
Safe Conception Roundtable

September 21, 2012

Safer Conception Roundtable

September 21, 2012

Reproductive Choice

Helping couples make informed decisions

Ethics Committee, American Society for Reproductive
Medicine

Fertility and Sterility Feb 2002;77(2):218-222



“HIV infection is classified as a chronic disease. It is treatable but not yet curable....Health care providers and HIV-infected persons together share responsibility for the safety of the uninfected partner and potential offspring. When an affected couple requests assistance to have their own genetically related child, they are best advised to seek care at institutions with facilities that can provide the most effective evaluation, treatment, and follow-up. Alternatively, they may be advised to look at other options and consider donor sperm, adoption, or not having children.”

Parenthood : Defining Goals and Options

FAMILY

**Non
BIOLOGIC**



**Adoption
Surrogacy
Sperm Donor**



BIOLOGIC

Safer Conception

Safer Conception



Safer Sex

Mandelbrot 1997
natural conception (104 pregnancies in 92 couples)
all 4 seroconversions occurred during pregnancy

Lancet 1997; 349:805

Safer Conception



Safer Sex

Barreiro 2006
natural conception (76 pregnancies in 62 couples)
1 seroconversion during/after pregnancy with an infected child

JAIDS 2006; 43:324

Safer Conception

Preconception Counseling

Preconception Counseling and Care for HIV-Infected Women of Childbearing Age

Overview (Last updated July 31, 2012; last reviewed July 31, 2012)

Panel's Recommendations

- Discuss childbearing intentions with all women of childbearing age on an ongoing basis throughout the course of their care **(AIII)**.
- Include information about effective and appropriate contraceptive methods to reduce the likelihood of unintended pregnancy **(A)**.
- During preconception counseling, include information on safer sexual practices and elimination of alcohol, illicit drugs, and smoking, which are important for the health of all women as well as for fetal/infant health, should pregnancy occur **(AII)**.
- When evaluating HIV-infected women, include assessment of HIV disease status and need for antiretroviral therapy (ART) for their own health **(AII)**.
- Choose an ART regimen for HIV-infected women of childbearing age based on consideration of effectiveness for treatment of maternal disease, hepatitis B virus disease status, teratogenic potential of the drugs in the regimen should pregnancy occur, and possible adverse outcomes for mother and fetus **(AII)**.


Rating of Recommendations: A = Strong; B = Moderate; C = Optional

Rating of Evidence: I = One or more randomized trials with clinical outcomes and/or validated laboratory endpoints; II = One or more well-designed, nonrandomized trials or observational cohort studies with long-term clinical outcomes; III = Expert opinion

- a. **Discuss reproductive options; actively assess women's pregnancy intentions on an ongoing basis throughout the course of care;** and, when appropriate, make referrals to experts in HIV and women's health, including experts in reproductive endocrinology and infertility when necessary.
- b. **Offer all women effective and appropriate contraceptive methods** to reduce the likelihood of unintended pregnancy. Providers should be aware of potential interactions between antiretroviral (ARV) drugs and hormonal contraceptives that could lower contraceptive efficacy (see Table 4).
- c. **Counsel on safe sexual practices** that prevent HIV transmission to sexual partners, protect women from acquiring sexually transmitted diseases, and reduce the potential to acquire more virulent or resistant strains of HIV.
- d. **Counsel on eliminating alcohol, illicit drug use, and cigarette smoking.**
- e. Educate and counsel women about **risk factors for perinatal transmission of HIV**, strategies to reduce those risks, potential effects of HIV or of ARV drugs given either for treatment or solely for prevention of mother-to-child transmission (MTCT) on pregnancy course and outcomes, and the recommendation that HIV-infected women in the United States not breastfeed because of the risk of transmission of HIV and the availability of safe and sustainable infant feeding alternatives.

