

Prenatal Care Redesign:

Creating flexible maternity care models for the future

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Chair, ACOG Redesigning Prenatal Care Initiative

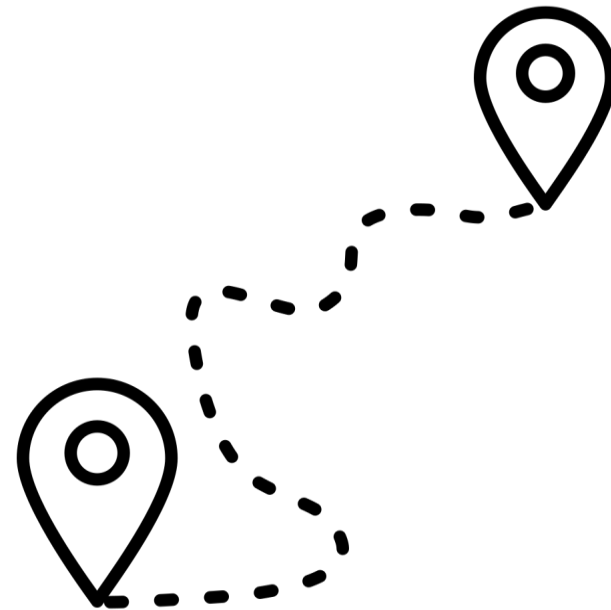


Disclosures

Dr. Peahl is a paid consultant for Maven Clinic.

Today's PATH:

1. A personal story
2. What vs. How
3. How to redesign (prenatal) care delivery
 - Gather evidence and knowledge
 - Develop guiding principles
 - Generate expert guidance
 - Incorporate public comment



A personal story

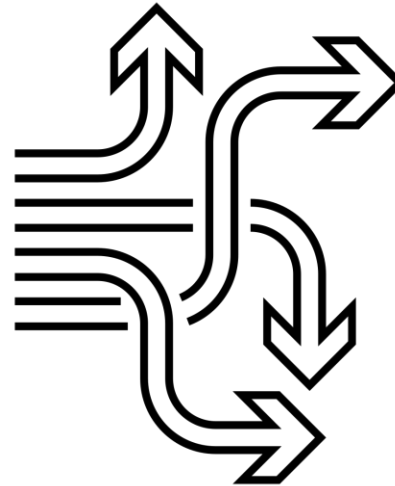
A personal story



Health care is complicated...

**Evidence-based
standard of care**

Same, high-quality
services for every
patient, every time



**Tailored to individual people and
their circumstances**

Dynamic people,
conditions, and
situations

...especially in Women's Health, where physical conditions create a ripple of psychosocial effects.

**Drastic Physical
Changes**

**Loss of
usual function**

**Increased health
system contact**

**Change in
identity**

**Significant educational
Burden**

**Critical need for non-
medical support**

Health care can be separated into two key components:

“WHAT”

Health care services

The different elements of care provided to patients including screenings, management, and treatment

“HOW”

Health care delivery

The way healthcare is administered, including visit frequency, modality, and support services

Today's goal: inspire YOU to incorporate care delivery redesign in your practice

“WHAT”

“HOW”

Prenatal Care

Postpartum Care

Contraception

Oncology

Incontinence

**Abnormal Uterine
Bleeding**

WHAT vs. HOW

“WHAT”



“HOW”



“HOW”



Milkshake



**Banana
split**



**Ice cream
truck**



**Home
freezer**

Ice cream vs. prenatal care delivery.

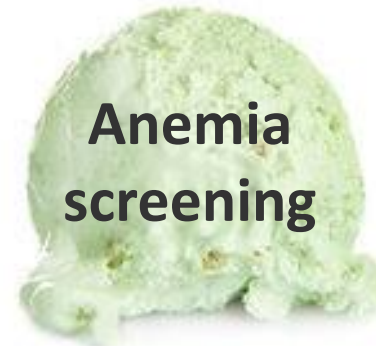
“WHAT”



“HOW”



“WHAT”



“HOW”

Sweden



**8-9 in-person
visits**

United States



**12-14 in-
person visits**

“HOW”



**Group
prenatal care**



**Care
coordination**



**Local clinics
and care
delivery**



**Telemedicine
and home
monitoring**



Chocolate
Flakes

Publix
WHIPPED
lightcream
SWEETENED
MADE IN PASTEURIZED

Coconut

Granola

Pretzels

Candied
Almonds

Strawberries

Mixed
Berries

Bananas

Ice Cream Bar

Coffee

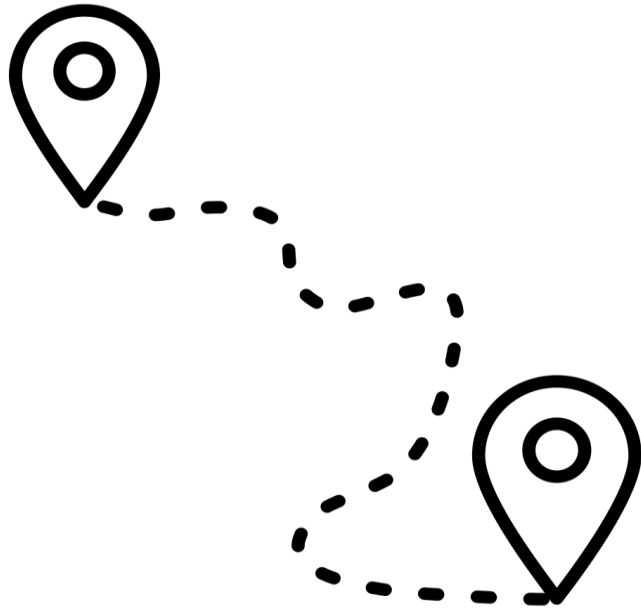
Salted
Caramel

Mint
Chocolate

Chocolate

Vanilla

Our roadmap for care redesign



1. Gather evidence and knowledge
2. Develop guiding principles
3. Generate expert guidance
4. Incorporate public comment

Gather evidence and knowledge



WHAT is prenatal care?

One of the **most common preventive care services** in the world that aims to **improve the health** of pregnant patients and their children each year through:



1. Medical screening & treatment



2. Anticipatory guidance



3. Psychosocial Support

Evidence supports aspects of both prenatal care services and care delivery

“WHAT” = Services



“HOW” = Delivery



“WHAT”



Prenatal care delivery has remained largely unchanged over the past century (HOW)

1

Prenatal visit frequency

2

Prenatal visit modality (telemedicine)

3

Integration of non-medical care

Evidence on prenatal care delivery is growing (HOW)

1

Prenatal visit frequency

2

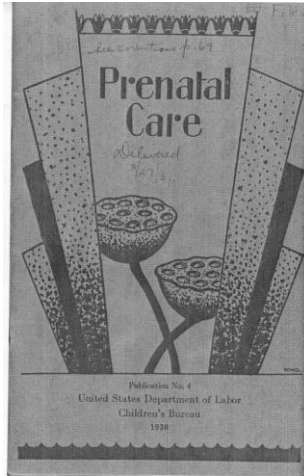
Prenatal visit modality (telemedicine)

3

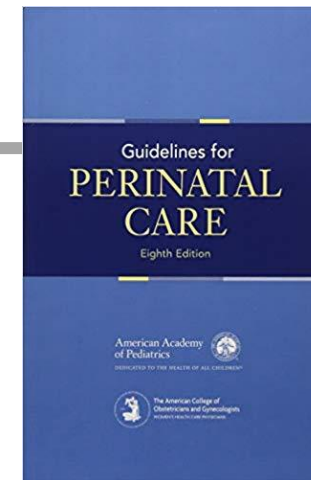
Integration of non-medical care

Prenatal care delivery guidelines in the United States have remained the same since 1930

1930:
Children's
Bureau



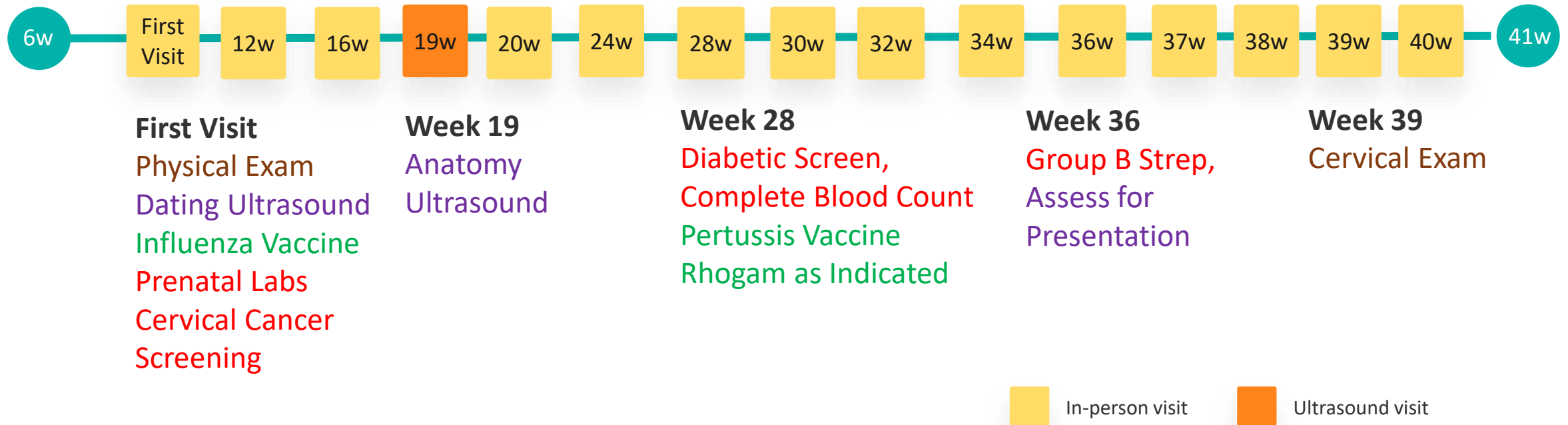
2017:
ACOG's most
recent
guidelines



Frequency

Typically, a woman with an uncomplicated first pregnancy is examined every 4 weeks for the first 28 weeks of gestation, every 2 weeks until 36 weeks of gestation, and weekly thereafter. Women with medical or obstetric

