Background: In order to reduce mortality among HIV/AIDS patients, it is imperative to understand the cause of mortality in these individuals. In this study, we reviewed clinical characteristics and outcome of HIV/AIDS inpatients in a tertiary hospital setting in Ethiopia in 2008.
Methods: Retrospective medical chart review was done for HIV-infected patients admitted to the All Africa Leprosy, Tuberculosis and Rehabilitation training (ALERT) Centre, a tertiary referral hospital in Addis Ababa, Ethiopia from January 1 to December 31 in 2008. Basic information (sex, age etc), HIV profile (CD4 count, WHO stage, ART regimen etc), presenting symptoms, diagnosis, and outcomes were obtained, and the data were analyzed. Ethical approval was obtained from the Albert Einstein College of Medicine, ALERT Centre and the Ethiopian National Review Board.
Findings: A total of 290 HIV positive patients admitted to the ALERT Centre in 2008 were included in this study. Out of the total patients, 187 of them had been on ART prior to admission (the ART group), and 103 of them were not on ART (the non-ART group). The mean CD4 count was 142.9 cell/mm^3 for the ART group and 101.6 cell/mm^3 for the non-ART group (p=0.002). The distribution of WHO stage was similar between the ART and non-ART groups; more than 90% of patients in both groups were either WHO stage III or IV. For overall patients, bacterial pneumonia (27.9%), all-extrapulmonary TB (26.9%), pulmonary TB (26.0%) and bacterial sepsis (18.6%) were the most common diagnosis. About 70% of TB diagnoses and more than 90% of CNS diagnoses were made empirically. The mortality was 36.4% for the ART group and 59.2% for the non-ART group (p=0.000). The highest mortality was associated with final diagnoses of bacterial sepsis (61.4%) followed by CNS diagnoses (58.1%), pulmonary TB (53.7%), bacterial pneumonia (52.7%) and all-extrapulmonary TB (51.2%). About 60% of the ART group showed improvement during the admission; only 35% of the non-ART group showed improvement (p=0.000).
Interpretation: The non-ART group was associated with higher inpatient mortality than the ART group. Nevertheless, both groups had extremely high death rate with the overall mortality rate of 44.5%. The majority of patients presented at advanced stage of HIV disease, and the majority of the diagnoses were made empirically. In addition, more than half of the patients were diagnosed as co-infected with TB. Better diagnostic tools and treatment options will likely improve the outcome of HIV patients in Ethiopia. Of paramount importance is the implementation of the June 2013 WHO guideline to enroll people on ART with the CD4 count less than 500 cell/mm^3 before their immune system is severely immunocompromised.
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Effect of fluoride varnish on early childhood caries in immunization clinics of roatan, Honduras

E. Lee[1], W. Yang[2], C. Tsai[3], E. Tran[2], B. Chaffee[2], L. Zhan[2]; [1]University of California, San Francisco, Menlo Park, CA/US, [2]University of California, San Francisco, CA/US, [3]University of California San Francisco, San Marcos, CA/US

Background: Early childhood caries (ECC) is a common chronic infectious disease worldwide with a higher burden in lower income countries. Fluoride varnish (FV) can effectively prevent ECC, but access is often limited. Early childhood vaccination programs are often well established in developing countries and the incorporation of FV into immunization facilities can play a significant role in improving early childhood oral health. The aim of this study was to assess the feasibility and utility of incorporating FV application in vaccination clinics to prevent ECC in Roatán, Honduras.
Methods: In a pilot observational study, 183 children aged 6-72 months were recruited from two Roatán public vaccination clinics. Some of these children had previously received FV with their regularly scheduled vaccination as part of a recent ad hoc oral health program. Study participant's demographics, diet, oral health habits, FV exposure, height, weight, and health information were collected via provider interviews, medical chart reviews, and physical exams. Caries scores were recorded using modified ICDAS. Data were analyzed using SPSS 17.0.
Findings: Of the 178 (97%) children who were vaccinated, only 34 (19%) received FV. Caries prevalence increased with the age. Children who received FV had significantly lower dmft (mean±SE: 2.45±0.09 for FV vs. 5.35±0.08 for non-FV, Mann-Whitney, $P < 0.001$) and lower caries prevalence (45% for FV vs. 69% for non-FV, Chi Square, $P < 0.01$). Parent education, frequent soda and juice intake, and frequent snacking were positively associated with ECC while daily intake of milk was inversely associated with ECC.
Interpretation: Children who received FV in vaccination clinics in Roatán, Honduras had significantly less ECC compared to children who did not receive FV. However, the percentage of children who received FV was low compared to vaccination coverage. Education on healthy diet and the expanded use of FV in vaccination clinics can help reduce ECC in young children of Roatán, Honduras.
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The impact of immunity against mosquito salivary proteins on dengue transmission

B. Londono – Renteria[1], J. Cardenas[2], M. Bear-Johnson[1], E. Cloherty[1], A. Troupin[1], C. Grippin[1], C. Mores[3], T. Colpitts[1]; [1]Tulane University, SPHTM, New Orleans, LA/US, [2]Los Patios Hospital, Los Patios, CO, [3]LSU, Baton Rouge, LA/US

Background: Dengue is a mosquito-transmitted disease of the tropics and subtropics caused by dengue virus (DENV). In endemic areas, this disease has become the leading cause of childhood morbidity and mortality. In South America, DENV is primarily maintained between humans and Ae. aegypti and Ae. albopictus. While the majority of DENV infections result in little or no disease, a small proportion of infections progress to the severe forms, hemorrhagic fever or shock syndrome. There is no specific therapeutic agent available against dengue virus, and vaccine development has been continually hampered by safety issues. An important and relatively unexplored area in DENV research is the role of arthropod vector factors in DENV infection and disease outcome. During feeding, the mosquito deposits salivary proteins (mSP) in human skin to facilitate bloodmeal intake. These mSP stimulate immune responses, which may lead to antibody production and modulation of cellular and cytokine function, which in turn can have a strong effect on viral infectivity. We propose that, in endemic settings, after repeated exposure of mosquito bites hosts develop an immune response against mosquito salivary proteins that can modulate or even block dengue viral infectivity. Here, we evaluated the antibody levels in human patients against specific mosquito salivary proteins that were found to be downregulated during mosquito DENV infection.
Methods: After informed consent was voluntary given, a serum sample was obtained from 80 febrile patients with probable dengue diagnosis from Los Patios Hospital in Norte de Santander Colombia and 10 controls living in the same area. DENV infection was detected by qRT-PCR. ELISA test was performed to evaluate the level of antibodies against Aegyptin, ADA and C-Type Lectin proteins from Ae. aegypti.