

Personalized Prenatal Care Using Telehealth Strategies

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EARLY 20th CENTURY...



Prenatal Care in the U.S.

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- Despite its ubiquitous practice, the optimal quantity and character of prenatal care remains controversial.
 - Paucity of randomized trials
 - Questions of efficacy and efficiency remain

1989: U.S. Department of Health and Human Services

Caring for our Future: The Content of Prenatal Care

Report of the Public Health Expert Panel on the Content of Prenatal Care

“The specific content and timing of prenatal visits, contacts, and education should vary depending on the risk status of the pregnant woman and her fetus.”



1989: U.S. Department of Health and Human Services

Caring for our Future: The Content of Prenatal Care

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Proposed reduced frequency prenatal schedule for low-risk parous women based on the timing of specific events and tests that occur in pregnancy.



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Caring for our Future: The Content of Prenatal Care

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Proposed reduced frequency prenatal schedule for low-risk parous women based on the timing of specific events and tests that occur in pregnancy.

➔ Reduced recommended visits from 14 to 8.



What should we be doing?

Guidelines:

U.S. Department of Health and Human Services

American Congress of Obstetricians & Gynecologists (ACOG)

American Academy of Pediatrics (AAP)

Institute for Clinical Systems Improvement (ICSI)

Department of Defense and Veterans Administration (DoD & VA)

What should we be doing?

Guidelines:

- All recommend a system of goal-oriented antenatal visits at specific gestational ages.
- Endorse a reduced schedule of prenatal visits compared to traditional models for low-risk women.

Less visits- Is it safe?

Systematic review of 7 RCTs:

- Reduced prenatal care model (4-9 visits) vs. standard care (13-15 visits)
- 57,000 low-risk women, spectrum of resource settings

Carroli et al. WHO systematic review of randomized controlled trials of routine antenatal care. Lancet 2001;357:1565-70

Less visits- Is it safe?

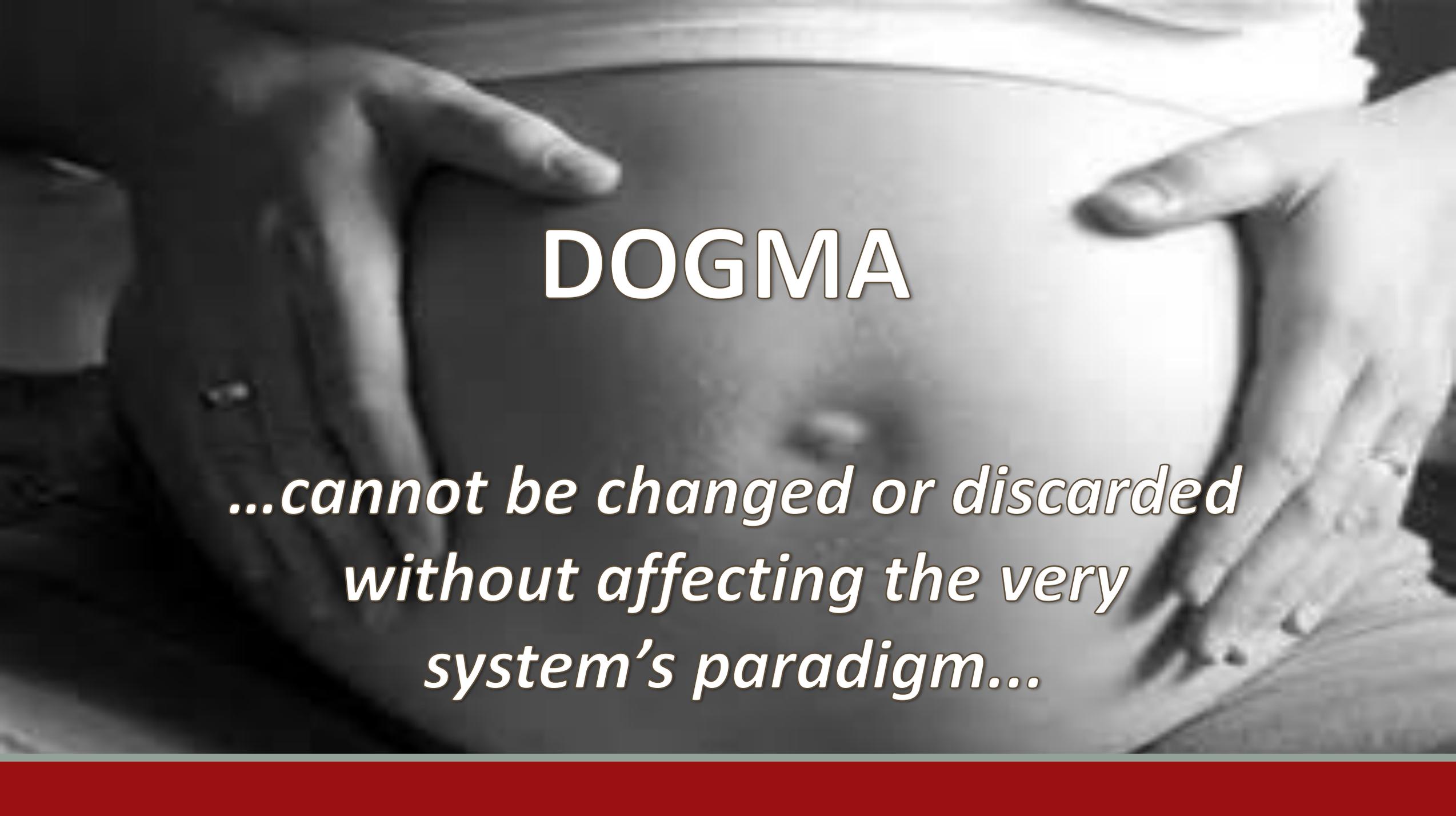
Systematic review of 7 RCTs:

