

# How Do Microorganisms Gain Access into the Upper Reproductive Tract?

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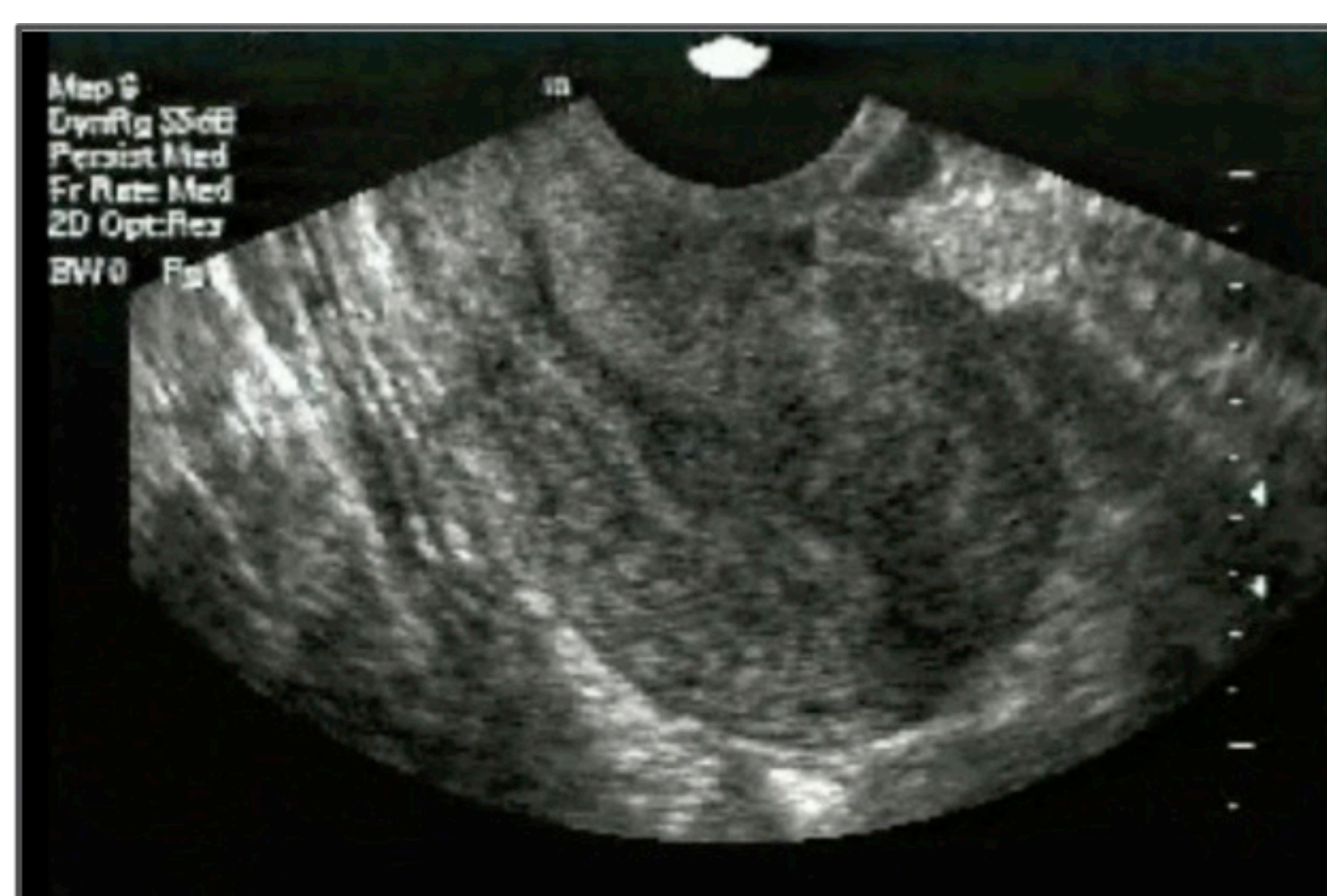
## Introduction/Objective

Provide insight into how microorganisms may gain access to the upper reproductive tract (uterus, fallopian tubes) in order to develop primary prevention strategies against infection-caused late miscarriage and/or stillbirth and perinatal infection-mediated neonatal death.

