselves to live in regions previously dengue-free such as France, Korea, and the United States. This is mainly due to increasing temperatures in regions previously too cold for mosquitoes to survive.

1. There is an effective vaccine for Dengue. (1)
   1. True
   2. False

Explanation: As of 2021, there is only one approved dengue vaccine while five additional dengue vaccines are in clinical development. Current studies demonstrated the currently commercially available dengue vaccines showed poor efficacy. Malaysia (as of 2022) does not offer any dengue vaccine.

1. Aedes mosquito eggs can survive months without water. (1)
   1. True
   2. False

Explanation: Aedes mosquito eggs can survive without water for up to eight months and still hatch if they have contact with water then after. Therefore, it important to prevent dengue breeding by cleaning or clearing objects that collect water on a timely basis.

1. We can use mosquito to fight dengue. (28)
   1. True
   2. False

Explanation: The Malaysia Ministry of Health is gradually releasing Wolbachia-infected Aedes mosquitoes in various dengue hotspot areas around the country to reduce the spread of dengue. Aedes mosquitoes can be artificially infected with Wolbachia bacteria. Wolbachia stops dengue virus from growing in the Aedes mosquitoes. The Wolbachia-infected Aedes mosquitoes can mate with uninfected Aedes mosquitoes, and this allows Wolbachia to spread widely within the release area. This helps to limit the transmission of dengue virus in the long run.

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