- No difference in maternal or perinatal morbidity / mortality
- However, some increased dissatisfaction with care, particularly among women in more developed countries

Carroli et al. WHO systematic review of randomized controlled trials of routine antenatal care. Lancet 2001;357:1565-70

'One Size Fits All' Prenatal Care

- Despite compelling safety and efficacy data, prenatal care practices in the U.S. have generally continued a 'one-size fits all' approach.
- Concerns have limited widespread use of a reduced prenatal care visit model.
 - **Patient satisfaction**
 - **Provider satisfaction**
 - **What else?**



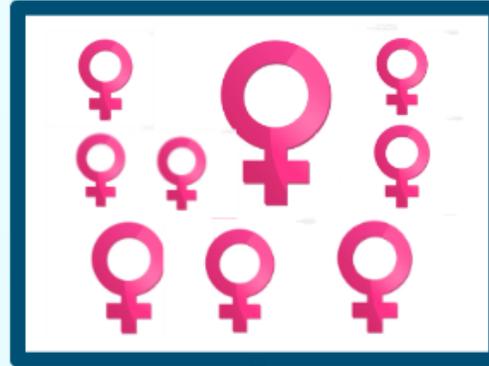
DOGMA

*...cannot be changed or discarded
without affecting the very
system's paradigm...*

Move the Needle

A stylized gauge or needle graphic. It features a semi-circular arc with a blue outer border and three colored segments: red on the left, yellow in the middle, and green on the right. A brown needle is positioned vertically, pointing upwards from the bottom center of the arc.

Managing the Population



'Higher Risk'

- Chronic disease
- Prior pregnancy complications
- Current pregnancy complications
- Fetal abnormalities or multiples

'Lower Risk'

- Healthy mother
- Prior uncomplicated pregnancies
- Current pregnancy uncomplicated
- Normal, singleton fetus

- **Between 20-39 years**
- **Previous term delivery**
- **No history of serious pregnancy complications**
- **No chronic medical conditions**
- **No major risk factors for adverse outcome**
- **Singleton, non-anomalous fetus**

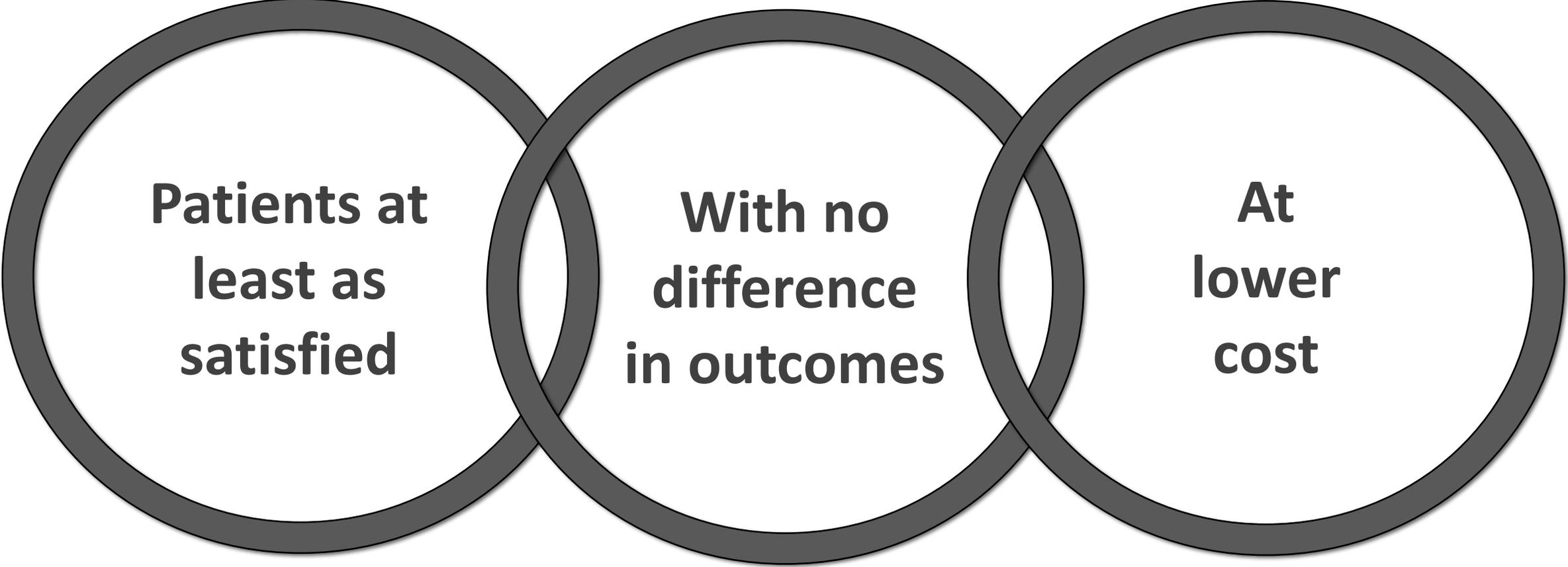
Personalized Prenatal Care for Low-Risk Women

Low-Risk

- Between 20-39 years old
- Previous term, vaginal delivery
- No history of cesarean delivery
- No history of pregnancy complications
- No concurrent health problems
- No known risk factors
- Singleton pregnancy

A Novel Idea

Assess patient satisfaction with a prenatal care model consisting of a novel remote monitoring strategy and reduced number of in-clinic visits in a low-risk obstetric population.



