EVIDENCE-BASED PRENATAL CARE

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MATERNAL-FETAL MEDICINE

Origins of Prenatal Care

- The traditional form of antenatal care developed in the early 1900s
  - Most women delivered at home with an unskilled attendant

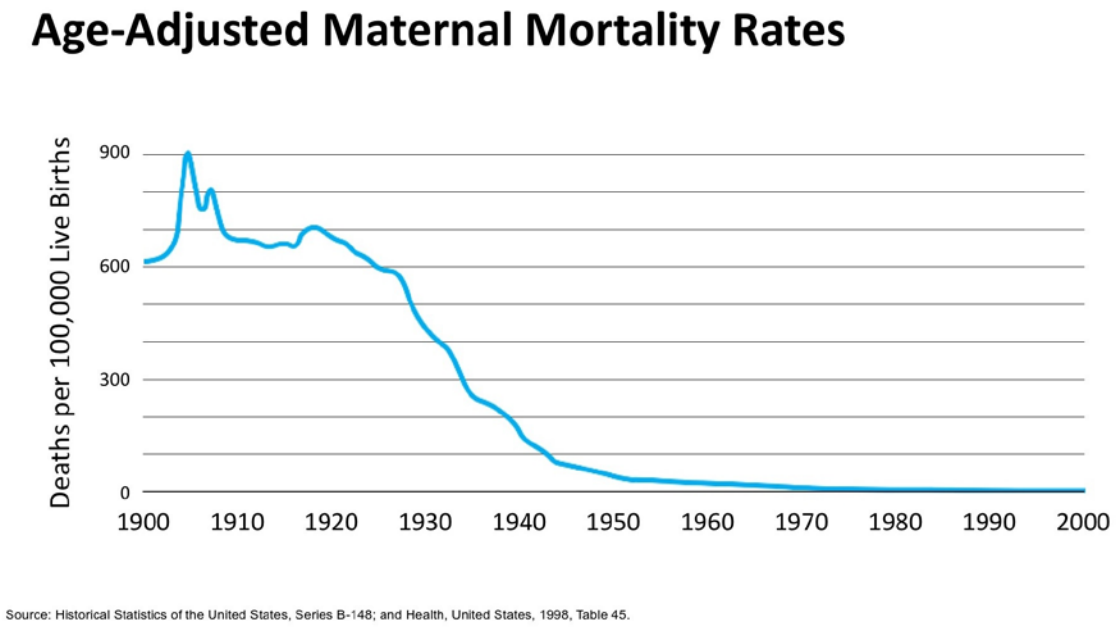
Origins of Prenatal Care

- In the early 1900s, > 6/100 women died in childbirth
- "Hat trick" of maternal mortality:
  - Hemorrhage
  - Infection ("childbed fever")
  - Toxemia (preeclampsia and eclampsia)

Origins of Prenatal Care

- "Modern prenatal care" was born in the early 1900s
  - Non-evidence based approach, serial assessment as a core tenant, primarily intended to diagnose **PRE**-eclampsia
- In the 100 years that followed:
  - *Maternal and infant mortality dropped by over 90%*

Maternal & Infant Mortality



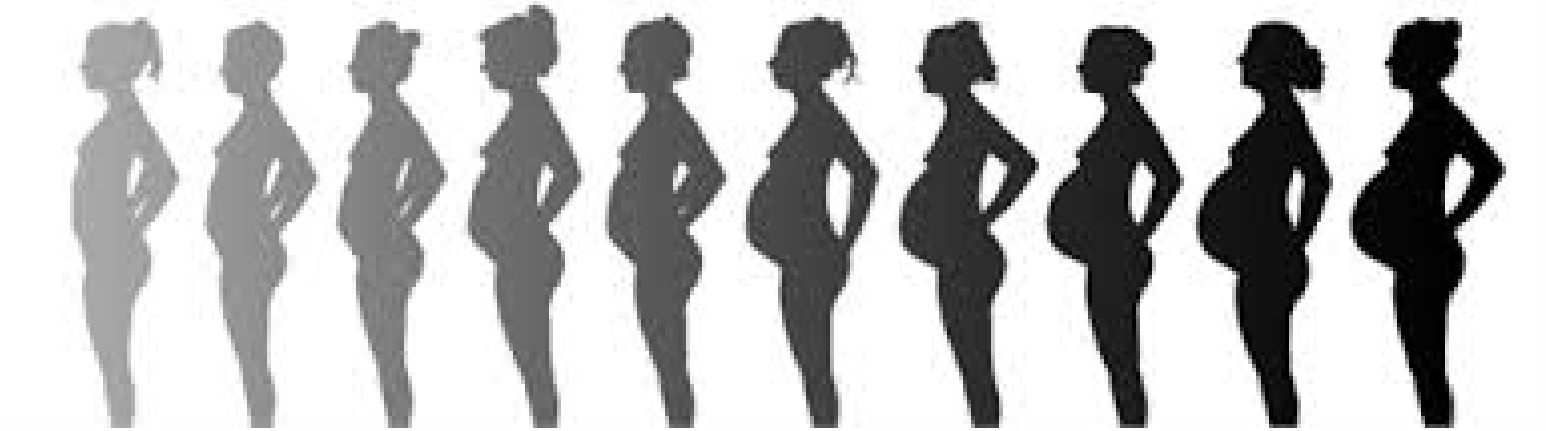
Source: Historical Statistics of the United States, Series B-148; and Health, United States, 1998, Table 45.

