Meaningful Relationships: Designing Pediatric Clinical Environments to Promote Early Relational Health

by Matthew A. Finn and Majd Gharib

Discussion Draft: Please submit comments to Joe Waters (joe@capita.org) or Matthew Finn (matt@cognitive.design)

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Dear colleagues,

Relationships are the building blocks of positive growth and development for children and their caregivers. The foundational relationships that babies and toddlers experience with all their caregivers in the first years of life (or a child's "early relational health") provide the stability and supports necessary for the health, development, and flourishing of children, families, and communities.[1]

As such, these foundational relationships are:

- Bi-directional for the development of the mother and child

- The basis for all efforts that address equity, recovery, resiliency, and protection

- Essential for the outcomes of future health, early learning, social-emotional wellbeing

- Realized by the centrality of shared delight, joy and positive experiences

- Scientifically-based, family-centric, and community supported

- Respectful of cultural variations in caregiving and parenting practices while valuing relational health as universal

- Is not about parenting, but about emerging relational development

- A paradigm shift in western culture for building health and wellbeing for future generations

The pediatric primary care provider is a privileged champion and supporter of healthy foundational relationships and the pediatric clinic is a crucial space where these relationships can be encouraged.

However, the prevailing architecture and design of the primary care clinic does not make it easy for the provider to observe or provide anticipatory guidance on early relational health. As we think about the ongoing transformation in healthcare, moving from an emphasis on the pathophysiology of disease to a broader approach that includes the social determinants of health, parent-child interaction, early literacy, and early relational health, it only makes sense to consider a redesign of the physical space. This paper is an initial attempt to do just that.

This discussion draft, co-written by Matt Finn and Majd Ghraib of Cognitive Design, explores the connections between clinical environments and innovative design strategies that center health, connection, and interaction to promote foundational relationships. We hope that this is a generative starting point for discussions by providers, health care system leaders, designers, architects, and others who have opportunities to contribute to designing clinical spaces that support the well-being and flourishing of our young children and their families. Comments on this draft may be submitted to me at joe@capita.org or to Matt Finn (matt@cognitive.design).

We are grateful for the funding support of this project provided by Reach Out and Read.

Sincerely,

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[1] FrameWorks Institute. (2020). Building relationships: Framing early relational health. Washington, DC: FrameWorks Institute.

INTRODUCTION: EARLY RELATIONAL HEALTH AND THE PEDIATRIC SETTING

The importance of early relational health (ERH) is increasingly recognized. ERH is the concept that well-formed social relationships are essential to holistic health and children's early development. The focus has largely been on the relationship between children and their parents or other primary caregivers. But medical providers also have an important role.

In this paper, we explore a facet of ERH that has not received much attention: the environment. We consider how one type of pediatric setting—the primary care clinic—can be designed to promote ERH. An important note: the elements of design we discuss include not only the physical space of the clinic, but also the decisions and practices that can foster communication, trust, and rapport.

The importance of the pediatric setting to early relational health

Early relational health is vital because the first years of human life are an essential stage of brain development (Center on the Developing Child , 2007) (Center on the Developing Child, n.d.) (Wong, 2012). During these early years, the brain is sensitive to the impact of the external environment (Haspel, 2019). Healthy child development is inseparable from the caregiver-child interaction, and there is compelling evidence that early relational experiences create the remarkable processes that develop the human brain and body to their full potential (Waters, 2018).

Primary care providers (in particular, physicians or advanced practice nurses) are well positioned to promote ERH because they have frequent, regular visits with patients throughout their early childhoods. As a result, the environment in which the provider-caregiver-child relationship develops is critically important to the health and development of the child (Willis, 2019). Providers can promote ERH through their own interactions with patients. They can also foster ERH within their patients' families.

The need is great, because so many of those families are under stress. Often, they struggle with such issues as peripartum mood disorders, the need to care for elderly relatives, unstable work or finances, poor housing quality, or food insecurity. All of these issues can profoundly affect ERH. One study concluded that emotional, financial, and other disturbances that detracted from early mother-infant interactions predicted poorer infant cognitive outcome at 18 months (Murray et al., 1996). Unfortunately, the stressors often become more systemic and persistent,

rising to the level of toxic stress or trauma, creating a more urgent need for intervention. The need for trauma-informed care is increasingly recognized.

