

# Preventing Perinatal Depression: Harnessing Translational & Interdisciplinary Approaches to Improve Maternal/Child Health

Ellen L. Tilden, PhD, CNM, RN, FACNM, FAAN



# Thank you

- National Institute of Mental Health
- National Institute of Health SEED Program
- Providence Beginnings
- The JTMF Foundation
- OHSU Biomedical Innovations Program
- Oregon Business Development

## Disclosure

- Co-founder and CSO of Center Mom, Inc.
- Director Center M Connective NFP

## Language

- Most who are pregnant identify as female and some do not

# Maternal Mental Health Disorders

THE MOST **COMMON**, **DEADLY**, and **PREVENTABLE** PERINATAL COMPLICATION



~1 in 4

women suffer from maternal  
mental health disorders



<15%

of women receive treatment



#1

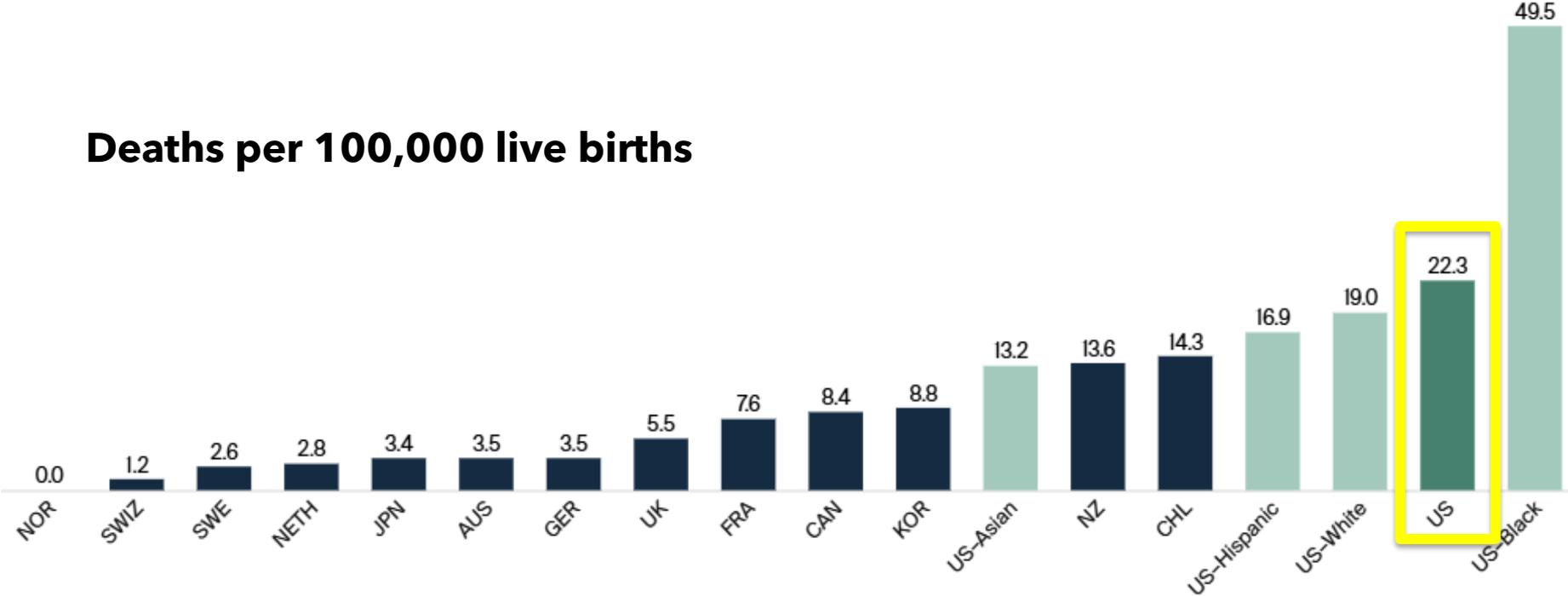
leading cause of maternal  
death in the year after birth

100%

**PREVENTABLE**

# The maternal mortality rate is highest in the US

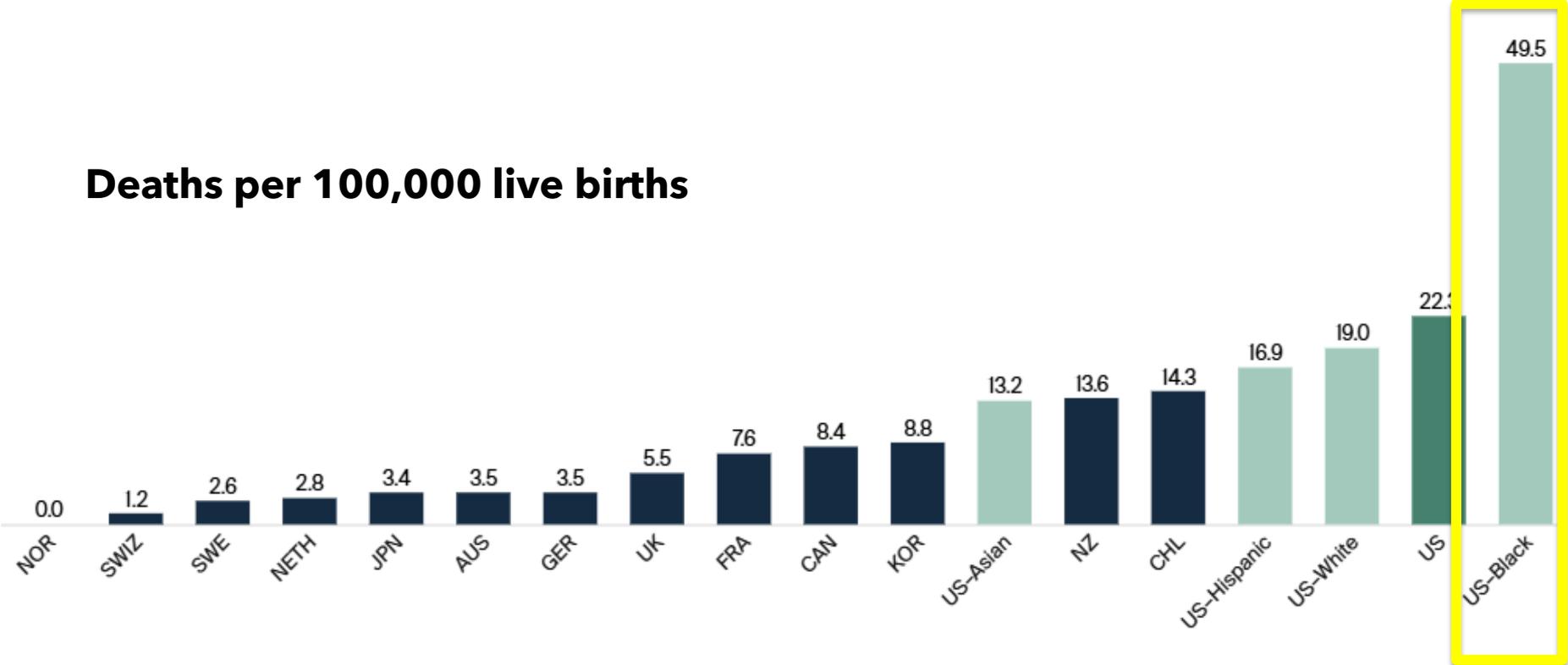
Deaths per 100,000 live births



The Commonwealth Fund, 6/2024, Insights into the US Maternal Mortality Crisis: An International Comparison

