Objectives: To determine the impact of facility-based semi-intensive and home-based intensive counseling strategies to improve exclusive breastfeeding rates and to identify factors associated with exclusive breastfeeding. Methods: This was a randomized trial in which villages in the Kibera slum, Nairobi, Kenya were assigned to two intervention groups and a control group. Study participants from among 34-36 week pregnant, HIV-negative women, attending antenatal clinic at Lang’ata health centre, were assigned to study groups and followed up in their homes until 6 months postpartum. Experimental group 1, the Home-Based Intensive Counseling Group (HBICG) received 7 counseling sessions; 1 prenatally and 6 postnatally. Experimental group 2, the Facility-Based Semi-Intensive Counseling Group (FBSICG) received 1 counseling session prenatally. The control group (Control Group) received irregularly provided health education by health personnel. Information on infant feeding practices, using a validated 24-hour recall questionnaire was collected monthly at participant homes; observations were conducted on a random 10% sub-sample to verify the reported information. Qualitative data from focus group discussions provided information on the rationale for feeding choices. Information on infant morbidity and weight measurements were taken on a monthly basis. Results: At six months, exclusive breastfeeding rate was 23.6% in HBICG; 9.2% in FBSICG; and 5.6% in CG. Mothers from HBICG had a 4.2 increased likelihood to exclusively breastfeed compared to those in the CG (RR=4.20; 95% CI; 1.66-10.64; p=0.002). Cumulative exclusive breastfeeding rate for 6 months was 3.2% in the CG; and 6.9% and 15.6% in the FBSICG and HBICG respectively (p<0.00001). Mothers from HBICG had a 3.4 increased likelihood to practice exclusive breastfeeding for 6 months compared to those in CG (RR=3.4; 95% CI: 1-34-8.80; p=0.010). Exclusive breastfeeding rates in FBSICG were insignificantly higher than those in the CG. The median duration of exclusive breastfeeding was one month in both the CG and FBSICG and three months in the HBICG. The predictors of exclusive breastfeeding were non-giving of post-lacteal feeds; planned long breastfeeding duration; living in smaller households; non-ownership of telephones and televisions; absence of breast health problems; and correct knowledge of breastfeeding duration. The major hindrances to exclusive breastfeeding were: inadequate knowledge of exclusive breastfeeding; cultural perceptions about infant feeding; and absence of mother from home for long periods. The prevalence of acute respiratory infections and diarrhoea were significantly lower among exclusively breastfed infants than those non-exclusively breastfed. The prevalence of underweight was significantly lower among the exclusively breastfed infants than those non-exclusively breastfed at one month (p=0.006) and three months (p=0.005). Conclusions: It is feasible to promote and sustain exclusive breastfeeding for six months in low socioeconomic conditions, using the home-based intensive counseling strategy. Breastfeeding promotion programmes should adopt strategies to allow for wider dissemination of information, targeting both mothers and the community at large, as this study showed family members were major decision-makers in the choice of infant feeding practices. Hospital-based breastfeeding education should offer detailed information on a consistent basis. Breastfeeding promotion messages should be re-packaged to address cultural perceptions in infant feeding practices. Thesis (PhD (Interdisciplinary Health Sciences. Human Nutrition))--University of Stellenbosch, 2008.