

Bionic Parenting: On the Enabling Possibilities and Practices for Parenting with Digital New Media

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As parents of a young child with type 1 diabetes (T1D), we have seen firsthand some of the more advantageous aspects of new digital and social media for parents and children. Diabetes Canada explains that T1D “is a disease in which the pancreas does not produce any insulin [which] is an important hormone that helps your body to control the level of glucose (sugar) in your blood.” As a result, insulin must be taken through either having subcutaneous injections from pens or syringes several times a day or by pushing buttons on an insulin pump that is inserted under the skin and worn on the body. People with T1D are not immunocompromised, and they are considered to be healthy, providing they are not suffering from complications. But T1D is a chronic illness that permeates all aspects of living, and the work to manage it is often done behind the scenes. Although, as rhetoric and diabetes scholar Jeffrey A. Bennett points out, “The visual trope of the child is represented repeatedly in diabetes history” (173), it is important to note that T1D is no longer considered to be a juvenile disorder, as it can occur at any age. But unlike adults, children cannot take care of themselves independently.

Keeping children safe and healthy can be challenging at the best of times, but the stakes get even higher when parenting a young child

with T1D, as the parents become responsible for taking over the relentless, around-the-clock job of the human pancreas: Life and death decisions about T1D management have to be made all day, every day. It is often seen as walking on a tightrope, as we aim for the target range for blood glucose numbers—what the online T1D community calls “unicorns”—that will decrease the risk for harmful long-term complications associated with sustained high blood glucose levels. On the flip side, vigilance is needed at all times, as low blood glucose levels represent an immediate and acute threat that can lead to seizures, coma, and even death when missed or not treated promptly. The ever-present task of balancing blood glucose levels is so great that it is often seen as taking care of an invisible family member because T1D is not a visible disease or disability, but it is always there and in need of care (Dreeckmeier). The particular circumstances of our parenting, therefore, provide an alternative lens through which we perceive and experience the role of new media and the internet in our home, as it has become an essential part of the living and lifestyle of our family. Given the proliferation of digital and algorithmic new media, screens, and devices in the home, as well as concerns about their influence and the possibly deleterious effects of biometric technologies on children and families, we ask the question: What are some of the more enabling dimensions and future potentials of these technologies for T1D families?

Drawing from our own personal narrative, we examine some of the positive aspects of new digital media and communications technologies and biotechnologies as well as the essential role that they play in raising a child with T1D. Seemingly ordinary devices, such as cell phones for text messaging and tablets for entertainment, have proven to be immensely valuable in raising a child with T1D. The various pages, groups, and organizations on social media have given us access to new information about T1D from around the world as well as a sense of community and camaraderie through the sharing of personal stories of trials and triumphs; they have empowered us to believe that our daughter will not be held back from anything because of her diagnosis. In material terms, the devices and practices for monitoring blood glucose and administering insulin have also improved dramatically since the discovery of insulin by Dr. Banting in 1921, but they remain somewhat cumbersome, require vigilance, and are susceptible to

human error. Looking forwards, we are optimistic about the new developments on the horizon that use algorithmic new media and cloud-based technologies, or even potential biotechnologies and biohypermedia, to create a liberating functional cure, which will remove and alleviate the risks, variables, and dangers from ongoing and daily life and death decisions. We read our narrative against proliferating against pro-liferating scholarly discourses about new, posthumanist, and biopolitical ethics to rethink the future of human and societal possibilities as well as parenting practices; the future, as we claim in our conclusion, is bionic.