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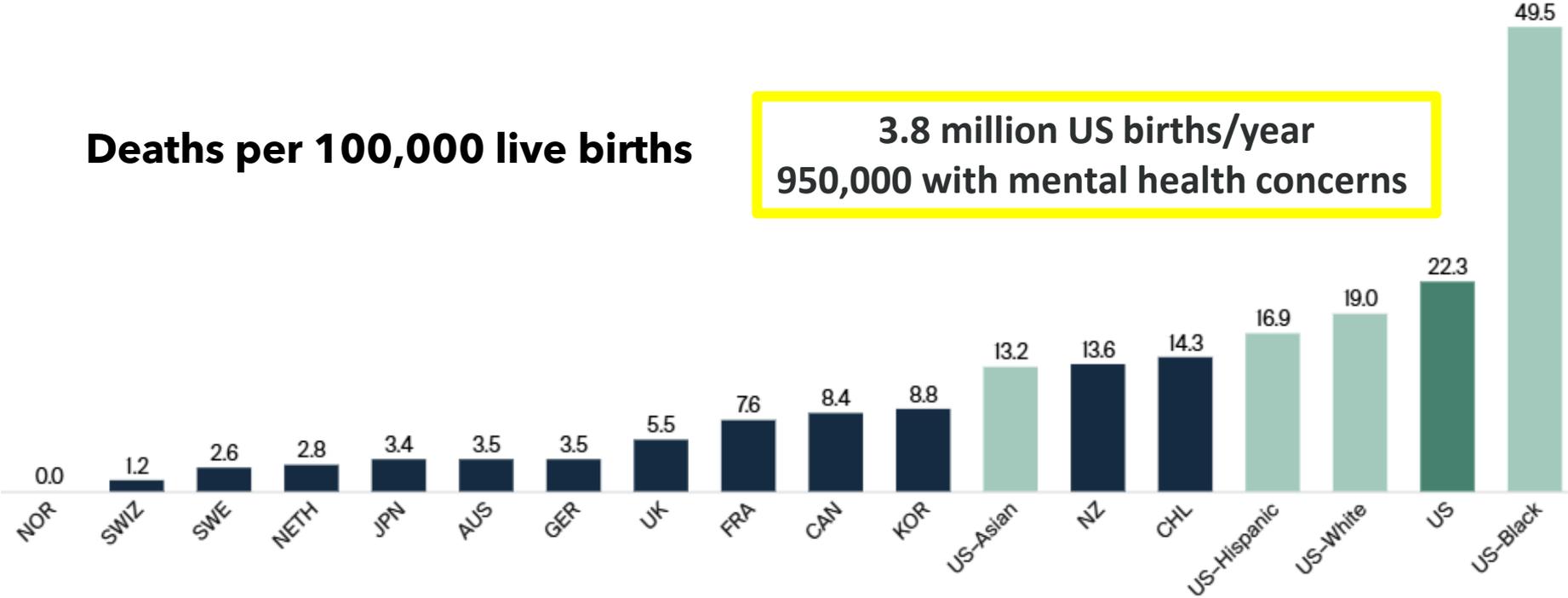


The Commonwealth Fund, 6/2024, Insights into the US Maternal Mortality Crisis: An International Comparison

# The maternal mortality rate is highest in the US

Deaths per 100,000 live births

3.8 million US births/year  
950,000 with mental health concerns



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## Trends in maternal mortality 2000 to 2020

Estimates by WHO, UNICEF, UNFPA, World Bank Group  
and UNDESA/Population Division



## Maternal Deaths per 100,000 Births

	2000	2005	2010	2015	
UK	11	11	10	8	
USA	12	13	14	17	

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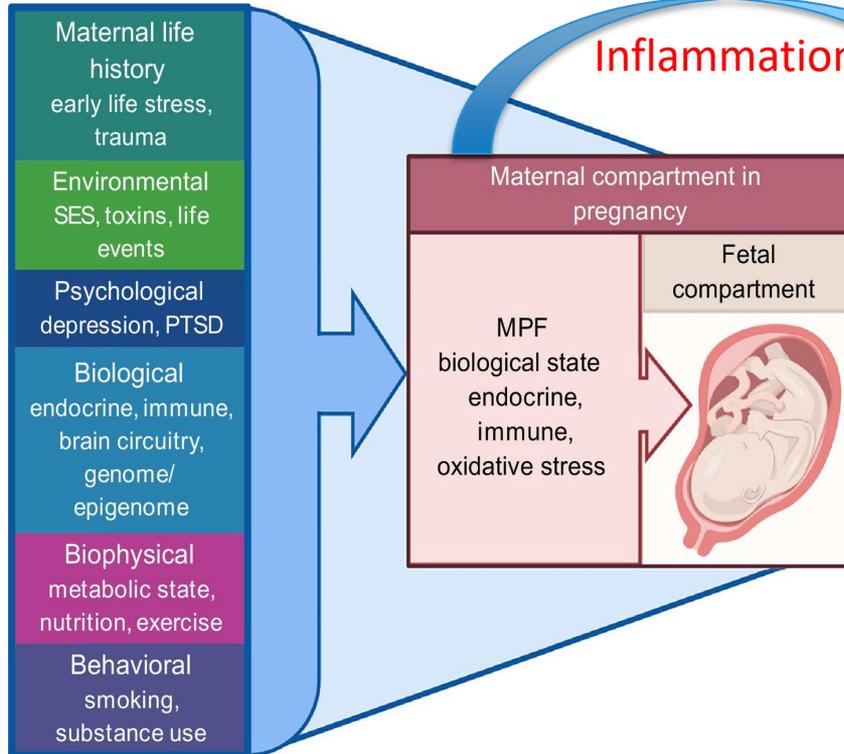
**IT'S ME, HI.**

I'm the  
**problem**    
 

**IT'S ME.**

Taylor Swift

# Biological pathways for effects of prenatal conditions on neurodevelopment



## Review

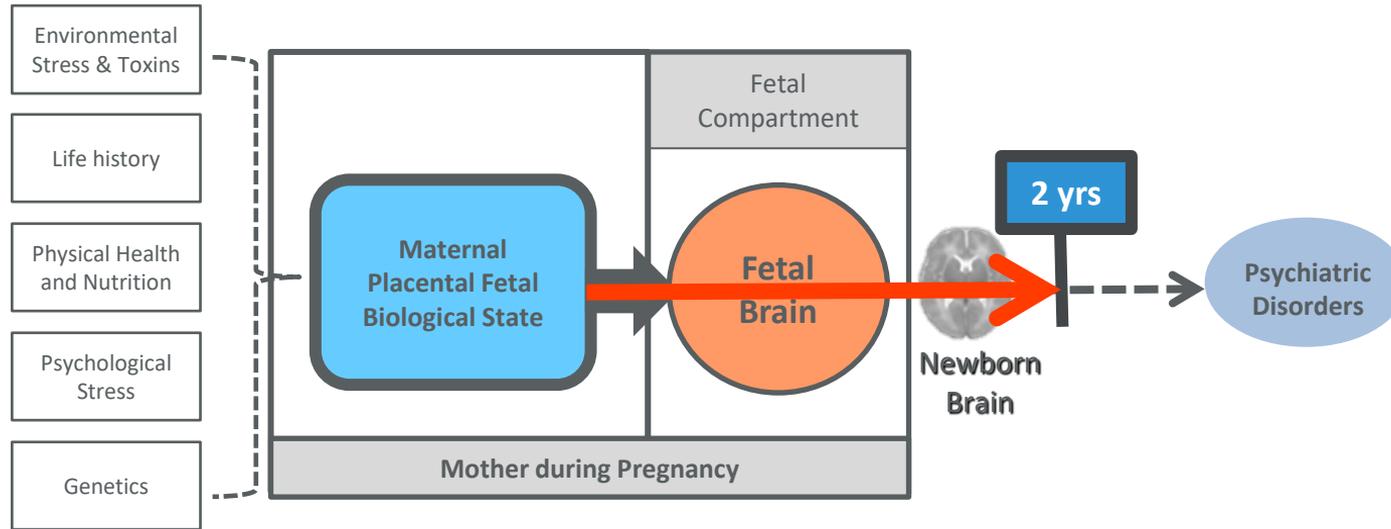
### Effects of Maternal Psychological Stress During Pregnancy on Offspring Brain Development: Considering the Role of Inflammation and Potential for Preventive Intervention

