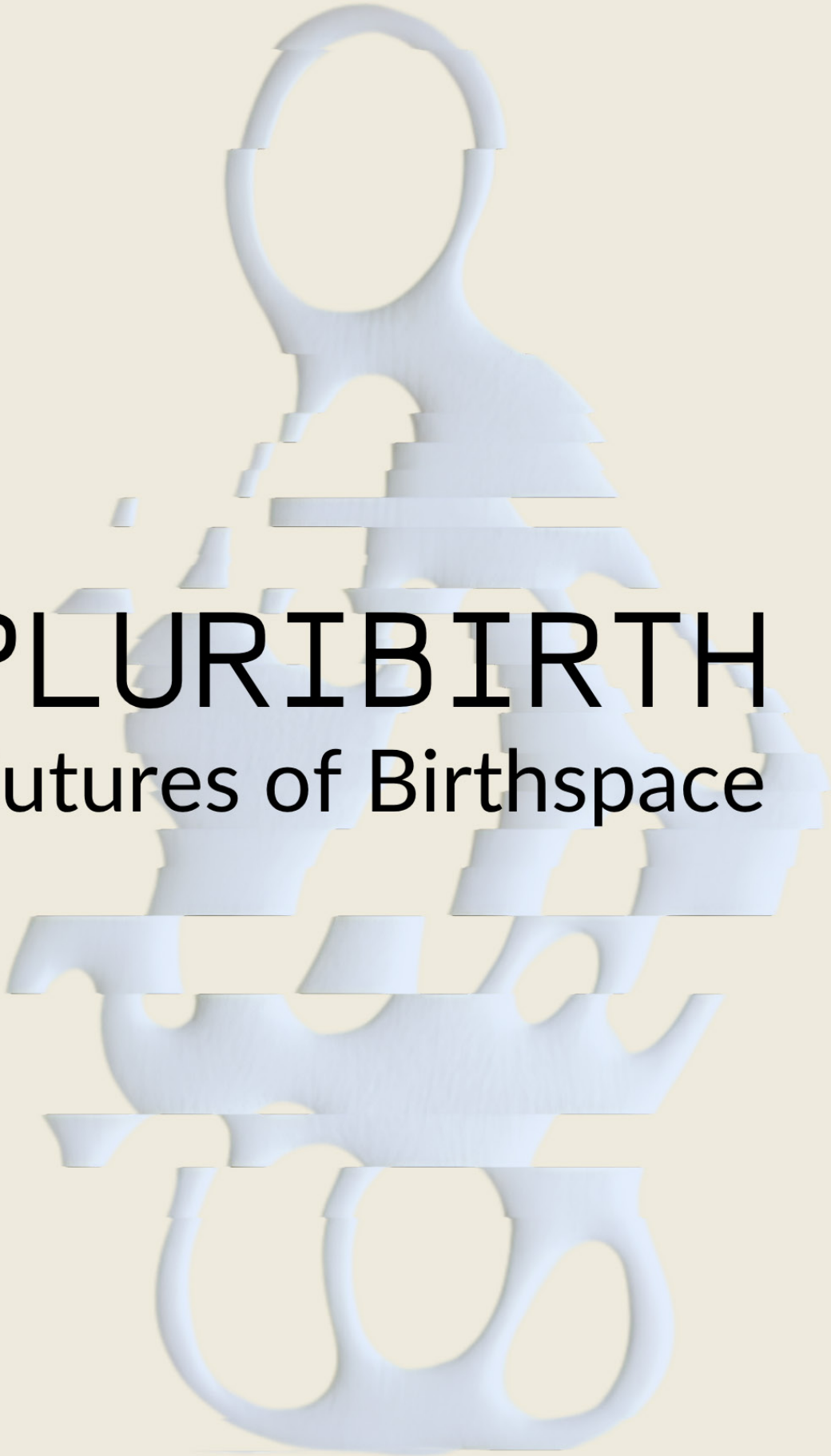
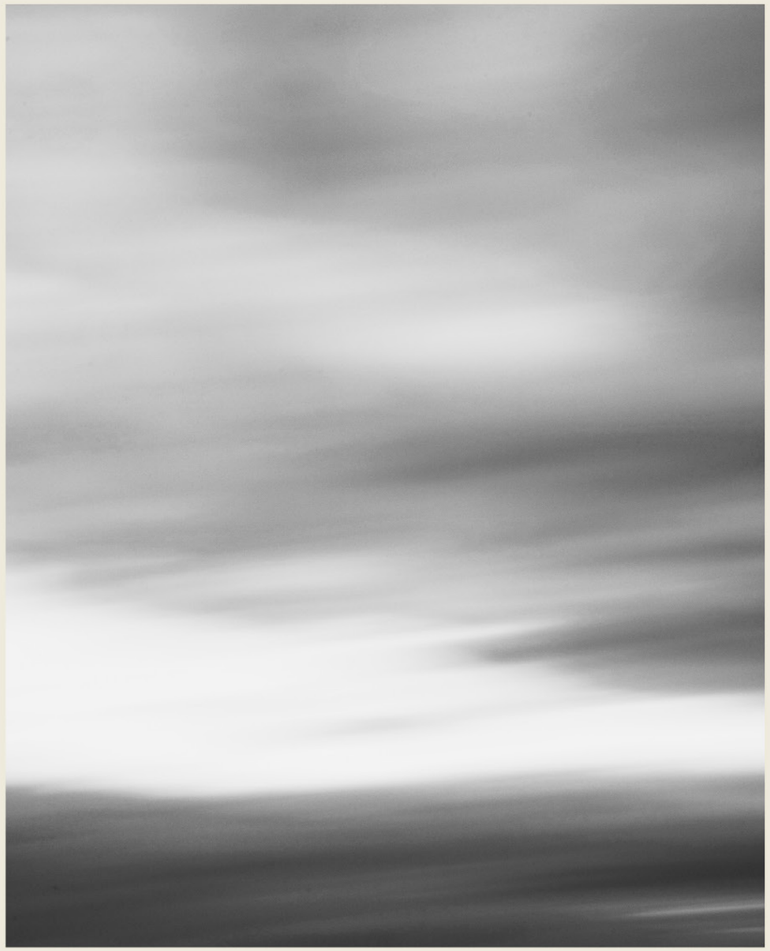


PLURIBIRTH

Futures of Birthspace



PLURIBIRTH
Futures of Birthspace

Sasha Kamkin, Kory McGrath, & Zachary Scholtz

An MRP exhibition presented to OCAD University
in partial fulfillment of the requirements for the degree of
Master of Design in Strategic Foresight & Innovation
Graduate Gallery, 205 Richmond St. W., April 16 - 19,
Toronto, Ontario, Canada, 2026

An inquiry into collective dreaming, speculative design, and plural futures of care.

To reimagine birthspace is to reimagine how we care, how we become, and how we build worlds.

Abstract

This Major Research Project explores the futures of birthspace as sites of transformation, care, and world-making. Situated at the intersection of design, healthcare, and futures thinking, the project responds to growing recognition that contemporary birth environments, often shaped by medicalization, standardization, and risk-based frameworks, can constrain the relational, sensory, and cultural dimensions of care.

Expanding beyond a clinical definition, this research understands birthspace as a broader field of transformation, encompassing moments of becoming, transition, and reconfiguration across the lifespan. Through a relational and speculative design approach, the study investigates how future birth environments might be reimagined

Through collective dreaming and speculative design to transform experiences of pain, strengthen relational practices, and support more inclusive and ecologically attuned forms of care.

The research integrates transdisciplinary methods, including literature review, environmental scanning, and relational inquiry with participants within, adjacent to, and beyond birthspace. This approach brought multiple worldviews into the research, showing how perspectives from areas such as ritual practice, end-of-life care, and immersive design shape how care environments are experienced, understood, and dreamed of.

Speculative design functions in this project as a mode of research synthesis. Drawing on weak signals, lived experience, and existing scholarship, insights are translated into experiential artifacts and design fictions that materialize possible futures. Rather than solving predefined problems, these speculative outputs surface hidden assumptions, provoke critical reflection, and enable ethical engagement with how care systems might evolve.

Across these imagined futures, a consistent pattern emerges: contemporary care environments are increasingly misaligned with the embodied, sensory, and relational needs of those within them. In response, a shared longing emerges for spaces that adapt to people, support inward attention, and reconnect birth to broader social and ecological worlds.

Findings are synthesized into a set of design shifts that articulate shared orientations across transformative spaces, alongside how these shifts are enacted differently across cultural, political, and experiential contexts. Through this lens, birthspace becomes both a metaphor and a method—a generative starting point for reimagining plural, relational, and ecologically attuned futures of care.

KEYWORDS

Birth, Birthspace, Pluribirth, Speculative Design, Foresight, Futures, Futures Thinking, Collective Dreaming, Innovation

Umuntu ngumuntu ngabantu
“I am because we are”

No work of transformation is made alone. This work is shaped by those who came before, held by those who walk with us now, and entrusted to those yet to come.

We Acknowledge

We acknowledge that this work takes place on lands governed by Treaty 13 and the Williams Treaties, home to the Mississaugas of the Credit, and shaped by the enduring presence of Haudenosaunee and Anishinaabe peoples, who have cared for these lands and waters since time immemorial. We write as settlers, aware of the privileges that shape how birth is experienced here—often close to home, within familiar spaces, and with access to care. For many Indigenous families, this is not the case. Ongoing colonial practices continue to displace birth from community, separating people from land, kin, and cultural continuity at the very moment of arrival. What is (re)imagined in this paper is not new. It echoes knowledge long held. Its presence here is a reminder that remembering must be accompanied by responsibility. We honour diverse gender identities and expressions. Language in this work is intended to be inclusive of all who experience birth, including trans, Two-Spirit, and non-binary people.

Shaped by insights of those who shared their experiences with us from within, adjacent, and beyond birthspaces, this work is offered in gratitude to them.

We are deeply grateful to Jananda Lima and Nadine Hare, faculty supervisors and co-dreamers, for encouraging other ways of 'doing' research.

Thanks to Ginny Brunton, Silva Nercessian, and Abigail Corbin for their early encouragement in building an MRP from the foundations of the Virtual Hydrotherapy project.

Meeting Doreen Balabanoff and participating in her Transforming Birthspaces colloquium and exhibit allowed us to immerse ourselves in a global community of architects, designers, and midwives who also reimagine birthspace—and to engage with emerging tech, with the generosity of Joseph Ellsworth's guidance. Gratitude also to Suzie O'Reagan and the welcoming community at Sunnybrook's Pregnancy and Infant Loss Network, who championed our work, Contemplative Spacemaking, linking our birthspace work to perinatal bereavement and hospice. Thank you to Suzane Stein and the Association of Professional Futurists for supporting us and selecting us to exhibit at the 2025 APF x OCADU Futures of Creativity & Compassion.

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Kory McGrath

To Stephen, Koen, Klara, Mars, and Jules, for being Everything I long for. Storm, Smaug, and Oomah for unconditional love of the more-than-human kind. Mary Sharpe for enacting relational research before I knew what it was called, and for growing *Spacemaking* with me. My brother Chad, for our conversations on the analogue and how a tree's shadow impacts the design of a pathway below. My sister Leah, who paved the way for academic futures. My friends and colleagues, especially Andrea Campbell, who covered my call to attend classes and who inspires me endlessly; and Liz Kavouris for being a role model in all things political, humanitarian, philosophical, and fun; Zoe Haslam for opening Amherst cottage to us and being the midwife to midwives. To Jennifer Short, whose energy and support are unmatched. Thanks to Roxana Corcioba for introducing me to speculative design and to Lindsay Tattersall for gifting me Mukhopadhyay's *A Labour of Liberation*. To S&Z - holy F@#K we did this, and it wouldn't be the same without you. To Vicki Van Wagner, whose words to the TMU MEP graduating class of 2017: "we dreamed about you, we've been waiting for you" continue to echo forward, shaping how I think about the futures we inherit and create. And finally, to my best friend, GG forever, who lives on in me and everything that I do.

Sasha Kamkin

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To my God, a place, I call home.

Zachary Scholtz

To my wife, Amanda: without you, I would not have applied, succeeded, or finished this program. Your guidance, encouragement and support carried me throughout this experience. I adore you, I love you, and I always will. To my parents, Liz and Clem: your lives, our lives, influenced my pursuit of innovation to support others in moments of pain and vulnerability. Your creativity, curiosity, and love are at the core of who I am and what I carried into this program and project. I love you. To my sisters, Deidre and Desiree: thank you for always being in my corner and supporting me throughout my life. Your hard work and dedication to yourselves and others have always inspired me and played a key role in my sense of purpose and confidence in pursuing this program. I love you. To my in-laws, Debbie and Hollis, thank you for your support over the past three years. Your home is filled with love and laughter, which gave me strength throughout this journey. I love you. To my sister-in-law, Carla, your pursuit of education and your refusal to settle truly inspired me to apply for this program. Thank you for all your support and encouragement during this time. I love you. I hope I made you all proud. Kory and Sasha, thank you for your knowledge, time and passion throughout this project. I couldn't imagine finishing this program any other way, thank you! And yes, I love you too!

Dedication

To all who cross thresholds, and those who make it possible.

Contents

List of Tables & Figures

Birth is not separate from planetary crisis. It is where our relationship with the world begins.

Though we may not all give birth, we are all born. What kind of world is there to receive us?

Introduction

Birth is not only an arrival, but a moment where worlds take shape. Though we may not all give birth, we are all born. Born into particular conditions—into care or its absence, into safety or precarity, into systems shaped by culture, politics, and environment. How we come into being shapes our earliest relationship with the world. In this work, we ask: what kind of world is there to receive us?

Birth, like death, is a universal human experience, yet it is also deeply shaped by what societies value (Van Gennep, 2019; De Vries et al., 2001). Historically, birth was embedded within community, supported through relational and experiential forms of care (De Vries et al., 2001; Bourgeault et al., 2004). Over time, the rise of institutional medicine and risk-based frameworks has transformed many birth environments into highly medicalized and standardized spaces (De Vries et al., 2001; Odent, 2014), often displacing birth from its broader social and environmental contexts (Kildea et al., 2021). While these systems have brought important advances in safety (SOGC, 2026; De Vries et al., 2001), they have also narrowed what is recognized as valid knowledge, care, and experience (Smith, 1990; Escobar, 2018; Corso et al., 2022).

This project begins from the premise that birthspaces are designed—materially, culturally, and politically—and these designs shape how birth is experienced, remembered, and integrated. To support this inquiry, we expand our understanding of birth and birthspace.

We define birth not only as the arrival of a baby, but as a broader process of emergence, transformation, and becoming. This includes experiences of beginnings, rebirths, losses, and transitions across the lifespan.

We define birthspace as more than a physical location. While birthplace refers to where birth occurs, birthspace refers to the relational field surrounding it—the proximity between bodies, people, environments, technologies, and time. It exists across physical, digital, and symbolic dimensions. Beyond the microcosm of birthspace environments, this research recognizes that birth is not separate from planetary crisis; it is where our relationship with the world begins (Davis & Athan, 2023).

By exploring the relationality of birth as an ecological encounter and positioning it as a threshold for worldbuilding, this project asks how the earliest environments of life might catalyze broader transformations in how bodies, communities, and the more-than-human world are sustained (Oman-Reagan, 2019; Søndergaard, 2023b; Søndergaard et al., 2023a).

We also introduce the concept of pluribirth, which draws on the idea of the pluriverse—a world in which many worlds coexist (Escobar, 2018; Leitão, 2020). In this sense, birth and birthspace can be understood as sympoeitic, or collectively made through ongoing relations rather than produced in isolation (Harraway, 2016). Pluribirth recognizes that there is no single way to birth and no single form that birthspace can take, but many possible forms shaped by culture, context, ability, history, and desire. It includes experiences often excluded from dominant narratives, such as bereavement, disability, and non-normative family structures. It makes space for the convergence of Western science with other ways of knowing, representing a growing collaborative effort to address complex challenges by combining distinct yet complementary methodologies. We draw on Mi'kmaw Elder Albert Marshall's principle Etuaptmumk (two-eyed seeing), which acknowledges that when two or more perspectives collaborate, better outcomes are more likely (Bartlett et al., 2012;

This research began as an exploration of how design interventions—particularly immersive, sensory environments—might improve birth experiences. Our early prototype, Virtual Hydrotherapy (Figure 18), used projected water, sound, and light to transform clinical birth rooms into more calming, responsive environments. However, as the work evolved, so too did the question. What began as a focus on atmosphere expanded into a broader inquiry: what makes birthspace possible in the first place? What conditions—material, relational, ecological, and political—shape how birth is experienced?

This project is the result of a collaborative inquiry across different perspectives and fields. Our team brings together experience from emergency, intensive care, and remote nursing, midwifery practice, and visual storytelling. We have worked across highly medicalized environments, community-based and home care settings, as well as within creative disciplines. Some of us have given birth; others have not. All of us have encountered healthcare systems as both formal and informal providers and as recipients of care. These differences are not incidental—they are central to the work. They shape how we see, what we notice, and what we question. As Shawn Wilson (2008) suggests, no two people experience the same fire in the same way; it is through shared perspectives that a fuller understanding emerges.

Our participants also reflected this diversity, including those who work within birth systems, those adjacent to them, and those who engage with other forms of transition, care, and transformation. Together, these perspectives expand what birth can mean, and what birthspace might become.

This research is motivated by a commitment to equity and relational accountability, and by the belief that imagination shapes futures. Birth cannot be separated from histories of colonization, displacement, and systemic inequity. At the same time, it remains a powerful site for reimagining care, agency, and connection.

What we offer here is not a single solution, but a series of provocations. Through speculative design, storytelling, and relational inquiry, we explore how birthspace might be otherwise—opening space for dialogue, reflection, and the possibility of futures shaped by many ways of knowing, caring, and being. (Terry et al., 2024).

System Context

The design of birthspace is inseparable from the system in which it is embedded. In Ontario, where we are situated geographically, a complex configuration of policies, infrastructures, professional roles, and cultural narratives organizes how birth unfolds. We situate this system here to surface the dominant logics that shape contemporary birth experiences, and to identify the tensions that open space for reimagining.

High Intervention Within Predominantly Low-Risk Births

Ontario accounts for approximately 40% of births in Canada, with more than 140,000 annually. (Better Outcomes Registry Network (BORN) Ontario, 2024). Although most pregnancies are clinically low-risk, care is primarily led by obstetricians —specialists trained in high-risk and surgical intervention. Cesarean section rates are approximately 35% provincially, compared to lower rates in midwifery-led care (~23%) and substantially lower rates in midwifery-led units (~8%), like the Alongside Midwifery Unit (AMU) (Association of Ontario Midwives (AOM), 2025; Oak Valley Health, 2022).

his pattern highlights a mismatch between population risk and system design, where environments structured for intervention shape the experience of birth, regardless of clinical necessity.

Institutional Dominance with Alternative Models

Birth in Ontario occurs predominantly within hospital settings, including the majority of midwifery-led births (~86%) (AOM, 2025). A smaller proportion take place at home (~11%) or in midwifery-led birth centres, of which there are few across the province (AOM, 2025). This distribution reflects the dominance of institutional birthspace while pointing to edge conditions—home births and midwifery-led centres—that redistribute control, environment, and relational care. These alternative sites offer insight into how birth might be organized differently.

Birthspace as Clinical Infrastructure

Birth environments are largely shaped by biomedical priorities of safety, efficiency, and risk management (OPHA & PCMCH, 2021; Batram-Zantvoort et al., 2021). While essential, these priorities can configure birthspace as a site of surveillance and intervention (Foucault, 1989), often limiting attention to sensory, cultural, and relational dimensions of care (Puig de la Bellacasa, 2017). At the same time, discourse around trauma-informed care, human experience, and environmental design signals a shift toward understanding birthspace as relational and ecological (Boakye et al., 2023; Stark et al.; 2016; Global Birth Environment Design Network, n.d.), extending beyond the clinical room to include embodied and situated experience, communities, and environments.

System Inequities and Fragmentation

Access to care within Ontario's birth system is not evenly distributed. Many individuals may experience discontinuity as they move across providers, institutions and stages of care, particularly in the context where access to local providers (ie, midwives, general practitioners with obstetrical skills), birth centres, culturally safe care or local services are limited. For some, this involves travel and/or forced medical evacuations between settings, as well as repeated entry into unfamiliar environments (Campbell et al., 2025; Cidro et al., 2020). These inequities shape maternal and newborn health outcomes (Weckman & Farrugia, 2025; Boakye et al., 2024; Venegas et al., 2026). For Indigenous people in remote communities, forced evacuations for birth can separate birthing people from kin, land, culture, medicines and community-based care, while imposing biomedical definitions of risk that may not reflect Indigenous concepts of safety and wellbeing (Erika et al., 2025; Cidro et al., 2020). And experiences of obstetric racism within Black maternal health continue to undermine quality of care, safety and trust (Boakye et al., 2023; BORN, n.d.). Fragmentation in Ontario's context is not simply administrative but also geographical, racialized, cultural and relational. While ongoing efforts seek to improve equity, integration, and patient experience within the system, these conditions continue to shape how birth is accessed, experienced and supported across the province.

Together, these patterns position Ontario's birth system as both highly structured, unevenly accessible and unevenly responsive — simultaneously stabilizing and constraining, while also fragmenting experiences of care. It is within this tension that the system becomes a critical site of inquiry: where dominant paradigms are made visible, and where alternative models and emerging signals create openings for reimagining birthspace.. These conditions informed our methodological approach, which attends not only to what is structured and measurable, but to what is emerging, unevenly experienced, relational, and not yet fully articulated.

We have to remember that research doesn’t have to be formal. It is a Ceremony

for improving your relationship with an idea. It takes place everyday and has taken place through history (Wilson, 2008)

Methodologies

This Major Research Project investigates how future birth environments might be reimagined to transform relationships with pain, strengthen relational practices, and support the well-being of both people and planet. The research is grounded in a transformative paradigm, which positions research as a means of advancing equity and social change by centering lived experience, questioning dominant power structures, and engaging diverse ways of knowing (Mertens, 2017). This orientation is further informed by critical, decolonial, and posthumanist perspectives, which challenge dominant biomedical and linear framings of birthspace. Methodologically, the study integrates autoethnography, strategic foresight, and speculative design within a relational framework. Guided by a desire-based orientation (Nelson & Stolterman 2012 in Leitão, 2020), the research resists deficit narratives and instead centres lived experience, relationality, and possibility. Here desire is understood not simply as a want or a preference but as "the destabilizing trigger for transformational change, which facilitates the emergence of new possibilities and realizations of human “being”. (Nelson & Stolterman 2012, p. 110). Knowledge is understood as co-created through relationships between researchers, participants, environments, and cultural contexts (Wilson, 2008).

Study Design

The research process was structured using the Double Diamond framework (British Design Council, 2005), moving from exploration (mapping experiences and signals) to definition (identifying patterns and tensions) to development (speculative ideation) to delivery (artifact creation and exhibition). This process extended beyond delivery, whereby artifacts functioned as generative sites for reflection and synthesis. Implications emerged iteratively across the process, reframing assumptions about care, the body, birth and birth environments while revealing new possibilities to reimagine care. This multi-method approach reflects foresight practice, which draws on diverse methods, including evidence-based, creative, and participatory approaches, to explore complex questions (Popper, 2008). It unites ***Topoanalysis***[1] & *Birth Futures* - an adapted methodology that helps reimagine the possibilities of birthspace through collective dreaming and design. (Sanders & Jan Snappers, 2014; Pijnappels et al., 2024).

Across these choices, the methods are not only procedural, but ontological: they reflect and enact a worldview in which knowledge is relational, transformation is ongoing, and care is co-created. In this sense, the research process mirrors the conditions of birthspace itself—creative, relational, and transformative.