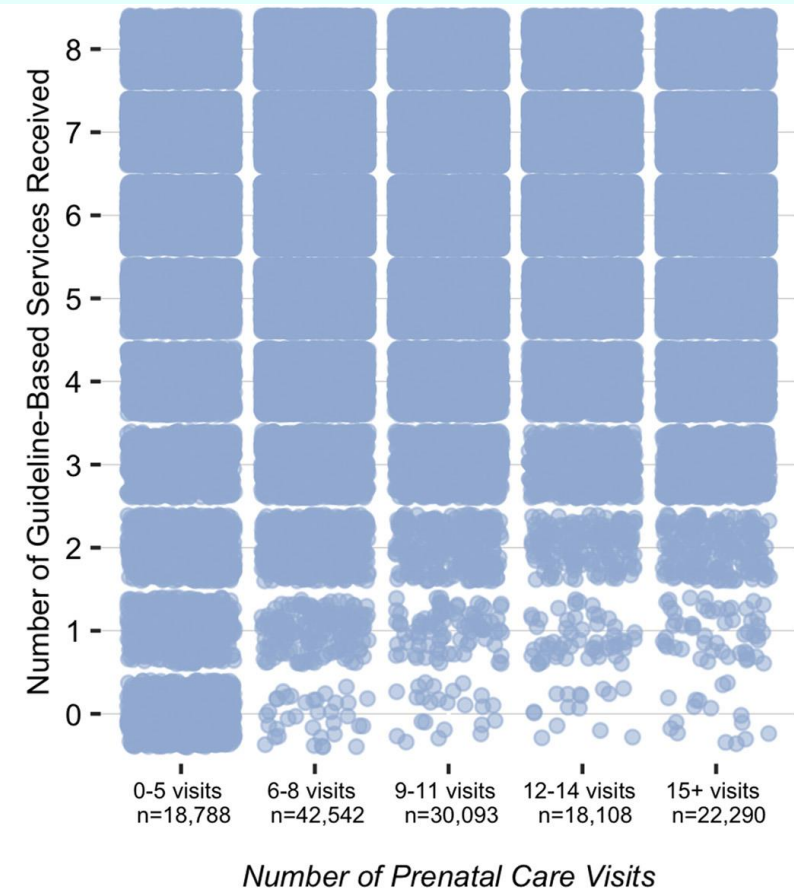
Traditional prenatal care delivery in the U.S. includes >40 hours of care for patients without risk-factors



Quantity of prenatal care does not always reflect quality.

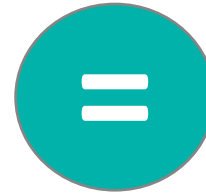
After a threshold of 5 visits, more prenatal visits were not associated with increased guideline-based services*.

***Testing for STI, OB laboratory panel, Urinalysis, Urine Culture, Anatomy US, Oral GTT, TDap, GBS**

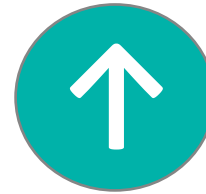


More visits may be associated with harms.

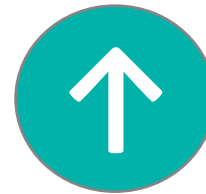
**In low-risk patients,
>10 vs. <10 prenatal
visits was
associated with:**



**Equivalent neonatal
outcomes**



**Increased induction of
labor**



**Higher cesarean birth
rates**

Three reviews show equivalent maternal & neonatal outcomes with reduced visit schedules

**Dowswell
2015**



Systematic Review
>5000 high-income
patients
7 studies

**Barrera
2021**



Rapid Review
>17,000 low-risk
patients
8 studies

**AHRQ
2022**



Systematic Review,
> 14,000 low-risk
patients
10 studies

Evidence from 5 RCTs and 5 NRCTs suggests equivalent outcomes for reduced vs. traditional visit schedules

Moderate evidence

- = Gestational age at birth
- = Small for gestational age
- = Abnormal APGAR
- = NICU admission

Low evidence

- = Maternal anxiety
- = Preterm birth
- = Low birth weight

Qualitative evidence

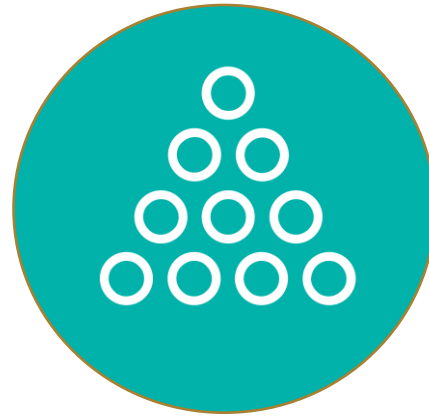
Providers believe fewer visits may be more convenient for patients and scheduling

Providers have concerns about “lesser care”

To summarize: prenatal visit frequency



Less is more



**Quantity does not
equal quality**



**Exact number
remains unknown?**

Evidence on prenatal care delivery is growing (HOW)

1

Prenatal visit frequency

2

Prenatal visit modality (telemedicine)

3

Integration of non-medical care

Telemedicine is an emerging pathway for care delivery.

Telemedicine visits

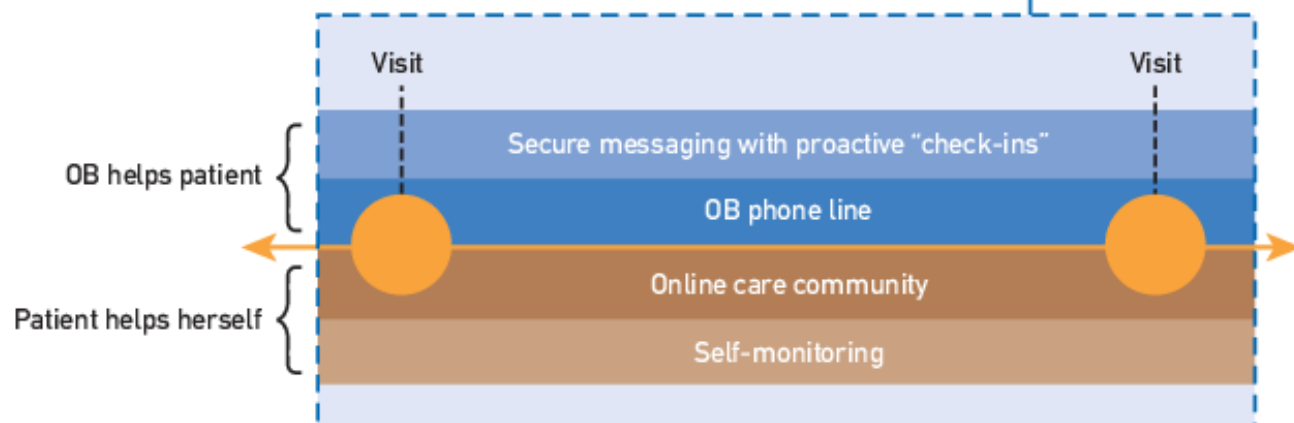
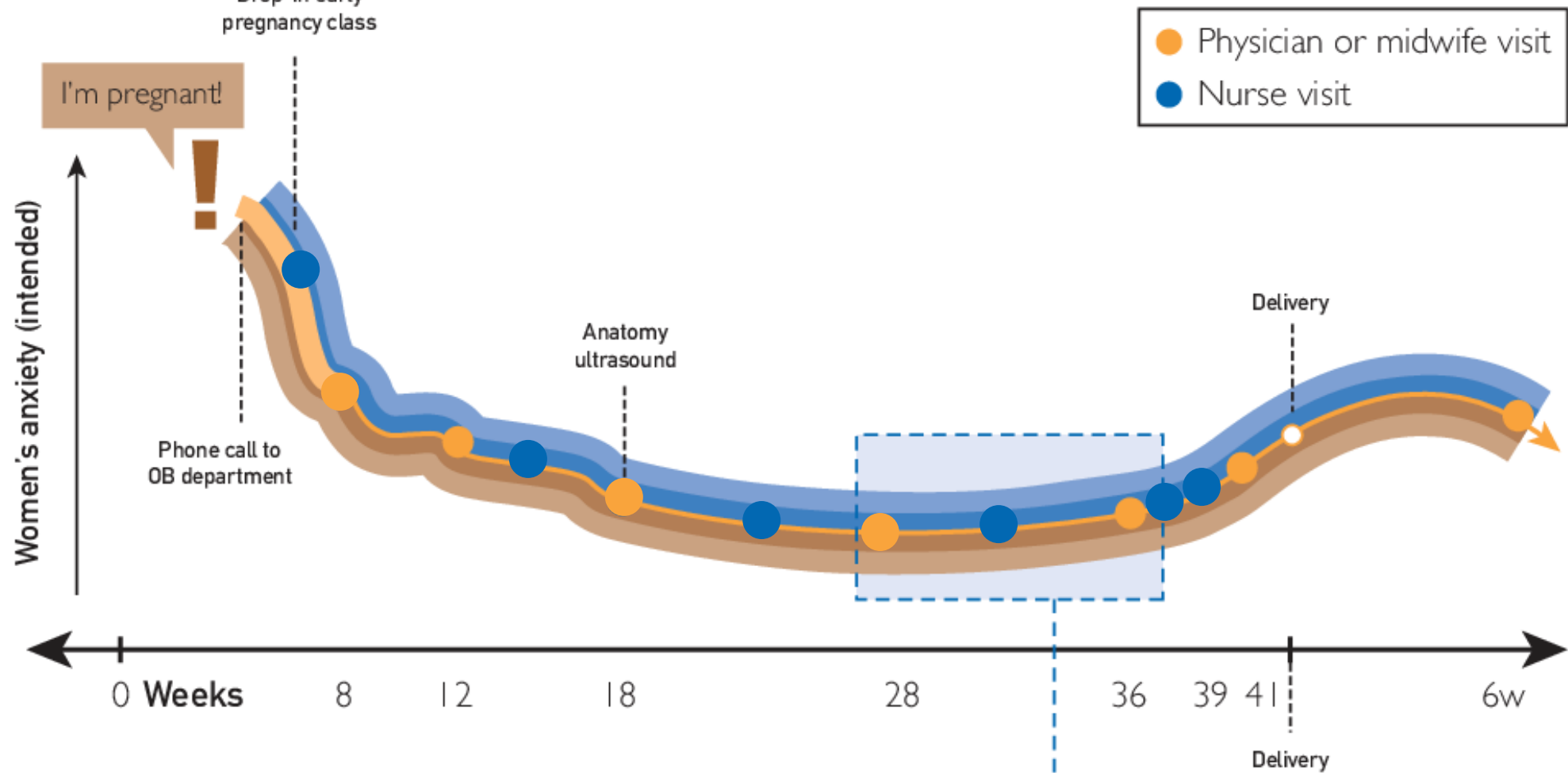
Allows care to be delivered more conveniently for the patient.