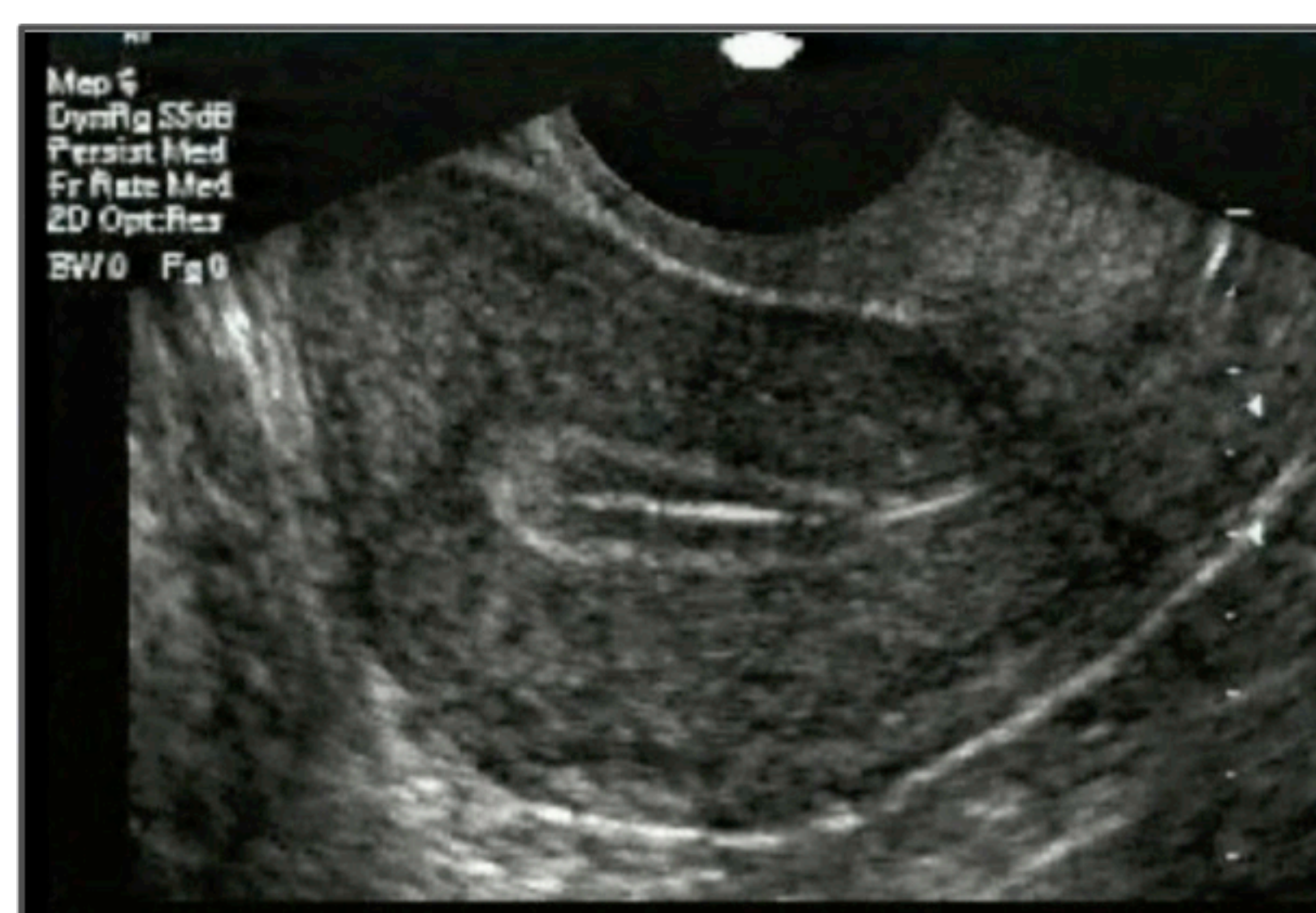
## Methods

We conducted timed vaginal ultrasound observation using Albuminex™ ultrasound contrast media composed of bacteria-sized air bubbles. Five cc's of Albuminex™ were placed in the mid-vagina of a:

