40 yrs of Research on the Menstrual Cycle: Looking Back, Moving Forward

Nancy King Reame, MSN, PhD, FAAN
Irving Institute for Clin & Trnslt Research
Mary Dickey Lindsay Professor of Nursing (Emerita)
Columbia University
and
Rhetaugh Dumas Professor of Nursing (Emerita)
University of Michigan
nr2188@columbia.edu

June 23, 2017
First, a Caveat:

I use the term “women” in this paper to refer to anyone who has, or has previously had, a menstrual cycle. This follows the general use of the term “women’s health” in the academic health care community to discuss health issues around pregnancy, menstruation, menopause and breast cancer. I acknowledge not all people who have a menstrual cycle identify as women, and not all people who identify as women have a menstrual cycle.

adapted from Epstein et al, 2017
Unfortunately, animals sometimes lack the necessary skills to communicate with each other.
To all my menstrual (post) “sisters”!
Her menstruation brochure, printed in red ink, was one of the collective’s first spin-off publishing projects and grew into a long-term project related to toxic shock syndrome and the need to develop uniform absorbency labeling for tampons.

Esther also advocated for better testing and FDA regulation of silicone-gel breast implants. She led support groups in Boston for women who had problems with breast implants and frequently spoke with the media about this and larger issues surrounding body image and societal pressures on women to alter their bodies.

Just before her death, Esther completed “Sacrificing Our Selves for Love,” a book coauthored with Jane Wegscheider Hyman that addresses cosmetic surgery, dieting, domestic violence, and HIV infection.
A NURSING RESEARCH PROGRAM IN WOMEN’S HEALTH: clinical science

**Menstrual Cycle**

**Ovulation:**
- PMS
- Spinal cord injury
- Oral contraceptives
- Menstruation

**Infertility:**
- Anorexia
- Hypothalamic Amenorrhea
- PCO, obesity

**Peri/Menopause:**
- Ethnicity & syx (SWAN, WHI)
- Brain aging
- Sleep
- Hot flash mediators, Rxs
- Bone Health
- Testosterone patch Rx
- Spinal cord injury, polio, diabetes
- HIV

$ NIH: NINR, NICHD, NIA
• Easter Seals Foundation
• FDA
• Kimberly-Clark
• Novo-Nordisk Pharm
• Pfizer
• Proctor & Gamble
• VA
• Wyeth
• Trimel Pharma
A NURSING RESEARCH PROGRAM IN WOMEN’S HEALTH: health policy

**Ovulation:**
- Public Health Campaigns:
  - FDA safety standards for tampons
  - Menstrual Cycle as a Vital Sign*

Research Organizations:
- Society for Menstrual Cycle Research

**Infertility/Fertility**
- NCC Infertility Nursing
- NIH Natl Center for Infertility Research
- AWHONN Testimony
- IOM Nurse Scholar in Bioethics of Reproduction
- Commentator, AJBioethics
- VA Women’s Health

**Menopausal Cycle**

**Menopause:**
- North Am Menopause Society guidelines:
  - HRT
  - “bioidentical” hormones
  - Testosterone in women

Advocacy Organizations:
- Natl Women’s Health Network
- OurBodies, Ourselves
TOXIC SHOCK SYNDROME

A 3-IN-1 MEDICAL REFERENCE

Medical Dictionary

![Graph showing the decrease in TSS cases over time](image)

- Rely tampons withdrawn
- Absorbency lowered
- 1982: FDA requires tampon labeling
- Polyacrylate removed
- FDA standardizes absorbency labeling

Number of cases over time:

- Total
- Menstrual
- Non-menstrual

*FDA, Food and Drug Administration; includes definite and probable toxic shock syndrome cases.
“Sally” Syngina test

https://www.youtube.com/watch?v=KYXUQDzSg4o
“…We disagree with Dr Wolfe on ignoring the terms "regular," "super," and "super plus." Not regulating these terms only increases confusion, especially among less-sophisticated users. All "regulars" should be less absorbent than all "supers," which should be less absorbent than all "super pluses." It is essential, as Dr Wolfe stated, that there be a statement next to the absorbency rating that encourages women to use lower absorbencies to reduce their risk of toxic shock syndrome…”

FDA finally standardizes absorbancy, 1990!

