

A human -centred approach to prevent severe maternal morbidity

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INOSS Meeting, Rome 2026



Acknowledgements

No conflict of interest to declare

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Learning objectives

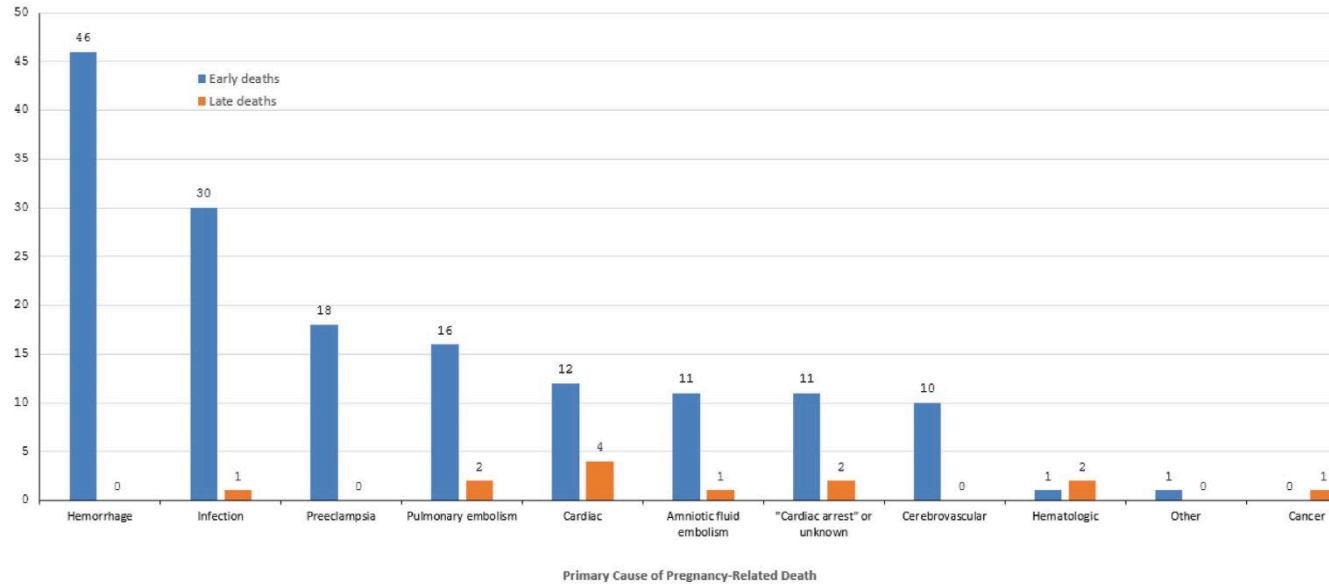
By the end of today's presentation, attendees will be able to:

Define co-creation, as a research processes

Plan the adaptation and implementation of a human -centred MEWS protocol into their own clinical setting

Background

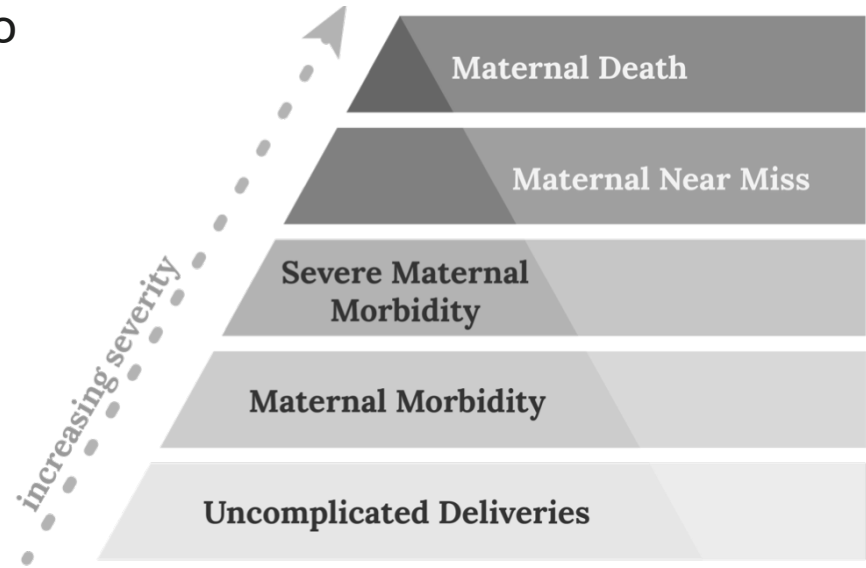
Canadian context



Background

What is severe maternal morbidity?

Severe maternal morbidity is a set of **unexpected** , outcomes related to pregnancy, labor, childbirth, and the postpartum period **resulting in severe illness, prolonged hospitalization, and/or long -term disability** ¹



Background

A disproportionate burden of pregnancy-related morbidity and mortality is carried by **racialized, immigrant, Indigenous, sex/gender minoritized populations, and persons with other instances of marginalization** ¹⁻⁵

There is an urgent need to reduce the **knowledge -to- action gap** in this area of women and gender -diverse people's health through the development of **knowledge mobilization activities**

1. Urquía, *et al.* Journal of Obstetrics and Gynaecology Canada. 2017; 2. In Plain Sight - Addressing Indigenous-specific Racism and Discrimination in B.C. Health Care ; 3. THE CALIFORNIA PREGNANCY-ASSOCIATED MORTALITY REVIEW. Accessed January 30, 2023; 4. Lisonkova, *et al.* Canadian Medical Association Journal. 2016; 5. Brown, *et al.* JAMA Netw Open. 2021

National Women's Health Research Initiative Pan-Canadian Women's Health Coalition – Hubs



Co-creating knowledge mobilization activities to address pregnancy-related near-miss events and deaths

What is the Hub?

A network and a space to **co-create** person and community -centred tools, resources, and processes to reduce serious pregnancy complications, and improve the health and wellness of women and gender diverse people in Canada

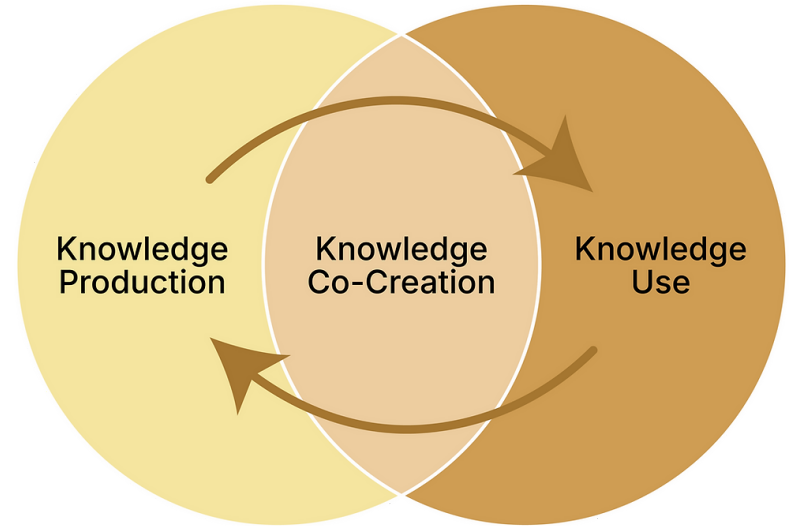


What is co -creation?

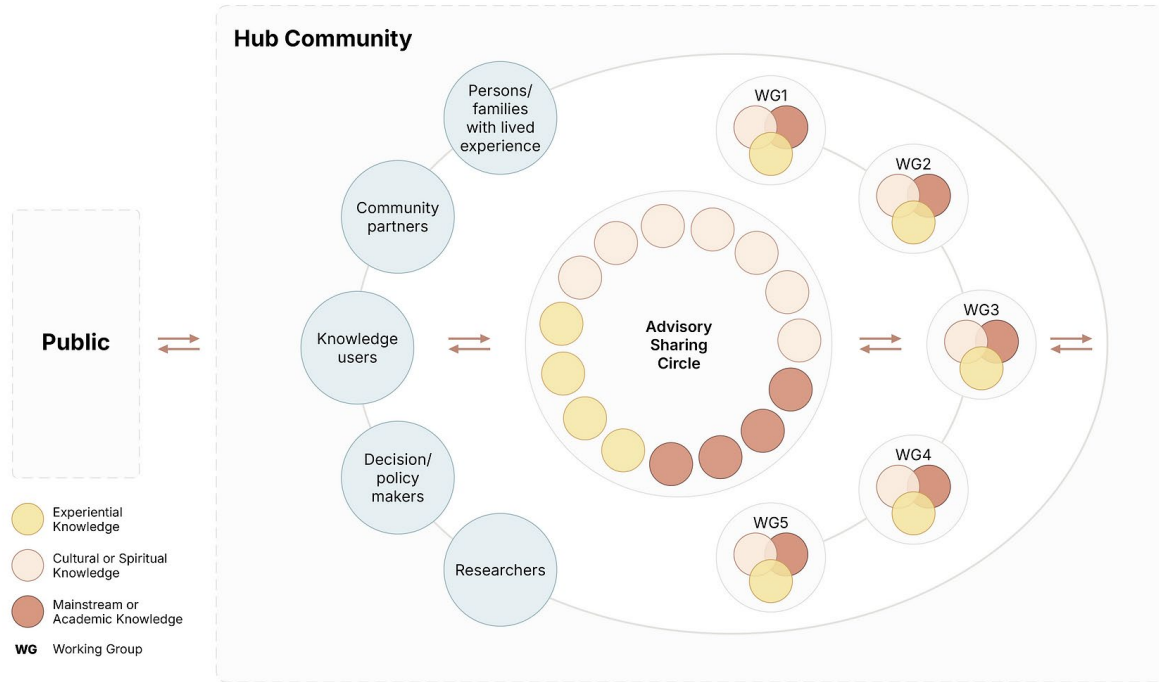
An **open, active, and creative process** in which all relevant knowledge users are engaged in an innovation process ¹

