Reference intervals of haemoglobin indices based on results from children Caucasians are not in agreement with the estimated values for Ethiopian children. Malaria was strongly associated with anaemia in children cases, but in adults, this association did not appear. Country-specific reference ranges are needed for haemoglobin parameters and analyzed by age and by gender for adults.

**Results:** Compared with US-European derived reference ranges, we detected similar haemoglobin (HB) values in adults but lower HB values in children. The lower HB value in non-malaria infected was 11.8 g/dL, 12.5 g/dL and 9.4 g/dL in women, men and children respectively. Anaemia was present in 24% of malaria-infected adults and in 52% of malaria-infected children. In adults there were not significant association between anaemia and malaria but anaemia children groups were 5.3 times more likely to have malaria [OR = 5.3, (95% CI: 2.2-12.6)].

**Conclusion:** Reference intervals of haemoglobin indices based on results from children Caucasians are not in agreement with the estimated values for Ethiopian children. Malaria was strongly associated with anaemia in children cases, but in adults, this association did not appear. Country-specific reference ranges are needed for defining normal laboratory parameters among population in Africa. This study provides the first locally-derived clinical laboratory reference ranges for adults and children in Gambo (Ethiopia).

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**Haemoglobin reference intervals for population in West Ars province (Ethiopia) and association with malaria**

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**Background:** The reference intervals of haematological indices currently used in Africa are derived from industrialized countries. Few studies have been performed in Africa questioning the validity of Caucasians values when applied to local African populations. Even within the continent of Africa, it is likely that substantial differences exist because of vast differences in climate, geography, co-infections and human genetics, all likely influencing the laboratory reference range parameters within a population. Knowledge of appropriate reference intervals is critical not only for providing optimal clinical care, but also for enrolling population in medical research. We determined the normal haemoglobin reference intervals for healthy Ethiopian adults and children and the determination of anaemia as indicators of malaria.

**Methods:** The reference sample population consisted of 218 adults (16-98 years of age) and 74 children (1-15 years of age) non-malaria infected, HIV-negative and intestinal helminthes-negatives, and 37 adults and 37 children malaria-infected. All haemoglobin values were taken in Gambo General Rural Hospital. Haemoglobin concentration was determined by Hemo Control EKF analyzer and statistical analysis was based on the guidelines of the Clinical and Laboratory Standards Institute. Median and 95% reference ranges were determined for haemoglobin parameters and analyzed by age and by gender for adults.

**Results:** Compared with US-European derived reference ranges, we detected similar haemoglobin (HB) values in adults but lower HB values in children. The lower HB value in non-malaria infected was 11.8 g/dL, 12.5 g/dL and 9.4 g/dL in women, men and children respectively. Anaemia was present in 24% of malaria-infected adults and in 52% of malaria-infected children. In adults there were not significant association between anaemia and malaria but anaemia children groups were 5.3 times more likely to have malaria [OR = 5.3, (95% CI: 2.2-12.6)].

**Conclusion:** Reference intervals of haemoglobin indices based on results from children Caucasians are not in agreement with the estimated values for Ethiopian children. Malaria was strongly associated with anaemia in children cases, but in adults, this association did not appear. Country-specific reference ranges are needed for defining normal laboratory parameters among population in Africa. This study provides the first locally-derived clinical laboratory reference ranges for adults and children in Gambo (Ethiopia).

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**Primary Toxoplasmosis in pregnancy – results from an interdisciplinary approach**

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**Background:** Primary toxoplasmosis during pregnancy (pTxP) is always an issue despite of a manifestation index (0.12-2 per 1000 pregnancies) in Germany. Serious disease manifestations are possible in the child, which can lead to permanent disability. Clear evidence-based recommendations for management of pTxP are lacking. Aim of the study was a prospective evaluation of the efficacy and safety of short-term treatment (21-28 days) with antiprotozoal agents using an interdisciplinary team for the care of mother and child.

**Methods:** All pregnant women attending the Infectious Diseases Department of the Klinikum St. Georg between 2001 and 2010 with serologically confirmed pTxP (positive seroconversion within four weeks, IgM low/lack of IgG antibody avidity or positive T. gondii PCR in plasma) were scheduled to a standardized treatment for three or
four weeks. Postpartum serological and PCR studies in all children were carried out. Telephone interviews and E-mail contacts were used to collect children’s clinical data in the course.