<table>
<thead>
<tr>
<th>Absorbency</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>6 to 9 grams</td>
</tr>
<tr>
<td>Super</td>
<td>9 to 12 grams</td>
</tr>
<tr>
<td>Super Plus</td>
<td>12 to 15 grams</td>
</tr>
</tbody>
</table>

- Always select the lowest tampon absorbency to meet your needs.
- Remember to remove or change your tampon every 4 to 6 hours.

Your satisfaction is our highest priority. If you are not completely satisfied, we will gladly replace or refund your purchase. Please contact us if you are not satisfied with our products.
Toxic shock syndrome, tampons and laboratory standard-setting

Sharra Vostral PhD
Associate professor, Department of History, Purdue University

“…Analyzing the intersection of menstruation, tampons, laboratory practices and policy-making during the 1980s highlights the important health outcomes related to standard setting. The intuitive understanding of Rome and Reame to use blood (vs “blue goo”) defied standard laboratory procedure….. Saline test fluid and the syngyna apparatus were not only inadequate for their stated purposes of representing women’s bodies and fluids, but benefited industrial and corporate needs. …This case study highlights the importance of…the materiality of women’s bodies in the standard setting process.”

CMAJ Podcasts: author interview at https://soundcloud.com/cmajpodcasts/161479-medsoc

COMING SOON: Toxic Shock Syndrome: A History, from NYU press, 2018
Ethical Challenges in Clinical Research: when the Researcher is the Subject

**Researcher tests protocols on self first**

Nancy Reame is conducting research to test the theory that menopause starts in the brain, rather than in the ovary where the gradual loss of eggs leads to a fall in estrogen. A professor of nursing and a research scientist in the Reproductive Sciences Program, Reame believes in testing out the protocol she expects her volunteers to undergo, and recently spent a night in the Sleep Study Room at University Hospital. In addition to EEG monitoring during the night, Reame had blood drawn from an IV every 10 minutes for a 24-hour period.

Some scientists believe that aging changes in the hypothalamus, the part of the brain that controls the hormone rhythms of the menstrual cycle, may actually trigger the acceleration of oocyte depletion that begins after age 35 and results in a dramatic decline in fertility. Reame’s work will compare the 24-hour pattern of secretion of pituitary hormones known to show distinct diurnal rhythms in young, ovulatory women with those in women over age 40 with and without menstrual cycles.

Reame’s research is supported by a $1 million, four-year National Institute on Aging grant to the School of Nursing and Medical School. Photo by Bob Kalmbach
We’ve come a long way (baby) ..or have we??

What is Poise Impressa? It is a non-absorbent device that is inserted like a tampon which expands and puts pressure on the urethra to help leaks from occurring in the first place.
2017: We’ve come a long way (baby) .. or have we??

‘How do I know my tampons are safe?’: More women push for detailed labels on feminine care products

By Michael Alison Chandler
June 20, 2017
LOLA, “the first 100% cotton, direct-to-consumer, customized tampon-subscription service”

www8.gsb.columbia.edu/articles/columbi-business/innovation-women-women-period

Google images, June 14, 2017
Millenials and Feminine Care: passing the baton to the next generation

“Nobody has really thought about tampons before in an objective way. Women (have) never been given an opportunity – or never thought they wanted an opportunity – to talk about their periods.”

Jordana Kier, Columbia Univ, 14, co-founder of LOLA
Date: September 21, 2004
Time: 8:30 AM – 2:30 PM
Location: The New York Academy of Sciences

co-sponsored by the Society for Menstrual Cycle Research & Rachel’s Well, Inc.
supported by an unrestricted educational grant from Procter & Gamble


Press Release: Leading Health Experts Define Menstrual Cycle as Critical Indicator of Women’s Overall Health
Fig 3. Period tracking apps often employ feminine, flowery pink aesthetics. From: Epstein Lee Kang et al, 2017)
We’ve come a long way (baby)…or have we??