It is achieved through **respectful interactions and dialog** where everyone's voice is considered ²

When engaging in co -creation, researchers accept a **shift in power dynamics** from being fully in charge decision -makers towards equal partners with non -academic knowledge users ³



Hub structure



Governance mechanisms

Co-developed group norms

Built through workshops and member dialogue

Guide how we work together (trust, inclusion, communication, relationship building) -

Terms of reference

Define roles, representation, and expectations

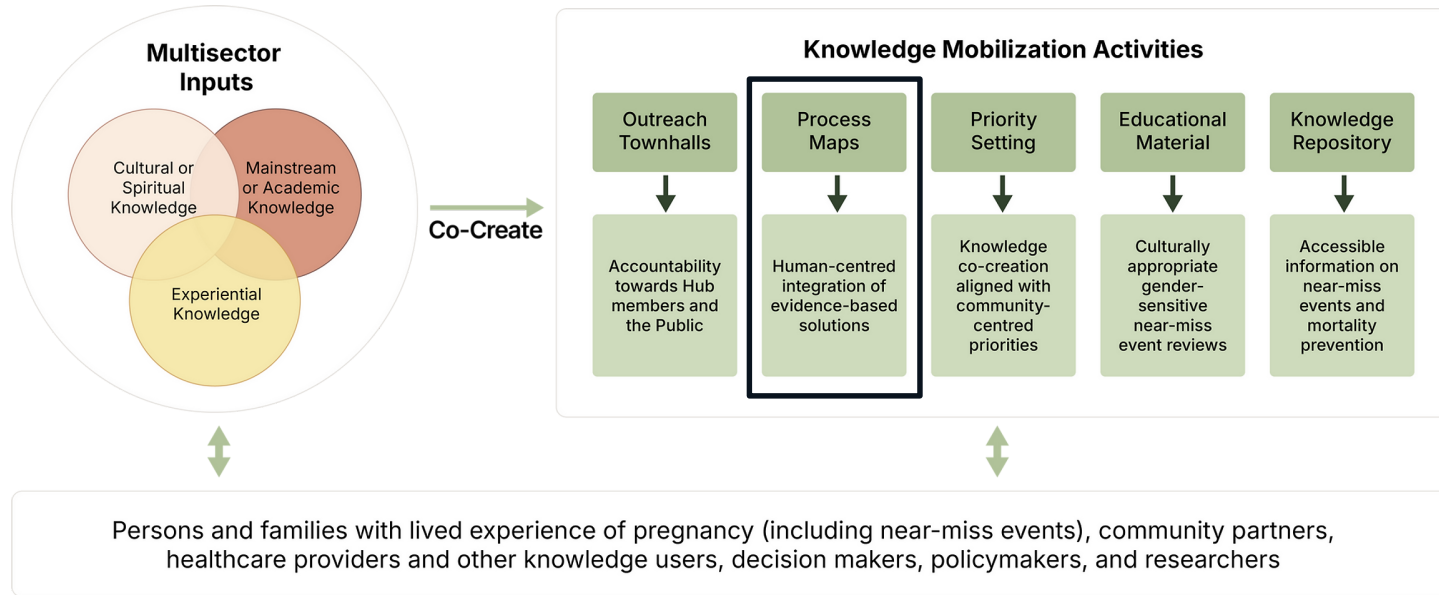
Establish consensus -based decision -making

Appreciation payment guidelines

Provide structured, transparent guidelines

Follow best practice principles (inclusiveness, support, co -building)

Activities of the Hub



RESEARCH

Open Access

Supporting the implementation of a Maternal Early Warning System (MEWS) protocol using Human-Centred Design



Donalee Mc Intyre¹, Ashley Spiegel², Sophia Kapellas³, Brianna Ghali⁴, Kate Mazziotti¹, Ruth-Lynn Fortune³, Sabrina Haas³, Stéphanie Cérat⁵, Emily Sugars⁶, Kylie Campbell-Clarke¹, Suzanne Deliscar¹, Mozhdeh Mehdizadeh⁷, Nicole Williams¹, Fatima Awwad⁸, Michelle Stimson¹, Michelle Wan⁶, Karen Lawford⁹, Ali Tatum¹⁰, Modupe Tunde-Byass^{11,12}, Millie Tresierra⁶, Diane Simon¹, Robert Finch¹³, Cynthia Maxwell^{11,14}, Ingrid Nielssen^{15,16}, Anne-Maude Morency⁴, Melissa Frew², Saraswathi Vedam¹⁰, Rohan D'Souza^{9,17} and Isabelle Malhamé^{1,5,18,19*} 

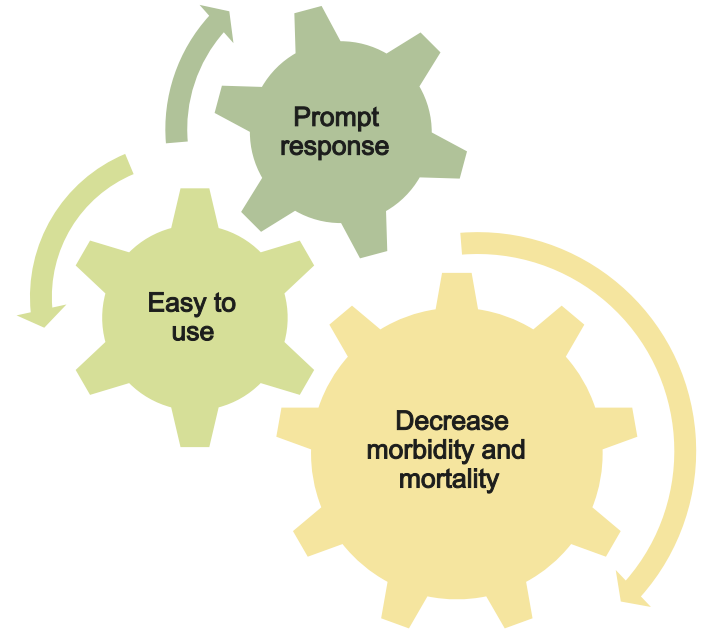


What is a MEWS Protocol?

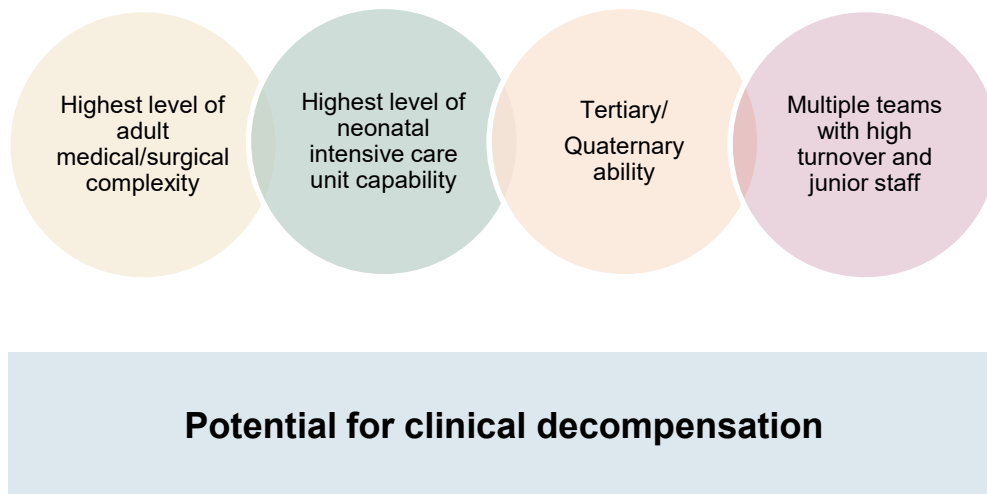
A standardized method aiming to **identify and respond** to high -risk situations for clinical deterioration

Based on recognition of **vital signs** , leading to **clear action items** from clinical teams with **coordinated, standardized** care for everyone

It should be **easy to use** to improve people's experience of care and should lead to reduced morbidity and mortality



Why implement a MEWS protocol?