- f. When **prescribing antiretroviral therapy (ART)** to women of childbearing age, consider the regimen's effectiveness for treatment of HIV, an individual's hepatitis B disease status, the drugs' potential for teratogenicity should pregnancy occur, and possible adverse outcomes for mother and fetus.
- g. Use the preconception period in women who are contemplating pregnancy to **adjust ARV regimens** to exclude efavirenz or other drugs with teratogenic potential.
- h. Make a **primary treatment goal** for women who are on ART for their own health and who want to get pregnant the **attainment of a stable, maximally suppressed maternal viral load** prior to conception to decrease the risk of MTCT.
- i. Evaluate and appropriately manage therapy-associated side effects such as hyperglycemia, anemia, and hepatotoxicity that may adversely impact maternal-fetal health outcomes.
- j. Evaluate the need for appropriate prophylaxis or treatment for opportunistic infections, including safety, tolerability, and potential toxicity of specific agents when used in pregnancy.
- k. Administer medical **immunizations** for influenza, pneumococcal or hepatitis A and B vaccines, and other vaccines as indicated (see <http://www.cdc.gov/vaccines/recs/acip/rec-vac-preg.htm> and <http://www.cdc.gov/vaccines/recs/acip/downloads/preg-principles05-01-08.pdf>).
- l. Encourage sexual partners to receive HIV testing and, if infected, to seek counseling and appropriate HIV care.

Safer Conception



Preconception
Counseling

Assess for co-morbidities (HTN, DM, etc)

Maternal Age and Family History Screening for inheritable disorders

Folic Acid supplementation

Assessment of Fertility

- documentation of ovulation (menstrual hx vs hormonal)