T1D Parenting, the Internet, and the Essential Role of Digital Distraction

In what feels like a parallel universe, our lives changed dramatically when our daughter was diagnosed with T1D in 2013 at the very young age of fifteen months. After displaying unfamiliar signs of illness, we took her to a paediatrician in our new neighbourhood for medical assessment. She was quickly diagnosed with an ear infection, and our concerns were quelled; as new parents, we trusted the doctor and filled her prescription for antibiotics. However, her health continued to decline, and we went back to the paediatrician's office a couple more times until a different doctor told us to go to the local ER. It was there that we got the life-changing news: Our daughter was in the life-threatening state of diabetic ketoacidosis (DKA), which meant she had T1D, and there was no cure. We were then taken by ambulance to the ICU at the Hospital for Sick Children in Toronto. In retrospect, we cannot help but regret the fact that we decided to put our full trust in the medical doctor without seeking answers from "Doctor Google." Since then, it has been a harsh reminder to trust our intuition as parents and to Google symptoms when we are worried about something, even when an expert says otherwise because we know our child best. We know we will not always get the right answers online, and sometimes you can get downright crazy answers on the internet, but it can also arm us with information that we can bring to the doctor's attention to open up a dialogue and to get tests to rule out possibilities, even if they seem rare and unlikely.

With the T1D diagnosis, screen time became an unexpectedly

essential part of our lives. Having T1D meant our daughter would need to take insulin via subcutaneous injections into her limbs and torso (needles!), and we would have to check her blood glucose levels by pricking her fingers and drawing blood (pokes!). Mustering up the courage to give our precious and beautiful, fifteen-month-old insulin injections with syringes and finger pokes to draw blood was terrifying. The very thought of it felt wrong, recalling for Robyn a horrible scene from Toni Morrison's *Tar Baby*, in which a child was pricked with pins. However, the fear of performing those vital medical tasks quickly faded for us when we saw that our daughter barely flinched from her injections and pokes thanks to the loud and vibrant YouTube videos which we used to keep her focus off of what was happening and that is when we learned the art of digital distraction. Although the sharp needles and lancets continued to be scary for a while, we quickly recognized that each insulin injection and finger poke was an act of love; without the injections, she would have died. For some parents, avoiding screens entirely is an option, but it was not for us. Using devices of digital distraction became an essential part of our T1D management with a toddler.

Giving needles to chubby, little limbs and drawing blood from tiny, little fingers are the things of nightmares for most people, and those activities definitely seemed like the scariest part of this new ordeal, until we learned that insulin cannot simply be injected once a day like many medications and do its job independently; rather, we would be required to take on the role of the human pancreas. Akin to the second shift, we now had an additional mental load: monitoring our daughter's blood glucose levels all day and night; watching for signs of low blood glucose and finding ways to coax her to ingest sugar and food at those times; carefully calculating insulin doses for the day and her meals; planning and noting her carbohydrate consumption; and assessing the impact of her physical activities, among many other factors, such as illness, on her blood glucose levels. We were to do all of this primarily on our own without the immediate guidance of medical professionals, but we could always call members of our diabetes team for support and answers to general questions or the paediatric endocrinologist on call at the hospital if we had urgent concerns. Everything we once took for granted—such as eating a meal, going for a walk, and sleeping soundly through the night—had changed.

Mealtimes for most parents can be a complicated affair, as toddlers and young children are notoriously picky and inconsistent eaters, and grazing can be the preferred mode of operation. It is not uncommon these days for parents to let children of all ages use such devices as tablets, cell phones, or computers to watch shows on Netflix or YouTube to help them eat their meals. However, the Canadian Paediatric Society discourages parents from bringing digital devices to the table during mealtimes. For us, there was little choice. Like other toddlers, our daughter had her own agenda at mealtime, which is, in fact, developmentally normal. We are often told by dietitians that children can regulate their own eating and that they will not starve themselves. It is the parents' duty, they say, to offer a variety of healthy options. However, people with diabetes need to eat at least enough carbohydrates to ensure they can take, at the bare minimum, a half unit of insulin without their blood glucose levels dropping too low. When you have a sixteen-pound, breastfeeding, and picky-eating toddler, this gets a bit more challenging. To ensure our daughter was eating the required amount of carbs at her meals and snacks, which took place every two hours, it was again digital distraction to the rescue, as we ate our meals to the sweet sounds of Netflix shows, such as *The Wiggles* and *Max and Ruby*.

