



MALARIA PREVENTION: MOSQUITO NETS

BRIEFING SHEET A

You have been selected as malarial experts to speak to the next meeting of the Commonwealth Health Ministers. This meeting is an opportunity for the Ministers from a range of different countries around the Commonwealth to hear about different methods of malarial prevention, and consider which methods their governments should invest in (within their own countries or through aid to other countries). Your group will make a 3 minute presentation outlining the prevention method detailed on this briefing sheet: mosquito nets.

You must:

- Introduce the prevention method
- Explain how/why it works (how does it prevent/reduce illness or deaths)
- Outline its benefits and disadvantages (e.g. effectiveness, ease of use, cost)
- Give one main reason why combating Malaria will contribute to development (e.g. think about how such problematic diseases might affect the workings of the health and education systems of a country)

The information below should be used as a starting point but you should not simply read it out: your speech should be well-structured and persuasive.

As you prepare your speech, think about:

- The most appropriate form of speech for a meeting of international politicians (for example, you should use formal language)
- How you can ensure that your presentation is clear and informative
- How you will split the presentation within the group (will you choose a lead spokesperson or each have a turn presenting part of the speech?)
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MOSQUITO NETS

- Only female mosquitoes drink blood, usually to fuel the production of eggs. Female mosquitoes usually bite between sunset and sunrise.
- 60 out of 400 species of Anopheles mosquitoes (the main type of mosquito that carries malaria) are malarial **vectors** (they carry the disease between organisms including humans).
- Mosquito nets are one way of controlling the vector, by providing a physical barrier that helps prevent exposure to infected mosquito bites. 'Vector control' is the only intervention that can reduce malaria transmission from very high levels to close to zero.

- To be truly effective, mosquito nets need to be impregnated with insecticides, which reduce the lifespan of the mosquitoes that come into contact with it.
- Nets can be relatively expensive and require regular re-treatment.



MALARIA PREVENTION: INSECTICIDE

BRIEFING SHEET B

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You must:

- Introduce the prevention method
- Explain how/why it works (how does it prevent/reduce illness or deaths)
- Outline its benefits and disadvantages (e.g. effectiveness, ease of use, cost)
- Give one main reason why combating Malaria will contribute to development (e.g. think about how such problematic diseases might affect the workings of the health and education systems of a country)

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INSECTICIDE

- Insecticides can be used in a number of ways. For example, they can be used to impregnate mosquito nets so that they are more effective and sprayed onto the inside of homes.
- 60 out of 400 species of Anopheles mosquitoes (the main type of mosquito that carries malaria) are malarial **vectors** (they carry the disease between organisms including humans).
- Using insecticide is one way of controlling the vector. 'Vector control' is the only intervention that can reduce malaria transmission from very high levels to close to zero.
- Mosquitoes are becoming resistant to some types of insecticide which are heavily used. The development of new, alternative insecticides is an expensive and long-term endeavour.

- Only female mosquitoes drink blood, usually to fuel the production of eggs. Female mosquitoes bite usually between sunset and sunrise.
- Spraying the inside of homes can be effective for 3-6 months, depending on the insecticide used and the type of surface onto which it is sprayed. It is most effective when at least 80% of houses in a targeted area are sprayed.
- Insecticides can be expensive and harmful to people.



MALARIA PREVENTION: VACCINE

BRIEFING SHEET C

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You must:

- Introduce the prevention method
- Explain how/why it works (how does it prevent/reduce illness or deaths)
- Outline its benefits and disadvantages (e.g. effectiveness, ease of use, cost)
- Give one main reason why combating Malaria will contribute to development (e.g. think about how such problematic diseases might affect the workings of the health and education systems of a country)

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VACCINE

- No malaria vaccines are available, although several are under development and testing.
- Research into a vaccine is extremely expensive, but if successful the disease could be completely eradicated.
- A vaccine improves the body's immunity to a disease by enabling the immune system to recognize and destroy the disease-causing micro-organism (in this case, the malaria parasite).
- The body's immune response to malaria is complex and not well understood.
- A vaccine needs to work in few doses, be cheap to make and easy to administer.

