CATALYST
feminism, theory, technoscience

"Back Then," "Around Here," and "Down the Road": Proximity, Recursivity, and the Present Future in Transplantation

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Abstract

In this article, I examine the themes of proximity, recursivity, and the present future in transplant, with special attention to the perspectives and experiences shared by rural interlocutors during ethnographic fieldwork carried out during twenty-four non-consecutive months from 2007 to 2010 in the Midwest region of the United States. By revisiting from today's vantage point a set of data gathered years ago, and suggesting the Möbius strip as a helpful model, I offer an examination of recursivity in transplantation that is itself born out of a recursive approach to research and analysis. Throughout, I draw upon and analyze data that were gathered through participant observation and qualitative ethnographic interviews with transplant patients and loved ones residing in rural areas, where interlocutors' insights regarding their temporal and spatial movement in relation to transplantation index some of its frictions of futurity.

Keywords

rurality, organ transplant, recursivity, proximity and distance, futurity, relational history, future togetherness, Möbius strip, travel

Heinemann, Laura L. 2024. "'Back Then,' 'Around Here,' and 'Down the Road': Proximity, Recursivity, and the Present Future in Transplantation." *Catalyst: Feminism, Theory, Technoscience* 10 (2): 1–21.

http://www.catalystjournal.org | ISSN: 2380-3312

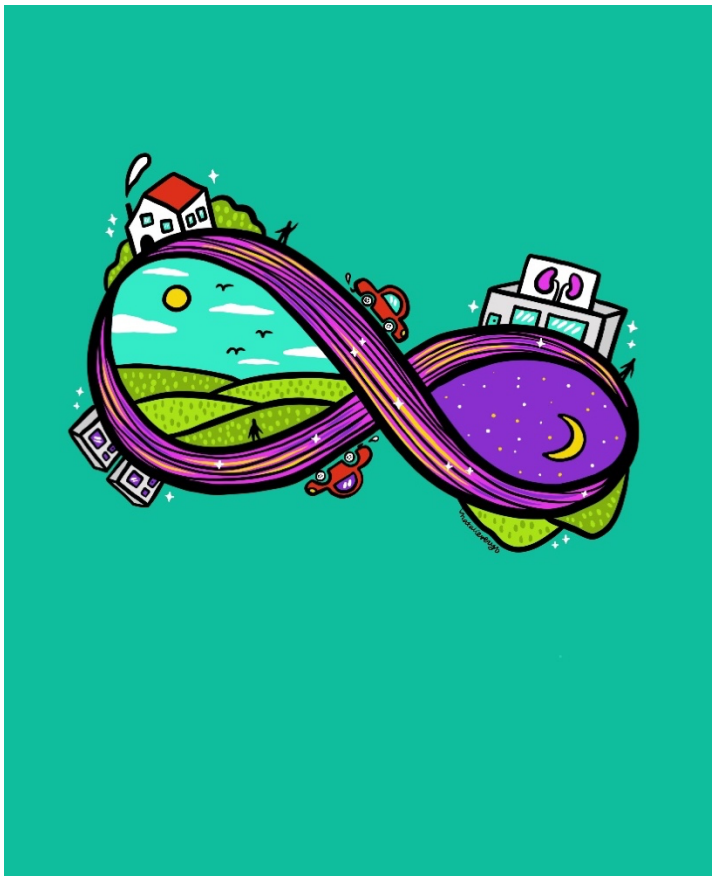

Figure 1. *Mobius*, 2023. Copyright Natalie Very B. (@natalieveryb).

Introduction

Depending on time of year, a drive through the rural areas of the US Midwest surrounding the mid-sized city of Metrotown[1] might take one through a staccato of melting snow peppering still-asleep croplands and pastures, or spring shoots poking through leaves, senesced grass, and the chaff-strewn soil of last year's soybean fields. Or the view might be saturated with shades of verdant green, or golden brown, or a blanket of white that obscures the horizon, making almost imperceptible the boundary between land and sky. Metrotown is home to the Transplant Center, which became the hub of my ethnographic fieldwork in 2007, where I carried out participant observation and qualitative interviews with a total of one hundred participants during twenty-four non-consecutive months through 2010. In that study, I had set out to better understand how transplantation engages relations of kinship and care, in the sense that it both relies upon and can reorder those relations (see Heinemann 2016). While many transplant candidates and recipients, their loved ones, and health professionals whom I met were living in or very near Metrotown, I also met, interviewed, and spent time with those who lived hours away, in the rural regions of the Transplant Center's large service area,

where the recursive shifts in landscape from season to season and from daylight to dark marked the passage of time in palpable ways.