The next step is to design environments to foster the communication and relationships that can help all families, especially those facing stress. The goals: improve interactions in the office, model relational skills (Waters, 2018) (Williams et al., 1998), build strong relationships, and help caregivers develop the skills to promote ERH in their own homes.

What we mean by the pediatric clinic

In this paper, we focus on clinics where patients come, in person, to be seen by practitioners. Many of our recommendations, however, can be applied or adapted to other locations or modes of delivery.

Infectious disease considerations: This paper was written during the COVID-19 pandemic, which will continue to affect how we treat all infectious disease well into the future. The pandemic has accelerated a move toward telehealth and other methods of technology-based care. It has also affected many other suggestions below. For instance, we make several recommendations about better using waiting rooms, yet during the pandemic, many practices are not allowing patients in these rooms, instead moving them straight into exam rooms. We recommend providing books or toys to occupy young children, yet we know that today many pediatric offices have removed shared amenities as an infection control measure. Still, we offer our recommendations in the expectation that over time, heightened restrictions will ease.

While technology is changing care, it will not replace in-person interaction. More healthcare is being delivered remotely, a result of technological advances, new legislation, and the COVID-19 pandemic. During this time of change, it is essential to remember that there is much more to a clinical visit than simply assessing and addressing the pathophysiological needs of a child. While many tasks performed during a well check in particular may shift to telehealth or other digital methods, in-person social interactions are an integral and irreplaceable component of healthcare. Technology provides many benefits, including to ERH: for instance, interactions with families may be more natural if they are in their own homes. Still, we believe the best version of healthcare will always include a meaningful amount of in-person interaction. For this reason, our focus remains on rethinking the traditional pediatric clinic.

MORE THAN "BRICKS AND STICKS": THE FULL SCOPE OF DESIGN

When we discuss designing the clinical environment, our conception is very broad. The doctor's office is much more than a building. It is more than a space for examining the body and treating pathologies—it is a place to promote healthy relationships.

All of the decisions and operations of the clinic are design choices, whether intentional or not. We are promoting intentional decision making that fosters ERH by alleviating the stress parents feel, for instance, or promoting better communication. We recommend changes to room layouts, furniture, and other physical elements of the office. But we also suggest many design changes that do not require a contractor or a building permit; sometimes, they will not even cost money. These include changes to scheduling, the flow of people through the space, how staff members interact with families, and more.

In an ideal world, the design process would explicitly address all of these elements. However, we do not live in this world. Today's healthcare administrators face constraints including low budgets and tight deadlines. Similarly, we acknowledge that while we are addressing one piece of a large and complex healthcare system, many elements need attention. For instance, increasing the time available for patients requires overcoming many well-entrenched barriers and is beyond the scope of this paper. Here we are focusing on achievable design decisions that are within easier reach given existing conditions, many of which are low or no cost.

COMMUNICATION AND TRUSTED RELATIONSHIPS: THE KEYS TO EARLY RELATIONAL HEALTH

Pediatric clinics host a myriad of activities and experiences, yet many appear to have been designed as if delivering clinical services were the only consideration (Stuart, 2013). In a standard pediatric office, families are moved through a series of spaces with the goal of making the most efficient use of the provider's time.

This approach may make sense if the focus is solely on the financial performance of the business's daily operations. But when we expand our thinking to include patients' long-term health outcomes, we see how it limits important opportunities for communication and rapport, the building blocks of ERH.

This is where design choices are so important. The design of the clinic should explicitly aim to create spaces that improve interactions in the office, model relational skills, and build strong relationships, all while helping caregivers develop the skills to promote ERH at home. Good communication is key. In fact, communication is considered the most common "procedure" in medicine (Levetown, 2008). It usually occurs simultaneously in several forms, such as spoken word, body language, and facial expressions.

Communication can be evaluated by practical outcomes such as the caregiver learning, remembering, and successfully using information from the visit. There are many prerequisites for this to happen. For instance, caregivers must feel that

they are being heard and understood. Their desire to learn and understand (their cognitive needs) and to be heard and understood (their affective needs) must be met (Levetown, 2008).