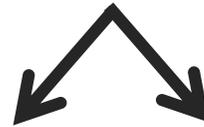
**Patients at
least as
satisfied**

**With no
difference
in outcomes**

**At
lower
cost**

Personalized Prenatal Care for Low Risk Pregnancies: A Randomized Trial of Remote Patient Monitoring

Low-risk pregnant women between 6 0/7 to 16 0/7 weeks
at University of Utah Medical Center



**5 Scheduled In-clinic
Prenatal Visits
+
Remainder by Telemedicine**

**Traditional In-Clinic
Prenatal Care**

CT.gov NCT01979436

Personalized Prenatal Care for Low Risk Pregnancies: A Randomized Trial of Remote Patient Monitoring

- Primary outcome is *overall patient satisfaction* with prenatal care after delivery.



Remote Prenatal Care Strategy



UNIVERSITY OF UTAH HEALTH CARE | MyChart®

Welcome, Kate Smithson

Kate (Me)

Add Prenatal Vitals Flowsheet Data

Step 1 of 2: Enter readings

Click **Add Another Reading** if you would like to enter data for more than one reading at this time.

When you are finished entering data, click **Continue**. Click **Cancel** if you do not want to save the data you entered.

Record your blood pressure in the Systolic and Diastolic fields. Record your current weight in pounds in the Weight field. Finally record your baby's heart rate in beats per minute (bpm) in the last field.

Reading 1

Date:

Time: AM PM

Mother's Vitals:

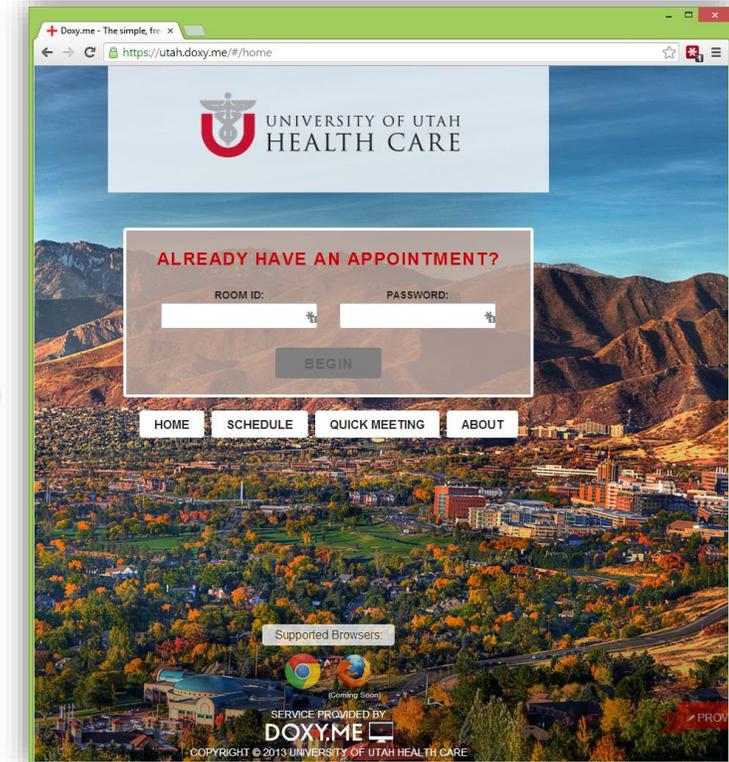
Systolic:

Diastolic:

Weight (lbs):

Baby's Vitals:

Fetal Heart Rate (bpm):





Kate (Me) 

Home

Message Center

Appointments

My Medical Record

Test Results

Current Health Issues

Medications

Allergies

Immunizations

Preventive Care

Health Summary

Medical History

Health Trends

› Track My Health

Billing

Health Plan

My Account



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Record your blood pressure in the Systolic and Diastolic fields. Record your current weight in pounds in the Weight field. Finally record your baby's heart rate in beats per minute (bpm) in the last field.