- Combination of in-person and telemedicine visits
- May include additional wraparound services with routine care

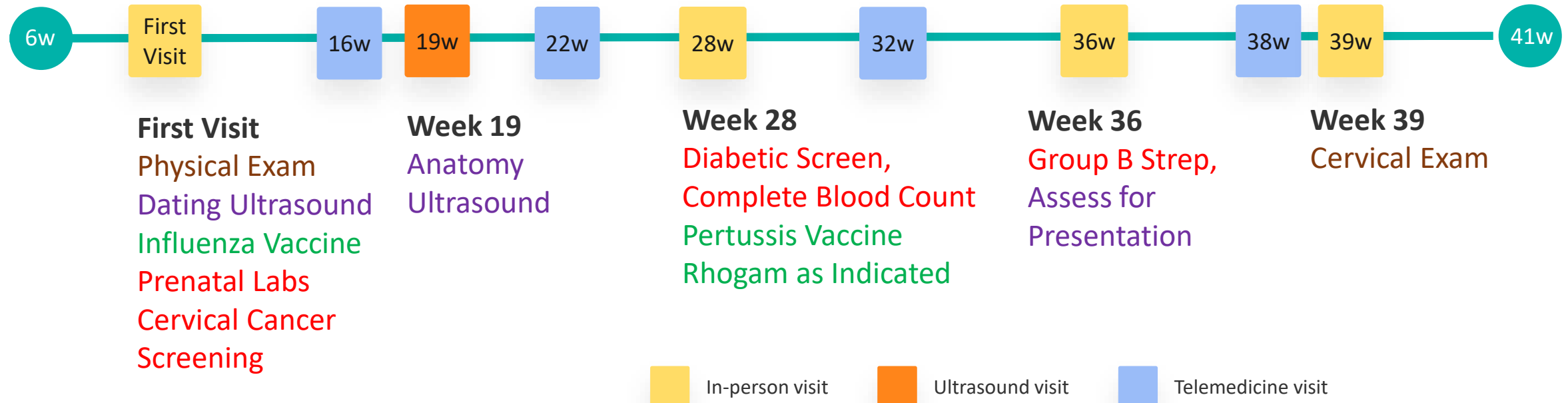
Remote Monitoring

Allows for data collection outside of clinic with equal or increased frequency

- Blood pressure
- Fetal heart tones
- Weight
- Fundal height
- Blood sugar
- Symptoms
- Home ultrasound
- Non-Stress test



During the COVID-19 pandemic, many institutions implemented hybrid prenatal care models



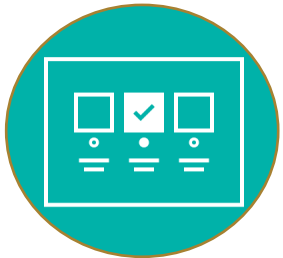
Key lessons from implementing hybrid prenatal care:



Quality must be the same across modality.



Patients and providers need preparation.



Patient preference is critical.

Evidence from 6 studies suggests equivalent outcomes for hybrid (telemedicine) vs. in-person only visits

Low evidence

- = Preterm births
- = NICU admissions
- ↑ satisfaction with hybrid visits

Qualitative evidence

Patients and providers are open to hybrid models of care

Patients and providers expressed concerns about quality of care

To date, telemedicine for high-risk patients has been limited to monitoring and consultation

Blood Glucose Monitoring

Blood Pressure Monitoring

High-risk consultations



- Feasible
- Accurate
- Reduced clinic utilization
- Improved outcomes in select patients

To date, telemedicine for high-risk patients has been limited

Limited uptake of
hybrid prenatal
care models



- Home NST
- Home AFI
- Concern about patient complexity

New innovations may make hybrid prenatal care models more available for high-risk patients



**Connected devices
for vitals.**



**Home
cardiotocography.**



**Home guided
ultrasound.**

To summarize: hybrid prenatal care



**Emerging
supporting data in
low-risk patients.**



**Patient preference
and selection is
key.**



**New technologies
are promising for
high-risk patients**

Evidence on prenatal care delivery is growing (HOW)

1

Prenatal visit frequency

2

Prenatal visit modality (telemedicine)

3

Integration of non-medical care

Medical care is just one part of prenatal care delivery



1. Medical screening & treatment



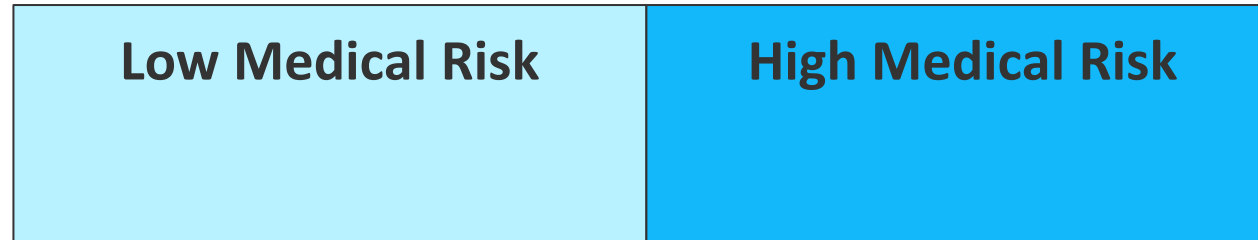
2. Anticipatory guidance



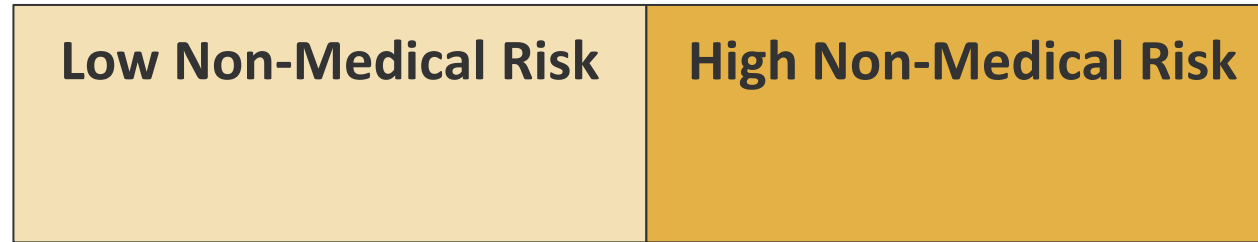
3. Psychosocial Support

>40% of health outcomes are attributable to **non-medical factors**, like education, socioeconomic status.

Traditionally, we consider medical risk in pregnancy.



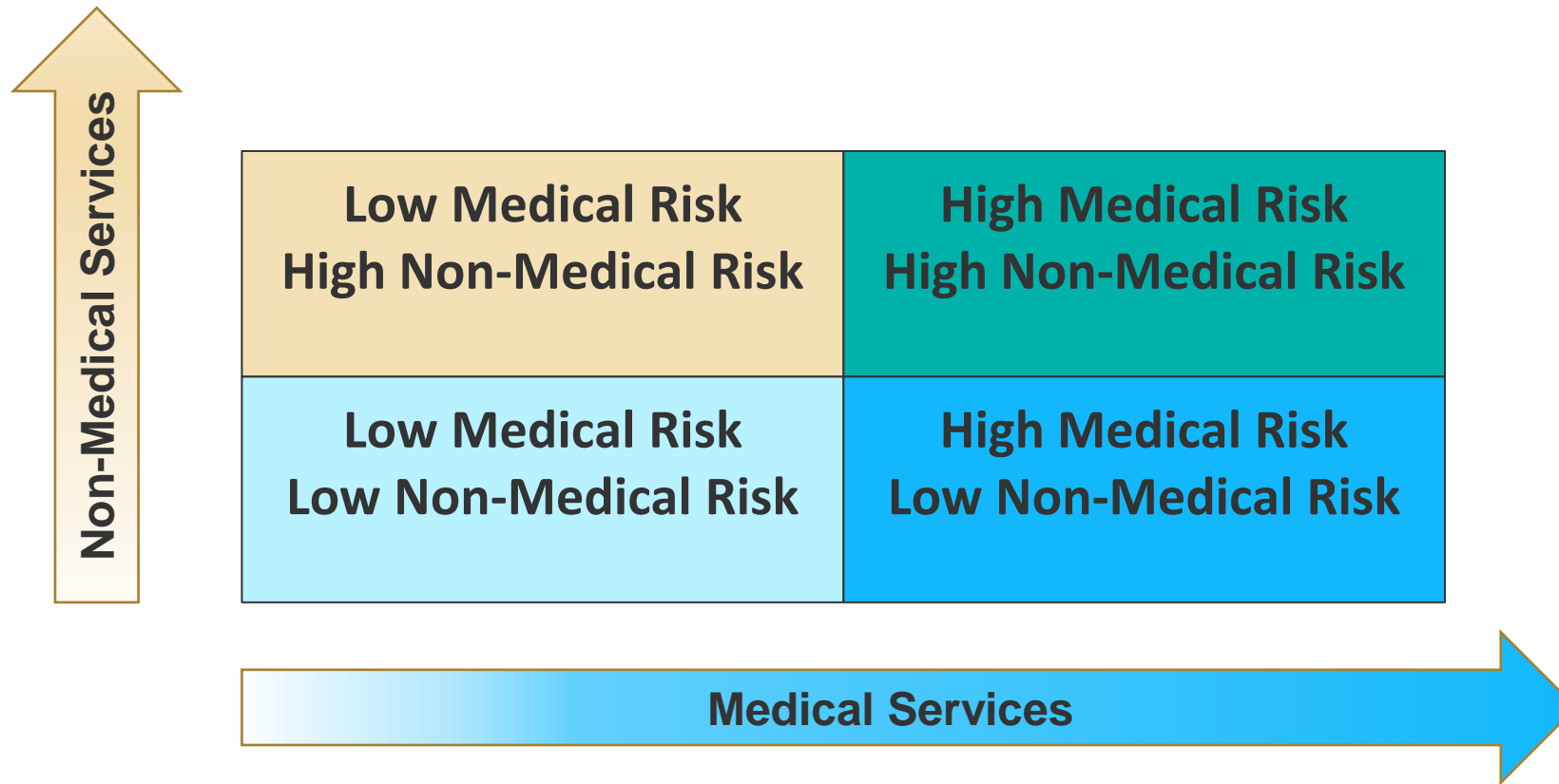
But non-medical risk factors play a critical role in patients' access to care and health outcomes.