[1]**Topoanalysis**: a way of exploring how our experiences of intimate and liminal birth(spaces) shape and are shaped by our memories, emotions and imaginations (Bachelard, 1994)

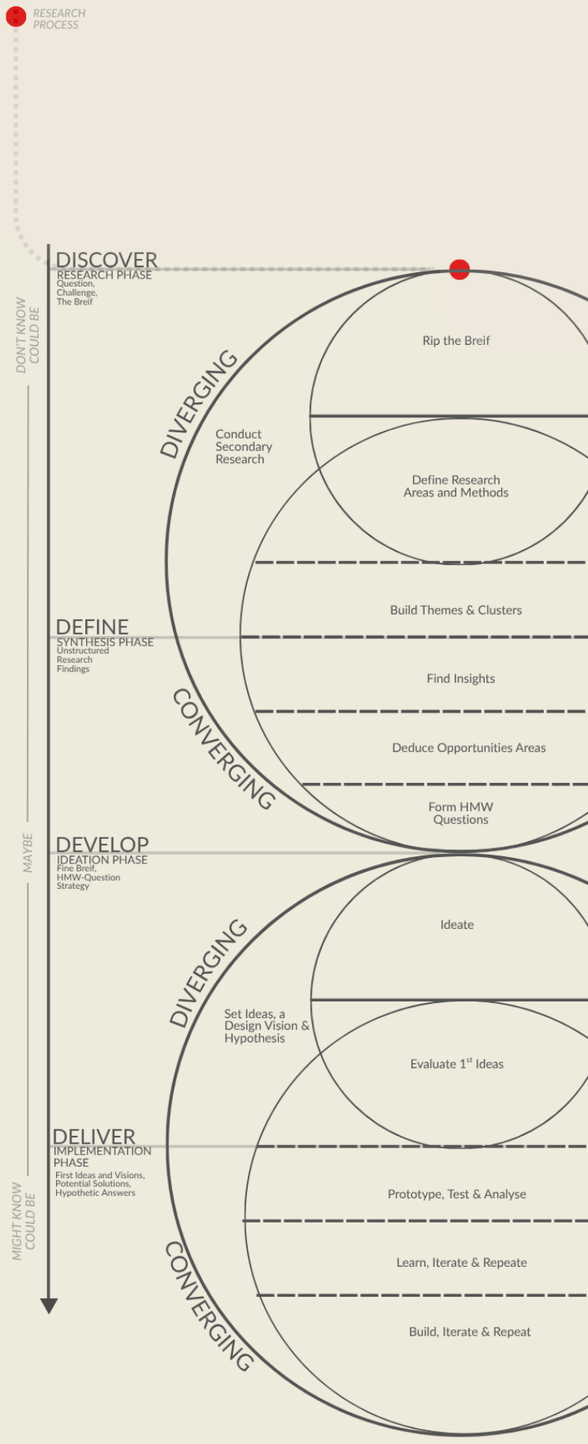


Figure 1: Double Diamond Framework

Relational Inquiry & Sensemaking Approach

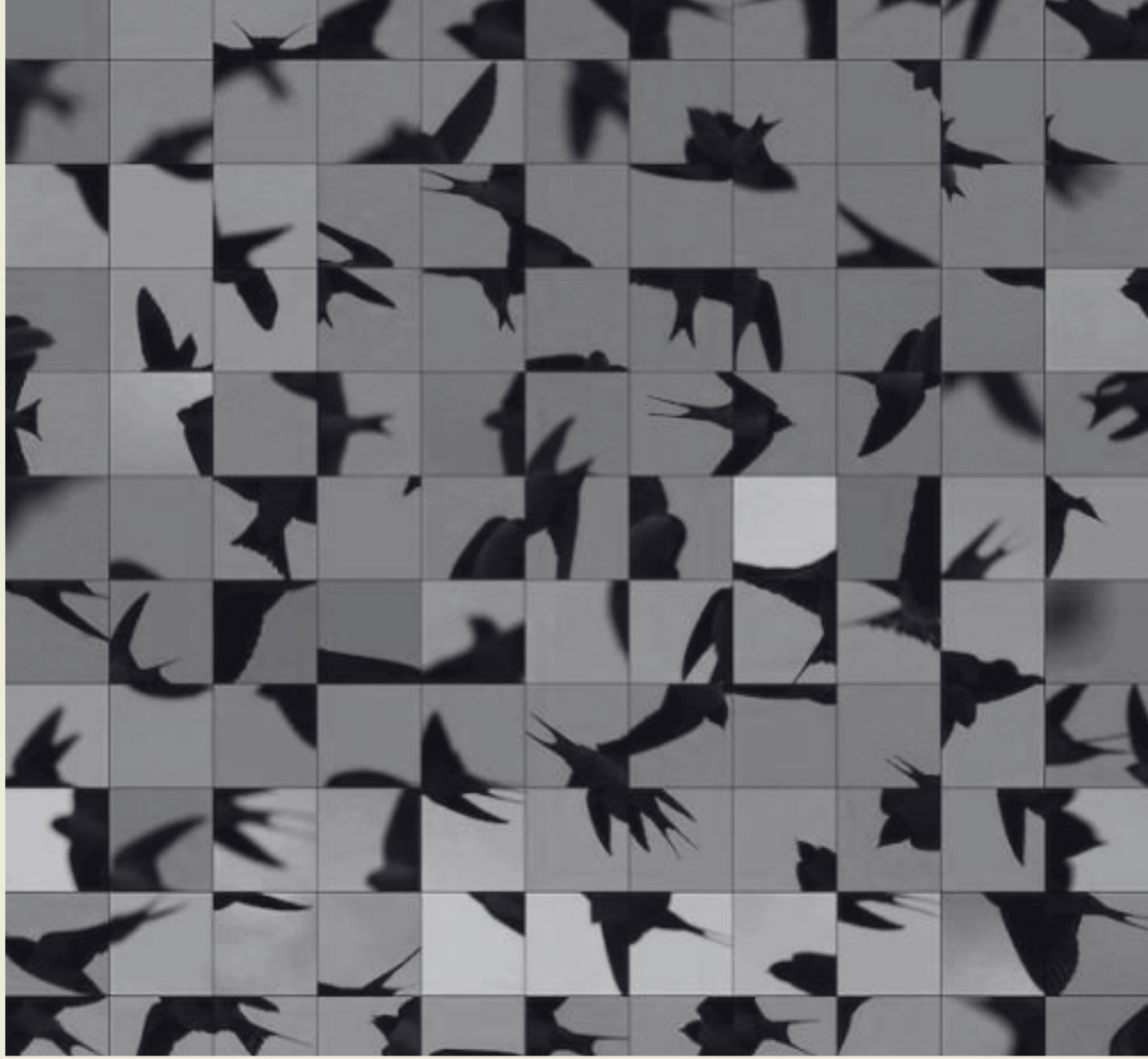
Rather than discrete "data collection," this study employed a relational inquiry and sensemaking process that combined multiple methods to trace patterns across lived experience, cultural discourse, and emerging signals. These included a literature review, environmental scanning, digital ethnography (netnography), edge-case primary research, collaborative autoethnography, and speculative design. This hybrid approach aims to honour multiple ways of knowing while generating new insights (Anzaldúa, 2012).

The **literature review** established current understandings of birthspace, pain, and healthcare design, identifying gaps and dominant assumptions.

A STEEPLE horizon-scanning approach was used alongside observational **netnography** to identify social, technological, economic, environmental, political, legal, and ethical signals shaping birth futures. Together, these approaches enabled attention to weak signals, edge cases, and emerging disruptions (Policy Horizons Canada, 2016; Indeed, 2026). Netnography (Kozinets, 2015), supported the exploration of how birthing and non-birthing communities articulate experiences and desires across digital platforms and surfaced perspectives that may not appear in formal research.

Primary research consisted of 13 semi-structured interviews with participants across and adjacent to birthspace, including birthing people, care providers, and individuals working in other domains of liminality (e.g., end-of-life care, ritual practice, immersive design). Participants were recruited through purposive and relational sampling, prioritizing diverse lived experiences and perspectives at the margins of dominant discourse.

Participant selection was not only about representation but also about inviting diverse lived experiences and ways of knowing to shape the direction of the inquiry. Informed by Indigenous and Afro-descendant traditions that defend the tejido de la vida, or "relational weave of life," this research understands knowledge as relational and collectively generated through relationships, community, and place (Escobar, 2018; Wilson, 2008). In this view, knowledge is not owned by individuals, but emerges through webs of relationship and carries responsibilities to those relations (Wilson, 2008). This framing also foregrounds the role of memory, continuity, and intergenerational connection as integral to how knowledge is carried, transmitted, and made meaningful.



Participants

By engaging Indigenous, Black, bereaved, and system-adjacent participants, the research sought to broaden the epistemic ground of the inquiry: whose experiences are heard, whose ways of knowing are honoured and brought into conversation with one another, and whose imaginaries can help shape possible futures of birthspace. This approach does not claim to resolve epistemic privilege through inclusion alone. Rather, it begins from the premise that knowledge generation is always situated and relational, and that imagination itself is shaped through dialogue, connection, and collective meaning-making.

Participants lived or had lived experience in places across Canada, the United States, Mexico, the Caribbean, Europe, and the Middle East, including Indigenous lands, cities, rural and remote areas, and humanitarian contexts in conflict zones. Phenomenology centres human experience as the primary site of knowledge, privileging rich, descriptive accounts of how phenomena are perceived, felt, and interpreted by those who encounter them (van Manen, 1990; Finlay, 2011).

An emphasis on the situatedness of experience acknowledges that meaning is shaped through cumulative, embodied, relational, and contextual conditions, and that these conditions are essential to understanding how birthspaces are experienced, remembered, desired and/or anticipated (Balabanoff, 2016; Haraway, 2016).

Participants included birthing people, midwives, an obstetrician, nurses, birth attendants, artists, designers, ritual practitioners, humanitarians, scholars, bereaved parents, and individuals working across contexts of birth, death, pain, care, creativity and transformation. These included practitioners in immersive design, ritual and ceremonial work, end-of-life care, community-based practices, and other threshold-oriented fields.

Likewise, our exploration of pain similarly extends beyond medical framings, attending to its paradoxical roles in transformation and the ways liminal thresholds shape embodied and relational experiences (Balabanoff, 2016; Ahenakew, 2019). Interviews were conducted in person or remotely, recorded, and transcribed verbatim. Questions were open-ended and future-oriented, intentionally avoiding linear framings of time to support expansive forms of reflection and imagination.

Recognizing the use of personal and professional networks as a source of potential selection bias, the study prioritizes depth and relational insights over generalizability, consistent with phenomenological and exploratory research. Insights from interviews were balanced with broader perspectives from literature and environmental scanning. Though we are situated geographically in what is now called Ontario, interview questions included eliciting reflections on birthspace more broadly, at home or away, in institutions, in the diaspora, in the past, at present, and into the future.

These commitments to relational and situated knowledge are reflected in the diversity of participants and contexts included in the study.

Phenomenology centres lived experience as a primary site of knowledge, privileging rich, descriptive accounts of how phenomena are perceived, felt, and interpreted (van Manen, 1990; Finlay, 2011). In this study, an emphasis on the situatedness of experience recognizes that meaning is shaped through cumulative, embodied, relational, and contextual conditions, and that these conditions are essential to understanding how birthspaces are experienced, remembered, desired, and anticipated (Balabanoff, 2016; Haraway, 2016).

Although geographically situated in what is now called Ontario, the inquiry invited participants to reflect on birthspaces across contexts, including home and institutional settings, across diaspora, and across temporal orientations of past, present, and future.

Emergence & Reframing of the Research Question

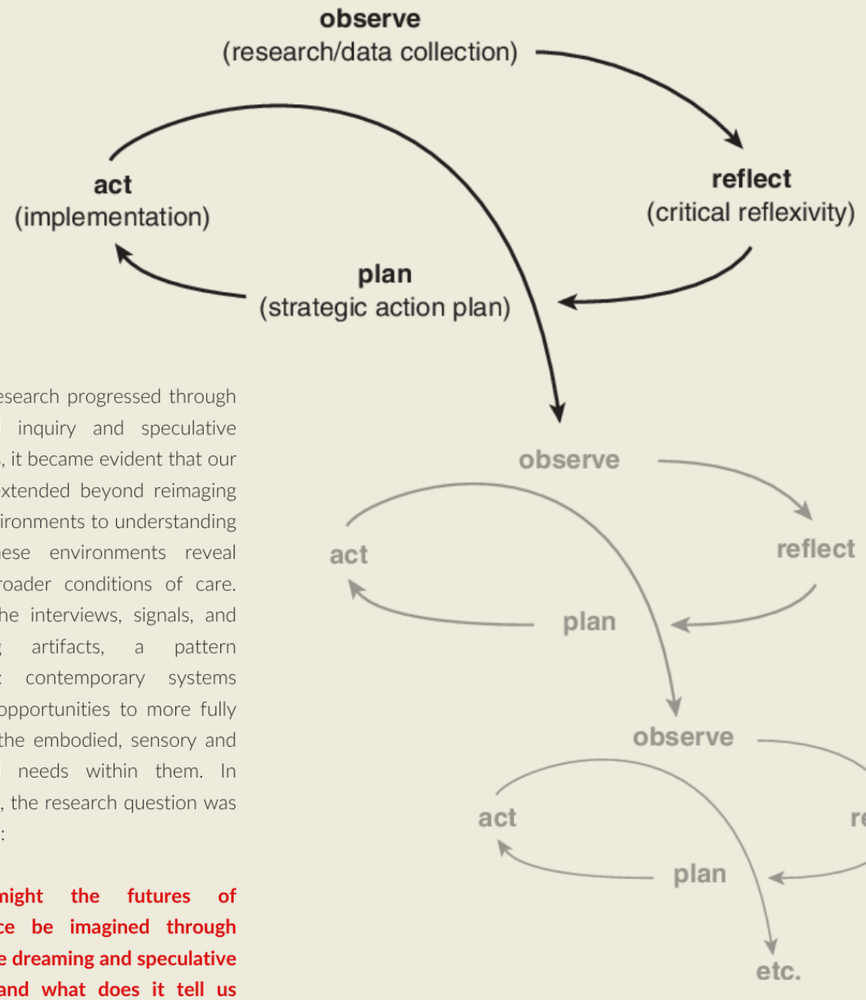


Figure 2: Iterative Inquiry

As the research progressed through relational inquiry and speculative synthesis, it became evident that our inquiry extended beyond reimaging birth environments to understanding what these environments reveal about broader conditions of care. Across the interviews, signals, and emerging artifacts, a pattern emerged: contemporary systems present opportunities to more fully support the embodied, sensory and relational needs within them. In response, the research question was reframed:

How might the futures of birthspace be imagined through collective dreaming and speculative design, and what does it tell us about the time we are living in and what we collectively long for?

The “we” in this work is not singular, but composed of many voices:

The Designers of Presence: Individuals who engage and create embodied experiences, such as dominatrices, escape room designers, and. who offered insight into how intense states, attention and perception can be held, transformed or redirected.

The Sensory Creators:
Immersive multimedia specialists and artists who transform internal physiological rhythms and desires into tangible, interactive, external spaces.

The Tradition Advocates:
Midwives, Nurses, grandmothers, ceremonial groundskeepers, citizen scientists and Indigenous Elders who preserve "ancestral technologies" and facilitate the continuum of matrescence (Rafael, 1975) across diasporic and geographic boundaries.

The Visitors and Time Travellers: Individuals such as the Palestinian-Canadian midwife, the Northern Ontario obstetrician, bereaved mothers, practicing midwife in Attawapiskat, who move through the "gaps" created by geopolitical violence, grief, migration, and institutional scarcity./constraints, highlighting how birth is experienced across disturbed or shifting conditions of care.

[1]

*These groupings are not intended to define participants or represent the whole of who they are. Instead, they describe patterns of experience, knowledge, and contribution that surfaced across the research. Many participants spoke from more than one position, and these orientations often overlapped, shifted, or intersected throughout the study.

Analysis & Synthesis

Analysis was iterative, collaborative, and ongoing throughout the research process. Initial themes emerged through early literature review and were refined through presentations, discussions, and feedback across academic and professional contexts.

INTERVIEWS

Interviews were analyzed using affinity mapping (KJ Method), a team-based, inductive approach that supports relational sensemaking and preserves participants' language and meaning (Scupin, 1997). This method enabled patterns to emerge through visualization and dialogue rather than predefined coding structures, aligning with the study's commitment to complexity and non-reductive interpretation.

COLLABORATIVE AUTOETHNOGRAPHY

Functioned both as a method of reflection and as a generative design practice, allowing us to draw on our own embodied and professional experiences of birthspace. Reflexivity was treated as a collective process, attending to how positionality shaped interpretation and insight generation (Ratnapalan & Haldane, 2022). This included reflections from experiential placements, design development processes, conferences, exhibitions, and visits to immersive, ecological, and therapeutic environments [2]

SPECULATIVE DESIGN

Was utilized as a method of inquiry, synthesis, and knowledge translation. Drawing on Dunne and Raby (2013), artifacts and their corresponding narratives were developed to translate research insights into experiential forms that invited reflection, dialogue, and ethical questioning. These speculative artifacts were exhibited publicly, encouraging participants and audiences to engage with the research in embodied and interpretive ways. In this context, design functioned as a form of knowledge translation and provocation, extending analysis into lived, sensory, and relational domains.

INSIGHTS

Insights from interviews, literature, and signal scanning were synthesized through pattern identification and thematic clustering, forming the basis for speculative exploration.

Grounded in participants' experiences and identified patterns across the research, speculative outputs explored alternative configurations of birthspace while remaining accountable to the contexts from which they emerged. This aligns with futures approaches that emphasize plausibility, experiential engagement, and meaning-making over forecasting or solutionism (Candy, 2010).

[2] Experiential Placement at Oak Valley Health's Alongside Midwifery Unit and the development of Virtual Hydriotherapy; field research attending TRPx at U of T conference; participating as exhibitors at The OCADU x AFP Futures of Care and Compassion, Sunnybrook's Pregnancy & Infant Loss Network conference, and the Transforming Birthspaces Colliquium. We also attended the Boil Alert screening at Patagonia and Leanne Simpson Batamasoke's *Theory of Water* book release; visited Othership, Arcadia, Harbourfront, Amherst Island, Don Valley/Evergreen Brickworks, Milton Park, Hamilton Falls, the Aha Khan "Light: Visionary Perspectives" exhibit, among many others.

We recognize that we are deeply intertwined in the current healthcare system: both as users of and providers within it, and that comes with a certain amount of power, privilege, and humility.

Reflexivity, Ethics & Positionality

We recognize the potential influence of privilege on the research process. Attention was given to relational accountability, including care in how stories were gathered, interpreted, and represented. What we attempt to do here is to fuse our familiarity with evidence-based research together with intuitive, alternative, and ancestral ways of knowing. Though we ourselves exhibit a diversity of lived experiences, genders, racialized identities, age, and cultural contexts within our own research collective, we acknowledge our privilege of living in relationships in which we feel safe and in well-resourced homes and communities that provide opportunities for wellbeing.

Rather than attempting to bracket these positions, they were engaged reflexively as analytic resources.

We acknowledge that, as researchers, we bring our subjective selves to the research while honouring the worldviews of those who participated in the research, and those who didn't participate directly but live alongside it. We have been intentional in our relationships with each other and those who helped shape this research project by remaining curious, kind, grateful, vulnerable, honest, generous and accountable to one another.

Emerging insights from participant interviews were therefore considered alongside the collective autoethnographic reflections of the research team. This reflexive process aligns with relational research methodologies, which understand knowledge as co-created through relationships among researchers, participants, place, and the phenomenon itself (Wilson, 2008). Interview transcripts were returned to participants for their own records. All participants chose to have their contributions attributed either by name or initials. Findings and artifacts were shared with participants through summaries, documentation, and invitations to engage with the exhibit. We are confident the relationships developed along the way will continue well after project completion

Ethics approval was obtained by OCADU #2025-85. Informed consent was received by all participants.

To reimagine futures is to ask who gets to imagine -

and whose worlds are made possible through that act. What is absent from the literature is as important as what is present.

Literature Review

This major research project investigates the futures of birth environments and how they might be reimagined through a pluriversal lens (Escobar, 2018; Leitão, 2020) using strategic foresight and speculative design practices (Slaughter, 1999; Dunne & Raby, 2013). To reimagine futures is to ask who gets to imagine, and whose worlds are made possible through that act (Escobar, 2018; Ahenakew, 2019). This study centres diverse voices, human and more-than-human (Hynan, 2025), to explore how birthspaces might transform our relationship with pain, strengthen relational practices, and nurture the health and well-being of both people and planet (Haraway, 2016).

Psychological birth trauma and childbirth-related post-traumatic stress disorder affect over 6.6 million mothers and 1.7 million fathers or co-parents annually (Horsch et al., 2024). Yet research shows that positive birth experiences depend on more than clinical outcomes (Hoffmann et al., 2023). Relational support, cultural safety, and environmental design correlate with satisfaction, emotional regulation, and postnatal wellbeing (WHO, 2022).

Birth environment research further shows that room layout, privacy, sensory conditions, domesticity, and freedom of movement shape labour progression, intervention, autonomy, and satisfaction (Foureur et al., 2010; Mondy et al., 2016; Murray-Davis et al., 2022; Nilsson et al., 2020; Setola et al., 2019). Autonomy, sensory quality, and neuroarchitecture also shape labour progression (Balabanoff, 2023; WHO, 2022). Biophilic design has been shown to reduce pain and anxiety while improving cardiovascular and emotional stability (Ulrich, 1984; Wilson, 2008). Researchers in neuroaesthetics have also recently argued that intentional space design can itself function as care, while noting that real-world application remains limited (Arts + Minds Lab, 2026). This is especially true for birthspace, where intentional and immersive environments are still underexplored as therapeutic ecologies for supporting presence in pain and embodied flourishing (Bellini et al., 2023; Fleetwood-Smith, 2024; Aroua et al., 2024).

At the same time, birthspace is not limited to a physical room. Literature across architecture, midwifery, and qualitative birth research shows that birth unfolds across physical, social, psychological, and symbolic dimensions (Carlsson et al., 2020; DeVries et al, 2001; Joyce, 2018). Birthspace is shaped by thresholds, movement, waiting, memory, institutional routines, and relations of power, as much as by furniture or finishes (Joyce, 2020; Setola et al., 2019). It can be tangible, liminal, dreamed, anticipated, and remembered. It can be transactional or transformational. It is often designed for safety, efficiency, and surveillance, but far less often for human flourishing or connection with the more-than-human world. In this sense, birthspace environments have been described as a “third caregiver” (Stark et al., 2016), as space plays an active role in shaping care, perception, and possibility.

A decolonial reading sharpens this critique and expands birthspaces framing further. If birthspaces are more than a physical room, then it cannot be understood apart from the cultural, relational and ecological worlds that make birth meaningful (Cidro et al., 2020; Hayward, 2021) However, within Western medicine, little empirical work links intentional birthspace design with enduring ecological attunement or eco-affiliative outcomes, connections long embedded in Indigenous knowledge systems (Balabanoff, 2023; Davis & Athan, 2023; Odent, 2014).

Indigenous and decolonial perinatal scholarship shows that “a good birth” cannot be understood apart from land, kinship, ceremony, language, Elders, and cultural continuity (Chu et al., 2020; Demczuk, 2014; O’Driscoll et al., 2011; Skye, 2013; Campbell et al, 2025; Cidro et al., 2020). This work makes visible how inequities in birth outcomes and care experiences are tied to racism, displacement and the disruption of community-based care systems (Weckman & Farrugia, 2025; Boakye et al., 2024; Venegas et al., 2026). Canadian literature on birth evacuation further shows that colonial birthspace is produced not only through hospital design, but through forced travel, displacement, family separation, and the severing of birth from community (Cidro et al., 2020; Lawford et al., 2018; Silver et al., 2021).

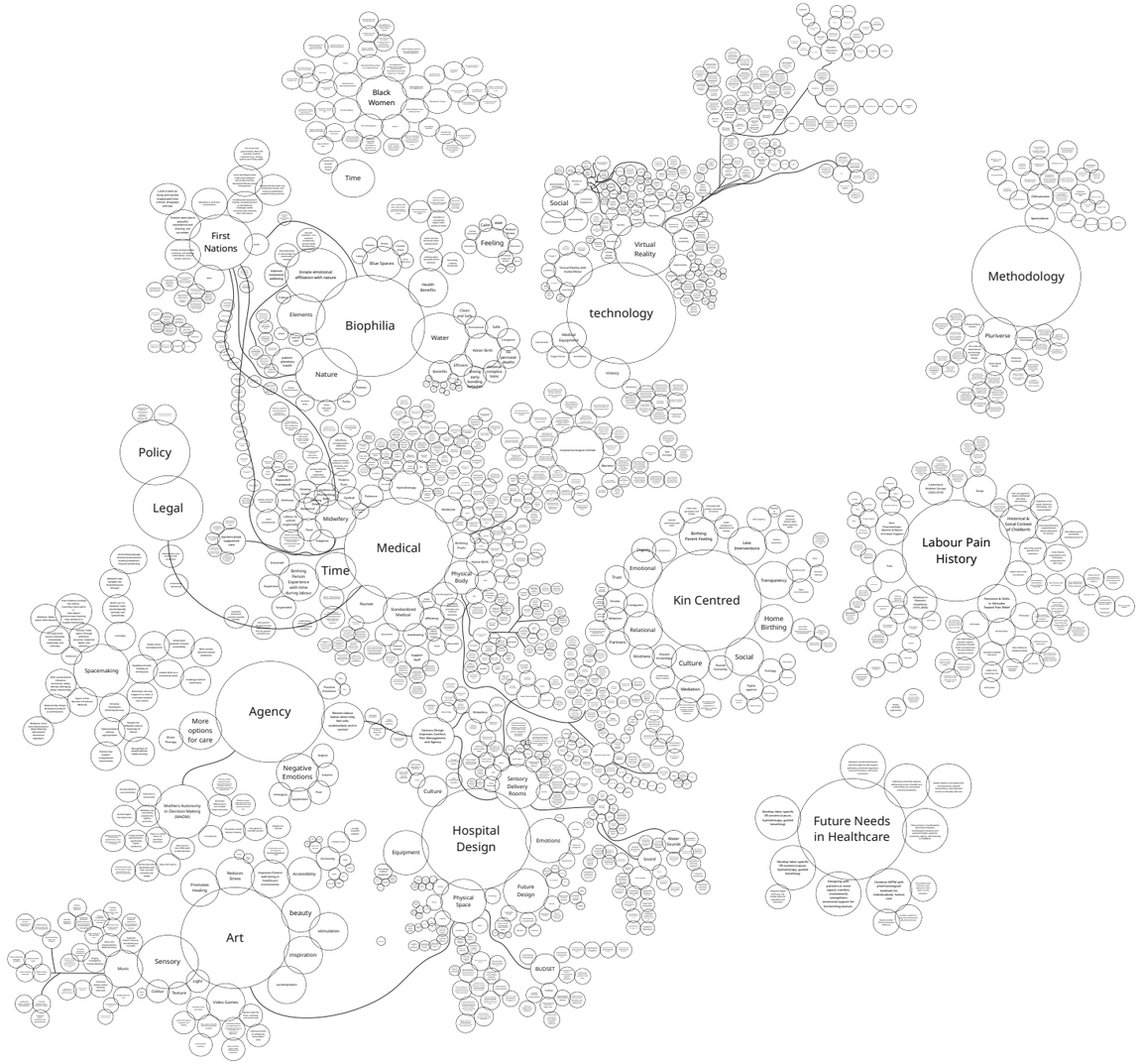
Participatory Inuit and Cree work demonstrates that culturally safe birth futures depend on family presence, Indigenous providers, community control, and local birthing capacity (Silver et al., 2023, 2024a, 2024b). Comparable Indigenous maternity redesign work, such as Birthing on Country, shows that community governance and service redesign can improve outcomes while reorienting maternity care around sovereignty and relationality (Kildea et al., 2019, 2021).

