New Approaches in Interventions to Reduce Unintended Pregnancy

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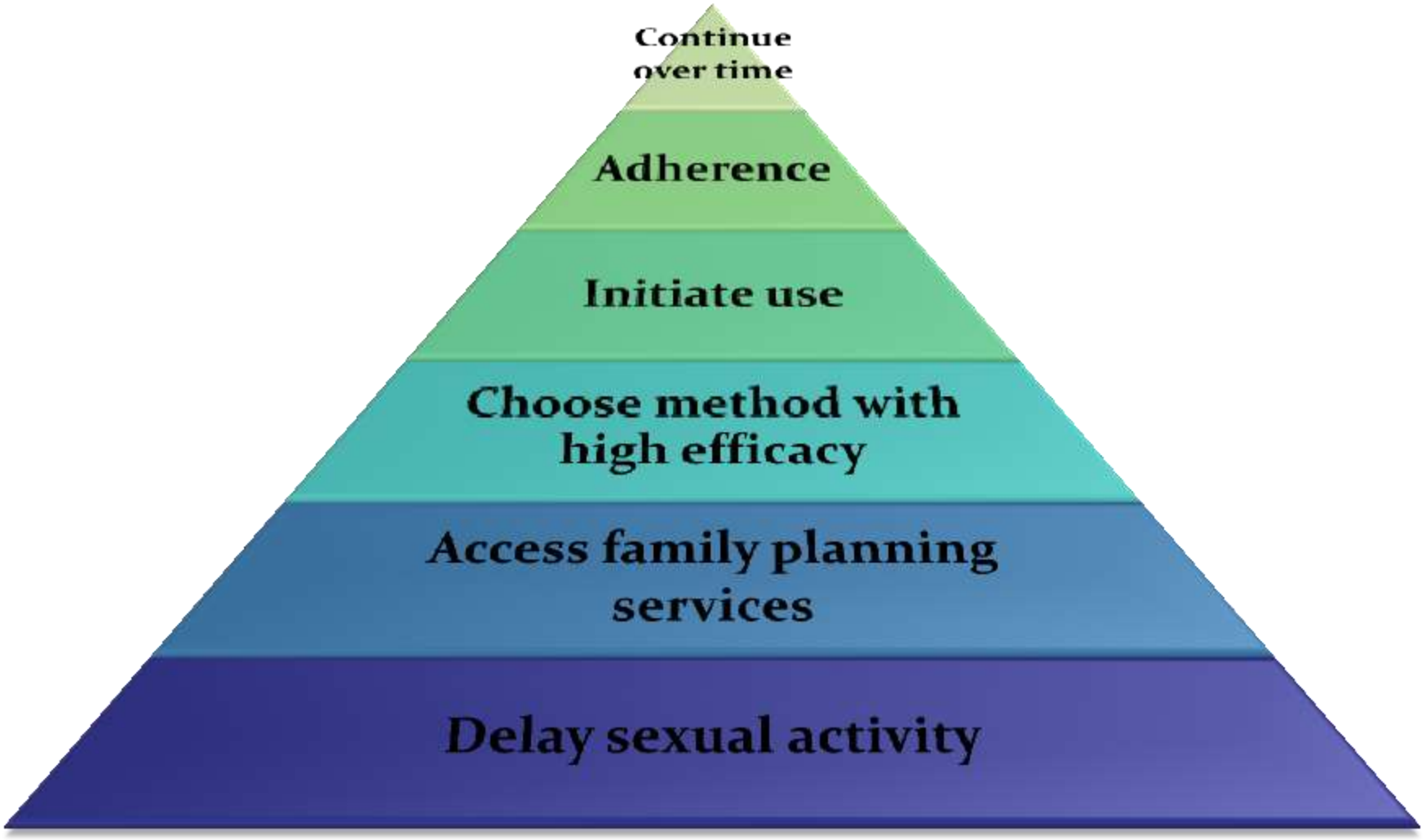
Overview

- Translating family planning care into reduction in unintended pregnancy
- Potential roles for technology-based interventions
- What is the evidence base?
  - What has worked, what hasn't
  - Case study: touchscreen contraceptive assessment module
- What's on the horizon?

Rationale for Interventions

- Half of unintended pregnancies and 60% of unintended births occur among women not using contraception *(Finer et al., 2006; Mosher et al., 2012)*
- Use of LARCs is increasing but still low *(Finer, Jerman & Kavanaugh, 2012)*
- 23% of women with gaps in contraceptive use in 1 year, increasing risk of unintended pregnancy *(Frost, Singh & Finer, 2007)*

Reducing Unintended Pregnancy: Where to Intervene?