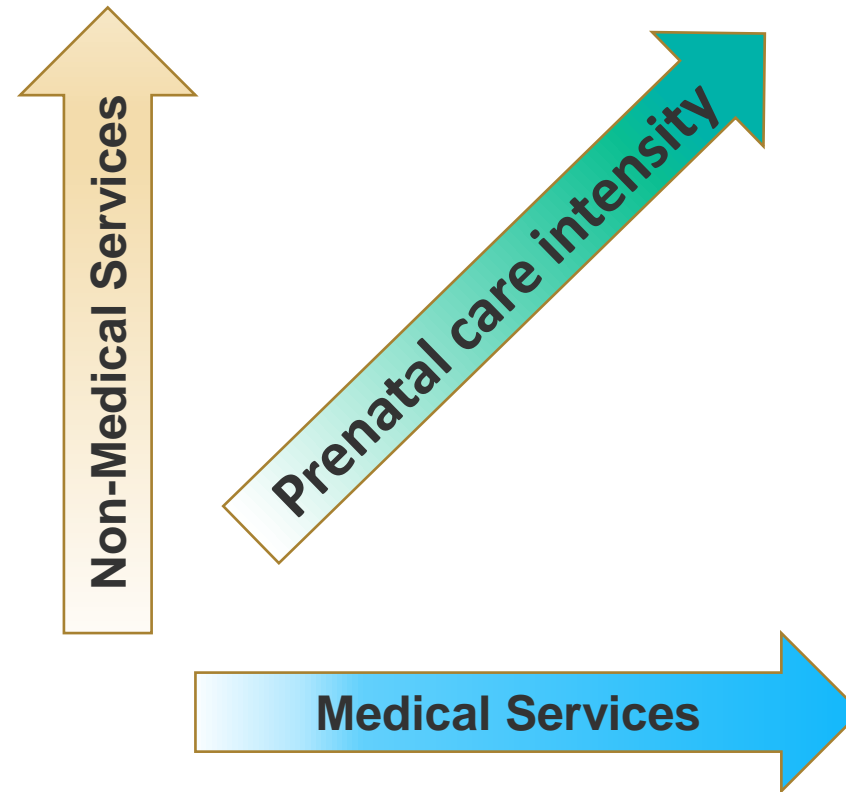
Four patient basic patient types emerge

Low Medical Risk High Non-Medical Risk	High Medical Risk High Non-Medical Risk
Low Medical Risk Low Non-Medical Risk	High Medical Risk Low Non-Medical Risk

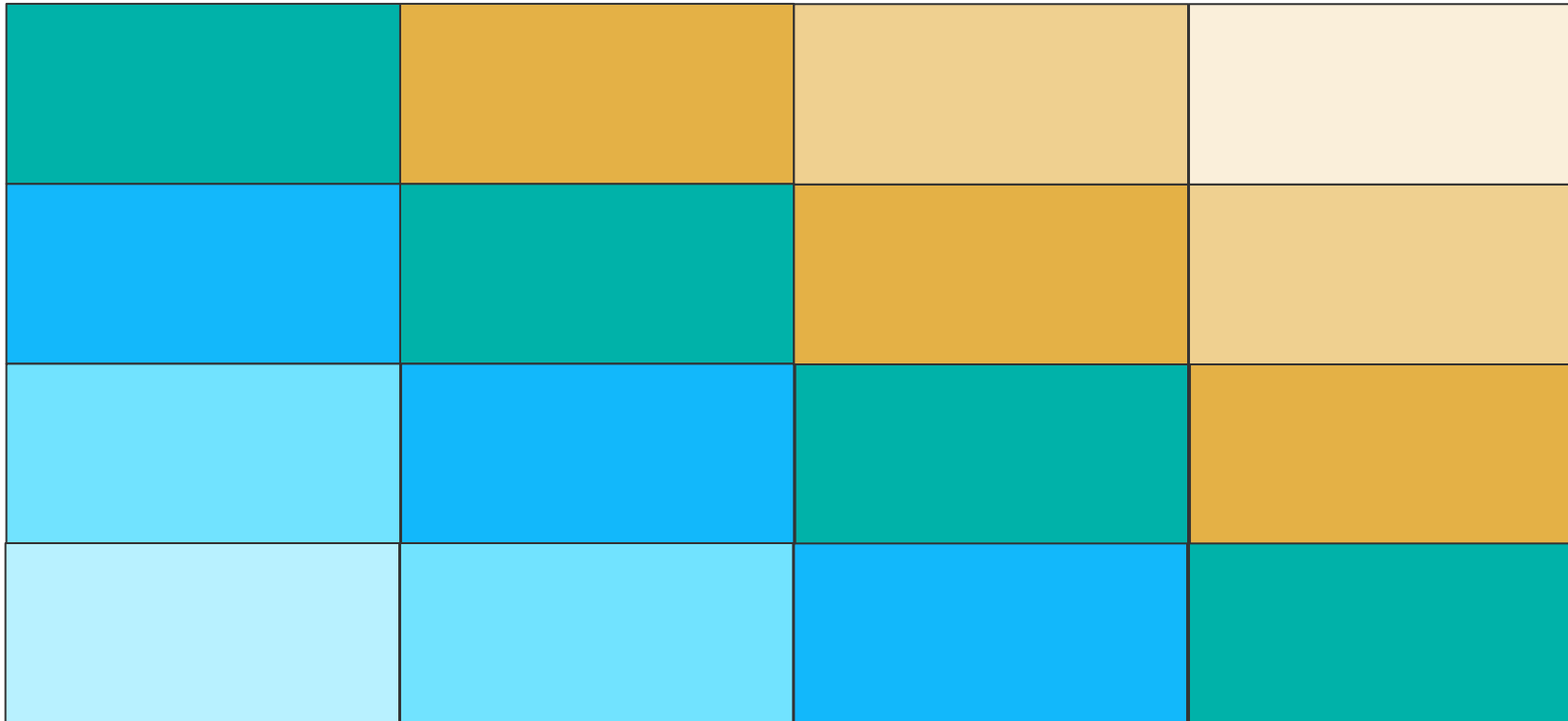
Ideally, the intensity of care delivery can match patients' needs.



Patient needs should guide recommended services



In reality, this is much more complicated.



Variety of needs to
be addressed:

Medical
Social Support
Material Needs
Education

Non-medical needs can be met with supplemental services...

- Apps
- Peer support
- Social workers

...or novel care delivery models.

- Group prenatal care
- Home visiting
- Community-based clinics



The possibilities are endless



**Connected
care apps**



**Care
coordination**



**Local libraries
as care centers**



**Community
Health Workers**

Interventions have mixed data on pregnancy outcomes, patient experience, and health system costs.

Develop guiding principles



3 key principles emerge from existing knowledge of prenatal care delivery.

1

Essential Services

Let services guide prenatal care delivery frequency and modality

2

Non-medical needs

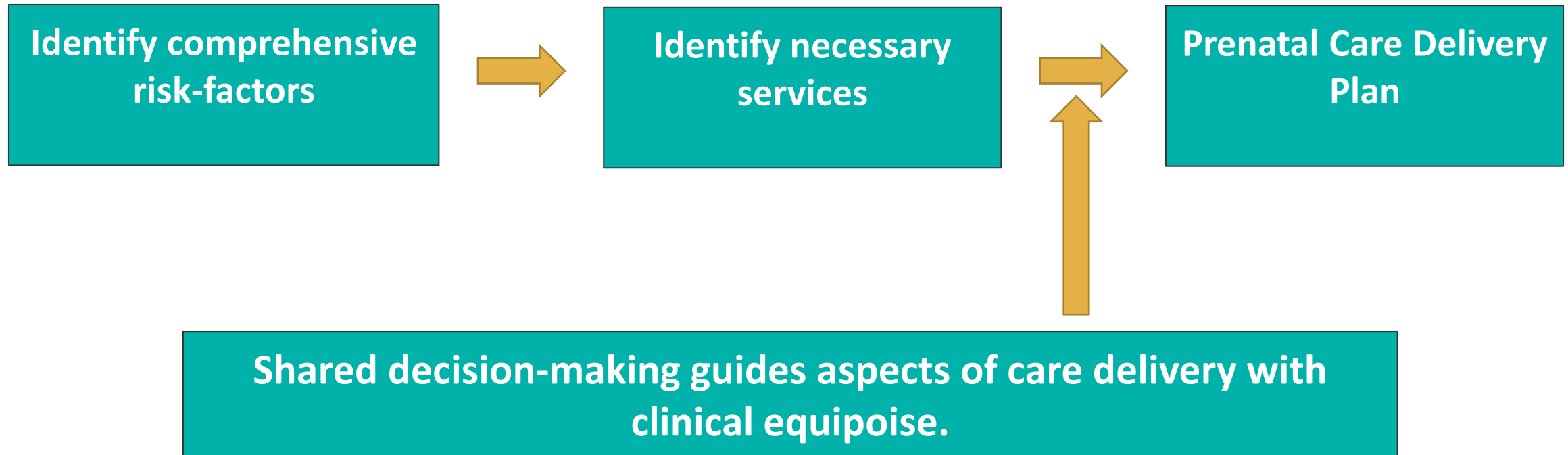
Ensure patients' social determinants of health are addressed

3

Clinical Equipoise

In areas of insufficient evidence, shared decision-making drives delivery.

Ideal prenatal care plans account for complex factors, including patient preference.



Generate expert guidance



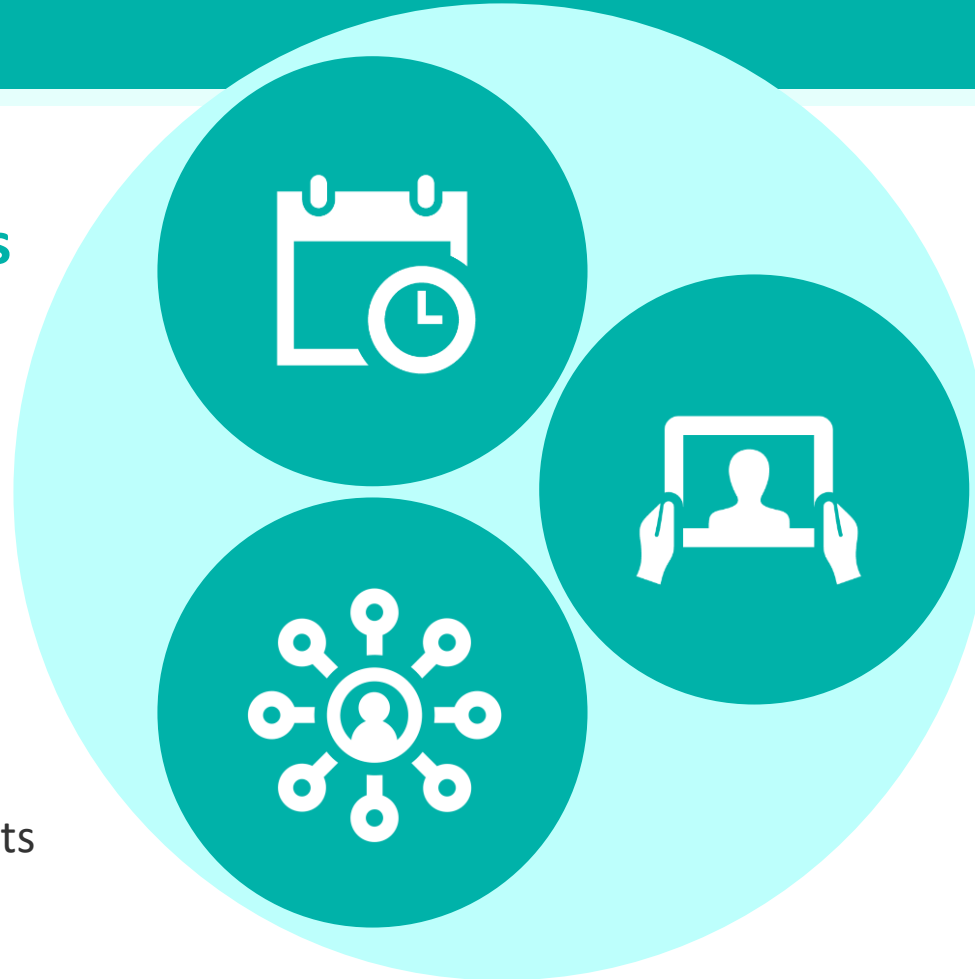
COVID-19 forced rapid changes in prenatal care delivery overnight