A further gap emerges at the methodological level. Speculative and foresight-based analyses of pain and birthspace futures are scarce, underscoring the need to envision how care environments might evolve amid social, ecological, and technological transformations (Bleijenbergh et al., 2022; Odent, 1983, 2014; Pijnappels, 2023). This absence limits the field's ability to engage with uncertainty, emergent and alternative futures of care. Although speculative design is active in adjacent reproductive and perinatal futures research, it remains weakly developed in midwifery and obstetrics proper (Darby et al., 2024; Nabuurs et al., 2023; Willems et al., 2023; Yurman et al., 2025). Relatedly, while the literature contains important conceptual links between childbirth, ritual, liminality, sacred space, and altered states, these have not yet coalesced into a systematic design methodology for birthspace (Cheyney, 2011; Crowther, 2013; Dahan, 2023; Parratt, 2008). Adjacent work in palliative and end-of-life care has more directly engaged ritual, atmosphere, and spatial support during profound transition (Radcliff, 2004; Ritchie, 2024; Verderber & Refuerzo, 2019). This suggests a further gap: birthspace research has rarely drawn on adjacent transition-based fields such as end-of-life care, ceremony, or inner travel to inform speculative and decolonial futures of birthspace.

The literature points toward a review structure that foregrounds absences as much as findings: whose futures are being imagined, by whom, through which methods, and under what assumptions about body, safety, pain, family, land, and expertise. A third argument is that the fringes and adjacencies of birth are methodologically productive. Work on reproductive technologies, artificial wombs, perinatal care devices, storytelling, fabulation, and justice-centred care may appear peripheral to birthspace design, yet these edge domains are precisely where speculative methods are doing the most conceptual work (Nabuurs et al., 2023; Søndergaard et al., 2023; Yurman et al., 2025). They can therefore inform a birthspace research agenda that brings together the strengths of conventional evidence-based design and more expansive, future-oriented approaches.

See Context Map **(Figure 3)** for a visual patterning of the literature review.

Figure 3: Literature Review Context Map



The future is often first visible at the edges.

Trend Analysis

Trend analysis in this study draws on a STEEPLE framework to identify patterns across social, technological, economic, environmental, political, legal, and ethical domains, enabling a multi-layered understanding of the forces shaping futures of birthspace. Drawn from grey literature and observational netnography **(Figure #)**, this analysis attends to weak signals, emerging trends, and systemic drivers as early indicators of transformation, rather than isolated anomalies. (Webb, 2016). At the same time, it is informed by Christopher Alexander's concept of a "pattern language," which understands recurring relationships between context, problem, and solution as generative structures for design (Alexander et al., 1977). Together, these approaches frame trends not as predictions, but as evolving patterns of need, tension, and desires.

Across the STEEPLE scan, several interconnected dynamics emerge: a growing demand for autonomy and personalized care, the integration of multisensory and responsive technologies, the rise of experience-driven health economies, increasing environmental constraints, and intensifying political and legal tensions surrounding reproductive rights. These shifts are accompanied by ethical movements toward cultural safety, data sovereignty, and relational models of care. Collectively, these patterns reveal a system under strain, where institutional structures are increasingly misaligned with embodied, ecological, and relational needs—creating the conditions for both friction and innovation in futures of birthspace.

Social

The social trend is driven by a population that is aging and highly educated, that is confronted by a system with labour shortages, birth trauma information and clinical mistrust. They are bypassing conventional settings by hiring doulas, joining online communities for support and information, and opting into data-driven healthcare memberships to reclaim their independence from the healthcare system.

Technology

Emerging technological developments suggest possibilities for more adaptive birth environments, where immersive media, patient-accessible data, and agentic systems may reconfigure how individuals engage with care—while also raising questions about agency, access, and the role of technology in shaping experience.

Economy

Birthspace design is shifting towards an “Experience Economy,” prioritizing personal experience over system efficiency, prompting healthcare systems to incorporate value-based care, experiential mapping, and subsidies to enhance patient outcomes, reduce interventions, and relieve the system's financial and operational strain from turnover.

Ethics

Reproductive care ethics are moving towards a co-design model that sets cultural safety and lived experience as standards of respect, while addressing AI concerns about children's privacy, with predictive AI and fetal data collection creating new demands for biometric privacy and algorithmic reparations.

Political

As maternal health appears to be a point of bipartisan agreement, with 88% of Americans viewing the maternal mortality rate as a serious issue and Canada committing $400 million to system operations, political friction continues between inclusive programs and restrictive “Post-Roe” legislations that threaten birthing parents' bodily autonomy and clinician/provider safety.

Legal

Perinatal care is shifting towards a model of informed consent and holistic liability that prioritizes patient dignity and workplace rights. Yet, as AI integration advances and its impact on decision-making heightens legal exposure for primary care providers, it continues to heighten the risk of algorithmic discrimination against marginalized groups.

Environment

Integrating biophilic design and adaptive technology into birthspace environments is becoming a necessity and a new standard, driven by the concept of care, which also includes providing support to pregnant people outside of the system through supportive apps and addressing ecological degradation through new investments.

“Birthspace is more than a location - it is a mindset, a ceremony, a constant state of of embryology... of becoming”

(Katsi Cook)

Primary Research Findings

Attending closely to lived and living experience provides a critical foundation for futures-oriented sensemaking, enabling the identification of latent needs, dominant assumptions, and emerging desires that may not yet be fully articulated (Candy, 2010; Candy & Kornet, 2019). In this context, insights from people with lived experience function as a precursor to speculative exploration, grounding the development of alternative imaginaries and design propositions grounded in embodied and relational realities rather than abstract projection. (Candy & Dunagan, 2017).

From the research interviews, four overarching themes emerged. While participants spoke to the limitations of existing systems, their accounts were equally oriented towards possibility, articulating what is needed, remembered, and imagined for the futures of birthspace. Taken together, these insights move from systemic structure to embodied experience, from temporal and relational continuity to histories of rupture and repair, reflecting a layered understanding of how complex systems are experienced and transformed. (Inayatullah, 1998; Jones, 2014)

Themes

1 **Theme 1: Working Within and Beyond the System**
Examines how contemporary birth systems are structured around control, efficiency, and standardization, often in tension with the lived realities of labour.

2 **Theme 2: Materiality as Medicine: Reclaiming the Sensory Sanctuary**
Explores how sensory and material conditions - light, sound, touch, movement, temperature, texture, silence and atmosphere - actively shape labour physiology, felt safety and relational transitions.

3 **Theme 3: Birthspace as a Relational and Temporal Continuum**
Challenges the temporal boundaries of institutional care, reframing birth as an ongoing process that extends across time, identity, and relationship.

4 **Theme 4: Birth, Displacement, and the Search for (Re)Connection**
Situates birth within broader histories of displacement and cultural rupture, while pointing toward practices of reconnection, memory, and repair.

THE TIME

Working Within and Beyond the System

Birth and its spaces are structured by institutional systems that prioritize efficiency, risk management, and standardization. While these frameworks are designed to support safety and coordination, participants described how they can also limit autonomy, reduce flexibility, and constrain the experience of birth.

Across interviews, participants described difficulty navigating healthcare systems, feeling unheard, restricted in decision-making, and not represented in the care they received. As Elizabeth Scholtz reflects, “I think just being more open and… willing to listen to what the patient wants instead of saying, this is what you're going to do.” These experiences point to a broader pattern in which authority is often held by the system rather than the person giving birth.

At the same time, this pattern was not universal. Kimberley Black described a hospital experience following a violent sexual assault in which the clinical environment was experienced not as controlling, but as profoundly containing and supportive. In this context, the structure, predictability, and attentiveness of care provided a sense of safety and being held. This account complicates a singular reading of institutional systems as restrictive, suggesting instead that the same features: protocols, coordination, and clinical presence—can function as forms of protection and care, depending on how they are enacted and received.

Participants also described how these dynamics can have lasting effects across generations. Elizabeth recounts her mother’s experience, “They tied her… on her back… and they wouldn't allow her to do what she needed to do.” She continues with her daughter’s experience: “If a mother says, ‘I’m going to have this baby in the next 10 minutes,’ listen… it’s about listening. Be there.”

> “I think that to a certain extent [birth] it's just a really human experience in a way that we don't have really human experiences anymore. And we're trying to make it less and less human by, like, doing all of these other things and contraptions and birth this way, in that way.” (NJ)

Across these accounts, seeking care becomes a site where people must negotiate with institutional authority, often at moments of vulnerability. When individuals are not heard or trusted, the impact extends beyond a single encounter, shaping relationships with care systems over time. As Darren Leu reflects: “I think a lot of it is just being heard, being seen, being taken seriously. Those first three things come even before, like a cure or fix-all.” Here, recognition is positioned as foundational to care, preceding intervention, diagnosis, or treatment.

Time emerged as a key mechanism through which institutional control is enacted. Hospital care is organized through protocols that monitor labour progression against standardized timelines, such as the partogram. While intended to support clinical decision-making, these frameworks can also compress the variability of labour into predefined expectations. As Martina Hynan reflects, “I knew if I went into the hospital, I wouldn’t have been given much time.” In contrast, her homebirth experience was described as “no clock… there was no imposition of time.” Here, time becomes not just a measurement tool but a governing structure that shapes how birth unfolds.

Participants also highlighted how systems of measurement and design often fail to account for diverse bodies and lived experiences. As Mikaela de la Myco notes, “if we're going to work with cycling bodies in clinic, then our tools… need to also count for the hormonal fluctuation of cycling beings.” When tools and protocols are designed around standardized bodies, they can render other experiences invisible or misaligned within care.

This standardization was also described as shaping the quality of experience itself. As NJ reflects, increasing reliance on clinical tools and interventions can shift birth away from what she describes:

> "People there [in Kenya - giving birth in open wards] … I think that to a certain extent is, like, it's just a really human experience in a way that we don't have really human experiences anymore. And we're trying to make it less and less human by, like, doing all of these other things and contraptions and birth this way, in that way.”

Participants contrasted this with environments where autonomy and familiarity were more present. Andrea Campbell describes homebirth as fundamentally "different: When people are in clinic, and they're like, why would people choose a home birth? I'm like, you have no idea. Like it's so different, and it's, you can't even explain it. It's just it's a vibe. It's a feeling. It's calming. It's everything that words can't explain, and I think it's because it's their space. We are coming into their space. They're already by default in control because it's their own space." Here, control is not granted, but inherent.

At the same time, participants raised concerns about a future increasingly oriented toward frictionless, optimized, and “user-friendly” systems. While these systems promise ease and efficiency, they may also remove forms of engagement that were once central to how people experience birth and other challenging transformations, suggesting that the "discomfort" of older ways of being (manual labour, physical engagement) actually provided a necessary baseline for human resilience. As NJ reflects, “the lack of friction is concerning… they don't really need to think outside of the box or have a friction of things.” In this context, friction is not simply hardship but a form of engagement — physical, emotional, and relational — that situates birth within a larger process of becoming.

This tension also extends to ways of knowing. Participants described how dominant biomedical frameworks privilege standardized evidence and efficiency, sometimes at the expense of lived experience and relational knowledge. As Mikaela reflects, “the closer you get to double-blind placebo… the further you get from the lived experience.” She further notes that “trauma isn’t always something that happens to you, it’s also something that doesn’t happen to you,” pointing to how the absence of listening, of presence, of recognition—can shape experience as much as intervention itself.

For some, these tensions became generative. As Andrea Campbell reflects, “my traumatic first birth… absolutely was the driving force for becoming a midwife.” Here, resistance to the system becomes a catalyst for reimagining care.

Participants also reflected on how birth has become increasingly isolated, individualized, and commodified within Western systems, a framing that can distance individuals from the relational contexts that once normalized it. As NJ notes,

> “Because birth is so infrequent in Western cultures for people, like, you know, you have 1.4 children, it's really… I want to say ‘precious’ because I'm not trying to say that it's not for other people, but it's really this rarefied experience that we isolate and we want to make special, and we put so much weight on it and there's so much emotional tenor attached to it and expectation and it's commodified and commercialized in the same way that a lot of things are. And I think it sort of gets away from just the, like, animalistic physicality of the birth, and that experiencing that with other pregnant people who are going through the same thing and just sort of normalizing [it]."

Across these accounts, a consistent tension emerges between institutional control and individual autonomy. Systems designed to manage risk and ensure efficiency can both constrain experience and, in some contexts, provide forms of safety and containment. This suggests that the question is not whether systems should exist, but how they are experienced, how power is held within them, and for whom they function as care.

Seen in this way, birth is not only shaped by individual bodies or preferences, but by the systems that organize how care is delivered, how time is measured, and whose knowledge is recognized. Birthspace, therefore, is produced through institutional logics that define what is possible within it.

THE NEST 2

Materiality as Medicine: Reclaiming the Sensory Sanctuary

Birthspaces are not passive settings, but environments that actively shape how birth unfolds. Across interviews, participants described light, sound, movement, texture, and spatial arrangement not only as experiential qualities, but as conditions that directly influence the physiology of labour, affecting hormonal regulation, emotional state, and the body's capacity to endure and progress. In this sense, sensory and material elements are not background features of care, but active components in how birth is experienced and how it proceeds.

A consistent pattern emerged: participants expressed a desire for environments that respond to the individual, rather than requiring the individual to adapt to standardized conditions. This was most clearly articulated through control over sensory and material elements. As midwife Andrea Campbell explains, "if we place the control in the client's hands, then I think that's where we win." This control was enacted through embodied practices such as dimming lights, moving freely, making noise, eating, and following the body's rhythm rather than institutional timelines. Participants consistently linked these conditions to physiological processes, describing how environments can either support or disrupt the hormonal cascade of labour, including oxytocin release, stress regulation, and the ability to remain in an embodied state.

Participants extended this idea beyond small adjustments to the sensory environment, imagining future birthspaces that could respond more fundamentally to individual needs and preferences. As NJ describes:

"I feel like I'd want to design a space that was... unique for each individual... if you wanted to deliver in a tropical paradise, then let's make that happen... I would like birth to happen where the individual wants it... in an environment where they want it."

Here, materiality is not limited to modifying an existing room, but expands to include the possibility of designing entire environments that align with the sensory, emotional, and physiological needs of the individual. Birthspace, in this way, becomes a responsive field that can be shaped at multiple scales, from light and sound to the broader atmosphere of place.

Participants contrasted these responsive conditions with institutional environments that prioritize efficiency, sterility, and standardization. As Andrea reflects, "we go into the hospital, and it's the same. And people have to adapt to that environment." This uniformity positions the environment as fixed, requiring the labouring body to adjust to pre-existing conditions rather than allowing the environment to respond to the needs of the individual. In this configuration, materiality is standardized rather than responsive, limiting the capacity of the space to support the physiological and sensory processes of labour.

In contrast, homebirth environments were described as already attuned to the individual, shaped by familiarity, relationships, and sensory continuity. "Every home is unique... I'm walking into [their] space... what's the vibe? What's the lighting like?" (Andrea). Here, care shifts from controlling the environment to sensing and working within it. The environment is often already configured through the person's history, preferences, and relationships.

Importantly, participants complicated the notion of control. Labour was not always experienced as something that could be directed or managed. Rather than eliminating uncertainty, responsive environments were described as helping to hold it. Sensory and material conditions such as light, sound, temperature, touch, and spatial arrangement became ways of signalling safety and supporting the physiological processes of labour, even when outcomes remained unpredictable. In this framing, sensory conditions function as physiological regulators of birth.

This distinction becomes critical when considering environments that are treated as “normal,” yet are not experienced as safe or supportive. In some contexts, what is normalized is what has been learned through endurance. As Heba Al-Nashef, a midwife working in humanitarian settings described, the designation of a hospital as a “safe” place does not guarantee felt safety. Under conditions of ongoing threat, the environment itself (sound, interruption, and unpredictability) can keep the body in a state of alertness, even during labour. This exposes a tension between designed safety and felt safety, and highlights that safety is produced through sensory, material, and relational conditions rather than infrastructure alone.

Participants repeatedly emphasized the importance of protecting what midwife Christine Roy describes as “the bubble”: a sensory and relational state that supports the hormonal cascade of labour. As Christine explains,

“[During a birth, as midwives] we don’t talk, we barely talk. Very, very, very silent so that she goes into that space. I really think that’s the way that is best… I see the impact of the hospital environment on a birth. The environment itself affects the birth and it goes back to cortisol levels, because as soon as you break that bubble… that’s what Michel Odent says - don’t touch that bubble. She needs to be inside. That even a word, words trigger the brain to go to a different place. So imagine [you are in labour and you're] getting into your car, you're starting to huff and puff and you're driving to the hospital. And your husband is nervous and he needs to park the car. And you think, ok, what did I do with the other kids? And oh, don’t forget this. And did I pack that in my bag. And then [you] go up and then you have to go to reception. And they're asking you that questionnaire. Do you wear glasses? Do you have dentures? You know what I mean? And go back over your entire history. And you wait, you know. Breathe. And come back. And then you hear [over] the PA, room 225, blah, blah, blah, code blue, code black, whatever. How could you have a bubble? It’s very hard.”

In this framing, materiality extends beyond physical objects to include silence, sound, interruption, and presence. These elements actively influence whether the body remains in a state conducive to labour or shifts into stress responses that may disrupt its progression.

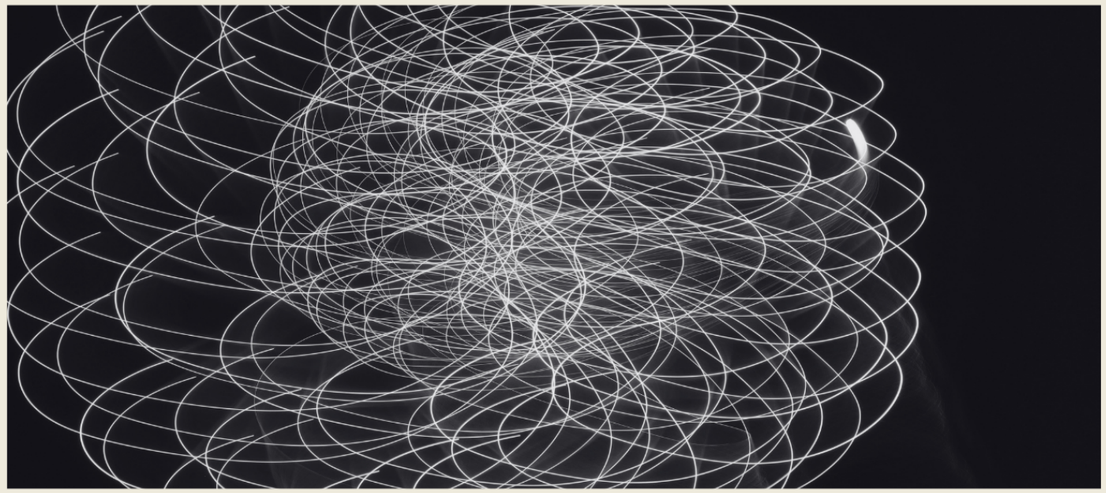
At the same time, participants highlighted that many forms of sensory and material care are already embedded in practice. Materials such as fabric, water, sound, touch, and rhythm were described not as aesthetic additions, but as functional components of care that regulate, orient, and support the labouring body. These elements operate through the senses, shaping how the body experiences intensity, transition, and connection.

This reframing also shifts what is understood as technology. Practices such as touch, rhythm, and sound may not resemble biomedical devices, but they function as technologies of care. Mikaela de la Myco described the rebozo as an “artifact of peacemaking,” while Elizabeth Scholtz recalled singing in palliative care as a way of shaping the atmosphere of the room: “We sang… especially on palliative care. When we were preparing the body to be taken to the morgue …. And we would sing while we were doing that. And it was I think, it helped the patients, you know… they would feel, you know, more calm at that time. Because you kind of can’t hide what’s going on.” These examples demonstrate that materiality operates not only through objects, but through relational and sensory practices that influence how a space is experienced.

Participants also emphasized that sensory conditions extend relationally beyond the birthing person. As Joseph reflects, “the more that comforts the mom and has them ready and in the best state to receive their baby, I think it is important.” In this framing, the sensory and emotional state of the birthing person directly shapes the conditions into which the newborn arrives. Joseph further describes how these early moments are structured through touch and proximity: “for the fetus, the most important thing is… skin-to-skin contact, right from the beginning… they get to feel warmth… they get to feel embraced… they’re probably hearing the mom’s heartbeat.” Here, sensory experience is not contained within one body, but shared across bodies, with material conditions such as warmth, touch, and sound forming the first relational environment of the newborn.

Across these accounts, a broader shift becomes visible: materiality is not secondary to care, but integral for it. Sensory and material conditions (light, sound, touch, temperature, and atmosphere) function as a primary modality of care, shaping both the physiological progression of labour and the experience of those within it. Rather than asking what technologies should be added to birthspace, participants point toward how environments themselves can act as technologies that support, regulate, and shape the experience of birth and others sharing the same space.

Seen in this way, birthspace becomes not simply a location where care occurs, but a sensory and material field through which care is enacted.



THEME 3

Birthspace as a Relational and Temporal Continuum

Beyond the sensory conditions described in Theme 2, participants consistently described birth as extending beyond the boundaries of a discrete event. Rather than beginning with labour and ending shortly after delivery, birth was experienced as unfolding over time, across relationships, and through shifting states of identity. It was understood not as a moment, but as an ongoing process of becoming.

This process stretches both backward and forward. Participants spoke of birth as shaped by intergenerational histories and preconception conditions, while continuing through postpartum recovery, early childhood, and the evolving experience of parenthood. Within this framing, birth is not only the arrival of a baby, but a reconfiguration of self and relational worlds.

Participants described this as an identity shift that continues long after the clinical moment has passed. Like other major life transitions, birth is not self-contained but requires time, interpretation, and relational support to be integrated. As Katsi Cook expresses, “babies want to be born into a world, not just a body,” pointing to birth as unfolding within a broader relational and ecological field.

This continuity is often carried through storytelling. Martina Hynan describes repeatedly asking her mother to recount her birth story: “I would get her to tell the story again and again and again.” Similarly, Katsi Cook reflects that “my [birth] story that I got told as a little girl carried me into menopause.” Birth is not only experienced once, but continually revisited and reinterpreted across the lifespan.

For some participants, this continuity extended beyond a single lifetime. Susan describes birth as a recursive process: “I think we choose to be born… I think we will come back again and again.” Here, birth is not bounded by a single life, but situated within cycles of return.
At the same time, participants described how this unfolding can be disrupted. When birth is compressed into a clinical episode, elements of the experience may feel truncated or unresolved. As Kimberley Black reflects, dominant narratives shape expectations in ways that do not align with lived experience: “it’s what we’ve been fed… and then when you end up in this system… it’s very disappointing.” Similarly, Andrea Campbell describes rapid births as leaving a sense that something has been lost: “you almost feel like you’ve lost something.”

Participants contrasted these experiences with those that allowed for continuity, presence, and relational depth, which were described as more coherent, even when physically intense. This reflects a broader tension between systems designed for efficiency and the lived reality of birth, which unfolds over time.

In contrast, participants described models of care that sustain continuity across time and relationships. As NJ reflects, care can extend across generations: “The daughter asked her mom to have me as an obstetrician… because I looked after her mom… and I know her grandma… because her grandma came to her mom’s delivery.” In this model, care is not limited to a single encounter, but unfolds through enduring relationships. NJ further describes how this continuity extends beyond institutional boundaries: “that birthspace extends to their community… all of their prenatal care is done effectively in their home.” Here, birthspace is not confined to a clinical setting, but exists within an ongoing relational field that connects people, places, and generations.