- tubal patency if hx of STIs

- adequacy of sperm

Safer Conception



peri-conception

Sero-concordant Couples

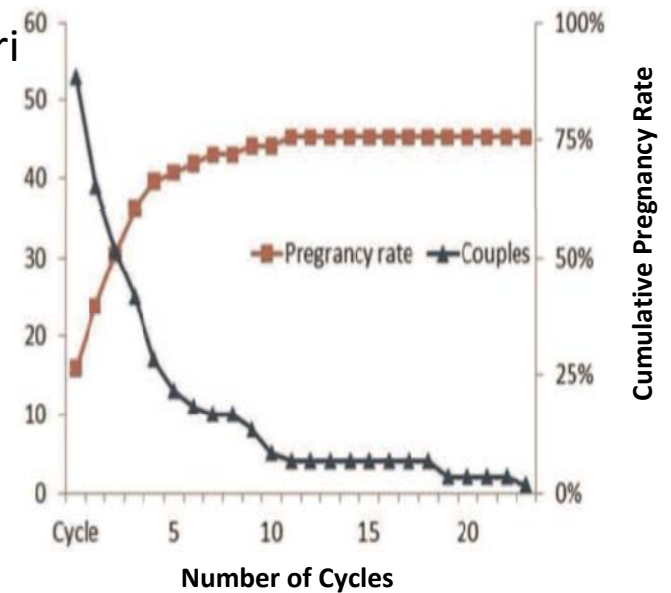
Sero-discordant Couples

Safer Conception

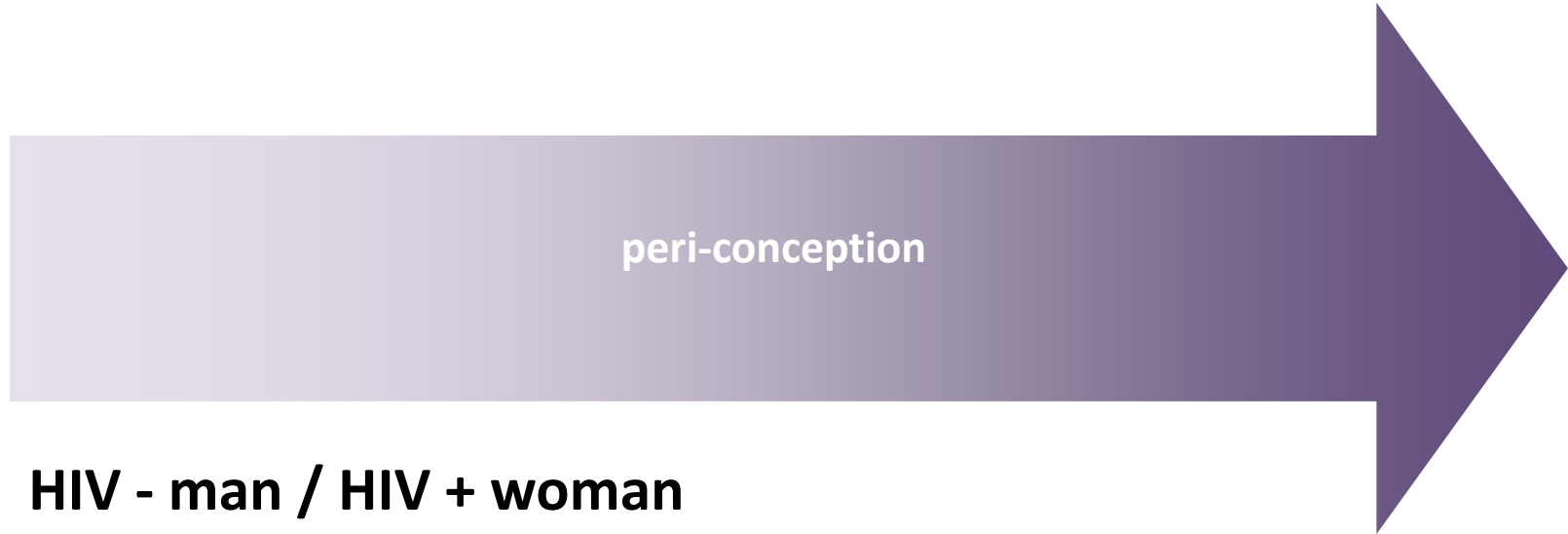
peri-conception

HIV - man / HIV + woman

Timed intercourse during most fertile peri



Safer Conception



HIV - man / HIV + woman

Timed intercourse during most fertile period*

Viral suppression of female partner

+/- PreP for male partner

Vaginal insemination

* Mandelbrot 1997 : all 4 transmission occurred during unprotected sex outside of fertile period