Communication is also enhanced when caregivers and providers can maintain focused attention during the visit. Multitasking often prevents this focus; providers must often "talk, think, listen and type at the same time" (Zuger, 2013). Their divided attention prevents them from demonstrating relational skills, lowers the quality of communication, and increases errors (Jacobs, 2016). In fact, everyone in the clinic—administrators and assistants, as well as providers—must consider relational behaviors, such as reflecting feelings and showing respect, concern, and compassion, as integral to their communication with families. Yet listening, empathy, and focused attention to nonverbal and paraverbal components of communication (body language, tone, pitch, pacing etc.) are often neglected (Ranjan et al., 2015).

Here's an example of the power of rapport between provider and caregiver. At a checkup, a pediatrician notices signs of nutritional deficiency in his young patient, which he points out to her mother. Because the pediatrician is empathetic and has fostered a trusting relationship, the mother feels comfortable telling him about her family's financial difficulties. From this nonmedical information, the provider identifies food insecurity as an issue and connects the family with supportive services. As a result, not only does the child receive essential nutrition, but the parents are also less stressed. They have a greater capacity to engage with all of their children, which in turn sets them up to thrive into adolescence and adulthood. The pediatrician's relational skills not only benefit his patient, but also help the parents promote ERH at home.

Fortunately, many design decisions can foster better communication and rapport. As we'll see, even subtle changes, such as repositioning furniture, can enhance feelings of trust and confidence, leading to better care and building stronger relationships between practitioners and families. All parties stand to benefit from an environment that facilitates positive communication, minimizes distractions, and prioritizes the cognitive and affective needs of patients and families (Levetown, 2008).

DESIGN CONSIDERATIONS FOR PROMOTING EARLY RELATIONAL HEALTH IN PEDIATRIC CLINICS

We'll address design considerations through the experience of a fictional family. Meet Julia Shine and her kids:

Julia is mother to three children, Ethan (10), Riley (4), and Emma (9 months). Julia has been noticing behaviors in Emma that she hadn't seen in her older children. She wants to discuss them at Emma's checkup.

Julia brings all three kids to the pediatric clinic. Immediately, she is asked to complete 11 pages of paperwork. She rushes through, distracted by her restless children and the noise of a TV playing a talk show that interests no one in the room.

Forty minutes later, the family is led to a cramped exam room. A medical assistant takes Emma's measurements, then leaves. There is nothing in the room to keep the children occupied, so they become antsy. Harsh lighting exacerbates the headache Julia is feeling. She can tell from the muffled conversation coming through the wall that a family is receiving bad news.

Finally, a nurse practitioner, Nurse Hillsboro, arrives. She raises the stool so she can comfortably face the computer. Her eyes do not stray from the screen. Julia looks up at her, worried. Is Nurse Hillsboro concerned about something? Julia does not realize that she is simply reviewing Emma's chart.

Nurse Hillsboro asks a series of rapid-fire questions—What are Emma's sleep patterns? Does she have separation anxiety? What is her diet?—glancing at Julia and her baby, then immediately back at the screen. Gradually, this back-and-forth becomes more conversational. The change makes Julia feel less pressured. She begins to give more detailed answers.

Emma's physical exam is uneventful. Nurse Hillsboro returns to her seat to enter more notes. Without removing her gaze from the screen, she asks, "Anything else you'd like to talk about?" Then she stands, poised to leave. "No, thank you." Julia replies, relieved that Riley and Ethan had not thrown tantrums and that their long visit is almost over.

The family waits in the exam room a few more minutes, until the assistant points them toward check-out. After a quick nod from the woman behind the desk, they leave the office. In the car, Julia realizes she had not mentioned her concerns about Emma to the doctor.

The hardships Julia and her kids experience are largely attributable to a place and process that were not designed to meet their needs for good communication and rapport. As we unpack what happened, let's identify opportunities to improve the design of this clinic. We'll divide the family's experience into three phases: before care is delivered, during care, and after.

Before care is delivered

Long before families see a provider, there are opportunities to promote ERH and improve the experience once they do arrive at the clinic.

Before arrival: scheduling and preparation: Offices can perform many scheduling and preparation functions before the visit. One way is to initiate contact

a few weeks before age-determined well checks, to schedule appointments and provide intake forms and other paperwork. The office can also note logistical issues (such as the number of people accompanying the patient), as well as issues the parent may want to discuss, which can then be entered into the patient's chart. This advance work minimizes the caregiver's distraction and stress in the waiting room (because there will be no or little paperwork). It also increases the likelihood that parents' questions will be addressed by adding an opportunity to raise them.

