

Funding decisions

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Student instructions

Your group is the advisory board for a UK malaria charity. Your role is to allocate funds from the charity to projects that aim to reduce malaria disease burden and mortality around the world.

The malaria project support fund currently contains £20 million which can be allocated to the projects of your choice from the list below.

Before you start

Before starting the discussion your group should nominate the following roles:

- **Spokesperson(s):** the person or persons who will speak on behalf of the group during the feedback session
- **Scribe:** the person responsible for taking notes on all the discussion and completing the group worksheet
- **Financier:** the person responsible for doing the calculations and ensuring that the available funds are correctly allocated and the group doesn't overspend!

Funding principles

Before allocating funds as a group, determine what your funding principles will be, i.e. create some guidelines that will help you decide which projects receive funding. You may consider whether you should only fund projects in malaria endemic countries? Does the project have to use innovative technology? Will the project have a large scale impact? Should a project you fund further advances in the understanding of malaria? Should a project you fund further advances in the treatment of malaria?

Write down your funding principles on your worksheet as a reminder when discussing the funding applications.

Keeping organised

Once you have discussed a funding application place the card in a yes, no or maybe pile.

Budgeting

Ensure you stick to the budget of £20 million. You cannot fund a project if you have insufficient funds.

Note: You do not have to spend all of your funds. If there are some funds left over these can be used in the next round of funding applications.

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Project 1: Mobile rapid diagnostic test kit development



Amount requested	£280,000
Goals of the project	To develop a handheld device that can rapidly diagnose malaria.
Background	<p>Rapid diagnosis of malaria is critical for early diagnosis and saving lives. Currently malaria is often diagnosed based on symptoms alone but some of the symptoms of malaria, such as fever, are common and can be caused by many other infections. If malaria is not accurately diagnosed, there is a risk that anti-malarial drugs will be used when they should not be, which will increase the chances of drug resistance developing.</p> <p>Existing rapid diagnostic tests (RDTs) can diagnose the presence of malaria parasites in a blood sample. The process takes 10-15 minutes and does not require microscopy or laboratory facilities. RDTs are, however, expensive and not used as widely as they could be.</p>
Details	<p>This project is being run by a UK university and aims to create a working prototype of a hand held device that can be used to diagnose malaria using a blood sample taken by a finger prick. This device will be cheaper and faster than existing rapid diagnostic tests providing a diagnosis in less than a minute.</p> <p>The funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• To develop and produce a working prototype of a handheld diagnostic device.• To run field tests of the prototype.• To produce the first generation of hand held diagnostic devices for distribution to malaria endemic regions.
Region	Developed in UK. Potential for global distribution.
Funding duration	2 years

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Project 2: Affordable medicines initiative



Amount requested	£10,000,000
Goals of the project	To enable malaria endemic countries to increase the provision of affordable artemisinin combination therapies (ACTs) through public, private and not-for profit sectors.
Background	Artemisinin combination therapies (ACTs) are the most effective anti-malarial drugs currently available and have a success rate of over 90% for treating severe malaria cases. The cost of artemisinin combination therapies can make them inaccessible to people at most risk from malaria.
Details	<p>The Affordable Medicines Initiative (AMI) is a project set up and managed by an international financing institution dedicated to funding resources to prevent and treat neglected diseases.</p> <p>The AMI project is a financing mechanism that subsidises the cost of artemisinin combination therapies to make them more affordable for poorer countries. As a consequence, public health services in these countries are able to provide affordable and effective malaria drugs to patients on the lowest incomes.</p> <p>The funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• To negotiate reduced prices of artemisinin combination therapies from major drug manufacturers.• To make payments to the drug manufacturers to secure the reduced cost and distribution of artemisinin combination therapies.• To implement phase 1 roll out of the programme in designated malaria endemic countries.
Region	The first phase of the project will be trialed in six countries: Cambodia, Kenya, Madagascar, Nigeria, Tanzania and Uganda.
Funding duration	2 years

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Project 3:

Indoor residual spraying (IRS) scale up programme



Amount requested	£9,000,000
Goals of the project	To scale up the indoor residual spraying (IRS) programme for high risk areas of Rwanda.
Background	Indoor residual spraying uses insecticides to spray the insides of buildings to kill mosquitoes entering or feeding in those buildings. It can have a major impact by reducing the incidence and transmission of malaria, but to be effective spraying needs to be repeated on a regular basis.
Details	<p>The indoor residual spraying programme is organised and coordinated by a large international health charity and will be delivered by local towns.</p> <p>The insecticide used for the programme will be a long-lasting pyrethroid, however the insecticide used will be changed if there is evidence of mosquitoes becoming resistant to pyrethroids.</p> <p>The funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• Provide indoor residual spraying services to target 275,000 houses and 1.25 million people, 13% of the population at risk from malaria in Rwanda.• Provide additional training and capacity building to ensure the programme is sustainable.• Undertake regular insecticide resistance testing to ensure the use of an effective insecticide.• Implement an insect monitoring plan, to monitor the impact of the insecticides on the mosquito populations in the region.
Region	Rwanda
Funding duration	1 year

