The Contraceptive CHOICE Project: Importance of Long-Acting Reversible Contraception in Reducing Health Disparities

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Financial Disclosures

• Research Grant Support & Advisory Boards
  – Bayer
  – Merck
  – Teva
  – Watson/Activis
  – MicroChips
OBJECTIVES

– Contraceptive CHOICE Project
  • Background
  • Methodology/Study design
  • Key results:
    – Effectiveness
    – Continuation/Satisfaction
    – Population outcomes by age/race
    – www.choiceproject.wustl.edu

– Take Home Messages
  • LARC (first line options) can reduce health disparities
Unintended Pregnancy Rate, U.S. women age 15-44, 1996-2008

<table>
<thead>
<tr>
<th>Contraceptive Method</th>
<th>Use *</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCPs</td>
<td>28%</td>
</tr>
<tr>
<td>Female sterilization</td>
<td>27%</td>
</tr>
<tr>
<td>Condoms</td>
<td>16%</td>
</tr>
<tr>
<td>Vasectomy</td>
<td>10%</td>
</tr>
<tr>
<td>IUDs</td>
<td>8%</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>5%</td>
</tr>
<tr>
<td>DMPA</td>
<td>3%</td>
</tr>
<tr>
<td>Subdermal implants</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>
## Typical Use - First Year Failure Rates

<table>
<thead>
<tr>
<th>Method</th>
<th>Failure Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Contraception</td>
<td>85.0</td>
</tr>
<tr>
<td>Spermicides</td>
<td>29.0</td>
</tr>
<tr>
<td>Condom - Male</td>
<td>15.0</td>
</tr>
<tr>
<td>Oral Contraceptives</td>
<td>8.0</td>
</tr>
<tr>
<td>*Patch/Ring</td>
<td>8.0</td>
</tr>
<tr>
<td>IUD - Copper T 380A</td>
<td>0.8</td>
</tr>
<tr>
<td>IUD - Levonorgestrel</td>
<td>0.1</td>
</tr>
<tr>
<td>Injectable (DMPA)</td>
<td>3.0</td>
</tr>
<tr>
<td>Implant</td>
<td>0.10</td>
</tr>
</tbody>
</table>

*REVERSIBLE LONG-TERM CONTRACEPTION IS HIGHLY EFFECTIVE, RIVALING STERILIZATION*

*Estimates in lieu of actual data

Trussell J. Contraception 2004;70:89-96.
IUD Use in the US: 1965–2008

[Graph showing the trend of IUD use in the US from 1965 to 2008. The graph includes data on users (in millions) and the percentage of all contraceptors.]

Users (in millions)

Percentage of all contraceptors


0.0 0.5 1.0 1.5 2.0 2.5

0 1 2 3 4 5 6 7 8 9 10
THE
CONTRACEPTIVE CHOICE
PROJECT

Washington
WASHINGTON UNIVERSITY IN ST LOUIS
Call from Anonymous Foundation

• Remove financial barriers to most effective long-term reversible methods
  – Promote LARC use

• Provide no-cost contraception & make a population impact:
  – Teen pregnancy
  – Repeat abortion procedures
MYTHS Regarding IUCs Survey of St. Louis Women (N=1,665)

- 50% of women surveyed believe IUC is SAFE

  - Common safety concerns:
    - Pelvic Pain 36%
    - Infertility 30%
    - Cancer 14%
    - STDs 11%

- 61% underestimate the effectiveness

CHOICE: Hypotheses

• Continuation rates at 12-months will be greater for IUD and implant vs. other forms of contraception

• Population-Based Outcomes:
  – By end of study
    • Teen pregnancy rates in STL region will decline by 10%
    • Repeat abortion procedures will decline by 10%
Contraceptive Cohort Study

• Recruit 10,000 participants over 4 years
  – Remove cost barriers to long-term methods
  • Copper IUD (ParaGard):
    – 10 years duration
  • LNG IUD (Mirena):
    – 5 years duration
  • Implant (Implanon):
    – 3 years duration
  – Participant choice
  • 2-3 years follow-up
Long-Acting Reversible Contraception