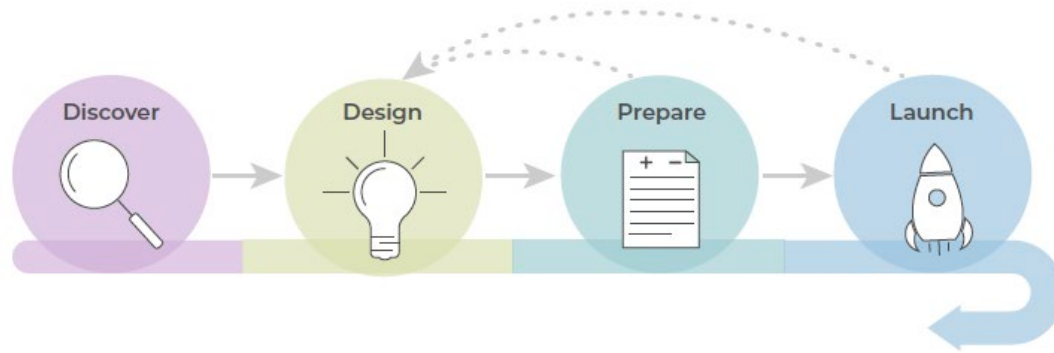


Human -centred implementation

Sept 2022



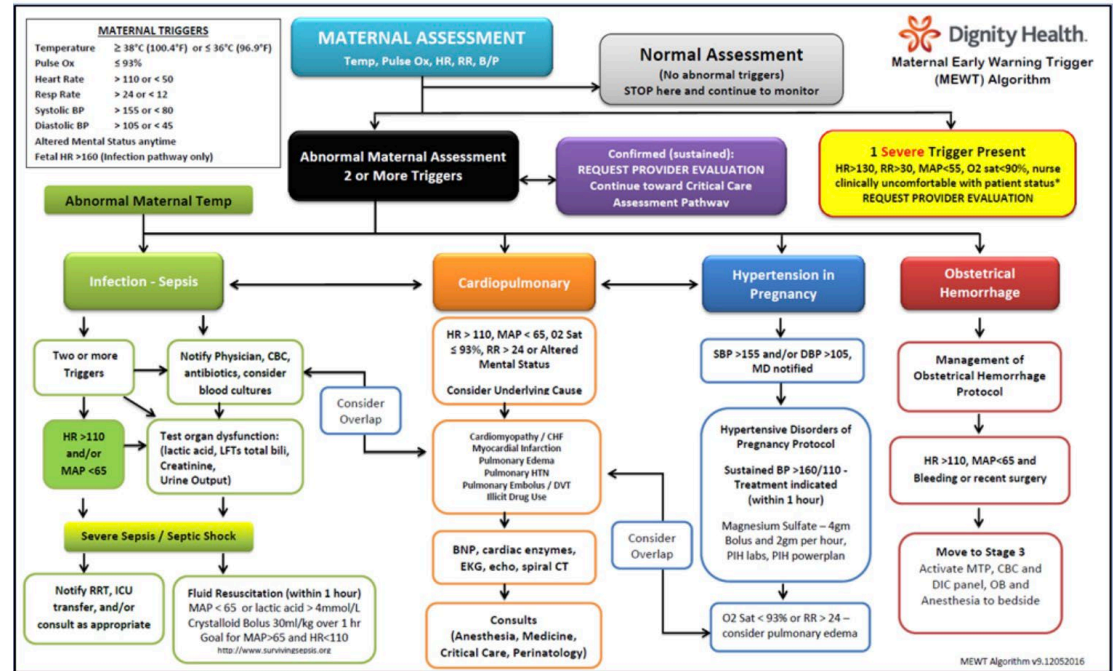
"We need/want a clinical protocol"



How do MEWS protocols work?



MATERNAL TRIGGERS	
Temperature	$\geq 38^{\circ}\text{C}$ (100.4°F) or $\leq 36^{\circ}\text{C}$ (96.9°F)
Pulse Ox	$\leq 93\%$
Heart Rate	> 110 or < 50
Resp Rate	> 24 or < 12
Systolic BP	> 155 or < 80
Diastolic BP	> 105 or < 45
Altered Mental Status anytime	
Fetal HR > 160 (Infection pathway only)	

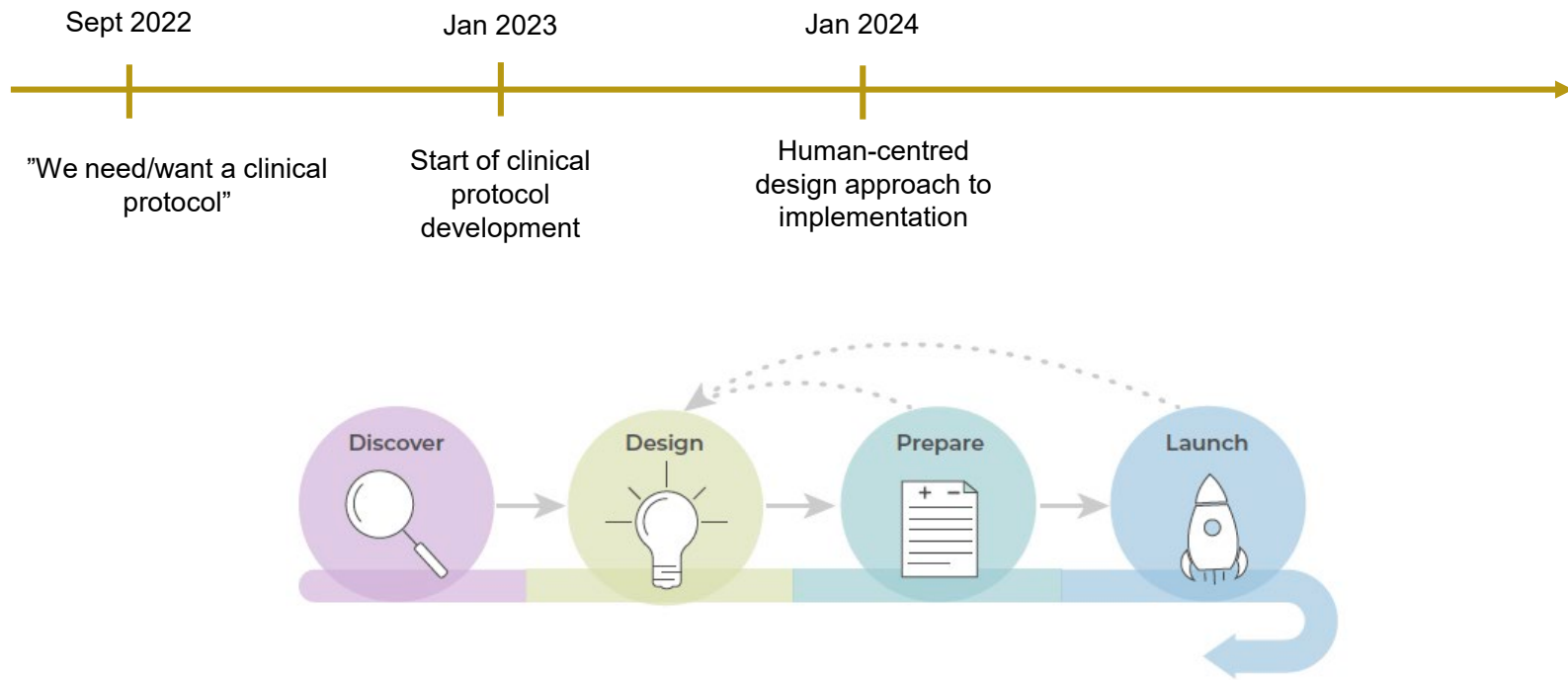


Are MEWS protocols effective?

