| **Author,Year**  | **Location/setting/high or low prevalence population (based on 0.1% prevalence rate)** | **Study dates/ duration of followup** | **Treatment groups** | **Baseline population characteristics for mother/baby**  |
| --- | --- | --- | --- | --- |
| Chi, 200861See also Chi, 200766  | Zambia; public health clinics; prevalence not reported | Women randomized between March 16 2005 and February 13 2007; followup until infant is 6 weeks old | A: maternal TDF 300mg/FTC 200mg at deliveryB: maternal ZDV 300mg BD starting at 32 weeks, NVP 200mg in labor, infant NVP 2mg/kg at birth, and discharged with 7 day course of ZDV 4mg/kg (standard of care)  | Original cohort (as per Chi 2007):Intervention vs. ControlMedian age (interquartile range): 26 y (22-29) vs. 24 y (22-29)Race: Not reportedMean CD4 (SD): 464 (208) vs. 490 (200) cells/mLWHO stage III: 3 (2%) vs. 3 (2%)  |
| de Vincenzi, 201160See also Kesho Bora Study Group, 201067  | Burkina Faso, Kenya, South Africa; antenatal clinics; prevalence not reported | June 2005 to August 2008; followup until infant is 12 months old  | From 34-36 weeks gestation:A: Maternal ZDV + 3TC + ABT-378 + RTV until cessation of breastfeeding (maximum 6.5 months postpartum)B: Maternal ZDV until delivery, ZDV + sdNVP at labor onset (protocol change from December 2006, prophylaxis started at 28 weeks gestation and women given 3TC + ZDV for 1 week postpartum)Infants received NVP within 72 hours of birth, co-trimaxozole from age 6 weeks to 12 months, unless not HIV infected after cessation of breastfeeding (protocol change from December 2006, infants received 1 week of ZDV from birth) | A: median age (IQR) 27 years (24-31), median CD4 count (IQR) at enrollment 0.336 x 109 cells/L (0.282-0.408 x 109 cells/L), median maternal viral load (IQR) at enrollment 4.23 log10 copies/mL (3.66-4.75)B: median age (IQR) 27 years (23-31), median CD4 count (IQR) at enrollment 339 cells/mL (267-408), median maternal viral load (IQR) at enrollment 4.21 log10 copies/mL (3.58-4.74) |
| Gray, 200662 | South Africa; prevalence not reported | Open label, randomized 4-arm single-center study from May 1999 to May 2000; maternal followup until 6 weeks postpartum. Infant followup until 24 weeks of age. | From 34 weeks gestation:A: d4T 40mg BDB: ddI 200mg BD C: d4T 40 mg + ddI 200mg BDD: ZDV 300mg BDInfants received same ART regime as mother within 36 hours of birth until 6 weeks of age. | ALL groups, n = 373Age, mean (SD): 28.3 (5.8)Race: Black = 372/373 (100)Est. week of gestation: mean: 34.7 (0.8), median: 34.7, range: 31-39CD4 count (cells/L): mean: 0.4308 x 109 cells/L (225), median: 0.3920 x 109 cells/L, range: 0.027-1.286 x 109 cells/L  |
| Shapiro, 201063 | Botswana; study clinics; 27% of pregnant women screened at antenatal clinics had HIV | Enrolled July 2006 to May 2008; followup until 6 months postpartum | Randomization groups (women with CD4 count >200 cells/mm3):From 26-34 weeks gestation through weaning or 6 months postpartum, whichever first:A: maternal ABC + ZDV + 3TCB: maternal ABT-378 + RTV + ZDV + 3TCObservational group (women with CD4 count <200 cells/mm3 or with AIDS defining illness):From 18-34 weeks to continue indefinitely:C: maternal NVP, ZDV, 3TCInfants received sdNVP at birth and ZDV from birth to 4 weeks.  | A: median age at enrollment 26 years, median CD4 count (IQR) 0.393 x 109 cells/L (0.305-0.514 x 109 cells/L), median HIV-1 RNA (IQR) 13,300 copies/mL (2,340-50,900), median (IQR) gestational age at delivery 39.3 years (37.9-40.3), median (IQR) infant birthweight 3.0 kg (2.7-3.3)B: median age at enrollment 25 years, median CD4 count (IQR) 403 (297-514), median HIV-1 RNA (IQR) 9,100 copies/mL (2,210-39,900), median (IQR) gestational age at delivery 39.0 years (37.4-40.0), median (IQR) infant birthweight 2.9 kg (2.6-3.2)C: median age at enrollment 29 years, median CD4 count (IQR) 147 (115-183), median HIV-1 RNA (IQR) 51,700 copies/mL (14,400-179,000), median (IQR) gestational age at delivery 39.4 years (38.4-40.3), median (IQR) infant birthweight 2.9 kg (2.6-3.2)Median duration of ART before delivery was 11 weeks in randomized groups, 13 weeks in observational group |