"Modern prenatal care"
Deliveries in hospitals
Access to cesarean delivery
Antibiotics
Blood transfusion

We now sit at ~25 maternal deaths/ 100,000 births.

Prenatal Care in the U.S.

- With nearly 4 million births annually, prenatal care is one of the most widely used preventative health care strategies



Prenatal Care in the U.S.

- Despite its near ubiquitous practice, the optimal quantity and character of prenatal care remains controversial
  - Paucity of randomized trials
  - Questions of optimal quantity, efficacy of its individual components, efficiency and cost-effectiveness remain

Objectives

1. Review current recommendations regarding evidence-based prenatal care
2. Understand emerging best practices
3. Discuss barriers to implementation (a.k.a. battling dogma)

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

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

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

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.***

And
absolutely
nothing
changed.

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

Is it safe to do fewer visits?

Systematic review of 7 RCTs:

- Reduced prenatal care model (4-9 visits) vs. standard care (13-15 visits)
- >60,000 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

Dowswell et a. Alternative versus standard packages of antenatal care for low-risk pregnancy. Cochrane Database of Systematic Reviews 2015

Is it safe to do fewer visits?

Systematic reviews of 7 RCTs:

- No difference in maternal or perinatal morbidity / mortality
  - Particularly when there were at least 5 visits

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

Dowswell et a. Alternative versus standard packages of antenatal care for low-risk pregnancy. Cochrane Database of Systematic Reviews 2015

What about patient satisfaction?

Systematic reviews of 7 RCTs:

- Women in all settings were generally less satisfied with the reduced visit schedule and the gap between care provider contacts

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

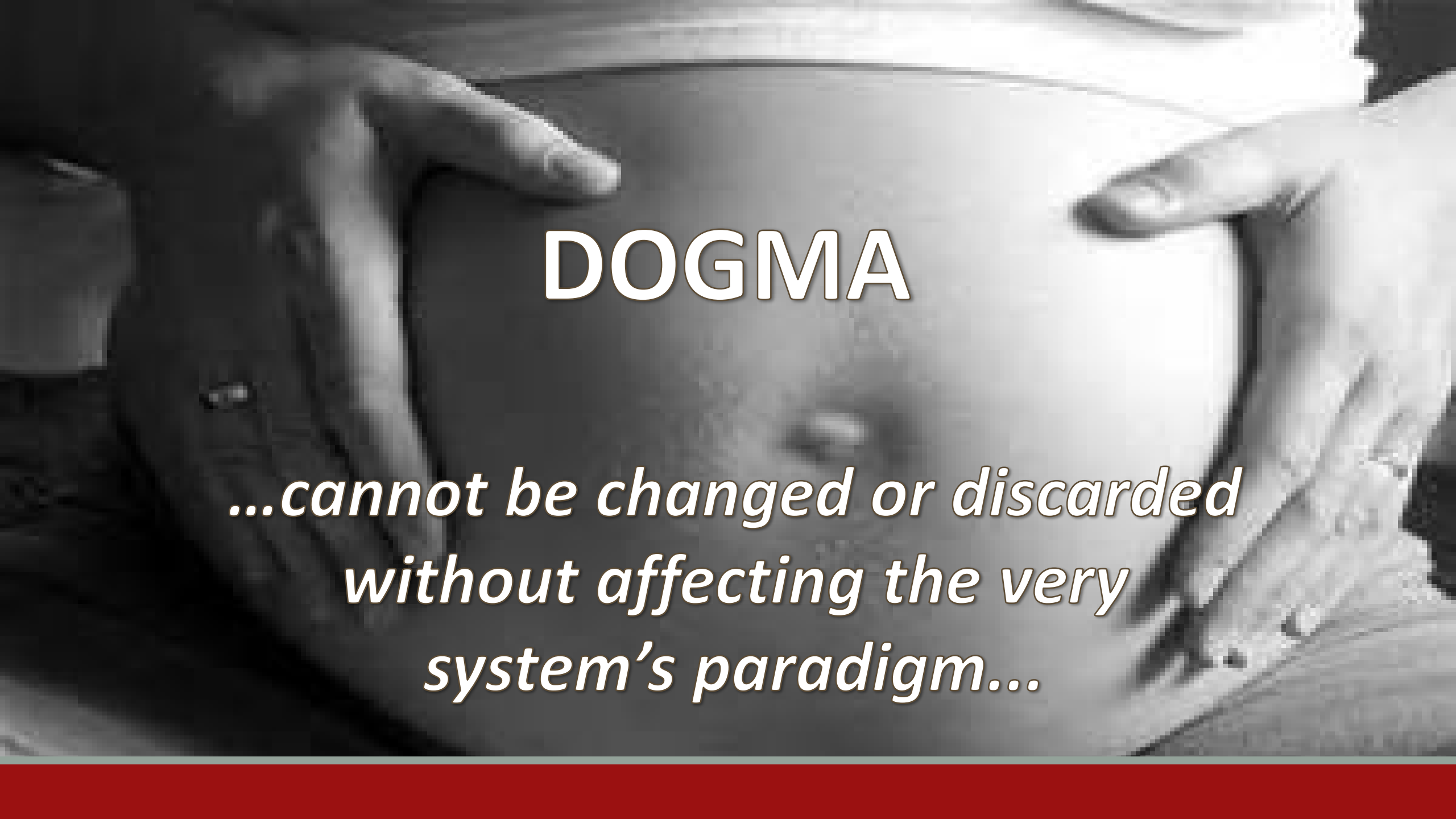
Dowswell et a. Alternative versus standard packages of antenatal care for low-risk pregnancy. Cochrane Database of Systematic Reviews 2015.