In the early days, our main goal as parents was to keep our daughter safe because toddlers cannot tell their parents when they are feeling low. We tested her blood glucose levels using the suggested device, a FreeStyle Lite glucometer, by sitting her down with a YouTube video, pricking her finger with a sharp lancet, drawing blood, and reading the number derived from the blood sample. This process requires washed hands, a clean space to work, compliance from the child, and time. Since this process was cumbersome and painful for her fingertips, rather than checking her every minute of every day, we had to watch her behaviour closely and read her signals to figure out if her blood glucose levels were in a safe range—cue the hovering parent! Low blood glucose, or hypoglycemia, for children (and adults) include mild symptoms, such as hunger, shaking, weakness, sweating, irritability, and drowsiness, whereas more dangerous symptoms include the inability to eat due to lethargy, seizures, and passing out. Conversations throughout the day went as follows: “Matt, she’s looking a bit sleepy. Do you think she’s low or just tired?” “Robyn, she is not listening to

me. Do you think she’s just working on her autonomy, or is she having a low?” Once we got used to life with T1D, we started looking into continuous glucose monitoring (CGMs) devices, such as the Dexcom, but the ones available were costly, bulky (worn on the body), painful to insert, and required the use of a transmitter that needed to be nearby at all times. We were hesitant to make a change at that point, but thanks to social media, we found out that a smaller, less painful and costly CGM called the FreeStyle Libre was being used in Europe and the Middle East already. We crossed our fingers and hoped that it would be approved in Canada sometime in the near future. Until then, we would have to continue hovering and using our devices of digital distraction to keep our daughter healthy and safe.

Given the particular demands of raising a child with T1D, we could not afford to be scared or overly skeptical of technology and new media. The public rhetorics of diabetes management, in fact, often contrast with those of biotech, hypermedia, and screens. As Bennet explains: “The history of scientific advancement is frequently shadowed by the fears and anxieties accompanying new technologies. Inventions meant to better the human experience are regularly punctuated by misgivings about cultural changes in the present and the implications of those developments for the future” (188). Although the issue of screens in the home has divided parents for some time, we see the very question of using screens or not as a somewhat privileged one. Like many first-time parents, we read a lot of often conflicting and problematic pieces of information about parenting and screen time from different online sources, such as posts from the Facebook groups for moms *Pink and Blue Toronto* and articles from *Today’s Parent*. Overwhelmed with information and recommendations from experts and pseudoexperts alike, we decided to use our own best judgment as much as possible and to follow our child’s cues and attend to her needs in the best way we saw fit. When it came to watching online YouTube videos and using children’s apps in the first year, we found that our daughter was simply not interested in them, but we were not fundamentally opposed to screens. However, choosing to follow the rules shared by the Canadian Paediatric Society and limiting screen time based on their recommendations can determine whether or not you are considered to be a good and responsible parent in the eyes of others. Parents, especially mothers, who do not put rigid limits on screen time are seen as lazy,

selfish, or even negligent. It is an especially controversial topic on social media, which has led to the experience of mommy shaming for many, whereas those shamed for their choices often see the parents posting antiscreen sentiments on social media as self-righteous and virtue signalling. As parents of a child with a chronic illness, we quickly learned that such surface-level dichotomies did not capture the unique and challenging circumstances of our parenting.