| Shapiro, 200664 | Botswana; study sites at district hospitals; 37% of pregnant women test HIV positive at surveillance sites in Botswana | Enrolled June 2002 to October 2003; followup until infant is 1 month old  | A: maternal sdNVP during laborB: maternal placebo during laborAll mothers received ZDV from 34 weeks gestation until delivery and all infants received sdNVP and ZDV from birth to 1 month of ageART was offered to women with CD4 counts <200 or AIDS defining illness at any point in study participation. If women started ART before delivery, they did not receive NVP or placebo at labor onset. Infants confirmed HIV infected were also given ART. | A: median age 27.6 years, median CD4 count (IQR) 0.356 x 109 cells/L (0.218-0.519 x 109 cells/L), median length of gestation at delivery (IQR) 40 weeks (38-40), median infant birthweight (IQR) 3.0 kg (2.8-3.4) B: median age 27.1 years, median CD4 count (IQR) 363 (250-536) cells/µl, median length of gestation at delivery (IQR) 40 weeks (39-40), median infant birthweight (IQR) 3.1 kg (2.9-3.4) Race: Not reportedHIV stage: Not reported  |
| Thistle,  200765 | Zimbabwe; hospital; 21.6% at study site | 2002 to2004 (terminated secondary to futility) | A: maternal ultra short course ZDV (given during labor), sdNVP in labor, infant ZDV for 72 hours after delivery and NVP therapy within 72 hours of deliveryB: maternal sdNVP therapy in labor, infant NVP therapy within 72 hours of delivery | Age, mean years + SD:A: 25.7 + 5.6B: 25.6 + 5.7 |

| **Author,Year**  | **Eligibility criteria**  | **Exclusion criteria**  | **Number screened/ eligible/enrolled/ withdrawals/% analyzed** | **Breastfeeding rate/duration**  |
| --- | --- | --- | --- | --- |
| Chi, 200861See also Chi, 200766  | HIV-infected women seeking care at 2 public sector primary health facilities who tested positive for HIV and who were between 28 and 38 weeks gestation. All women were offered short course ZDV from 32 weeks onward and intrapartum NVP for perinatal prophylaxis prior to recruitment as part of routine care. All HIV-exposed infants were given NVP syrup before discharge and week long supply of ZDV. | Women who qualified for ART based on WHO criteria for health, and women with any previous use of ART. Enrolled women who had given consent and who presented to study facility in labour were assessed by staff. Only women who reported self-administration of single-dose NVP before arrival or who were seen to ingest the dose after admission, who were in active labor, and had no clinical indications for transfer to tertiary care facility, were randomized.  | 627 enrolled; 397 randomized; 355 (89%) mother-infant pairs analyzed (n=3 [1%] stillbirths, n=9 [2%] infant deaths before 6 weeks of age, n=30 [8%] mother-child pairs lost to followup)A: n=180 (51%) B: n=175 (49%) | Intervention vs. ControlInfant breastfeeding at 6 weeks n = 166 (92%) vs. 161 (92%)(as per Chi 2007 Table 1) |
| de Vincenzi, 201160See also Kesho Bora Study Group, 201067  | ART naive pregnant women infected with HIV-1 visiting antenatal clinics at 5 study sites, less than 32 weeks gestation, WHO stage 1, 2, or 3 HIV infection, CD4 count 0.200-0.500 x 109 cells/L | Women with contraindications to rapid initation of ART (i.e., allergy to ART or benzodiazepines), those on drugs that interact with ART, or those with severe anemia, neutropenia, liver or renal failureFirst, liveborn infants used for analysis | 882 enrolled; 824 randomized (412 to group A, 412 to group B); 401 livebirths in group A, 404 livebirths in group B | A: 307/401 (77%) ever breastfed, median duration of breastfeeding (IQR) 21.4 weeks (8.6-25.4), exclusive breastfeeding up to last available visit before 3 months 135/298 (45%)B: 317/404 (78%) ever breastfed, median duration of breastfeeding (IQR) 19.0 weeks (9.0-25.7), exclusive breastfeeding up to last available visit before 3 months 134/304 (44%)P values = 0.55, 0.95, 0.80  |