Alice M. Graham, Olivia Doyle, Ellen L. Tilden, Elinor L. Sullivan, Hanna C. Gustafsson, Mollie Marr, Madeleine Allen, and Kristen L. Mackiewicz Seghete

### Maternal Systemic Interleukin-6 During Pregnancy is Associated with Newborn Amygdala Phenotypes and Subsequent Behavior at 2-years-of-age

Alice M. Graham,<sup>a</sup> Jerod M. Rasmussen,<sup>b</sup> Marc D. Rudolph,<sup>a</sup> Christine M. Heim,<sup>c,d</sup> John H. Gilmore,<sup>e</sup> Martin Styner,<sup>e</sup> Steven G. Potkin,<sup>f</sup> Sonja Entringer,<sup>b,c</sup> Pathik D. Wadhwa,<sup>b</sup> Damien A. Fair,<sup>a,g</sup> and Claudia Buss<sup>b,c</sup>

# Relevance of Findings for Emerging Behavior?



## Impulse Control

- Associated with behavioral, emotional and health outcomes in childhood (Nigg, 2017; Davis et al., 2024)
- Difficulties with impulse control common across psychiatric disorders (Lancet Psychiatry Youth Mental Health, 2024)
- Snack Delay (Kochanska et al., 2000)



## Mental Health

- Training
- Diagnosis
- Practice
- Location
- Billing

## Physical Health

- Training
- Diagnosis
- Practice
- Location
- Billing



‘The baby is the candy, and the mom is the wrapper.  
Once the candy is out of the wrapper,  
the wrapper is cast aside’

*Dr. Alison Stuebe, UNC Chapel Hill School of Medicine, 2018*







Figure 1: how it is supposed to be

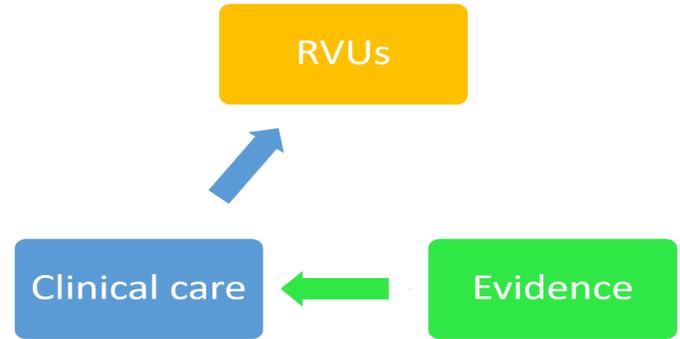
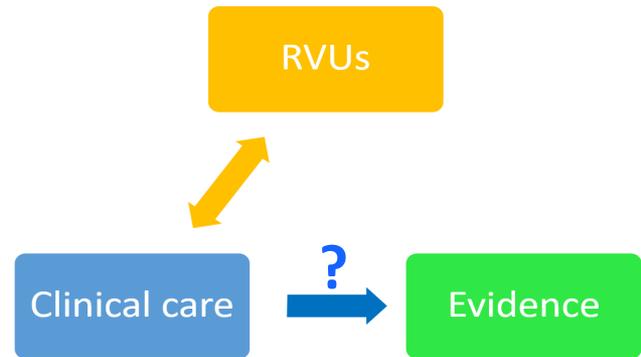


Figure 2: What has been missing and/or how this actually works



# Prenatal care: we can do better

I have so many concerns

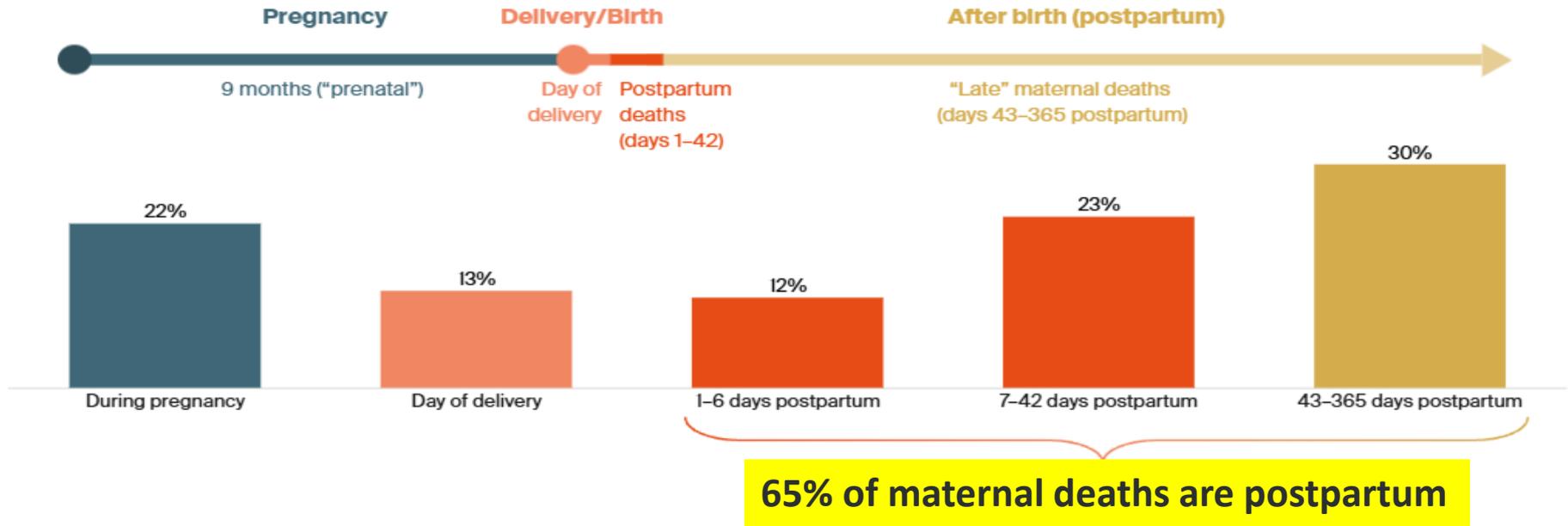
Am I depressed?