MEWS protocols, when implemented well, can decrease severe maternal morbidity

	Pre-MEWT	Post-MEWT	Trend	<i>P</i> value
Deliveries	24221	12611		
CDC-SMM	2.0%	1.6%	↓	<.01
Composite morbidity	5.9%	5.1%	↓	<.01
Eclampsia/1000 ^a	2.0	0.4	↓	<.01
Hemorrhage	2.9%	2.7%	↓	.1
Transfusion	0.7%	0.6%	↓	.5
D&C/1000 ^a	4.1	3.0	↓	.1
Hysterectomy/1000 ^a	0.94	0.63	↓	.3
Sepsis/1000 ^a	0.78	1.3	↑	.14

Human -centred implementation



Design thinking

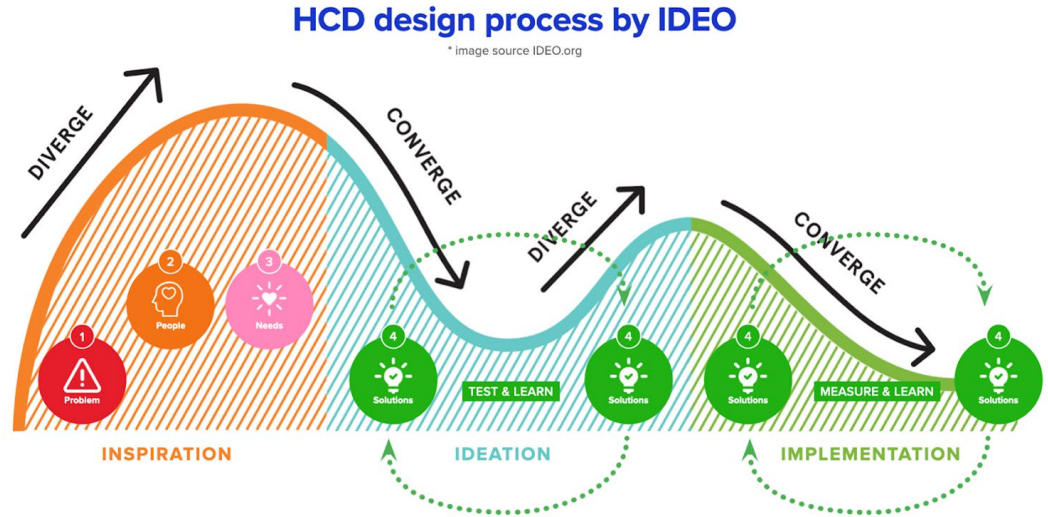


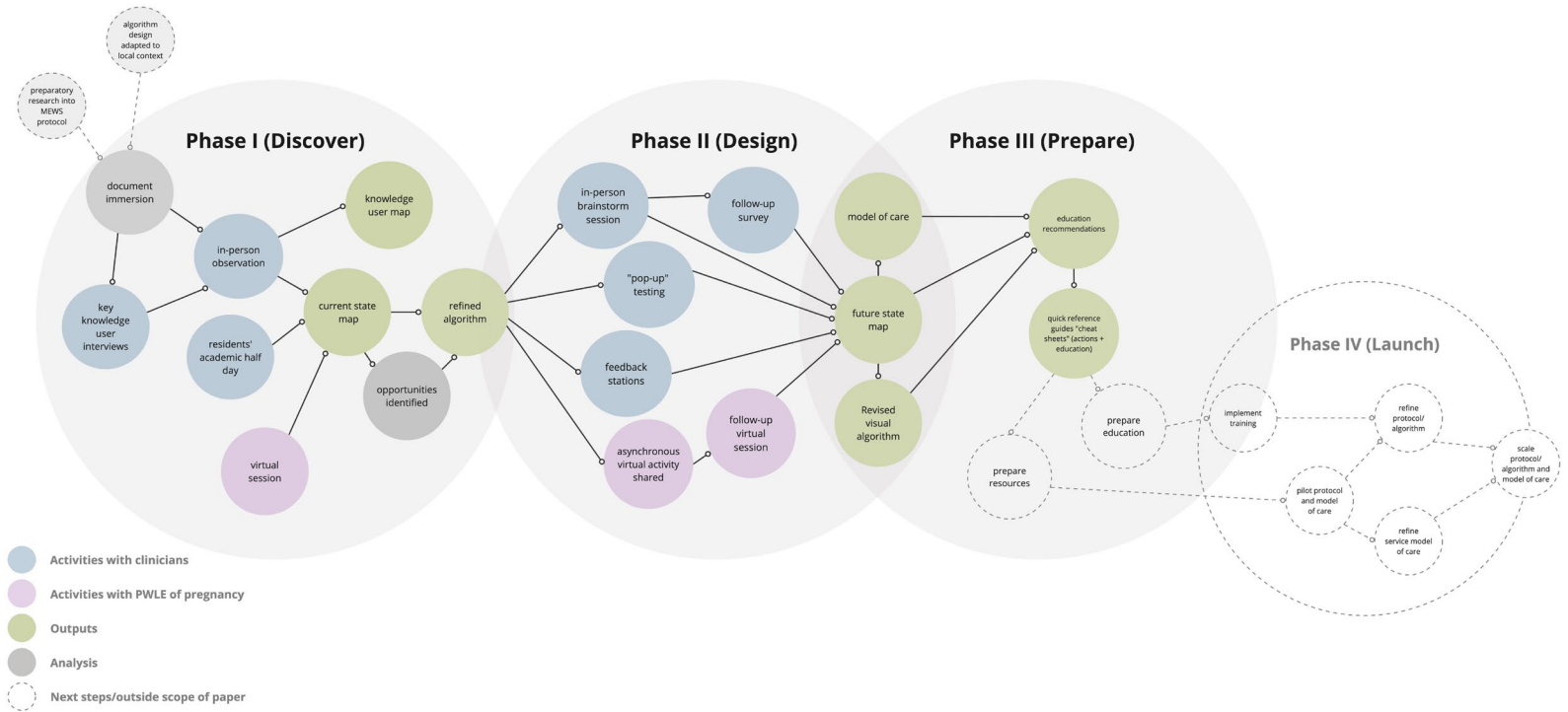
Human -Centred Design

Iterative, collaborative, people -
centred approach

Human -centered design aims
to explore big, complex, wicked
problems impacting people and
communities, putting people at
the center of the process

Designs with empathy to
understand the lived
experience of those facing a
problem





Co-creation workshops

Do you work on C6 or D6?
Have you heard about
Maternal Early Warning Signs?

Join Us



Be part of the change!

Come be a part of our one of a kind workshop.

We want to listen.
We want to understand. We want to learn.
We need and value your voice.
So we can build solutions together.

Choose what time works for you!

1 Monday April, 22nd 3-5 pm Zoom!
2 Thursday April, 25th 1-3 pm Zoom!



sign up here

hosted by:
Healthcare Human Factors*
A PRODD PARTNER OF UHS



Have you implemented new practices on
an obstetrical unit?
Do you want to be a part of the change?

Join us and help design a new change engagement process!



We will be hosting a unique workshop to explore how we might take a new human-centered approach to implement changes in clinical settings.

We will be asking about:

- What has worked well for you and your team?
- What are the unique needs of your clinical team?
- What are the unique needs of your patient population?

What time works best for you?
Complete our super short survey to let us know when you can join.

1 Thursday June 20th 1000 - 1130 ET
2 Tuesday July 2nd 1130 - 1300 ET



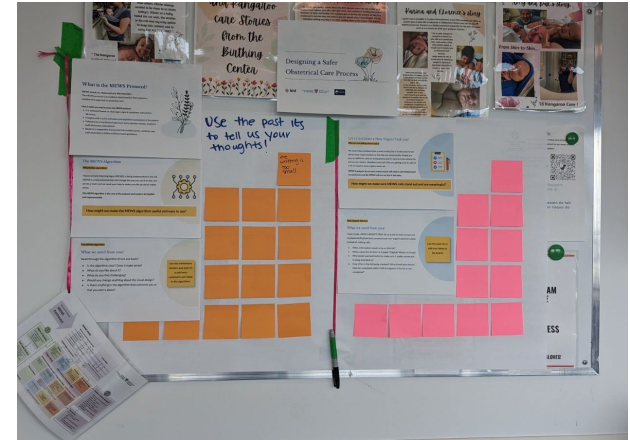
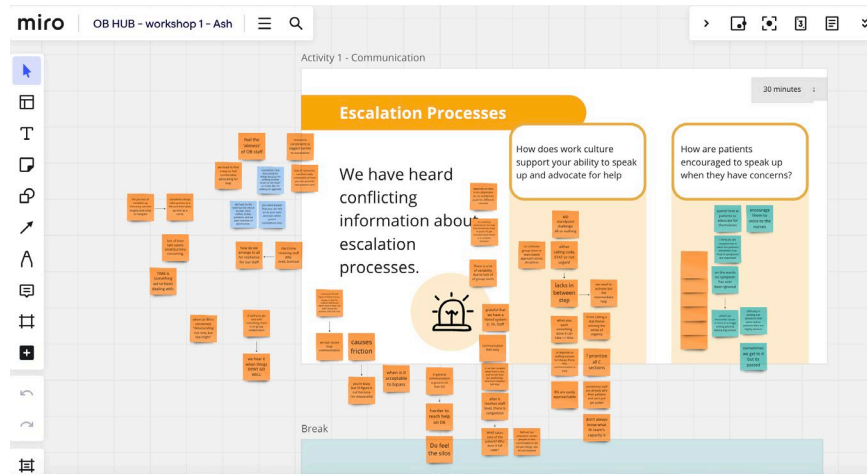
sign up here

*If you are non-academic staff an appreciation payment of \$50 will be provided as a thank you for your time