Reading 1

Date:  **Now**

Time: : AM
 PM

Mother's Vitals:

Systolic: 

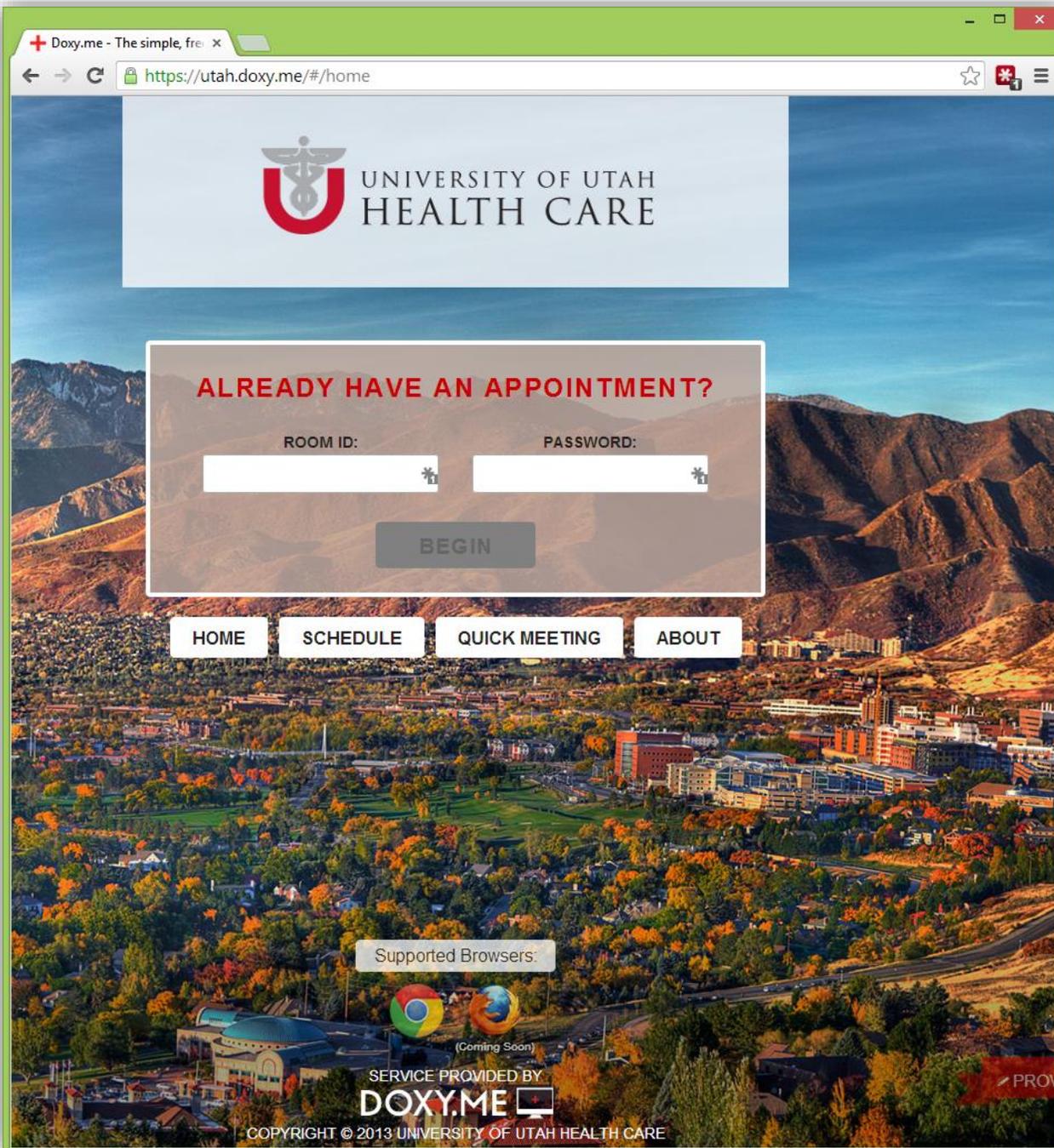
Diastolic: 

Weight (lbs):

Baby's Vitals:

Fetal Heart Rate (bpm): 

Continue> **Add Another Reading** **Cancel**



ALREADY HAVE AN APPOINTMENT?

ROOM ID:

PASSWORD:

BEGIN

HOME

SCHEDULE

QUICK MEETING

ABOUT

Supported Browsers:



(Coming Soon)

SERVICE PROVIDED BY



Your Prenatal Care Visit Schedule

Week 16 Remote Visit
Survey: Remote Care Experience

Week 20 In-Person Visit
Survey: Satisfaction, Preference, Cost

Week 24 Remote Visit
Survey: Cost

Week 28 In-Person Visit
Survey: Cost

Week 30 Remote Visit
Survey: Cost

Week 32 Remote Visit
Survey: None

Week 34 Remote Visit
Survey: Cost & Remote Care Experience

Week 36 In-Person Visit
Survey: Satisfaction, Preference, Cost

Week 37 Remote Visit
Survey: None

Week 38 Remote Visit
Survey: None

Week 39 Remote Visit
Survey: None

Week 40+ In-Person Visit
Survey: Satisfaction, Preference, Remote Care Experience



UNIVERSITY OF UTAH
HEALTH CARE

Visit Checklist

- 1- Before Each Visit
 - Measure your blood pressure, weight & your baby's heart rate
 - Record these measurements in My Chart (<https://mychart.med.utah.edu/mychart/>)
- 2- Remote Visits Only
 - Go to your Doctor's telemedicine room*
- 3- After Your Visit
 - Complete the surveys emailed to you