I have 10 minutes per patient

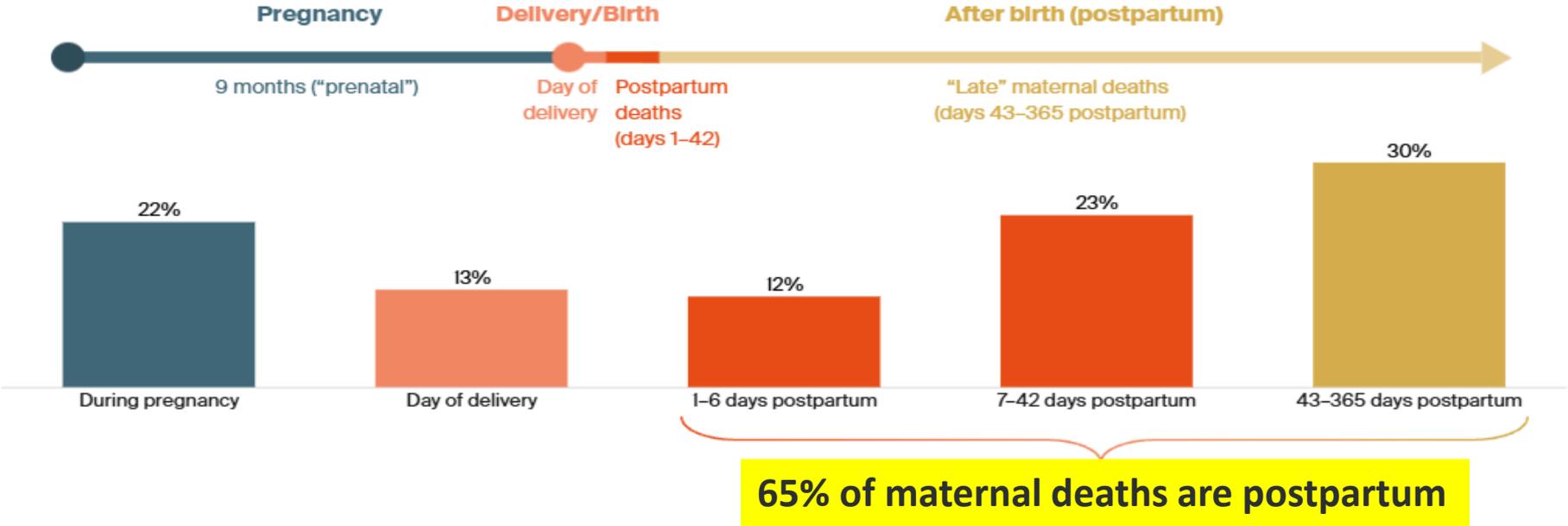
I'm not a mental health provider

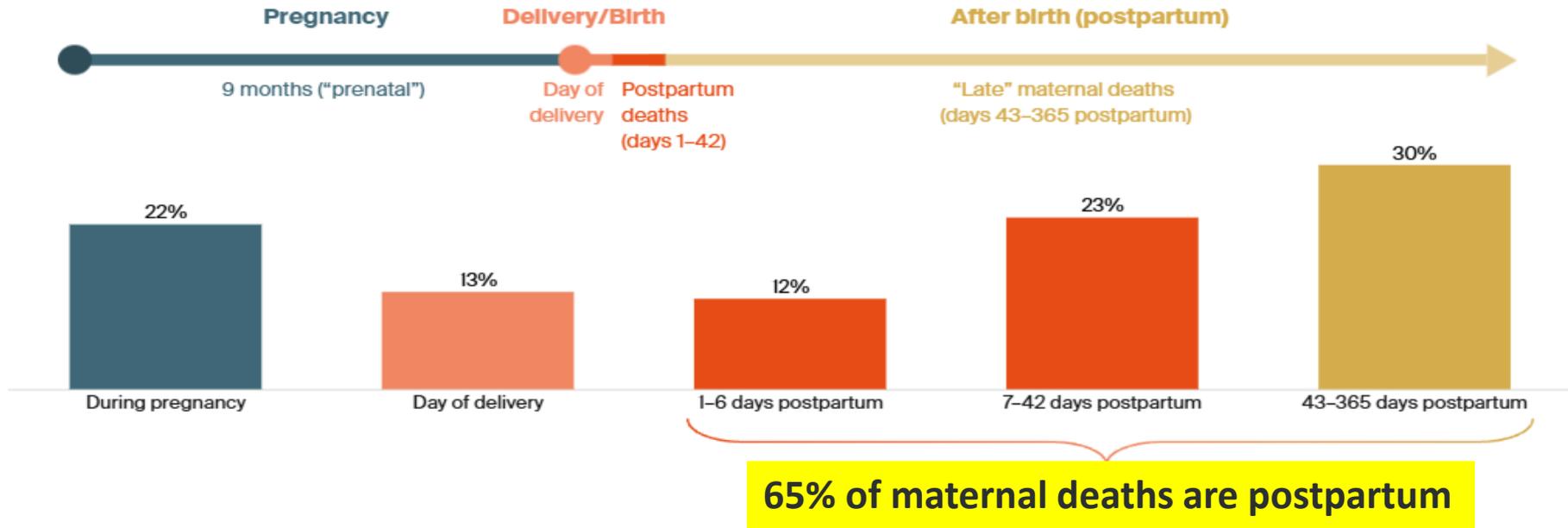
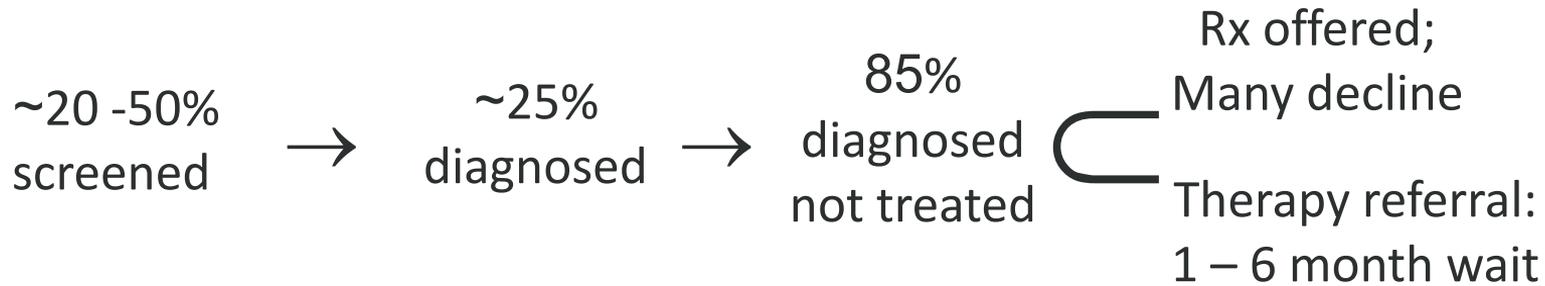
**'I was told I can only ask 2 questions at each prenatal care appointment'**