| Gray, 200662 | HIV-1 infected, antiretroviral-naive pregnant women >18 years old, 34-36 weeks of gestation; prepared to formula feed infants; willing to have infants followed for 6 months | Presence of severe fetal abnormalities, presence of 3 or more fetuses, occurrence of a newly diagnosed HIV-related opportunistic infection, malignancy, condition requiring acute therapy, active drug abuse, history of pancreatitis, past or present symptoms of grade 2 or greater bilateral peripheral neuropathy | 373 women randomized:A: 93 to d4TB: 95 to ddIC: 95 to d4T + ddID: 92 to ZDV13 women began study treatment ealier or later than 34-36 weeks gestation372 infants born to 369 women (3 sets of twins)11 mother-infant pairs unevaluable  | None |
| Shapiro, 201063 | Pregnancy of 26-34 weeks gestation for randomized groups or 18-34 weeks gestation for observational group, had positive HIV-1 ELISA on 2 separate samples, were ≥18 years old, had hemoglobin ≥8 g/dL, absolute neutrophil count ≥1000 cells/mm3, alanine amino transferase and aspartate amino transferase no more than 2.5 times upper limit of normal range | Women who preferred to exclusively formula feed their infants | 15,414 screened; 4209 tested positive; 1248 referred to study clinics; 730 enrolled; 560 randomized and 170 observed (709 liveborn infants)A: n=285 assigned, 274 had live born infants (n=283 liveborn infants)B: n=275 assigned, 269 had live born infants (n=270 liveborn infants)C: n=170 assigned, 156 had live born infants (n=156 liveborn infants) | All women asked to exclusively breast-feed and wean 3 days before 6 month study visit; 97% of all women with live-born infants breastfed and 71% continued for at least 5 months (70% in group A, 73% in group B, 71% in group C)A: n=264 (96%) initiated breastfeeding while receiving ART, n=71 (27%) weaned <5 months before stopping ART, n=2 (1%) weaned <5 months after stopping ART, n=5 (2%) lost to followup but breastfed to last contact, n=186 (70%) breastfed for >5 months while receiving ARTB: n=263 (98%) initiated breastfeeding while receiving ART, n=66 (25%) weaned <5 months before stopping ART, n=4 (2%) weaned <5 months after stopping ART, n=3 (1%) stopped ART before weaning >5 months, n=5 (2%) lost to followup but breastfed to last contact, n=185 (70%) breastfed for >5 months while receiving ARTC: n=150 (96%) initiated breastfeeding while receiving ART, n=39 (26%) weaned <5 months while continuing ART, n=1 (1%) lost to followup but breastfed to last contact, n=1 (1%) died <5 months, n=109 (72%) breastfed for >5 months while receiving ART |
| Shapiro, 200664 | HIV positive pregnant women who were between 33 and 35 weeks gestation, had positive HIV-1 ELISA on 2 separate samples, were ≥18 years old, had hemoglobin ≥8 g/dL, absolute neutrophil count ≥1000 cells/µl, alanine amino transferase and aspartate amino transferase ≤10 times the upper limit of normal, creatinine ≤1.5 mg/dL, did not have intolerance to zidovudine or nevirapine and provided written informed consent  | Did not plan to remain in study area, presented after 34 weeks gestation, laboratory ineligibilityOnly first born, liveborn infants included in analysis | 9031 screened; 709 enrolledA: n=354 randomized, n=345 live births, n=40 started ART prior to delivery, n=327 infants with HIV status known at 1 monthB: n=355 randomized, n=349 live births, n=31 started ART prior to delivery, n=329 infants with HIV status known at 1 month | C: n=150 (96%) initiated breastfeeding while receiving ART, n=39 (26%) weaned <5 months while continuing ART, n=1 (1%) lost to followup but breastfed to last contact, n=1 (1%) died <5 months, n=109 (72%) breastfed for >5 months while receiving ART |