Other modifiable risk factors: STIs , ? circumcision

Safer Conception



peri-conception

HIV + man / HIV - woman

Timed intercourse during most fertile period*

Viral suppression of male partner

+/- PreP for female partner

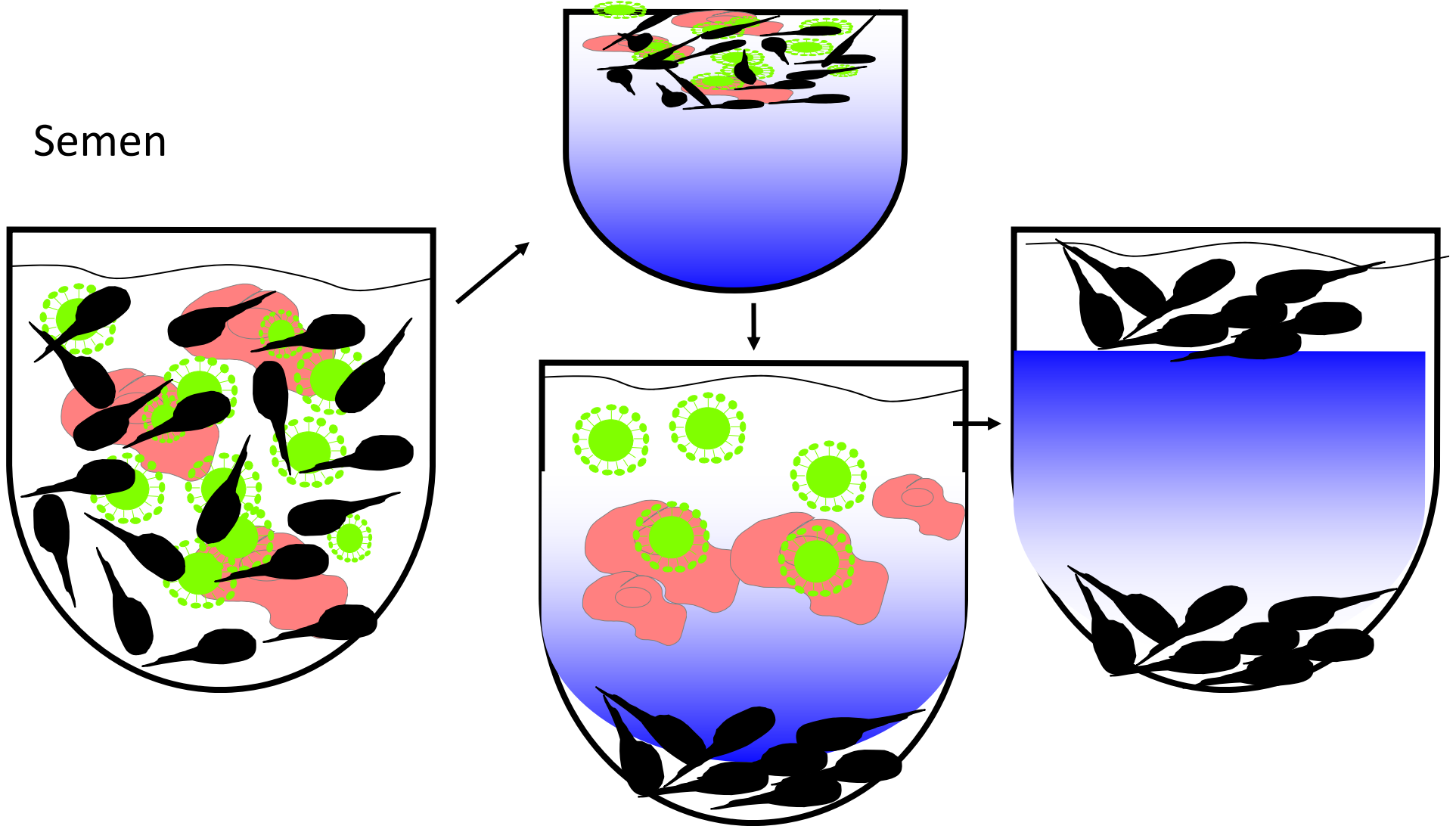
sperm processing with insemination

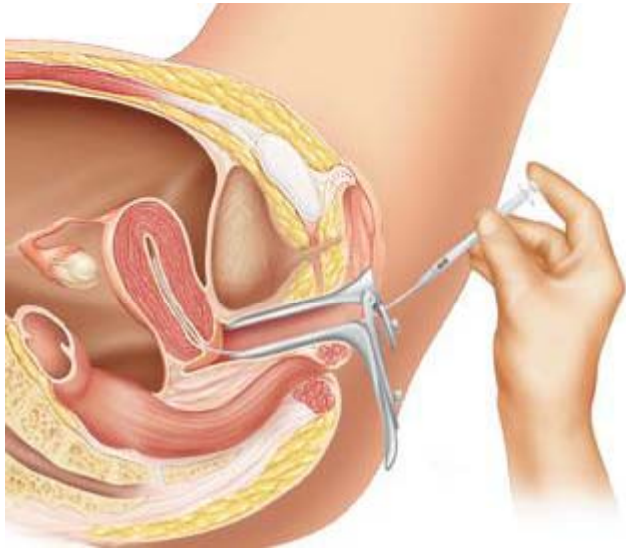
sperm processing with ART

* Mandelbrot 1997 : all 4 transmission occurred during unprotected sex outside of fertile period