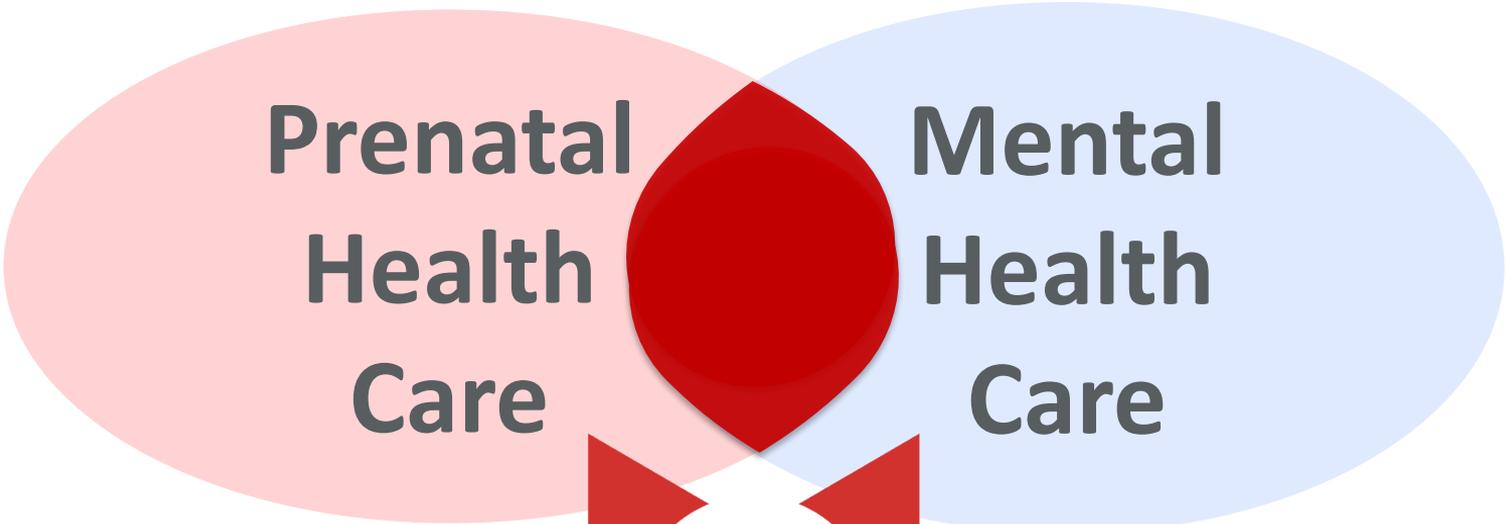


*The Commonwealth Fund, 6/2024, Insights into the US Maternal Mortality Crisis: An International Comparison*

~20 -50%  
screened

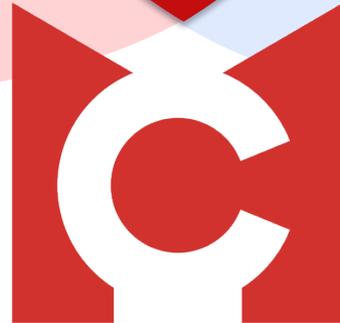






**Prenatal  
Health  
Care**

**Mental  
Health  
Care**



**CENTER M**

# Our core team



**Ellen Tilden**  
PhD, CNM

OHSU Associate  
Professor

Nurse-midwife  
25 years

Clinical scientist

Mother of 2



**Kristen  
Mackiewicz  
Seghete, PhD**

OHSU Associate  
Professor

Psychologist  
13 years

Clinical scientist

Mother of 2



**Roberta Hunte**  
PhD

PSU Assistant  
Professor

Health Equity  
14 years

Clinical scientist

Mother of 2



**Veronica Eyo**  
LCSW, EdD

Private practice  
social worker

Caring for Black  
mothers' mental  
health

Mother of 3

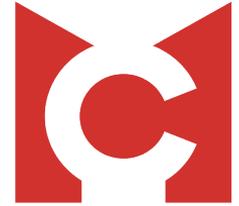


**Nisha Supahan**  
BA

Karuk Tribal  
Spiritual  
Leader

Small business  
owner

Mother of 5



**CENTER M**  
*OBGYN / MFM / FM  
Implementation  
Health Systems  
Billing/Coding  
Medicaid Policy  
Business  
Public Health  
County Government  
Community Partners*



A woman with long braids is shown in a meditative state, sitting cross-legged with her eyes closed and a calm expression. She is wearing a light blue long-sleeved shirt. The background is a soft-focus indoor setting with warm lighting.

## Original Mindfulness CBT Model

In person

Psychologist led

Not culturally tailored

8 session x 2 hours each

Academic

Paper based home practice

No depression screening

**Mindfulness-Based CBT leads to a**

**74%** reduction

**in perinatal depression**



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In person

Psychologist led

Not culturally tailored

8 session x 2 hours each

Academic

Paper based home practice

No depression screening

**Strong Science**

+

**Hard to Access**

=

**Unrealized Potential**



# Center M adapts Mindfulness CBT to increase access

Mindfulness CBT	Center M
In person	Telehealth
Psychologist led	Social worker led
Not culturally tailored	Targets cultural tailoring
8 sessions	4 sessions
Academic	Scalable in standard care
Paper based home practice	Smartphone app home practice
No depression screening	Depression screening

# CENTER M



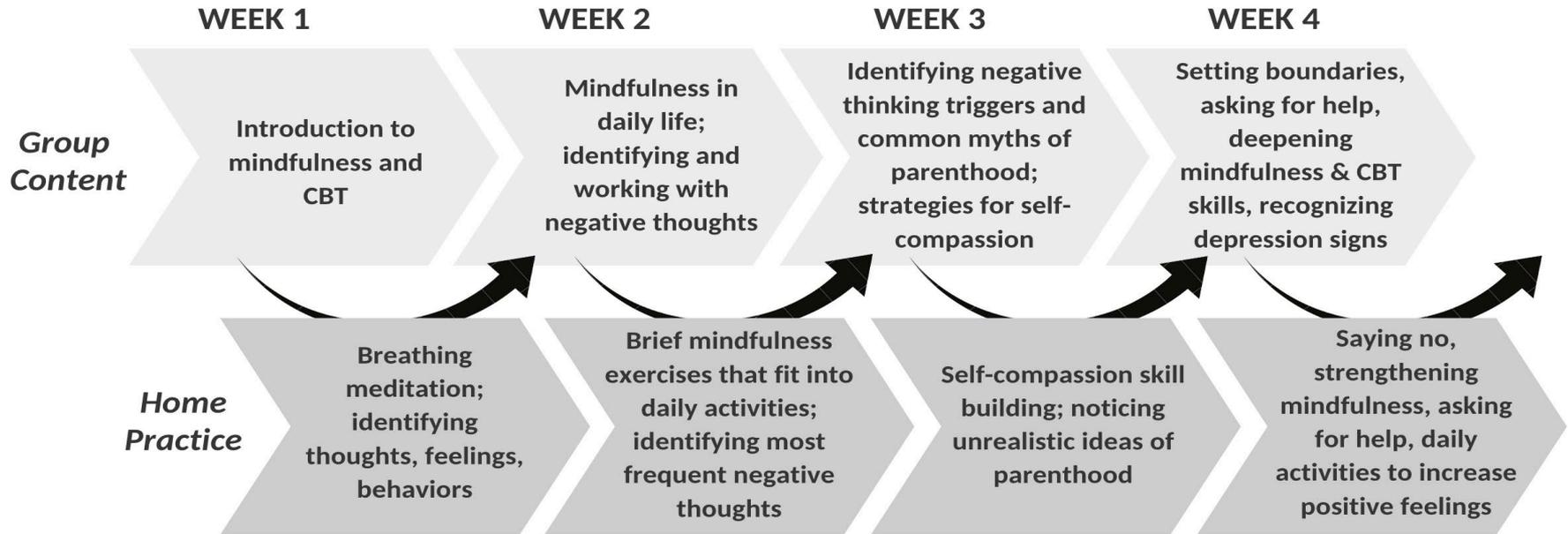
Groups of 3-5 pregnant women meet on Zoom for 1 hour/week with a trained social worker leader



Between weekly group sessions people complete app-based depression screening and/or practice mindfulness CBT skills

One social worker + 3-5 pregnant women meet on Zoom weekly for 1 hour over 4 sessions

Home practice between group sessions





## Orientation - Mindfulness Principles

### Introduction.

The next page will be your main navigation that will guide you through the weekly exercises. You can get back there at any time using the home icon above. In addition to the weekly exercises there is an orientation and toolkit. It is encouraged that you complete the exercises in order along with your program but you can access any of the exercises as well as other resources in the toolkit section.