Evidence Base on Contraceptive Counseling

- 7 systematic reviews (4 Cochrane)
- Limitations in drawing conclusions
  - Significant loss-to-follow-up
  - Small sample sizes
  - Heterogeneous outcomes
- Limitations in translating findings
  - Few positive findings: ¼ found positive impact
  - Most on knowledge & attitudes; few with impact on behavior
  - Effective interventions were intensive

Technology-Based Interventions for Reproductive Health

Social networking sites

Interactive games

Interactive computer decision tools & Apps

Text messages

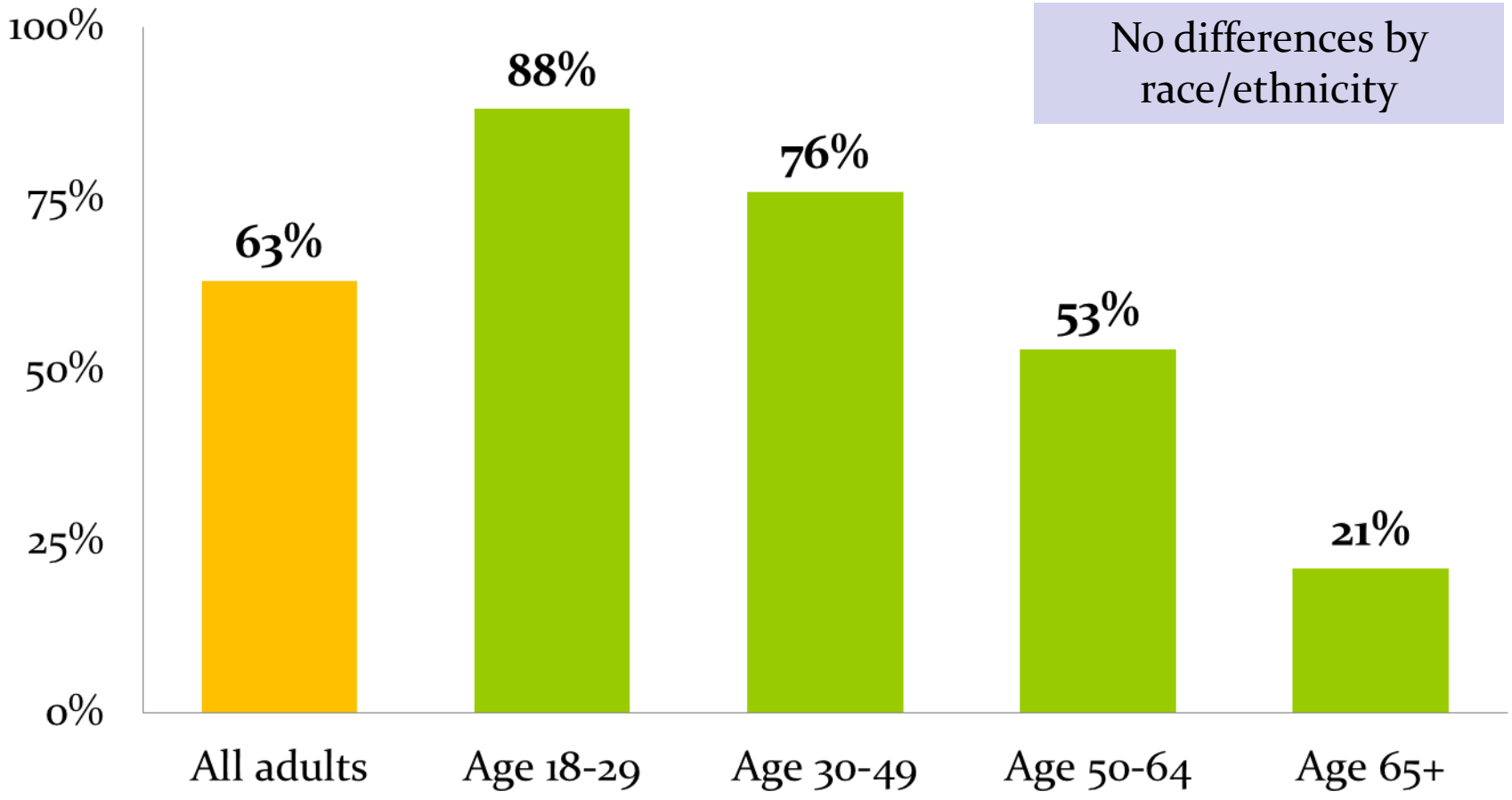
Video

Telephone

Advantages of Technology-Based Interventions

- Incorporate complexity in simple interface
- Tailored health messages
  - More effective in changing health behavior *(Lustria & Noar 2009)*
- Ensure fidelity of counseling message
- High intensity with fewer resources
  - Does not require extensive staff training
- High user acceptance & wide usage
- Appropriate for low literacy or limited English proficiency populations

Internet Use on Mobile Device, 2011



Source: Pew Internet Digital Differences Report, April 2012 ; www.pewinternet.org