‘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

‘One Size Fits All’ Prenatal Care

- Concerns have limited widespread use of a reduced prenatal care visit model
  - Patient satisfaction
  - Fear of liability
  - Obstetric dogma


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

How do you move toward an evidence-based prenatal care model with fewer visits but retain patient and provider satisfaction?

What baby step can we take?

The New Modern

- **Telemedicine Prenatal Care Programs**
  - Reduce the number of face-to-face visits, but keep a similar number of contacts with a provider for satisfaction
  - Face-to-face visits provide “goal-oriented visits”
    - Labs, ultrasound, physical exam

Mayo Clinic OB Nest Program

University of Utah Health Virtual Prenatal Care Program

Comparison of Randomized Trials of Telemedicine for Prenatal Care

	Mayo Clinic OB NEST	University of Utah Health Virtual Prenatal Care
Enrollment	**300**	**200**
Subjects	**Low-risk, excluding all medical comorbidities**	**Low-risk, excluding all medical comorbidities**
Parity	**Primiparas or multiparas**	**Limited to multiparas**
Usual care Face-to-face visits	**12-14 visits**	**12-14 visits**
Study group Face-to-face visits	**8 visits**	**5 visits**

Comparison of Randomized Trials of Telemedicine for Prenatal Care

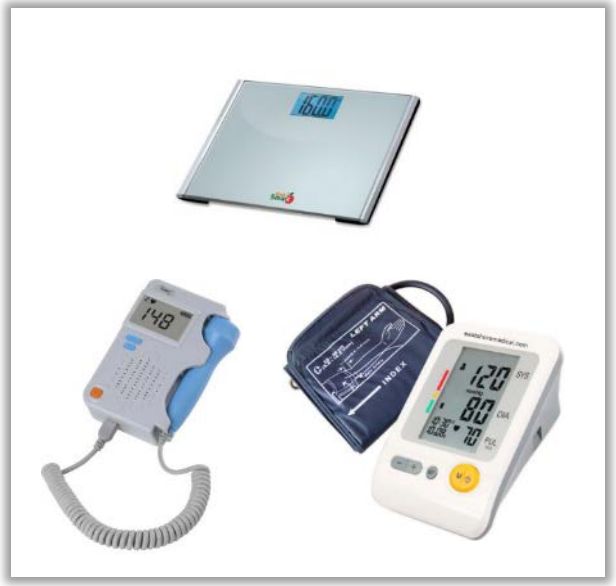
	Mayo Clinic OB NEST	University of Utah Health Virtual Prenatal Care
Telemedicine provider	**Study RN**	**Patient's physician or CNM**
Home monitoring		
Blood pressure	**Yes**	**Yes**
Fetal monitor	**Yes**	**Yes**
Weight	**No**	**Yes**
Access to online care (patient portal)	**Yes**	**Yes**
Intent to treat	**Yes**	**Yes**
Primary outcome	**Patient satisfaction**	**Patient satisfaction**