Contact Info

Study Coordinators

Vera Wuensche
Phone: 801-587-0975

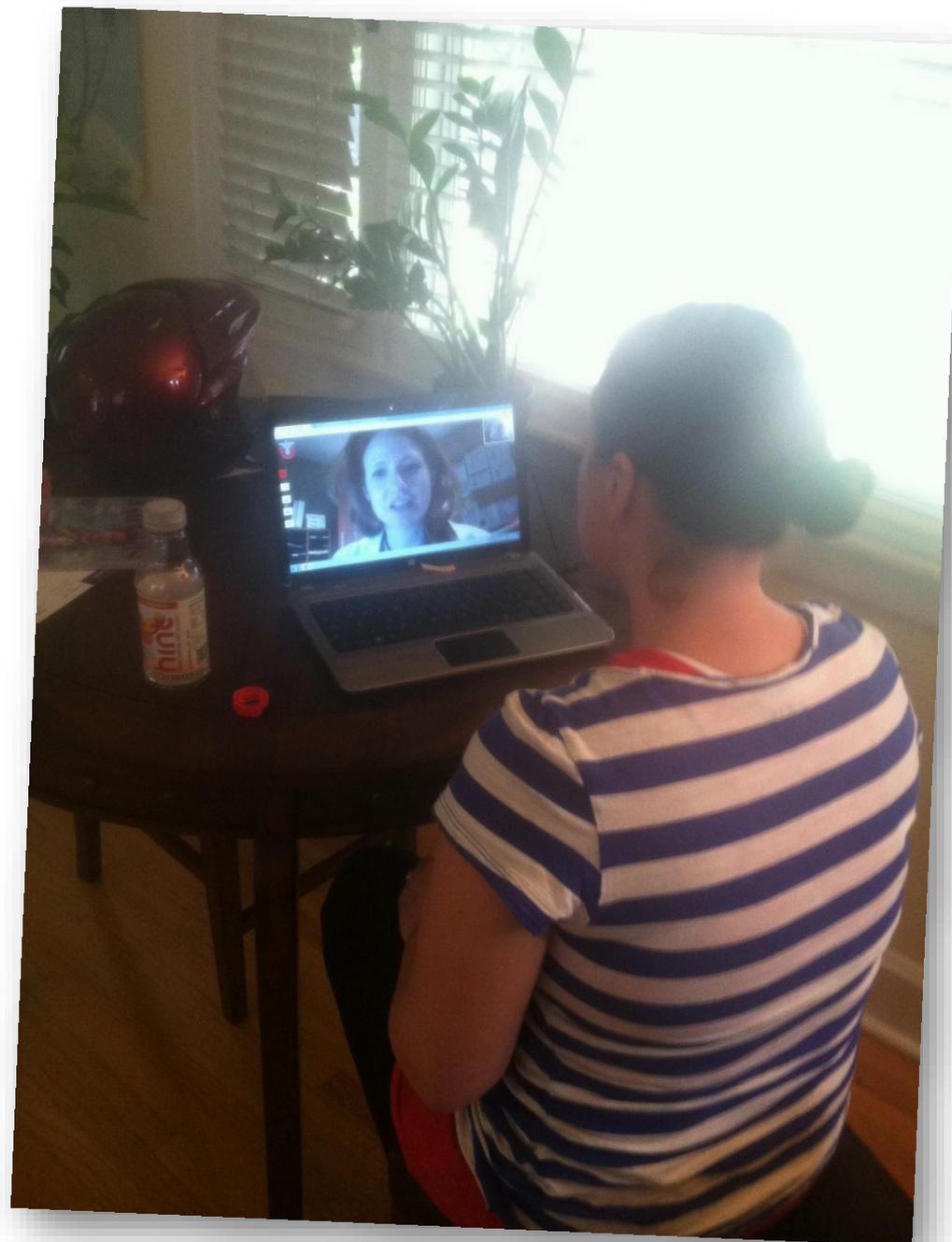
Alexys Allen
Phone: 801-213-4189

UofURemotePrenatalCare@gmail.com

Principle Investigator

Dr. Erin Clark

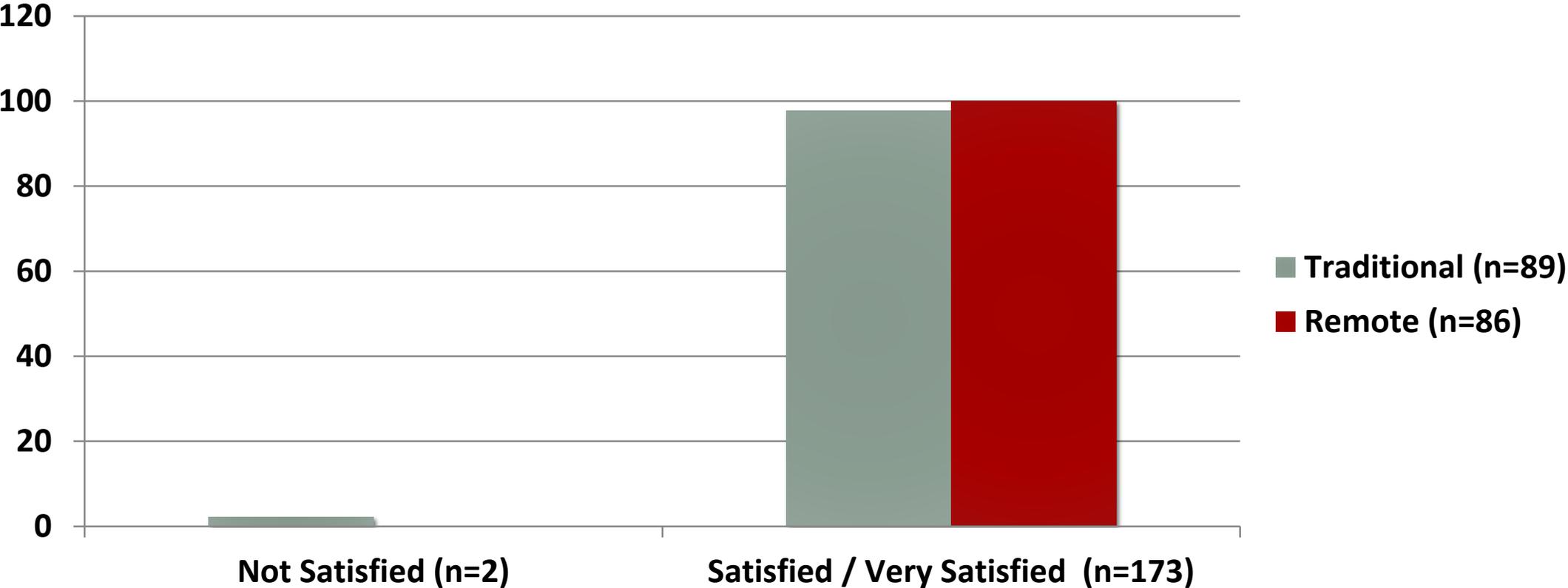
*Your Doctor's telemedicine room: <https://utah.doxy.me/>