Published Systematic Reviews Tech-Based Intervention 2008

- SMS STI: Text messaging *(Lim 2008)*
  - 9 studies, only 1 RCT
  - Sex worker education, appointment reminders, condom delivery, partner notification for STIs

Published Systematic Reviews Tech-Based Intervention 2012

- New digital media interventions for adolescent sexual health *(Guse, in press)*
  - 942 abstracts, 10 met inclusion criteria
  - 8 web-based, 1 MySpace, 1 text
  - Only 2 with behavioral impact (sex initiation)

Telephone Reminders

- Access
- Continuation

- RCT of teen FP clients *(Kirby 2010)*
  - No difference in use (condom or hormonal), clinic use, satisfaction or attitudes
  - Almost 8 call attempts required for each completed call
- RCT of OC users age 16-24 *(Berenson 2012)*
  - Monthly reminder phone calls
  - No effect on continuation (3 or 6 months); pregnancy rates; STI rates; adherence to pills

Text Messaging

- Adherence
- Continuation

- Daily messages: RCT of impact on OC contraceptive refills *(Castaño 2012)*
  - Daily educational messages (not reminders)
  - Continuation at 6 months: 64% vs 54%
  - Effect dipped after messages stopped

Text Messaging

- Access
- Adherence
- Continuation

- RCT of daily pill reminders on adherence *(Hou 2010)*
  - Electronic monitoring and diaries
  - 5 missed pills/cycle in both arms using electronic monitor
  - 1 missed pill/cycle in both arms using diary

The SIMpill® SMART

School-Based Computer Games/Tools

- Delay Sex

- Computer-based intervention among Appalachian teens *(Roberto 2007)*
  - 6 web-based assessment modules of risky behaviors with tailored feedback + "choose your own adventure" CD-ROM
  - Delayed initiation of vaginal sex

School-Based Computer Games/Tools

- It's Your Game: Keep It Real *(Tortolero 2010)*
  - Computer program with virtual world
  - Reduced risk of initiating anal and oral sex among middle school students
  - Plus 24 sessions of 45 minutes, 12 parent-child homework sessions, and journaling

Interactive Computer-Based Decision Tools

- Access
- Choice
- Continuation
- Adherence

- RCT of computer-based TTM tailored intervention *(Peipert 2008)*
  - Assess stage of change & provide feedback on action or maintenance of dual method use
  - 3 monthly computer sessions
  - Increased any-use of dual methods
  - No impact on STIs or pregnancy

Interactive Computer-Based Decision Tools

NEW!

- RCT of computer program for hormonal contraception in acute care *(Schwartz, in press)*
  - Contraceptive education & screening
  - ACASI format, with follow-up 3 months later
  - Got Rx at visit: 16% vs. 1%
  - Non-white women, lower educational attainment more likely to use to request Rx

Limitations of Evidence Base on Tech-Based Interventions

- Methodologically fewer limitations
- But, same limitations in translating findings
  - Most on knowledge & attitudes; few with impact on behavior
  - Effective interventions were intensive – missing some of the benefits of technology
  - Emphasis on reaching teens
  - Many on condom use, few for LARCs

Conclusions

- Technology is not a panacea
  - Phone reminders: time-intensive with little payoff
  - Text messaging: versatile, quick, low-cost, and shows some short-term benefit
  - Computer-based tools work well, but cover a wide range of intensities
- Changing adherence is hard – so is measuring it
- Racial/ethnic disparities in access to and use of digital technology is not a barrier
- Any modality needs to include access to methods

Case Study: Touchscreen Contraceptive Assessment Module

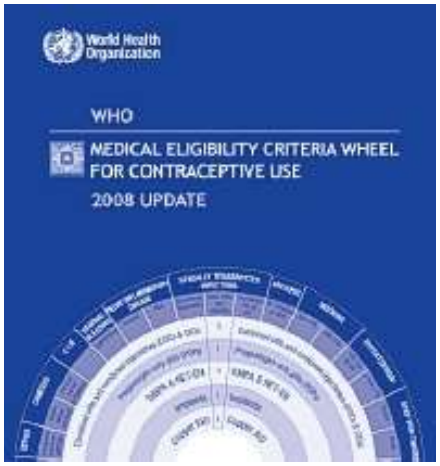
Study Activities

- Adapt and validate low-literacy computer-based contraceptive assessment module
- Conduct three-arm RCT among 2,000 family planning patients at 2 sites
- Compare contraceptive method choice and continuation across randomization arms

Development of Intervention - 1

- Underlying algorithm developed by Emory University
  - Robert Hatcher, MD, MPH
  - Melissa Kottke, MD
- CDC Medical Eligibility Criteria
  - Medical contraindications

USMEC
United States Medical Eligibility Criteria for Contraceptive Use



Development of Intervention - 2

50 questions: medical and contraceptive history, sexual risk factors, and preferences:

- Each response assigns positive and negative points to 19 different methods
- Calculates score and ranks methods as green (best fit), yellow, or red (contraindicated)
- Assigns higher weight to more effective methods
- Validated with clinician recommendations

Format of Intervention

- Spanish and English
- ACASI
- Touchscreen
- No reading or typing required

Use this paper to talk to your health care provider about which birth control method is best for you.