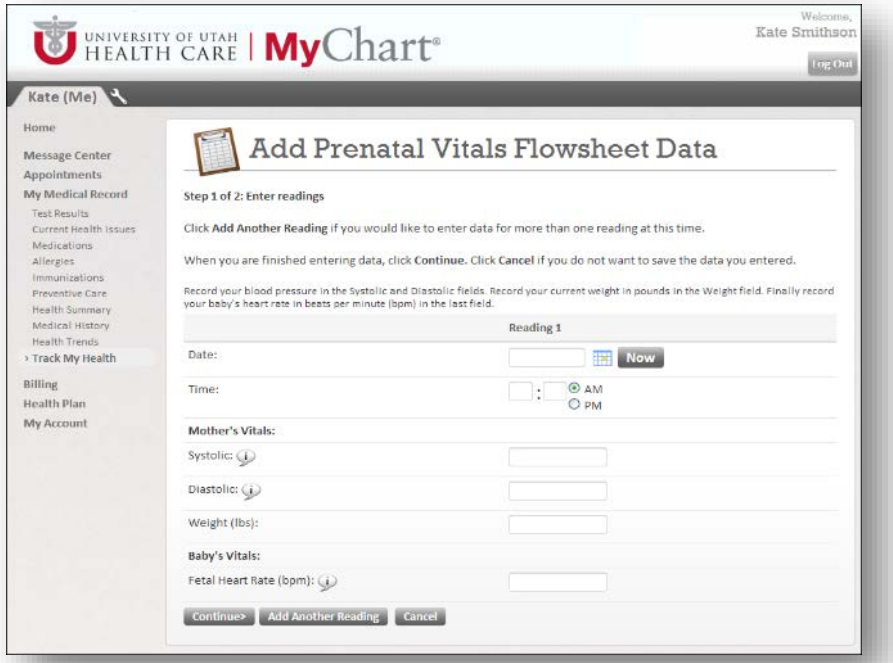
Clinic Schedule: Virtual Care Arm

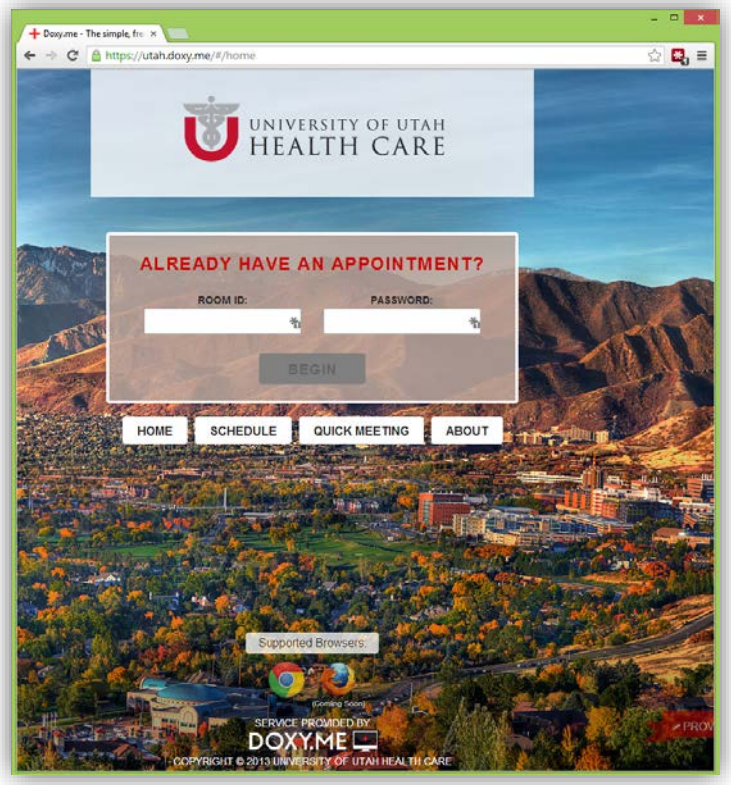
- 5 scheduled in-clinic visits
  - *Key time points for evidence-based interventions*
- Remaining visits virtual

First prenatal visit
16 weeks
20 weeks
24 weeks
28 weeks
30 weeks
32 weeks
34 weeks
36 weeks
37 weeks
38 weeks
39 weeks

Virtual Prenatal Care Strategy







Your Prenatal Care Visit Schedule

UNIVERSITY OF UTAH HEALTH CARE

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*

Visit Checklist

1- Before Each Visit
- ☐ Measure your blood pressure, weight & your baby's heart rate
- ☐ Record these measurements in MyChart (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

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Principle Investigator

Dr. Erin Clark

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

Preliminary Results of Randomized Trials of Telemedicine Prenatal Care

	Mayo Clinic OB NEST	University of Utah Health Virtual Prenatal Care
Mean # in-clinic visits	**9**	**7**
Total # visits	**11**	**12**
Patient satisfaction	**Improved satisfaction (77 to 95%)**	**Satisfaction not inferior (98% to 100%)**

- In-clinic visits were significantly reduced in both trials
- Mayo Clinic model introduced continuity into a system which had none
- University of Utah model retained continuity

