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Introduction: Febrile illness is often accompanied by unspecific symptoms, which overlap in viral, bacterial and parasitic infections. Without laboratory diagnostics, these shared symptoms may result in false treatment.
Aim: Our goal was to estimate how accurate symptom-based diagnoses were and quantify the false treatment of the most common infectious diseases in rural Ghana.
Methods: We analysed data from a hospital study comprising of 1,189 admissions of patients ≤ 15 years to the paediatric ward. Data collected included a symptom-based diagnosis at admission and a set of laboratory diagnostics to identify the cause of disease. Diagnoses were grouped into the most common diseases observed in the study, as well as their indication if treatment would target the underlying pathogen or the symptoms. Assuming the laboratory results revealed the true cause of illness, we compared these findings with the symptom-based diagnosis and calculated sensitivity as well as specificity within each disease group.
Results: The most frequent causes of illness were malaria (679, 57%), pneumonia (240, 20%), lower respiratory tract infection (186, 16%), gastrointestinal tract infection (95, 8%), invasive bacterial blood-stream infection (62, 5%) and urinary tract infection (35, 3%). In all of these groups, the suspected diagnosis showed either low sensitivity or specificity (< 80%), or both. A total of 267 diagnoses with an indication for treatment were missed, while in 917 cases the child would have received a treatment it did not need. A further 186 cases were at risk of being over treated, while 29 were at risk of not getting a treatment they needed.
Conclusion: Symptom-based diagnosis presented low accuracy and high numbers of over- and under treatment, emphasizing the necessity of laboratory diagnostics for the correct differentiation of febrile illness in rural Ghana.

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EFFECT OF SEASONAL MALARIA CHEMOPREVENTION IN IMPROVING HEALTH OF UNDER FIVE'S IN THE REGION OF CASCADE, BURKINA FASO

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Introduction: Malaria is a public health concern and laudable efforts and investment have been deployed in reducing of malaria incidence in Burkina Faso (BF). Seasonal Malaria chemoprevention (SMC) has been implemented in BF in 2014 and since 2016 in the region of Cascade.
Aim: To assess the effect of SMC on (i) uncomplicated malaria cases, (ii) several malaria cases, (iii) death due to malaria on under-five's years old in the region of Cascade over the period 2013 to 2018.
Methods: Monthly simple malaria cases, severe malaria cases as well as the number of death related to malaria was documented over the study period. The period 2013 to 2015 was considered as the pre-intervention whereas SMC occurred from 2016 to 2018. Segmented regression was performed in controlling the secular trend as well as adjusting for potential serial correlation of data.
Results: Before SMC, the number of cases of uncomplicated malaria was 8706 and after the implementation of SMC there was a reduction of 2678 cases but non-significant (p = 0.618). According to the same analysis, before SMC, there were 605 cases of severe malaria on average per month. We then look that after the implementation of the SMC there was a reduction of cases but not significant (p = 0.222). Also, there was no significant month-to-month change in the number of deaths after SMC (p = 0.307).
Conclusion: We found that the SMC has no significant decrease on the three indicators in the region of Cascade. There is a need to investigate more deeply in estimating the real impact of the intervention.

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IMPORTANCE OF SOCIO-ECONOMIC FACTORS AND ENVIRONMENTAL FACTORS ASSOCIATED WITH MALARIA FOR SUB-SAHARAN AFRICAN CHILDREN

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Background: Malaria is one of first causes of morbidity and mortality in the world; 445,000 deaths in 2017 were due to malaria. The majority of malaria cases occur in Africa. In our study, we will estimate relative importance of malaria risk factors for improving health policy and fight against malaria.
Methods: Analysis is on 16 Sub-Saharan African countries with recent Demographic and Health surveys incorporating malaria tests. Longitude and latitude of each cluster were used to extract data on temperature, precipitation, population density, conflicts events and rivers or bodies of water. To preserve the confidentiality of the households surveyed, urban clusters were randomly displaced by 0–2 km, and rural clusters by 0–5 km. Children for whom inform consent was given by their guardians were tested for malaria and included in the survey data. For achieving the purpose of our study, we followed several ways. Variance contribution of factors were estimated with the Generalized Linear Mixed-effects model. Mean Gini decrease was used for measuring importance of each predictor and mean decrease accuracy was used for estimating how much each factor reduces error. Geographical weighted Regressions were performed for mapping and assessing heterogeneity of relationships between environmental factors and malaria. Classification Regression Tree was performed for observing partition of data.
Results: Country where the child lived was the most important factor for malaria risk and it contributed to half of the variability of malaria risk. We found that wealth status is the first socio-economic factor that contributes in differences of malaria risk. While age of child the third most important factors for malaria risk, his contribution in the variability of malaria risk among African children is very low. Even if their contribution to the difference of malaria risk in Africa were very small, quantity of rainfall, temperature and density of population were most important environmental factors. We identified also countries of high association with malaria risk and countries having low association with malaria risk. There was a significant difference between these two groups of countries in the education level of mothers, the use of bed net, the size of household and population density. We observed that the economic level was not a significant characteristic of difference between the two groups of countries. Even if we cannot relocate children, comparison of these two groups allows us to observe variables that are significantly different between the two groups on which health policies must improve.
Conclusion: Countries with low risk were Madagascar, Senegal, Angola, Benin, Tanzania, Rwanda, and Burundi; while countries with high malaria risk included Uganda, Malawi, Liberia, Mozambique, Ivory-Coast, Burkina Faso, DR Congo, Nigeria and Mali. While in certain regions; high quantity of rainfall, high temperature or high density of population were associated with an increase of malaria risk; in certain regions the relationship was the inverse.
Main message: This study showed spatial relationship between malaria risk and certain community variables; highlighting the particularity of