From Information and Resources to Empowerment: The T1D Online Community

After our weekend of diabetes bootcamp at Sick Kids Hospital in Toronto in 2013, we left with an abundance of information about T1D management, including a handful of photocopied leaflets, a book called *When a Child Has Diabetes*, and several new medical skills, not to mention an overwhelming number of new worries. Thankfully, there are amazing resources for T1D families and individuals in Canada that can be accessed through the healthcare system. Every three months, we were seen by a medical team—including endocrinologists, diabetes educators, dietitians, social workers, and nurses—at a diabetes education centre in a nearby community hospital. Our appointments lasted hours as our daughter got a physical check-up, and we worked together to come up with T1D management plans, set goals, and discuss issues, among other things. They also gave us some entertaining resources for families and children, such as a low-budget DVD called *Pajama Party* by children's singer Mary Lambert, an illustrated Disney book about Coco, a monkey who has diabetes, and some more leaflets. After moving to Winnipeg in 2016, our new diabetes team gave us a well-organized binder full of more information and documents, and we continue to see them every three months. Even though we had drawers filled with information about T1D and a knowledgeable team of professionals to turn to for advice, we were always on the lookout for more resources about parenting children with T1D, specifically. So, as we do for everything else, we googled!

From research about causes, treatments, and cures to managing daily life and enhancing wellbeing for people with T1D and their caregivers, the online world has proven to be a treasure trove of resources, revolutionizing and democratizing access to information for

families today. That being said, there can be a lot of misinformation and pseudoscience online about T1D—notably websites that promote miraculous cures and treatments that involve extreme diets and medicinal supplements from what Dr. Jen Gunter calls the “wellness industrial complex” (CBC News). However, legitimate organizations, such as the JDRF and Diabetes Canada, have filled in the gaps for us with their interactive and user-friendly websites, which provide extensive information to the T1D community. Their mission is to make the “invisible disease more visible” through research, advocacy, education, and programs (Diabetes Canada). Likewise, JDRF—which is no longer is longer referred to as the Juvenile Diabetes Research Foundation, since many people are diagnosed later in life and the majority of people living with T1D are actually adults—is also committed to funding research studies for cures, treatments, and prevention. The JDRF website also provides ample information and promotes opportunities to get involved in research, clinical trials, and fundraising. These websites are informative and helpful, but they did not necessarily give us the sense of community for which we were searching.

In the early days of raising our daughter postdiagnosis, typical online parenting spats over feeding, sleep, and screens began to feel so petty, and concerns over buying the most ethical and current baby gear felt overly luxurious. Although we had amazing friends and baby groups to celebrate and commiserate with in the real world, the social isolation we felt due to life with T1D was challenging. Desperately searching for some camaraderie and shared understanding, we found some Facebook groups and pages for parents of children with T1D that were not great, but they gave us at least a sense that we were not alone. Unfortunately, there was a lot of competition and shaming, as parents judged each other’s choices for T1D management, since it is not really a one-size-fits-all type of situation. It was when we found the nonprofit organization Beyond Type 1 that the internet went from providing helpful and informative resources to becoming an integral part of our lives. Founded by teen popstar Nick Jonas, who was diagnosed with T1D at age thirteen, Beyond Type 1, as the name suggests, is basically a new social movement working towards a change in perspective about living with chronic illness; the mission is about breaking down boundaries and overcoming obstacles so that people with T1D can live life to the fullest. The various Beyond Type 1 platforms—such as the

app, Facebook page, and Instagram account—have been incredible online spaces of information, support, and inspiration over the years. Reading through the posts and connecting with others on the app definitely gives us a sense of community based on common struggles, but we prefer reading through the stories posted on the Beyond Type 1 Facebook and Instagram platforms, as they give us strength and hope as well as feelings of empowerment.