Prenatal Care Visits

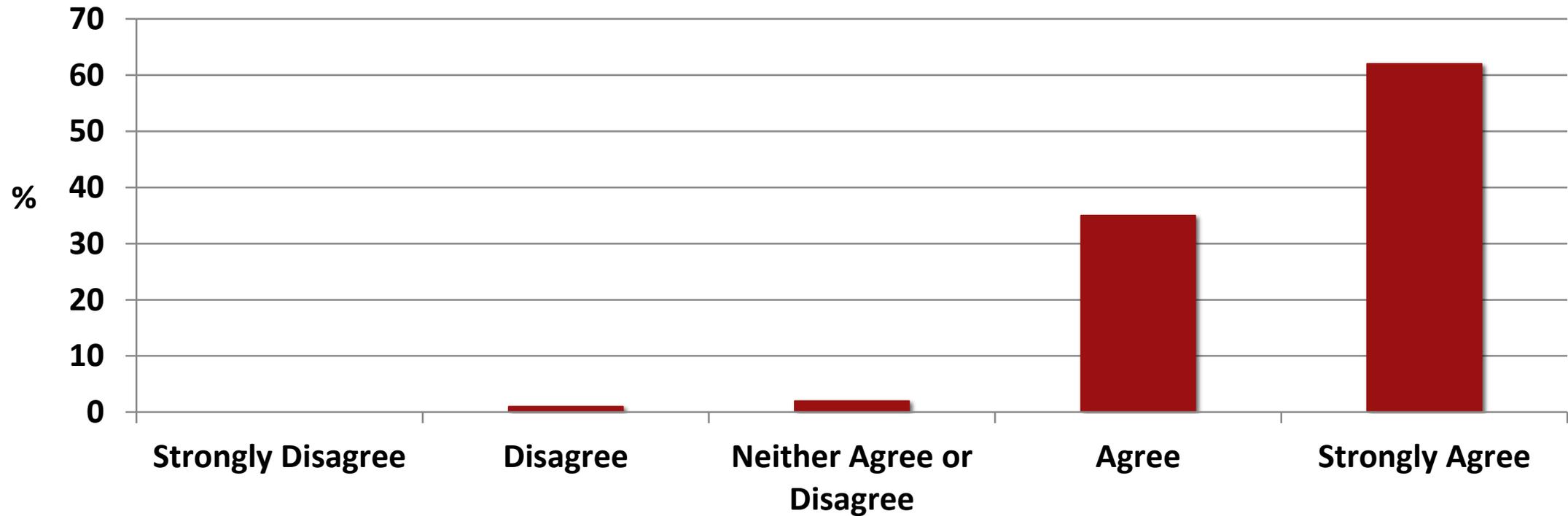
	Traditional (N=96)	Remote (N=91)	P-value
Total Visits (median)	12	12	0.42
Total In-Clinic Visits	12	7	<0.001