| Thistle,  200765 | HIV positive pregnant women with positive test results on both dipstick HIV 1, 2 and recombigen test kit, able to give informed consent, willing to have infants involved | Inability to give or refusal to give informed consent, clinical evidence of significant hepatic disease, receipt of previous ARTOnly data from firstborn infant included if multiple birth | Overall: 7467 screened; 1610 eligible; 1140 randomizedA: n = 569 randomizedB: n = 571 randmomizedA: n=440 birthsB: n=434 birthsn=609 infants with data at 6 weeksA: n=312B: n=297 | A: 89.4% breastfeeding at 6 weeks, 0.4% mixed feeding at 6 weeksB: 91.1% breastfeeding at 6 weeks, 0 mixed feeding at 6 weeks |

| **Author,Year**  | **Cesarean rate**  | **Transmission rates** |
| --- | --- | --- |
| Chi, 200861See also Chi, 200766  | Not reported | Transmission according to actual use ART regimens for perinatal HIV prevention:IntrauterineWith antenatal ZDVNVP+TDF/FTC: 3/126 (2.4%)NVP alone: 8/117 (6.8%)Without antenatal ZDVNVP+TDF/FTC: 3/22 (13.6%)NVP alone: 1/27 (3.7%)OtherZDV + TDF/FTC: 1/23 (4.3%)ZDV only: 0/22TDF/FTC only: 1/5 (20.0%)No drug: 0/6Missing NVP cord plasma: 1/7 (14.3%)Total: 18/355 (5.1%)Intrapartum/Early transmissionWith antenatal ZDVNVP+TDF/FTC: 2/123 (1.6%)NVP alone: 3/109 (2.8%)p=0.67Without antenatal ZDVNVP+TDF/FTC: 0/19NVP alone: 1/26 (3.4%)OtherZDV + TDF/FTC: 0/22ZDV only: 0/22TDF/FTC only: 0/4No drug: 0/6Missing NVP cord plasma: 0/6Total: 6/337 (1.8%)OverallWith antenatal ZDVNVP+TDF/FTC: 5/126 (4.0%)NVP alone: 11/117 (9.4%)p=0.12Without antenatal ZDVNVP+TDF/FTC: 3/22 (13.6%)NVP alone: 2/27 (7.4%)p=0.65OtherZDV + TDF/FTC: 1/23 (4.3%) ZDV only: 0/22TDF/FTC only: 1/5 (20.0%) No drug: 0/6Missing NVP cord plasma: 1/7 (14.3%)Total: 24/355 (6.8%)\*\*Intrapartum/early transmission = baby tested negative at birth but positive at 6 weeks (IMP: these women are breastfeeding), so this transmission rate seems not applicable to nonbreastfeeding groupsOverall, 24/355 (7%) infants were infected with HIV by 6 weeks. Most transmissions occurred during intrauterine period (n=18) compared to intrapartum/early postpartum (n=6). Transmission rates were similar between intervention and control arms for intrauterine (4% vs. 6%, p=0.63), intrapartum/early postpartum (1% vs. 2%, p=0.44), or overall (6% vs. 8%, p=0.40) transmission. Mother-to-child HIV transmission according to drug regimen:ZDV use during antenatal periodNone: AOR=1.0<30 days: AOR=0.7 (95% CI 0.3-2.1)>30 days: AOR=0.4 (95% CI 0.1-1.3) |
| de Vincenzi, 201160See also Kesho Bora Study Group, 201067  | A: Cesarean before labor, rupture of membranes, or both n=19 (5%), Cesarean after labor, rupture of membranes, or both n=25 (6%)B: Cesarean before labor, rupture of membranes, or both n=13 (3%), Cesarean after labor, rupture of membranes, or both n=38 (9%) | Comparing infection rates and events among infants:Birth A: 7/394, 1.8%, 95% CI 0.9-3.7%B: 10/402, 25%, 95% CI 1.3-4.6%RR reduction 28%p=0.526 weeksA: 13/375, 3.3%, 95% CI 1.9-5.6%B: 20/374, 5.0%, 95% CI 3.3-7.7%RR reduction 34%p=0.24 6 monthsA: 19/349, 4/9%, 95% CI 3.1-7.6%B: 33/339, 8.4%, 95% CI 6.0-11.6%RR reduction 42%12 monthsA: 21/333, 5.4%, 95% CI 3.6-8.1%B: 37/305, 9.5%. 95% CI 7.0-12.9%RR reduction 43%p=0.029 \*p value stratified by center, intention to breastfeed |
| Gray, 200662 | 37% (137/372)5 stillbirths | Mother to child transmission rates by treatment group: Cumulative positive HIV-1 DNA (MTCT rate\*)BirthA: 3/91 (3.3%)B: 2/94 (2.1%)C: 2/88 (2.3%)D: 4/89 (4.5%)All groups: 11/362 (3.0%)Week 6A: 9/91 (9.9%)B: 6/94 (6.4%)C: 3/88 (3.4%)D: 4/89 (4.5%)All groups: 22/362 (6.1%)Week 12A: 10/91 (11.0%)B: 9/94 (9.6%)C: 4/88 (4.6%)D: 4/89 (4.5%)All groups: 27/362 (7.5%)Week 24A: 11/91 (12.1%, 95% CI 6.2-20.6)B: 10/94 (10.6%, 95% CI 5.2-18.7)C: 4/88 (4.6%, 95% CI 1.3-11.2)D: 5/89 (5.6%, 95% CI 1.9-12.6)All groups: 30/362 (8.3%, 95% CI 5.7-11.6)\* number with positive HIV-1 DNA divided by the number of evaluable mother-infant pairs |