Semen Processing

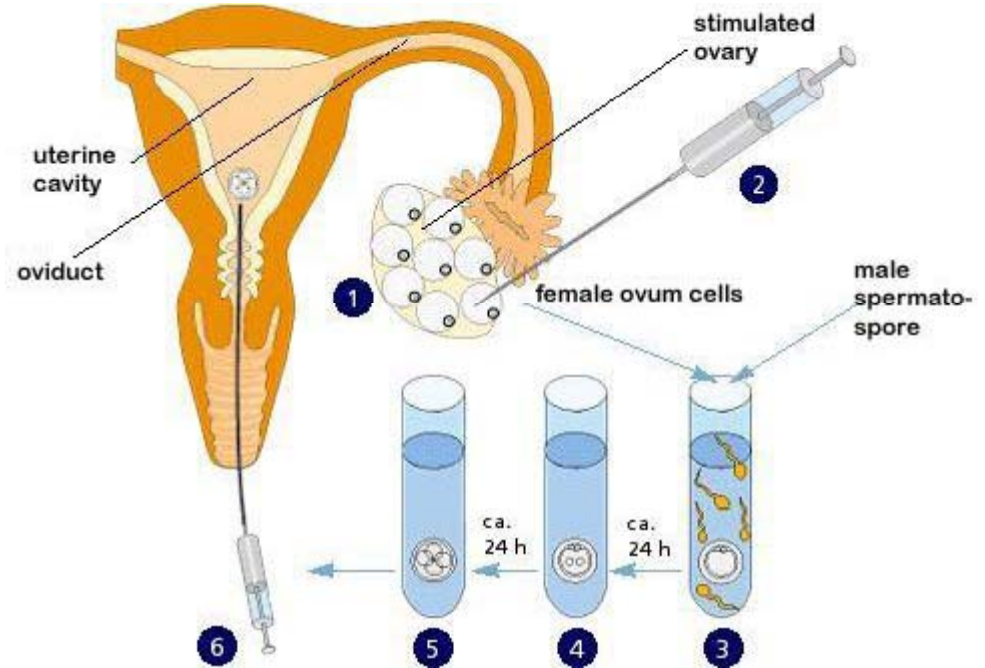
Semen





Insemination

Transfer of semen into vagina
or uterus



IVF

Hormonal stimulation for oocyte recruitment
Egg retrieval under ultrasound guidance
Fertilization and creation of embryo
Transfer of embryo into the hormonally prepared uterus

ICSI and IVF

- Hormonal stimulation for oocyte recruitment
- Egg retrieval under ultrasound guidance
- Fertilization via intracytoplasmic sperm injection



- Embryo transfer

Semen Processing - IUI

Study	Cycles	Pts	Preg	Births	Infect
Semprini	1954	623	272	242	0
Marina	458	233	116	86	0
Tur	155	67	32	--	0
Gilling-Smith	66	27	12	3	0
Vernazza	46	16	5	3	0
Weigel	143	64	19	14	0
Bujan	62	28	14	2	0
Totals	2884	1058	470		0

Assisted Reproduction – IVF/ICSI

Study	Cycles	Pts	Preg	Births	Infect
Marina	58	40	27	11	0
Jonannet	97	68	33	22	0
Loutradis	2	2	2	2	0
Sauer	55	34	17	17	0
Weigel	32	30	11	4	0
Total	244	164	90	56	0

Assisted Reproduction

Fertility and Sterility 2011; 95:1684

Systematic Review of safety and effectiveness of ART in sero-discordant couples

IUI	3,900 cycles 1,184 couples (11 aggregated studies) 18% pregnancy rate 50% cumulative pregnancy rate 0 seroconversions	ICSI/IVF	738 cycles 579 couples (10 studies) 38.1 % pregnancy rate 53% cumulative pregnancy rate 0 seroconversions
-----	---	----------	---

Vernazza, et al. Pre-exposure prophylaxis and timed intercourse for HIV-discordant couples willing to conceive a child.