Where such continuity is not provided, participants described actively extending or "stretching" birthspace beyond institutional boundaries. This included drawing on relationships, environments, cultural practices, and personal meaning-making processes to hold the experience in ways the system could not. As Elizabeth Scholtz reflects in a parallel context of end-of-life care, "I would crawl into the bed and hold the person while they were dying," illustrating how care often exceeds formal roles and structures.

Participants also described birth as embedded within ecological relationships. Birth was not only held by people, but by land, environments, and more-than-human worlds. Martina Hynan describes how pregnancy transformed her sense of self: "I began to have this liberating sense of not being an individual anymore, but being utterly connected." Similarly, Katsi Cook emphasizes that the baby is shaped by the wider ecosystem: "everything the mother hears… sees… experiences, the baby experiences that too." Birth, in this sense, unfolds within a wider web of life.

Time itself emerged as a critical dimension of this tension. Participants described how clock time, scheduling, and institutional rhythms can disrupt more cyclical, embodied, or relational experiences of birth. In contrast, time was described as elastic—shaped by emotion, culture, and relational context. As Martina Hynan reflects, the elimination of clock time would fundamentally alter birth experience, pointing to its entanglement with broader systems of control.

Taken together, these accounts suggest that birth resists containment within standardized temporal and institutional boundaries. It unfolds across time, is carried through stories, and is sustained through relationships that extend beyond the clinical encounter.

Yet this continuity is not always intact. The relationships, histories, and environments that shape birth are not equally accessible to all. For many, birth unfolds not within continuity, but within rupture—where connections to land, lineage, and community have been disrupted or displaced.

"Everything the mother hears, sees, experiences, the baby experiences that too"

Katsi Cook

THEME 4

Birth, Displacement, and the Search for (Re)Connection

Birth and its spaces are not experienced in isolation, but within histories of movement, rupture, and continuity. Participants described birth as shaped not only by the body, but by geography, lineage, and displacement. For many, birth did not occur within an unbroken chain of familial, cultural, or territorial continuity, but within conditions shaped by migration, colonization, conflict, and systemic inequity. In these contexts, birth was experienced not simply as a beginning, but as occurring within a gap—where connections to land, ancestry, and community had been disrupted.

Participants spoke to the layered identities carried into birthspace, shaped not only across cultures but through histories of migration, displacement, and survival. As NJ reflects, "He's from Ghana… my mother's Canadian… my parents immigrated from Slovakia… growing up, my influence was really very Dutch." These intersecting lineages are not incidental; they are the result of movements shaped by war, migration, and shifting geopolitical conditions. In this sense, birth is not only a personal beginning, but an arrival shaped by histories that precede it. The identities present in birthspace carry traces of where people have come from, what has been lost or left behind, and the conditions that made this particular birth possible. Birth becomes a site where these trajectories converge, where displacement, adaptation, and continuity are held simultaneously.

For some, these absences are immediate and material. The inability to access one's mother, land, or community during birth was described as a profound form of dislocation. As Heba Al-Nashef recounts, "She was asking me if I can get her her mom… I said, 'I'm really sorry, I can't bring your mom.'" In such moments, birth unfolds within conditions structured by political realities that shape who can be present and who cannot. As Al-Nashef further notes, even the environments in which birth occurs are shaped by these forces: "the scarcity [in Gaza] is by design." Here, birth becomes inseparable from broader systems of power, where access to safety, support, and continuity is unevenly distributed.

In these contexts, displacement is not only something experienced by those giving birth but also shapes the positionality of those providing care. For Heba Al-Nashef, this experience carries an ethical and relational imperative that extends beyond any single setting: "As a Palestinian, I just felt like a very strong compulsion… I have to action my commitment… It's the same thing, like I'm working with the Indigenous team now… as we talk, talk, talk about just action, the commitment, support of our team, even though we're all maxed out." Here, birth work is not only clinical or supportive, but also a form of relational accountability, one that connects struggles across geographies and calls for action rather than abstraction.

Across these experiences, participants described a sense of rupture—what some referred to as a thinning of lineage. Birth, which had historically been embedded within collective, relational life, is often now experienced as disconnected from cultural memory and communal support. In response, participants described acts of return. These were not always literal returns to place, but relational and symbolic efforts to reconnect with what had been severed. For Mikaela de la Myco, the presence of her mother at her homebirth became part of this process: "There was so much unbroken lineage… to come back to that… was part of that return for all of us." Practices such as homebirth, the presence of elders, and the reintroduction of ritual were described as ways of re-establishing continuity across generations. Within this context, birth workers were often positioned as mediators, moving between systems, languages, and ways of knowing. As Mikaela describes, "we're working between worlds here." This work involves not only supporting the immediate experience of birth but also navigating the tensions between dominant biomedical frameworks and other forms of knowledge that have been marginalized or displaced.

At the same time, participants described birth as a threshold where connections to lineage and ancestry remain active, even when not physically present, and at times, taking on more-than-human form. These relationships were not described metaphorically, but as felt, relational, and meaningful. As George Westwood reflects, “We are a species… this is not our first time around,” pointing to a sense of continuity that extends beyond individual lifetimes and gestures toward forms of return or rebirth within a broader human inheritance. He further recounts a story from Haida Gwaii in which a friend described her kin—the orca—coming “looking for her” shortly before her death, illustrating how these connections are experienced as active, relational presences rather than symbolic ideas. Similarly, Katsi Cook emphasizes the importance of continuity in how birth is understood: “The baby needs to be born into a family with a coherent origin story, creation story that is cosmographic.”

Participants also described a longing to reconnect with those who could not be present. As NJ notes, individuals often desire the presence of loved ones who have passed, "I think just because of the population that I work with, they've oftentimes experienced a lot of loss. So, I find not infrequently that patients want family members who've passed to be there, particularly if it's a mother or a sister, oftentimes a father actually." In response, participants imagined ways of making these relationships felt within the birthspace: “If we can have anything… just to have some way to embody those people… in the birth space.” These gestures suggest that birthspace extends beyond the physically present, shaped also by memory, absence, and ancestral presence.

Taken together, these accounts reveal birthspace as a complex and often invisible geography—one shaped by histories of displacement and efforts of return. Birth becomes not only a physiological process but also a site of repair: a moment when individuals seek to re-establish continuity with land, lineage, and relational worlds that have been disrupted.

Looking forward, participants expressed a desire for futures in which these connections are not fractured, but sustained. As Katsi Cook reflects, “in 100 years… everybody [would be] born into a language that is connected to the cosmos, Mother Earth, the sun…” Here, birth is imagined not as an isolated event, but as an entry into a world where relationships—to land, to ancestry, and to the more-than-human—are intact and recognized.

The implication is that care cannot be limited to the physical environment or clinical moment alone. It must also attend to the less visible terrain that individuals carry with them: histories of movement, experiences of loss, and enduring connections to those who came before. In this way, birthspace becomes more than a place of care provision. It becomes an actor, a practice for reconnection, supporting the conditions that allow continuity to be restored and new life to emerge within a broader web of belonging.

What cannot be resolved in words may be held in

Speculative artifacts give difficult questions a body, allowing us to encounter what language cannot fully contain.

Synthesis Through Speculative Design

“Design excels at sensemaking, art excels at strangemaking, foresight integrates both, enabling us to make the strange familiar and the familiar strange.”
Greg Van Alstyne, sLAB Director, OCADU

In this project, speculative design did not follow analysis - it participated in it. The artifacts were created to represent our data findings, and through their production, we discovered new tensions, concerns and concepts (Watson, 2025). As interviews, literature, and trend analysis were brought into relation, certain tensions began to surface across scales: in lived experience, in institutional logics, in dominant assumptions about safety, care, and the body, and in the deeper cultural myths that continue to organize birth **(Table 1, CLA)**.

Making became one way of thinking through these tensions, particularly where conditions were relational, embodied, and difficult to fully grasp through description alone. Speculative design offered a way to stay with what was emerging without forcing resolution (Dunne & Raby, 2013). In this sense, the artifacts function as a form of researcher fiction: analytic tools that extend patterns, test implications, and render alternative logics perceptible within everyday life (Watson, 2025). They do not prove a singular truth about birthspaces. Instead, they surface tensions and open space for different ways of relating, asking questions rather than resolving them.

This approach also made it possible to move across layers of meaning at once. Rather than an artifact remaining at one level of representation, they translated lived experiences, institutional patterns, worldview assumptions, and underlying myths into forms that could be physically and emotionally encountered (Candy & Kornet, 2017; Watson, 2025). Speculative making became a way of testing how deeper cultural logics might feel when carried into everyday objects and environments.

The artifacts that follow, therefore, function as sites of synthesis and invitations for interpretation. They do not resolve the tensions identified in this study. They hold them in place. By tracing what becomes possible when present conditions are extended, rearranged, or interrupted, they help reveal not only what is changing in birthspaces but what kinds of futures are already being rehearsed through them (Dunne & Raby, 2013).

We imagined a world where futures of birthspace are intentionally designed spaces that bring people closer to themselves, each other, and the world more broadly - spaces that foster internal, relational, and environmental coherence. Birthspace is more than a location - it is a mindset, a ceremony, a constant state of embryology, of becoming (Katsi Cook). The following artifacts were co-designed in anticipation of that time.

The Artifacts

Intervision Apparatus

“So in 100 years from now, I want to see everybody being born into a language that is connected to the cosmos, Mother Earth, the sun, all those things we talk about in our words that come before all else. It's an ancient invocation to the natural world of appreciation.”
Katsi Cook

The Intervision Apparatus **(Figure 5)** emerges from a growing tension between the increasing surveillance of birth and the relational, experiential nature of care. Signals across healthcare point toward expanding monitoring technologies and efficiency-driven observation, often positioning birth as something to be watched rather than participated in, a dynamic long critiqued within medicine as privileging the clinical gaze over lived experience (Foucault, 2003). Participants across and beyond birthspace reflected this dissonance, while also emphasizing how the body responds to spatial and relational cues; as one participant, Susan Winemaker described how as a dominatrix she would often begin the experience - ‘get on your knees’ as soon as the door opened to set the tone and noted, “If you stand in a certain position, you're gonna feel a certain way… the body knows.”

The apparatus engages this insight directly: to look into it, one must bend or bow, subtly shifting posture toward humility and reverence. This gesture reorients the viewer away from detached observation and toward a more relational stance, aligning with Katsi Cook’s reminder that “babies want to be born into a world, not just a body.” Martina Hynan also described a moment in which individuality gave way to a broader sense of connection, recalling that “suddenly… I had this awareness that I was so connected with the world… not being an individual anymore, but being utterly connected.”

Rather than producing data, the apparatus redistributes attention, drawing focus away from the individual as object and toward the conditions that hold the moment. “Their whole world is right there. And I think babies know that, and what we've lost is just recognizing the incredible, like, how incredibly profound it is to be satisfied with knowing everything you need is right there, and just allowing yourself to accept that you don't need anything else." (NJ). In doing so, it creates a shared field of perception where boundaries between observer and participant begin to blur, foregrounding relational, sensory, and affective dimensions of care often overlooked in systems oriented toward measurement and efficiency (Hoffmann, et al., 2023).

Sitting between observation and participation, the Intervision Apparatus functions as both critique and provocation - revealing how systems of visibility shape experience while calling viewers into a more conscious participation in the worlds they help bring into being.

Figure 5: Intervision Apparatus

Inspired by Susan Winemaker, Katsi Cook, Martina Hynan.

Arrivals & Departures

“[A hospital] it's not just like a place where you're waiting to be seen, but it's actually a place where, as you go through it, you are being taken care of already.”
Darren Leu

How we cross a threshold shapes what becomes possible. The entrance to a space communicates a “transmission of philosophy of birth” (Setola, 2019). Across cultures and time, thresholds have marked the passage between worlds, not always as doors, but as alignments, symbols, and landscapes. They prepare the body, the mind, the spirit, signalling that something is about to change. Yet contemporary healthcare environments increasingly prioritize efficiency, standardization, and throughput, resulting in entry points that are placeless and interchangeable. In birthspaces, arrival often occurs through the emergency department: a door that opens the same way for trauma and grief. The body arrives already braced.

Arrivals & Departures **[Figure 6]** uses Figures of welcoming and hostile thresholds to explore how entry shapes experiences before clinical care begins. It draws on research in birth design - suggesting that entry spaces influence physiological regulation, emotional safety, and the progression of labour (Global Birth Environment Design Collaborative, n.d). Participants, like Darren, echoed this need for transition, imagining care environments as spaces that begin holding the individual from the moment of arrival: “[A hospital] it's not just like a place where you're waiting to be seen, but it's actually a place where, as you go through it, you are being taken care of already.” Insights from adjacent domains further reinforce this, as Darren, a designer of escape rooms, described the importance of sequencing experience: “What’s that next plot point? What’s the next narrative shift… to keep them going.”

This artifact surfaces reflection that thresholds are not only functional, they are relational, sensory and physiological. Their absence compresses transition; their presence scaffolds it. It provokes what becomes possible when arrival at a place of birth is a more intentional and welcome crossing, not just a point of intake, but one that supports movement between worlds rather than collapsing them into one that is contrary or adverse.

Inspired by Susan Winemaker, Darren Leu, NJ, Katsi Cook, Anka Dür & GBEDN’s The First Room.

Figure 6: Arrivals & Departures

Emberspecs

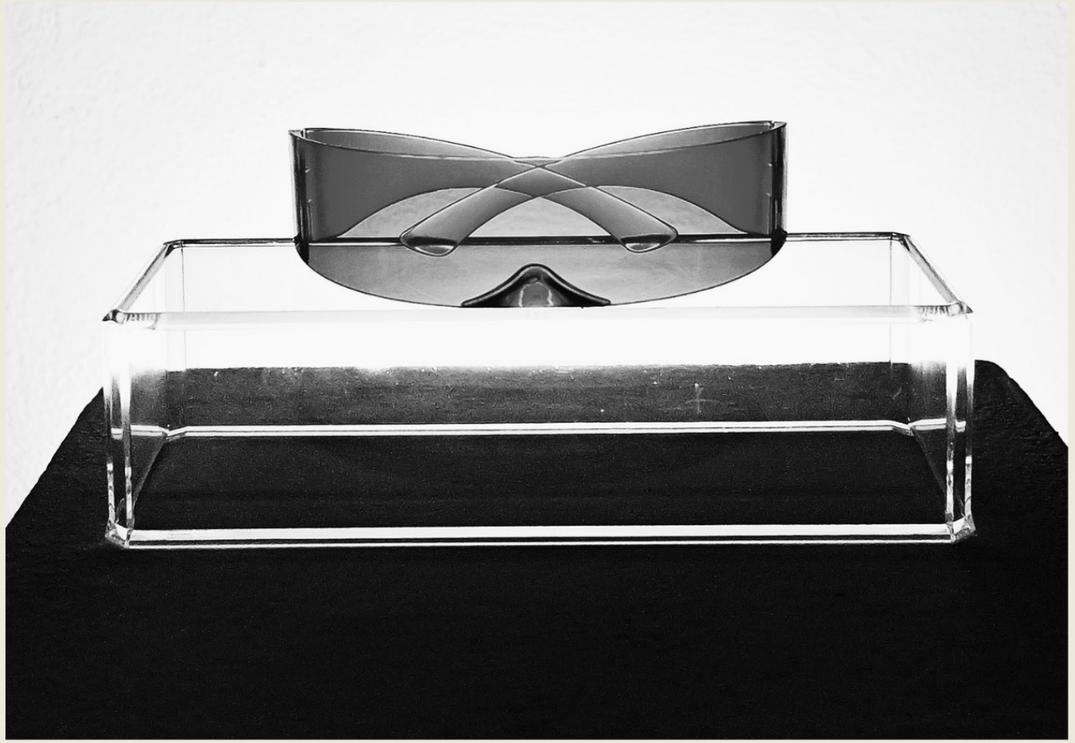
“Physical spaces really have so much impact on our life, in ways that we probably don't understand or recognize.”
Andrea Campbell

Emberspecs **(Figure 7)** emerge at the intersection of several converging signals, including the rise of human-centric lighting, multisensory care environments, and increasing demand for autonomy within clinical systems. While hospitals continue to prioritize blue-spectrum lighting for visibility and efficiency, this condition is increasingly misaligned with human physiology; evidence shows that blue light suppresses melatonin, a hormone that plays a role in regulating oxytocin and the progression of labour (Cho et al, 2019; Balabanoff, 2023; Klerman et al., 2016). Participant reflections echoed this tension, describing birth environments as “harsh… loud… bright lights” (George Westwood) that disrupt rather than support transition, and emphasizing the importance of softer, more continuous sensory conditions. As Katsi Cook reminds us, “everything the mother hears, everything the mother sees, everything the mother experiences, the baby experiences that too,” positioning light as a relational and physiological force rather than harmless infrastructure.

In response, Emberspecs translate emerging lighting innovations to the level of the individual, offering a low-cost, wearable intervention that refuses disruptive wavelengths and restores a spectrum closer to firelight, an elemental form historically used to gather attention and signal transition (Katsi Cook).

Emberspecs brings forward a tension between adaptation and refusal. While the lenses offer sensory autonomy within a misaligned system, they also raise the question of why the body must adapt to the room rather than the room adapting to the body. What becomes possible when light is treated as part of the physiology of care?

Figure 7: Emberspecs



Inspired by Doreen Balabanoff’s Colour, Light, and Birthspace Design, and Dr. James Olcese’s Effects of Light and Melatonin on Contractions in Pregnant Women.

The Lullpulse

"Continuing the conditions that they were once in, I think, is one of our first acts of mercy to babies."
Mikaela de la Myco

The Lullpulse **(Figure 8)** is a sensory provotype emerging from recurrent themes across interviews and literature emphasizing the importance of rhythm, sound and continuity in early life. It responds to the transition from womb to room (Leboyer, 1975), from a once-dim, warm, and quiet environment to a bright, cold, and loud space. The artifact imagines a wearable interface (i.e., the essence of an amplified stethoscope) that captures and transmits the parent's heartbeat into the child's environment (i.e., car, stroller, bed) via a speaker, extending a familiar sensory condition beyond the body.

Participants described the newborn transition as abrupt, while highlighting the regulating presence of the parent's body. Andrea Campbell, a practising midwife, described the ideal transition as "a gentle, smooth transition… warmth, mother's heartbeat," while Joseph Ellsworth reflected on how a parent's heartbeat may be one of the earliest and most familiar sensory experiences and how important it is for the child to be connected to the parent's heartbeat. Research literature exploring the impact of music and mothers heartbeat on their newborn suggests that "The sound of the mother's heartbeat has been shown to stabilize the heart rate and respiration of premature infants, reduce pain, promote weight gain," and support early childhood development (Zhang & He, 2023).

As a sensory proxy, Lullpulse opens a series of questions about presence, absence, and substitution. What conditions make a parent's absence expected rather than exceptional? What happens when presence is translated into a single signal, and other forms of connection, like touch, smell, and proximity, fall away? When a heartbeat can be stored and replayed, does it extend presence, or begin to replace it? What remains beyond what can be transmitted?

Figure 8: The Lullpulse

Inspired by NJ, Joseph Ellsworth, Heba Al-Nashef, Andrea Campbell, Teresa Ianni and Meghan Donohue's Heartbeat Songs from PAIL's Connected in Care Conference.

FlowBond

"**It's a horrible thing to come into this harsh world. Like wow, loud noise and bright lights. You know, it should be soft lights. The first thing you see is your mother's face. That is your map, your chart for how you will make your life, because the expression in her face will tell you a great deal of what you need to know in setting out."**

George Westwood

The FlowBond **(Figure 9)** is a bio-interface wearable prototype that recasts monitoring as a less visible, less invasive, and less disruptive presence while allowing critical data to be collected, leaving more uninterrupted space for labour, skin-to-skin contact, and early relational bonding. It emerges from recurrent themes across interviews and literature around interruption, surveillance, restraint, consent, trauma and the importance of maintaining connection during and after birth. It imagines a soft, skin-like patch worn by the birth parent, with a companion patch for the newborn, allowing vital signs and data to be monitored without repeated checks, wires, or separation from the birth environment. By reducing visible disruption, it is also intended to help the birth parent remain in a flow state during labour.

The secondary research findings emphasize the importance of supporting labouring people to remain in "the zone" or Christine Roy's "the bubble" by reducing environmental disruptions, "keeping lights low, [remaining] quite during contractions" and limiting unnecessary interactions so the limbic brain can remain engaged (Dixon et al, 2013). Trends and signals in wearable health technology, remote monitoring and patient-centred data systems point toward care models that collect information while reducing visible equipment and workflow burden. Across interviews, participants described wires, machines, noise, repeated assessments, and separation as interruptions to labour and early connection.

As monitoring recedes from view, FlowBond opens a series of questions about protection, surveillance, and connection. What happens when continuous monitoring persists, even as it becomes less visible? If electronic fetal monitoring has historically contributed to unnecessary intervention and harm (Kliff, 2025), what risks are carried forward when surveillance becomes softer and harder to notice? If surveillance shapes labour in both humans and animals (Millet, 2026), does its presence continue to act, even when it cannot be seen? And when care providers no longer need to enter the room to gather data, what happens to presence, reassurance, and "being with?"

Figure 9: FlowBond

Inspired by Kimberley Black, Joseph Ellsworth

Gestationist: Unborn Relations Unit

“Yeah, the whole idea of being able to touch [a patient]. This newer generation, number one, doesn't want to be touched themselves.”

Elizabeth Scholtz

Gestationist: Unborn Relations Unit **(Figure 10)** draws on signals and historical parallels in which technological advancements in neonatal and gestational care outpaced current systems (Horn, 2023; Columbia University Department of Surgery, 2015). As ectogenesis enabled fetal development outside the human body, a gap was revealed: biological viability was present without relational care. The artifact imagines a new role responsible not only for sustaining life, but for recreating the sensory, emotional, and ecological conditions once held within the body.

This artifact connects to signals of advancing ectogenesis research, artificial womb technologies, and the increasing medicalization of birth (Segers, 2021; Ranjbar, 2017).

Historical precedents, such as neonatal incubators, show how technologies extended survival before care systems adapted to support relational needs (Horn, 2023). Developmental literature emphasizes the importance of touch, sensory regulation, and continuous presence in early human development, suggesting physiological survival alone is insufficient (Soerensen, 2025; Tierney, 2009; Stanford Medicine, 2025). Across interviews, participants described concerns around separation from baby, land, and community, alongside a desire to maintain relational continuity in birth. In this context, the artifact considers how birthspace is reorganized when gestation is externalized and care must be intentionally reintroduced rather than assumed.

Gestationist: Unborn Relations Unit reveals a tension within birthspace between technological survival and relational care. While the artifact (a future job position) expands the possibilities of sustaining life outside the body, it also exposes the conditions that must be recreated once they are no longer inherent. It asks what happens when presence becomes a role to be performed, and when care, once carried by the body, must be assigned and scheduled rather than lived.

Figure 10: Gestationist: Unborn Relations Unit

Inspired by Claire Horn’s Eve, and Dr. Martin Couney’s Kinderbrutanstalt at Coney Island, Katsi Cook

The Internal Pharmacy Lab

“The future is you have to bring education home, and you have to bring the birth home. As much as possible. Listen, high-risk pregnancies... we're not doing triplets... You know what I mean? But that safe space, that bubble [you don’t quite maintain the bubble in the hospital].”

Christine Roy

The Internal Pharmacy Lab **(Figure 11)** draws on insights from interviews, literature, and trend analysis, pointing to an increasing reliance on clinical intervention and synthetic agents to initiate or sustain physiological processes during birth. Taking the form of an antique medicine cart, the artifact imagines a future in which labour onset, hormonal signalling, and postpartum responses can no longer be assumed to arise spontaneously under changing environmental and care conditions. Processes once considered endogenous become routinely supplemented, stimulated, or replaced within clinical birthspaces.

This artifact connects to signals of rising intervention in birth, including increased caesarean deliveries in Canada and globally (Bell et al., 2014; Canadian Institute for Health Information, 2025; Global News, 2019; Thomaidi et al., 2025). Ongoing concern around endocrine disruption, including the emerging presence of microplastics in human tissue, including newborns' brains, raises questions about how environmental conditions may be affecting hormonal regulation and physiological responsiveness (Odent, 2020; Stanford Medicine, 2025; Zhang et al., 2025; The Guardian, 2024). Literature on oxytocin and birth physiology emphasizes the importance of safety, privacy, and sensory conditions in supporting endogenous hormonal release (Bell et al., 2014; Women’s Mental Health, 2017), while also raising questions about what happens when these functions no longer reliably emerge on their own (Odent, 2014). Drawing on parallels with earlier patterns of hormonal supplementation, including practitioners' concerns about exogenous melatonin use, the artifact considers how prolonged reliance on substitutes may not only support the body but also reshape what it can initiate or sustain independently. Participant Susan Winemaker noted that post-delivery interventions, even small acts, can interrupt relational physiology: “you [a baby] have a hat put on you, and your mom can’t smell your head.” In this sense, the cabinet asks how birthspace shifts when intervention becomes continuous, and the labouring body is increasingly treated as unable to regulate without assistance.