For them, the drive might be planned well in advance of a day of back-to-back appointments in the transplant clinic. Or it might be required suddenly, upon "the call" notifying them a matching donor organ has become available. In either case, the drive might begin on gravel roads, where dust kicked up by a vehicle can be seen by neighbors from across the section. It might take them through a series of small towns, each requiring drivers to slow from the highway-clip of 65 miles per hour (about 105 km/h), down to a crawl of 35 miles per hour (about 56 km/h) past the gas station convenience store, repair shop, grain elevator, or implement dealer, then back up again to cruising speed until the next town. Eventually, the stoplights and traffic of Metrotown would set the pace of travel, until finally coming to a stop somewhere in the Transplant Center's labyrinthine parking garage. Their return home, either after their last appointment or following an extended stay, would then retrace the route, ending with a fresh layer of gravel-road dust applied on top of the previous one, and perhaps new insights into their present state of health and possibilities for the future of their transplant journey. Whether still a transplant candidate, trying to become one, or now a recipient, rural patients and their loved ones could be certain of few things, with one exception: they would be making the drive again before long.

Researching and Thinking with Multiply-Layered Recursivity

Reflecting now some fifteen years after I began fieldwork, I revisit from today's vantage point the many layers of recursivity in transplantation, as a way to approach some of its "frictions of futurity" (see Frankel, Fritsch, and Berkhout, this issue). This, the domain at the heart of this special issue, is also one that in principle might seem beyond the reach of such a realist and "presentist" methodological approach as ethnography. Indeed, the "ethnographic present" as a literary device has been roundly critiqued for its tendency to obscure temporal context and change (although cf. Hastrup 1990). But I take inspiration from Felix Ringel's argument for "increased and explicit attention to the future," for "paying in-depth attention to *all* the temporal relations and experiences [...] in our fieldsites' many successive presents" (2018, 9). Avoiding allusion to an ethnographic present, my analyses explicitly grow out of a return to ethnographic data gathered years ago. In this sense, my approach aligns with recent conversations on "patchwork ethnography" prompted by Gökçe Günel and Chika Watanabe (2024). Informed by feminist, queer, disability, Indigenous, and other methodologies and expertise, patchwork ethnography "foreground[s] the relations, everyday lives, and situated concerns that can appear only through a layered understanding of the worlds we study" (Günel and Watanabe 2024, 134).

Allowing for new layers of insights to which I did not yet have access at the time of fieldwork, I examine the themes of proximity, recursivity, and the "present future"

in transplant. These themes emerged through closer attention to rural interlocutors, whose experiences and perspectives I previously had not analyzed separately or given particular focus. While I highlight only three illustrative examples below, at least thirty-two among the participants I interviewed could be counted among this segment.[2] My revisiting the data from this angle marks my own movement as a scholar. This movement is perhaps toward some distance from some of the core questions that initially guided my inquiry. And it is perhaps away from some of my anxieties about objectivity and method in anthropological ethnographic research (Cassel 2002) as an early career scholar who happened also to have grown up in the rural US Midwest. In a sense, then, this article is written from a position of futurity, a "present future" still remote at the time I gathered this data. It therefore offers an examination of recursivity in transplantation (e.g., returning for transplant care) that is itself born out of a recursive approach to research (returning again to data); in addition to highlighting recursivity as a theme for analysis, I also employ it methodologically to make this analysis.

Kelsie Acton (2023) calls for plain language as a way to be more inclusive in the communication of complex ideas. A multimodal approach can likewise help. To get a handle on this idea of recursivity, I find the Möbius strip a particularly apt model. The art at the beginning of this article, for example, incorporates a Möbius strip and evokes the many returns across distances of landscape and time. It was created by Natalie Very B.[3] in engagement with an earlier version of the work that has become this article, which I presented at the Afterlives of Transplantation event, in the Frictions of Futurity and Cure in Transplant Medicine multidisciplinary salon series organized by Suze Berkhout and Kelly Fritsch.[4]

A physical Möbius strip can also be a useful technology for modeling recursivity, for those of us who learn and think best with the help of tactile, three-dimensional material culture. Here is how to make one: Cut a narrow strip from the long side of a piece of paper; bring the two ends of the strip together, giving one end a half-twist before joining them with tape, a staple, or the like. Put a pencil, a crayon, or other drawing tool anywhere on the paper and begin tracing a path along the strip. Eventually, without ever picking up the tool, you will have traversed all "sides" of the strip (though mathematically Möbius strips are single-sided), and will have arrived back where you started, the drawing tool and the Möbius strip both having been changed by the friction of the journey. Repeat this again, and that subsequent journey (both the surface and the drawing tool) will be made slightly different than the first, because the first round will slightly "shape" or "inform" the path of the second, and so forth. The model becomes even more useful if you replace the paper with something malleable like a slip of clay, or a strip of dough. If you were small enough yourself to traverse the Möbius strip several rounds, you eventually would be able to see and/or feel your own footsteps, wheel tracks, or cane taps (cf. Shapiro in Handelman 2020, 6). Multiple spatial, temporal, and experiential locations of your journey could exist

simultaneously, yet present to you differently, depending on your ever-changing vantage point. Recursivity leaves its marks.