LNG-IUS
• 99% effective
• 20 mcg levonorgestrel/day
• Up to 5 years

Copper T IUD
• 99% effective
• Copper ions
• Up to 10 years

Subdermal Implant
• 99% effective
• 60 mcg etonogestrel/day
• Up to 3 years
CHOICE: Recruitment Sites
CHOICE: Inclusion Criteria

- 14-45 years
- Primary residency in STL City or Country
- Sexually active with male partner (or soon to be)
- Does not desire pregnancy during next 12 months
  - Desires reversible contraception
- Willing to try a new contraceptive method
## Study Recruitment

<table>
<thead>
<tr>
<th>Location</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Abortion clinics</td>
<td>17%</td>
</tr>
<tr>
<td>8 Community clinics</td>
<td>14%</td>
</tr>
<tr>
<td>University-based research clinic</td>
<td>69%</td>
</tr>
<tr>
<td>• Word-of-mouth</td>
<td></td>
</tr>
<tr>
<td>• Provider referrals</td>
<td></td>
</tr>
</tbody>
</table>

Location: 9,256

![Graph showing recruitment over time](image-url)
Contraceptive CHOICE Project: Study Details

ELIGIBLE

Tiered Contraceptive Counseling

LNG-IUS
Cu-IUD
Implant
DMPA
Pills
Patch

Contraception

Survey

STI screen

Month

0 3 6 9 12 15 18 21 24 27 30 33 36

94% 87% 81%

enrollment
CHOICE: Recruiting Women at Highest Risk for Unintended Pregnancies and STIs

First 2500 Participants:
- Wave 1: 0-500
- Wave 2: 501-1500
- Wave 3: 1501-2500
# Baseline Characteristics

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-17</td>
<td>485</td>
<td>5.2</td>
</tr>
<tr>
<td>18-20</td>
<td>1548</td>
<td>16.7</td>
</tr>
<tr>
<td>21-25</td>
<td>3559</td>
<td>38.5</td>
</tr>
<tr>
<td>26-35</td>
<td>3029</td>
<td>32.7</td>
</tr>
<tr>
<td>36-45</td>
<td>635</td>
<td>6.9</td>
</tr>
</tbody>
</table>

2,033

<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Black</td>
<td>4660</td>
<td>50.6</td>
</tr>
<tr>
<td>White</td>
<td>3861</td>
<td>41.9</td>
</tr>
<tr>
<td>Other</td>
<td>693</td>
<td>7.5</td>
</tr>
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</table>
Baseline Characteristics  
(N=9,256)

<table>
<thead>
<tr>
<th>SES</th>
<th>n</th>
<th>%</th>
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</thead>
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<tr>
<td>Public assistance</td>
<td>3442</td>
<td>37.2</td>
</tr>
<tr>
<td>Trouble meeting basic needs</td>
<td>3639</td>
<td>39.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insurance</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>3782</td>
<td>41.1</td>
</tr>
<tr>
<td>Private</td>
<td>3957</td>
<td>43.1</td>
</tr>
<tr>
<td>Public</td>
<td>1455</td>
<td>15.8</td>
</tr>
</tbody>
</table>
## Baseline Characteristics

<table>
<thead>
<tr>
<th>Parity</th>
<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>4375</td>
<td>47.3</td>
</tr>
<tr>
<td>1-2</td>
<td>3885</td>
<td>50.0</td>
</tr>
<tr>
<td>3+</td>
<td>996</td>
<td>10.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unintended pregnancy</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5857</td>
<td>63.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>History of STI</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3746</td>
<td>40.5</td>
</tr>
<tr>
<td>Method</td>
<td>Acceptance Rate</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>LNG-IUS</td>
<td>46.0%</td>
<td></td>
</tr>
<tr>
<td>CuT380A</td>
<td>11.9%</td>
<td></td>
</tr>
<tr>
<td>Implant</td>
<td>16.9%</td>
<td></td>
</tr>
<tr>
<td>DMPA</td>
<td>6.9%</td>
<td></td>
</tr>
<tr>
<td>Pills</td>
<td>9.4%</td>
<td></td>
</tr>
<tr>
<td>Ring</td>
<td>7.0%</td>
<td></td>
</tr>
<tr>
<td>Patch</td>
<td>1.8%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>&lt;1.0%</td>
<td></td>
</tr>
</tbody>
</table>