Imagine if Julia, from our example, had been able to fill out her paperwork in advance, at her convenience—she would have been less stressed in the moment and more available to her children. Her concerns about Emma would not have gone unmentioned: she would have been less likely to forget them during the visit (because of her more relaxed state) and, in any event, would have already noted them in advance.

Such pre-visit outreach also offers opportunities for more creative options that some practices might want to explore. For instance, it offers the opportunity to schedule care in a way that puts families with commonalities, such as the age of their child, in a waiting room at the same time, providing opportunities for social connections to occur. Additionally, group visits, such as those in CenteringParenting, might be a good option in some communities and situations, such as well checks of predictably healthy children with families receptive to the idea. Group visits offer a supportive and communal setting, as well as more time with the provider. These visits would also lengthen interactions between families, creating further opportunities for supportive social relationships to form naturally and convey the message that such relationships are valuable.

In the office: waiting to see the provider: Families' experiences as they wait to see providers color the rest of their visit and beyond. This period offers many opportunities to improve interactions with families and build relationships. It should be deliberately designed with the cognitive and affective needs of families in mind. If those needs are met, communication during the clinical interaction will be better. Families will also be more likely to implement their providers' recommendations ([Levetown, 2008](#)).

> **The activity room: the waiting room reimagined:** Time spent—often considered time wasted—in a waiting room is a frequent pain point for families. Think of Julia and her attempts to complete a stack of papers while minding her kids, with noise from the TV intruding on her thoughts. Caregivers in this situation are not likely to do a thorough job on their forms. They, and their kids, often become bored, nervous, or stressed. The wait itself often conveys a message of inequality: the provider's time is more valuable than families' time.

Of course, some waiting is inevitable; visits may take longer than expected, or some days will see more sick visits than usual. And, as we've noted earlier, time management and scheduling are complex issues and that bump up against entrenched incentives to crowd schedules, among many other issues.

So why not focus on the aspects of this waiting period that can be improved through careful design? We can change how families perceive this time. Let's recast the waiting room as an activity room. Time flies when you're having fun, so why not design for this reality? This gesture puts the family into a better state of mind and conveys respect for their time. It changes this waiting period from a burden into an asset—an opportunity to promote and model ERH. Imagine looking forward to "waiting" at the doctor's office!

Some strategies:

> *A nonclinical aesthetic through artwork and color:* Many practices use artwork and color to make spaces feel less clinical and more inviting to children; however, the thinking about the best approach is changing. Research suggests moving toward greater simplicity in artwork and thematic design. Art should have educational value and be age appropriate (Tivorsak et al., 2004). Color can be a useful tool in marking separate areas of activity, such as a designated area for children who may be contagious, and for promoting concepts of trust or privacy by linking them to a color code throughout the facility. Note that emotional responses to colors are not universal and are affected by many factors including personal history, cultural background, and cognitive and sensory abilities (Davis et al., 2008) (Hupka et al., 1997).

> *Opportunities for play:* Play can be therapeutic by giving children the opportunity to "explore, express, and process their healthcare experiences in a safe, nonthreatening environment" (Children's Hospital of Philadelphia, 2017). And of course, it is a great way to keep restless siblings occupied. Riley and Ethan from our story would have been far less fidgety if they'd had opportunities to play. It is important to avoid potential hazards, such as sharp edges of furniture or drawers at children's eye level. Nonelectronic toys are superior in promoting high-quality communication, including early language development (Sosa, 2016). Use of electronics in the activity room, such as televisions and tablets, should be avoided.

> *Opportunities for reading:* A choice of books, at various reading levels, is always a good idea, both to occupy children and to encourage family reading. Reading to children is an excellent way to promote

both ERH and language development at home. Many practices have formed partnerships with Reach Out and Read to provide books to families and other interventions. The American Academy of Pediatrics recommends informing parents of the benefits of caregiver talk to their child's language development (Johnson et al., 2014). Reach Out and Read has been shown to increase reading aloud by parents from diverse ethnic and economic backgrounds, which in turn raises their children's language scores (Burton & Navsaria, 2019), Equally important, reading together is a highly effective way to promote early relational health. Another benefit for ERH: Reach Out and Read teaches clinicians to observe natural parent-child interactions and foster stronger relationships (Navsaria & Shriver, 2015).