Others have employed the Möbius strip. Lacan ([1966] 2007) looked to it as a model for reconciling binary categories in analyses. Offering a feminist counter to Lacan, Elizabeth Grosz (1994) used the Möbius strip as a means to grapple with the interrelationships between interior and exterior bodies and minds. Zoë Wool draws connections between bodies and temporality to describe as "Möbius-like" the non-linear "iterative process" of rehabilitation among injured soldiers at Walter Reed Army Medical Center (2015, 55). Faye Ginsburg and Rayna Rapp describe their often "vertiginous" and "long-standing embrace of reflexivity" in their decades-long collaboration in the fields of disability and feminist studies as "adventures on the Möbius strip" (2023, 158–59). Methodologically, the model of a Möbius strip frames another important idea: while the data ethnographers have gathered at the time of fieldwork perhaps does not change in the interim, in returning to that data years later as I do here, what we make of it almost surely will be different.

Since I conducted this fieldwork, both much and little has changed. Recent critical analyses of popular mythologies surrounding rural America (Conn 2023), and of racialized regional tropes interweaving white supremacy into ideas of the US Midwest (Halvorson and Reno 2022), along with intersectional approaches to queer life in rural communities (Gray, Johnson, and Gilley 2016), all signal an important and long overdue scholarly reckoning with the role of "rurality" in shaping identities and experiences. At the time of my research, before the hyper-politicization of rurality in the context of a Trump presidency and the COVID-19 pandemic, members of rural communities in the US Midwest were already engaged in local forms of reflexivity about what it means to live in rural areas, and what it is to "be" rural. But while my data offer glimpses into this reflexivity, it might be more pronounced if I were gathering it today.[5]

Both much and little has changed in transplant medicine, too. Perhaps most characteristic now as it was then, transplantation remains full of "promise" (see Sharp [2013] on the "transplant imaginary"). Rolled into its ever-moving "frontiers" have been changing policies and systems for organ procurement and allocation (e.g., Congress.gov 2023) and expanded donor criteria, all promising to ease organ shortages. New developments in genetic science and bioengineering promise a future where transplantable organs can be grown in the bodies of other-than-human animals, or outside of bodies altogether, and where immunological tolerance can be induced in recipients so that allograft rejection is no longer a concern. Artificial intelligence and predictive modeling from vast amounts of data promise more precisely tailored, personalized matching and postoperative monitoring and care plans (Ramalhete et al. 2024). Nevertheless, many still die waiting for a transplant, and postoperative complications, rejection,

and the adverse effects of immunosuppression still prove troubling. Though I write now from a "present future," depending on vantage point (see "Hard Truths about Organ Transplants" 2023), transplant medicine today would be well recognizable to those with whom I spoke in 2007.

Proximity and Distance in the Lived Realities of Transplant

Like a Möbius strip with an impressionable surface that changes with every pass of the entity tracing it, seemingly forward movement in transplantation—movement toward a future—can involve cycles of repetition, of landing right back where one started, and never quite truly "beyond" transplant (Heinemann 2020). The significance of temporal proximity emerges through the time leading up to and following a transplant, time in the evolution and development of transplant-related science and technology, and generational time, as so many situated their pursuit of a transplant in relation to kin and loved ones. And the significance of proximity in space is foregrounded for those who must travel long distances to access this form of medical care. While these themes emerged in common across interlocutors in my fieldwork, they held particular resonance among participants from rural areas. Members of this demographic spoke poignantly about their experiences of proximity and distance from home that were inseparable from their experiences of transplant, and about their proximity and distance from the forms of biomedical healthcare on which transplant medicine so heavily relies in a practical, discursive, and imaginative sense all at once.

Incorporating expressions I heard throughout fieldwork, some of which appear in interview excerpts below, I register the intersections of rurality and transplant medicine across time and space through the phrases "back then," "around here," and "down the road" in this article's title. My intention is to underscore that the temporal is inseparable from the spatial. Rather than reproducing stereotypes of rurality being forever "behind the times," I instead convey and analyze how rural patients and loved ones reckoned with accessing transplant medicine over time and across physical distance from centers of high-tech healthcare. Indeed, while cutting-edge life-saving high-tech biomedicine exists, gaps in access can be stark in rural areas. Large bodies of literature have well established the structural underpinnings and consequences of rural health inequities in the United States (e.g., Bagchi 2019; Clark, Harper, and Weber 2022; Coughlin et al. 2019; Lichter and Ziliak 2017; Stough-Hunter and Donnermeyer 2010). And these manifest also as inequities in access to transplant for residents of rural areas, for example in referral for transplant, and in evaluation and being added to transplant waiting lists (Park et al. 2022).