Here are a few fundamental principles to guide us in learning.



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## Orientation - Mindfulness Principles

### Show up.

Show up during group sessions and show up by trying out the home practices. Importantly- also show up for yourself. Be a good friend to yourself with whatever is happening in your life.



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## Orientation - Mindfulness Principles

### Listen Well.

The Center M practices are about deeply listening to ourselves. Keep your attention on listening- not 'fixing' things or rushing into problem-solving. We listen to our own inner experience, even if it's not what we want it to be, even if it is different from what we think it 'should' be. We listen to ourselves just like we would listen to a dear friend.



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## Orientation - Mindfulness Principles

### Speak the truth.

Without judgement or criticism, we are truly honest with ourselves about what is happening. There is no need to be anything other than exactly as we are. We do not need to feel relaxed, blissed out or anything!



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## Orientation - Mindfulness Principles

### Let go of attachment to outcome.

We often want to "get" something out of our experiences. But often the more we try get to a specific outcome, the more stressed we feel and the less we benefit. Instead we try to focus on what we actually feel and what is actually happening. Being exactly as we are helps us be calmer. Letting go of focus on the outcome helps us learn the most.



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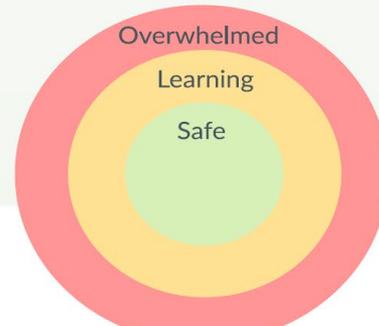


## Orientation - Mindfulness Principles



### Notice if you are in the learning zone.

The skills we will be building can push out of our comfort zone. But to learn the most we can't be **too** far outside of our comfort zone. If Center M is leaving you feeling overwhelmed, anxious, angry, or with an urge to fight or run away, please tell your Center M leader.





< Homework List

### Being With Baby 10 MIN MEDITATION



It is entirely normal not to feel baby during first half of pregnancy, or at certain times of day later in pregnancy. There is a great variety in experiences. If you are not feeling any sensations of your baby's movement, please just notice sensations that are currently present in your body. Similar to the breath, your growing baby can also serve as a great way to be present with the moment..

This practice is simply to notice what is happening for you. This serves as good practice for parenting as there will be times when being present with your baby involves a lot of activity, and others in which there is very little activity.

Start Activity



< Homework List

### Being With Baby 10 MIN MEDITATION



Finish Meditation



< Homework List

### Being With Baby 10 MIN MEDITATION

How did you feel during the meditation session?



What did you notice during the guided meditation?

What thoughts, feelings and emotions did you become aware of?

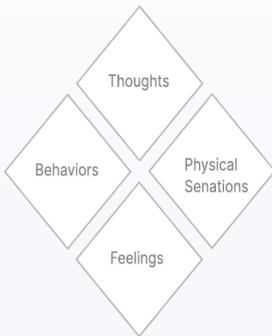
Remember that there is no perfect result from this practice. The most important thing is to develop the skill of becoming curiously and compassionately aware. No need to feel any particular way. Just see if you can take note of what you became aware of.



< Homework List

### Cognitive Behavioral Therapy Diamond

10 -15 MIN ACTIVITY



We're going to look at how thoughts, emotions, body sensations and behaviors all interact so we can have even more information about how to take care of ourselves.

Here's an example:

I want you to imagine that you have to go to a party for work or some sort of social event and for whatever reason you are not really wanting to go... but in this instance, you just have to. Imagine that you're talking to somebody and as you are speaking, you notice that their eyes are casting around the room and they're not really paying attention to you at all. I want you to just put yourself on pause and notice what your reactions are - what kind of thoughts come into your mind, what kind of emotions arise, either about the person about yourself, and what does it feel like in

< Homework List

### Cognitive Behavioral Therapy Diamond

10 -15 MIN ACTIVITY



#### Choose a Situation

Think about a situation that may be challenging or difficult for you. This could be a situation you are in currently or one that you think might happen. For the sake of learning, try and choose something that is a 3-4 out of scale of 1-10 on the difficulty range. Now, try and identify what thoughts, emotions, body sensations and behaviors were a part of this scene. Play with imagining if different thoughts were present. What then would the emotions, body sensations and behaviors be? Use the diamond as a guide to help you identify all the ingredients of your situation.

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< Homework List

### Cognitive Behavioral Therapy Diamond

10 -15 MIN ACTIVITY



#### What were your thoughts?

For example feeling critical or judgmental of yourself and/or the other person.

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< Homework List

### Cognitive Behavioral Therapy Diamond

10 -15 MIN ACTIVITY



#### What were your physical sensations?

For example, feeling tightness in your body with a desire to get out of the situation

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## Daily Self Compassion Journal

10 -15 MIN ACTIVITY



Having compassion for oneself is really no different than having compassion for others. Think about what the experience of compassion feels like.

[Click here to learn more about self-compassion?](#)

Journaling in this way is an effective way to express emotions, and to find compassionate language that we can use with ourselves. It has been found to enhance both mental and physical well-being. At some point during the evening when you have a few quiet moments, review the day's events. In your journal, write down anything that you felt bad about, anything you judged yourself for, or any difficult experience that caused you pain. Then, begin to write a letter to yourself as if you were writing to a good friend. For each event, use mindfulness, a sense of common humanity, and kindness to process the event in a more self-compassionate way.

## Daily Self Compassion Journal

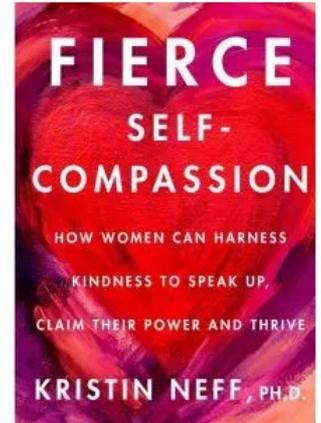
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Finish Activity