Total LARC Acceptance: 75%
Contraceptive Method Chosen

Overall Cohort

- LNG-IUS: 46%
- Copper IUD: 12%
- Implant: 17%
- OCP: 9%
- DMPA: 7%
- Ring: 7%
- Other: 2%

Teens ONLY

- LNG-IUS: 32%
- Copper IUD: 5%
- Implant: 34%
- OCP: 13%
- DMPA: 9%
- Ring: 2%
- Other: 5%

LARC Uptake

Overall Cohort: 75%
Teens ONLY: 72%
Choice of LARC Methods in Adolescents

- **14-17 years**
  - IUD: 25%
  - Implant: 40%

- **18-20 years**
  - IUD: 45%
  - Implant: 20%
Evaluation of CHOICE

• Outcomes
  – Short term:
    • Effectiveness
    • Continuation & satisfaction
  – Long-term
    • Population-based outcomes
      – Unplanned pregnancies:
        » Repeat abortions
        » Teen births
Effectiveness of Long-Acting Reversible Contraception

Brooke Winner, M.D., Jeffrey F. Peipert, M.D., Ph.D., Qiu Hong Zhao, M.S., Christina Buckel, M.S.W., Tessa Madden, M.D., M.P.H., Jenifer E. Allsworth, Ph.D., and Gina M. Secura, Ph.D., M.P.H.
Unintended Pregnancy Rates in CHOICE Cohort

- August 2007 through July 2011
  - 615 reported pregnancies
    - 459 (75%) unintended
    - 334 contraceptive failures
Unintended Pregnancy by Contraceptive Method

\[ \text{HR}_{\text{adj}} = 22.3, \ 95\% \ CI \ 14.0, \ 35.4 \]

Method Failure by Age

HR_{adj} = 1.9;
95% CI 1.2, 2.8
CHOICE Data: Nexplanon, BMI, and Failures

• 1,188 ENG implant users
  – 28% overweight
  – 35% obese

• 3-year cumulative failure rate:
  – Did not vary by BMI status
  – ONE failure in an obese patient in 1st month

• Transition from OCPs to implant

## 12- & 24-Month Continuation: Overall Cohort

<table>
<thead>
<tr>
<th>Method</th>
<th>12-Month (%)</th>
<th>24-Month (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNG-IUS</td>
<td>87.5</td>
<td>78.9</td>
</tr>
<tr>
<td>Copper IUD</td>
<td>84.1</td>
<td>77.3</td>
</tr>
<tr>
<td>Implant</td>
<td>83.3</td>
<td>68.5</td>
</tr>
<tr>
<td>Any LARC</td>
<td>86.2</td>
<td>76.6</td>
</tr>
<tr>
<td>DMPA</td>
<td>56.2</td>
<td>38.0</td>
</tr>
<tr>
<td>OCPs</td>
<td>55.0</td>
<td>43.5</td>
</tr>
<tr>
<td>Ring</td>
<td>54.2</td>
<td>41.1</td>
</tr>
<tr>
<td>Patch</td>
<td>49.5</td>
<td>39.9</td>
</tr>
<tr>
<td>Non-LARC</td>
<td>54.7</td>
<td>40.9</td>
</tr>
</tbody>
</table>

12- & 24-Month Continuation: By Age

### 12-Month

- **LARC**
  - 14-19: 82%
  - 20-45: 87%

- **Non-LARC**
  - 14-19: 49%
  - 20-45: 59%

### 24-Month

- **LARC**
  - 14-19: 67%
  - 20-45: 78%

- **Non-LARC**
  - 14-19: 37%
  - 20-45: 42%
# 12-Month Satisfaction*: Overall Cohort & By Age