AIDS. 2011;25:2005

Regimen was used in 53 couples:

Viral suppression (HIV-RNA <50 copies/mL) of the male partner for at least 6 mo

Daily determination of LH-peak in urine to optimize intercourse timing

Two doses of tenofovir (300mg) taken 36 and 12 hours before intercourse by the HIV negative woman

53 couples

244 documented unprotected events of vaginal intercourse

0 seroconversions

Pregnancy rates 1st attempt- 26%

5 attempts- 60%

12 attempts- 75%

Safer Conception



peri-conception

HIV + man / HIV - woman

Timed intercourse during most fertile period*

Viral suppression of male partner

+/- PreP for female partner



sperm processing with insemination
sperm processing with ART

* Mandelbrot 1997 : all 4 transmission occurred during unprotected sex outside of fertile period

Viral Shedding in Semen

Intermittent

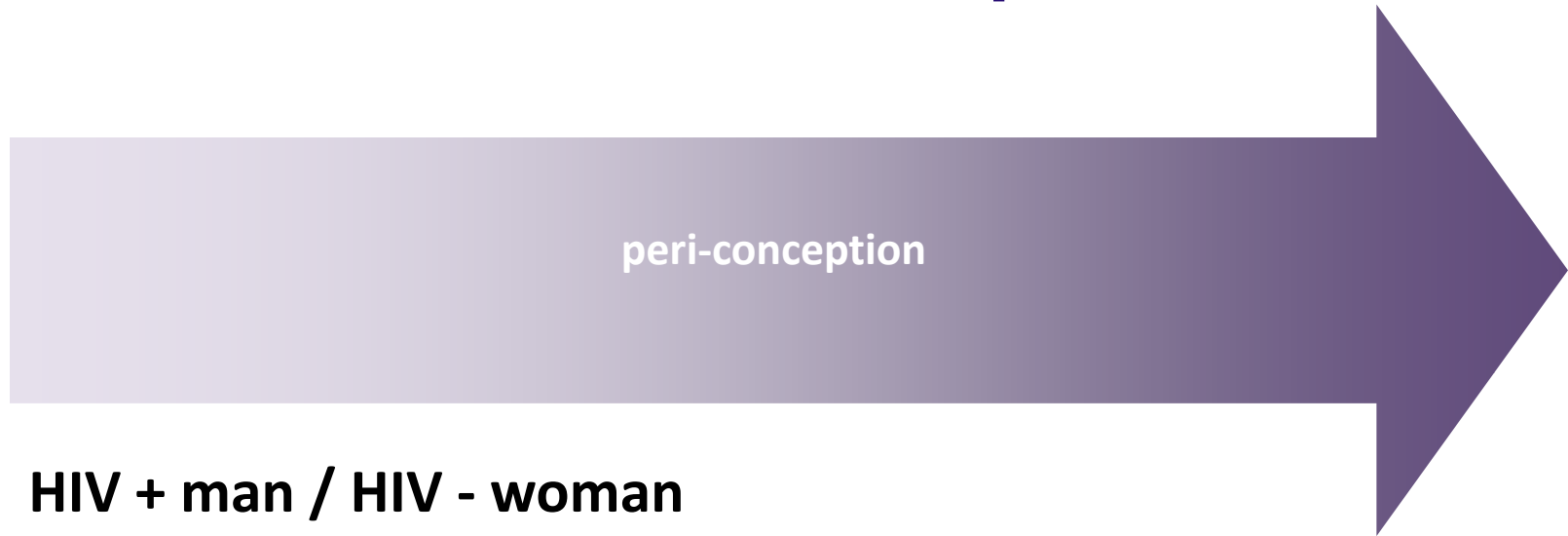
Occurs in men on ART with suppressed serum viral loads

Lambert-Niclot, et al AIDS 2012;26:971

98 HIV-1 infected men with suppressed viral loads on ART
2002-2011

6.6% of men had detectable HIV-1 RNA in semen
135-2365 copies/ml

Safer Conception



Timed intercourse during most fertile period*

Viral suppression of male partner

+/- PreP for female partner

? → sperm processing with insemination
sperm processing with ART ← ?

* Mandelbrot 1997 : all 4 transmission occurred during unprotected sex outside of fertile period