**Results:** Of 133 mother-child pairs 125 (94%) were primary evaluable. Toxoplasmosis diagnosis was made in median at gestational week 21 (range 6-35). Mothers were treated either immediately or started therapy when reaching gestational week 12. No toxoplasmosis-associated complications were seen. 66/134 children (49.3%, one Gemini-born) had postnatal serologies for analysis available: 5/66 (7.5%) showed evidence of infection: 4/5 IgM antibodies positive, one PCR positive (re-check after one week negative and initial serology completely negative). No child received pre-emptive treatment. All five children with confirmed or probable infection are currently without evidence of connal toxoplasmosis (follow-up 3-7 years).

**Conclusion:** Our data confirm the feasibility of short-term treatment which is non-inferior to intermittent or continuous therapy during pregnancy. This approach in combination with enhanced multidisciplinary maternal and child care has clear advantages in terms of management and acceptance.

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**Severe diarrhea due to *Isospora belli* infection in a HTLV1 woman**

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**Background:** *Isospora belli* is an opportunistic obligate intracellular protozoan cause diarrhea in immunocompromised patients. Isosporiasis usually described in HIV/AIDS patients and watery diarrhea due to *I. belli* has also been reported in other immunodeficiency states. The Human T-lymphotropic Virus Type I (HTLV-1) is a human RNA retrovirus that is known to cause as adult T-cell leukemia. This virus is endemic in Mashhad, Northeast of Iran. This report describes the first watery diarrhea due to isosporiasis in a HTLV1 woman patient in Mashhad who presented with periodic diarrhea.

**Methods:** A 46-year-old woman who infected congenitally to HTLV1 was admitted to a hospital in Mashhad. She had acute gastroenteritis and history of six month watery persistent diarrhea that increased gradually for every 45 minutes and also have another gastrointestinal symptom. Laboratory examination revealed a WBC count 2900/millimeter. Other findings: PMN:58, LYM:35, EOS:2, MON:S, HCT:33, CRP: Neg, ESR:3.

**Results:** Numerous oocysts of *I. belli* were detected in direct smear preparation of the diarrheic stool sample of the patient. After DNA extraction and purification confirmed by PCR with ITS2 gene and sequenced. Diarrhea has been successfully treated after administration of TMP-SMX in two weeks and was followed up. However, she died after 1 year of treatment because of malabsorption syndrome.

**Conclusion:** Mashhad city is an endemic area for HTLV1 in Iran and new cases report annually in there. As regards to opportunistic of Isosporiasis in immunodeficiency patients, we must much attention to diarrheic patients. Accurate diagnosis can help to prompt treatment in these patients

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**Prevalence and risk factors associated with *Entamoeba histolytica/Entamoeba dispar/Entamoeba moshkovskii* complex infection among different tribes of Malaysian aborigines**


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**Background:** Amoebiasis is defined as an intestinal or extraintestinal infection with the protozoan parasite *Entamoeba histolytica*. It is prevalent in rural Malaysia especially among aboriginal communities.

**Methods:** A series of community-based surveys to determine the prevalence and risk factors associated with *E. histolytica/E. dispar/E. moshkovskii* complex (*Entamoeba* complex) infection was carried out among three different aboriginal tribes (Proto-Malay, Negrito and Senoi) in selected villages in Negeri Sembilan, Perak and Pahang, Peninsular Malaysia. Socioeconomic data were collected using a pre-tested questionnaire. Faecal specimens were examined by formalin–ether concentration and trichrome staining techniques.

**Results:** Out of 500 individuals, 8.7% of Proto-Malay (13/150), 29.5% of Negrito (41/139) and 18.5% of Senoi (39/211) were found positive for *Entamoeba* complex infection. The prevalence of *Entamoeba* complex infection showed an age dependency relationship, with significantly higher rates observed among those aged less than 15 years. Multivariate analysis confirmed that not washing hands after playing with soil or gardening and presence of other family members infected with *Entamoeba* complex were identified as significant risk factors of the infection among all tribes. However, eating with hands, eating raw vegetables and close contact with domestic animals were identified as significant predictors of infection among Senoi. Overall, Negrito tribe presented a greater risk of *Entamoeba* complex infection than Proto-Malay and Senoi tribes.

**Conclusion:** Further studies on molecular approaches are needed to distinguish the morphologically identical species of pathogenic, *E. histolytica* from the non-pathogenic, *E. dispar* and *E. moshkovskii*. As highlighted by this study, the dynamic of transmission are most probably due to improper hygienic practice and contaminated vegetables. This study also showed that human to human contact is a possible mode of transmission. However, the role of domestic animals in the transmission of *Entamoeba* complex infection needs further investigation. The establishment of such data will be beneficial for the public health authorities in order to identify effective planning and implementation of specific pre-