Green = GO!

These are the birth control methods that fit your life and goals well and prevent pregnancy best.

Mirena Hormonal IUD (Intrauterine Device)

Para Gard Copper T IUD (Intrauterine Device)

The pill or birth control pills (containing both an estrogen and progestin)

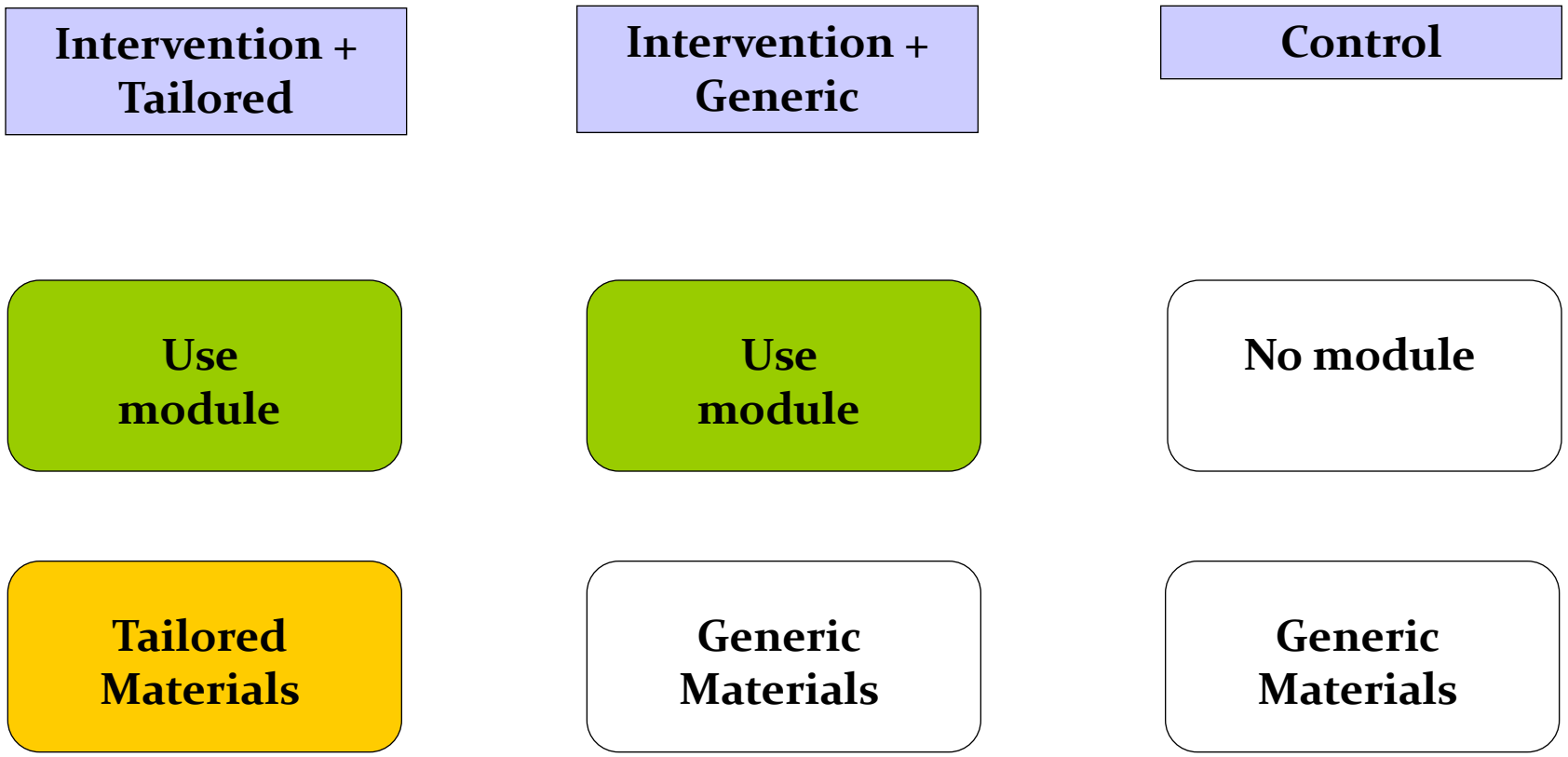
Mini-Pills or progestin-only pills

Nuva Ring (the vaginal ring)

Participant Recruitment

- Family planning patients at 2 federally funded sites in Queens
- IRB approved protocol and materials
- March 2009 through January 2011
- Eligibility criteria
  - Age 16 or over
  - Family planning visit that day
  - At risk of unintended pregnancy
  - English or Spanish speaking