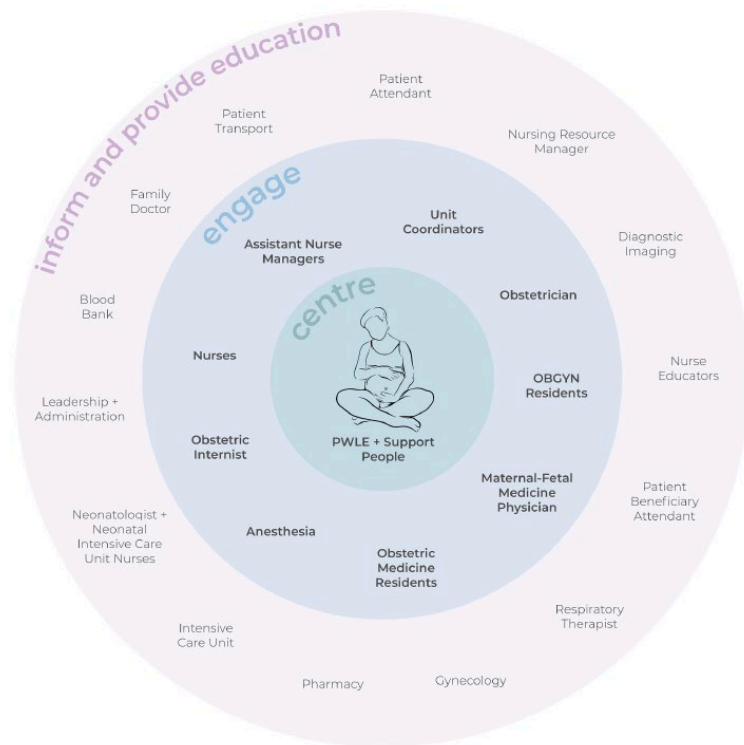
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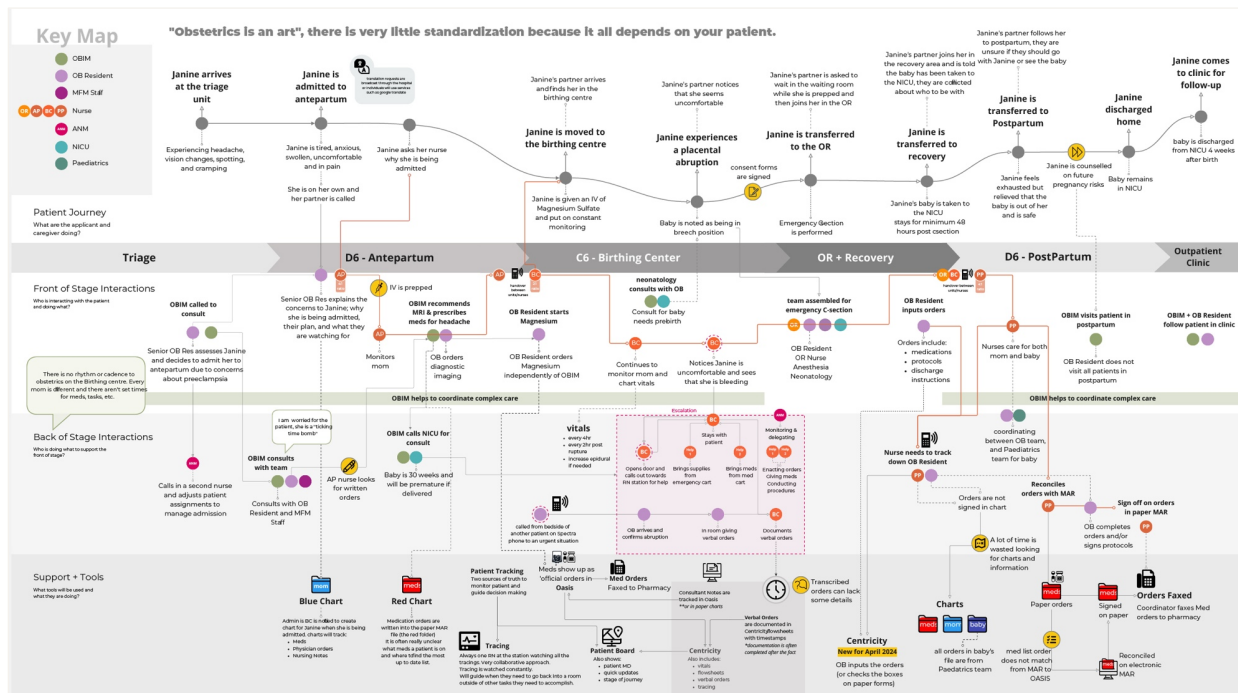
Online and in person sessions with clinical staff



Knowledge user mapping



The
GEM Hub



Online sessions with persons with lived experience of pregnancy



Adapted MEWS protocol

a

Nurse Process MEWS Pathway

A score of equal to or more than 2 will activate MEWS

Assess Vitals	=1	=1	normal	=1	=2
Temperature (°C)	36 or lower	36-38	39 or higher		
Heart rate (BPM)	49 or lower	50-59	60-110	111-120	130 or higher
Respiratory rate (RPM)	7 or lower	8-11	12-20	21-29	30 or higher
Systolic BP (SBP)	79 or lower	80-105	106-155	156-180	180 or higher
Diastolic BP (DBP)	44 or lower	45-105	106-109	110 or higher	
Oxygen sat (Room Air)	89 or lower	90-95	96-100		100 or higher
Fetal heart rate (BPM)	70 or lower				160 or higher
Altered mental status	☹				
Clinician uncomfortable with patient status	☹				

Assess signs & symptoms

Seizure	Cardio	Infection	Hemorrhage
- Headache/visual changes - Epigastric/RUQ pain, N/V - Focal neurological deficits - Neuro VS - Glasgow Coma Scale	- Dyspnea, orthopnea, tachypnea - Pallor, cyanosis - Dizziness, syncope - Chest Pain or discomfort	- Chills - Dysuria - Dyspnea, cough, sputum - Wound, incision, episiotomy - Breast erythema, tenderness	- Continued bleeding - Ht 9, 80 - Dizziness - Pallor, diaphoresis

Trigger MEWS

Alert Nurse in Charge

Nurse Actions

- Stay with patient - Take vitals every 5 minutes - Monitor SpO₂ - 95% or above - administer oxygen as needed - Strict intake and output	Send CULTURES BEFORE starting antibiotics	- Consider 2nd 18g IV access - EFM if pregnant
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Collective Orders: Lab tests + Diagnostic tests

- Blood glucose - Preeclampsia profile - Mg, Ca, Phos	- NT-proBNP, troponin - Preeclampsia profile 12 lead ECG	- UA and Urine C&S - Blood C&S from 2 sites - CBC, CMP, venous blood gas, Coags - CENT, Ca, Mg, Phos - Uter Profile - Type & screen (if not done in pregnancy)	- CBC, INR/PTT, fibrinogen - Crossmatch 2 units PRBC
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Consult

Discuss next steps with Physician



Patient-Led Escalation

Patient indicates they are feeling "REALLY" unwell or not right.
"I feel like something is going on"
"I feel like I'm going to pass out"

Increase monitoring of vitals and assessment of signs and symptoms
Call resident (R2+) for support



Nurse in Charge

- Call resident (R2+) to bedside w/in 15 minutes
- Inform Staff Physician
- Reassess patient
- Assist with: Bloods/ Labs/ Diagnostics/ Imaging
- Call anesthesia staff if required
- Bring OBS Emergency cart to the room PRN
- If patient can't wait 15 minutes call Code Blue

Escalation

- If no response in 15 minutes:
 - Call back resident
 - OR
 - Consider calling Staff Physician for added support
 - OR
 - Consider calling the 2nd OB on call (validate with staff first)

b

Physician Process MEWS Pathway

MEWS TRIGGERED

RN enacts the collective orders

Assess signs & symptoms

Seizure Cardio Infection Hemorrhage

Additional Physician Orders, Labs + Diagnostics

- Chest X-Ray, CTA Chest, VQ scan, TTE - Ferritin, TSH, D-Dimer	- Vaginal, wound, sputum C&S - COVID19/ Respiratory Virus PCR - Liver Function Tests
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Physician Actions

- MgSO₄ 4g IV over 20 min (repeat PRN) - If no IV access, 5g IM in each buttock (total 10g) - Treat hypertension prn (See Cardiol) - Assess for signs of abortion, DIC, pulmonary edema - CT Scan/ MRI head - ENG, Echo, carotid doppler - Consider urine tox screen (get patient consent if alert)	- If pulmonary edema suspected, consider: - Furosemide 10mg IV - Local Anesthetic - Systemic Tachycardia (LAST) - PRN Hypertensive emergency protocol: - Labetalol 20 mg IV over 2 min-undiluted - Hydralazine 5mg IV over 2 min-undiluted - Nifedipine 5 mg PO	- If SBP below 100 IV bolus, Lactated Ringers 500mL - Antibiotics within 1h of sepsis diagnosis: - Pip-Tazo 4.5g IV q6h* - If allergy to penicillin or cephalosporin: - Mertensium 1g IV q6h* - If GBS suspected: add Cefazolin 3000mg IV q8h * If MRSA suspected: add Vanco 25mg/kg IV x 1, then 15mg/kg IV q12h; monitor renal function + trough level before 4th dose - Consider repeat coagulation profile	- Fundal/Manual massage, express clots - Manual revision ensure good pain management - Misoprostol 400mg PO/SL x1 AND - Tranexamic acid 1g IV x1 - Signch Plasma expander (Voluven) - Transfuse PRBC - Other uterine tonic initiate massive transfusion protocol (call 34078) and send PAB for cooler
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If necessary, consult/ transfer to ICU or

