Modern Natural Family Planning and the Family Physician

Christina A. Porucznik, PhD, MSPH
Joseph B. Stanford, MD, MSPH

The University of Utah
Department of Family and Preventive Medicine
Division of Public Health
Objectives

• Define *fertility awareness* and *natural family planning*
• Review biological basis for natural family planning
• Introduce several methods of modern natural family planning
• Review clinical utility of natural family planning
• Provide resources for physicians
Introduction

• During any given menstrual cycle, there are relatively few days during which sexual intercourse is likely to result in conception, the fecund window (or fertile window)

• The fecund window starts 5-6 days prior to ovulation and ends on the day of ovulation \(^{1-5}\)
Definitions

• Fertility awareness (FA): observation of biomarkers to determine likely day of ovulation and associated fecund window

• Natural family planning (NFP): practice of abstaining from genital contact during fecund window if couple desires to avoid pregnancy, or having intercourse during that time if the couple wishes to conceive
Physiology of the Fecund Window

• Ovum remains viable for <24 hours after ovulation\(^6\)

• Prior to ovulation, estrogen stimulates cervix to produce Type E mucus which allows storage and survival of sperm for several days\(^7\)

• After ovulation, progesterone stimulates production of Type G mucus which prevents sperm entry\(^8\)
Variability of Ovulation

• Even in women with regular menstrual cycles, there is a >10% probability of being in the fecund window as early as Day 7 and as late as Day 21.

• Accurate, prospective means are needed to identify the fecund window.
# Biomarkers of the Fecund Window

<table>
<thead>
<tr>
<th>Biomarker</th>
<th>Type</th>
<th>Can be used to identify</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The beginning of the fecund window</td>
</tr>
<tr>
<td>Urinary luteinizing hormone (LH)</td>
<td>Hormonal</td>
<td>+</td>
</tr>
<tr>
<td>Urinary estrogen metabolites</td>
<td>Hormonal</td>
<td>++</td>
</tr>
<tr>
<td>Urinary progesterone metabolites</td>
<td>Hormonal</td>
<td>++</td>
</tr>
<tr>
<td>Basal body temperature</td>
<td>Symptom</td>
<td>++</td>
</tr>
<tr>
<td>Vaginal discharge from cervical fluid</td>
<td>Symptom</td>
<td>++</td>
</tr>
</tbody>
</table>

+ can be used for this purpose; ++ most efficient for this purpose

Adapted from 1
Natural Family Planning Methods

• Observation of one or more biomarkers to determine the beginning and end of the fecund window

• Three general categories
  – Calendar-based
  – Biomarker-based
  – Sympto-thermal
Calendar-Based Methods
Individualized Calendar Algorithm

• From last six cycles
  – Subtract 19 days from shortest cycle
  – Subtract 10 days from the longest cycle
• To identify the fecund window
• Calculations should be revised if cycle duration changes

• 1 year probability of pregnancy <15% under typical use scenarios ⁹
Individualized Calendar Algorithm

- For example, if shortest cycle was 30 days and longest was 36 days
  - 30-19=11
  - 36-10=26
  - Fecund window = cycle days 12 to 25
Individualized Calendar Algorithm

• Calendar calculations are almost never done correctly
• What patients call ‘rhythm method’ and may approximate with use of a calendar is more likely guesswork than scientifically based calendar calculations
Standard Days Method® (SDM)

- Simplified calendar algorithm
- Appropriate for women whose cycles range between 26 and 32 days long
  - Approximately 2/3 of women in this range
- Fecund window = cycle days 8-19
- Field tested in many settings
- 1 year pregnancy probability 5% with perfect use and 12% with typical use
CycleBeads®

- Visual reminder system that operationalizes the Standard Days Method® (SDM)
- Each day of the cycle, one advances a black ring along a string of beads.
- White beads indicate potentially fecund days
Cervical Mucus Methods
Two-Day Method® (TDM)

- User asks herself two questions each day
  1. Did I notice any vaginal secretions today?
  2. Did I notice any secretions yesterday?
- If answer to either question is YES then she considers that day fecund
- Pregnancy is unlikely after two dry days
- Field tests: 1 year pregnancy probability of 3.5% with correct use and 13.7% with typical use
- Can be taught in a single office visit
Billings Ovulation Method (BOM)

- Characterizes and records quantity and quality of cervical mucus
- Identifies the mucus peak day – marker of ovulation
- Field trials: one year probability of pregnancy 2-16% \(^{16,17}\)
- Most couples require 3-4 sessions with a trained teacher to learn the method
Creighton Model
FertilityCare™ System (CrM)

- Standardized vocabulary for describing cervical mucus
- Extensive training for instructors
- Couples complete 4-8 individual counseling sessions to learn the method
- One year probability of pregnancy
  - Perfect use <1%
  - Typical use 5-17%
Creighton Model
FertilityCare™ System (CrM)

• Associated with Natural Procreative Technology (NaProTechnology)
  – Protocols for medical evaluation and treatment of infertility and reproductive anomalies \(^21\)

• Cohort of infertile couples treated by family physicians with NaProTechnology achieved live birth rates similar to more invasive technology with low incidence of preterm birth and multiple gestation \(^22,23\)
Sympto-thermal Methods
Basal Body Temperature (BBT)