Study Design: Three-Arm Randomized Controlled Trial



Data Collection

- **Covariates & Descriptive Data**
  - Data collected using ACASI module for both arms
- **Outcome 1: Method Choice**
  - Administered survey at end of provider visit
  - Clinical administrative database export
- **Outcome 2: Continuation & Adherence**
  - Telephone-based survey 4 months after visit

Patient Flow for RCT

Waiting Room

Check in at front desk

Describe study

Screen for Eligibility & Consent

Waiting Room Alcove

Use Touchscreen Module

Get output at printer

Exam Room

Visit with Provider

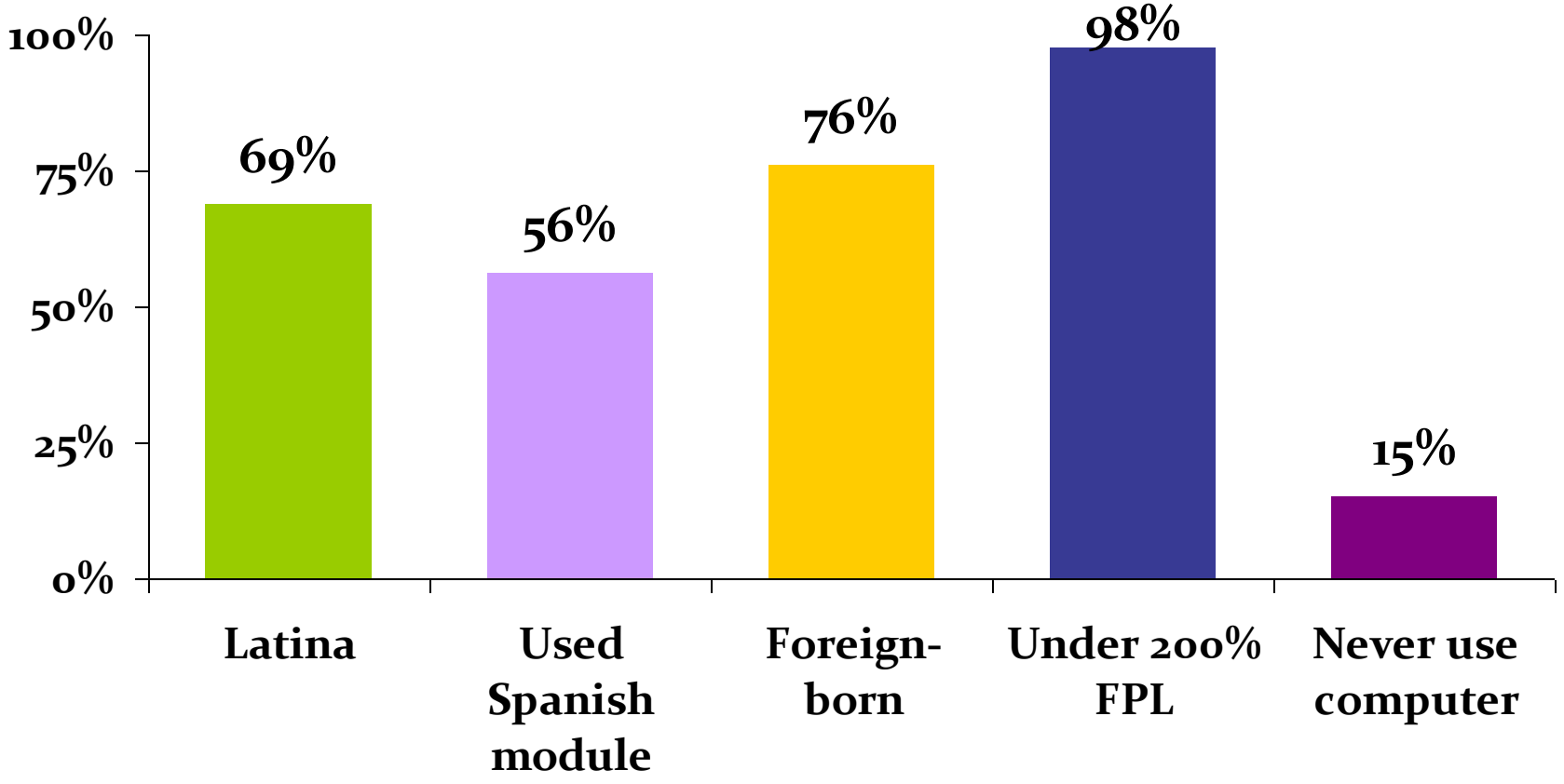
Waiting Room

End of Visit Survey

Results

Participant Characteristics

No significant differences across arms in sociodemographic characteristics at baseline