Consult with nurse in charge to consider next steps

Consult Obstetrical Med	- If no improvement, consider transfer to cardiac resuscitation setting - Consult Obstetrical Med	- If not responsive to fluid resuscitation - Consider transfer to ICU	Consider transfer to OR/ Main OR
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If you are activating MEWS

- Stay with patient until help arrives
- Take VS q 5 minutes, document
- Call RN to room to start collective orders

Escalation

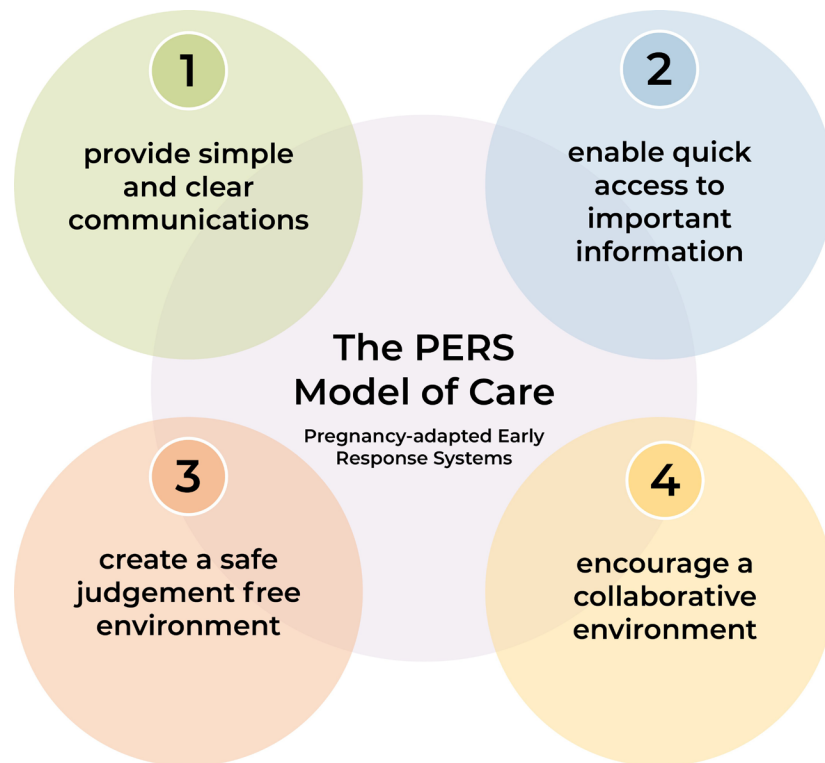
- If you are not able to assess in 15 min
 - Let RN know
 - AND
 - Delegate to another resident
 - OR
 - Call Staff Physician for support
 - OR
 - Consider calling the 2nd OB on call



SPECTRA Contact numbers:

Junior resident: [Redacted]
Senior resident: [Redacted]
Staff OB: [Redacted]
Nurse in charge OB: [Redacted]
Nurse in charge DB: [Redacted]

Model of care



Patient poster

Co-created with:

Persons with lived experience

Hub members

Advisory sharing circle

Clinicians

Shaped:

Content

Visual

Tone

Language used

Any Concerns about your health and wellbeing during or after pregnancy?
Please speak to us



What you feel and are experiencing matters to us. Your care and concerns are our care and concerns

There are lots of different staff who can help you. Please do not hesitate to speak to any one of us

We are here for you, to listen to you, and help you with any questions or concerns you may have



Please do not be afraid or dismiss your views, we strive to provide a safe and caring environment for you

No matter how big or small your concern, we welcome and respect everyone and their needs

If something does not feel right, please speak with us



Spiritual
Mental
Emotional
Physical

Headache
Blurred vision
Chest pain
Less movement from baby
Shortness of breath
Dizziness
Vaginal bleeding
Fever

Let us know if you need more time to talk - we will arrange a time to listen

All aspects of your care and wellbeing are important to us

Here are some common things that people raise - but everyone has their own concerns, please speak to us



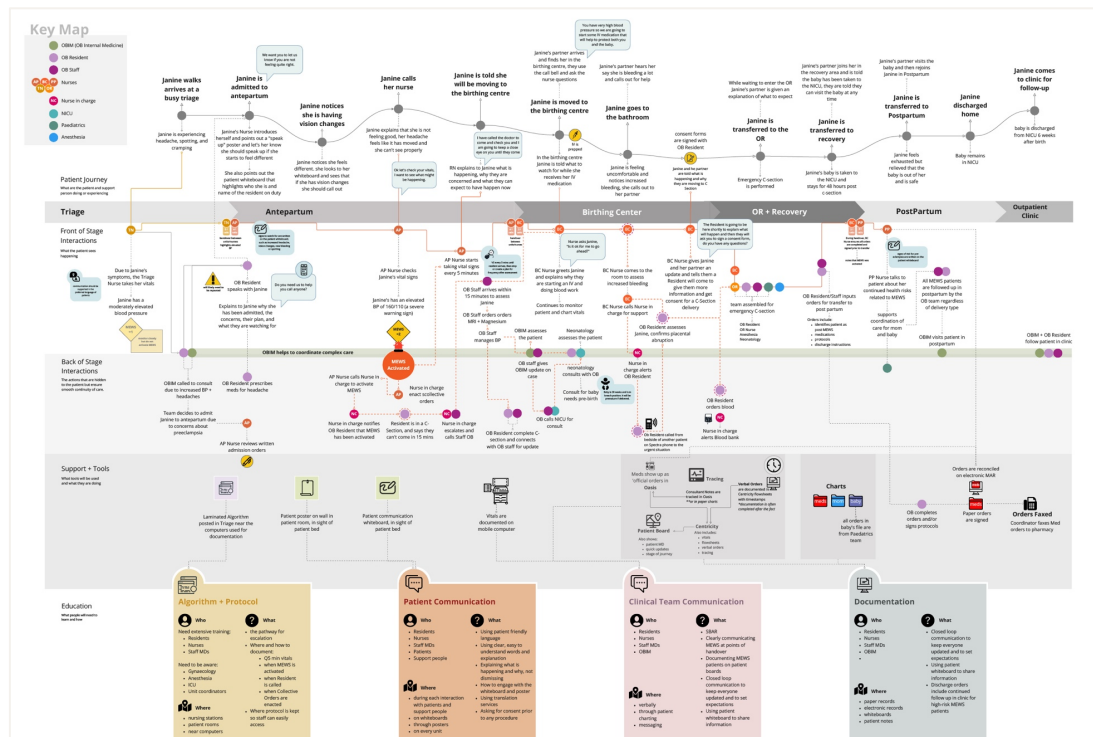
You are part of the team and there is no such thing as a silly question

If you want to know more about help available, you can access them in this QR code

This poster was created with The GEM Hub



Future state

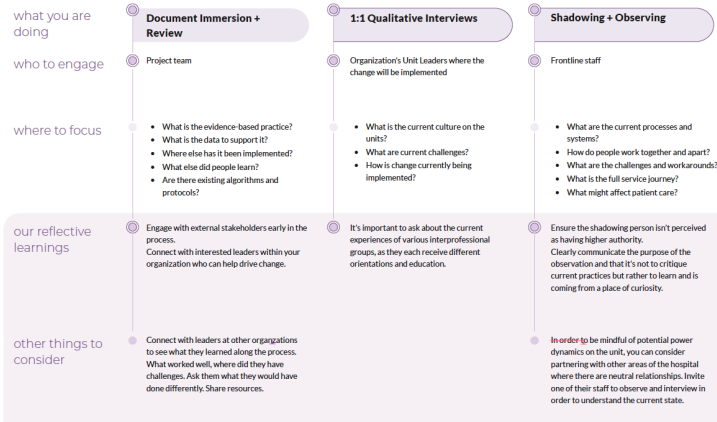


A Human -Centred Change Framework



Accompanying digital tool

The Discover Phase



A Framework for Change

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Exploratory Workshops

Exploratory workshops are an early opportunity to gather a multidisciplinary group of people together to discuss the current lived experience of both delivering and receiving care. It is important to have a range of voices gather together and reflect on each other's perspectives.

At times, it may be valuable to include patients and support people; however, often at this early stage, it is more advantageous to engage with clinical teams separately from patients and support people. Early exploratory workshops are not necessarily used to brainstorm new ideas but instead to validate what you have learned through interviews and observations and to dig deeper, learning more about the root causes of some of the identified gaps, challenges, and barriers.