Recognizing the social-emotional aspects of T1D and the benefit of people seeing themselves represented and thriving in the world, the Beyond Type 1 contributors report on the latest T1D connections in pop culture. We draw strength from the profiles of celebrities, athletes, public figures, and everyday people with T1D who are living beyond their T1D diagnosis and shooting for the stars. These stories are uplifting and inspiring for us, as they reinforce the fact that our daughter is not a prisoner of her chronic illness. Recently, a story was published about *The Babysitter's Club* (2020), a children's show on Netflix that has a T1D character and storyline; it is a series based on the original books by Ann M. Martin. Since then, we have enjoyed watching *The Babysitter's Club* series many, many times over with our daughter. She identifies with the strong and capable but also super stylish character named Stacey, who has T1D. It is amazing how seeing herself represented on the screen gives our daughter a sense of pride about having T1D. Likewise, the show depicts Stacey's parents' approach to her T1D diagnosis and how they chose to protect her by urging her to hide it from the world. This storyline was confusing to our daughter, and it led to some deep conversations about stigma and shame around chronic illness. *The Babysitter's Club* has also given us as parents an opportunity to think about how we will approach T1D management as our daughter becomes a teenager. Since T1D is not simply an individual diagnosis but an invisible illness that impacts greatly upon all caregivers and members of the family, the Beyond Type 1 posts are beneficial for all members of the family.

Many stories shared on the Beyond Type 1 Facebook and Instagram feeds are written from the perspective of parents and caregivers, and their narratives encourage us to take care of ourselves, as individuals, in the face of the relentless demands of T1D, which rob us of sleep and give us anxiety. Being part of the Beyond Type 1 community online is a daily reminder that we are not alone at all; rather, we are part of

something much bigger: a vibrant and strong global community, spanning 150 countries, with over two million members (Beyond Type 1). This virtual world has helped us navigate the challenges of parenting a child with T1D, and it has empowered us to envision a bright future that is not limited by a diagnosis. It has also introduced us to many of the new digital lifelines that have changed our lives for the better and have the potential to emancipate those with T1D as well as their parents and caregivers from the burdens associated with managing an all-consuming, chronic illness.

New Digital Lifelines for Parenting T1D

Communication plays a central role in the management of T1D, but instant communication is essential as blood glucose levels can fluctuate from moment to moment, and young children need assistance monitoring themselves when they are not at home with their parents. Instant communication via text messages has been our lifeline since our daughter, who is ^{ten}now ~~nine~~ years old, started school. Even as we sit side by side on our computers to write this chapter, the alarming flurry of sound notifications from incoming text messages disrupts our focus. “Ding, ding, ding”: It is our daughter’s camp counsellor texting us to say that her blood glucose is 4.9 mmol/L with a trend arrow going across, indicating a lower but stable level, according to her FreeStyle Libre glucose monitoring system. Although her counsellor seems worried, we know that is a good number, and today would be considered a good day because our daughter’s blood glucose numbers are in the target range for her age. But that range between ⁴~~four~~ and ⁸~~eight~~ mmol/L before meals is like a tightrope with little room for error and great potential for danger when the blood glucose drops. We are “chasing unicorns” as they say in the online T1D community, which is a beautiful image, but keeping blood glucose numbers in range is actually quite messy behind the scenes. At this point, we have already text messaged back and forth with the counsellor for several hours, ^{Physical}because ~~physical~~ activity lowers the blood glucose and our daughter has already ^{to have}had ~~three~~ rounds of sugar in the form of gummies and juice to prevent her blood glucose levels from dropping too far down while she swims, plays sports, and runs around outside with her new friends. It is only noon.

between 4 and 8

Fixed run-on

Many parents do not have to worry about sending their children to daycare, school, or day camp; they pack a lunch and a backpack, give them a kiss, and then send them on their way. For parents of young children with T1D, everything becomes more complicated. Prior to the start of day camp or school, we meet with the administration and staff as well as a public health nurse. We go over low blood sugar protocols, emergency procedures involving calling EMS, practice blood glucose testing, and swap cell phone numbers for daily text messaging. We bring in a bin of T1D supplies, including low-blood glucose treatments, such as gummies, fruit leathers, juice boxes, and cake icing as well as glucometer for finger checks if the reading from the Libre seems off. We also include emergency supplies in the event that our daughter's blood sugar is very low and she cannot ingest sugar orally because she is too lethargic or has passed out. This includes the glucagon nasal powder Baqsimi, which we learned about on Beyond Type 1, and can be administered like a nasal spray to an unconscious individual while calling 911. Basically, we do not travel lightly; spontaneity and living off the grid are luxuries we cannot afford. Everything in our life revolves around ongoing communication and planning ahead.