n=1,983, as-treated sample

Outcome 1: Contraceptive Method Choice

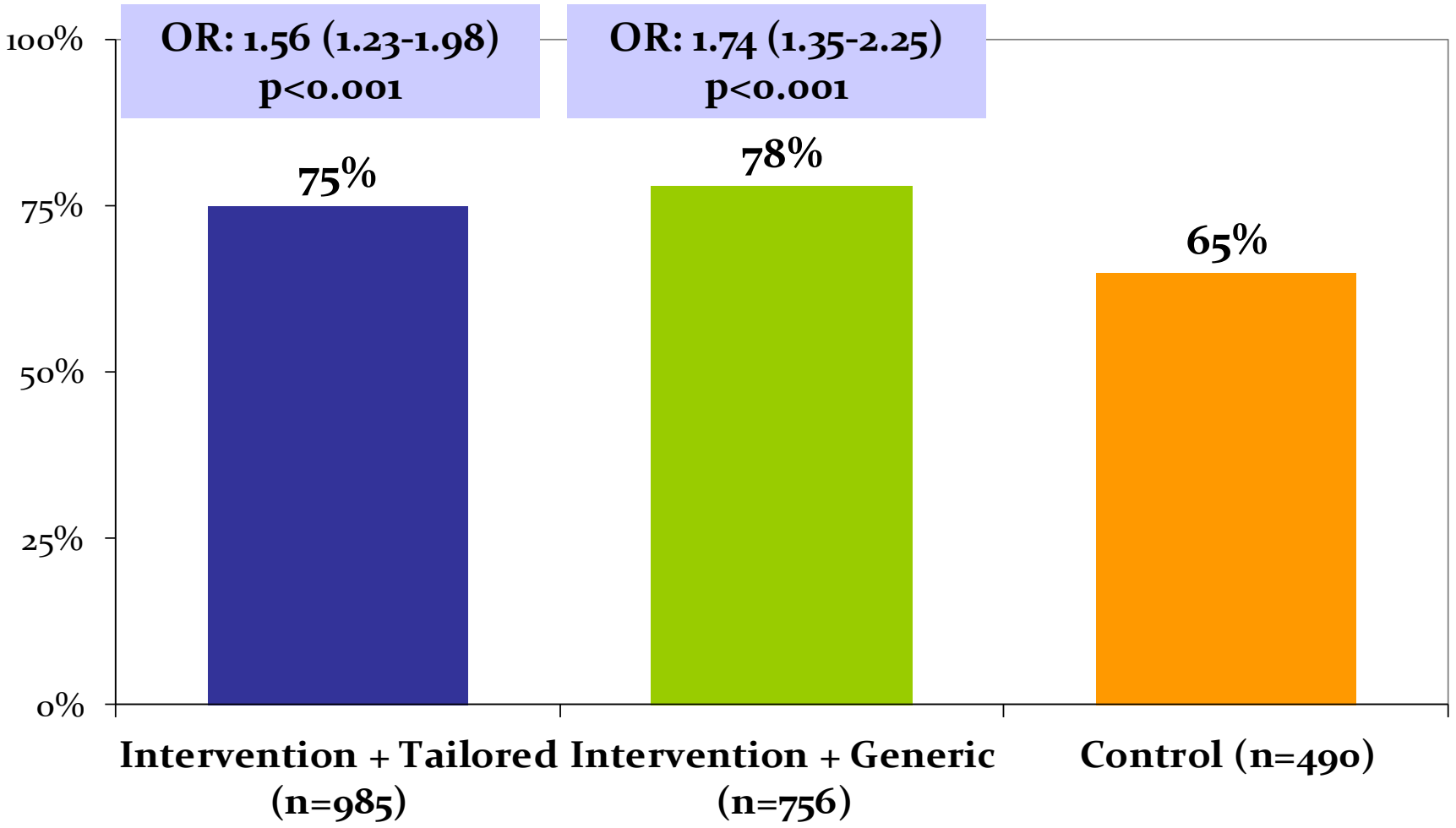
Choice of any effective contraceptive method on the day of visit

Definition:
Fewer than 10 pregnancies per 100 women in one year of typical use (Tier 1 & Tier 2)





Chose an Effective Method
Intent-to-Treat (n=2,231)