Considering the 'Valuing All Voices' framework can enhance workshop engagement by ensuring that every participant's perspective is heard and valued. This approach can foster a more inclusive environment, leading to richer discussions and a more comprehensive understanding of the issues at hand.

Rochie, P., Shimmis, C., Hicks, S. et al. *Valuing All Voices: refining a trauma-informed, intersectional and critical reflexive framework for patient engagement in health research using a qualitative-descriptive approach*. *Res Involv Engagem* 6, 42 (2020). <https://doi.org/10.1186/s40900-020-00217-2>

< back to journey

A Framework for Change

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Things to Consider

Consider when, where and how you are hosting workshops. Will you host the event virtually or in person? Here are a few things to think about as you plan your workshop.

If you are hosting an In-Person workshop:

- Ensure you make the time and space accessible for those who need to attend
- Support people to leave the floor during shifts to participate in the workshop

If you plan to host the workshop virtually:

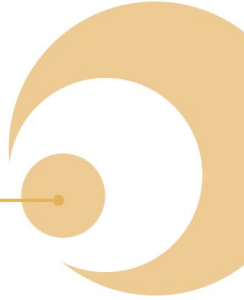
- Consider how you will make space for people to collaborate. Often we use online tools such as word documents or powerpoint slides so that people can co-collaborate in one space
- Be sure you will be able to share your screen with the group so that everyone can see you taking notes even if they can not access the document or tool you are using



Outputs of the work

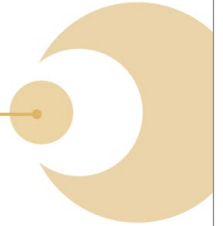
The MEWS Model of Care

Implementation Report

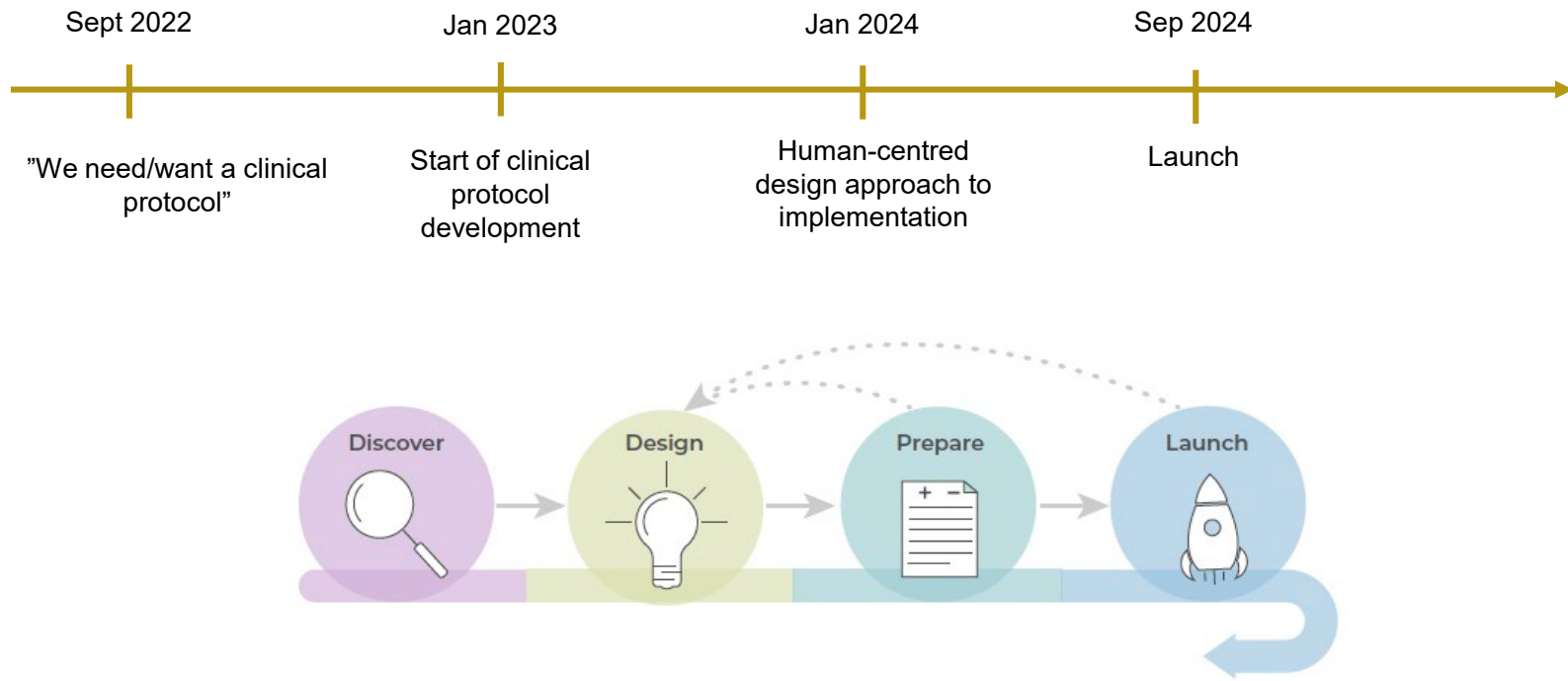


An Innovative Change Framework

To Support the Implementation of
New Evidence-Based Practices



Human -centred implementation

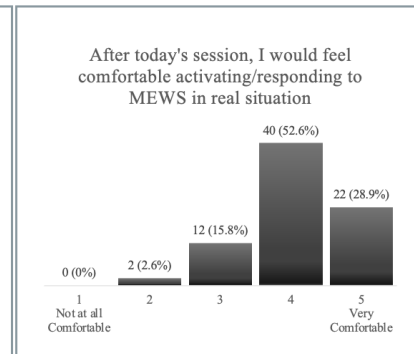
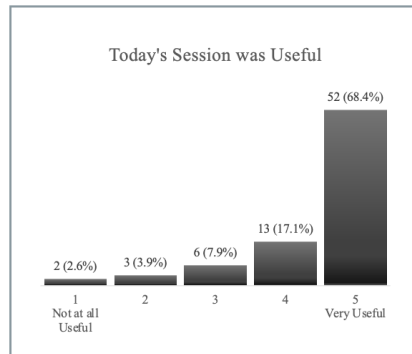
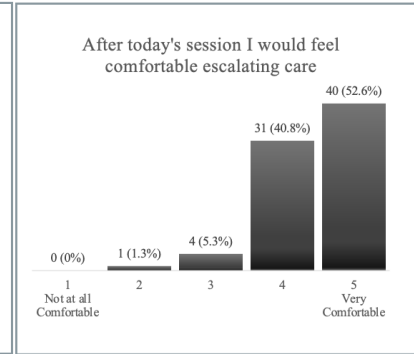
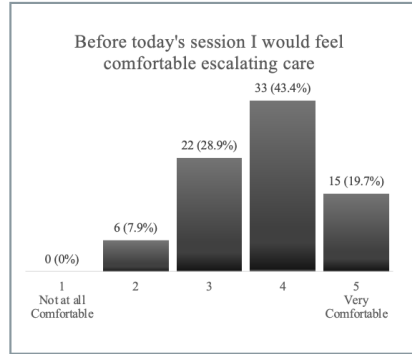


Pre-launch training

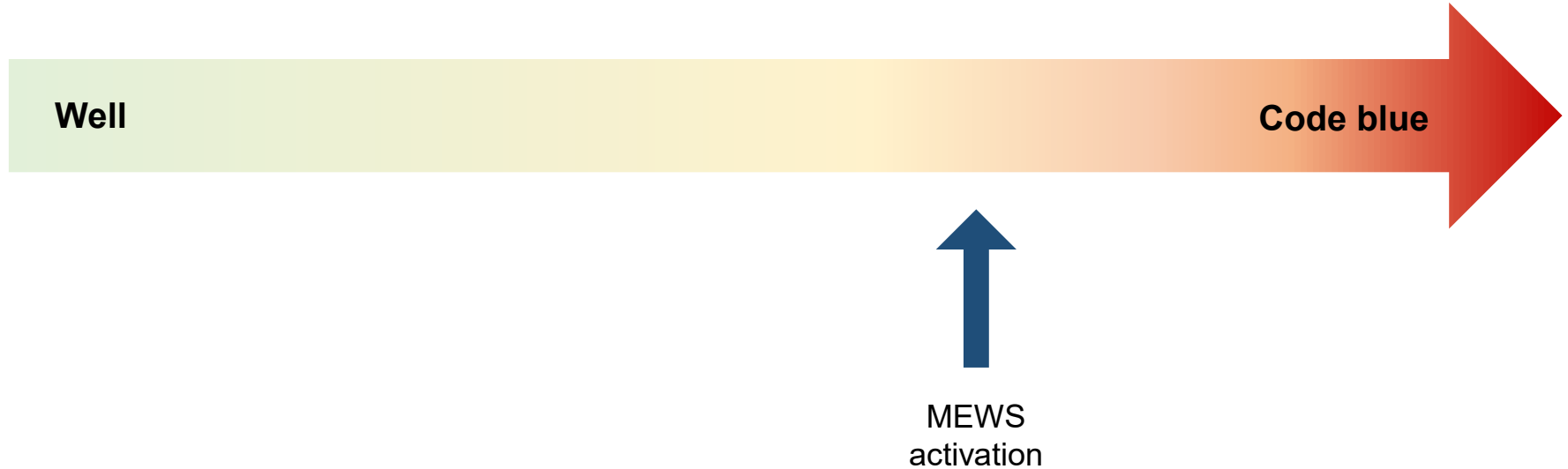
Multidisciplinary
Skills drills
Simulation sessions
Didactic teaching
Pedagogical
material