Postpartum Satisfaction with Prenatal Care



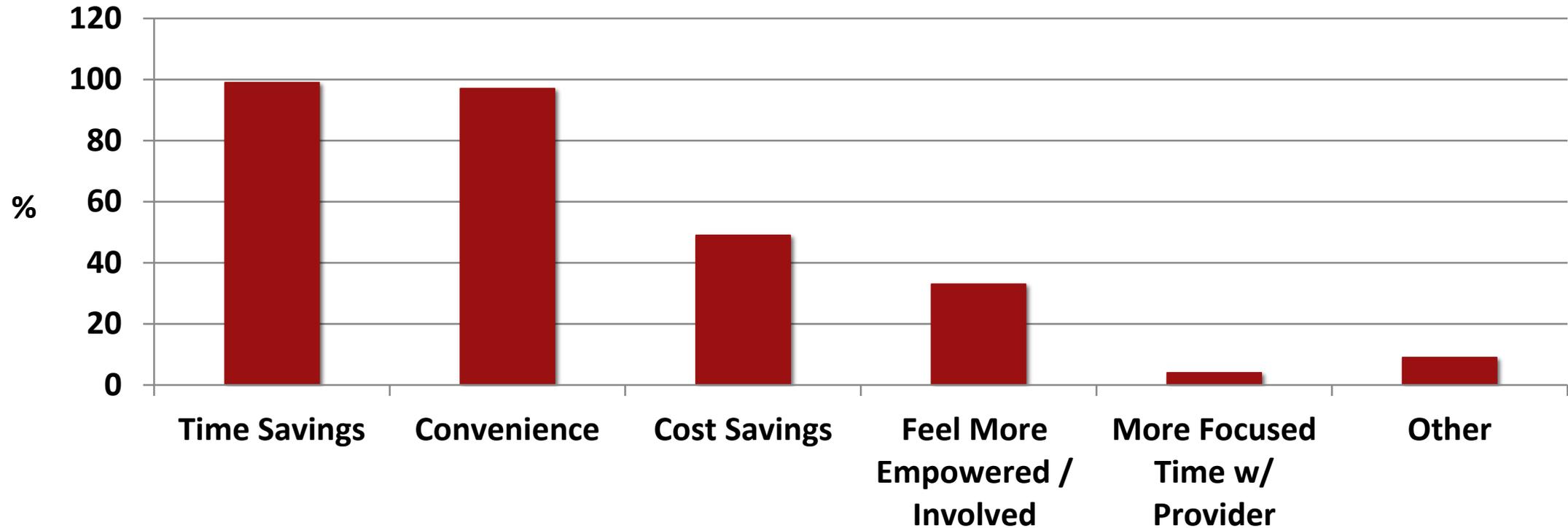
Remote Monitoring Arm

I am satisfied with remote prenatal care for monitoring my health during pregnancy.

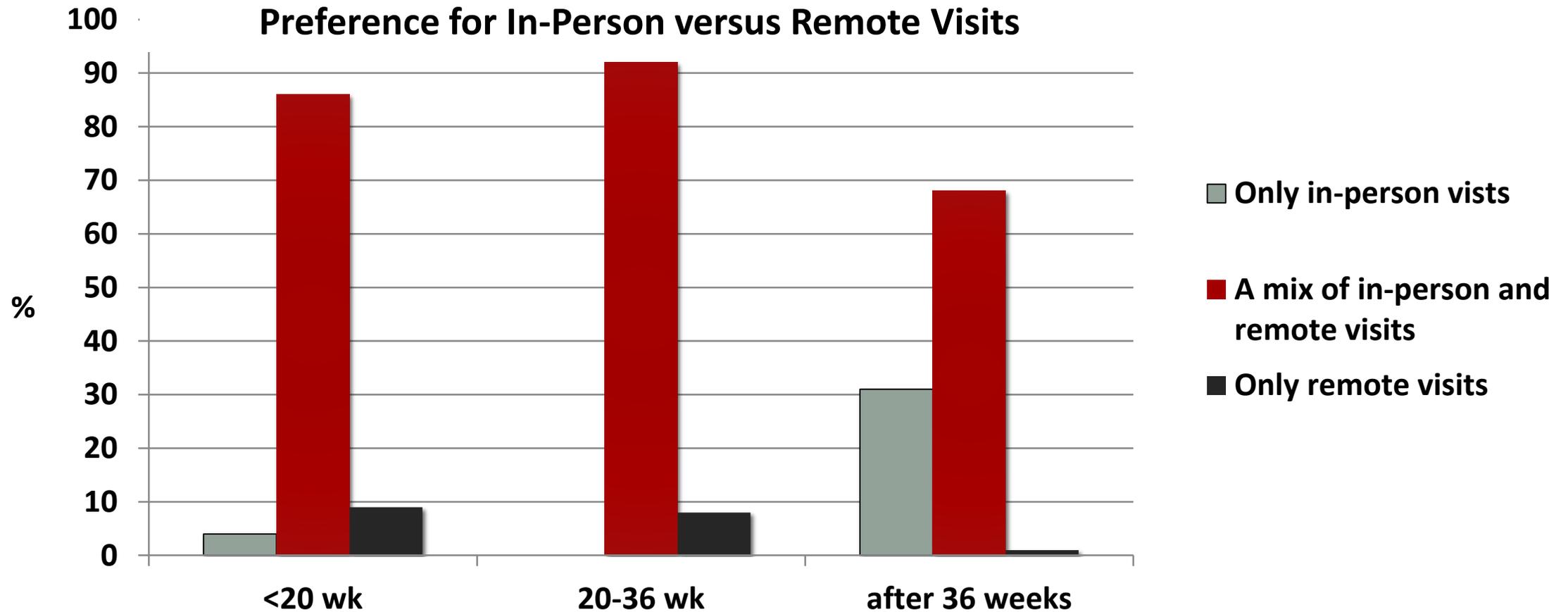


Remote Monitoring Arm

What are the 3 most important reasons you liked receiving remote prenatal care?