Transplant Not a Cure, But a Chronicity

Margrit Shildrick points to a "rhetoric of hope" that attends transplant and "leaves little room for any exploration or understanding of the more negative affects and

emotions that recipients may experience" (2015, 21). As Shildrick and others show, however, the myriad areas of uncertainty and contradiction surrounding transplant are regularly revealed through closer examination. Ethnographic studies in medical anthropology offer many examples (e.g., Crowley-Matoka 2016; Hamdy 2012; Kaufman, Russ, and Shim 2006; Lock 2002; Scheper-Hughes and Wacquant 2002; Sharp 2006). For instance, Megan Crowley-Matoka's work in Guadalajara, Mexico, among kidney transplant patients who reckon with the "persistently liminal space" (2005, 830) in which they find themselves, points us to the power that inheres in transplantations' seeming-promise of a return to "normalcy," and one which Alison Kafer might describe as "compulsorily hypernormative" (2013, 43), that does not match lived experience.

Outside of transplant, Stef Jansen's (2019) ethnographic work in postwar Bosnia and Herzegovina offers "yearning" as a more accurate frame than "hope" in interpreting interlocutors' evocation of what they called "normal lives." "As a disposition or affect," Jansen writes, "yearning has much in common with hope. But the term emphasizes duration: yearning is more persistent, continuous, prolonged. It also foregrounds disappointability: compared to hope, the object of yearning is seen to be spatially and temporally further out of reach" (2019). In this sense, whereas "hope" forecloses, "yearning" in proximity to "normalcy" opens up analytical space to account for the fuller scope of lived experience in transplant. And with this fuller scope we see that transplant also can be riddled with disappointment and a sense that the "object" of yearning remains stubbornly out of reach.

Transplantation's consistency with what Ashley Shew (2023) critically describes as "technoableism," and with the "curative imaginary" in biomedicine (Berkhout and Jaarsma 2018; Kafer 2013), veers toward a near-exclusive focus on "curative intent" as Suze Berkhout and colleagues show, yet "cure is not an actual temporal destination that any one of us can reach—ill or not" (2022, 4). In the landmark *Chronic Conditions, Fluid States: Chronicity and the Anthropology of Illness,* Lenore Manderson and Carolyn Smith-Morris (2010) point to the limitations imposed by the assumptions and frameworks of biomedicine, including such hegemonic, binary categories as "acute" versus "chronic" to describe illness. They argue for attention to the ways in which global social, historical, political, and economic currents so powerfully create the possibilities and limitations to human health and well-being. Codifying their argument in the concept of "chronicities," Manderson and Smith-Morris (2010) "draw our attention to the *temporal connective tissues* that link individual experience, identity, and life course, to those of communities, regions, and nations in a thoroughly globalized world" (Heinemann and Rubinstein, forthcoming).

In this sense, a framework that examines transplantation as a chronicity, rather than a cure, affords important inroads toward analyses that can account for the relations of *proximity* between domains that otherwise would appear to exist as

separate, distinct, or distant. These relational domains can include individual (micro) and context (macro), urban and rural, and past and future. Like different points on a Möbius strip, each takes shape in proximity to its counter. Movement among these domains over time—whether analytically or physically—is an exercise in recursivity.

Scholarship in anthropology and related disciplines also offers critical insights into how individuals are made responsible through their intimate relations, to navigate the same barriers and contradictions out of which inequities emerge and are reproduced (e.g., Robbins-Ruszkowski 2017; Trnka and Trundle 2017; Trundle 2017). Importantly here, Kelly Fritsch and Anne McGuire point us toward "the haunting inter-relations connecting disability with spectral notions of health and risk and to ongoing personalized risk management and therapeutics" (2019, 43). In a practical sense, the transplant endeavor relies on patients and their loved ones to accommodate transplant (Heinemann 2015) while also navigating and holding together the ideals and realities of kinship, friendship, occupation, and leisure (Heinemann 2020, 82–83), and to do so on an often unremarked-upon, daily basis.

In her critical analysis of preemptive governance, Kim Cunningham reminds us that "when you anticipate, you *do* something. This doing is a movement, and a memory" (2014, 466). It is the everyday-ness of transplant living that sits in tension with the anticipatory vigilance it requires. If things go as well as possible throughout all of this accommodating and holding-together while living with transplant—while staying on the Möbius strip through time and space—"illness might be periodically obscured in the tangle, [but] it is never truly severed from the experience" (Heinemann 2020, 83).

Living *Around* the Problem

One couple in my fieldwork explicitly juxtaposed the realities of transplant with popular misunderstandings about its supposed curative capacities. Charlene, who was the primary caregiver to her husband Dan, a kidney recipient, was quite frank, noting, "I think it's a common misconception that a transplant is a cure for problems. You know, it's not curing anything. It's just a way to live, you know, *around* the problem." Dan was then being evaluated for what would be his second transplant. This necessitated ongoing engagement with and travel to and from the Transplant Center through a rural landscape like the one described at the beginning of this article. At the time of our conversation, they lived three hours away by car. On the Möbius strip of their transplant journey, the past also was prologue: his first transplanted kidney had lost function in just four years due to a BKV polyomavirus infection precipitated by the very medication-induced immunosuppression that was required to avoid organ rejection.