The Internal Pharmacy Lab sits between supporting the body’s rhythms and gradually replacing them. While it promises control, predictability, and immediate access to physiological processes, it also suggests that the conditions required for those rhythms to emerge are being eroded. It asks what kinds of bodies, and what kinds of births, are produced when intervention becomes routine.

Inspired by : Michel Odent, George Westwood, Martina Hynan, Yōko Ogawa’s Memory Police.

Figure 11: The Internal Pharmacy Lab

Words Make Worlds

“[Being] born into a democracy doesn't guarantee that you'll be treated in a democratic way.”
Kimberley Black

Jewish theologian Abraham Joshua Heschel’s assertion that “words create worlds” (Schiewer, 2017) underscores the power of language to shape not only meaning but material conditions. In birthspaces—where individuals are often in vulnerable and liminal states—this power becomes particularly acute. As trends of birth trauma, obstetrical violence, and rising intervention rates persist, we turn our attention to the language of obstetrics and gynecology: the eponyms, risk framings, and terminologies that quietly organize authority and decision-making (Baskett, 2019). Drawing on Dorothy E. Smith’s concept of “ruling relations,” it examines how these textual practices coordinate experience and reproduce particular worldviews within care (Smith, 1990; Sharpe, 2000).

The artifact itself **(Figure 12)** takes the form of a living library, spatially organized into panels that reflect the cardinal movements of labour, inviting participants to physically pivot as they move through it, mirroring the embodied shifts required to move from one world to another.

This artifact was deeply influenced by voices from within and beyond birthspace, including Kimberley Black, a survivor of sexual assault, who reflected: “My strength came from questioning the faith… from gaining knowledge from a different viewpoint of… healing from trauma.” Her words foreground the importance of reclaiming authority over one’s body and narrative, making visible the contributions and knowledge of those historically excluded from medical obstetrics, particularly women and racialized practitioners (Bhambra, 2025).

Broader cultural shifts further underscore ongoing efforts to reframe language in care. In 2026, the term ‘rematriate’—submitted to the Oxford English Dictionary by Dr. Jennifer Leason—signalled a return to the sacred Mother, reflecting ongoing efforts within Indigenous feminist scholarship, Black intellectual traditions, and 2SLGBTQI+ activism to (re)name and (re)frame knowledge systems within health sciences. This artifact is deeply inspired by Shawn Wilson’s words that “knowledge-making is a shared act of relationship, not ownership” (2008).

In response, speculative artifacts within the living library were developed to reimagine common terms, anatomical naming conventions, and future educational and algorithmic systems. Underpinned by participant Darren Leu’s escape rooms, where people work together to solve puzzles, a quiet invitation to participate in this reworlding was offered through simple gestures: a pen, blank lines, and the presence of male eponyms, encouraging viewers to rewrite and reclaim language. Through this process, the artifact surfaces the layered dynamics of litany, social/systemic structures, worldviews, and myth/metaphor **(Table 1)**, revealing how birthspace is not only designed through materials and protocols, but continuously produced through words.

Words Make Worlds holds a tension between naming as authority and naming as relation. While language can organize care, it can also fix bodies, risks, and identities into particular frames. It asks what happens when the words that shape birth are inherited rather than chosen? And what becomes possible when language is not only used to describe experience, but to reshape it?

Inspired by Andrea Campbell, Kimberley Black, Martina Hynan, Darren Leu, Katsi Cook, Mikaela de la Myco, Mary Sharpe, Chidiebere Ibe, Lee Maracle, Dr. Jennifer Leason.

Figure 12: Words Make Worlds

The Third Body Kit

“My placenta is not medical waste... I buried the placenta of my son underneath a eucalyptus tree ... and I'm in that ground, you know, as someone who gives their menstrual blood to the soil here, there is like a stake that's made ... I now protect this land because I am inextricably tied to it. You know, the things that grow here because my DNA is here, my blood, my sweat, my tears are tied up in this physical place.”

Mikaelade la Myco

The Third Body Kit **(Figure 13)** draws on interviews, signals, and literature that reframed the placenta as more than a temporary biological organ, positioning it instead as a mediator of exchange across bodies, environments, and time. In response to Mikaela de la Myco’s statement, such as “my placenta is not medical waste,” the artifact imagines a future in which placental material is no longer treated as disposable tissue and reclassified as a relational biological and ecological matter. It explores what forms of future are set in motion through decisions to return, retain, or transform what has been produced through birth, like the Yuułuʔiłʔatḥ (Ucluelet First Nation) story at Pacific Rim Trail of James Ivan Cootes “Hudson,” whose father’s placenta was buried with wood dust in the hopes he would become a totem carver.

This artifact connects to signals of increasing attention to environmental toxicity, intergenerational health, and the long-term biological impacts of gestation (Bohannon, 2025; Threshold, 2022; Dennis et al., 2022; Weckman & Farrugia, 2025; American Heart Association, 2021; Mount Sinai Health System, 2019). Emerging research on placental transfer and microchimerism suggests that fetal cells may persist in the maternal body, contributing to organ repair, countering dominant framings of the fetus as separate or parasitic (Malinská et al., 2024; The Atlantic, 2024; Cord Blood Registry, 2025; Bohannon, 2025). At the same time, clinical birthspaces continue to treat the placenta as disposable tissue, reinforcing a separation between biological processes their ongoing relational, ecological, and temporal significance (Baergen et al., 2013; Provincial Services Health Authority, 2024). Across interviews, participants described ceremonial and land-based practices in which the placenta is buried, returned, or preserved, emphasizing its role in connecting body, land, and future self. Drawing on the Afrofuturist concept of the quantum time capsule, the artifact frames these post-birth decisions not as symbolic afterthoughts, but as actions that carry consequences across biological, ecological, and intergenerational time (Phillips, 2025; Project Time Capsule, 2021). “And the thing about ceremonies is they set your mind. They set your mind in your hands a certain way. They connect to a part of you you don't even know yet.” Katsi Cook (Mohawk Midwife, and Elder)

The Third Body Kit reveals a tension within birthspace between what is classified as waste and what continues to act as relation. While institutional systems treat the placenta as something to be discarded, the artifact reframes it as something that continues to act across bodies, land, and time. It asks what happens when decisions made after birth are understood not as endpoints, but as interventions that shape biological, ecological, and intergenerational futures.

Figure 13: The Third Body Kit

Inspired by: Mikaela de la Myco , Martina Hynan, Christine Roy, Katsi Cook, Yuułuʔiłʔatḥ (Ucluelet First Nation), Rasheedah Phillips’ Quantum Time Capsule (Afrofuturism)

SoftGround

“I remember I was grunting and groaning and making noise... because I was kind of growling... I kept visualizing myself as this little bear, and I found it funny, and that helped. It helped enormously, but I just couldn't stop seeing myself as this little animal, you know."

Martina Hynan

Softground **(Figure 14)** is a tactile provotype that redistributes labour intensity to help manage pain and tension within the body. A rectangular box holding kinetic sand, a responsive material that allows the labouring body to press into a surface that shifts with pressure, partially relocating sensation across body, object, and ground.

It responds to the medicalization of birthspaces in Western medicine and the cultural narratives surrounding pain in childbirth, which have created practices focused on eliminating rather than staying present with labour pain. Rather than eliminating sensation, the artifact imagines a surface through which intensity can move outward, allowing pressure to be held across both body and object. In supporting the birthing person and their labour pain, it asks what happens when pain no longer resides only within the body, but is partially redistributed through material contact.

Interviews pointed to the importance of texture, pressure, movement, and animality in labour and other transitions that test human limits to cope, including Susan Winemaker’s reflections on fabric and tactile response in pleasure and pain, and Martina’s description of becoming “this little bear” during intense contractions. Trends toward labour aids, sensory tools, and non-pharmacological pain supports to improve birth experiences suggest growing interest in helping people stay with intensity differently. Yet SoftGround also reflects a more unsettled possibility: when sensation is displaced outward, orientation between body, pain, and progress may begin to shift.

SoftGround opens questions about pain, materiality, and relation. If pain is not removed but redistributed, what changes in how it is sensed, interpreted, or understood? When sensation is shared between body and ground, does it deepen the body’s capacity to stay with intensity, or begin to move it elsewhere? And what might pain be asking of the body when it is no longer something to escape, but something to move through?

Inspired by Martina Hynan, Susan Winemaker, Clem Scholtz.

Figure 14: SoftGround

Ancestral Interface (ai²)

“[I wish there was] some way to sort of embody those people who really actually cannot be there… in any way, to embody them in the birth space.”
NJ

The Ancestral Interface **(Figure 15)** is a holographic prototype designed for birthparents to call upon absent kin, including deceased relatives, family and friends, community members, animal beings, or a future self to help guide them through rites of passage. This interface is an archive that provides access to generational wisdom, knowledge, and cultural connection to birthspace. It emerged from interviews describing moments when the person most needed in labour could not be physically present because of death, displacement, war, distance, or time. The artifact imagines birthspace as a threshold where support might arrive not only through living bodies, but through memory, lineage, and possible selves.

Across interviews, participants described support as relational, ancestral, and more-than-human: Heba Al-Nashef recalled a labouring woman in Gaza asking for her mother after months of separation - “She's like, I just want my mom. And I said, I'm really sorry, I can't bring your mom." George Westwood described whales arriving as kin; how orcas came to visit his friend, circling, poking their heads up, staring at her. Recalling that “the old lady looked at me and said, Oh my… that's my people. They're looking for me. And she died two days later.” These stories from our interviews connect to broader signals and trends around immersive technologies, holographics, AI memory reconstruction and desire for agency and emotional support in birthspaces. The growth of doula services in the market also signals that many people may be seeking forms of presence and advocacy not always available within clinical systems.

Emerging experiments in neural simulation, such as a virtual fruit fly whose behavioural wiring appeared to carry built-in responses, raise further questions about what could be archived, reconstructed, or called upon in future care environments (Pelley, 2026). This prompted the exploration of what might happen when this is attempted with humans; where our essence, memories, and reactions could be placed in a virtual space that could be called upon at any time.

The Ancestral Interface holds a tension between support and simulation, presence and return. While it offers access to presences that distance, death, or displacement have made unavailable, it also raises questions about what is being called back (presence, memory, or projection) and at what cost. What happens when absence can be held open rather than accepted and lived through? And what might we no longer learn if letting go is no longer necessary?

Figure 15: Ancestral Interface

Inspired by Heba Al-Nashef, NJ, Katsi Cook, George Westwood, Martina Hynan, Mikaela de la Myco.

Amplifier

“I know they wouldn't be able to see too much, but, you know, as someone who really likes to explore altered states, those tapestries on the wall and the colours of them and, you know, light and shadow, right? Like they're not getting those really sharp details, but maybe it's just the impressions of light changing and the textures of all those fabrics that I spoke to earlier.”
Mikaela de la Myco

The Amplifier **(Figure 16)** is a sensory provotype designed to intensify internal perception and support altered states it labour inviting individuals to attune more deeply to bodily rhythms and altered states of consciousness. It emerged from the recognition that birth is not only physiological, but also a perceptual threshold, where the capacity for inward focus and internal exploration can be a source of strength alongside clinical care.

Drawing on Orli Dahan’s *Birthing Consciousness* (2023) and signals of multisensory care, rising interest in altered states as a part of pain, transition and healing, it responds to the dissatisfaction within intervention-heavy systems of birthspace environments.

The artifact is informed by its analogue precedent: the Dreamachine, which produced flicker frequencies in the range of 8–13 Hz, corresponding to alpha brainwave activity associated with relaxed, meditative states (Gysin, 1993). The Amplifier is designed to be experienced with the eyes closed. Participants across and beyond birthspace described a need to withdraw from overstimulating environments and move inward, with midwife Andrea Campbell noting the desire for “just… quiet… like, less people talking, less doing.” In this context, the Amplifier makes perceptible what is already unfolding, thereby legitimizing altered perceptual states that are often suppressed or pathologized within clinical care.

The Amplifier opens questions about intensity, perception, and support. It surfaces a tension between amplification and overwhelm, suggesting that while intensity can deepen presence, it also requires support, challenging the assumption that care should always reduce sensation rather than hold it. It also asks what happens when altered states are treated not as distraction or distress, but as part of the intelligence of labour?

Figure 16: Amplifier

Inspired by Brion Gysin’s Dreammachine, Orli Dahan’s Birthing Consciousness, Leanne Simpson Betasamosake (sintering), Mikaela de la Myco and Mothers of the Mushroom. Editing & score by Mars McGrath.

Got Dirt?

“...we know that touching soil releases oxytocin well. So the idea of, you know, having a soil to give birth on to... it confounds and messes with that whole phrase of ‘barefoot and pregnant,’ which is quite derogatory, but also essentializing. So if we play with that notion of barefoot and pregnant for a moment and think about barefoot in terms of grounding ... but also the release of oxytocin.” Martina Hynan

Got Dirt? **(Figure 17)** emerged from recurring themes across interviews, literature, and trend analysis pointing to the role of soil, microbial life, and ecological exposure in supporting hormonal regulation, nervous system balance, and connection (Ito et al., 2019; Robinson et al., 2025; Flinders University, 2025). As these benefits became increasingly recognized, and as the soil’s role in co-creating conditions for life became more legible, institutions began to capitalize on them. This artifact imagines a future in which soil is extracted from the living relations that sustain it and repackaged as a wearable intervention within clinical birthspaces.

This artifact connects to signals of growing interest in microbiomes (Hou et al, 2022; Williams, 2024; Odent, 2014), grounding practices (Peachman, 2017; Passi, 2017), biophilic design (Barbiero & Berto, 2021; Miola et al, 2025), and nature-based prescriptions within healthcare (Redvers, 2024; Bell et al, 2024), all of which suggest a growing awareness that bodies do not regulate in isolation.

Literature suggests that soil exposure can support immune function, reduce stress, and contribute to hormonal and nervous system regulation, including pathways relevant to oxytocin release in labour (Cavallito, 2025; Franco et al, 2017). At the same time, birthspaces remain shaped by institutional priorities of sterility, standardization, and risk management, often making direct ecological contact difficult or impossible (Moslehian, 2023; Pease, 2026; Puig de la Bellacasa, 2017). Participant Mikaela de la Myco reflects on plants' exclusion from hospital settings: “ I actually find it to be really sad... I visited people in hospital [and] they [hospital] don't welcome live plants. They only welcome cut plants. I think that makes a big difference with the oxygenation of rooms in hospitals." (Moslehian, 2023; Pease, 2026; Puig de la Bellacasa, 2017).

Across interviews, participants expressed a desire for “good dirt” and for medical environments less governed by sterility, reflecting a tension between ecological exposure and institutional control. With the rise of superbugs (nosocomial infection), participant Joseph Ellsworth expressed the value of ‘good dirt’: "I really liked [the] approach [image of microbial wipes] - specifically towards changing it to de-sterilize.”

Got Dirt? reveals a tension within birthspace between access and relationship. While the artifact promises grounding, regulation, and connection, it does so by removing the ecological conditions through which those effects emerge. It holds that paradox in place: the promise of reconnection delivered through the continued severing of relation. In doing so, it asks what kind of birthspace is produced when care is reorganized around fragments of relationship rather than the living systems that sustain it and what may become of systems packaged and stabilized for controlled inputs for therapeutic use.

Figure 17: Got Dirt?

Inspired by Mikaela de la Myco, Martina Hynan.

Haptic Glove

"I'd like for us to be able to just transport all of that stuff [OB equipment / personnel] to wherever that patient needs to be through time and space. ... sort of parachute that? ... [it's] about bringing birth back to communities."

NJ

Haptic Glove **(Figure 18)** emerged from recurring patterns across interviews, literature, and trend analysis pointing to care as something distributed rather than held by a single provider (Corso et al., 2022). In response to conditions of distance, medical evacuation, and separation from land and community, the artifact imagines a future in which touch, skill, and response can be transmitted across bodies, space, and time. It explores what happens when care is no longer contained within a single body but shared across a network of practitioners, technologies, and ancestral knowledge.

This artifact aligns with signals of increasing reliance on telehealth, remote monitoring, and emerging haptic technologies that enable forms of touch and guidance across distance (Harvard Business Review, 2022; Ivey Business School, 2024; Women's College Hospital, 2023; Society for Simulation in Healthcare, 2025).

Developments in robotic and remote-assisted surgery suggest a growing capacity to extend clinical expertise beyond the physical presence of a provider, while concepts such as quantum mechanics and quantum communication point toward more complex and speculative forms of relational exchange across space and time (Faughnan & Ziering, 2018; ScienceAlert, 2025; Phillips, 2025). At the same time, birth in many remote and Indigenous communities continues to be shaped by medical evacuation, requiring individuals to leave their land, families, and support systems in order to give birth (Campbell et al., 2025; Cidro et al., 2020; Hayward & Cidro, 2021). Across interviews, participants described care as relational and collective, highlighting the need for continuity of knowledge, presence, and support despite geographic separation. The artifact draws these conditions together, asking how birthspace is reconfigured when touch, skill, and responsibility are extended through technological mediation.

Haptic Glove holds a tension between knowledge that can be transmitted and knowledge that must be lived. While it expands access by allowing touch, skill, and guidance to travel across distance, it also raises questions about how mediated touch may alter a provider's own felt sense, intuition, and embodied judgment. It asks what happens when care is shaped by many hands at once, and who ultimately holds responsibility and whether knowing can remain grounded when it is never held by one body alone

Figure 18: Haptic Glove

Inspired by: NJ, Elizabeth Scholtz, Katsi Cook, Christine Roy, Heba Al-Nashef, Andrea Campbell.

Virtual Hydrotherapy

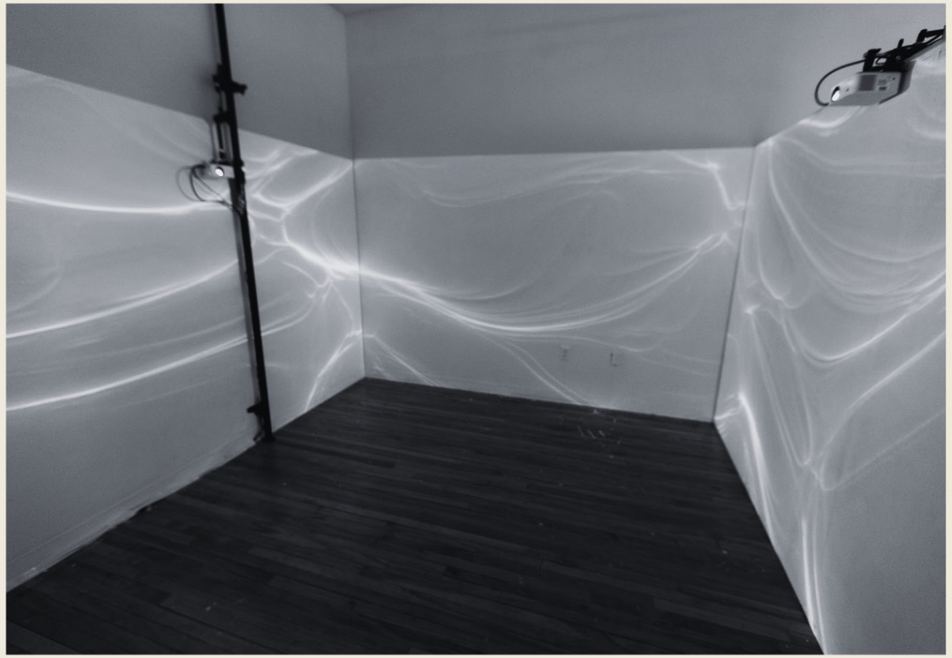
“Water carries us. Water rocks us. Water puts us to sleep. Water gives us back our mother."
Gaston Bachelard

The Virtual Hydrotherapy prototype **(Figure 19)** was both the origin of our collaboration and the final artifact in the exhibit, forming a deliberate return to where this inquiry began. In response to a system where birth environments are highly clinical and intervention-oriented, Virtual Hydrotherapy reintroduces fluidity, immersion, and sensory modulation. It emerged from a shared imagination: that institutional birth rooms might be transformed into sanctuaries of calm through projected waterscapes and immersive sound. Building on Michel Odent’s “Blue Rooms” (2014) which introduced water into modern birth environments, we asked how hydrotherapy might persist in futures shaped by resource scarcity, water contamination, and unequal access. Informed by signals such as Indigenous-led movements recognizing the legal personhood of rivers, the prototype does not replicate water, but evokes its presence—through light, sound, and movement—inviting the body to remember immersion without requiring extraction.

Positioned as the final installation, it marked not an endpoint, but a return. After moving through increasingly complex considerations of birthspace—its technological, political, sensory, and relational dimensions—the viewer arrived in a space of relative simplicity: four walls, light, sound, and the suggestion of water. Here, the future appears not as accumulation, but as return. As Andrea Campbell expressed in her interview, “[My wish for a future generation is] an environment that adapts to people…”—a longing that gestures toward environments that are more responsive, attuned, and in relationship with those within them.

Together, these artifacts function not only as speculative propositions, but as interruptions. They disrupt the coherence of dominant systems by making their trade-offs more difficult to ignore, and by drawing attention to what those systems displace, fragment, or render unsayable. Rather than offering resolution, the work holds these tensions open, long enough to expose the assumptions beneath them and to make other ways of relating more thinkable. In doing so, it reorients attention: away from what birth has been made to fit, and toward what conditions of care might still be possible.

Figure 19: Virtual Hydrotherapy



Inspired by Michel Odent, Dr. Brennan Spiegel, and Silva Nercessian. Responds to visions from Andrea Campbell, Katsi Cook. Championed by Ginny Brunton, Oak Valley Health, and Pregnancy & Infant Loss Network

Another world is possible, and many worlds are already here.

(Escobar, 2018)

Implications

The following design shifts emerge from an expanded understanding of birthspace, not only as a clinical or perinatal setting, but as a broader field of transformation that includes moments of becoming, surrender, reinvention, and passage. While many of these implications speak directly to institutional birth environments, birthspace is not limited to them; it also includes homes, communities, and other settings where bodies, identities, and relationships are reconfigured. Read in this way, these insights extend beyond birth into other sites of transformation.

The design shifts reflect recurring patterns across these spaces, while recognizing that their expressions are always situated — shaped by cultural, historical, and political contexts. They emerge from a design approach that intentionally brought multiple worlds into contact, suggesting that new possibilities for care environments arise not from a single domain of expertise, but from the friction, resonance, and insight generated when different ways of knowing meet.

Drawing on tensions identified across the findings, this section considers what these dynamics reveal about the design, experience, and reimagining of birthspace. These tensions are not resolved but carried forward as conditions for engagement. Participants' visions of future birthspaces did not center on technological novelty, but emphasized fundamental conditions: being seen, feeling safe, relational presence, and responsive environments that are already known yet unevenly realized. This suggests that the challenge is not a lack of innovation, but how these forms of care are valued, supported, and made accessible within current systems.

Speculative artifacts did not resolve these tensions, but made them perceptible—revealing assumptions and opening space for alternative ways of imagining and enacting care. As such, this section does not prescribe solutions, but offers a framework for engaging birthspace differently.

Refer to **Table 2** in the appendices to see how these shifts are enacted differently across cultural, political, and experiential contexts.