Reduced visit schedules

Focused on needed services

Awareness of gaps in non-medical services

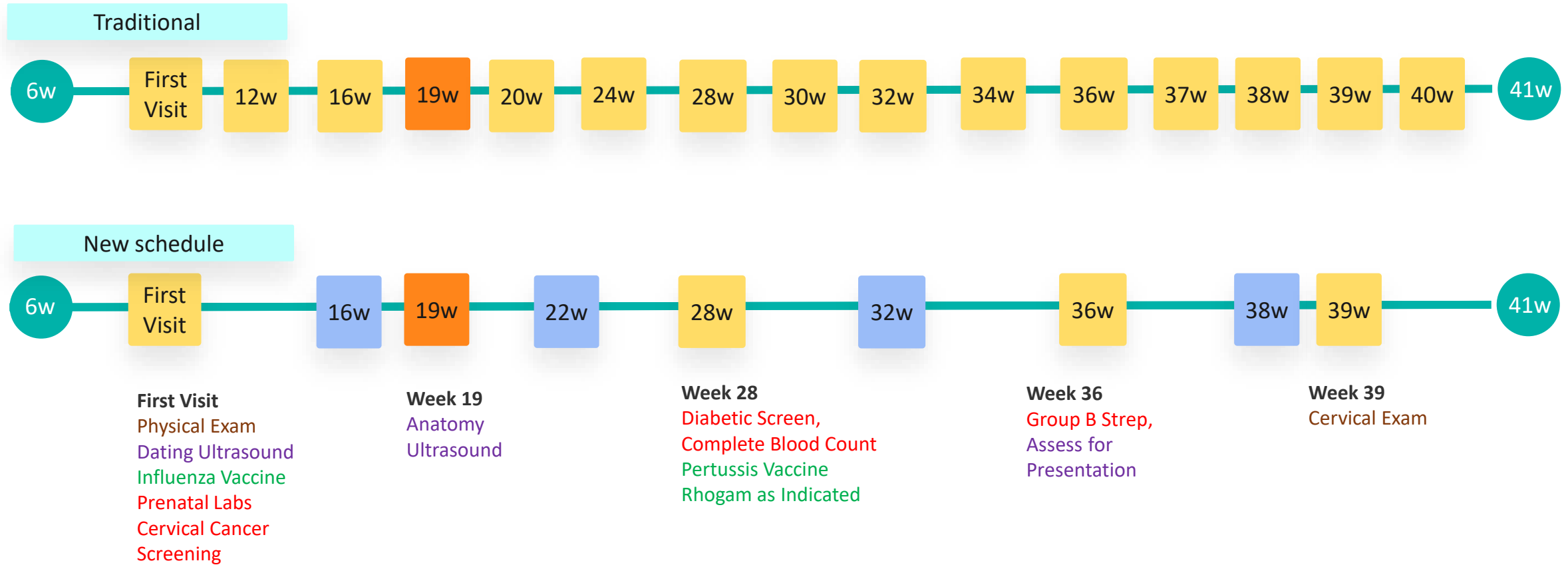
Poor attention to anticipatory guidance and social determinants



Telemedicine

Video visits and use of home monitoring devices

New care delivery models recommend the same prenatal services, just organized differently



The Plan for Appropriate Tailored Healthcare in pregnancy panel (PATH) was convened to rethink prenatal care



Goal: develop prenatal care delivery guidance for average-risk pregnant patients

The panel was led by a group of maternity care leaders and experts in consensus methodology.



Sean Blackwell,
MD



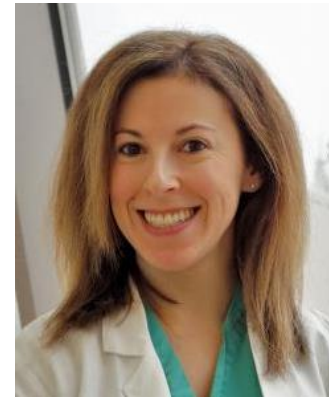
Wanda
Barfield, MD



Chris Zahn,
MD



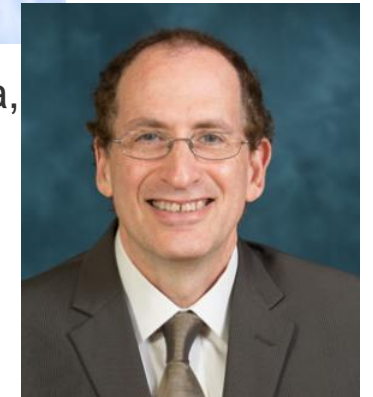
Mark Turrentine,
MD



Alex Peahl,
MD MSC



Vineet Chopra,
MD



Steven Bernstein, MD

The panel included 19 national maternity care and public health leaders and 2 patient representatives.

Jeffrey Bacon, DO

Tiffani Buck, MPH,
MS, ARNP-BC, RN

Yvonne Butler
Tobah, MD

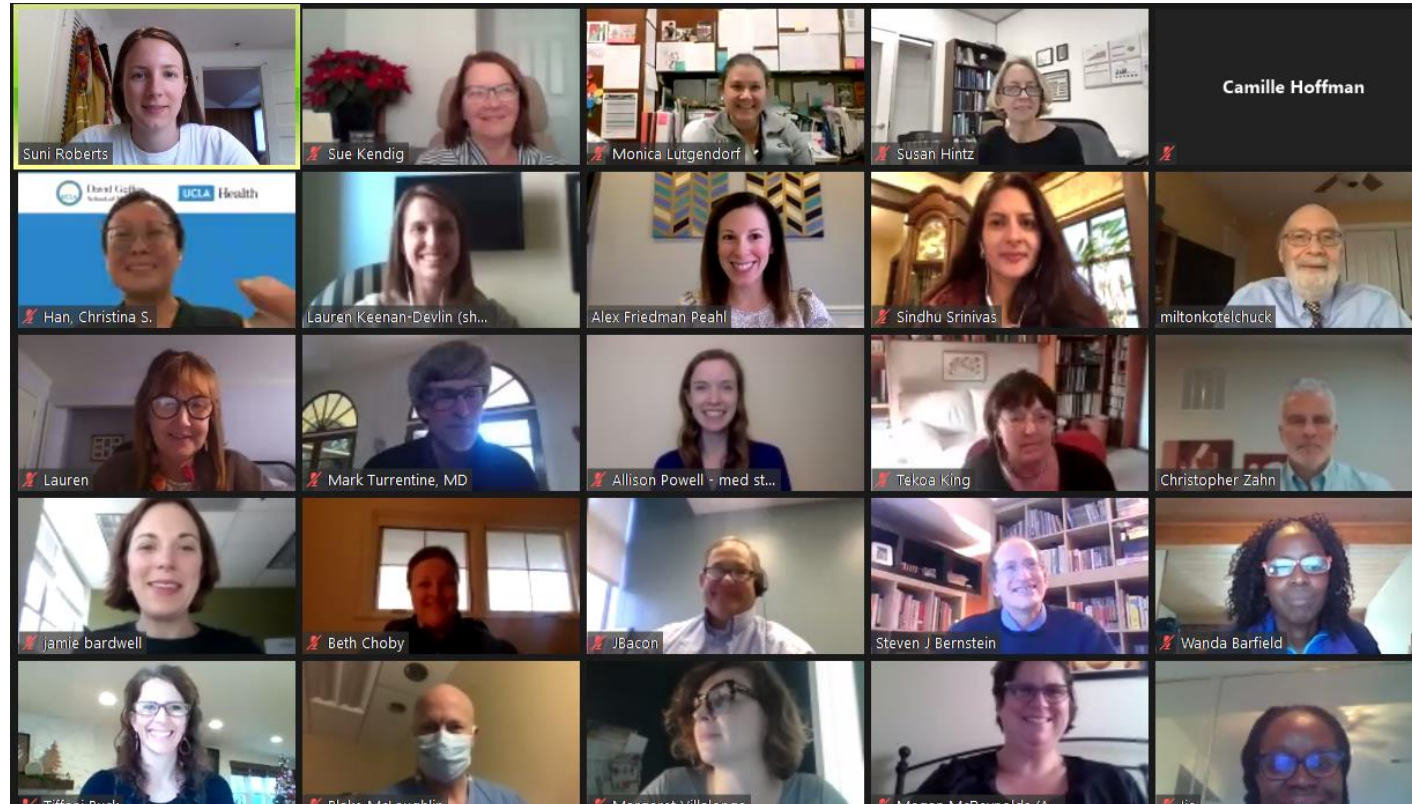
Beth Choby, MD

Joia Creer-Perry, MD

Lauren
Desmothenes, MD

Christina Han, MD

Susan Hintz, MD,
MD, Epi



Patient Reps: Jamie Bardwell, Lauren Keenan Devlin PhD MPH

Camille Hoffman, MD
MSc

Sue Kendig, JD WHNP-
BC, FAANP

Tekoa King, CNM MPH

Milton Kotelchuck, PhD
MPH

Monica Lutgendorf,
MD, CDR, MC, USN

Tiffany Moore Simas,
MD, MPH

Sindu Srinivas, MD
MSCE

The panel was also supported by a dedicated team of undergraduate, medical, and PhD students and fellows



Chloe Barrera,
MPH



Yoni Siden,
MPP



Allison Powell,
MD MSE



Suni Jo Roberts



Chloe Ramirez
Biermann, MD



Bradley Hartmann



Amara Khalid



Emma Lawrence, MD MSc



Buu-Haac Nguyen

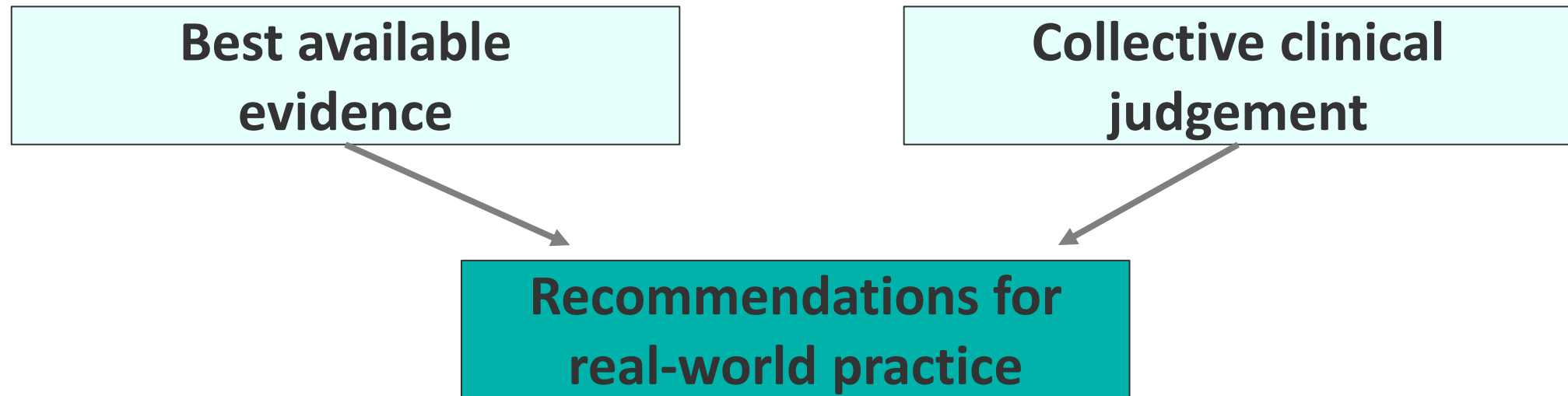
The RAND/UCLA Appropriateness Method was selected for developing new recommendations

Evidence-based, modified Delphi approach for deciding the *appropriateness* of care interventions, even when evidence is limited.