Noting how difficult it was for friends to understand how profoundly their lives continued to be shaped by the necessity of uninterrupted close engagement with

transplant-related care, Charlene continued, "Your life *depends* on what those blood results are…every couple of weeks […] it's always a time of anxiety, I guess, until you get that blood result and *really* see how things are going. There's just some things that you have to *live* with, that, until you're in that situation, you just don't really have a clue." In this, Charlene pointed to the lived experience of recursivity in time (waiting every two weeks for blood results) and space (having to travel regularly the three-hour distance to the Transplant Center). Though the experience was immediate to them, much of it was neither seen nor understood by those outside of that lived experience.

Diagnosis and Distance in Space and Time

For those like Charlene and Dan who lived in rural areas two, five, or even eight hours away from the Transplant Center, recursive proximity to transplantation necessarily included regular travel on a Möbius-like route to and from for meticulous screening, regular monitoring, and—if all went well—for the transplant procedure itself and at least the first rounds of post-transplant follow-up. And with only limited public transportation options in rural Midwestern communities, that travel not only required time but also usually required access to a privately owned vehicle in good enough repair to make the journey every few weeks. In the extremes of weather typical in the region, increasingly amplified by climate change, that journey might be made through heat so intense it can make the highway buckle, or through blizzards that can blow snowdrifts across the roads and cause frostbite in minutes.

On a late July day in 2008, my own drive began with the traffic lights of Metrotown and traced what would have been the precise return route for one rural interlocutor in my fieldwork. Two hours later, I turned off the highway at the main intersection of a town of just over a thousand people. I had been told to watch for a particular field section marker when given directions on how to find the place where Mrs. M lived. We had first met at the Transplant Center the week prior, while she waited for her series of appointments to begin at the outpatient clinic, as part of her ongoing evaluation for kidney transplant. Though she didn't say so on the day I came to visit, I am certain that Mrs. M quite literally could see me coming a mile away, from the billowing dust cloud trailing the car she knew did not belong to any of her neighbors.

She greeted me at the door leading directly into her kitchen, where a large collection of family photos covered the refrigerator, a wide windowsill, and the wall leading into the living room area. Represented throughout were multiple generations including her grandparents who had "come over" from Sweden, her parents and two siblings, her husband and two sons, then ages forty-one and thirty-five, along with their wives and her older son's children, whom she loved to dote on in her most cherished role of grandmother.

Happy to introduce her family by photos, she added, "And we all are dealing with the polycystic kidneys." What they presently knew was an autosomal dominant genetically inherited condition, polycystic kidney disease (or PKD) had become thoroughly woven into her kinship network, though its diagnostic identity took shape only through her family's movement through both time and space. Its devastation had revisited generation after generation, including her mother's, among whom four out of five siblings were affected. Of twenty-three cousins, nineteen had PKD. And her mother's father had died at a young age. But, as Mrs. M explained, "At that time, they said, 'kidney failure.' That's all they knew. Now we know why his kidneys failed. He had the disease."

Though the family was aware that kidney failure was common among their relatives, it was only when Mrs. M's sister left their rural Midwestern community in the 1960s and moved to Seattle that they gained a more precise explanation. Not long after moving there to live near their cousins, her sister's health had begun to deteriorate. A Seattle physician's diagnosis of polycystic kidney disease then also made its way back, and became an explanation for her mother's ongoing decline back home. As Mrs. M recalled, "When I found out my sister had it, [the Seattle doctor] told her if you want to see your mother alive, you better go home. She was about nineteen when she moved out there [...] So we started learning then. Well, they didn't know much about it back here. But that doctor in Seattle did, so he kind of explained things to her [...] [So my sister] moved back I think in like August, and Mom died that next March."

Mrs. M had tried to encourage her mother to act on the knowledge they had received from Seattle, yet they both could sense that cutting-edge medicine remained out of reach:

> Back then, kidney transplants were only being done in Denver, Colorado. And most people were dying, because they didn't have it down. Because I said to her one day, "Mom why don't you go to Denver and do a kidney transplant?" And she said, "Because everybody that's doing it is dying. I'm not gonna go out there and spend all that money and then die anyway." And at that time, they didn't know that dialysis was the answer to keep you alive every day. Not here anyway, they didn't. They might have known it out in bigger cities but around here they didn't know it. Anyway, she ended up passing away from that. So it's just been an ongoing thing.

With this, Mrs. M made clear that different versions of biomedicine can exist simultaneously, as if at different points in an ongoing recursive loop of knowledge (i.e., the state of the science) and practice (i.e., the state of technology and treatment that can be accessed). Any boundaries between these points are certainly fluid and permeable and ever subject to change. As with the single-sided Möbius strip, rural and urban communities and systems of health and care are

connected, situated together in a state of spatial interdependence (see Lichter and Ziliak 2017). Yet those boundaries are nevertheless palpable, consequential, and enforced through distance of place (here, urban versus rural) and distance of time (here, the temporal location of "advanced," or "cutting-edge" medicine). As Mrs. M indicated, even when the knowledge and capabilities necessary for dialysis, transplant, or other technology-intensive applications of medical science exist in the world, they do not exist in the same way everywhere at once. And they remain out of reach for many residents of rural areas (Alfero et al. 2013; Coughlin et al. 2019).