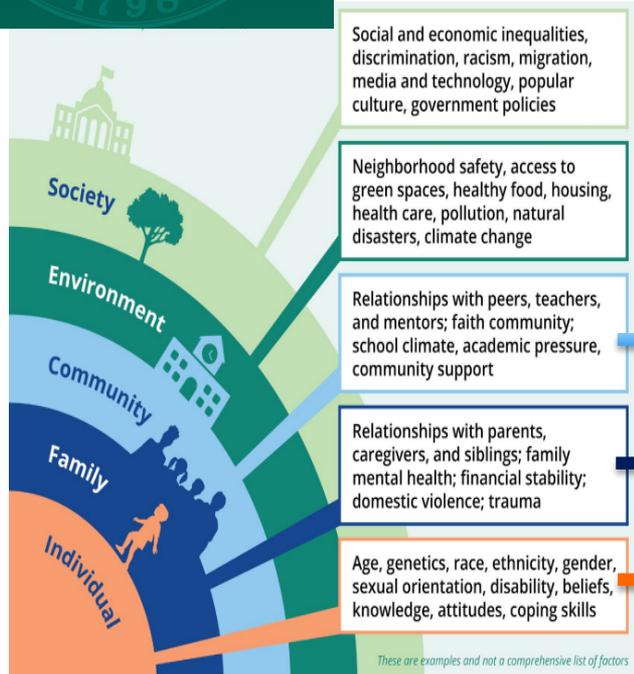
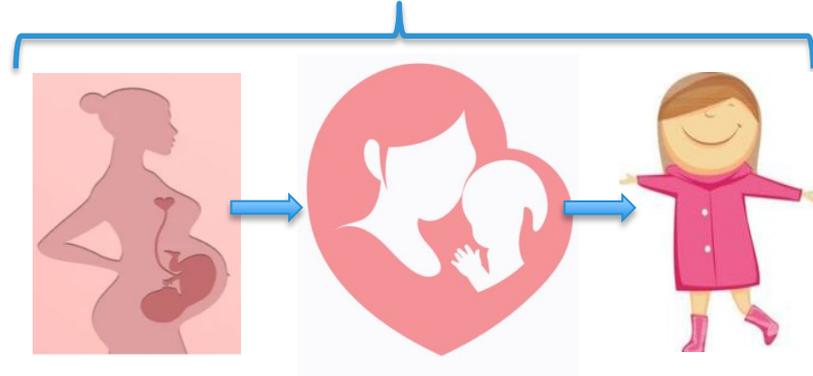
Fierce Self-Compassion  
(2021)

# PROTECTING YOUTH MENTAL HEALTH

The U.S. Surgeon General's Advisory



Protects mom and baby, starting with pregnancy



Community: care systems, integration, normalization

Family: mom wellness drives child wellness

Individual: mom in pregnancy, baby in utero



## What have we learned to date?

### Pilot n=99

93% retention rate

Depressive symptoms ↓ (p=.03)

Mindfulness ↑ (p=.004)

Regression:

↑ Mindfulness or

↑ Emotional regulation

significantly predicted fewer

depression symptoms at

6 weeks postpartum

### Focus Groups n=55

'I am glad I decided to participate  
In Center M':

73% strongly agreed; 27% agreed

Themes:

1. 'Surprised how much I liked it'

2. 'Exchange is where the magic  
happens'

3. 'It's the right level of  
commitment'

4. 'Home practice is great but  
we need more delivery options'

### RCT n=113

96% retention rate

Diverse, national sample

Majority with history of  
depression or anxiety

*Preliminary results:*

Those randomized to Center M  
significantly improved  
depression symptoms  
vs treatment as usual

1. Tilden et al. 2024. Center M pilot trial: Integrating preventive mental health care in routine prenatal care. *J of Midwifery & Women's Health* 69(6)

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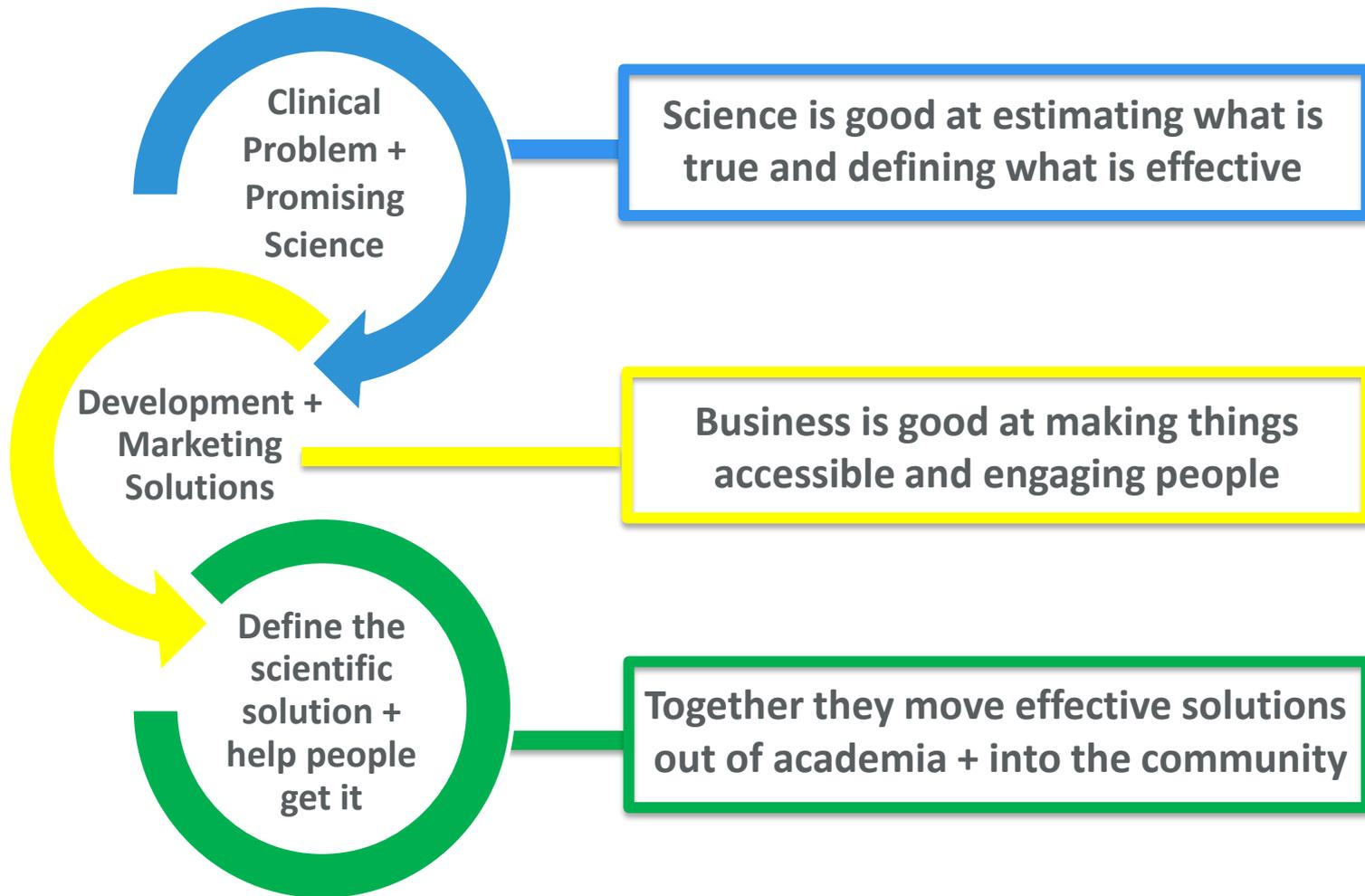
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# We listened to 103 stakeholders across the country



pregnant people, mothers, OBGYNs, midwives, perinatologists, public health leaders, psychiatrists, psychologists, clinic managers, program managers, VP outpatient clinic operations, CTO/CEO, coding/billing specialists, state Medicaid bodies, benefits managers, staffing services, scientists, professors, women's health policy leaders, product design + marketing leaders, nursing managers, aunts, fathers, grandparents

## Patients

Depression isn't part of my culture. When I had it, I was told to pray and think about my baby. I'd be so ashamed if my friends knew what really happened to me.

I wait 45 minutes to see the doctor for 5 minutes. Why should I even come?

I guess I was screened for depression in pregnancy? No one followed up about my suicidal thoughts

I'm too scared to take meds... what if I hurt the baby?