Seven Design Shifts Towards Futures of Birthspace: Transitions and Tensions

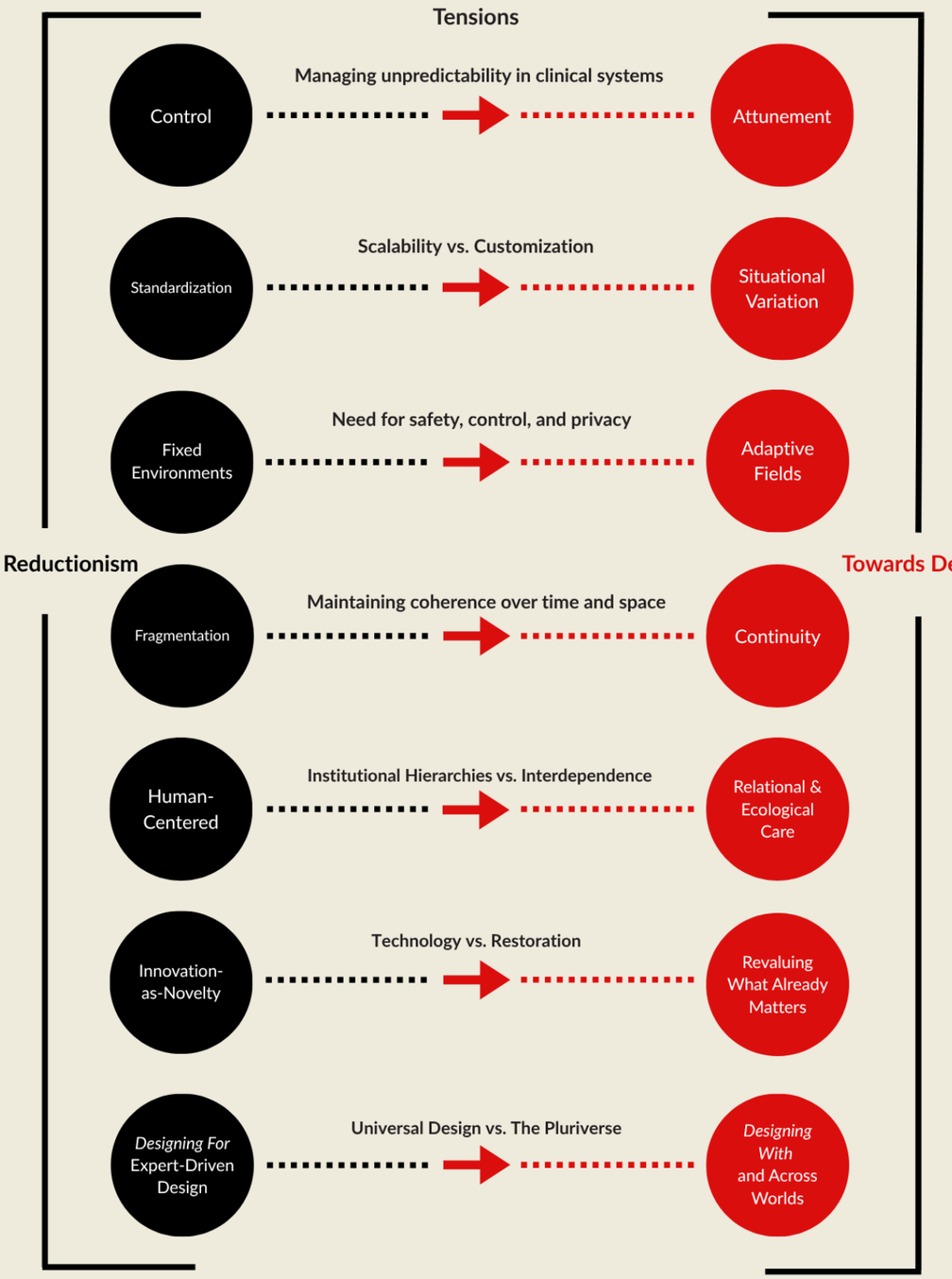


Figure 20: Seven Shits Towards Futures of Birthspace

We are not called to solve the world, but to learn how to relate differently within it.

(Machado de Oliveira, 2025)

Concluding Thoughts

This research reframes birth and birthspaces not as a fixed clinical setting, nor a singular event but as a relational, sensory, temporal and ecological field through which care is produced, and as a site where transformation unfolds. Across this work, birth emerges as something shaped not only by bodies, but by institutional systems, material environments, histories, displacement and relationships that extend across time. As illustrated within the Ontario context, where birth is highly structured, intervention-oriented, and unevenly experienced, our research finds that contemporary care environments, both within and beyond birthspaces, are often misaligned with embodied needs, and that birth and birthspaces reveal what societies choose to value, control, interrupt, or make possible.

Through speculative design, the tensions revealed by the research were translated into artifacts that made them tangible, interactive and immersive. These artifacts invited participants to encounter birthspaces not only as an idea but as something felt, embodied, questioned and reimagined. Rather than offer resolution, it opened space for reflection. Allowing birth and the worlds they extend towards to become both a site of inquiry and a method for imaging more plural, relational and ecologically attuned futures of care.

Strengths & Limitations

This research is strengthened by its expanded understanding of birthspace as a relational field of transformation rather than a fixed clinical site. Across interviews, it became clear that, despite differences in context, geography, and lived experience, participants consistently expressed a desire for joy at the moment of arrival, a finding often overshadowed in literature focused on risk, intervention, and pathology.

By engaging participants within, adjacent to, and beyond birthspace, including those who have given birth, those who have not, care providers working within systems, and those operating at their edges, this study surfaced insights that may not have emerged through conventional sampling. Participants brought experiences from across Canada, internationally, and from diverse cultural and geographic contexts, including Indigenous lands and remote regions. While recruiting through relational networks introduces potential selection bias, this approach enables depth, trust, and nuance. This was intentionally balanced through literature review and netnography, extending the inquiry beyond known networks.

A key strength of this work lies in its use of speculative design as research synthesis, translating insights into experiential artifacts that make visible what is often difficult to measure: atmosphere, intuition, relational presence, and the metaphysical qualities of care. These artifacts do not always function as solutions or products to be consumed, but as provocations—inviting reflection on how birthspace is constructed and how it might be otherwise.

This research is shaped by our positionality within a Western, industrialized, and academic context, which carries inherent cultural limitations. While dominant systems may frame ecological relations, intergenerational thinking, and relational knowledge as emerging concerns, these are longstanding, lived practices in many Indigenous and land-based knowledge systems (Shallowe et al., 2020). We recognize that what is presented here as “future-oriented” may already be present elsewhere.

At the same time, the study is limited by its exploratory scope and small sample size, which prioritizes depth over generalizability. Additionally, many of the qualities surfaced, such as feeling, intuition, and relational attunement, resist conventional forms of measurement. While this may be seen as a limitation within dominant research paradigms, it also points to a gap in how care environments are currently understood and evaluated.

Some themes and insights did not fully consolidate into the final themes presented in this work. Rather than being forced into alignment, they point to the limits of synthesis, word count, and institutional framing - and to the possibility that what sits at the edges of analysis may be where new ways of seeing and understanding begin.

Work for the Future

This research suggests several directions for future inquiry. One area is the translation of speculative insights into practice, exploring how design interventions might support adaptive, relational, and sensory-rich environments without defaulting to increased consumption or technological dependency. Many of the ideas proposed in this work do not require new products, but rather new ways of seeing, naming, and relating.

Further research is needed to deepen engagement with communities most impacted by inequities in birth, particularly through sustained, community-led co-design processes. While this study did not include formal group co-design apart from that undertaken by the researchers, it honoured participant voices by weaving their experiences and visions into the speculative artifacts and scenarios that emerged.

There is also an opportunity to further develop speculative design as a legitimate methodology within health research, particularly as a tool for surfacing hidden assumptions, engaging ethical questions, and making complex systems experientially accessible.

Finally, future work may extend the concept of birthspace beyond perinatal contexts, applying it to other sites of transformation such as death, migration, illness, and identity shifts — places, spaces, and ways of being where similar dynamics of threshold, care, and emergence are present.

“All good design is critical. Designers start by identifying shortcomings in the thing they are redesigning and offer a better version. Critical design applies this to larger more complex issues. Critical design is critical thought translated into materiality.”
(Dunne & Raby, 2013)

Significance

This study contributes to the literature by identifying not only what is present in birthspace research, but also what is absent. Questions of whose futures are being imagined, by whom, and through which assumptions about body, safety, pain, family, land, and expertise remain underexplored. Attending to these absences shifts the work from documenting existing systems to critically examining how futures of care are framed and for whom they are made.

A key finding is how some of the most generative insights did not emerge from the centre of birthspace design but from its edges: domains often considered peripheral, such as ritual practice, end-of-life care, and immersive environments. Speculative design proved methodologically productive in bringing these perspectives into relation. These adjacencies expanded what could be seen, felt, and imagined, offering an approach that is both creatively expansive and grounded in lived experience, bridging the gap between conventional evidence-based design and more abstract forms of futurism.

This work also challenges the assumption that healthcare innovation must be technological or consumable. Instead, it suggests that design can function as a way of revealing and reconfiguring relationships: with self, with others, with land, and with systems of care.

Ultimately, birthspace here emerges not only as a site of care, but as a reflection of how a society organizes care —what it values, what it controls, and what it makes possible. Through this lens, birthspace becomes both a metaphor and a method — a generative starting point for reimagining futures of care as relational, situated, and emerging across different ways of knowing and being.

We are not singular beings, but ecosystems.

This project carries the hands, histories, and practices of those mentioned within these pages.

Statement of Contributions

Sasha Kamkin, BHsc, RN, MDes (SFI) candidate at OCADU. Clinical Educator and healthcare equity advocate with a decade-long experience providing care in Northern and Indigenous communities. Her systems-level understanding of health equity and her work to establish Canada's first HIV Primary Health Care Service Program for the African, Caribbean, and Black community ground the project's ethical and relational dimensions. Sasha developed the Gestationist job description, the Internal Pharmacy Lab cabinet and its contents, the Third Body Kit, the Haptic Hand and Got Dirt? provotypes.

Kory McGrath, BHSc, RM, MDes (SFI) candidate at OCADU. Brings extensive clinical, academic and professional expertise in midwifery, grief, and spatial experience. Her earlier work on *Spacemaking* with Mary Sharpe, and her collaboration with leadership and researchers at Oak Valley Health's Alongside Midwifery Unit (AMU), including her assistance with Doreen Balabanoff's Research Creation for Birth Environment Design at the AMU, informed and shaped this study's design. Kory collected the images and worked with her son, Mars McGrath (who composed the original score), to make a digital reimagining of a Dreamachine, which we call the Amplifier. Kory developed the Intervision Apparatus, Words Make Worlds living library, Arrivals & Departures, and Emberspecs.

Zachary Scholtz, BA, MDes (SFI) candidate at OCADU. A professional photographer and videographer, he has collaborated with leading brands as a director, producer, and editor. His creative direction and production experience translate complex research into immersive narratives that help catalyze emotional, social, and ecological change. Zachary filmed original content, edited and projection-mapped the Virtual Hydrotherapy installation, created the Ancestral Interface hologram, Got Dirt?, the Lullpulse, SoftGround, and FlowBond provotypes.

Together, we conceptualized the research questions, conducted the interviews, affinity-mapped the transcripts, developed the insights, and curated the exhibit. Virtual Hydrotherapy is a collaborative, award-winning project that began in the summer of 2024. Each of us contributed to the writing of the literature review and the research findings. We confirm the report has been read and approved by all named authors.

The myth of the individual is one of the most dangerous stories we tell

This project carries the hands, histories, and practices of those mentioned within these pages.

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AI Use Disclosure:
The authors declare that portions of this text were edited for brevity and clarity with the assistance of OpenAI's ChatGPT (GPT-5) and Gemini. The literature review was informed, in part, by an analysis of existing research and helped to identify a research gap using Undermined AI. All intellectual contributions are the authors' own, including substantive ideas, research content, and wording choices. All summaries have been fact-checked and edited by the authors.

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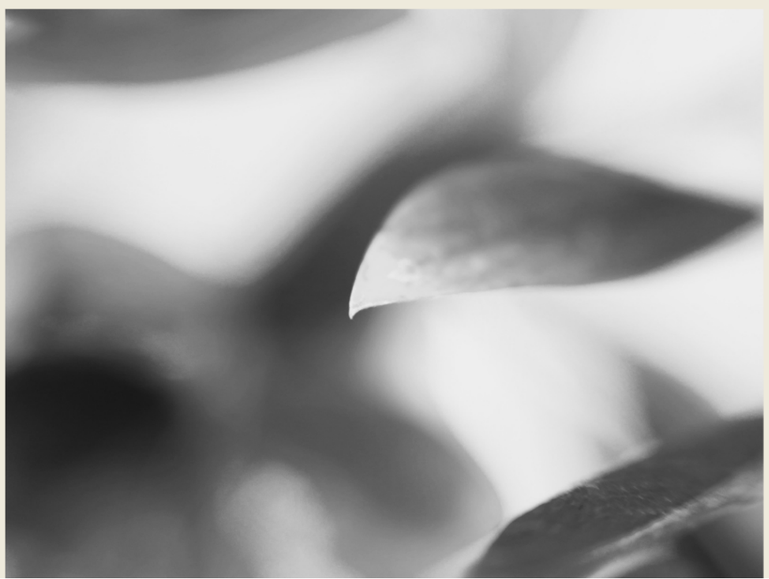
Some things exceed the frame.

This section gathers what traces, extends and continues

Appendices

Appendices are ordered in the
same sequence as they are
referred to in the body of the text.



Appendix A: Participant Matrix

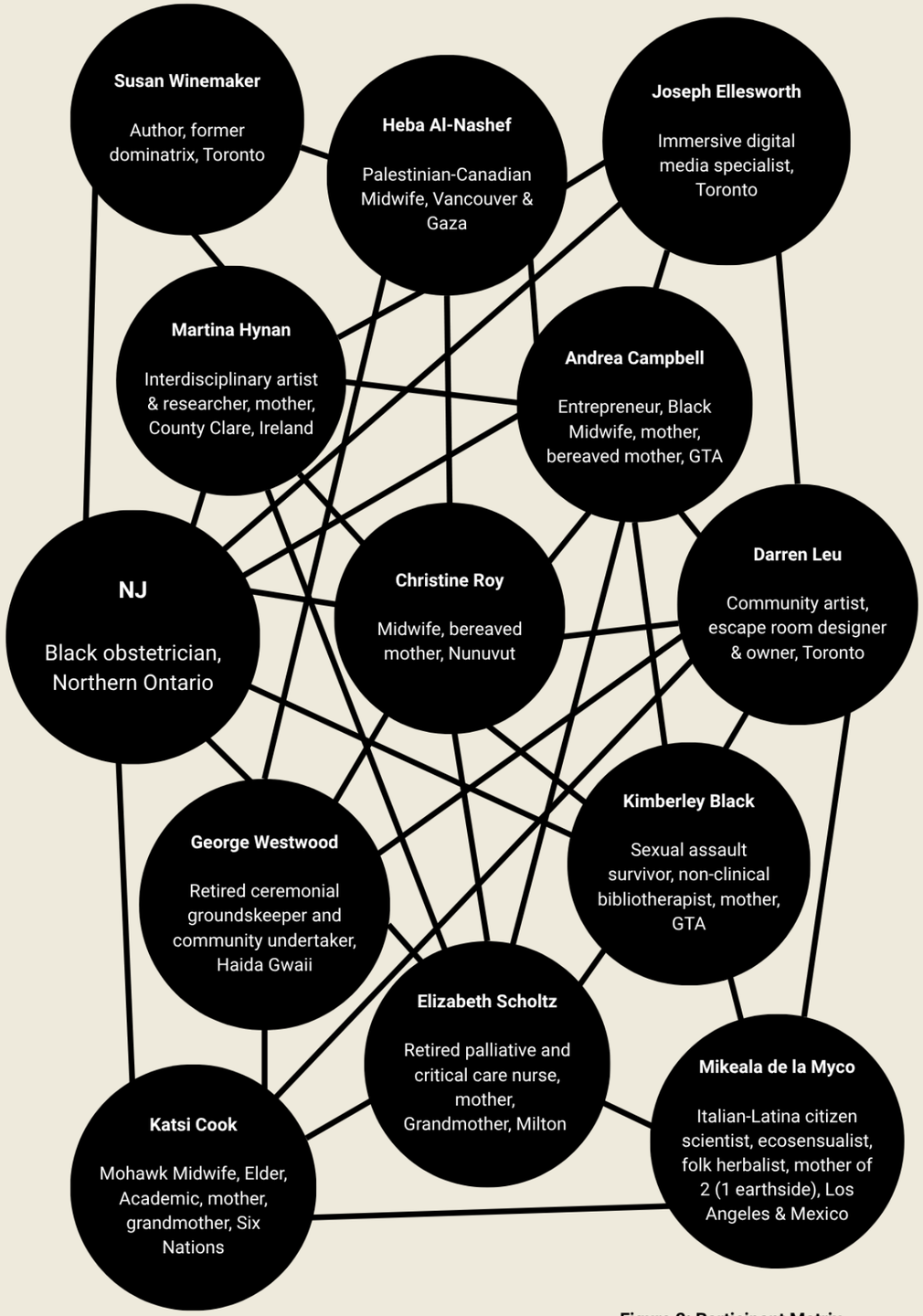


Figure 2: Participant Matrix

Appendix B: Trend Analysis

SOCIAL
Trend: "Autonomy-First"

Birthparents are prioritizing autonomy and safety, which is driven by the maternal age shift. As people pursue higher education, career stability, and independence, birthparents are entering the healthcare system with higher expectations for care throughout pregnancy, labour, and postpartum (Ying Lei et al., 2025). These expectations clash with the current state of the system, which is dealing with a shortage of midwives and doctors (Canadian Institute for Health Information [CIHI], 2024). This friction is leading birthparents to products, applications, and services that serve a personalized experience. Through private health memberships and tools like NostraBiome, this is creating a 24/7 service and data access for users, which the current healthcare system lacks (NostraBiome, n.d.)

- **Signals:** Due to people feeling unsafe in clinical environments, the private doula market is steadily growing and is expected to be $2.62B by 2030 (Research and Market, 2026). With online communities like FBS (Free Birth Society), the rise of freebirthing continues (Kale & Osborne, 2025).
- **Drivers:** The Increased rates of birth trauma and non-consensual procedures (Birth Trauma Association, 2026), coupled with a mistrust of clinical systems, are shown by the increasing vaccine and vitamin K hesitancy (Eurekalert!, 2026).
- **Megatrend:** The global demand and fight for reproductive autonomy as a basic human right continues (UNFPA, 2025), as there are reports of 2 out of 5 women receiving procedures without their consent (Birth Trauma Association, 2024). This is causing birthing parents to ignore traditional advice and turn to social media communities for birth planning and emotional support (Aftab, 2025).

TECHNOLOGY
Trend: Multisensory Distraction and Human-Centric Environments

As technology and birthspaces further integrate, these new spaces are being designed with the patient in mind, making them interactive and responsive and fostering a sense of agency during the experience. Typically, birthspaces are clinical and sterile, but with the new design focus, they can blossom into beautiful, therapeutic, healing spaces. This shift towards a patient-led experience is driven by 'distraction analgesia,' by utilizing Virtual Reality-Assisted Distraction (VRAD) and the infusion of immersive and multisensory design, these spaces have been shown to reduce labour pain and stress while promoting healing (Akther et al., 2025). This user experience is supported by human-centric lighting design trends. Designers are creating lighting systems that adapt to users throughout the day, but adjusting light colour and intensity can increase focus and minimize mental and eye fatigue (Dambrosio, 2026). As products and consumer wearables continue to provide access to care and data, patients will desire a more patient-led experience. Now that users have access to data they never had before, they are encouraged to research and become active patients rather than passive ones.

Signals:

- Wearable Fetal Tech: A new paper-thin AI-enabled wearable has been designed that would be placed on the birthing parent's abdomen, capable of monitoring and collecting data from fetal movements like kicks, stretches, and rolls with over 90% accuracy. (ICT &Health, 2026)
- Fewer Vendors, More Value: As AI continues to be integrated into healthcare systems and becomes part of the workflow, hospitals won't be able to handle multiple plug-ins from various vendors. A push for a more streamlined AI developer will be needed (Gamble, 2025)
- Studio Poesis: A design studio in Denmark is creating immersive birthspaces with nature-based projection mapping to enrich the birthing environment without the drawbacks of VR isolation (Studio Poesis, n.d)
- Fruit Fly: Scientists in the US have uploaded a fruit fly to a computer simulation, while an Australian lab has taught neurons on a glass chip to play a video game. (Rich Pelley, 2026)

Drivers:

- Systemic Labour Shortages: With a global shortage of clinicians and midwives, Ambient AI is being adopted by hospitals to assist in documentation and service delivery (Yang & Graetz, 2026)
- Shadow AI Predicament: More than 40% of healthcare workers have operated shadow AI (unauthorized AI tools) in their practice to improve productivity. This adds additional stress and risk for patients, as their sensitive data may not be adequately protected, and for providers, who may use misinformation during patient interactions (Vanderburg, 2026).
- Data Access: Maven and Babyscript are shifting data access management from traditional organizations to a patient-led model, encouraging birthing parents to explore alternative avenues for healing and pain management that address their immediate needs (BabyScript, n.d.).

Megatrend:

- The Mirror World & Agentic Care: In "Latin America and the Caribbean, rates are as high as 4 in 10 (43%) of all births. In five countries (Dominican Republic, Brazil, Cyprus, Egypt and Turkey), cesarean sections now outnumber vaginal deliveries." (WHO 2021) This is causing us to embrace the "Mirror World," the utilization of digital twins to replicate the patient digitally before physical surgery, to mitigate medical risk (Sun et al., 2022). This digital shift in modifying regular "chatbots to enabling 'agentic' systems that can plan, prioritise and act with minimal human input."(Scottish Enterprise, 2026)

ECONOMIC
Trend: Private Birth Services and the "Experience Economy."

A major shift is occurring in the maternal healthcare sector towards a “Transformation Economy,” treating birth as a moment of autonomy control and personalization instead of a standard medical event. The growing preference for a natural, personalized birth is fueling the expansion of birth centres and other care services that offer a home-like environment. This, in turn, lowers C-Sections and other interventions (Research and Markets, 2025). As hospitals and healthcare settings are beginning to recognize the importance of memorable patient experiences, they are investing in experience design to achieve high HCAHPS scores, improve their reputations, and secure patient trust (Joe Pine, 2024).

Signals:

- Direct Cash Injections: In Flint, Michigan, the Rx Kids program provides $1,500 per month during pregnancy and $500.00 per month for the first year of the child's life. These investments are helping lower postpartum depression, stabilize families and improve infant development while saving millions in NICU spending (Nowell, 2025).
- Insurance Subsidies: Launching doula benefits aiming to lower the high costs of C-sections and NICU admissions, while providing more education and support during their pregnancy, birth and postpartum period (Rehman, 2026).
- Experiential Mapping: Healthcare systems that use the “Snail Model” to map out the patient experience have shown that emphasizing intentional human connection and system changes produce care experiences that empower and motivate providers and patients (Palvarini, 2025).

Drivers:

- ROI in Healthcare : The impact is clear as ever, a continued focus and investment into healthcare makes an immense impact: “In low- and middle-income countries, each dollar invested in maternal health interventions can yield returns of up to $16 in improved health and productivity outcomes” (Salvatore, 2023)
- Turnover Cost and Impact: Hospitals are facing provider shortages, and the cost is immense. It costs the hospital $289,000.00 USD per 1% change in RN turnover (Gamble, 2025).
- Birth Costs: Due to the rising cost of maternity care, it places financial strain on households and is driving patients away from traditional hospitals. Especially when “24% reported unmet health care needs, and 60% reported health care unaffordability” (Gamble 2025).

Megatrend:

- The Value of Health: As value-based care is implemented in the healthcare system, it will shift the concept of success from patient volume to healthy outcomes (Khalil et al., 2025). This is amplified with the “Silver Economy,” and the importance of aging healthily is a necessity with the current strain on our healthcare system, as the OECD now views aging as important as climate change (Hodin, 2026)

ENVIRONMENT
Trend: Birthspace Design with Planetary Reality

Biophilic design is no longer just about aesthetics; it is becoming a new standard of patient care. Studies have shown that patients who have access to the outdoors, views of nature from their windows, or the introduction of real or synthetic nature into the birthspace experience can improve their outcome (Verhagen, 2026). These environments are beginning to adopt the same smart technology that people find in their own homes, giving them control of lights, temperature, and entertainment, which provides a “dignified care experience” (Verhagen, 2026). With the push to infuse nature into hospital spaces, acknowledging the climate crisis is mandatory, especially around the impact global temperatures have on birthing in humans and animals (Millet, 2026). Studies have found that days with temperatures above “80°F cause a large decline in birth rates 8 to 10 months later” (Barreca et al., 2020). This is supported by the damage that underground water extraction, largely for irrigation and human use, has caused, shifting the Earth’s axis by 31.5 inches (Newcomb, 2025). As technology advances and we recognize nature's impact on human lives and healing, society must be aware of its impact on nature.

Signals:

- Climate Apps for pregnancy: MotherHeat Alert App, a mobile app that warns pregnant and postpartum birth parents about rising heat temperatures in their area and provides guidance to a safe environment. This signals the sharing of practical, actionable information at a community level and how it can have a lasting impact on building a supportive community that supports birthparents (International Confederation of Midwives, 2026).
- Implantation Interference: "Forever chemicals" (PFAS) may interfere with pregnancy by targeting the moment when an embryo must attach and communicate with the uterus (Shanghai Jiao Tong, 2026).
- Grounding Mats: Experience designs like the “Grounding Mats” give patients a portable way to connect to Mother Earth, and feel the benefits of reduced inflammation, improved sleep and a more balanced cortisol rhythm (Earthing Canada, 2026).

Drivers:

- Designing For The Future Climate: Climate disasters continue to leave a lasting impact on communities, resulting in designers building for the future and developing healthcare infrastructure, “to withstand, adapt to, and recover from disruptions while maintaining essential services” (Nunes, 2025)
- Healthcare Footprint: Climate change and the healthcare system have a conflicting relationship: the healthcare system continues to strain under its impacts while accounting for 5% of global greenhouse gas emissions. They can make a difference through greener procurement, energy-efficient infrastructure and circular waste management (Mauer et al., 2025)

Megatrend:

- The global environment entered a state of resource scarcity and ecological degradation because “every US$1 the world invests in protecting nature, it spends US$30 on destroying it” (Nairobi, 2026). As PFAS continue to decimate and contaminate our water, we witness forever chemicals detected in animals, potentially impacting birth rates across all species (Kurjata & Palmer, 2025). The expansion of sustainable structures and communities is beginning to be the answer to traditional industries and to the government's reliance on addressing the global climate crisis.

