



Improving Access to Female Condoms: Clinical Study & Regulatory Considerations

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Learning Objectives

- Explain the importance of female condoms and the need to improve their availability in the United States and globally
- Identify the challenges associated with conducting a contraceptive effectiveness study
- Describe how use of a biomarker for prostate specific antigen (PSA) has the potential to eliminate the need for a contraceptive effectiveness study for female condoms

Outline

- Overview of Female Condoms
- Regulation of Female Condoms
- Premarket Clinical Study Expectations
 - Acute failure modes study
 - Contraceptive effectiveness study
- Potential Surrogate for Contraceptive Effectiveness Study

Female Condoms

- Mechanical barrier devices that protect against pregnancy and sexually transmitted infections (STIs)
- Only female controlled method of both contraception and STI prophylaxis
- Clinical failure rate typically 1-3% per failure mode (Beksinska 2007)
- Low rate of adverse events (Beksinska 2012)

Examples of Female Condoms

Beksinska 2012



FC2 Female Condom
Female Health Company



Woman's Condom
CONRAD



Cupid Female Condom
Cupid, Ltd

Currently, only FC2 is the only female condom that is currently marketed and approved for the US market.



Distribution of Female Condoms

Beksinska 2012

- Limited awareness of female condoms in the United States and globally
- Existing market for female condoms donor driven as part of international aid programs
- Must be pre-qualified by UNFPA or other procurement agencies
- Require approval from FDA



Regulation of Female Condoms

- Class III device
- Premarket approval (PMA) required prior to marketing
- Non-clinical data
 - Mechanical performance
 - Viral penetration assay
- Clinical data
 - Clinical failure modes study
 - Contraceptive effectiveness study

Clinical Failure Modes Study

- Randomized controlled study versus approved female condom
- Primary endpoint – Rate of total clinical failure
- Well established study design
- Comparatively inexpensive
- Short study duration

Contraceptive Effectiveness Study

- Single arm study
- Primary endpoint – 6-month pregnancy rate
- Difficult to recruit and retain subjects – 50%+ loss to follow-up
- Subjects may not accurately disclose non-use
- Pregnancy outcome affected by multiple factors

Recruitment & Retention Strategies

- Rely on patient reported outcomes (PROs)
 - Explanation of different failure modes
 - Use of pelvic models and/or diagrams
 - Frequent communication with study subjects
- Consent male partner
- Highlights need for innovative study design and regulatory strategies

Potential Alternative

- Ongoing research by CONRAD, CFHC, PATH, CDC, and NICHD
- Objective – validate biomarker for semen exposure (PSA) and relate it to clinical endpoint (e.g., pregnancy or STI acquisition) and acute condom failure rate
- Goal – new clinical study paradigm for female condoms to support regulatory approval

CONRAD & NICHD Studies

- CONRAD – Clinical failure modes study comparing Woman’s Condom to FC2
- NICHD – 6-month contraceptive effectiveness study
- Both studies include use PSA to detect vaginal semen exposure
- Evaluate how semen exposure compares to rate of clinical failure and pregnancy

PSA Swab Collection

- Pre-coital vaginal swab
 - Collected immediately before any genital contact
 - Following 48 hours of abstinence
- Post-coital vaginal swab
 - Collected immediately after removal of the condom (within 15 minutes)
- Condom swab
 - Collected from inside the female condom after intercourse
- Swabs dried before being covered
- PSA assay completed by CDC



Image courtesy of CONRAD

Preliminary Results from Acute Failure Modes Study

- Combined results of Woman's Condom and FC2
- 12.9% of all condom uses were + for PSA
- 13.7% of all condom uses resulted in clinical failure
- PSA and self-reports agreed in 85.2% of all uses
- +PSA and -self-reports in 6.0% of all uses
- -PSA and +self-reports in 8.8% of all uses

Research Road Map

- Evaluate patient compliance with PSA swab protocol
- Determine sensitivity and specificity of using PSA as an indicator of an acute failure event
- Compare results from couples at risk and not at risk for pregnancy
- Encourage more female condom studies with PSA evaluation

Summary

- Female condoms are currently the only female controlled method of contraception and barrier protection against sexually transmitted infections (STIs).
- The FDA currently requires completion of a clinical failure modes study and a contraceptive effectiveness study for approval of female condoms. Contraceptive effectiveness studies are challenging to conduct and experience high rates of loss to follow-up.
- Currently ongoing research relating semen exposure (via a biomarker for PSA) to condom failure and pregnancy rates has the potential to replace the need for contraceptive effectiveness studies for female condoms.
- Additional research is needed to establish the relationship between PSA measurements and pregnancy and STI risk and acute condom failure.



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