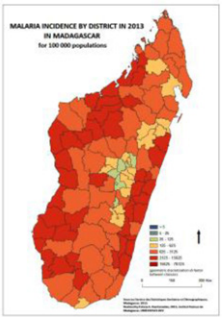
considered as a source of malaria because of their high incidence all over the year.



Conclusion: The quality of epidemiological data is discussed regarding the provision and access to health services. Case reports show weaknesses for some remote areas and at the end of each year. The persistence of malaria on the coast could induce the emergence of malaria in Central Highlands following reintroduction by travelers.

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Assessment of effect of intermittent preventive treatment of malaria in pregnancy on birth weight of babies in Nigeria: Life-saving dynamics

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Background: Malaria infection during pregnancy, although preventable and treatable, still has adverse effects on both the mother and fetus in Nigeria. These adverse effects; intrauterine growth retardation, low birth weight and maternal anemia are significant risk factors for neonatal and infant mortality. The 2014 national guidelines and strategies for control of malaria during pregnancy recommend administration of at least 3 doses of Sulphadoxine-Pyrimethamine (SP) as Intermittent Preventive Treatment in pregnancy (IPTp) to pregnant women attending Antenatal Care Clinic (ANC). However, implementation of the guidelines is still sub-optimal. The objective of the study was to assess the effect of scaled implementation of prevention of malaria in pregnancy (MiP) with IPTp on birth weight of babies born in states supported by the US President's Malaria Initiative.

Methods & Materials: The study used secondary data collected from July 2013 to June 2015 in 7 states where routine ANC data from all the health facilities are reported through the National District Health Information System to analyze trend and differences in reported birth weight following implementation of IPTp with SP. The interventions provided by the project include capacity building on control of malaria in pregnancy; strengthening of logistics management systems for SP, monitoring and supportive supervision.

Results: Between July 2014 and June 2015, 636,600 health facility ANC visits and 191,104 births were reported. The observed trend in the available data showed that the birth weight of babies improved as the IPTp uptake increased. Mean percentage of ANC revisits who received IPTp2 increased from 29% to 38%; the mean percentage of babies with low birth weight decreased from 14% to 10%; while the mean percentage of babies with birth weight higher than 2,500g increased from 86% to 90% between the previous year and the intervention period.

Conclusion: Though many confounders might contribute to the improved birth weight of babies reported within the period, however the contribution of the scaled implementation of IPTp is significant as previously documented in other malaria endemic countries. Concerted efforts are needed to scale up this intervention nationwide and strengthen health system in order to improve the birth weight of babies and consequently reducing neonatal and infant mortality.

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Rickettsial disease IFA-IgG titres in auto-immune diseases: What do they imply?

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Background: Rickettsial infections are known to present mimicking autoimmune disorders. The gold standard diagnostic test for rickettsial diseases is based on the detection of IgM and or IgG antibodies against these infections by immuno-fluorescent technique (IFA). While confirmation of rickettsial diseases warrant demonstration of rising or declining antibody titres between acute and convalescent samples, high titres of either IFA-IgM or IFA-IgG in acute phase serum in patients with a compatible clinical illness may help in the presumptive diagnosis and introduction of anti-rickettsial antibiotics. During the IFA test, patient sera containing anti rickettsial antibodies are made to react with rickettsial antigens that are grown in cell culture media. However, presence of nuclear material in these cell cultures may react with anti-nuclear antibodies that are produced in autoimmune disorders and cause a false positive immunofluorescent signal.

Methods & Materials: In order to evaluate the reactivity of rickettsial disease IFA-IgG test [IFA-IgG-OT (*Orientia tsutsugamushi*) and IFA-IgG-SFG (spotted fever group)] among patients with autoimmune diseases, an analytical cross-sectional study was carried out using sera of 38 patients with confirmed auto-immune diseases.

Results: The 38 patients included 15 systemic lupus erythematosus (SLE), 5 autoimmune-thyroiditis, 13 idiopathic-thrombocytopenia (ITP), 4 autoimmune-haemolytic-anaemia (AIHA), 1 polymyositis, 1 polyglandular syndrome and 1 Anti-phospholipid syndrome. The IFA-IgG reactivity of ≥ 1:128 was

noted in 14/38 (37%); IFA-IgG-SFG in 7, IFA-IgG-OT in 3 and for both in 4. Of the 14; titre of 1:128 in 2, 1:256 in 4, 1:512 in 5, >1: 1024 in 3 and 8/14 (57%) were SLE, 3/14 (21.4%%) were ITP, 2/14 (14.3%) were AIHA, 1/14 (7.1%) were polymyositis and none were thyroiditis. 8/14 had received anti-rickettsial antibiotics during the early stages of illness based on the clinical presentation and high IFA-IgG titres.