Entering a Möbius Loop of Indeterminate Medical Futures

From the recursive vantage points of the various "present futures" that Mrs. M described during our interview, the significance of "kidney failure" changed in meaningful ways. With the knowledge of PKD's strong prevalence in her family, and wanting to make an informed decision about whether to have more children—what Fritsch and McGuire might critically analyze in relation to "personalized risk management and therapeutics" (2019, 43) and what Murphy might contextualize as a form of engagement with "averted birth" (2017, 47–54)—Mrs. M herself eventually sought testing. She and her youngest son now share a running joke: "I always tell my son you were meant to be because if I found out I had it, then I wasn't gonna have any more children [...] so, evidently, you were meant to be." Mrs. M did not entirely attribute her younger son's existence to fate, however, and she went on to draw a direct link to the state of PKD testing in the rural Midwest in the early 1970s. The diagnostic technologies available at that time and place could only detect larger cysts; hers were then too small to be made visible to the town's doctor, and she was told that she did not have it. She was temporarily cleared of "living in prognosis," which Lochlann Jain analyzes as "a truth that recursively projects a future as it acts as a container for a present" (2007, 79; also see Jain 2013). Mrs. M later learned, however, that this "missed-" diagnosis comprised a major mis-prediction of her own medical future.

In her forties, she began to experience swelling in her leg so severe it limited her mobility. As Mrs. M put it, "It got huge. I mean, it was huge. None of the doctors could figure out what was wrong with me here. And finally [my doctor here in town] said, 'Let's do an ultrasound.' They [did] an ultrasound and then they found the cysts. That's when I found out I had it. And so I didn't even know I had polycystic kidneys until I was forty-seven years old." Now needing more specialized care than what was available locally, she was referred to the nearest nephrologist, who was just under 100 miles (or about 160 km) away in Metrotown, and she was referred to the Mayo Clinic over 300 miles (or over 483 km) away in Rochester, Minnesota for further evaluation of her leg. Thus she, like others in rural areas seeking "cutting-edge" biomedicine, was launched onto the Möbius loop of driving long distances to access that care, where any insights gained upon each repetition of the journey would still only be toward an indeterminate future.

Living Temporalities in the Future Present

I was meeting Mrs. M at a time that, to her grandfather, might well have seemed thoroughly futuristic, practically science fiction. Given the availability of genetic testing, thorough scanning of bodies inside and out, laparoscopic and radiologically guided surgical interventions, dialysis, and other biotechnologies, our conversation unfolded at a time not only when the precise cause of her ancestors' kidneys failure could be known, but healthy kidneys could be transplanted to function in place of ones that did not, with dialysis to bridge the gap. An uncritical read of Mrs. M's intergenerational story might take it to offer a powerful and unproblematic sign of medical progress—what Kafer critically analyzes as a "cure-driven future" (2013, 44)—and its spread from urban to rural.

Extending from this possible interpretation, the *idea* of transplant in the abstract can conjure an imaginary of contemporary biomedicine (see Sharp 2013). In this imaginary, while philosophical, cosmological, and moral *questions* surrounding life, illness, suffering, and death might still be both timeless and vexing, the medico-technological *answers* can now be clear. In this imaginary, those answers come in the form of a definitive diagnosis, a clear treatment plan, or a concrete prediction about length and quality of life remaining. But this imaginary is unilinear, and exists outside of the more Möbius-like lived experience of transplant. Reflecting on the broader themes of Suze Berkhout and Kelly Fritsch's larger work that brings together this special issue, it is in lived experience where the "frictions" of futurity place an undeniable check on the idealized power and promise of transplant medicine.

When I asked Mrs. M where she was in the transplant process, she replied, pointing to different areas of her head and neck to emphasize,

> You know, I just feel like I'm out in left field. Because I don't know if you know it or not, but they found an aneurism [...] It's right in here and way back here. So right now the neurologist is supposed to be meeting with the transplant doctors to see if they'll go ahead and put me on the transplant list, even though I have this aneurism. Because he doesn't feel it's big enough to worry about right now. Because he said in order to fix it, he would have to do the dye and go up through my veins in here and go clear up here [...] But the dye could, if he gives me too much, [could] ruin what kidneys I've got, and then I will be on dialysis. And so he's trying to convince them, that's going to be his recommendation, to go ahead [and] put me on the kidney transplant, and hope I get a kidney, and *then* fix the aneurism later. So right now in fact, the RN called me [...] last week and she said, "Have you heard anything?" And she said, "What's going on?" And I said, "I don't know. Last I talked to him, he told me that he was going to get with the

> transplant doctors." So she said, "Just a minute." So she must have pulled up my file, I don't know. Anyway, she said, "It looks like that hasn't happened. I'm gonna have to get 'em moving and see what they're gonna do." So she said, "We'll get in contact with you when we know." So I don't know, so right now I feel like I'm out in left field.