Appropriate: the expected health benefit (e.g. increased life expectancy, relief of pain, reduction in anxiety, improved functional capacity) exceeds the expected negative consequences (e.g. mortality, morbidity, anxiety, pain, time lost from work) by a sufficiently wide margin that the procedure is worth doing, regardless of cost.

Does not require consensus, but rather, focuses on minimizing disagreement.

The RAND/UCLA Appropriateness Method is helpful for areas of clinical care with incomplete evidence.



RAM has been used for guidelines for diverse indications: cesarean delivery, intravenous catheters, hip replacement, and others

The PATH panel was completed virtually from November to December 2021



Panel Kick-Off
Introduction
to process and
materials



1st Round
Rated 1230
individual
scenarios



Panel Meeting
Discussion
using feedback
from Round 1

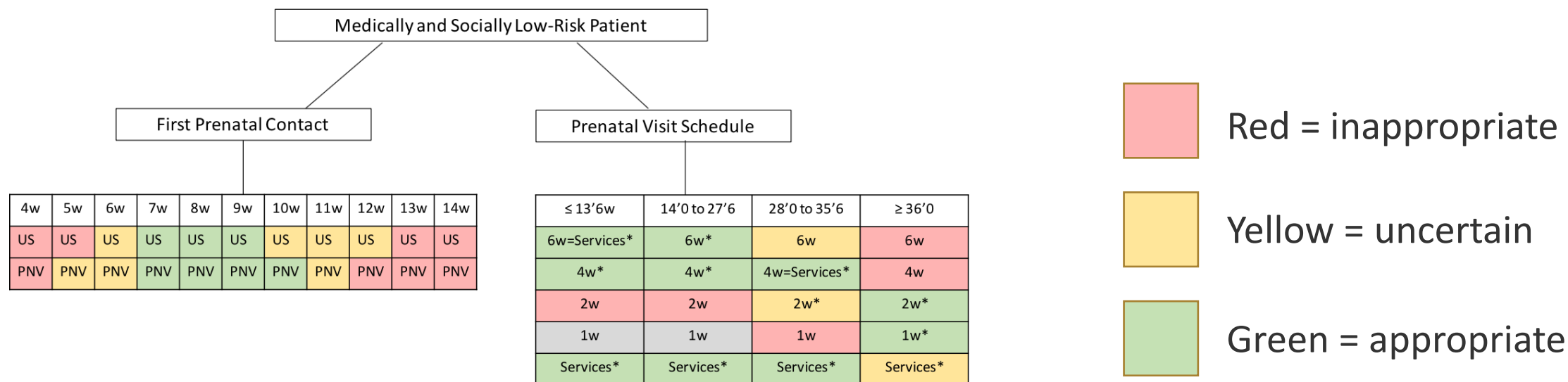


2nd Round
Rated 883
individual
scenarios



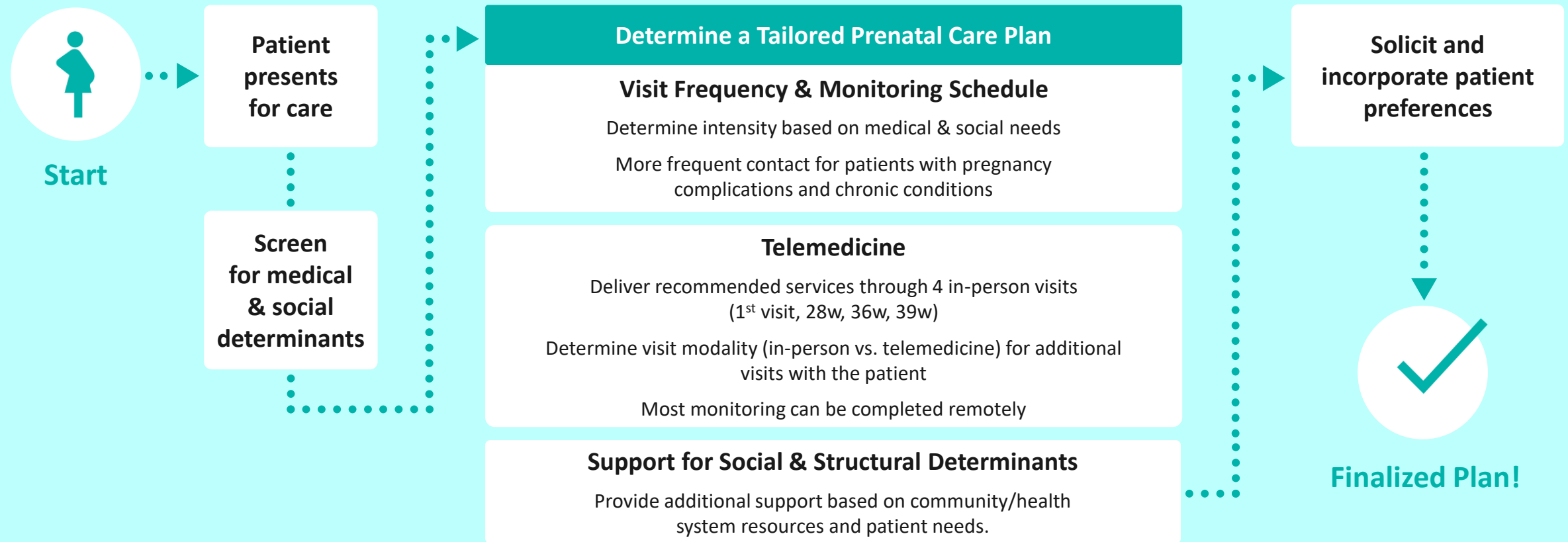
Final results
Tabulation of
findings

Each scenario received a final rating of appropriate, inappropriate, or uncertain.



Qualitative findings from panel discussions were also summarized.

PATH recommends a nuanced, tailored approach to prenatal care to meet individuals' needs & preferences



A comprehensive prenatal needs assessment should be performed as early as possible.

- 1** Goal to identify risks early to optimize pregnancy: **6-7 weeks** or when patient presents for care
- 2** Assessment can be completed in-person or virtually with any trained member of care team
- 3** Assessments should include **medical, social and structural determinants of health**

Panelists affirmed a baseline visit schedule guided by evidence-based prenatal services.

Service	Weeks																	
	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	39	40
Schedule Based on Services																		
History and Physical Exam		*																
Labs		*																
Imaging		*																
Injections		*																
Health Screening		*																
Screening for Social and Structural Determinants of Health		*																
Anticipatory Guidance		*																

Routine in-person prenatal care
 Additional routine services
 Services not requiring in-person delivery
 * Initial OB appointment

Telemedicine is appropriate for all visits aside from 4 key in-person contacts requiring in-person services

1

1st Prenatal Visit

- History, exam, vaccinations
- First trimester laboratory testing
- Genetic screening

2

28 weeks

Third trimester laboratory testing

- Tdap vaccination
- Rho(D) Immunoglobulin*

3

36 weeks

- Group B Strep Testing
- Assessment for fetal presentation

4

39 weeks

- Birth planning

Intensity of prenatal care delivery should be guided by patients' determinants of health

Medical and Pregnancy Conditions

Used to determine the baseline prenatal visit pathway including initiation of care, visit frequency and frequency of monitoring.

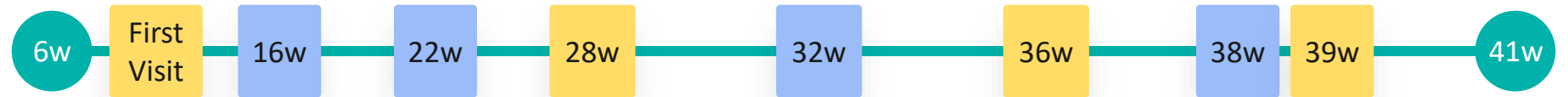
Social and Structural Determinants

Used to shape connection to other services within the health system/community and adapt care as needed.

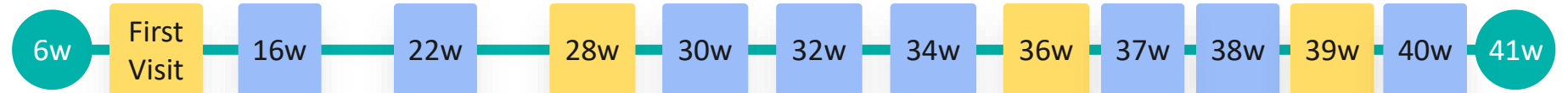
The panel emphasized the need to tailor prenatal care delivery to each patients' needs: not use a one-size-fits-all approach.

Medical and pregnancy conditions shape care delivery pathways

Patients without medical conditions or pregnancy complications can select a **less intense** visit schedule.



Patients with medical conditions or pregnancy complications should have a **more intense** visit schedule.



Shared decision making should guide the recommended visit and monitoring frequency, as well as visit modality.



Recommended in-person visit



In-person or Telemedicine visit (based on shared decision making)

Low-risk patients can have flexible visit schedules.