T1D management is multifaceted; on a medical level, it involves not only injecting insulin, counting carbohydrates, and monitoring blood glucose levels but also finding patterns and attempting to predict how different foods, activities, emotions, illnesses, weather changes, and everything else will impact blood glucose. At summer camp, our daughter will have much more vigorous physical activity than she has had in previous months being home during COVID-19 quarantine. Even though we lowered her insulin dose for camp time and sent extra snacks to increase her carbohydrate consumption, we will need to make some changes to our plan. Even prior to the pandemic, like most children, the number of physical activities fluctuated during different times of the year, between the more sedentary winter months and the more active summer months. We plan for these changes by adjusting her insulin doses and carbohydrate intake. Like all children going to summer day camp, our daughter will experience various emotions, such as excitement for what is ahead and possibly nerves when meeting new people. Many people are surprised to learn that these sensations have an impact on blood glucose levels. In people with a working pancreas, blood glucose is regulated automatically by the secretion of

hormones, such as insulin and glucagon. However, in people with T1D, the duties of the pancreas are carried out externally, and we can only use our knowledge and devices to make the most educated guesses as to how it will play out.

There have been significant technological advancements since our daughter's initial diagnosis in 2013, and they have given our family a new level of freedom. It took a few years, but the FreeStyle Libre Flash Glucose Monitoring System, which is considered to be a CGM, arrived on the Canadian diabetes tech scene in 2017, just in time for our daughter to start grade one. Even though it was expensive, setting us back about two hundred dollars a month because it was not going to be covered by our insurance plan, we were first in line to get it. The Libre system includes a slim and discreet sensor that is inserted (with minimal pain) into the arm to measure and store glucose levels from the interstitial fluid. A handheld flash reader, or a cell phone with the LibreLink app, is then used to scan the sensor and then display a blood glucose reading and a trend arrow to show where the blood glucose levels are heading. The trend arrow provides us with important information because it lets us plan ahead. Before the Libre, we would have to guess which way her blood glucose levels were going to go after taking a reading, but now we can anticipate what interventions will be needed before she goes too high or low. Moving beyond traditional glucometers, which simply record all of the individual readings, the Libre stores the previous eight hours of data and makes sense of it for the user through graphs that show daily patterns and calculates average blood glucose levels for previous weeks. It also calculates the potential A1C, which is a measure of average blood glucose levels, and allows the user to know how they are doing rather than waiting to do bloodwork in a lab. The information can be easily uploaded onto a computer and then sent to the medical team when necessary. Using devices such as these helps to alleviate a lot of the guesswork involved in diabetes management, which at times can be cognitively taxing and subject to human error.

Managing the technical aspects of T1D involves a lot of math and decoding of patterns that can be simplified using digital media. As Bennett explains:

Attempting to achieve the normative ideals of health has become inextricably linked to innovations that combat material disease. The line between human and machine has been dissolved by an integration of the agent who performs diabetes management and their body, which is the scene of treatment. The body of the patient has been melded with technologies that keep them alive, and that communion is the site of medical knowledge. This expertise is not confined to the space of the clinic, but must be continually reenacted by people with diabetes. (180)

Diabetes planning and parenting can, itself, seem somewhat algorithmic at times if we understand digital algorithms as programs used for pattern recognition in sets of data used to solve complex problems based on data variables and established protocols. Right now, we are witnessing the transition from metaphorical management algorithms to actual algorithmic media through JDRF's Artificial Pancreas Program; the aim is to fully automate the process of insulin injection and blood glucose management to give users (and their caregivers) the ultimate freedom from the burdens and anxieties of T1D. On a basic level, closed-loop systems allow insulin pumps (which deliver insulin through a small catheter that is inserted into the body with the push of a button) and CGMs to communicate with each other while integrating advances in algorithms to control blood glucose better and using cloud technologies for data storage. Unlike skeptics of new media, as parents of a child with T1D, we are excited about the more enabling and liberating potentials of such advancements. Our material position and ideological perspective give us an alternative view towards some of the contemporary debates in the digital humanities and in communication and media studies about posthumanist futures, digital surveillance (or dataveillance), and the ethical dimensions of what some refer to as biopolitical capitalism.