Kafer argues that biomedicine's cure-driven version of the future "positions people with disabilities in a temporality that cannot exist fully in the present, one where one's life is always on hold, in limbo, waiting for the cure to arrive" (2013, 44). This rings true in the lived domains of transplantation. As patients and loved ones learn deeply, medical care in reality is filled with uncertainty. It is carried out through a disjointed, atomized system where there can be enormous gaps in communication among practitioners whose specialties might place their goals at odds with one another. It often falls to patients and loved ones to keep the pieces knitted together. The fact that patients are meant to be the center of care does not preclude them from being left without a clear sense of what comes next, while traversing a domain widely believed to promise a future beyond illness.

Historical Recursivity and Relational Futurity

In many ways, transplantation is at its very core future-oriented. It is underpinned by deep commitments on the part of candidates, recipients, donors, loved ones, and clinicians to extend life into the future in the face of it otherwise being cut short. But of course it is much more than an endeavor aiming solely to prolong life itself. In most interviews, I asked interlocutors to share their thoughts and concerns about the future. In hindsight, from my "present future" as a researcher now returning to my data, I can see what an impossible question this must have been for those whose experiences were so inextricably woven into the Möbius strip of transplant living. While transplant professionals often spoke about the future state of transplant medicine, patients and their loved ones were much more likely to speak in interpersonal terms. And this offers an important clarification that lived experience also reveals. That is, transplantation's future orientation is thoroughly *relational*. It relies on a bedrock of *interdependence*, which is also and always braided into histories of kinship, livelihood, home, and others.

When I asked Charlene, introduced earlier in this article, to share her main concerns for the future, her response pointed to a relational futurity that could allow distance from transplantation:

> It'd sure be nice to go longer than four years without needing another transplant. So that is, you know, definitely my wish, I guess for [Dan] that he is healthy enough to enjoy the kids as they grow up, and that we can still have the quality of life, that he's able to do activities as a family and do outside activities, camping, yard work, that kind of stuff. So that's definitely our wish and our prayer. You know, you have to

> remain hopeful that every time is going to be the one time, that something's gonna really click this time and that it's going to work.

The perspectives of another couple, Krystal and Shane, add another layer. They had been married for five years and had four children ages five and younger when Shane received a kidney-pancreas transplant. I first met them at the Transplant Center's outpatient clinic. At the time, they lived several hours from Metrotown, on a small farm place near the one where Krystal had grown up. They relied almost entirely on Shane's earnings as a factory maintenance worker in town, about a twenty-minute drive from their home, and lived paycheck to paycheck. Finances were a major concern. When Krystal expressed her perspectives on the future during a follow-up interview via phone, she said,

> I guess the long-term thing would be that both of the organs Shane got continue to work for a long time, because if we do have to go through this again, I hope it's not for a while because this was a pretty big load. And I mean, if something goes wrong or something comes up, I guess I'll deal with it just because I have to, but I'd rather just that we had some time just for all of us to be normal for a while, before we have to go through stuff again. And I hope mine and Shane's relationship continues to get better. We sort of have the dream, I guess, maybe in a year or two when things slow down and we don't have to make trips to [Metrotown] so often, that possibly, Shane could find a job out of state because [...] we've always wanted to move to like Wyoming or Montana or something. So we're hoping in years to slow down, maybe he could get a job somewhere, and that we can move.

With this, Krystal likewise described a vivid image of relational futurity and distance from transplantation. In it, she emphasized the quality of their relationship and family life, but also Shane's ability to work, and greater flexibility in their location of residence, all being interdependent with Shane's health over time (see Stevens 2018). Yet Shane's ability to work, and the family's ability to move farther from transplant care might have been unthinkable for a kidney-pancreas recipient just a decade prior.[6] In many ways, therefore, she was itemizing an array of forms of distance from transplantation that were inextricable from then-recent movement in transplant medicine itself.

Mrs. M alluded to a similar theme. Looking back on her own family's history, Mrs. M envisioned a future where her grandchildren's experiences would be as distant from hers, as her experience was from her mother's:

> I think the main concern about the future is, I worry about my kids and my grandkids with this disease. You know, hopefully that down the road, they can get it to where they don't have to go through what

> we've all been through. But I am thankful that everything has come as far as it has. I've lived eleven years longer than my mother did. She never got to see any of her grandchildren. I've got to see mine. I got to see them grow up. If something happens, and I'm gone tomorrow, I look at it this way: I got a whole lot more than she did. You know, and hopefully my children will benefit from all that all of us have been through, as far as for their future. So they don't end up where the rest of us are at. I guess that's my main concern in the future.

The future Mrs. M articulated was nested within ongoing recursive developments in bioscience and technology. If her children and grandchildren could "benefit from all that all of us have been through," this could afford a future relational proximity to loved ones far afield of "where the rest of us are at."