Preliminary Results of Randomized Trials of Telemedicine Prenatal Care

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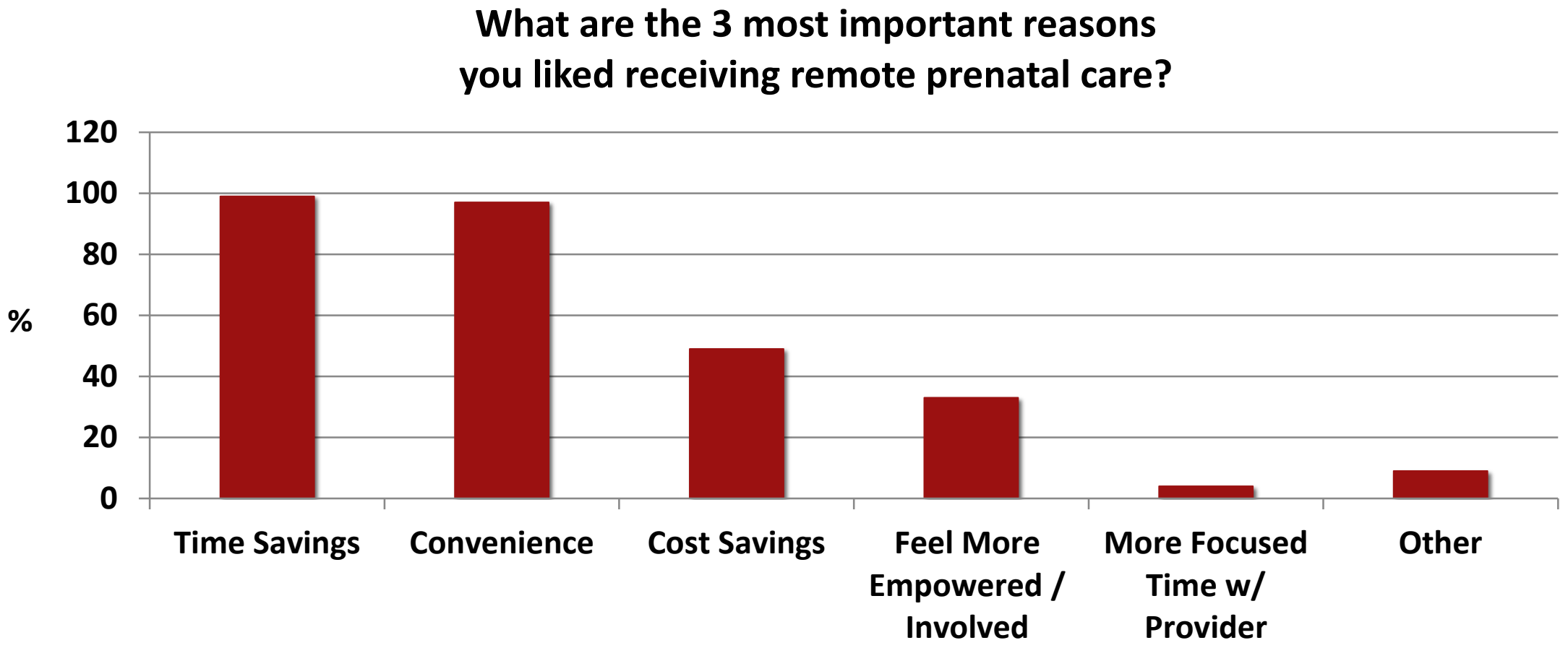
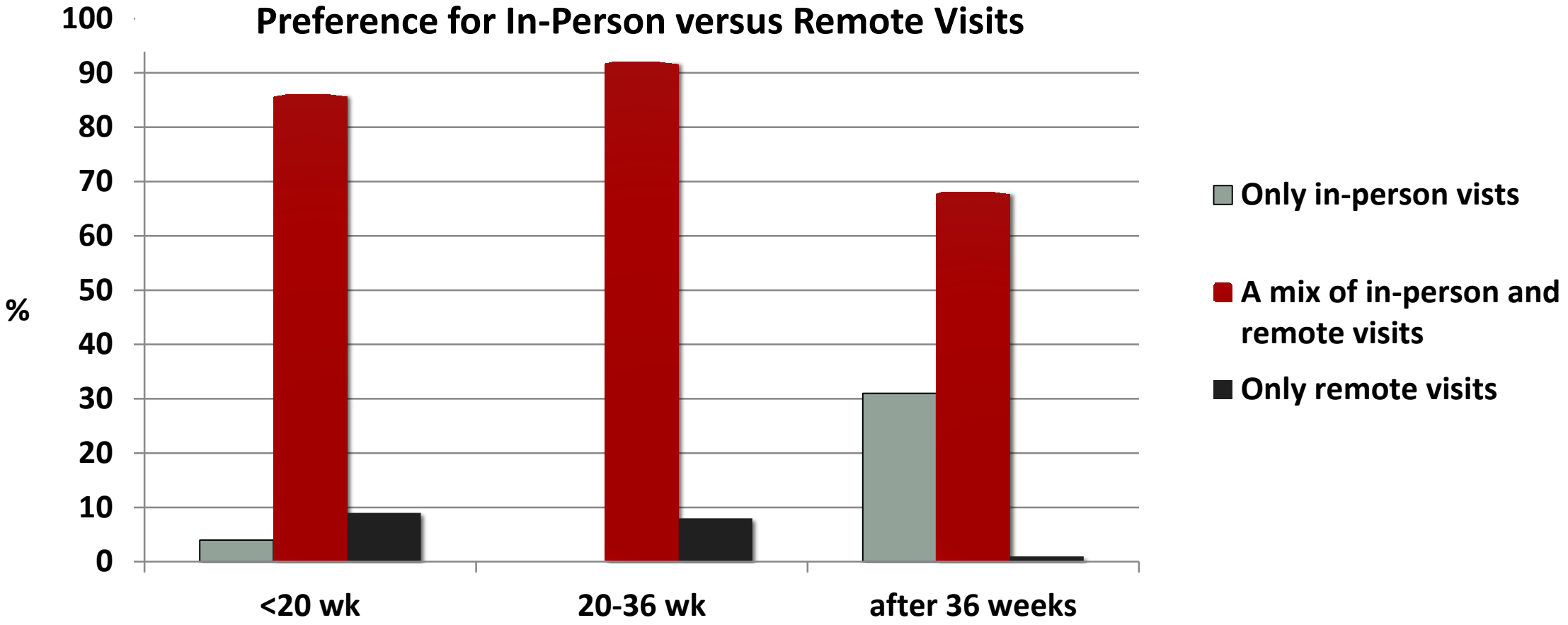
Mean # in-clinic visits	**9**	**7**
Total # visits	**11**	**12**
Patient satisfaction	**Improved satisfaction (77 to 95%)**	**Satisfaction not inferior (98% to 100%)**