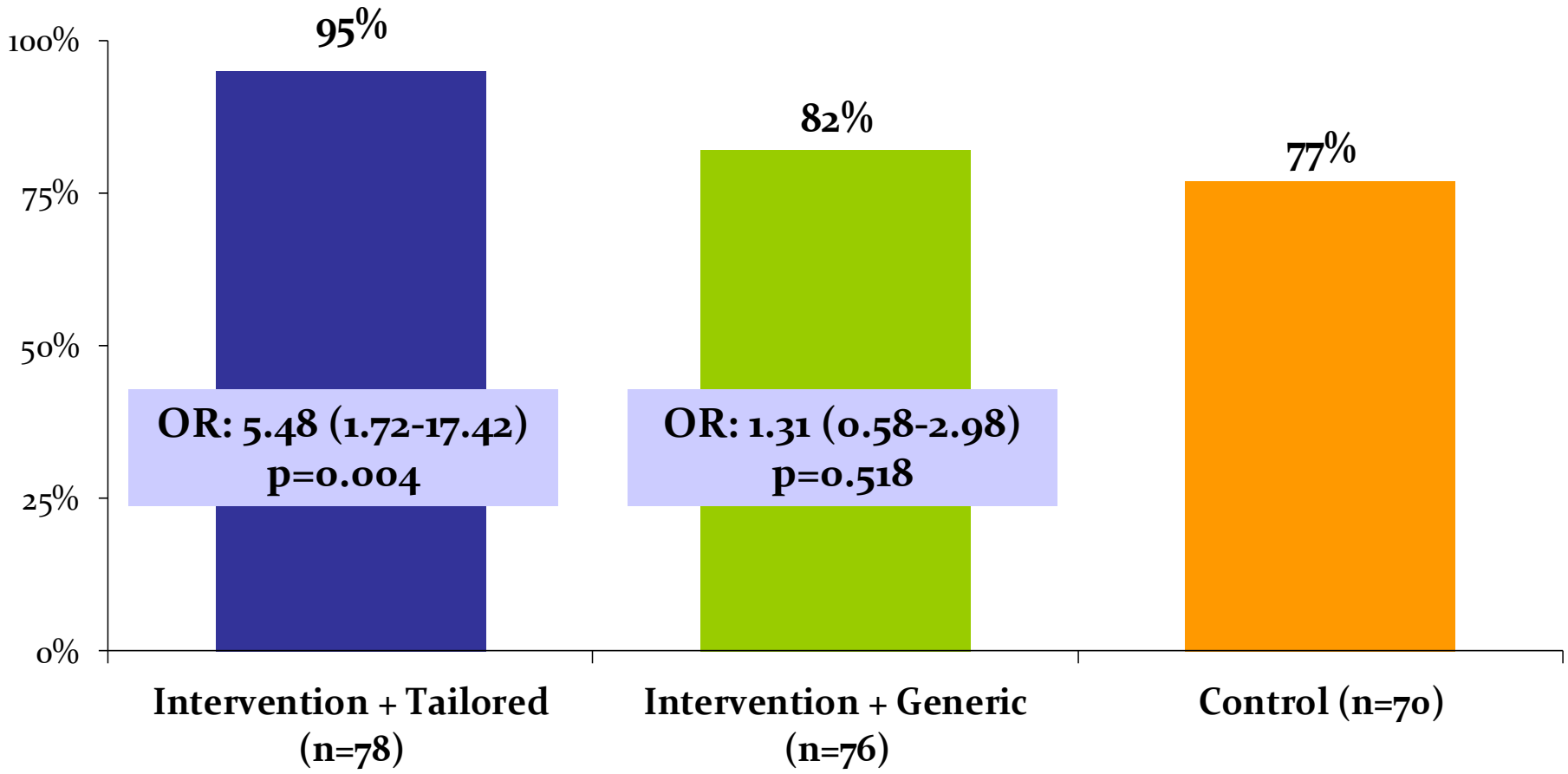


Chi square tests comparing each intervention arm to Control, p<0.001
Logistic regression model adjusted for clinical site of recruitment

Outcome 2: Method Continuation at Follow-Up

- Continued use of the same contraceptive method chosen at the family planning visit, at follow-up (4 months after visit)
  - Regardless of effectiveness of chosen method
  - Participants who chose no method on day of visit were excluded

Continued use of chosen method at follow-up (n=224)



Participants who chose no method on the day of recruitment excluded
Odds ratios adjusted for clinical recruitment site

Discussion

Strengths

- Consistent findings using multiple outcome data sources
- Easily replicable intervention
  - 99% of patients liked using it
  - 15 minutes to complete
  - No staff training required
  - Can be integrated into EHR
- Few interventions in Spanish

Limitations

- Small sample size for continuation analyses
- Lack of provider-level data
  - Patient-level intervention without provider training
  - Unknown impact on visit time
- External validity