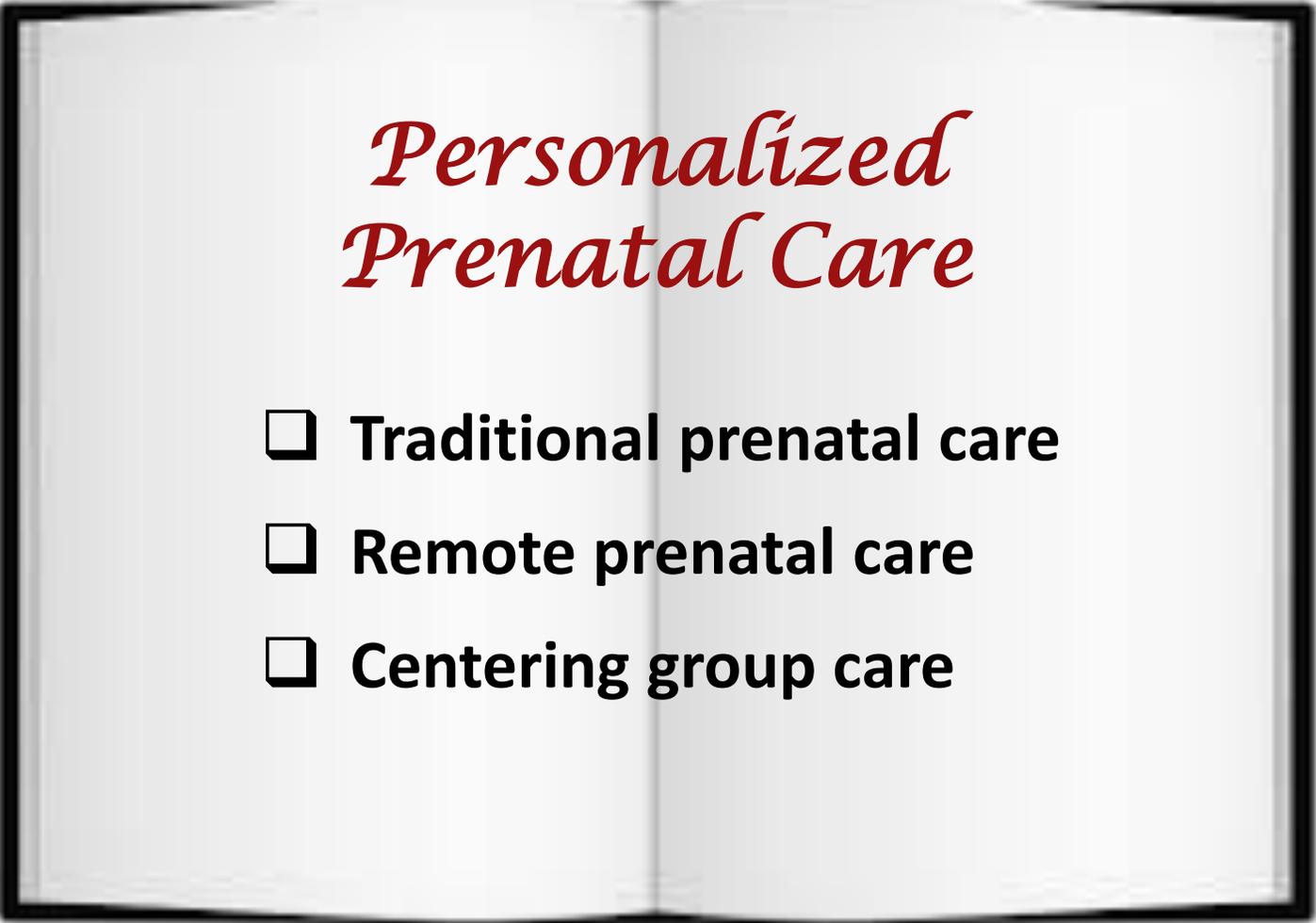
Remote Monitoring Arm



Remote Care Experience

- Almost everyone said:
 - Learning to operate the remote equipment was easy
 - Comfortable using the equipment
 - Equipment is easy to use





Personalized Prenatal Care

- Traditional prenatal care
- Remote prenatal care
- Centering group care

Novel Strategies for High Risk Patients

- Telemedicine strategies for women with diabetes, chronic hypertension, etc.
- Self-administered home non-stress tests for fetal monitoring
 - Can be successfully integrated into a healthcare system
 - Patient and provider satisfaction is high

Opportunities

- Randomized trials addressing the content and delivery of prenatal care for high and low risk OB populations
- Focus on approaches that reduce disparities in care for rural and remote patients
 - U.S. population: 19% rural*

***2010 U.S. Census**

Healthcare systems are increasingly interested in implementing innovative care strategies to improve the quality of health care, improve patient satisfaction, and reduce cost-
in other words, create *VALUE*.

$$\begin{array}{c} \mathbf{V} \\ \text{(VALUE)} \end{array} = \frac{\begin{array}{c} \mathbf{Q} \\ \text{(QUALITY)} \end{array} + \begin{array}{c} \mathbf{S} \\ \text{(SERVICE)} \end{array}}{\begin{array}{c} \mathbf{\$} \\ \text{(COST)} \end{array}}$$

F I GB USA MEX

**ONE SIZE
DOES NOT
FIT ALL**



Von links bügeln/ iron inside out/
repasser sur l'envers / 只熨反面

Prenatal care as we know it is going to change...

Obstetric dogma will be replaced with a focus on evidence-based care, cost-effectiveness and patient satisfaction.