- No difference in perceived quality of care
- No difference in unplanned visits
- No change in maternal or fetal outcomes (underpowered for this outcome)

Virtual Prenatal Care Patients



Virtual Prenatal Care Patients



The New Modern

- **Remote prenatal monitoring with digital health tools**
  - New companies are marketing platforms that assist healthcare organizations in delivering remote prenatal care
    - Goal to reduce the number of visits while keeping patient satisfaction high
    - Create capacity for new patients in order to justify the investment

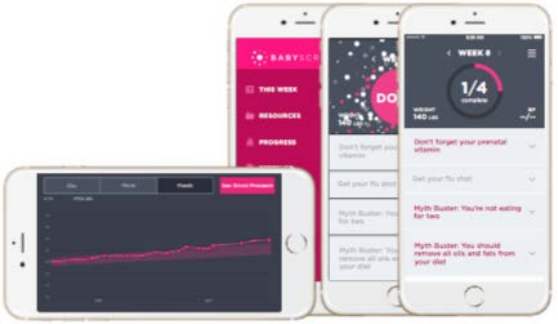
The New Modern

- **Remote prenatal monitoring with digital health tools**
  - Mobile app with cloud
    - Your branding
    - Gestational age specific educational content
    - Scheduling visits and appointment reminders
    - Blood pressure and weight tracking
    - Population Health Dashboard to facilitate care management
    - Purchase functionality in modules
      - Basic care navigation, hypertension, diabetes, postpartum

BABYSCRIPTS™

The New Modern

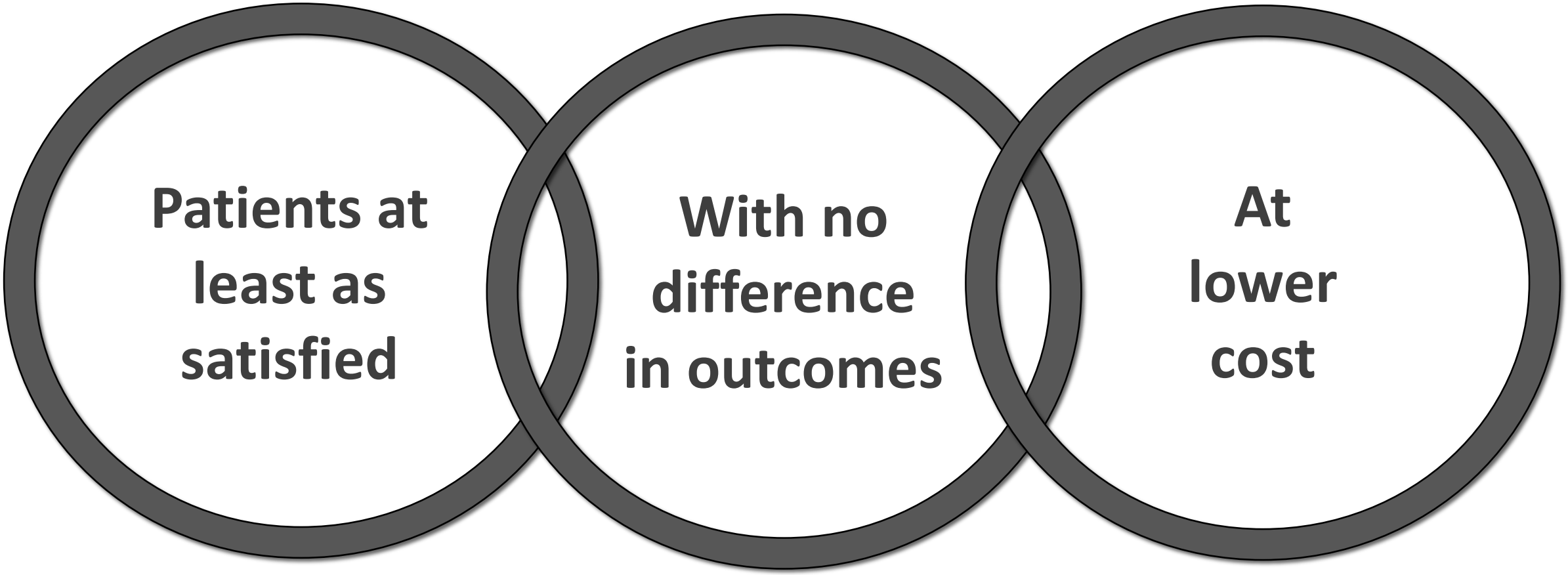
- **Remote prenatal monitoring with digital health tools**

