

The goal of SPAR is to take advantage of research findings that approximately two-thirds of semen specimens produced by healthy, HIV infected men have an undetectable burden of HIV. Sperm from such specimens are safer for use in assisted reproduction than “washing” sperm from untested specimens, or from specimens that test positive for virus.

### *Cooperation with your doctor*

- Our goal is to help couples find a fertility treatment close to their homes.
- The couple can contact the laboratory directly at 617-623-7447 with a referring physician/clinic, or the clinic may call. Patient and clinic confidentiality is strictly observed.
- Results to date are encouraging. With the help of ten collaborating clinics, 39 babies have been born, with six ongoing pregnancies, as of March 2005. Three of the babies born were conceived with the oligospermia cup.

*All mothers and babies have tested negative for HIV and Hepatitis C infection.*

**SPAR IS EXPERIMENTAL. PATIENT CONFIDENTIALITY IS STRICTLY MAINTAINED.**



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# SPECIAL PROGRAM OF ASSISTED REPRODUCTION

 *for couples  
living with HIV/AIDS*

The process begins with an evaluation of the HIV infected male with respect to duration of disease, current health status, confounding infections such as Hepatitis C or prostatitis and current antiviral therapy.

A personal conference with Dr. Kiessling will explain the entire process, the potential pitfalls, and help locate collaborating infertility clinics.

The Bedford Research Foundation assay for HIV detects both free virus particles (HIV RNA) in seminal plasma and virus infected cells (HIV proviral DNA). Semen specimens may be collected by the man in the privacy of his home and shipped overnight to the laboratory for testing.

Cryopreserved sperm from specimens with an undetectable viral burden (fewer than 200 copies of HIV RNA and fewer than 10 infected cells per ml of semen) can then be shipped to the collaborating clinic for use in IVF or oligo-spermia cup procedures.

The clinic can either retain the liquid nitrogen dry shipper for the duration of the procedure and return unused sperm, or transfer the tested specimens to the clinic nitrogen freezers.

## WHAT IS SPAR?

The Special Program of Assisted Reproduction (SPAR) started in 1994 as a support group for couples living with incurable, sexually transmitted virus diseases, such as AIDS. **The goal of SPAR was to use Assisted Reproduction Technologies to help couples achieve a pregnancy without transmitting the father's infection to the mother or the child.** The basic premise is that using sperm

from semen specimens with no detectable virus would decrease the risk of transmitting infection. To accomplish this goal, sensitive assays for Human Immunodeficiency Virus in semen were developed with grant support from the Assisted Reproduction Foundation. Baby Ryan, the first SPAR baby, was born May 1999. ([www.americanradioworks.org](http://www.americanradioworks.org)).

## HOW IS THE ASSAY PERFORMED?

Semen specimens are delivered to the lab either in person or by overnight transport in the Live Semen Transport Kit that contains a special fluid to keep sperm alive. Once in the lab, sperm are recovered from the semen and cryopreserved in liquid nitrogen while the specimen is assayed for the presence of virus. The assay took several years to develop. It is a molecular biology test similar to the one used for quantitation of blood virus, but more sensitive because of the small size of the semen specimen. It is designed to detect both free virus and virus infected cells.

*(The combined assay is not FDA approved.)*

## WHY DOES SEMEN HAVE TO BE TESTED IF BLOOD VIRUS LEVELS ARE UNDETECTABLE?

Studies of HIV in semen have revealed that semen producing organs are a separate compartment of HIV infection, and that semen viral burden is different from blood viral burden, even in men on therapy. 34% of the semen specimens from 30 men on antiviral therapy were positive for HIV, even though the men had an undetectable burden of HIV particles in blood ([www.duncanholly.org](http://www.duncanholly.org)). All men produced at least two specimens with undetectable virus.

## WHAT PROCEDURES ARE POSSIBLE FOR ACHIEVING A PREGNANCY?

Because of the opinion of the Centers for Disease Control and Prevention that intrauterine insemination (IUI) with sperm from an HIV infected male has not been proven safe, we do not test semen for use in IUI procedures. Our current clinical trial protocol calls for sperm cryopreserved from two specimens with an undetectable viral burden prior to the initiation of an In Vitro Fertilization (IVF) cycle. Because IVF does not involve direct contact between the mother and the sperm, it is considered to be the safest approach to conception.

In addition to the ongoing clinical trial with IVF procedures to achieve pregnancy, a new approach utilizing an oligospermia cup has recently been designed. This takes advantage of a classic approach to the problem of low sperm counts and may be a valuable alternative to IVF for some couples. Sperm are thawed and placed in a cup fitted to the cervix. The sperm swim through the cervix into the uterus, thus avoiding the entry of other cells from the semen into the uterus, and bypassing the concerns of the Centers for Disease Control. Because of the direct exposure to sperm, the woman takes a dose of anti-retroviral drugs prophylactically. The advantage of this procedure over IVF is avoidance of multiple hormone injections and decreased risk of twins and triplets.

*Only sperm from specimens with an undetectable burden of virus are used for pregnancy attempts.*