MALARIA PREVENTION: EDUCATION INITIATIVES

BRIEFING SHEET D



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You must:

- Introduce the prevention method
- Explain how/why it works (how does it prevent/reduce illness or deaths)
- Outline its benefits and disadvantages (e.g. effectiveness, ease of use, cost)
- Give one main reason why combating Malaria will contribute to development (e.g. think about how such problematic diseases might affect the workings of the health and education systems of a country)

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EDUCATION INITIATIVES

- People can take a whole range of measures to protect themselves from being bitten by infected mosquitoes. For example: wearing light-coloured clothes which mosquitoes are less attracted to and keeping covered up with long trousers and shirt sleeves. Adding window screens to houses can make a difference.
- Mosquito nets are only effective if people are **educated** (taught) to use them properly.

- Some of the most effective measures to prevent malaria are mosquito nets and insecticide spraying. Funding and organised programmes are needed to distribute these resources. Education helps to demonstrate the **importance** of malaria prevention to the population, and they can then lobby their governments to provide more funding for such resources.
- People can make changes to their local environment to control the Anopheles mosquito, which is the main vector for malaria (*a vector is an organism that carries a disease between different organisms including humans*), and breeds in shallow collections of freshwater such as puddles and ponds. For example, if they have the knowledge and resources they can fill in holes in the roads that form big puddles when it rains, to stop mosquitoes from breeding there. Education plays a vital role in teaching people to take these measures.



MALARIA PREVENTION: PROPHYLACTIC (PREVENTION) DRUGS

BRIEFING SHEET E

You have been selected as malarial experts to speak to the next meeting of the Commonwealth Health Ministers. This meeting is an opportunity for the Ministers from a range of different countries around the Commonwealth to hear about different methods of malarial prevention, and consider which methods their governments should invest in (within their own countries or through aid to other countries). Your group will make a 3 minute presentation outlining the prevention method detailed on this briefing sheet: Prophylactic (prevention) drugs.

You must:

- Introduce the prevention method
- Explain how/why it works (how does it prevent/reduce illness or deaths)
- Outline its benefits and disadvantages (e.g. effectiveness, ease of use, cost)
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PROPHYLACTIC (PREVENTION) DRUGS

- Prophylactic drugs suppress the human blood stage of the parasite's life cycle and so prevent the individual becoming ill with the disease, even if they get bitten and infected by mosquitoes.
- When an infected mosquito bites a human to drink blood, parasites are injected into the bloodstream. The parasites infect the liver and then red blood cells. The classic symptoms of malaria consist of bouts of fever that coincide with the parasites bursting out of the red blood cells. Infected red blood cells can also clump together, blocking blood flow and damaging internal organs, including the brain.

- Prophylactic drugs are relatively expensive and it would be financially and logistically difficult to distribute such drugs to everyone living in an infected area throughout their lives.
- Prophylactic drugs can be a good solution for travellers to an infected area.
- Adults living in areas of moderate or intense transmission of malaria develop natural immunity to malaria over years of exposure, although this never gives complete protection. As a result, most malaria deaths in Africa occur amongst young children who have not yet built up their own immunity.
- The parasite develops resistance to anti-malarial drugs rapidly. In many parts of the world it has become resistant to chloroquine, the most commonly used and most affordable anti-malarial drug.

MALARIA PREVENTION: TREATMENT OF THE DISEASE

BRIEFING SHEET F



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You must:

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TREATMENT OF THE DISEASE

- Once an individual becomes ill with malaria, they can take drugs (similar to those used for prevention) to suppress the blood stage of the malarial life cycle. The drugs do not necessarily prevent an infected person from contracting the disease itself (getting ill), but they do help to prevent deaths and serious disabilities resulting from the disease.
- Treatment drugs can also reduce the chances of the parasite being passed on to other people by mosquitoes that bite infected people.

- Early and effective treatment of malaria can shorten the duration of the infection and prevent further complications including the great majority of deaths. If people do not seek medical help early, there is less chance of the drugs being effective.
- When an infected mosquito bites a human to drink blood, parasites are injected into the bloodstream. The parasites infect the liver and then red blood cells. The classic symptoms of malaria consist of bouts of fever that coincide with the parasites bursting out of the red blood cells. Infected red blood cells can also clump together, blocking blood flow and damaging internal organs, including the brain.
- Combination therapy is often used to prolong the useful life of these drugs, which means they are used in combination to reduce the chances of the parasite building up resistance.
- Some of the drugs used are effective very quickly. However, this means that patients might stop taking them too early, leaving parasites in their blood. This can lead to parasites building up resistance to the treatment.
- The first widely used antimalarial drug treatment, quinine from Peruvian bark, was discovered long before anyone knew what caused malaria.