The purpose of this study was to determine the relationship between intestinal mucosal immunity and diarrhoea. Stools were tested for total IgA by radial immunodiffusion, cultured for bacteria and examined for ova/cysts by microscopy. Peripheral blood was screened for HIV-1 antibody by ELISA, CD4 and CD8 enumerated by flow cytometry and phagocytic activity by C. albicans engulfment. A total of 271 children were enrolled with a mean age of 20.3 m (range 0.3-60.0 m). HIV exposed (born to HIV seropositive mothers) had more episodes of diarrhoea than HIV unexposed (born to HIV seronegative mothers) children in the first six months of life (26.0% versus 5.5%, p = 0.002). Exposed children had severe (16/44 versus 6/29, p = 0.02) and prolonged diarrhoea lasting more than nine days (11.0% versus 1.4%, p = 0.03) than unexposed. CD8 counts were significantly higher in exposed than unexposed children (1837.0 versus 1373.0 cells/mm3, p = p.01). Among children aged 15 months and over, HIV seropositive children had severe diarrhoea (4/6 versus 11/32, p<0.01), reduced phagocytic activity (phagocytic index 15.4 versus 28.9, p<0.01), total intestinal IgA (0.2 versus 0.7 mg/ml, p = 0.04) and CD4 counts (624.2 versus 1345.1 cells/mm3, p = 0.01) than seronegative. Reduction of CD4 was more significant in HIV seropositive children with severe diarrhoea (298.7 versus 1318.5 cells/mm3, p = 0.01). Isolation of enteric pathogens was independent of either maternal or child's HIV serostatus although E. coli was more frequent in children with low CD4 counts. These results highlight the importance of mucosal immunity in the intestinal infections. Exposure to HIV, reduced CD4 counts and IgA were associated with diarrhoea probably due to impaired intestinal mucosal immunity.