Condition	≤13'6 weeks	14 0/7 to 27 6/7 weeks	28 0/7 to 35 6/7 weeks	≥36 0/7 weeks
Current Guidelines	4 weeks	4 weeks	2 weeks	1 week
Low-risk	4*-6* weeks (services)	4*-6* weeks (services)	2-4* weeks (services)	1*-2* weeks (services)
Chronic Hypertension	4* weeks	4* weeks	2* weeks	1* weeks
Preexisting Diabetes	4* weeks	4* weeks	2* weeks	1* weeks
Hx Pregnancy Loss (Early)	4* weeks	4* weeks		
Gestational Hypertension			2* weeks	1* week
Gestational Diabetes			2* weeks	1* week

*=some visits appropriate for telemedicine

Patients with medical and pregnancy conditions can follow the traditional visit schedule

Condition	≤13'6 weeks	14 0/7 to 27 6/7 weeks	28 0/7 to 35 6/7 weeks	≥36 0/7 weeks
Current Guidelines	4 weeks	4 weeks	2 weeks	1 week
Low-risk	4*-6* weeks (services)	4*-6* weeks (services)	2-4* weeks (services)	1*-2* weeks (services)
Chronic Hypertension	4* weeks	4* weeks	2* weeks	1* weeks
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Hx Pregnancy Loss (Early)	4* weeks	4* weeks		
Gestational Hypertension			2* weeks	1* week
Gestational Diabetes			2* weeks	1* week

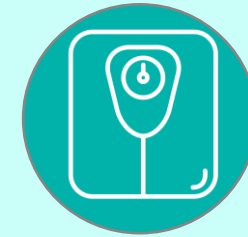
*=some visits appropriate for telemedicine

Monitoring of routine pregnancy parameters mirrors visit frequency and can be completed remotely.

Blood Pressure



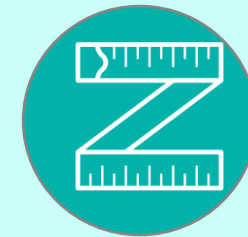
Weight



**Fetal Heart
Tones**



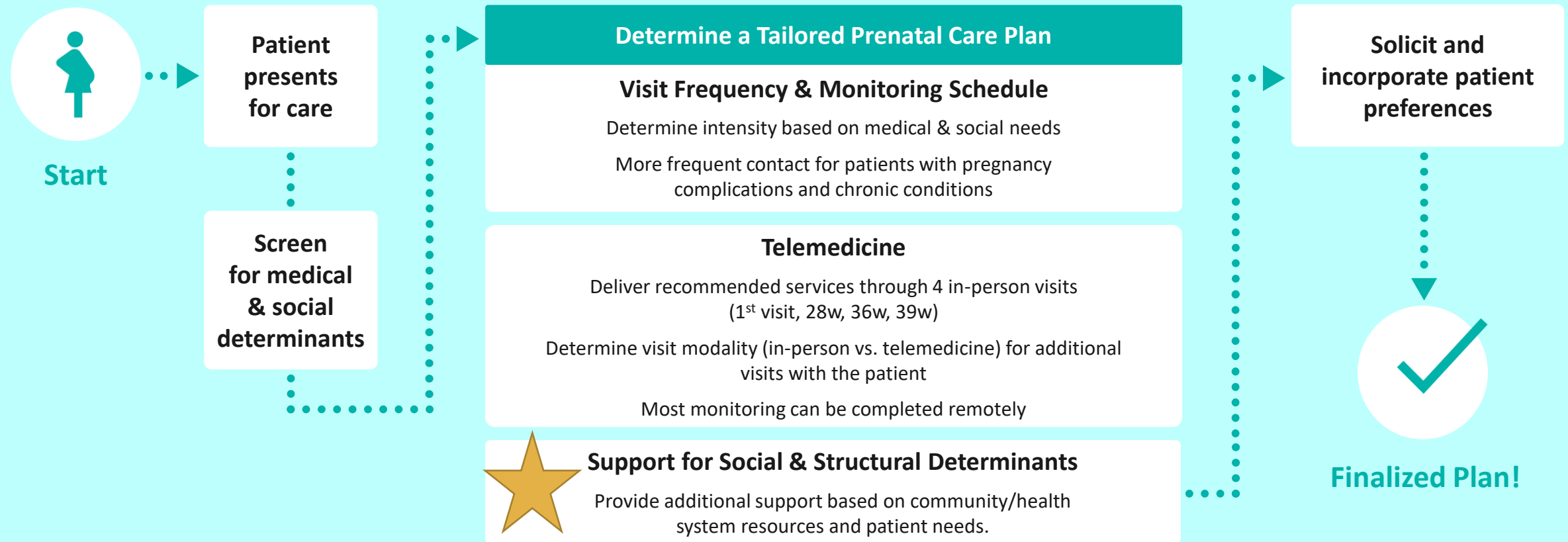
Fundal Height



Patients with chronic conditions (e.g., hypertension) may need more frequent monitoring than the recommended visit schedule.

Condition	≤13'6 weeks				14 0/7 to 27 6/7 weeks				28 0/7 to 35 6/7 weeks				≥36 0/7 weeks			
	BP	FHT	Wt	FH	BP	FHT	Wt	FH	BP	FHT	Wt	FH	BP	FHT	Wt	FH
Current Guidelines	4 weeks				4 weeks				2 weeks				1 week			
	4	4	4	-	4	4	4	4	2	2	2	2	1	1	1	1
Low-risk	4*-6* weeks (services)				4*-6* weeks (services)				2-4* weeks (services)				1*-2* weeks (services)			
	4-6	4-6	4-6	-	4-6	4-6	4-6	4-6	2	2-4	2	2-4	1-2	1-2	1-2	1-2
Chronic Hypertension	4* weeks				4* weeks				2* weeks				1* weeks			
	4	4-6	4-6	-	1-2	4	4-6	4-6	1-2	2-4	2	2	1	1-2	1-2	1-2
Preexisting Diabetes	4* weeks				4* weeks				2* weeks				1* weeks			
	4	4-6	4-6	-	4	4	4-6	4	1-2	2	2	2	1	1-2	1-2	1-2
Hx Pregnancy Loss (Early)	4* weeks				4* weeks											
	4-6	4	4-6	-	4-6	4	4-6	4-6								
Gestational Hypertension									2* weeks				1* week			
									1-2	1-2	2	2	1	1-2	1-2	1-2
Gestational Diabetes									2* weeks				1* week			
									2	2	2	2	1-2	1-2	1-2	1-2

PATH recommends a nuanced, tailored approach to prenatal care to meet individuals' needs & preferences



Ideally, social needs should be met by health system and community resources

If participants' needs can be met through available resources

Maternity care professionals may not be the best team member to address needs.

Additional prenatal visits may create more patient burden & unlikely to address non-medical needs

New recommendations unchanged for all considered groups except:

Less intense visit schedule:

- Low-health literacy
- Pregnancy associated anxiety
- Intimate partner violence

Telemedicine

- Intimate partner violence (privacy)

Overarching qualitative panel findings and priorities for future research and policy

Continuum of Care

Importance of **pre-pregnancy and postpartum care** across the lifespan

National Variation

Need for adaptation for the variety of professionals, settings, & practices

Team-based Care

Call to **better integrate** other health care, public health, and community

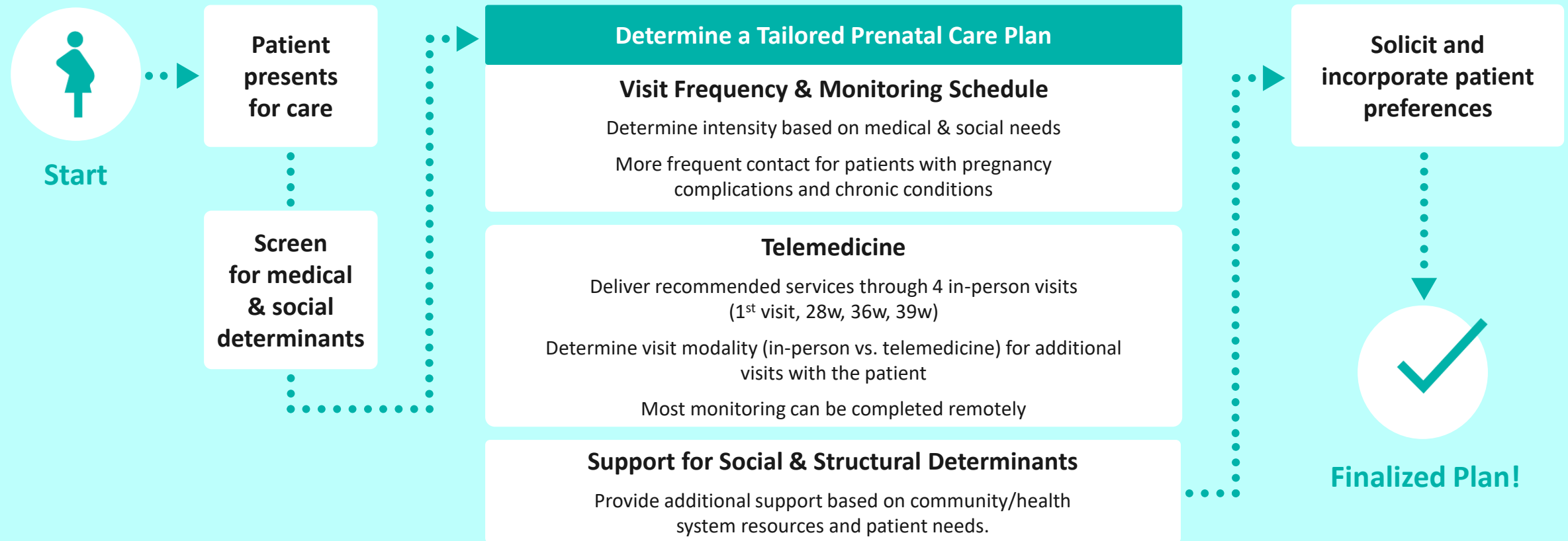
Equity

Need to meet the needs of patients facing **greatest barriers to care**

Telemedicine

Access to internet, home devices, and payment for telemedicine

PATH recommends a nuanced, tailored approach to prenatal care to meet individuals' needs & preferences



Incorporate public comment



The panel recognized the importance of quickly developing interim guidance, and used available data

Experience

with innovation
during the COVID-19
pandemic



Evidence

from the
literature where
available



Expert opinion

from national
maternity care
leaders



Stakeholder Input

from diverse
populations



The panel is now incorporating stakeholder input following initial recommendations