### 1) 24-year old woman at day 14 of her ovulatory cycle

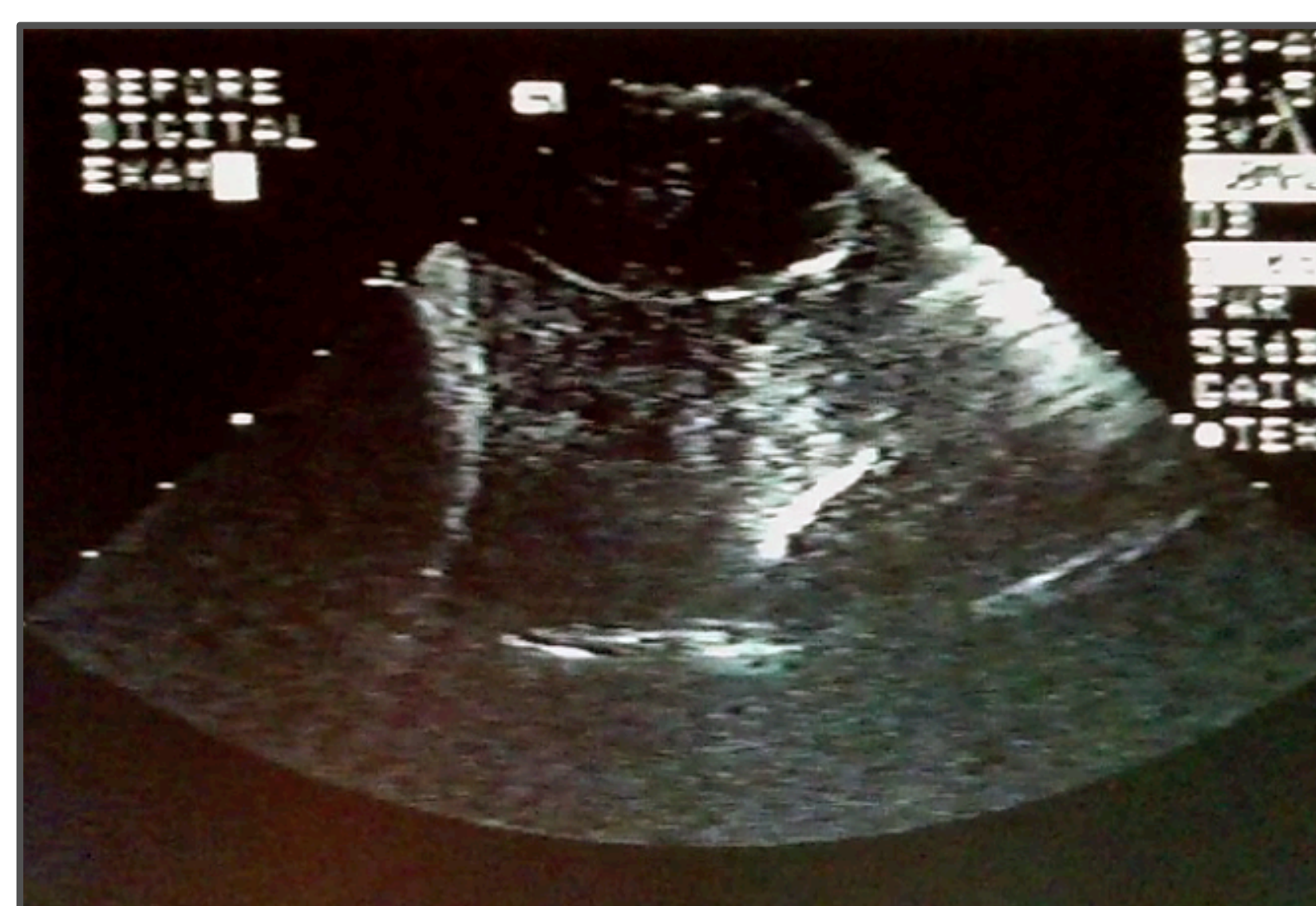


Baseline

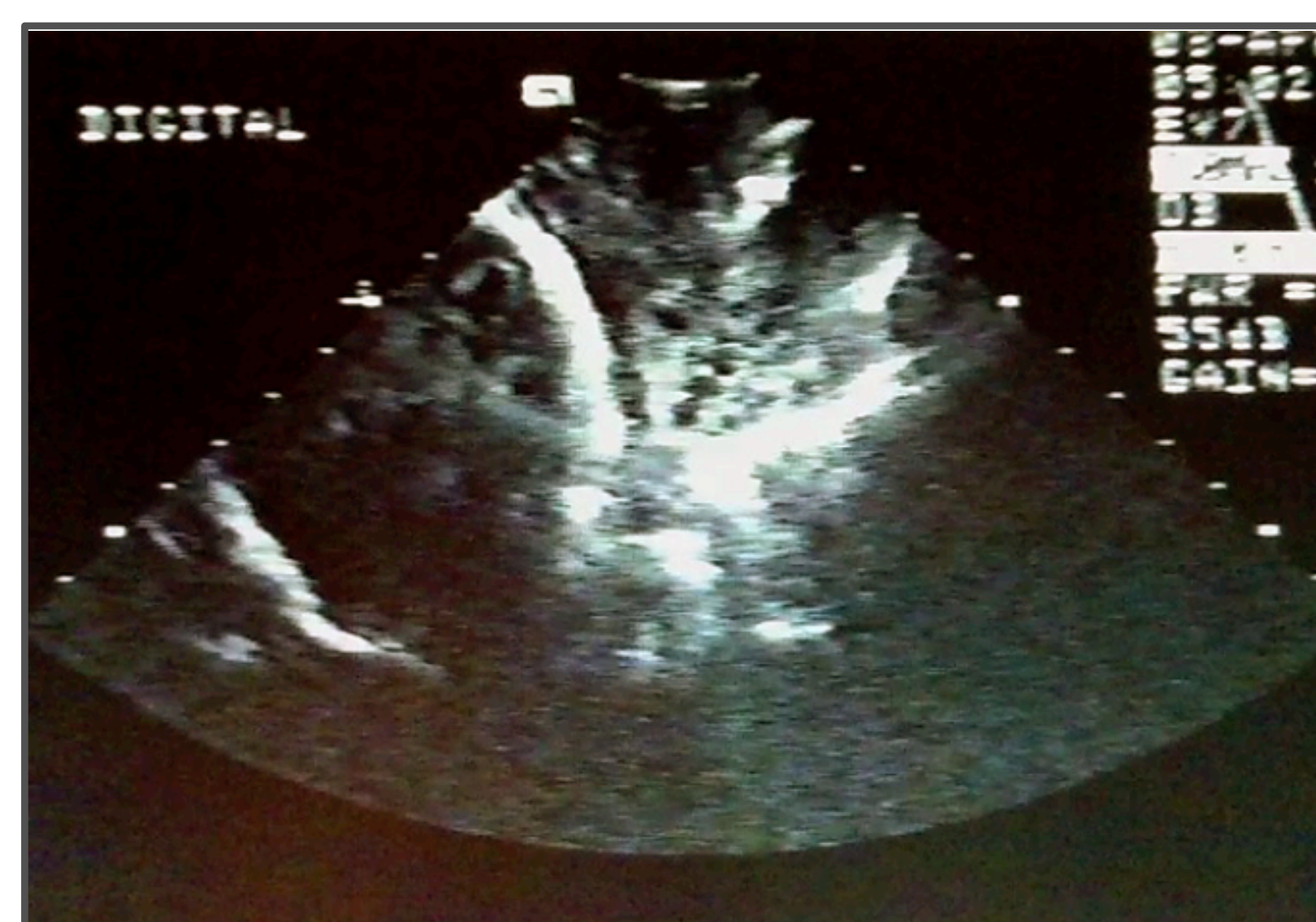


Two Hours

### 2) 28-year old woman at 38 weeks gestation with intact mucous plug and membranes



Before Digital Exam



After Digital Exam

## Results

The ovulatory woman demonstrated easily observed active uterine transport of ultrasound media through the cervix and into the uterus and fallopian tubes. Similarly, there was an easily observable passage of ultrasound contrast media through the cervix and into the lower uterine segment when the pregnant woman's cervix was lightly touched.

## Discussion/Conclusion

These timed observations confirm "active transport" of microbe-sized particulate matter into the upper reproductive tract during both late pregnancy and midovulatory cycle. This phenomenon of "upsuck" is well-documented in animal models and fertility patients. Strategies to reduce risk of ascending uterine infection could include:

- 1) Screening and treating for abnormal microflora prior to preconception or EARLY in pregnancy
- 2) Empiric antimicrobial or probiotic treatments to reduce abnormal vaginal microflora
- 3) Reducing cervical manipulation (membrane stripping) to reduce inoculum of cervical/vaginal microorganisms into uterus



Membrane Stripping