POLITICAL
Trend: The Bipartisan "National Mandate" and Inclusive Policy Reform

Maternal health in America has become the political middle ground, as 88% view maternal mortality as a serious problem and two-thirds of the population support an increase in federal funding to address it (Heartland Forward, 2026). Health Canada recently committed to spending $400 million to streamline operations, develop a more agile system, and explore the best international health practices (Health Canada, 2026). As this is happening, healthcare design systems are being implemented to raise awareness of cultural safety, appropriate technology use, and the realities of healthcare providers. (Healthcare Excellence) This trend is further supported by Canada's (Health Canada, 2024). The Government of Canada_has committed $5.4 million to various networks that support sexual and reproductive health care. These types of initiatives will help "address barriers such as stigma and discrimination, and geographic isolation in rural communities (Canada.ca, 2026).

Signals:

- Post-Roe America: Post-Roe America is volatile and concerning, with many states implementing new laws surrounding abortion, possibly blocking IVF and including that unborn children are legal persons from conception (Edelman, 2024)). These laws have delayed routine surgeries, causing death, because doctors could face up to 10 years in jail if the surgery is related to abortion (Surana, 2024). While this is happening, abortion clinics in 2022 saw a "100% increase in arsons, a 25% increase in invasions and a 20% increase in death threats or threats of harm" (NAF,2022).
- Accountability Politics: In 2023, Toronto launched a 10-year action plan to confront systemic anti-Black racism and better serve the Black community. Events like Black Maternal Health Week bring together "healthcare leaders, policymakers, community advocates, families and allies to advance equitable maternal health outcomes for Black communities," further promoting the importance of acknowledging racism and the challenges others face (Toronto, 2026).
- Maternal Funding: In the US, the Consolidated Appropriations Act of 2026 increased funding for maternal programs, signalling that maternal survival has become of national importance (Policy Center for Maternal Mental Health, 2026).

Drivers:

- Global Maternal Fatality: When women are in countries of conflict, tragically account for two-thirds of maternal deaths globally (World Health Organization [WHO], 2026).
- Tariff War Solutions: Canada has responded to American tariffs with the Pharmaceutical and Life Sciences Sector Task Force, which will explore innovative, made-in-Canada solutions (Health Canada, 2026).

Megatrend:

- The dominant political friction is the battle over whether the individual or the government holds legal authority over a pregnant body; it's now a fight to keep birthing parents' fundamental freedoms because if this course of thinking persists, it could influence other countries or political movements. (SOGC, 2026). With the Canadian government investing to "develop sovereign, large-scale artificial intelligence (AI) data centres," we begin to notice the importance of data security and AI models (Ramsey et al, 2026).

LEGAL
Trend: The Expansion of Informed Consent and "Holistic Liability."

The legal framework surrounding maternity is shifting towards a patient-centred experience, increasing dignity over strict institutional protocols. A force in this trend is the expansion of the "Informed Consent (Montgomery Doctrine 2.0), which is a law that healthcare providers must ensure the "patient is fully informed about the nature of the procedure or intervention, the potential risks and benefits, and the alternative treatments available" (Shah et al, 2024). This trend continues with "Day One" rights, where birthparents do not need to meet a minimum at their workplace to access maternal care (Canpolat, 2026), and the legal recognition of "Pregnancy Loss" as a protected category of paid leave (Government of Canada, n.d.). However, as technology and AI models begin to integrate into the healthcare system and delivery rooms, a complicated paradox forms: physicians now put themselves at risk, because "67% of physicians who initially recommended against treatment, but later viewed AI output recommending treatment, changed their decision" (Bernstein et al., 2025), now they could possibly face legal exposure if the outcome is not positive.

Signals:

- "As of Right": New 2026 legislation enables healthcare professionals who are licensed in other Canadian jurisdictions (or the US) to work immediately to address staff shortages (Ontario Ministry of Health, 2025).
- Birth Alerts: Major class-action lawsuits, like GG v. Ontario, are challenging the historical use of "Birthing Alerts." These alerts are seen as violating people's privacy and security Goldblatt Partners LLP, n.d.).
- The Dignity & Consent Act: In 2020, a US law was passed that made non-consensual drug testing illegal due to violating a patient's bodily autonomy (Sun, 2026).

Drivers:

- Mandates for Equity: A new Federal designation, "Birthing Friendly," now requires hospitals to report on various data to demonstrate they are culturally safe for patients. (Centers for Medicare & Medicaid Services, 2022).
- The SAVE America Act: This bill would "disproportionately affect women and trans people, particularly those from marginalized groups," by forcing them to provide additional documentation, affecting nearly 70 million women (Bergsten, 2026).
- Obstetrical Violence Recognition: "United States shows that 17.3% of women respondents reported obstetric mistreatment and Australia reveals that 11.6% of 8,546 respondents experienced obstetric violence" (Vedam et al., 2019) (Keedle et al., 2024). As awareness grows, pressure will be placed on institutions to design for this type of violence and trauma (Public Health Agency of Canada [PHAC], 2018). (Canada, 2026) https://www.canada.ca/en/public-health/services/publications/health-risks-safety/trauma-

Megatrend:

- The legal landscape has changed; where an individual lives in America affects their fundamental right to reproductive autonomy, sparking interstate battles over freedom and the right to travel for care. This shift is political beliefs continues to concern countries globally that have fought for reproductive freedoms for birthing people (SOGC, 2026). As birthing parents search for ways to hold onto their agency, wearable tech and apps are an easy way to access data, but they come with risks. The GDPR aims to address these concerns about protecting sensitive data, but to do so effectively, it requires robust security, privacy-by-design, and encryption to prevent data breaches. As we look forward with this technology, "future efforts should focus on improving user consent management and developing more efficient data governance frameworks" (Özçağdavul, 2024). The Affordable Care Act has implemented "changes aimed to prevent AI tools and algorithms from discrimination as health care providers and insurers increasingly use algorithms for clinical care and administrative activities (Adam, 2024). With AI infused into the healthcare system, these actions set the stage for patient care, because if AI is not monitored, it "could lead to discrimination among underrepresented or marginalized patients." (Katie Adam, 2024)

ETHICAL
Trend: The Institutionalization of Cultural Safety and Lived Experience

Ethical care is being redefined through a new framework that prioritizes cultural safety. This framework puts the patient's experience first, allowing them to determine if an interaction was respectful. This structure goes beyond competence and emphasizes cultural awareness, cultural competence, and cultural sensitivity, bringing humanity and new training to serve a diverse population (Canadian Paediatric Society [CPS], 2025). Canada is moving towards a co-design model of healthcare that includes perspectives from patients, caregivers and the community. In northern Canada, the needs of First Nations, Inuit and Metis are being prioritized. This push will ensure Indigenous people and Canadians have “safe and high-quality healthcare” (Healthcare Excellence Canada, 2026). The emergence of predictive AI has started conversations around fetal data ownership. Currently, only the birthparent is a recognized patient, not the fetus. As their data sits in medical records, “creating uncertainty about who may later access or reuse it” (Marechal, n.d.). These trends highlight a growing obligation to deliver a patient's experience that is dignified, consent-based, well-being-focused, and human-centred first.

Signals:

- Children's Data: The Children’s Online Privacy Protection Rule (COPPA) has been revised, with “new requirements around the collection, use, and disclosure of children's personal information” to end the monetization of data. This revision includes the collection of biometric identifiers and government-issued identifiers. (FTC, 2025) (Federal Trade Commission [FTO], 2025).
- Death Literacy: The rise in death doulas demonstrates that care is not only in birth but also at the end of life. Birth doesn’t always equal life, and acknowledging that loss is ethical care (Thompson et al., 2026) (Thompson & Utz, 2024)

Drivers:

- FemTech: Women are using FemTech for menstrual health, fertility and menopause, with the eventual employment of AI to analyze real-time biomarkers for tracking (Sinclair, 2026).
- The Bioethical Pivot: The tension between standardized and personalized grows, highlighting that a one-fits-all system does not work. (Sinsky et al,, 2021)

Megatrend:

- Algorithmic Reparation & The Sovereignty of the Digital Unborn: The ethical stance in AI is to acknowledge its bias, not remove it and make it an active shift in equality. This shift will ultimately change how AI is written in clinical systems, including how they recognize marginalized groups (Davis & Williams, 2025). The digital world isn’t slowing down; digital twins are being developed for surgical testing, and data isn't being secured, raising concerns about who will have access to this information in the future. These highlight a new “human-right,” not having a digital footprint the moment someone is born (Marechal, 2026).

Appendix C: Exhibit

Objectives
To make visible what the data from the research alone could not
To provoke speculation and dialogue of possible futures

Process
Each collaborator took a lead on the creation of several artifacts (see Statement of Contributions)

Setting
OCADU Graduate Galley
205 Richmond St W. Toronto

Dates
APRIL 16 - 18, 2026
RECEPTION 1800 - 2100

EXHIBIT
APR.16 0900 - 2100
APR.17 0900 - 2100
APR.18 1300 - 1800

Audience
OCADU faculty, staff, and students; interest holders of birthspace, friends, family.

Artifact Materials
Plants, canvas, plywood, mirror, paper, wood, acrylic, plexiglass, fabric, acoustic stethoscope, plastic, digital media, books, scissors, thread, magnifying glass, African birthing chair, otoscope, kinetic sand, television, IV bag, container, anatomical hands, projectors.

Lighting
Track lighting, red cellophane, blue light

Sound
Bluetooth speakers

Music Credits
Mars McGrath

Visual Credits
Zachary Scholtz
Jag Photography

Exhibit Intro Panel

PLURIBIRTH

FUTURES OF BIRTHSPACE

How might futures of birthspace be imagined through collective dreaming and speculative design, and what does it tell us about the time we are living in and what we really long for?

Though we may not all give birth, we are all born—at home, in hospital, in war, in democracy, in genocide, in love, in trauma; alive or still, in community or alone. How we come into being shapes our first relationship with the world. In this work, we ask: what kind of world is there to receive us?

Birth is frequently understood as natural, yet birthspaces are often shaped by human design. These designs shape care; care shapes feeling; feeling shapes memory; memory shapes futures. Once community-centered, relational, and 'low-tech,' birth has become increasingly medicalized, alienating, and risk-managed, its possibilities narrowed by systems, while displacing Indigenous and ancestral knowledges, ecological connection, and the sensory, emotional, and spiritual dimensions of care. And yet, people continue to imagine differently, innovation emerging at the edges, not because systems invite it, but because they constrain it.

This exhibit invites you to explore an otherwise through speculative design, provoking reflection on whose practices are recognized, which rituals are valued, and how communities might design for desired futures. Here, birthspace is not only a location, but a mindset: relational, ecological, and in constant becoming. Pluribirth names a pluriverse of birth, where many futures unfold, expanding birth to include new beginnings, transformation, and rebirth. Through collective dreaming, new possibilities emerge for what birthspaces might become.

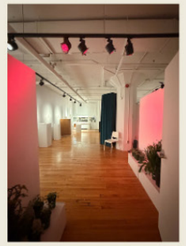
Working across healthcare, design, and futures thinking, these artifacts are not predictions, but provocations that invite reflection, anticipation, and dialogue. Shaped by insights of those who shared their experiences with us from within, adjacent, and beyond birthspaces, this work is offered in gratitude and as an invitation to imagine what it would mean to be born into a world that knows how to receive our complexity.

Created by graduate students in Strategic Foresight & Innovation at OCAD University:
Sasha Kamkin, Kory McGrath, and Zachary Scholtz.

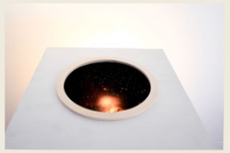
We acknowledge that this work takes place on lands governed by Treaty 13 and the Williams Treaties, home to the Mississaugas of the Credit, and shaped by the enduring presence of Haudenosaunee and Anishinaabe peoples, who have cared for these lands and waters since time immemorial.

We write as settlers, aware of the privileges that shape how birth is experienced here—often close to home, within familiar spaces, and with access to care. For many Indigenous families, this is not the case. Ongoing colonial practices continue to displace birth from community, separating people from land, kin, and cultural continuity at the very moment of arrival. What is imagined in this exhibit is not entirely new. It echoes knowledge long held. Its presence here is a reminder that remembering must be accompanied by responsibility.

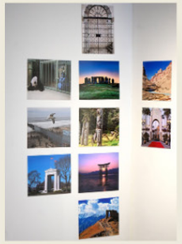
We honour diverse gender identities and expressions. Language in this work is intended to be inclusive of all who experience birth, including trans, Two-Spirit, and non-binary people.



Entrance

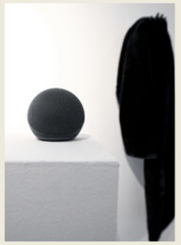


Intervision Apparatus

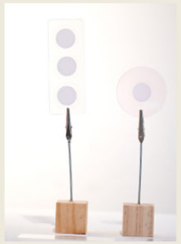


Arrivals & Departures

Emberspecs



The Lullpulse

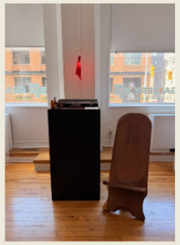


FlowBond

Gestationist: Unborn Relations Unit

The Internal Pharmacy Lab

Words Make Worlds

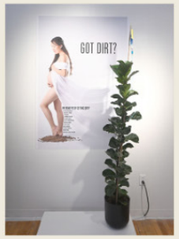


The Third Body Kit

SoftGround

Ancestral Interface(ai2)

Amplifier

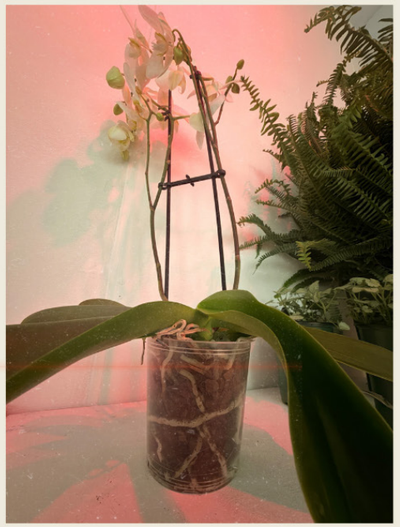


Got Dirt?

Haptic Glove

Virtual Hydrotherapy

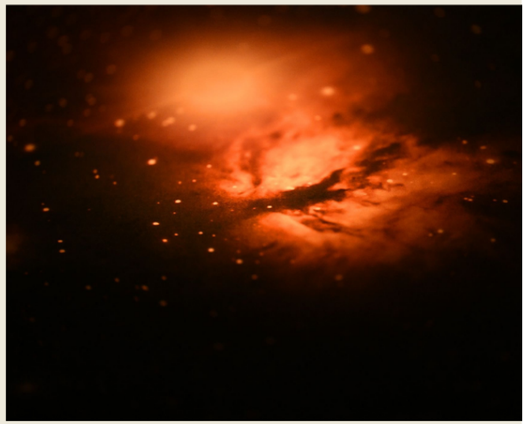
ENTRANCE

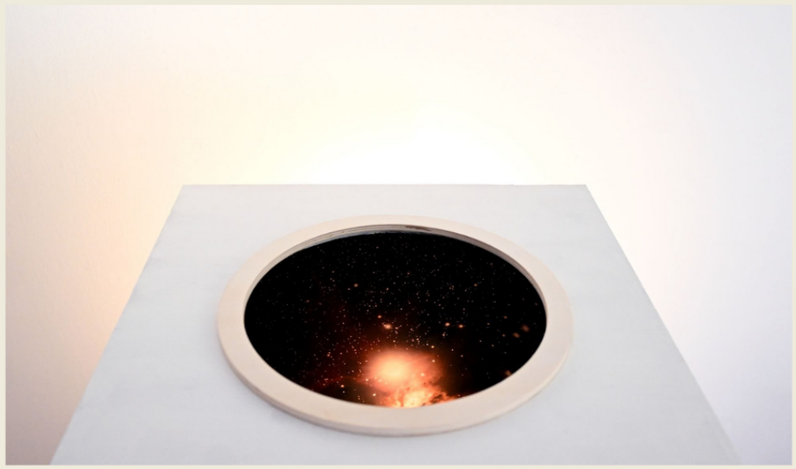


INTERVISION APPARATUS

2030

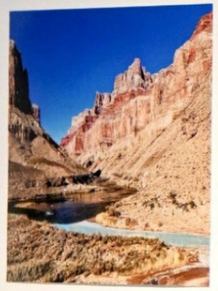
This optical device emerged from a persistent observation: birth had become something to be watched, measured, and managed. The instrument proposes a different condition and anyone present may approach the receiving oculus. A low bench rests before the apparatus, quietly shaping how the body meets it. A reflective sphere returns their image, not as a mirror, but as a field of relation. Engagement with the instrument redistributes attention away from the individual body and toward the conditions that make the moment possible. Users describe a dissolution of role, replaced by a sense of participation in a shared event extending beyond the room. It also reveals that what is seen is shaped by how it is made visible. The device does not resolve this tension; instead, it functions as both guide and disturbance, where boundaries between observer and participant begin to lose stability. It has no clinical function and produces no record, complicating its integration. Rather than predicting the future, it creates the conditions for it.





Inspired by Susan Winemaker, Katsi Cook, Martina Hynan.







ARRIVALS AND DEPARTURES

2032

How we cross a threshold shapes what becomes possible. Across cultures and time, thresholds have marked the passage between worlds: not always as doors, but as alignments, symbols, landscapes, subtle shifts in light, air, sound, and form. They prepare the body, the mind, the spirit, signaling that something is about to change. Thresholds have always taught us how to cross. And yet, how do we enter the world today? A hallway. Fluorescent light. A door that opens the same way for urgency, grief, routine, and arrival. No signal of crossing. No change in atmosphere. No preparation for what is to come. Physiologic escalation before care even begins. The body arrives already braced. In these spaces, entry has been flattened—placeless, interchangeable. What is lost when the threshold disappears? What becomes possible when it returns?







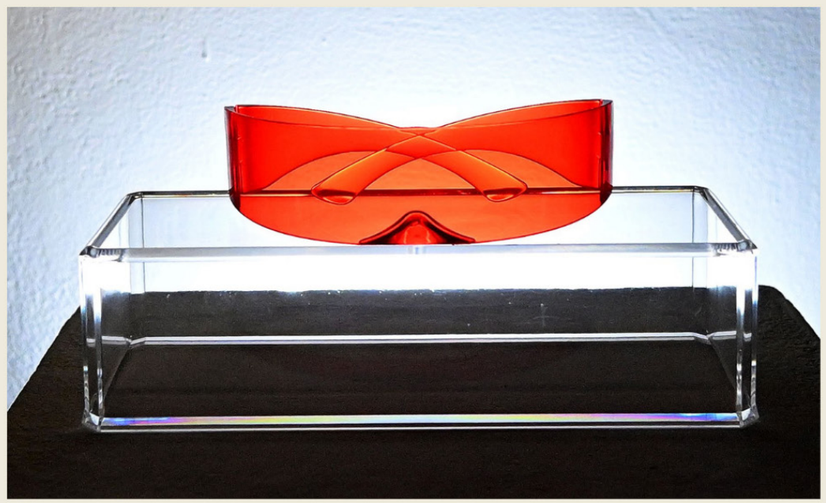


Inspired by Susan Winemaker, Darren Leu, NJ, Katsi Cook, Anka Dür & GBEDN's The First Room.

EMBERSPECS

2027

Contemporary birthspaces are saturated with blue-spectrum of light, optimized for efficiency, visibility and daytime procedures. Yet human physiology follows a different tempo. Exposure to blue light suppressed melatonin and disrupted the hormonal symphony that once supported the onset and progression of labour. Under these conditions, labour often required augmentation with synthetic hormones. This circadian sensitivity extended beyond birth: lactational chrononutrition, the understanding that breast milk composition and infant feeding patterns are synchronized with maternal circadian rhythms revealed how profoundly light influences both labour and early postpartum adaptation. Illumination, biology, and care became known as intimately intertwined. Emberspecs offered a simple yet radical act of refusal, filtering oppressive spectrums, restoring wavelengths closer to that of firelight than fluorescence. The effect for the wearer was immediate, giving the capacity to withdraw from the light without leaving, and realigning birthspace with the body's innate rhythms.



Inspired by Doreen Balabanoff's Colour, light, and birthspace design, and Dr James Olcese's Effects of Light and Melatonin on Contractions in Pregnant Women.

THE LULLPULSE

2027

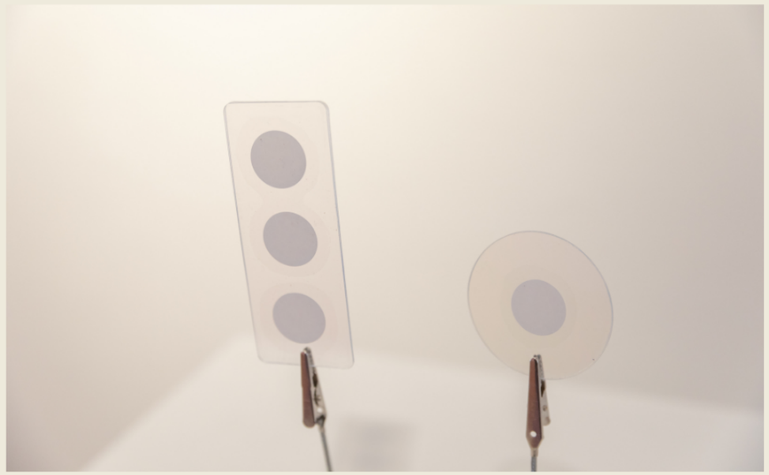
A newborn does not come from silence, they arrive already patterned from the constant symphony of another body. *Lullpulse* transmits a parent's heartbeat in real time into the baby's extrauterine environment, extending that familiar rhythm across place and space. Developed for moments of separation, parental heart rhythms can be carried into bassinets, strollers, and clinical settings like NICUs. The benefits are both physiological and emotional, helping to regulate a newborn's breathing, stabilize heart rate, provide comfort, and sustain sleep patterns. While the device extends the presence of a parent, creating a continued connection from womb to world, its use expanded in unanticipated ways. What began in neonatal care did not remain there, it followed into childhood, used to calm, regulate, and reassure. Eventually, heartbeats were recorded, archived, and replayed. Some continued to be listened to long after the body that produced them was gone.

Inspired by NJ, Joseph Ellsworth, Heba Al-Nashef, Andrea Campbell, Teresa Ianni and Meghan Donohue's Heartbeat Songs from PAIL's Connected in Care Conference.

FLOWBOND

2030

FlowBond emerged during a period of rupture in birth care following years of inquests into birth trauma, coercion, and intervention rates that reshaped what birth had become. More monitoring was not the answer. Separation and interruption was the problem. Developed to keep dyads together, the soft, skin-like patch monitors vital signs. A companion patch extends monitoring to the newborn. Signals are shared in real time, allowing care providers to remain in attunement without requiring dyads to leave their environment or undergo repeated checks. Initially used in clinical settings, it quickly moved beyond them. Labour unfolded in place. Care arrived as needed. Babies identified as “at risk” remained with their parents rather than being transferred away. Postpartum care in the home became more accessible. FlowBond does not make birth safer; it makes separation less likely. But as care becomes continuous new questions emerge. If monitoring is always present, when does it end? If reassurance is constant, what happens to trust? And when care no longer requires proximity, what defines “being with?”



Inspired by Kimberley Black, Joseph Ellsworth

GESTATIONIST: UNBORN RELATION UNIT

2030

Advances in ectogenesis made it possible to sustain fetal life outside the human body. What began as a technological breakthrough revealed an unmet need: early prototypes were left unattended, biologically viable, but relationally deprived. In response, a new role emerged: the Gestationist. Part clinician, part caregiver, part environmental steward, they ensure that extra-uterine humans receive not only physiological support, but sensory, emotional, and ecological attunement once carried in the body. This role follows an older pattern. In the early days of incubation, technologies extended the limits of survival before systems of care could catch up. Dedicated caregivers stepped in, offering continuous presence, attention, and advocacy, until a new field emerged. Care, not technology alone, made survival possible, and that legacy continue here.

Inspired by Claire Horn's Eve, and Dr. Martin Couney's Kinderbrutanstalt at Coney Island, Katsi Cook

THE INTERNAL PHARMACY LAB

2045

This cabinet appeared in birth rooms where certain processes no longer arrive on their own. It stores fragments of functions previously considered endogenous. It does not restore what's been lost. Labour onset, hormonal signalling, and postpartum responses did not always arrive on their own, requiring more frequent clinical support. Some drew parallels to earlier patterns in hormonal regulation, where prolonged reliance on synthetic substitutes such as melatonin and oxytocin raised concerns about the body's diminishing capacity to produce and coordinate these functions independently. In response, birth care shifted toward immediate access and substitution. The cabinet stores a garment that reawakens the body's chemistry, stimulants for endogenous hormone release, and archived biological materials, allowing care teams to initiate or sustain processes that could no longer be assumed. Its presence reflects a broader shift in care: from supporting the body's rhythms to intervening when they no longer arrive as expected.

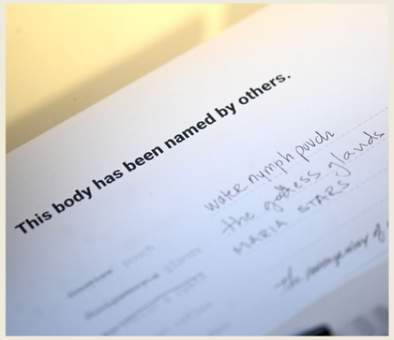
CAUTION: Not everything inside is as remembered.