Patient Flow for RCT

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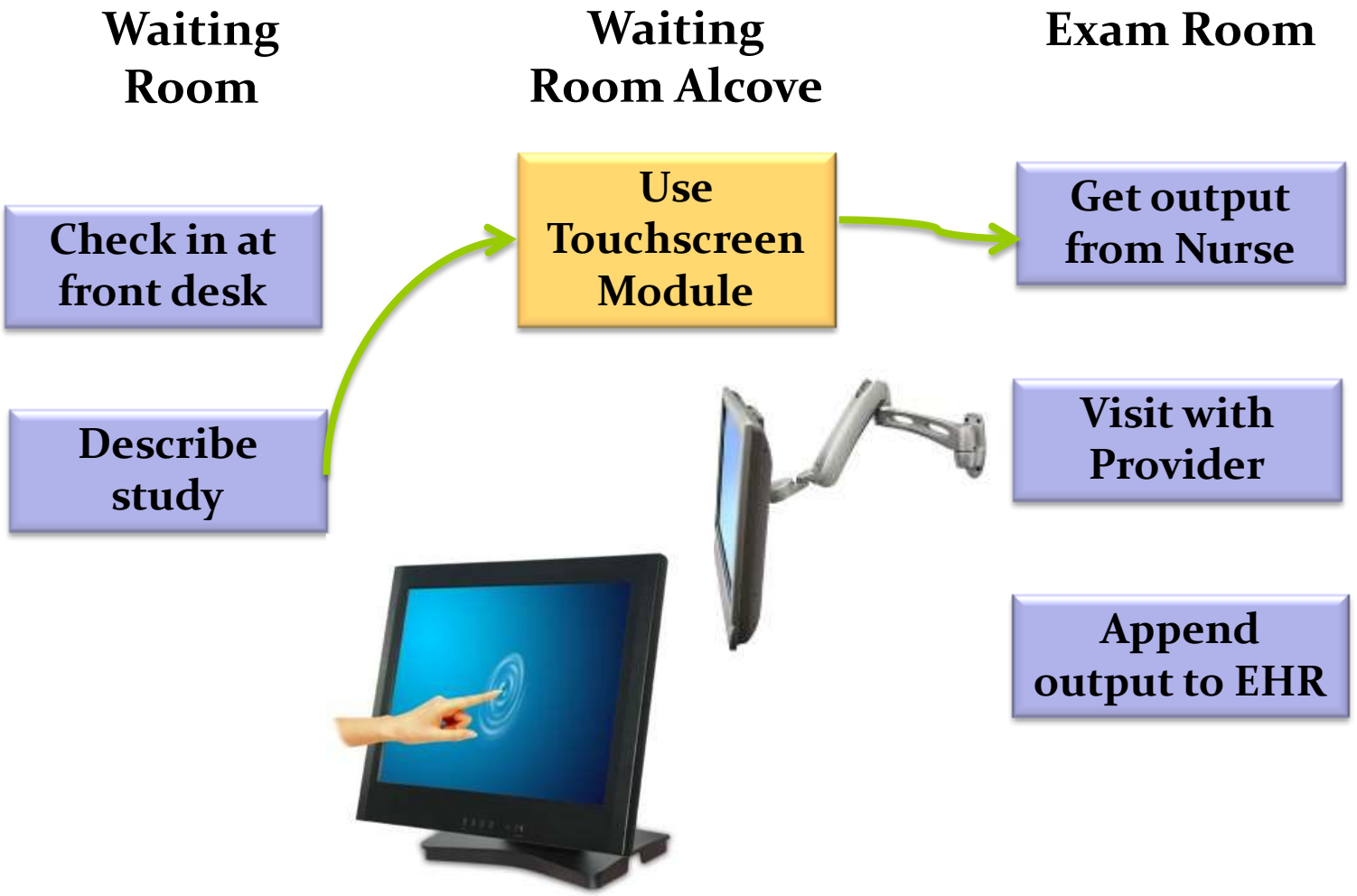
Patient Flow: Effectiveness Study



What is on the horizon?

- "Innovation is ahead of our research" *(Gilliam 2012)*
  - Newer technologies (SNS & gaming)
- Translational research
  - Effectiveness vs. efficacy
  - Evaluation of national resources *(bedsider.org)*
- Patient portals & PCMH
- Interventions for providers & parents

But Wait! There's More!

- CDC syndicated content
- OPA clinic finder
  - SMS & widget
- MTV GYT game

New Text Messaging Service!

We have launched a text messaging service that expands access to the Family Planning Database of clinics to cell phone users. To find the nearest Title X family planning facility, simply send a text message containing FINDFPCLINIC and a ZIP code to 368674. The reply will provide the name, address, and telephone number of the nearest family planning clinic.

Thank You

National Campaign to Prevent Teen & Unplanned Pregnancy

Public Health Solutions
Mary Ann Chiasson, DrPH & Allison Meserve, MPH
Roberta Scheinmann, MPH & Alicia Ventura, MPH

Emory University
Melissa Kottke, MD, MPH & Robert Hatcher, MD, MPH
Peggy Goedken, MPH
Created the counseling tool algorithm with support from an anonymous donor and Bridge the Gap Foundation.
Original counseling tool in English can be accessed at www.bestmethodforme.com

MIC staff and clients

Interviewers
Rosanna Martinez, M. Gabriela Pelaez & Elizabeth Verdesoto

A FULL LIST OF LITERATURE CITED IS AVAILABLE