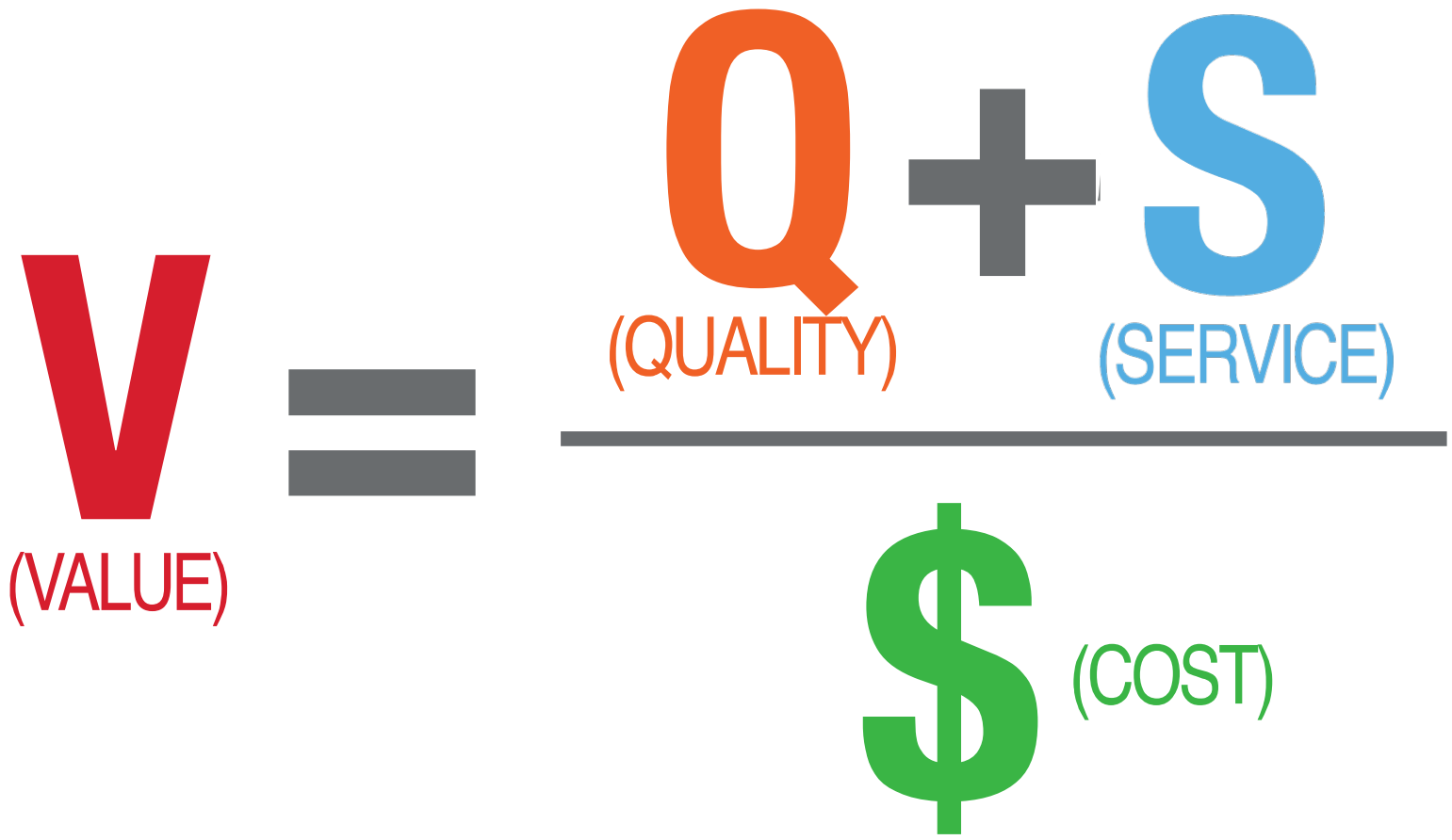


Marko et al. Remote Prenatal Care Monitoring With Digital Health Tools Can Reduce Visit Frequency While Improving Satisfaction. Obstet Gynecol 2016;357:1565-70 (abstract)

Lessons Learned

- Women like these models of prenatal care
- They are willing to use new technology and they learn it easily
- MOST women already have the requisite technology
- Home Dopplers are not the problem that people feared
- Physician acceptance and adoption was the biggest hurdle
  - Baby steps to adoption were important
  - Once adopted, provider and staff satisfaction is high