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Project 4:

Artemisinin drug resistance tracking programme



Amount requested	£13,750,000
Goals of the project	To contain artemisinin-resistant malaria parasites before they spread to other global regions.
Background	<p>Artemisinin combination therapies (ACTs) are the most effective anti-malarial drugs currently available and have a success rate of over 90% for treating severe malaria cases. In 2009, emerging artemisinin drug resistance was discovered along the Thai-Cambodia border which poses a significant threat to the continued effectiveness of these anti-malarial therapies. In the past, drug-resistant parasites that evolved in one country have been able to spread all over the world, making that particular drug no longer useful for malaria treatment. Chloroquine, for example, was a widely used, effective and cheap drug. Chloroquine resistant parasites emerged in Asia and America in the 1960s, spread to Africa by the 1980s, and chloroquine is now very rarely used for malaria control. Preventing the spread of artemisinin resistant parasites could have a long-term impact on global malaria control.</p>
Details	<p>This project is a collaboration between a global health organisation, the Departments of Health in Cambodia and Thailand and several malaria research institutions.</p> <p>Funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• Eliminate artemisinin-resistant parasites from the region by detecting all malaria cases in the target areas and ensuring effective treatment.• Limit the emergence of resistance by reducing the exposure of the parasite to artemisinin. This will be done by:<ul style="list-style-type: none">◦ only prescribing artemisinin to patients diagnosed with malaria.◦ replacing the use of artemisinin monotherapies with artemisinin combination therapies (ACTs), which combine artemisinin with another drug to make it harder for resistance to emerge.• Use mosquito control methods such as bed nets to prevent the transmission of resistant parasites to humans.• Deliver communication and education programmes to encourage changes in behaviour in the community to support the containment and elimination of resistant parasites in local communities.• Research and establish systems for artemisinin resistance surveillance.
Region	The first phase of the project will be trialed in three countries: Kenya, Cambodia and Thailand
Funding duration	3 years

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Project 5:

Rural community bed net distribution programme



Amount requested	£250,000
Goals of the project	To distribute 150,000 mosquito nets to rural communities in Nepal, South East Asia.
Background	<p>Long lasting insecticide nets (LLINs) have been proven to reduce malaria transmission by providing a physical and chemical barrier to mosquitoes.</p> <p>Nepal is one of the poorest countries in South East Asia and more than half of the Nepalese people live below the poverty line. Communities living in remote areas are vulnerable to malaria as they have limited access to health care and malaria prevention measures. In a setting such as this, LLINs are a cheap and effective way to reduce the burden of malaria.</p>
Details	<p>This project is run by a small UK charity and aims to provide 150,000 nets to rural villages in Nepal and raise awareness of malaria prevention.</p> <p>Funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• To distribute 150,000 long lasting insecticide nets (LLINs) to families in remote rural villages.• To provide community education programmes to raise awareness of malaria prevention.• To train village members on the best ways to use and maintain mosquito nets.
Region	Nepal
Funding duration	2 years

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Project 6:

Live attenuated vaccine clinical trials



Amount requested	£5,000,000
Goals of the project	To undertake clinical trials of an attenuated <i>Plasmodium falciparum</i> vaccine.
Background	Vaccines usually contain an agent or agents that resemble all or part of a disease-causing microorganism to stimulate the body's normal immune system to destroy the pathogen. Vaccines have been used successfully to tackle, and in some cases eradicate, diseases caused by bacteria and viruses, e.g. smallpox. However to date there is no vaccine to protect against malaria infections. An effective vaccine could play a critical role in eliminating malaria world-wide.
Details	<p>This project is by an American biomedical institution and aims to run clinical trials of a live attenuated vaccine for <i>Plasmodium falciparum</i>.</p> <p>The live attenuated vaccine uses a genetically modified <i>Plasmodium</i> parasite that is unable to complete its lifecycle and therefore cannot cause disease. Vaccinated individuals will not get sick, but the vaccine will trigger an immune response against the injected parasites. This immune response will then recognise and destroy any <i>Plasmodium</i> parasites that enter the body in the future. This will, therefore, protect the vaccinated individual against malaria. This vaccine has been trialed in the laboratory on six volunteers, but has never been tested in a malaria endemic country.</p> <p>The funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• To produce adequate supplies of the vaccine for the clinical trials.• To produce communication materials for the clinical trials.• To undertake clinical trials with patients (children and adults) in Kenya to test the safety and effectiveness of the vaccine.• To provide data on the correct vaccine dose and administration schedule (the time between vaccinations) to achieve the optimal immune response.
Region	USA and Kenya
Funding duration	18 months

