Effective coverage and systems Effectiveness for Malaria case Management in sub-saharan African countries

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Scale-up of malaria preventive and control interventions over the last decade resulted in substantial declines in mortality and morbidity from the disease in sub-Saharan Africa and many other parts of the world. Sustaining these gains will depend on the health system performance. Treatment provides individual benefits by curing infection and preventing progression to severe disease as well as community-level benefits by reducing the infectious reservoir and averting emergence and spread of drug resistance. However many patients with malaria do not access care, providers do not comply with treatment guidelines, and hence, patients do not necessarily receive the correct regimen.

Even when the correct regimen is administered some patients will not adhere and others will be treated with counterfeit or substandard medication leading to treatment failures and spread of drug resistance. We apply systems effectiveness concepts that explicitly consider implications of health system factors such as treatment seeking, provider compliance, adherence, and quality of medication to estimate treatment outcomes for malaria case management. We compile data for these indicators to derive estimates of effective coverage for 43 high-burden Sub-Saharan African countries. Parameters are populated from the Demographic and Health Surveys and other published sources. We assess the relative importance of these factors on the level of effective coverage and consider variation in these health systems indicators across countries. Our findings suggest that effective coverage for malaria case management ranges from 8% to 72% in the region

There are many different types of sleep disorders. Some may be caused by other underlying health conditions. Insomnia refers to the inability to fall asleep or to remain asleep. It can be caused by jet lag, stress and anxiety. Sleep

Different factors account for health system inefficiencies in different countries. Significant losses in effectiveness of treatment are estimated in all countries. The patterns of inter-country variation suggest that these are system failures that are amenable to change. Identifying the reasons for the poor health system performance and intervening to tackle them become key priority areas for malaria control and elimination policies in the region

The natural history of malaria involves cyclical infection of humans and female *Anopheles* mosquitoes. In humans, the parasites grow and multiply first in the liver cells and then in the red cells of the blood. In the blood, successive broods of parasites grow inside the red cells and destroy them.

The blood stage parasites are those that cause the symptoms of malaria. When certain forms of blood stage parasites (gametocytes, which occur in male and female forms) are ingested during blood feeding by a female *Anopheles* mosquito, they mate in the gut of the mosquito and begin a cycle of growth and multiplication in the mosquito. After 10-18 days, a form of the parasite called a sporozoite migrates to the mosquito's salivary glands. When the *Anopheles* mosquito takes a blood meal on another human, anticoagulant saliva is injected together.

Thus the infected mosquito carries the disease from one human to another (acting as a "vector"), while infected humans transmit the parasite to the mosquito, In contrast to the human host, the mosquito vector does not suffer.