BLOODY PAIN
Period pain can be “almost as bad as a heart attack.” Why aren’t we researching how to treat it?
Olivia Goldhill, Quartz, Feb 15, 2016

PAID “MENSTRUAL LEAVES” IN CHINA?
The Period Paradox
By Elizabeth Yuko
New York Times, 2017
Sildenafil citrate in the treatment of pain in primary dysmenorrhea: a randomized controlled trial

R. Dmtrtovic, A. R. Kuseliman, and R. S. Legro

Original Article Gynaecology


PubMed, April 6, 2013

A word from our sponsor...

Google images, June 20, 2017
Black Cohosh Treatment in Postmenopausal Women: Evidence for Non-Estrogenic, Opioidergic Neuromodulation

N Reame, MSN, PhD\textsuperscript{1},
J Lukacs, MSN, PhD\textsuperscript{3}, Y Smith, MD\textsuperscript{2}, JK Zubieta, MD\textsuperscript{4},
Vasantha Padmanabhan, PhD\textsuperscript{2,5}

School of Nursing, Columbia University\textsuperscript{1},
Depts of Obstetrics-Gynecology\textsuperscript{2}, Psychiatry\textsuperscript{4}, and Pediatrics\textsuperscript{5}
Schools of Medicine and Nursing\textsuperscript{3}, The University of Michigan

Change in μ-Opioid Receptor Binding After Treatment with Black Cohosh

Before Treatment

After Treatment

Subject #1

Amygdala

Subject #2

DVR values

Subject #1

Anterior Cingulate

Subject #2

Reame et al, Menopause 2008
“We are researchers in the social sciences, the natural sciences and the humanities, health care providers, policy makers, health activists, artists and students from a wide range of fields with interests in the role of menstrual and ovulatory health across the life span”

http://www.menstruationresearch.org/2012/07/11/pmdd-no-news-is-news-for-the-apa/
“EVATAR”

Ingber, D. E. et al. (2017) Cycling through the menstrual cycle — an out-of-body experience

*Nat. Rev. Endocrinol.* doi:10.1038/nrendo.2017.65
Seriously??

First Rodent Found with a Humanlike Menstrual Cycle

The spiny mouse could one day aid studies of women’s reproductive problems

By Anna Nowogrodzki, Nature magazine on June 13, 2016
SCIENCE IS NEVER DONE IN A VACCUUM!

WOMEN’S MARCH, Jan 21, 2017
American Academy of Nursing on Policy

Position statement: Political interference in sexual and reproductive health research and health professional education

Diana Taylor, PhD, RNP, FAAN, Ellen F. Olshansky, PhD, RN, WHNP-BC, FAAN, Nancy Fugate Woods, PhD, RN, FAAN, Versie Johnson-Mallard, PhD, ARNP, BC, FAANP, FAAN, Barbara J. Safriet, LLM, JD, FAAN, Teresa Hagan, PhD, RN
Women’s Health Expert Panel

Political interference in sexual and reproductive health (SRH) research and health professional education threatens the health of women and men. The American Academy of Nursing (academy) strongly supports actions to prevent political interference by supporting academic freedom principles and policies in institutions of higher education generally and in those offering instruction in nursing particularly.

- Participating in an amicus brief to the U.S. Supreme Court opposing a deceptive Texas law requiring medically unnecessary restrictions on clinical practice: Read the amicus brief of the American Nurses Association/academy and the academy's press release from June 27, 2016 applauding the Supreme Court of the United States decision to reject Texas HB2.
- Speaking out about how political interference with SRH care harms women: See article from the academy’s President Berkowitz, “Examining What's at Stake: The Supreme Court, Nurses and Abortion Care Provision” published in Huffington Post Health

Background