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Project 7:

Annual international malaria conference



Amount requested	£375,000
Goals of the project	To host an annual three day conference in the UK for international malaria researchers.
Background	Networking and collaboration is essential to further scientific research. Conferences where researchers from all over the world can convene in one place provide a forum for the dissemination of new findings, discussion of theories and establishment of new contacts and collaborations.
Details	<p>This international conference is organised and coordinated by a UK tropical medicine school and aims to disseminate and discuss new research on <i>Plasmodium</i> parasites. This proposal would ensure funding for a conference to take place every year for the next five years.</p> <p>The funding will support:</p> <ul style="list-style-type: none">• Hosting the conference at the international conference centre at Hinxton Hall, Cambridge, UK.• Staffing and administration costs for the conference.• Provision of funds for speakers' fees and expenses.• Funding of places for researchers from malaria endemic countries, allowing them to present their research and make important contacts with other researchers from around the world.
Region	UK
Funding duration	5 years

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Project 8: Ugandan travelling clinics



Amount requested	£2,500,000
Goals of the project	To establish mobile malaria clinics that travel to rural communities in Uganda.
Background	Uganda has the third highest number of deaths from malaria in Africa and some of the highest recorded malaria transmission rates in Africa. Communities living in remote areas of Uganda are particularly vulnerable to malaria due to limited access to health care and malaria prevention measures.
Details	<p>The project is organised by a global health organisation and partnered with district health offices. It aims to address the malaria prevention and treatment for over 800,000 people in Uganda. The project will establish travelling health clinics which will make regular visits to high risk rural communities in Northern Uganda.</p> <p>The funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• Establish a travelling clinic for each of the 22 regional districts.• Provide appropriate vehicles for the travelling clinics. These will include transport for clinic staff and transport to regional hospitals for severe malaria cases.• Train and recruit staff for the travelling clinics.• Train community members in each village as intermediary malaria village workers.• Buy anti-malarial drugs and rapid diagnostic tests.• Facilitate the distribution of long lasting insecticide nets (LLINs) to villagers in target communities.• Train female community leaders as village malaria mentors that communicate and train others in malaria prevention methods.• Implement a drug resistance monitoring programme.
Region	Uganda
Funding duration	2 years

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Project 9: Insecticide development programme



Amount requested	£15,000,000
Goals of the project	To develop new insecticides to control mosquitoes.
Background	<p>Insecticides such as DDT have been successful at eradicating malaria from regions of Brazil and the United States. However, environmental concerns about the toxicity of DDT have led to a ban on its use outside of buildings. Other insecticides such as pyrethroids have been successful alternatives to DDT but resistance is developing in some mosquito populations making them less effective.</p>
Details	<p>The project is organised by an international vector control consortium. It aims to continue its work developing new insecticides against mosquitoes that transmit malaria, as well as insects that transmit other neglected tropical diseases such as dengue fever, Leishmania, Chagas disease and African sleeping sickness.</p> <p>The funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• Develop more effective, efficient and innovative insecticide development pipelines.• Identify and develop new insecticide compounds.• Safely test new insecticide products.• Develop diagnostic tools for the monitoring of insecticide effectiveness.• Implement an insecticide resistance monitoring programme.
Region	Global
Funding duration	3 years

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Project 10: Parasite genome sequencing project



Amount requested	£10,000,000
Goals of the project	To identify potential new vaccine and drug targets using genome sequencing technologies.
Background	Genome sequencing technologies have revolutionised malaria research. Sequencing the first <i>Plasmodium</i> genome revealed the full genetic make-up of the parasite and from this researchers were able to identify over 5,000 different genes. Now researchers have a list of those genes they can study them to work out their function and role in malaria. For example, they can see if there are gene products that could be targets for a drug or vaccine.
Details	<p>The project is run by a UK genome sequencing centre and aims to continue its work using genome sequencing technologies to identify proteins found on the surface of the parasite and determine their role in disease. This research will be used to identify potential drug and vaccine targets.</p> <p>The funding will be used to meet the following objectives:</p> <ul style="list-style-type: none">• To use genome sequencing technologies to identify genetic variants in hundreds of different <i>Plasmodium</i> isolates which may impact on the parasites ability to invade red blood cells.• To determine the role of <i>Plasmodium</i> surface proteins in red blood cell invasion.• To determine potential drug and vaccine targets.• Develop diagnostic tools for the identification of parasite and host protein interactions.
Region	UK
Funding duration	4 years