Struggling with Biopower

Biopolitics is a term that originates in the work of the French social theorist Michel Foucault, who is known for arguing that modern power has taken on a more productive, rather than merely repressive, veneer. Power, he argues, produces bodies, in contrast to forms of

authority that regulate through the wielding of violence. Biopower, therefore, concerns discourses and practices designed to produce certain kinds of sanctioned life. Foucault's writing on biopower, as well as his conception of panopticism, is commonly cited in studies on technological surveillance, especially social media forms of data-veillance, and speaks to common fears about the role of new media in monitoring and facilitating mechanisms of power and control that are tied to our everyday communications and interactions online. Such fears are augmented the more we increasingly wear our communications devices on our bodies—in the form of smartphones, tablets, and other forms of mobile new media—that combined with GPS and data aggregation software create the conditions for our deeper integration into the grid. Our over acute sensibilities about the possibilities for techno-surveillance and control can also be measured in the context of what the media theorist Claire Birchall calls “shareveillance.” Because media users participate in their own surveillance by freely sharing information on social media and other new media and digital platforms, it may appear for many as though such platforms and cloud technologies serve merely as systems for our control. But viewed through the lens of T1D management and parenting, we are perhaps able to perceive differently the more enabling qualities of biotechnologies and what Tiziana Terranova refers to as “biohypermedia.”

Over the past two decades, online and digital networks have shifted from using heavier devices, such as desktop and laptop computers, towards smaller, portable, and mobile devices. This, according to Terranova (citing Giorgio Griziotti), has created “a new social and technical landscape” organized “around ‘apps’ and ‘clouds’ which directly ‘intervene in how we feel, perceive, and understand the world’” (395). Terranova explains that biohypermedia “identifies the ever more intimate relation between bodies and devices which is part of the diffusion of smartphones, tablet computers, and ubiquitous computation” (395). In her writing on biohypermedia, she draws on the work of the design and media theorist Benjamin Bratton, whose notion of the “the stack” describes the multilayered infrastructures of emergent new mediated societies, the most common metaphor for which is the “smart city.” The stack explains the emergence of computation as a global infrastructure (Bratton 14). It is in many ways

facilitated by cloud computing. The metaphor of the cloud is here used to describe the massive data processing and storage centres, usually owned by large corporations, used to link together apps and platforms to individual devices. The stack, therefore, according to Bratton, is “not the grid but an accumulation of grids,” some of which operate by communicating with one another using nonhuman digital languages or binary coding.

Since platforms now make up the technological infrastructure of global society (Williams and Srnicek 357), it is important to weigh the benefits of the technology against their setting in digital or platform capitalism. We should not confuse the drawbacks of new media as inherent to the technology. The context of capitalist structures of accumulation and exploitation should be distinguished from the enabling dimensions of new media that we experience. Although platforms “are what make possible particular sets of actions, relationships, and power,” as the authors of the *Manifesto for an Accelerationist Politics*, Alex Williams and Nick Srnicek, explain, “much of the current global platform is biased towards capitalist social relations” (357). However, this, they say, “is not an inevitable necessity” (357). Platforms—which guide production, finance, logistics, and consumption—can certainly be reprogrammed towards much more equitable ends. This after all becomes a necessary framework for thinking when it comes to modern medical needs and diabetes in particular, where, as Bennett notes, to separate people from technology is quite literally an invitation to demise (179). For him, the risk and anxiety that sometimes come from our experiences with technology is “not explicitly attached to technology, but the capitalistic impulses that keep such technology out of reach of scores of people” (181). This is still a view that contrasts with much of the discourse on biopolitics and biopower.