Bring in outside exhibits: Partnerships with nonmedical organizations, such as schools, libraries, aquariums, botanical gardens, zoos, or performing arts centers, could create traveling exhibits that rotate through the waiting room of pediatric clinics. With an engaging exhibit, along with age-appropriate information, caregivers can enjoyably engage with their children and create opportunities for play, which can reduce anxiety and nervousness in children (Corsano et al., 2015).

Bring in nature: An engaging activity room is also an opportunity to introduce natural elements. Interaction with nature decreases stress and promotes well-being (Jacobs et al., 2006) (Tsunetsugu et al., 2007). In addition to fostering relaxation (and recovery) (Gharib et al., 2020), outdoor gardens in particular could assist the healing process of ill children by enabling them to experience "biotic, physical and climatic factors in nature and the diversity of forms, colors, textures, and shapes of landscape elements" (Said, 2003).

Provide better lighting: Choose lighting that approximates daylight as much as possible. We have more to say on lighting below.

Prepare for the transition to the exam room: A buzzer with a five-minute countdown can help families prepare for their move to the examination room.

Provide a "souvenir" to convey continuity: Families can depart the activity room with a souvenir of sorts, perhaps a book from Reach Out and Read or an activity to occupy their attention in the exam room. This small gesture provides a sense of continuity to the overall experience. It also supports a positive association with the clinic for the child and caregivers, helping to build a stronger relationship between caregivers and families.

For larger practices: an activity room attendant: In larger practices within high-density communities, it may be feasible to have an attendant trained in ERH promotion for the activity room, to improve interactions, model relational skills, and help caregivers develop the skills to promote ERH at home. This attendant could be a volunteer, a college student, or a staffer. This person could directly engage with families and would be well positioned to provide affirmation and coaching. They might even be able to watch siblings, such as Ethan and Riley, while children receiving care and their parents see the provider.

The Shine children from our example were bored and restless as they sat in their clinic's standard waiting room. The design choices we've outlined could have provided entertainment and enrichment, a benefit to them as well as their harried mother.

For providers: a respite space
Providers' work can be emotionally draining. In addition to the stress of their busy schedules, they sometimes have to deliver difficult news or watch young people suffer. After these experiences, providers need time to process their experiences and decompress. A respite space, such as a dedicated break room, can help. Providing such spaces helps providers approach their next patients with a clear mind and in a refreshed state. It improves the opportunities to build connections and relationships. As with patient spaces, this room should be deliberately designed with features to reduce stress: natural light and plants, for instance, privacy, and quiet.

Into the exam room: waiting for the provider:

In our story, we saw several problems familiar to anyone who has been stuck in an examination room before the provider arrives: a long wait, a cramped space, harsh lighting, nothing to do. It's a recipe for stress and boredom.

Many of our earlier strategies will help here. For instance, if staff had known that Julia was bringing all of her children, they could have put the family in the biggest room. The kids would have had their souvenirs from the waiting room to keep them occupied. Entering the room, the family would have been in a better frame of mind because they had been having fun. And, of course, keeping this phase of the visit as short as possible is important.

We'll talk more about the exam room in the next section. But first, here is one more idea: if there is a computer monitor in the exam room, use it to display pictures to engage the family—perhaps content from the exhibit in the activity room, or even photographs from the family (which could be requested during the pre-visit intake). What if Julia had sent over pictures of Riley and Ethan when they were Emma's age? The idea is not only to keep kids occupied, but also to avoid the impression that the computer is there only for benefit of the provider.

The exam room, continued: with the provider

In our story, Nurse Hillsboro did a lot of things right. By conventional standards, her interaction with Julia's family was acceptable. But if we examine it further, we can find several ways that Nurse Hillsboro could improve her interactions with the family to build rapport and earn trust, model relational skills, build strong relationships, and help Julia's family promote ERH at home—the building blocks of promoting early relational health. Redesigning the exam room could reduce the family's stress, help Nurse Hillsboro better connect with Julia and her children, and help Julia get more out of her time with her children's caregiver. The space where she interacts with her provider can improve her capacity to retain information and receive affirmation or coaching during Emma's exam.