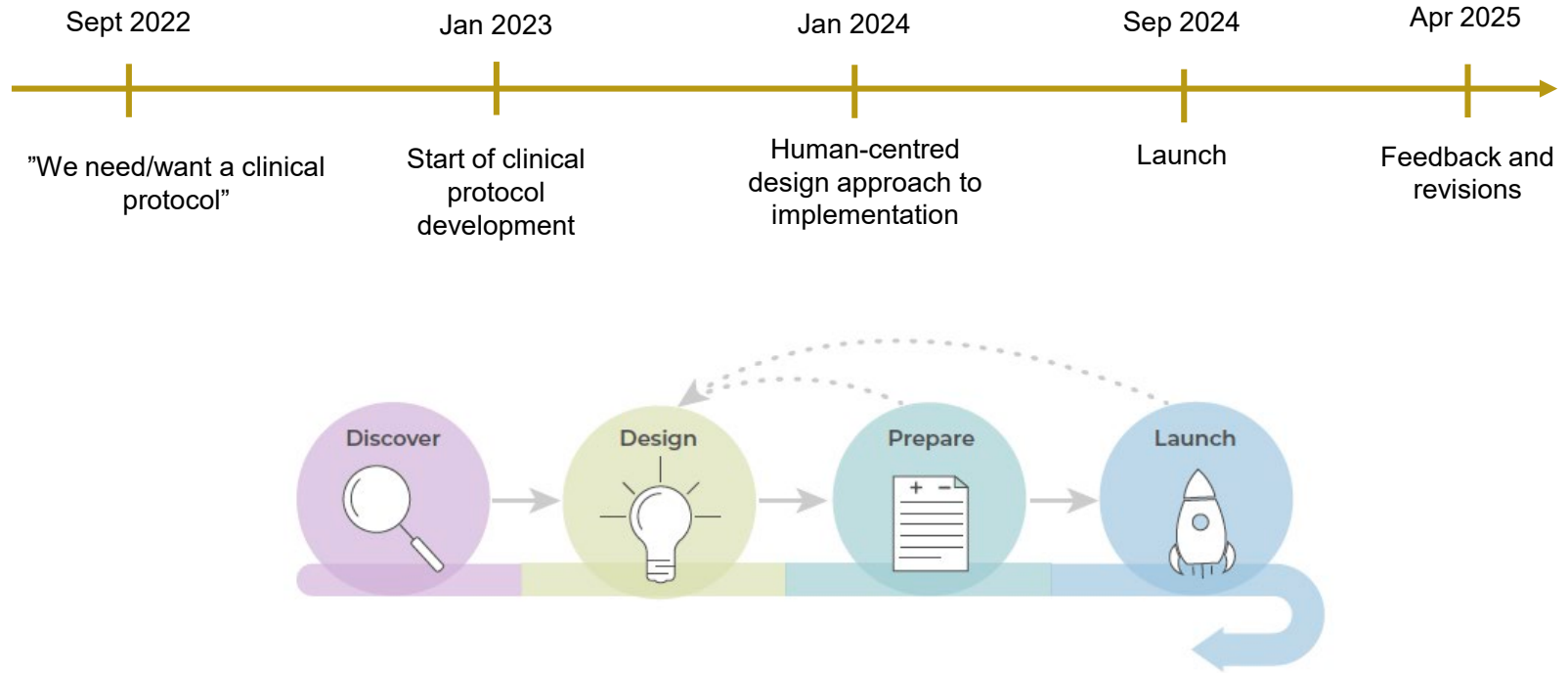
Brianna Ghali



Challenges with MEWS



Human -centred implementation



Challenges with MEWS 1/6

Appropriate number
of alerts

Alert fatigue



Challenges with MEWS 2/6

Building and
enhancing
professional
autonomy

Reducing the
skillset and critical
thinking



Challenges with MEWS 3/6

Being specific and
clear

Being inflexible and
too prescriptive



Challenges with MEWS 4/6

Increasing safety
and optimizing
resource allocation

Being overly
anxious and
wasting resources



Challenges with MEWS 5/6

Supporting
individuals and
backup
mechanisms

Being patronizing
and draining
resources



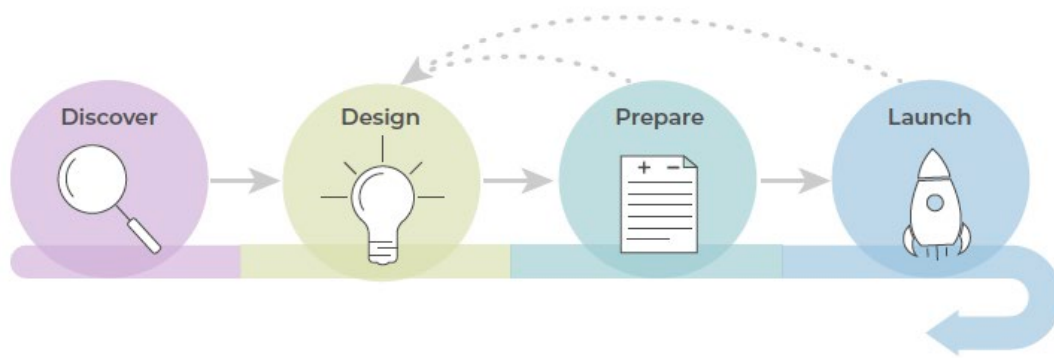
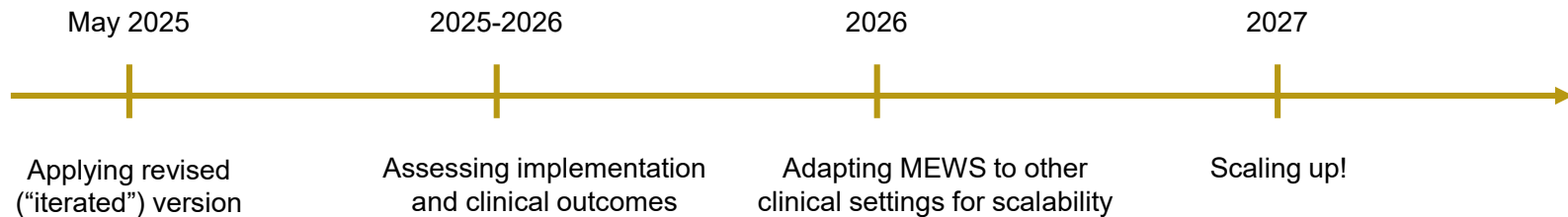
Challenges with MEWS 6/6

Having a
standardized
approach to care

Recognizing the
inherent differences
between units



Human -centred implementation



Thank you

Anne-Maude Morency

Sophia Kapellas

Stéphanie Cérat

Sabrina Haas

Ruth-Lynn Fortune

Elisabeth Chailloux

Ashley Spiegel

Melissa Frew

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McGill University Health Centre



Thank you

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Jocelynn Cook
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Liz Darling
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Wesley Edwards
Shaza Fadel
Jessica Fields
Robert Finch
Milena Forte
Ellen Giesbrecht
Atobrhan Godlu
Patricia Janssen
Alisha Julien Reid
Bronte Johnston
Clara Juando Prats
Marian Knight
Stephen Lapinsky
Karen Lawford
Luwana Listener

Cynthia Maxwell
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Kara Nerenberg
Ingrid Nielssen
Patricia O'Campo
The Society of
Obstetricians and
Gynaecologists of
Canada
Wilberforce Obwona
Ogaba
Maria Ospina
Maria Jose Parrilla
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Leslie Po
Lanie Quito
Claire Ramlogan -
Salanga
Rachel Roy
Bukola Salami
Alan Santinele Martino
Heather Scott
Rebecca Seymour
Meron Seyoum
Prakeshkumar Shah
Anam Shahil
Diane Simon
Ali Tatum
Modupe Tunde -Byass
Sarawathi Vedam
Eduardo Vides
Sahr Wali
Qiong (Della) Wang
Karen Wou



Donalee Mc Intyre



Kate Mazziotti



AbSP^{RU}

Thank you!

Contact us :
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