On the one hand, it is certainly the case that mobile digital and social media have the potential to increase practices of surveillance and control, both in the interests of regulating the productive forms of power (something that is certainly concerning to contemporary parenting contexts) and as integrated into the medical maintenance of the body. This is especially true in the case of T1D management, which increasingly relies on these devices. On the other hand, the fact that such technology makes life liveable and eases some of the difficulties of

T1D management forces us to question whether the problem here is one of technology reducing us to bare life or whether the flawed aspects of new media and biometric technologies are a matter of the economic and governance structures of platform and neoliberal capitalism.

Bionic Parenting: Towards a Cyborg Future?

The context of parenting a child with T1D helps us to see many of the positive and enabling aspects of advances in digital media, social media, cloud computing, and algorithmic technologies and biotechnologies. As we have shown, the anxieties of parenting a child with T1D have the potential to be relieved by such innovations, as we continue to care for our daughter's physiological needs as an extension of her pancreas from outside of her own body. We recognize that people still have anxieties about giving "themselves over to the machines unreflexively, not acting with discernible personal agency" (Bennett 191), but a complete, bionic integration of the body and technology, in which the machine operates autonomously, is still in the early stages of conceptualization and research. Current biotechnologies still require monitoring and inputs from users accounting for mealtime carbs, accepting recommendations from devices for correcting and adjusting blood glucose numbers, and calibrating blood glucose sensors daily. As Bennett notes, "The closed-loop system demands a more activated patient, not one prone to apathy or neglect" (193). Human agency remains an integral part of managing T1D, even with some of the advances in new media that we have described. The bionic cyborg body reflects a context of care that is social rather than merely individual, as we use traditional modes of communication as well as new digital media and social media to take care of our daughter, including the following: in-person and phone meetings with the members of our diabetes medical team; corresponding on a daily basis with the principal, teachers, and office staff from our daughter's school as well as camp counsellors via text and email; and participating with the T1D online community through social media. Thus, managing T1D is still very much a human, social, and care-centric affair, and that includes the input from parents caring for children with diabetes. For parents of children with T1D, having such autonomous technologies as stage six of JDRF's Artificial Pancreas Project,

the Fully Automated Multi-Hormone Closed Loop system (JDRF), as well as Sernova's implanted cell pouch would be a dream come true. We hope for new media to truly become an extension of our humanity, as Marshall McLuhan might have put it. Paradoxically, this can only be done through an integration with technology as a cyborg (Bennett 194).

The cyborg—a bionic human whose body is augmented by technology—is one of the most common literary metaphors drawn from popular culture, science fiction, and cyberpunk cinema. It is often used to reconcile ourselves towards the integration of technology and biology. The cyborg figures for posthumanist thinkers, such as Donna Haraway, as a nonessentialist representation of the ties between nature and culture (or nature-culture). When we consider the fact that media, medicine, and biotechnologies have all in one way or another been integrated into our regular lives, we come to see that the notion of a natural body is much more of a myth than the fictional cyborg itself. The cyborg metaphor is also useful in dispelling liberal notions of a fully autonomous individual, capable of functioning independently without the help of others. The bionic human is a social body—one that is still reliant on the care of the family and the community. It is against liberal notions of pure individuality and the natural organic body that the cyborg metaphor responds, since it helps to demonstrate that we thrive more fully when we live in societies of mutual care and assistance. But we should also acknowledge that the anxieties people seem to feel about a more integrated media system pertains to the social and political contexts of new media rather than the technologies themselves. Our experience has undoubtedly led us to see the emancipatory potential of new media for parents of children with T1D, as well as individuals with T1D caring for themselves. Since T1D is one of many chronic illnesses, we imagine a bionic future will be beneficial to vast and diverse populations around the globe.

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