• BBT rises an average of 0.4°C (0.7°F) after ovulation
• BBT must be measured at approximately the same time each day, upon awakening
• BBT identifies only the end of the fecund window and must be used in conjunction with another method to identify the beginning of the fecund window
Sympto-thermal Methods

• Several methods and sets of rules
• Beginning of fecund window is identified using calendar and/or cervical mucus biomarker
• End of the fecund window is identified using peak cervical mucus biomarker and rise in BBT
• One large study with individual instruction with certified teachers reported one year pregnancy probability <1% with perfect use and 1.8% with typical use

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Sympto-thermal Methods

- One common sympto-thermal method in use in the United States is that described in the book *Taking Charge of Your Fertility* by Toni Weschler, MPH
- This particular method has not been systematically researched for use effectiveness
Sympto-hormonal Methods
Marquette Model (MM) of NFP

• Includes
  1. Measurement of urinary hormones using the Clearblue® Easy Fertility Monitor
  2. Observation of cervical mucus
  3. Optional measurement of BBT

• One year probability of pregnancy: 1-3% with correct use and 11% with typical use ²⁵,²⁶
Clinical Utility of NFP
Factors Influencing NFP Effectiveness

• Effectiveness is dependent on accurate instruction
  – Effectiveness studies have used trained teachers, not self-training via books or the internet

• Effectiveness to avoid pregnancy similar to behaviorally-related methods of contraception
  – Condoms: must be used consistently and correctly
  – Oral contraceptives – must be taken consistently
Patient Characteristics and NFP

• Level of education does not influence effectiveness of NFP

• Symptom-based methods do not require that women have regular menstrual cycles to be effective

• Communication between and cooperation of both partners is required for effective use
There’s an old joke

What do you call people who use natural family planning?
There’s an old joke

What do you call people who use natural family planning?

Parents
• Like many misconceptions, there is a grain of truth in the joke
• Unlike any method of contraception, NFP methods can be used to avoid or achieve pregnancy
• Couples can change how they use the method at any time
  – Allows for changing motivation
  – Encourages communication within the partnership
NFP to Conceive

• NFP methods that teach women to identify ovulation can also be used to time intercourse for efficient conception

• Patient interest in NFP to conceive exceeds that to avoid pregnancy \(^{27-29}\)
NFP and Reproductive Health

• Systematic observation and recording of fertility signs helps women understand their fertility cycle

• NFP techniques can help diagnose reproductive problems such as polycystic ovarian syndrome, premenstrual syndrome, and infertility
Strengths of NFP

• No side effects
• Immediately adaptable to changing intention regarding avoiding or achieving pregnancy
• Minimal cost
• Empowering for woman
• Can provide valuable information for clinical diagnoses
Limitations of NFP

• No protection against sexually transmitted infections
• Abstinence from genital contact during the fecund window if intention is to avoid pregnancy
Implementation in Clinic

• If patient reports use of ‘rhythm method’ or ‘knowing’ when she is fertile

• Ask how she identifies her fertile time and counsel regarding unintended pregnancy if not based on a systematic method

• Refer to resources for learning an NFP method
Implementation in Clinic

• Patients should be offered the option of learning NFP as part of routine counseling regarding family planning and reproductive health

• Two simpler methods can be taught in a single clinic visit
  – TwoDay Method ®
  – Standard Days Method® (CycleBeads®)
    • As effective as barrier methods for pregnancy avoidance
    • Do not teach a woman to identify ovulation
Referral to a Qualified Teacher

• Refer the patient to an NFP teacher
  – If interested in learning to identify ovulation
  – Or has a reproductive or gynecologic condition such as polycystic ovarian syndrome, endometriosis, infertility etc.
Resources: Calendar-based Methods

• Lactational Amenorrhea Method

• Standard Days Method® (CycleBeads®)
  – http://cyclebeads.com/
Resources: Biomarker-based Methods

• TwoDay Method®
  – http://www.irh.org/?q=content/twoday-method

• Billings Ovulation Method
  – http://www.boma-usa.org/

• Creighton Model FertilityCare™ System
  – http://www.creightonmodel.com
Resources: Sympto-thermal Methods

• There are multiple sympto-thermal methods
• Two methods used in the USA are:
  – [http://www.tcoyf.com](http://www.tcoyf.com)
Resources: Sympto-hormonal Methods

• Marquette Model of NFP
  – http://nfp.marquette.edu
Summary

• All modern NFP methods are least as effective as barrier methods for avoiding pregnancy
• In populations motivated to avoid pregnancy who receive detailed instruction, pregnancy rates can be as low as 1%

• NFP can also be used to achieve pregnancy
Summary

• NFP methods are low cost and free of medical side effects

• Knowledge gained using NFP
  – Helps women understand their fertility
  – Helps physicians diagnose reproductive anomalies
Summary

• Patients are interested in NFP
  – To avoid pregnancy
  – To conceive
• NFP should be offered as part of routine counseling for family planning and reproductive health with referral to trained teachers
References


Contact the Faculty

Christina A. Porucznik, PhD MSPH
Christy.Porucznik@Utah.Edu

Joseph B. Stanford, MD, MSPH
Joseph.Stanford@Utah.Edu

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