<table>
<thead>
<tr>
<th>Method</th>
<th>Overall (%)</th>
<th>14-19 (%)</th>
<th>20-45 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNG-IUS</td>
<td>83.1</td>
<td>77%</td>
<td>84%</td>
</tr>
<tr>
<td>Copper IUD</td>
<td>80.2</td>
<td>72%</td>
<td>81%</td>
</tr>
<tr>
<td>Implant</td>
<td>77.0</td>
<td>74%</td>
<td>78%</td>
</tr>
<tr>
<td>Any LARC</td>
<td>81.2</td>
<td>75%</td>
<td>82%</td>
</tr>
<tr>
<td>DMPA</td>
<td>50.1</td>
<td>43%</td>
<td>52%</td>
</tr>
<tr>
<td>Pills</td>
<td>49.3</td>
<td>46%</td>
<td>50%</td>
</tr>
<tr>
<td>Ring</td>
<td>49.7</td>
<td>31%</td>
<td>52%</td>
</tr>
<tr>
<td>Patch</td>
<td>37.2</td>
<td>35%</td>
<td>38%</td>
</tr>
<tr>
<td>Non-LARC</td>
<td>48.8</td>
<td>42%</td>
<td>50%</td>
</tr>
</tbody>
</table>

*Very or somewhat satisfied combined

Rosenstock Obstet Gynecol 2012
Contraceptive CHOICE Project

Population Outcomes
Abortion Data: RHS of PPSSLR

Grouped by Zip code

20.6% decline in # of abortions for STL residents (p<.001)

Repeat Abortion 2006 - 2009

St. Louis City/County
Kansas City
Non-Metro Missouri

P-value
KC:STL 0.32 0.93 0.31 0.02
Percentage of Abortions that are Repeat Abortions

- 2006: 25%
- 2007: 25%
- 2008: 30%
- 2009: 35%
- 2010: 40%

St. Louis City/County
Kansas City
Non-Metro Missouri

P-value
KC:STL 0.32 0.93 0.31 0.02 <0.001

Barnes Jewish Hospital - HealthCare
Washington University in St. Louis - Physicians
National Leaders in Medicine
## Pregnancy Outcomes: CHOICE Compared to U.S.

<table>
<thead>
<tr>
<th></th>
<th>CHOICE Annual Rate</th>
<th>U.S. Rate</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy</td>
<td>39.4</td>
<td>108*</td>
<td>63%</td>
</tr>
<tr>
<td>Unintended pregnancy</td>
<td>29.6</td>
<td>52*</td>
<td>43%</td>
</tr>
<tr>
<td>Abortion</td>
<td>10.4</td>
<td>19.6^</td>
<td>47%</td>
</tr>
</tbody>
</table>

All rates per 1,000 women 15-44 years
* 2006 data
^ 2008 data
## Teen Outcomes: CHOICE Compared to U.S.

<table>
<thead>
<tr>
<th></th>
<th>CHOICE Annual Rate*</th>
<th>2008 U.S. Rate*</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy among sexually active teens</td>
<td>29.6</td>
<td>158.5</td>
<td>81%</td>
</tr>
<tr>
<td>Abortion</td>
<td>9.1</td>
<td>17.8</td>
<td>49%</td>
</tr>
<tr>
<td>Birth</td>
<td>13.6</td>
<td>40.2</td>
<td>59%</td>
</tr>
</tbody>
</table>

*All rates per 1,000 teens 15-19 years

CHOICE Data: Unpublished; U.S. Data: Kost 2012
The Secret: 3 Key Ingredients

• Education regarding all methods, especially LARC
  – Reframe the conversation to start with the most effective methods

• Access to providers who will offer & provide LARC
  – Dispel myths and increase the practice of evidence-based medicine

• Affordable contraception
  – Institute of Medicine recommendation, Affordable Care Act, Medicaid Expansion, local funders
Take-Home Messages

• LARC Methods are THE most effective contraceptive options
  – Increased use of LARC will
    • Decrease abortions and unintended pregnancies
    • Decrease racial/SES disparities

• CHOICE Project: A Model
  – LARC methods are FIRST LINE
  – NO COST contraceptive methods
Future Directions

• Dissemination:
  – PCORI Grant
  – Opportunity Nation/Upstream
    • UCSF & CHOICE collaboration
    • Disseminate and train providers
  – CMS Grant Pending
  – LARC FIRST Website
    • www.larcfirst.com
Thank You!