| Shapiro, 201063 | Not reported | Overall 8/709 (1.1%, 95% CI 0.5-2.2) infants were infected by 6 months of age:6 infants infected in utero; A: n=4, B: n=1, C: n=1 (includes one infant that died without confirmed AIDS defining cause after positive PCR result at birth)2 infants in group A infected through late breastfeeding transmissionInfections between randomized groups (study not powered for between randomized group comparisons of transmission rates):A: 6/283 (2.1%) liveborn infants infectedB: 1/270 (0.4%) liveborn infants infectedpercentage point difference, 1.7, 95% CI -2.0 to 7.1In utero transmission = confirmed positive HIV PCR assay of DNA from blood sample obtained from infants less than 4 days oldLate breastfeeding transmission = negative test at one month and first confirmed positive test thereafterIntrapartum/early breastfeeding transmission = negative result at birth and first confirmed positive test at one month of age |
| Shapiro, 200664 | Emergency or electiveA: Median 8.8%B: Median 9.9% | A: n=345 live births, n=345 delivieries with HIV PCR test results, n=13 (3.8%) HIV+ at birth, n=15 [4.3%±2.3 (2SD)] HIV+ at one month of ageB: n=349 live births, n=346 delivieries with HIV PCR test results, n=8 (2.3%) HIV+ at birth, n=13 [3.7%±2.2 (2SD)] HIV+ at one month of age 95% CI for difference between infant groups at one month with HIV infection, -2.4 to 3.8%, met equivalenceRate of HIV infection at birth is number of first positive HIV PCR results by 15 days of age divided by number of live birthsRate of HIV infection by one month is number of first positive HIV PCR results by 45 days divided by number of live birthsExcluding liveborn infants whose mothers received ART before delivery, 14/305 (4.6%) in maternal NVP arms were HIV infected by one month vs. 12/319 (3.8%) in maternal placebo arm (p=0.69, 95% CI for difference -2.4 to 4.2%, met equivalence)No transmission difference in infants who became infected between birth and one month between groups (2 infections in maternal NVP arm vs. 5 in placebo arm, p=0.45)  |
| Thistle,  200765 | A: 8.2% B: 6.1% | Outcomes at 6 weeks postpartum in infants whose mothers were randomized:A: n=312 infants with data at 6 weeks postpartum; n=45 (14.4%) of infants positive for HIV, n=23 (7.4%) of infants were dead, n=68 (21.8%) of infants met primary outcome (death or HIV infection) B: n=297 infants with data at 6 weeks postpartum; n=49 (16.5%) of infants positive for HIV, n=21 (7.1%) of infants were dead, n=70 (23.6%) of infants met primary outcome p=0.06, percentage difference 1.8%, 95% CI -4.9 to 8.4% for primary outcome, AOR = 1.28 (95% CI 0.75-2.19)\*AOR = age, gestational age, marital status, premature rupture of membranes, mode of delivery, maternal opportunistic infection, sexually transmitted infection |

3TC = lamivudine; ABC = abacavir; ABT-378 = lopinavir; AIDS = acquired immunodeficiency syndrome; AOR = adjusted odds ratio; ART = antiretroviral therapy; BD = twice daily; CD4 = cluster of differentiation 4; CDC = Centers for Disease Control and Prevention; CI = confidence interval; CIDA = Canadian International Development Agency; D4T = stavudine; DDL = didanosine; DNA = deoxyribonucleic acid; ELISA = enzyme-linked immunosorbent assay; FTC = emtricitabine; IQR = interquartile range; MTCT = mother-to-child transmission; NVP = nevirapine; PCR = polymerase chain reaction; PROM = premature rupture of membranes; RNA = ribonucleic acid; RR = relative risk; RTV = ritonavir; SD = standard deviation; sdNVP = single-dose nevirapine; TDF = tenofovir; UNDP = United Nations Development Programme; UNFPA = United Nations Population Fund; WHO = World Health Organization; ZDV = zidovudine.