Patients at least as satisfied
With no difference in outcomes
At lower cost

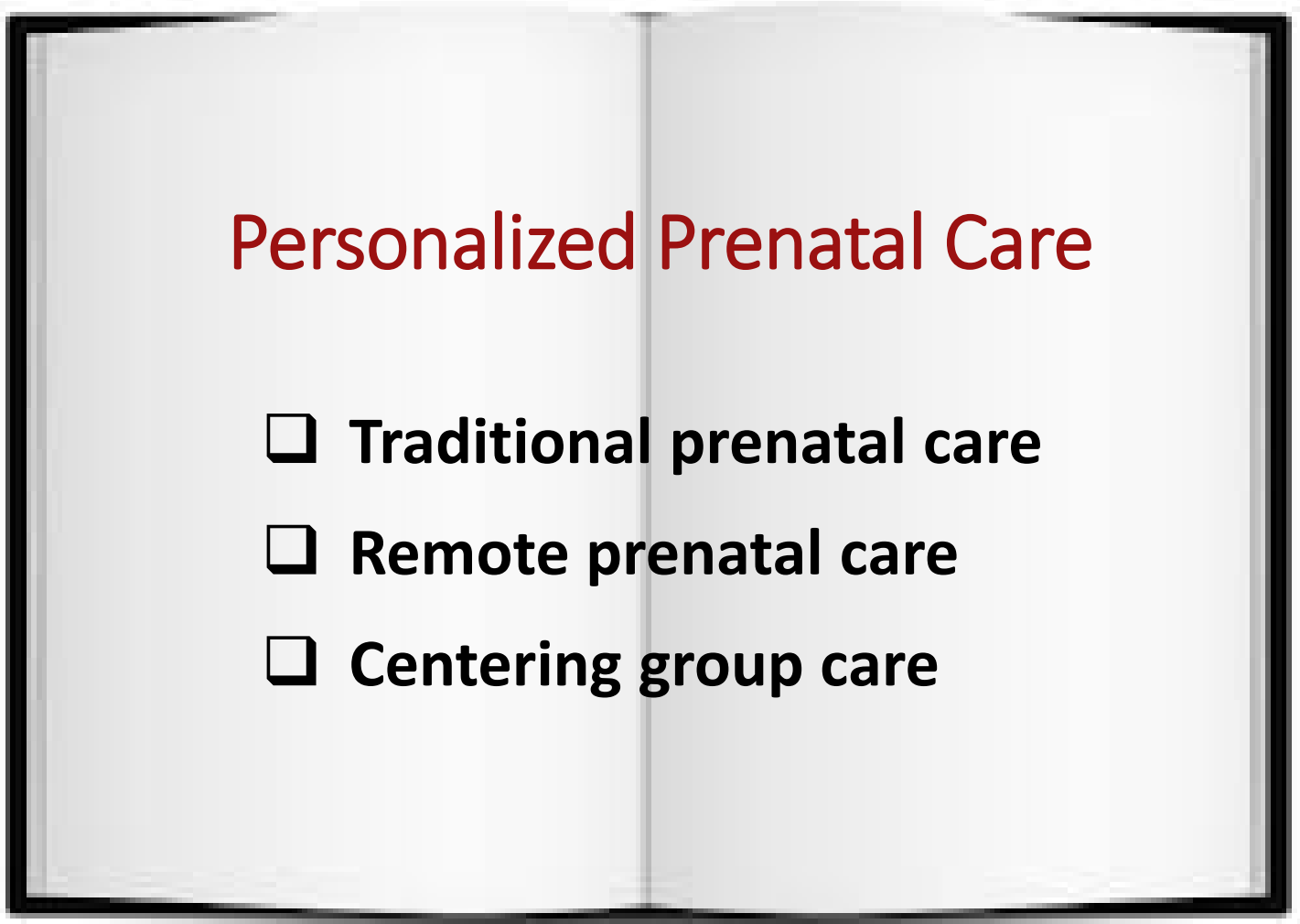

V
(VALUE)
=
Q
(QUALITY)
+
S
(SERVICE)
$
(COST)

Why would you want to tackle this?

- It’s a market differentiator
  - Innovative, novel
  - Patient-centered care
  - Choice

Choice is important in patient satisfaction

“Menu” of safe options for prenatal care



Why would you want to tackle this?

- It’s a market differentiator
  - Innovative, novel
  - Patient centered care
  - Choice
- Potential to increase capacity
- Population management

Opportunities

- Cost-effectiveness analyses & financial model?
- Novel strategies for a higher risk obstetric population
- Population strategies for those without the technology
- Reduce disparities in care for rural and remote patients
  - U.S. population: 19% rural*

***2010 U.S. Census**

So you really want to do this...

- University of Utah Health Virtual Prenatal Care went live 2/2018
- Requires:
  - Institutional / hospital / clinic support
  - Talented and committed IT team if you are trying to change the EMR
  - Plan and program to distribute devices
  - Patient-facing materials; team-training materials
  - Enthusiastic and available team to train all staff to do their roles: MAs, nurses, physicians and trainees


GB USA MEX
ONE SIZE
DOES NOT
FIT ALL
Von links bügeln/ Iron inside out
repasser sur l'envers

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.