Experience

with innovation
during the COVID-19
pandemic



Evidence

From the
literature where
available



Expert opinion

from national
maternity care
leaders



Stakeholder Input

from diverse
populations



Diverse stakeholders will inform revisions to the new care recommendations



**Patients and
Advocates**



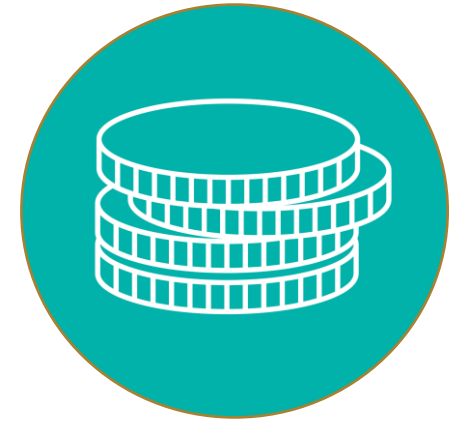
**Providers and
Researchers**



**Public health
leaders**

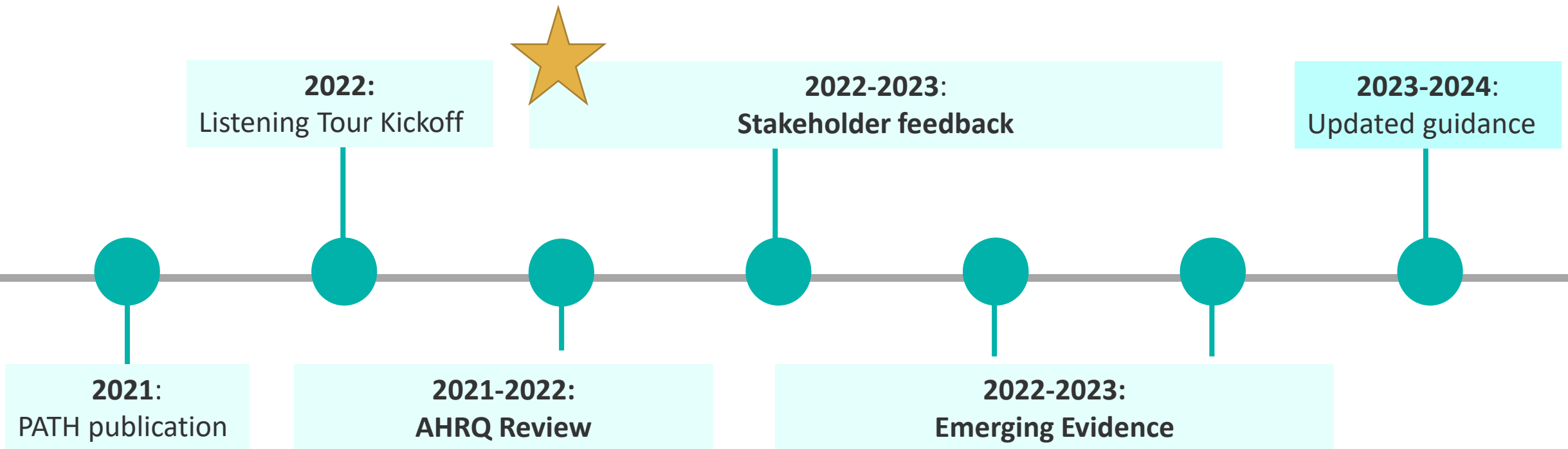


Policymakers



Payers

New prenatal care recommendations will be finalized in 2024, with stakeholder input and emerging evidence

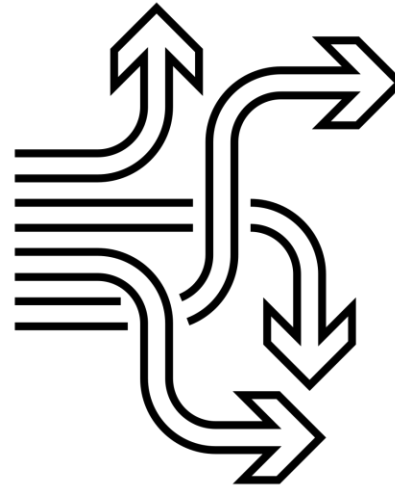


To summarize

Health care is complicated...

**Evidence-based
standard of care**

Same, high-quality
services for every
patient, every time



**Tailored to individual people and
their circumstances**

Dynamic people,
conditions, and
situations

High-quality care requires careful attention to both care services and delivery.

“WHAT”



“HOW”



Yet, prenatal care delivery has remained largely unchanged over the past century

1

Prenatal visit frequency

2

Prenatal visit modality (telemedicine)

3

Integration of non-medical care

3 key principles emerge from existing knowledge of prenatal care delivery.

1

Essential Services

Let services guide prenatal care delivery frequency and modality

2

Non-medical needs

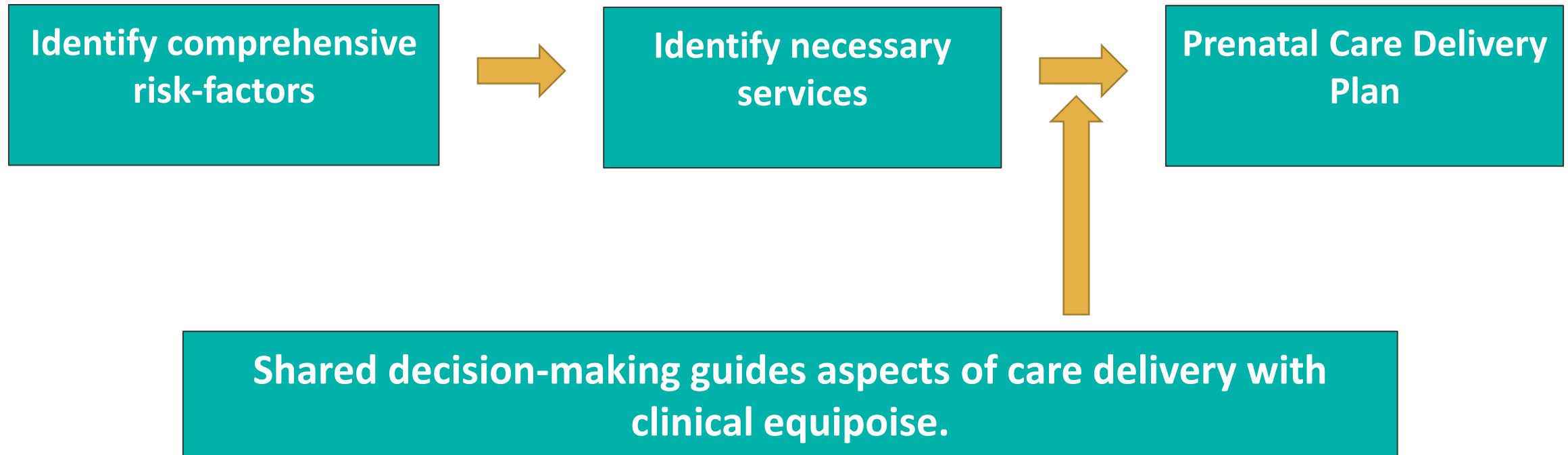
Ensure patients' social determinants of health are addressed

3

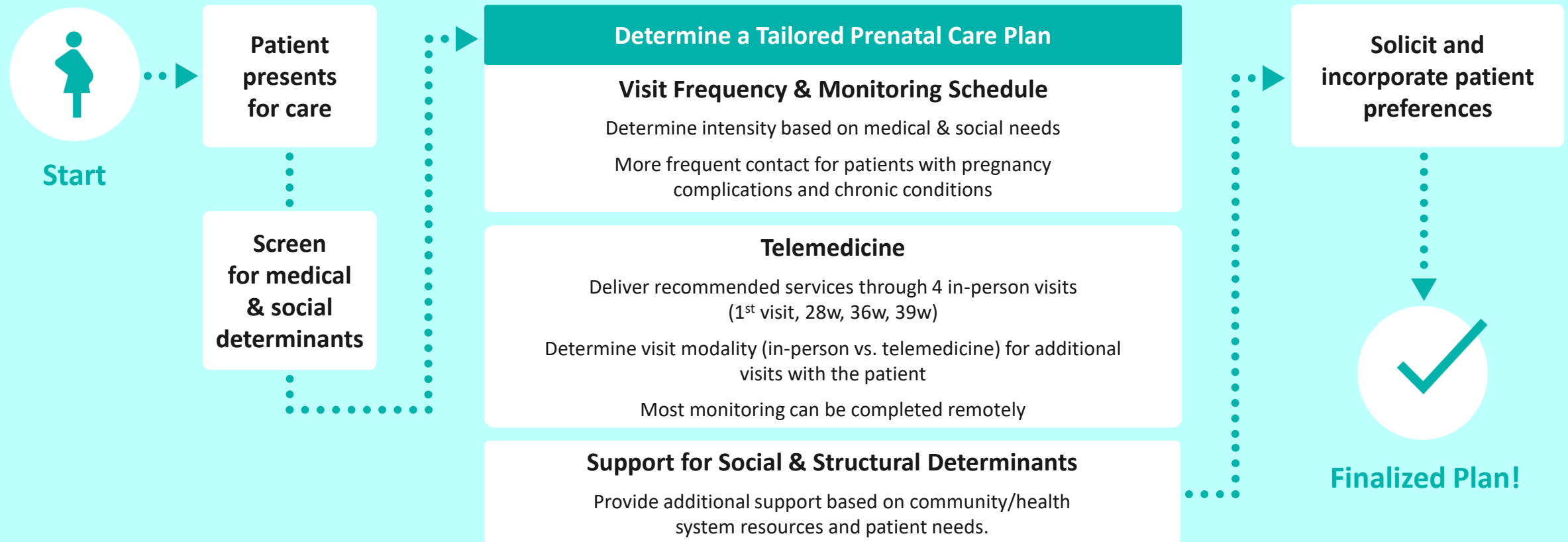
Clinical Equipoise

In areas of insufficient evidence, shared decision-making drives delivery.

Ideal prenatal care plans account for complex factors, including patient preference.



New consensus guidelines recommend a more nuanced, tailored approach to prenatal care.



Incorporating diverse stakeholder feedback is critical.



**Patients and
Advocates**



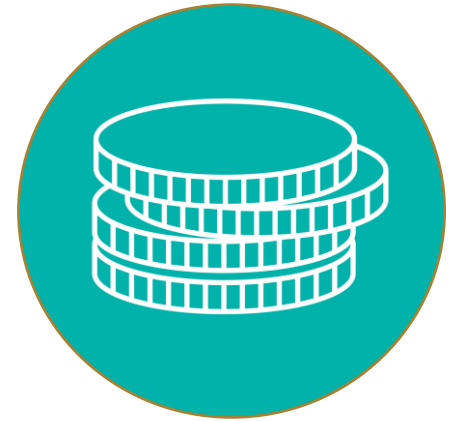
**Providers and
Researchers**



**Public health
leaders**



Policymakers



Payers



Chocolate
Flakes

Publix
WHIPPED
lightcream
SWEETENED
MADE IN PASTEURIZED

Coconut

Granola

Pretzels

Caramelized
Almonds

Strawberries

Mixed
Berries

Bananas

Ice Cream Bar

Coffee

Salted
Caramel

Mint
Chocolate

Chocolate

Vanilla

Thank you!

**I look forward
to your
questions.**