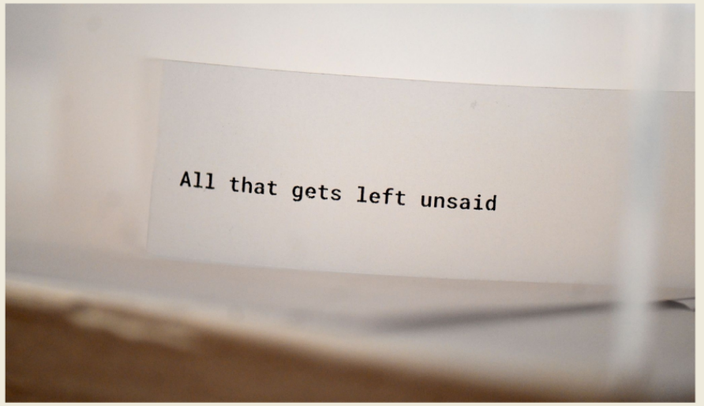
Inspired by : Michel Odent, George Westwood, Martina Hynan, Yōko Ogawa's Memory Police.

WORDS MAKE WORLDS

2040

In 2026, the word ‘rematriate’ was submitted to the OED, describing a return to the sacred Mother. Indigenous feminist scholarship, Black excellence, and 2SLGBTQI+ activism had long sparked a renaissance of (re)naming and (re)framing within the health sciences. In a landmark gesture, Wolters Kluwer revised the language and imagery across its UpToDate platform, living up to its name, as retired medical eponyms, their instruments and procedures were ceremonially laid to rest. Pages of medicine were repainted with the hues of belonging, reflecting the diversity of the bodies they serve. By 2040, the Department of Relational Care & Repair was established to guide this rebirth of linguistic and visual relativity. Echoing the choreography of birth, this living library moves visitors through pivots that signal passage into another state. Guided by the understanding that *words make worlds*, and images make them visible, it invites a reorientation of mind, of body, of time; a shared language intentionally written, drawn, and spoken into being.



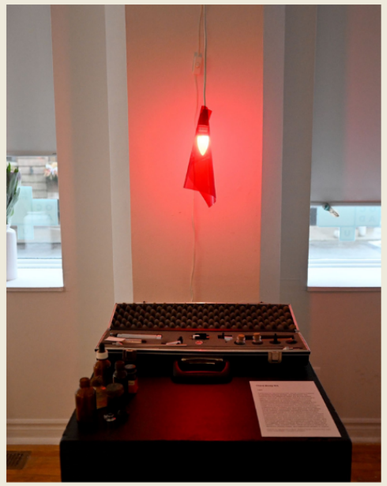


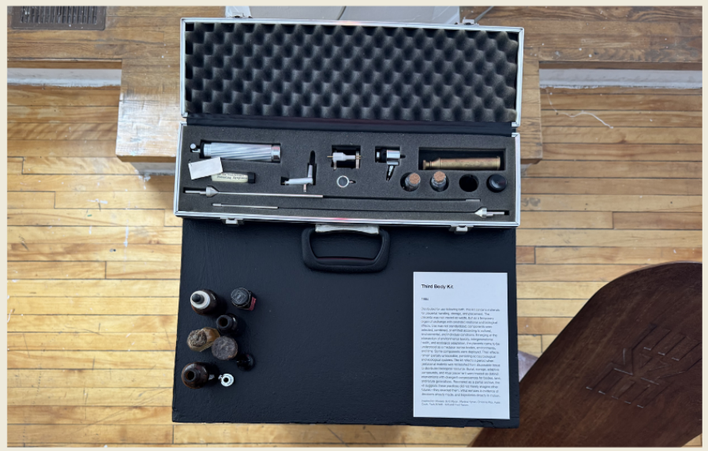
Inspired by Andrea Campbell, Kimberley Black, Martina Hynan, Darren Leu, Katsi Cook, Mikaela de la Myco, Mary Sharpe, Chidiebere Ibe, Lee Maracle, Dr. Jennifer Leason.

THE THIRD BODY KIT

1984

Distributed for use following birth, this kit contains materials for placental handling, storage, and placement. The placenta was not treated as waste, but as a temporary organ of exchange with extended relational and biological effects. Use was not standardized; components were selected, combined, or omitted according to cultural, environmental, and individual conditions. Emerging at the intersection of environmental toxicity, intergenerational health, and ecological adaptation, the placenta came to be understood as a mediator across bodies, environments, and time. Some components were deployed. Their effects remain partially untraceable, persisting across biological and ecological systems. The kit reflects a period when gestational material was reclassified from disposable tissue to distributed biological resource. Burial, storage, adaptive compounds, and ritual placement were treated as distinct interventions with divergent consequences for bodies, land, and future generations. Recovered as a partial archive, the kit suggests these practices did not merely imagine other futures—they enacted them. What remains is evidence of decisions already made, and trajectories already in motion.





Inspired by: Mikaela de la Myco , Martina Hynan, Christine Roy, Katsi Cook, Yuułuʔiłʔatḥ - Ucluelet First Nation, Rasheedah Phillips - Quantum Time Capsule (Afrofuturism)

SOFTGROUND

2029

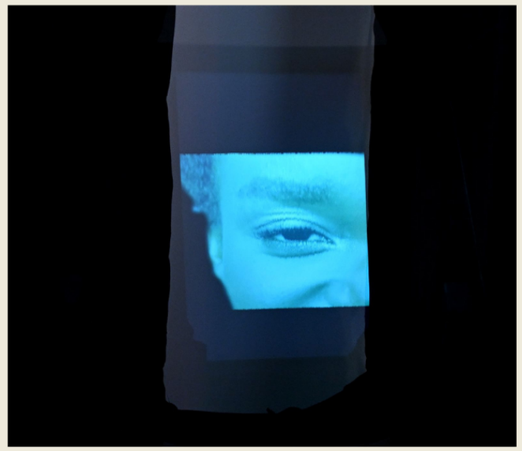
SoftGround was introduced following a gradual shift in how pain was managed during labour. As methods for suppression, redirection, and control became more reliable, the expectation that pain would be fully experienced in the body became less consistent. Labour continued, but sensation no longer reliably marked its progression. For some, this altered the sense of orientation - what was happening, and where it was being felt, were no longer always aligned. SoftGround provided a surface for this displacement. Through sustained contact, it allowed sensation to move outward, partially relocating what would otherwise remain internal. Users did not describe absence, but redistribution - pressure held across both body and object. The material registered these exchanges over time. Units in frequent use became denser, less responsive, occasionally removed from circulation without formal documentation. Its use was not standardized. Some sought it out. Others avoided it. Most encountered it without instruction. SoftGround did not remove pain. It altered where it resided.

Inspired by Martina Hynan, Susan Winemaker, Clem Scholtz.

ANCESTRAL INTERFACE(AI²)

2045

A consequence of The New World Order shaped by geo-political violence and constrained movement was the ongoing separation of families and fiscal restraint of healthcare resources. This disrupted continuous support in childbirth, which became a luxury rather than a standard of care. New forms of presence were imagined. The Ancestral Interface enables individuals to summon absent kin through holographic projection, synthesized voice, and memory reconstruction. Drawn from archival traces and speculative modelling, a grandmother, animal guardian, or future self appears within a responsive reflective field, offering reassurance at the thresholds of matrescence. Neither entirely real nor artificial, these presences inhabit the liminal space between memory and possibility, transforming support from a once clinical 'intervention' into an act of lineage, return, and inclusion.



Inspired by Heba Al-Nashef, NJ, Katsi Cook, George Westwood, Martina Hynan, Mikaela de la Myco.

AMPLIFIER

2032

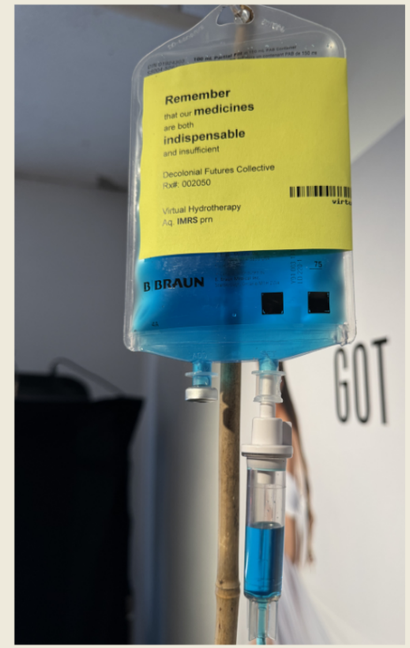
Ongoing US tariffs and the energy crisis caused by the 2026 - 2030 war in the Middle East disrupted global supply chains impacting access to pharmaceuticals and other hospital supplies. Together with the withdrawal of inhaled analgesics under climate regulations, there was rationing of painkilling drugs. Interest in plant medicines and once-considered fringe approaches to pain relief gained traction. After “Birthing Consciousness” entered the lexicon, people experiencing childbirth adopted the *Amplifier* to induce psychoactive visuals, supporting entry into altered states during labour through the modulation of light, sound, breath, and relational cues. Users describe shifts in time perception, sensory intensification, and an increased capacity to remain with intensity. This reactivated decades of under-stimulated areas of the brain previously interrupted by the administration of analgesic drugs.

Inspired by Brion Gysin’s Dreammachine, Orli Dahan’s Birthing Consciousness, Leanne Simpson Betasamosake, Mikaela de la Myco and Mothers of the Mushroom. Editing & score by Mars McGrath.

GOT DIRT?

2035

After hospitals began prescribing nature, a tree stands at the bedside in a labour room, textured bark offered in place of steel and wearable soil interfaces promising grounding. Patients reported less stress, heart rates lowered. Yet the tree is alone, removed from its forest kin. The soil is stabilized, standardized, contained. Biomimicry is delivered, but relationship is absent. Hospitals had long pursued sterility in the name of safety, only to encounter superbugs that thrived in the absence of microbial diversity. At the same time, packaged probiotics and seeded vaginal wipes were used to restore beneficial microbial exposure after antibiotics and surgical birth: a new logic of good microbes, bad microbes, and dirt made manageable. As microbial life became increasingly isolated, optimized, and delivered as intervention, a deeper question remained: what happens when living networks are broken apart, only to be prescribed back in pieces? *Got Dirt?* proposes care as reciprocity, where healing emerges through relationship with the more-than-human world, and where birth slips the frame of “barefoot and pregnant” entirely.



Inspired by Mikaela de la Myco, Martina Hynan.

HAPTIC GLOVE

2048

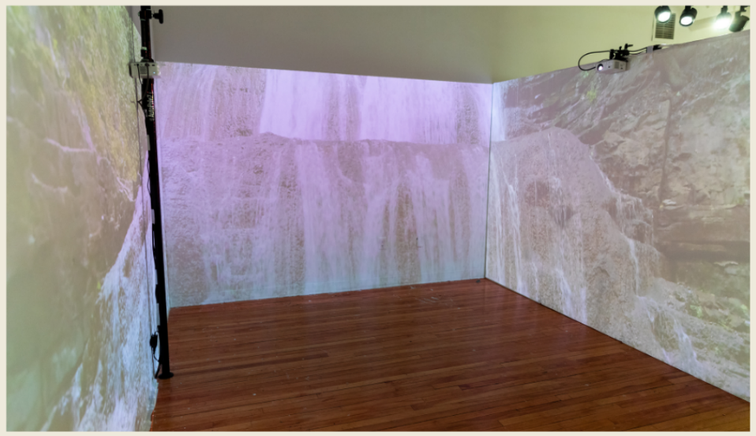
Shaped by those who came before and those yet to arrive, each hand gesture holds a way of knowing, formed through repetition, position, and presence. Together, they create a field of care that has never belonged to a single being. Some hands remain; others arrive, negotiating systems and distance, extending the self. What is held, shared, and taken are not the same. Skill, memory, and contact leave traces as they pass from hand to hand. This artifact does not ask whether care should be distributed, but what happens when it is. Drawing on principles of quantum sensing and parallel states, this system proposes that care might travel not only across space, but through temporal fields, linking living practitioners, ancestral knowledges, and those still to come. Operating less as a tool than as a shared body of knowledge, multiple forms of knowing can be sensed, recalled, and transmitted at once, unsettling the idea that expertise belongs to one being, one place, or one time. This also raises difficult questions: whether mediated touch alters a person's felt sense, and who remains responsible when care is shaped by many hands at once, can knowing unfold, when never alone?

Inspired by: NJ, Elizabeth Scholtz, Katsi Cook, Christine Roy, Heba Al-Nashef, Andrea Campbell.

VITURAL HYDROTHERAPY

2035

In the late 20th century, water entered modern birth rooms through practices like Michel Odent’s “Blue Rooms,” supporting labour through immersion, warmth, and sensory calm. By the early 2030s, access to clean water had become increasingly uneven, complicating the use of hydrotherapy in labour. While often framed as a new crisis, many communities had already long lived with water insecurity following centuries of colonial disruption, industrialization, and extraction. Indigenous-led movements to recognize the legal personhood of rivers gained momentum, reframing water not as a resource, but as a living relation with rights. Virtual Hydrotherapy emerged within this shift. Rather than replicating water, it evokes its presence through light, sound, and movement, inviting the body to remember abundance and immersion. Part therapeutic environment, part archival gesture, it holds traces of waters no longer accessible to all, fostering reconnection during periods of transformation. If water is a being rather than a resource, what does it mean to simulate its presence and what responsibilities follow when we remember what we are in relation to?



Inspired by Michel Odent, Dr. Brennan Spiegel, and Silva Nercessian. Responds to visions from Andrea Campbell, Katsi Cook. Championed by Ginny Brunton and Oak Valley Health.

Illustrative Materials

Illustrative materials are ordered in the same sequence as they are referred to in the body of the text.

Table 1:
Causal Layered Analysis (Inayatullah, 1998)

LITANY	**WHAT IS VISIBLE, SAID, MEASURED**	**BIRTH APPEARS AS**
	"If I just felt safe." Birth framed as risky High intervention and c-section rates "You just do what you are told." Lack of informed consent Harsh lighting Clinical environments Bodies positioned supine or restrained Fear that something will go wrong	Managed Controlled Montiored Feared Emergency Sterile
SYSTEMIC CAUSES	**STRUCTURES, INSTITUTIONS, POWER**	**THESE SYSTEMS PRODUCE**
	Biomedical dominance Risk Management Liability Surveillance, control Provider hierarchy, authority Standardization of care Invisibility of birth at home Cultural norms (silence) Absence of birth story Inequities of care (race, gender, "ideal victim") Technological mediation of care	Disempowerment Disconnection Compliance
WORLDVIEW	**BELIEFS, ASSUMPTIONS, PARADIGMS**	**EMERGING CRACKS**
	The body is unsafe Pain is a problem to eliminate Safety = control and intervention (proximity to institution) Expertise is external Birth as a medical event Patient compliance Technology as safety, even if it further distances people from themselves and each other "There's so much *emotional tenor* attached to [birth] and expectation - it's commodified and commercialized in the same way that a lot of things are."	Desire for agency "Permission" to say no Women as experts of their own bodies Desire for continuity, familiarity Awareness that something relational has been lost
MYTHS & METAPHORS	**DEEP STORIES SHAPING REALITY**	**COUNTER MYTHS**
	Body as machine Technology as a machine Birth as an emergency Hospital as a fortress Patient as passive Pain as an enemy	Birth as thresholds /between worlds Body as ecology "earth suit." Birth as *emergence* "We already have everything that we need." Birth as an ecosystem Light emerges, not imposed Birth as a warm transition Birthspace as sensory memory (air, scent, texture, warmth) Pain reveals the truth Safety is felt, not enforced Refusal as agency Midwifery as keeper of knowledge

Table 2:
Seven Shifts (Artifact Implications)

ARTIFACT → INSIGHT	IMPLICATIONS	THE SEVEN SHIFTS (SYSTEM SHIFTS)
1. **INTERVISION APPARATUS**		
Care can be shaped by how attention is directed, with systems often privileging observation of individuals over participation in relational conditions	• Attention in care may be directed toward individuals as objects rather than relational conditions • Observation may reinforce detachment, hierarchy, and clinical authority • Posture, positioning, and spatial cues influence perception and experience • Reorienting attention toward the environment and broader relational field may alter how care is understood and enacted	Control → Attunement Standardization → Situated Variation Designing For → Designing With and Across Worlds
2. ARRIVAL & DEPARTURES		
Birthspaces may be entered through thresholds that shape physiological, emotional, and perceptual states before care is formally recognized	• Care may begin earlier than recognized, through spatial, sensory, and relational cues • Clinical entryways that feel rushed, or emergency-oriented may interrupt transitions into labour through stress, urgency, and overstimulation • The sequencing of spaces can influence how individuals understand what is happening to them	Fixed Environments → Adaptive Fields Control → Attunement Standardization → Situated Variation
3. **EMBERSPECS**		
Birthspaces are shaped by sensory conditions, such as light, that influence physiology, perception, and the progression of labour	• Clinical environments may prioritize efficiency and visibility over sensory conditions that support the body • Individuals may be expected to adapt to misaligned environments rather than environments adapting to them • Individual interventions can restore autonomy, but shift responsibility onto the individual • Care may begin to include sensory regulation as a core, not peripheral, condition of care	Fixed Environments → Adaptive Fields Control → Attunement Designing for → Designing with/across worlds
4. **LULLPULSE**		
Early transitions can be shaped by continuity of sensory conditions, which may regulate, extend, or substitute for presence across separation	• The transition from womb to world is abrupt and often misaligned with prior sensory conditions • Sensory continuity (rhythm, sound, warmth) plays a critical role in regulation and adaptation • Presence can be translated into signals (heartbeat, sound), but may reduce the complexity of relational connections • Technologies may extend presence across separations, while also normalizing substitutions	Fragmentation → Continuity Human-Centered → Relational & Ecological Innovation as Novelty → Revaluing What Already Matters
5. **FLOWBOND**		
5. **FLOWBOND** Monitoring may become less visible while continuing to shape care, attention, and decision-making.	• Monitoring may occur continuously without visible interruption • Reduced physical disruption may support flow states and relational bonding • Surveillance may persist even as it becomes less perceptible • Care providers may enter less frequently, altering presence and reassurance	Control → Attunement Fixed Environments → Adaptive Fields Innovation as Novelty → Revaluing What Already Matters

Table 2:
Seven Shifts (Artifact Implications)

ARTIFACT → INSIGHT	IMPLICATIONS	THE SEVEN SHIFTS (SYSTEM SHIFTS)
6. **GESTATIONIST - UNBORN RELATIONS UNIT**		
As biological processes become more externalized, forms of relational care once held within the body may need to be intentionally recreated, assigned, and sustained.	• Separation from body, land, and community may become normalized within care systems • Sensory, emotional, and ecological conditions may need to be recreated rather than assumed • Presence may become a form of labour that must be intentionally maintained and distributed • Survival may be technologically sustained without relational care	Human-Centered → Relational & Ecological Fragmentation → Continuity Designing For → Designing With and Across Worlds
8. **THE INTERNAL PHARMACY LAB**		
When intervention becomes routine, physiological processes once understood as endogenous may be increasingly supplemented, stimulated, or replaced.	• Clinical environments may normalize continuous intervention rather than situational support • Conditions that support endogenous process (ie: safety, privacy and sensory alignment) may become degraded or absent • Physiological processes (labour onset, hormonal regulation, bonding responses) may become increasingly dependent on intervention	Control → Attunement Innovation as Novelty → Revaluing What Already Matters Human-Centered → Relational & Ecological
9. **WORDS MAKE WORLDS**		
Language in birthspaces does not simply describe care; it shapes authority, perception, and what becomes possible within it.	• Language frames how bodies, risk, and intervention are understood and acted upon • Terminology and naming conventions can reinforce authority and narrow what is considered possible. • When language is inherited rather than chosen, individuals may experience reduced agency over their bodies and narratives. • Reframing language can shift perception, participation, and decision-making. • Care is produced through words, not only through protocols, technologies, or environments.	Standardization → Situated Variation Designing For → Designing With and Across Worlds Control → Attunement
10. **THE THIRD BODY KIT**		
Birth and its biological material continues to act across bodies, land and time - challenging the notion of separation, waste and definitive endings	• Biological materials produced through birth may carry ongoing ecological, relational and intergenerational significance • Classifying the placenta as waste can reinforce separations between body, land and future • Institutional systems may obscure ongoing biological relationships	Human-Centered → Relational & Ecological Standardization → Situated Variation Designing For → Designing With and Across Worlds
11. **SOFTGROUND**		
Pain in birth is not only contained within the body but may be distributed through materiality, movement and environment	• Materiality and surfaces may support working with pain rather than eliminating it, by holding, redistributing or responding to intensity • Orientation to pain may shift from avoidance towards interaction, movement or accompaniment	Control → Attunement Fixed Environments → Adaptive Fields Innovation as Novelty → Revaluing What Already Matters

Table 2:
Seven Shifts (Artifact Implications)

ARTIFACT → INSIGHT	IMPLICATIONS	THE SEVEN SHIFTS (SYSTEM SHIFTS)
12. **ANCESTRAL INTERFACT (ai.2)**		
Presence in birthspace may extend beyond physical bodies to include memory, lineage imagined or reconstructed forms of relation	• Support in birthspaces may include non-physical forms of presence, including memory, ancestry, imagined others and the more-than-human world • Technologies may simulate or reconstruct relational presence, blurring the boundaries between memory, embodiment and projection	Human-Centered → Relational & Ecological Fragmentation → Continuity Designing For → Designing With and Across Worlds
13. **AMPLIFIER**		
Altered states in labour are not deviations from care, but ways the body senses, processes and moves through intensity	• Labour may involve altered states that support inward focus, progression and the capacity to move through intensity • Clinical environments may interrupt these states through stimulation, observation or intervention • Amplifying internal perception may deepen presence, but can become overwhelming without support	Control → Attunement Fixed Environments → Adaptive Fields Innovation as Novelty → Revaluing What Already Matters
14. **GOT DIRT?**		
Ecological relationships that support regulation and connection may be separated from their living context and reintroduced into care systems as controlled interventions	• Care environments may continue to prioritize sterility while introducing fragments of ecology deemed safe • Care may move away from relationships with living systems towards controlled use and commodification of their benefits	Human-Centered → Relational & Ecological Standardization → Situated Variation Innovation as Novelty → Revaluing What Already Matters
15. **HEPATIC GLOVE**		
Distributed forms of care are reshaping how presence, touch, skills and responsibilities are shared across people, technologies and ways of knowing	• Presence, touch and guidance may increasingly occur through mediated and technologically assisted forms of care • Care may become increasingly distributed across people, systems, locations and ways of knowing • Access may expand while embodied ways of knowing, responsiveness and relational continuity may become harder to sustain	Control → Attunement Fragmentation → Continuity Human-centered → Relational & Ecological
15. **VIRTUAL HYDROTHERAPY**		
The future of birthspaces may lie less in acquiring new interventions and more in recalling conditions that foster attunement, regulation and connection with self, others and planet	• Hydrotherapy-like conditions may be extended through immersion, sound and movement, when water, infrastructure, and people otherwise excluded from conventional hydrotherapy lack access • Immersive environments (nature elements: water) can support relaxation, mood, blood pressure and ability to cope with pain • Shared immersive environments may support connections between labour individuals, support people and providers.	Fixed Environments → Adaptive Fields Innovation as Novelty → Revaluing What Already Matters Human-Centered → Relational & Ecological

Figure 4:
Netnography Pattern Map

NETNOGRAPHY

Place as cultural identity

Redefining place/space

Uproots how "time" is experienced

Integration of ancestral wisdom & Eastern philosophy into Western medicine

Refusing western medicine

Aging population + aging birthers

Home health services

Experience economy

Virtual worlds

Neuroarchitecture

Social prescribing

Water

Trauma

Pain

Reproductive Futures

Emergencies / Brainemergence

Baby's perspective

Telepathy

Embodiment / reorganism?

Remanifamily?

Illegal practice?

Contract / women's health research priorities

Time

ARTS in Medicine

YoL continued disparities

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Definitions

Birthplace

The house, town, etc., where a person was born and/or where something began or originally came from.

Birthspace

The area around birthplace(s), the proximity between things, people and time in birth, both across and within the physical, digital, and symbolic.

Spacemaking

An attention to space as an intention to improve and inspire relationships among individuals or members of a community. (Sharpe & McGrath, 2015)

Pluriverse

A concept describing a world where many worlds coexist, or a "world of many worlds," opposing the notion of a single, universal reality. The term challenges Eurocentric, universalist views, prioritizing diverse, local, and relational ontologies. (Coined by philosopher William James, 1909)

Pluribirth

The pluriverse of birthspace where many futures unfold (not just for the birther, but the baby, support persons, care provider, and communities), inclusive of bereavement in birthspace, ‘risk’ status, ability, culture, sex & gender, decolonial, expands definitions of birth to include new beginnings, rebirth...