Conclusion: There was a significant reactivity of Rickettsial disease IFA-IgG assay in auto-immune diseases. Further studies are needed in order to ascertain whether this is due to recent rickettsial infections, false positive cross reactivity of autoimmune antibodies with rickettsial antigens or with cell culture nuclear antigens. We did not carry out IFA-IgM due to non-availability and non-affordability.

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Novel tick-borne Rickettsia sp. from wild ticks of Kenya: Implications for emerging vector-borne disease outbreaks

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Background: *Rickettsia* sp. causes rickettsioses, which despite being among the oldest known arthropod-borne diseases, are now recognized as important emerging vector-borne infections of humans worldwide. In Kenya, the prevalence of these diseases is poorly understood leading to far-reaching public health implications such as the unexplained fevers problem, some of which are caused by different spotted fever group (SFG) rickettsiae.

Methods & Materials: We used a multi-genic approach to identify rickettsia from 4,324 questing ticks (209 adult ticks, 586 nymphs and 3,502 larvae) processed into 270 pools of varying sizes, depending on species and life-cycle stages. We first performed PCR-high resolution melting point (HRM) based on Rickettsia 16S rRNA gene followed by sequencing of unique melt profiles. Sequences were identified by comparisons using BLASTn method. Thereafter, we re-amplified and sequenced citrate synthase (*glt*A) and outer membrane protein B (*omp*B) genes, as well as the highly variable *rpm*E-tRNA^{fMet} intergenic spacer for samples with unique rickettsial *16S* amplicon HRM profiles.

Results: We report the molecular detection of *Rickettsia africae* in *Amblyomma eburneum* ticks and novel *Rickettsia*-like species in *Rhipicephalus maculatus* ticks for the first time. We detected *R. africae* DNA with 99-100% identity for all the amplified gene loci while identities of two *Rickettsia*-like species could not be ascertained due to identical similarities associated with more than one *Rickettsia* species across the amplified gene loci. Sequence analysis of *glt*A gene for these two *Rickettsia*-like species showed 98% identity across several *Rickettsia sp.* The *omp*B gene could not amplify for one of the species which also had 97% identity with *R. bellii* based on the *rpm*E-tRNA^{fMet} intergenic spacer sequence.

Conclusion: The detection of *R. africae*, an important emerging pathogen in Sub-Saharan Africa as well as novel *Rickettsia* sp. with unknown pathogenicity in this study represent significant findings that may explain the occurrence of some unidentified febrile illnesses contributing to human morbidity. Additionally, our study outlines the indispensable role of molecular methods in routine surveillance to monitor both known and novel pathogens likely to be emerging threats.

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Twelve months outcome in kala-azar patients treated with 3 novel regimens, at public health care facilities in Bihar

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Background: Kala-azar elimination initiative launched in 2005 in South Asia aims to reach the target by 2017. Early diagnosis and effective treatment is one of the key strategies for control along with integrated vector management. Single dose Ambisome (SDA) and combination regimens are the recommended treatments in South Asia. Our objective was to assess feasibility of using these treatments within the public health facilities and document 12 month outcome.

Methods & Materials: This was an open label, prospective, non-randomised, non-comparative, multicentric trial conducted at public health facilities. The study was conducted from Aug 2012 to Sep 2015 at 02 districts (Vaishali and Saran) in Bihar and at kala-azar referral hospital (Rajendra Memorial Research Institute of Medical Sciences) in Patna.

In Vaishali district, patients were treated with SDA (10mg/kg) at the District hospital and A+M (single dose Ambisome 5mg/kg + miltefosine 7 days) at 5 primary healthcare centres (PHC). In Saran District, M+P (Miltefosine and Paromomycin) for 10 days at district hospital and 3 PHC.

All patients were followed up to document outcome at 6 months and cohort of them were followed for 12 months.

Results: 1761 patients were treated in the study, achieved cure rate of > 99% at initial outcome (Day 10) in each treatment arm. The cure rates at 6 months were 90.9% (95% CI 89.0-92.8) for SDA (n=892), 88.8% (CI 85.5-92.1) for A+M (n=357) and 97.0% (CI 95.6-98.5) for M+P arm (n=512). During 12 month FU (n=1386) there were 11 additional relapses, 2 in SDA (n=706) and 6 in A+M (n=294) and 3 in M+P (n=386). 12 patients developed PKDL in M+P arm, 1 in A+M arm and 2 in SDA. Five SAE occurred in SDA arm, 2 considered related and 3 non-related to Ambisome, all of them resolved.