Vary the size of exam rooms: The Shine family's experience—four people in a cramped room—highlights a common feature of many clinics: exam rooms are often all the same size. We recommend a variety of sizes, which could be as simple as having one larger room for larger groups or people in wheelchairs. At prescreening or check-in, the number of people accompanying the child can be identified and room assignment made accordingly.

Auditory privacy: Communication and trust are diminished if patients and families worry about the privacy of their discussions with providers. This is particularly true in cases of trauma, or when conversations are sensitive. To avoid such a problem, aim for high acoustic isolation in spaces where such conversations occur. In many instances, white noise can complement built strategies and increase confidence in the discretion of clinical conversations (Devlin, 2014).

Provide space for play and interaction: Additionally, exam rooms should be big enough to be interactive—that is, to have enough space to see and build relationships. Consider space for children to play, which allows providers to observe how parents interact with them and provide affirmation and coaching in response, to help families promote ERH at home. It will also keep siblings occupied.

Configure exam rooms to foster communication and trust: Furniture choices and positioning have a huge impact on ERH. Ensure that these choices encourage, rather than hinder, communication.

> ***Choose flexible furniture and position it to foster conversation:*** The placement of furniture should encourage participation from all parties (Jacobs, 2016). Find an appropriate room configuration that supports effective body language, as well as increased comfort and safety (Leavitt & Leavitt, 2011) (Jacobs, 2016). For instance, comfortable chairs around a low table invite "comfort, safety, and conversation" (Leavitt & Leavitt, 2011). In addition, furniture should adapt to many scenarios that happen

daily in pediatric clinics, such as allowing for the comfort of bigger groups or increasing the engagement of young patients. Moveable furniture allows exam rooms to be quickly and easily reconfigured.

Keep the room clear: Use hooks and storage space for coats, purses, or personal items. Mount computers to the wall on movable arms. These simple steps keep items out of the way and improve safety, movement, and access (Jacobs, 2016).

Keep providers' body position level with families and encourage face-to-face interaction: The body position of providers sends a powerful message; so does the positioning of providers relative to patients and families (Ruusuvuori, 2001). We saw this in the Shine family's visit: Nurse Hillsboro's stool and computer were higher than the seating for the family. Her position conveyed dominance. She often faced the computer, rather than the family, provoking anxiety in Julia, who could not see what Nurse Hillsboro was looking at on the screen. This setup reduced opportunities for effective communication.

One study concluded that allowing everyone to sit at the same level, and in conversational proximity, demonstrates to patients that they have the provider's full attention (Leavitt & Leavitt, 2011). Since using computers potentially limits eye contact, one solution is to use them while seated at a round table, which also conveys that parent and provider are on the same team. Another is seating with a tablet table allowing for computer screens to be off to the side, with the keyboard flat on a desk, to keep the line of sight open (Jacobs, 2016). Again, our story shows the importance of a setup that fosters a sense of equality and relaxation: when the visit felt less like an interrogation and more like a conversation, Julia felt more at ease and offered more information.

More on computers: As we've noted, computers often act as a barrier to good communication (Als, 1997) (Silverman & Kinnersley, 2010) (Ruusuvuori, 2001). Using computers while facing families, at the same height, helps. So does using laptops, which are less intrusive. Further still, we recommend minimizing the use of computers during exams. One way is to provide an area for providers to use a computer outside the exam room, to prepare by referencing medical records, reviewing labs, and identifying issues of note before entering. Technology such as video and audio recording with automated transcription can document interactions with families and help the provider to make notes and treatment plans after their time with the patient. This practice would liberate providers from having to use a computer during most well checks yet preserve the ability to take confidential notes

when necessary. This limited interaction with a computer allows the provider to focus their attention on building relationships and having meaningful discussions about care with the parent and patient.

Pay attention to lighting: Some types of lighting can cause stress, as we saw with Julia. For instance, the spectral composition of compact fluorescent lighting has been linked to fight-flight-freeze responses via hormones, biorhythm disruption, and stimulation of the brain's arousal center. Research shows that CFLs, when compared to full-spectrum lighting, can elevate stress markers, including blood pressure, heart rate variability, skin conductance, startle response, and cortisol (Veitch, 2000) (Yasukouchi & Ishibashi, 2005) (Basso, 2001) (Kozaki et al., 2005).

In contrast, natural daylighting, when provided in a way that also affords visual privacy, has myriad benefits. Prioritize windows and window treatments that allow for daylighting or strategies such as translucent privacy screens and high-low window coverings that allow blinds to be open at the top.