While references to "hope" surfaced throughout this portion of interviews, as it did for Krystal, Charlene, and Mrs. M., it often was a tentative hope, and one grounded in nostalgia—a yearning for the quotidian. For Krystal, the hope was for *respite*, if not release, not only from grave illness, but from the pace and effort demanded by transplant care so that their family could move somewhere else. For Charlene, the hope was that *this* transplant might be the one to open up the possibility that she and Dan could enjoy family life and together see their grandchildren grow up. And for Mrs. M, the hope was that continued progress would benefit her kin. Almost invariably, though, patients and loved ones' references to hope indexed more a *yearning*—perhaps still just out of reach—for future togetherness, a recursive extension of intergenerational connection, as on a shared Möbius loop of time and space where transplant looms less large.

Reflections and Conclusions

In the spirit of the Frictions of Futurity in Transplant project, and the salon series it offered as collaborative space, I end with an invitation to consider together: What might the future hold? The answer, of course, is something not only no less complicated than the present, but more so. We cannot even well understand the "now" without understanding what came before, to create the present. And as we grapple collectively today with the consequences of settler colonialism, enslavement, and myriad forms of violence, trauma, and oppression both subtle and stark, a full view of history itself remains contested and contestable. Even the matter of driving and of distance, still prominent in the experiences of rural transplant patients and loved ones, is part of an indeterminate future, as innovations in vehicles and the energy that powers them still focus on private ownership and continue to eschew more serious consideration of public transport in rural areas. Ongoing developments in telehealth and telemedicine (e.g., Bagchi 2019; Sinha 2000) gesture toward side-stepping the question of transport altogether. In the contemporary landscape of US politics, rural communities are as much at the epicenter of contestations over past, present, and future as any.

But glimpses toward a future are subject to the situated vantage point of *anyone* right now, at this moment, who tries to be thoughtful about the present. As transplant patients and loved ones make clear, any proximity to livable future togetherness is necessarily tentative, and its possibility relies on relations of interdependence. We perhaps can grapple with this best through multimodal ways of revealing, exploring, questioning, and creating new orientations to the future, with particular attention to how these are shaped by our experiences of recursivity—of moving together as on a Möbius strip constructed from the knowledge, experience, and unfolding of life that has led to this present future.

Acknowledgements

I express my sincerest thanks to Suze Berkhout and Kelly Fritsch for convening and inviting me to engage with the multidisciplinary salon series at the Tangled Art + Disability gallery in Toronto (https://tangledarts.org/), on the Afterlives of Transplantation, and for creating such a nurturing space for community, art, and collective critical discernment. My thanks, too, to fellow salon participants Margrit Shildrick, Sadia Baig, Lucille Atlookan, and Vanessa Dion Fletcher for sharing their work; Alexandra Frankel and Chloe Wong-Mersereau for their welcoming brilliance; and the wonderful audience of artists, activists, scholars, and thinkers for their helpful questions, comments, and provocations. This article grows out of not only my salon talk but conversations with this community before and since. I am also grateful to the three anonymous reviewers and Kelly Fritsch, Suze Berkhout, and Alexandra Frankel, who supportively challenged me to clarify my thinking and the larger purpose of this article. I am forever indebted to the patients, caregivers, and professionals who generously shared their insights through the fieldwork I draw upon here. This research was funded by a National Science Foundation (BCS – Cultural Anthropology) Doctoral Dissertation Improvement Grant (Award ID: 0649678) and several University of Michigan sources: the Center for the Education of Women (Cecilia Anne Stiborik Dreyfuss Scholarship); Rackham Graduate School (Susan Lipschutz Award, Graduate Student Research Grant, Anthropology Block Grant, One-Term Dissertation Fellowship); and School of Social Work (Alumni Award, Doctoral Dissertation/Thesis Grant, Henry J. Meyer Scholarship Award, Social Work-Social Science Summer Funding).

Notes

[1] All names of places and people are pseudonyms.

[2] Fourteen interviewees were from small rural towns and six were from farms and other rural areas within two hours of Metrotown; eight were from small rural towns and four from farms and rural areas two to eight hours away. Another twenty-four were from more than eight hours away, some of whom were from

small towns and rural areas. While all three illustrations in this article involve kidney transplant, my fieldwork was not limited to kidney transplant, and included other solid organ as well as stem cell transplant (see Heinemann 2016).

[3] See https://www.natalieveryb.com/ and her Instagram profile at @natalieveryb.

[4] For more on the Afterlives of Transplantation event, see https://tangledarts.org/whats-on/afterlives-of-transplantation/; and on the Frictions of Futurity and Cure in Transplant Medicine project, see https://frictionsproject.wordpress.com/. As noted on the project's website, the Frictions of Futurity and Cure in Transplant Medicine is "A NFRF, SSHRC & CDTRP-funded Research-Creation Project that unabashedly sits at the convergence of Arts, Feminist STS & Crip Technoscience."

[5] Though not all rural interlocutors in my fieldwork identified as white, the majority did, and all three examples in this article come from interviewees who identified as white. All three examples also come from cisgender individuals who did not identify as queer.

[6] My sincere thanks to an anonymous reviewer who raised this important point.

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