## Providers

I'm given 10 minutes per patient- and I'm double booked. There's hardly time to talk let alone talk about mental health

When my patients need mental health care, they are basically on their own to find it

Even my pregnant patients who are really struggling are incredibly motivated to improve their health- but our system prevents maximizing this opportunity

## Clinic Directors

I know it's a major issue, but I am given no resources to address it

My providers are burned out and my patients are struggling- but the higher ups see this as a 'lady issue', read: 'not real'

We are constantly asked to do more with less, but the 'supports' offered are generally poorly integrated tech solutions. This creates exhausting levels of fragmentation

## State Medicaid Leaders

CPT code 90853 should be payable in every state, with differing levels of payment

When social workers lead the group mental health intervention, we can pay apart from the constrained prenatal care bundle

There is dawning recognition that maternal mental health is a serious issue. Many states are looking for sustainable and effective models

# Key Lesson 1: System More Broken Than We Thought

Maternity care 'systems' are fiefdoms with varying cultures, silos, languages + priorities

All are territorial and trying to survive, many are secretive and isolated, each functioning within unique Medicaid state systems

Who pays the price?  
pregnant women  
mothers, kids + families



# Key Lesson 2: Current Solutions = Twine and Duct Tape

## Examples:

- 'We just made up an educational handout that we put in the welcome packet'
- 'Peer groups are available to try to get people to talk to each other'
- 'We gave up on working in the healthcare system. My team drives up and down the interstate sharing resources for new moms'
- 'Lactation consultants often see our new moms and they offer general support- *I know they have no mental health training, but they are nice*'

**Each prenatal care system is making up its own approach that is neither tested nor standardly informed by mental health care science/providers**



# Key Lesson 3: Landscape is Messy and Complicated



We knew that solutions must fit clinic flow

We learned that fragmented health tech solutions create unsustainable burden

We learned that resources vary in each prenatal care clinic

**Center M must first fit clinic flow then fit EPIC and expand by fitting any EHR**  
**Center M may need a variety of channel partners to meet varying clinic's needs**

# Key Lesson 4: The Ecosystem is Complex

Customers	Influencers	Decision-Makers
<ul style="list-style-type: none"> <li>• FQHCs</li> <li>• Hospitals/clinics offering prenatal care</li> </ul>	<ul style="list-style-type: none"> <li>• Social workers</li> <li>• OBGYNs</li> <li>• Midwives</li> <li>• Nurses</li> <li>• People who received Center M</li> <li>• Clinic Medical Director</li> </ul>	<ul style="list-style-type: none"> <li>• Director of outpatient maternity services</li> <li>• Budget Committee</li> <li>• CFOs</li> </ul> <p>* <i>note</i>: prenatal care providers will influence both</p>
Beneficiaries	Payers	Saboteurs
<ul style="list-style-type: none"> <li>• Pregnant women</li> <li>• Postpartum women</li> <li>• Children</li> <li>• Families</li> <li>• Society</li> <li>• Health care system (↓ cost, ↑ throughput, ↑ revenue)</li> </ul>	<ul style="list-style-type: none"> <li>• State Medicaid Managed Care Plans</li> <li>• State Medicaid Fee-For-Service</li> </ul>	<ul style="list-style-type: none"> <li>• IT departments</li> <li>• ‘Just be happy for your baby’</li> <li>• Misogyny</li> <li>• Systems culture               <ul style="list-style-type: none"> <li>&gt; resistant to innovation</li> <li>&gt; used to treatment vs. prevention</li> <li>&gt; used to provider vs. team-based fix</li> </ul> </li> </ul>

**Center M must be aware of and responsive to all within this ecosystem**

## Key Lesson 5: Center M Must be for All

“Products with a whiff of ‘made for *those people*’ can imply poor quality + perpetuate othering”

“If something is for those ‘at risk’, everyone joining lives with that label”

“If Center M is framed as for those with mental health concerns, it will trigger stigma”

Everyone is brought to their knees at some point of pregnancy, birthing, parenting

Center M delivers high quality, preventive mental wellness care to all

**THIS APPROACH IS NECESSARY TO ↓ STIGMA**

"Center M is like taking a daily prenatal vitamin for my mental health"

PREVENTION = DAILY  
PREVENTION = EVERYONE  
EVERYONE = ↓ STIGMA



✓ **Busting silos, building bridges**

maternity care and mental health care, community and academy

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✓ **Hybrid: in person and telehealth**

relationship-centered with digital supports

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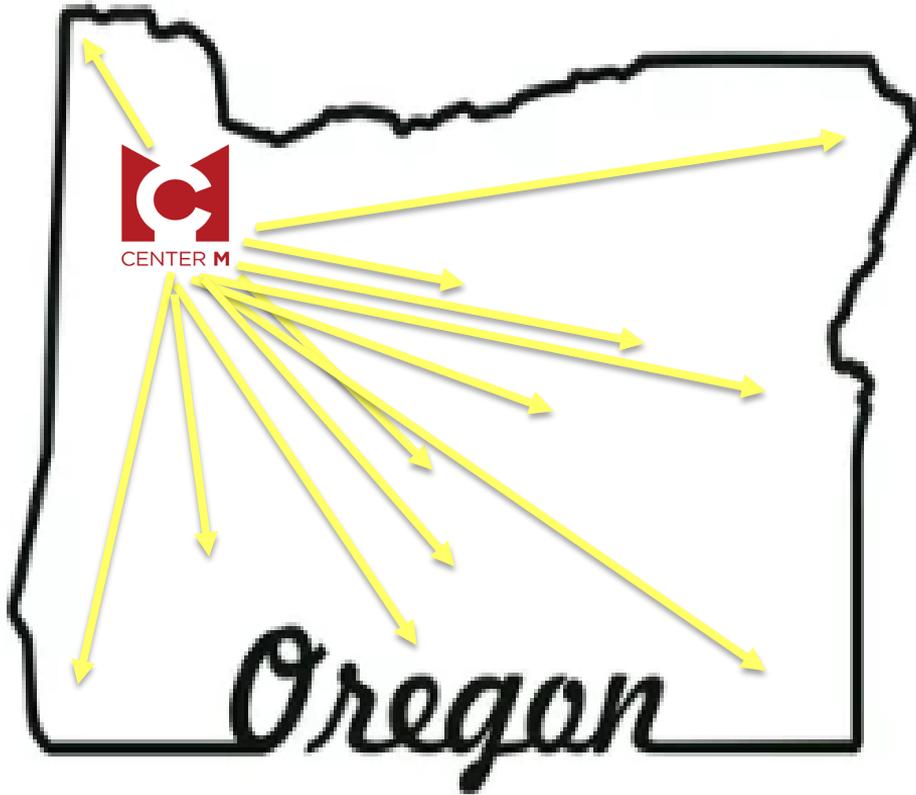
✓ **FITS:**

→ pregnant people

→ prenatal care clinical workflow

→ prenatal care payment structure

→ screening targets/quality measures



## What's Next?

JTMF funding

'25 – '26: Implementation testing in  
12 diverse Oregon prenatal care  
clinics across the state

Just completed Spanish translation!  
Seeking funding for '26 – '27 testing  
+ low wifi app development to serve  
three rural FQHCs

HETEMEEL.COM



**I WANT YOU**

**TO TRY CENTER M IN  
YOUR CLINIC!**

PLEASE REACH OUT TO ME!

tildene@ohsu.edu

# Helping one to help many... over a lifetime



- ↑ Child health and well-being
- ↑ Social connection and support
- ↑ Lifelong happiness
- ↑ Lifelong mental health
- ↑ Lifelong physical health

- ↓ Parental stress
- ↓ Marital stress
- ↓ Anxiety



Thank You!

Questions?

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