Full-spectrum electric LED lighting, which renders colors similar to those in natural daylight, is increasingly available, although it is not yet practical for many primary care settings. Until LED lighting is more readily available for these settings, we recommend electric lighting with a high color rendering index (CRI). High CRI (90+) is readily available and affordable. Very-high CRI (95+) is likely affordable for many practices.

Whatever the type of lighting, it should allow for reading facial expressions and other nonverbal communication.

After the exam

Many people, including Julia, view their time with the provider as the sole reason for their visit. They are eager to leave once the exam is over.

But this period demands more attention because it is critical to forming memories. Immediately after their visit with a provider, when a family typically gathers its belongings and checks out, is when the process of memory consolidation—forming long-term memories from short term ones—takes place (Dudai, 2004). Knowing this, we can see the value of extending the visit. Added time, if well spent, can improve the usefulness of the visit by improving families' retention of information.

Thus, just as we advise reframing the period of time before an exam, we advise reframing the period after. The Shines received only a quick nod—an indication that they were free to go—after they left the exam room. We recommend encouraging and providing accommodations for families to linger and enjoy themselves or practice some of what they've been taught. During the exam, the natural focus of attention is between the caregiver or patient and the provider, which can strain

the parent-child relationship; during this post-visit period, family members can reconnect with each other. This time could also allow caregivers to remember additional questions. In our example, it might have allowed Julia to raise the concerns about Emma she'd forgotten to mention in the exam room. Finally, it can be a time to be connected with resources that help establish and maintain a safe and secure home environment for the family. All of these changes promote ERH in the office and in the home.

In general, the waiting room—or as we prefer, the activity room—is the logical place for families after their exams. But if a family has had a tough visit or received difficult news, the family may need more privacy and time to process. We recommend a protocol for allowing some families dealing with hardship to remain in their exam room until they feel ready to leave.

Diving a little more deeply into other uses for this post-visit time:

A second souvenir to bridge the transition: As they leave the exam room, a second souvenir, such as a sticker, can once again provide continuity and bridge the transition to the next room. If a book is the first souvenir, a bookmark might fill this role.

Review the treatment plan: Many practices provide written treatment plans. Usually, patients wait for these plans in the exam room. The wait often feels like a final hoop to jump through before they can leave. It is likely a period of diminished capacity and value for the parent, so it would be beneficial to allow a little decompression and time between when the provider leaves and the treatment plan is reviewed. Consider releasing the family from the exam room back into the activity room while the treatment plan is being prepared. When it's ready, if possible, pull the parent aside and into a nearby private area that can be used to review and discuss it in an unhurried manner. An activity room attendant, if one is present, could watch the patient and any siblings at this point.

Connect families to resources: Promoting ERH means promoting health for everyone in the child's home. Connecting caregivers with resources to help manage situations such as job placement or mental health, or managing other important responsibilities such as caring for other members of their household, all improve the caregiver's capacity to have a meaningful and healthy relationship with the child. In addition to reviewing a treatment plan, a medical assistant or nurse could serve as a patient advocate and connect parents with resources in the community based on needs that were identified during the visit. Conversations about these issues could lead to discovering further opportunities to support the family.

CONCLUSION

There is no substitute for the meaningful social relationships between parents and their children and between healthcare providers and the families they serve.

Advances in technology have broadened our ideas of what constitutes a clinical environment. Some aspects of clinical care will undoubtedly be replaced by virtual services. Yet while social relationships can be established and even strengthened virtually, they are best in person. Because of this, the pediatric clinic will retain its important role. It must be designed to foster and strengthen relationships by promoting communication and trust. It must be designed for early relational health.

As we've seen, this is not solely a matter of redesigning the physical space. Instead, we urge providers and health system leaders to rethink all of the elements that affect how families experience their care, always looking for ways to promote ERH. Gone are the days of designing clinics optimized only for clinical services. Today we must design holistic environments that address all factors that contribute to healthy child development.

Opportunities to learn about, and alongside, families as they navigate life abound—and they directly benefit ERH. The greatest benefit may come from acknowledging that health is not an isolated part of life, but integral to all aspects of life. Redesigning pediatric clinics to promote early relational health requires us to consider the true breadth of health.

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