
Nicola Colace

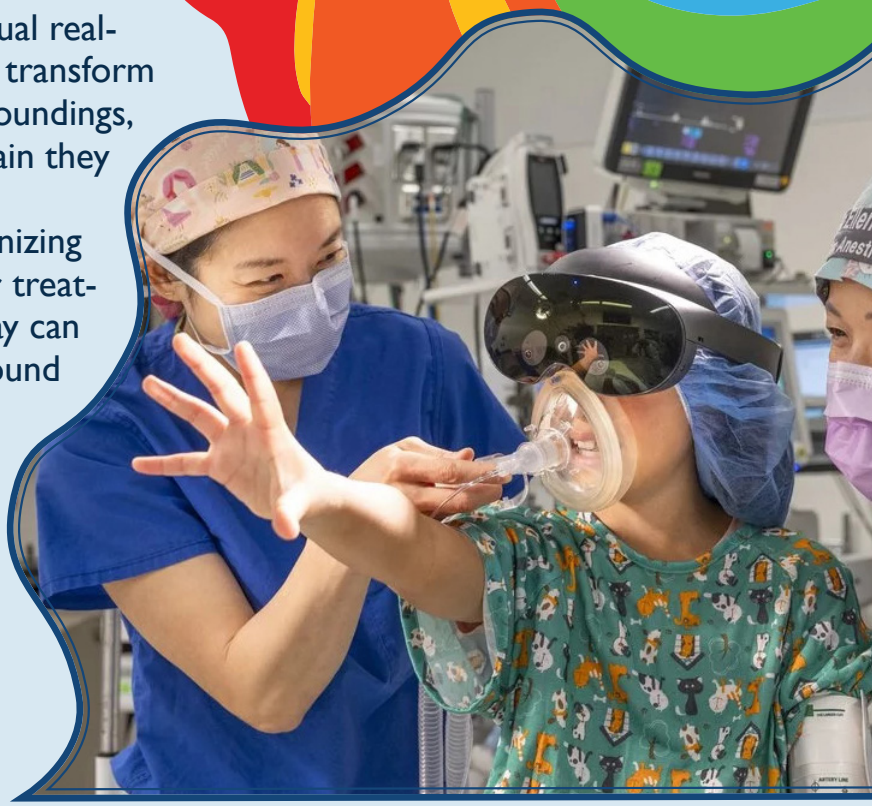
# Escaping Reality

By Nicola Colace

Can't take opioids? Try VR instead! What may sound like an insensitive joke is a reality that has changed many patients' lives in the hospital for the better. Almost like magic, immersive virtual reality technology has the power to completely transform a child's perception of their senses and surroundings, freeing them from much of the stress and pain they feel while stuck in a hospital environment.

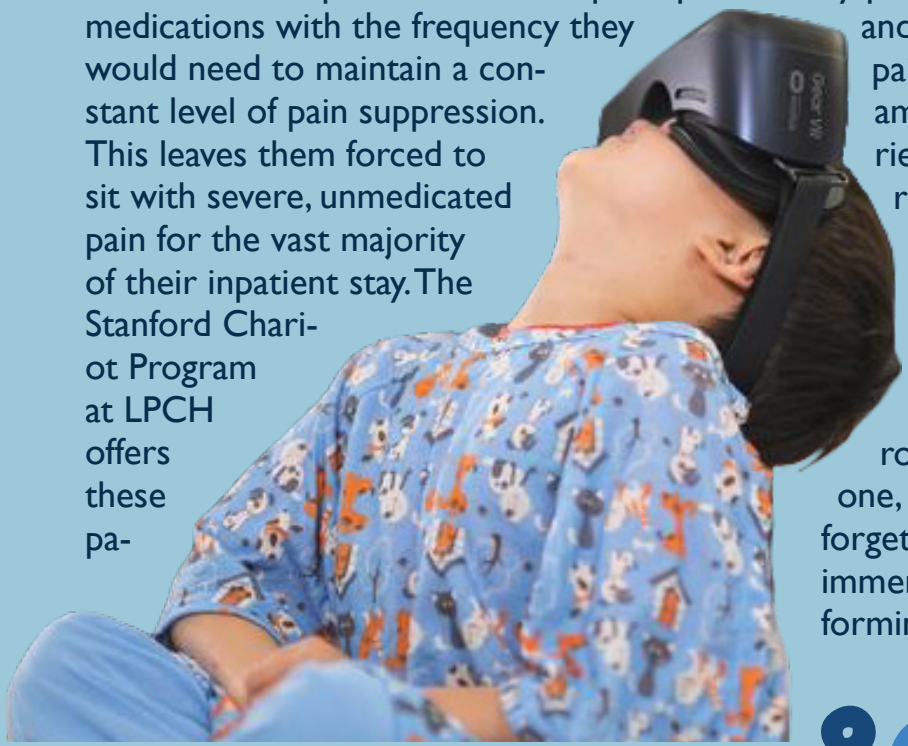
Patients in the hospital often face agonizing pain and unrelenting stress throughout their treatment. Those facing an extended inpatient stay can grow depressed, developing a sense of profound isolation and helplessness. This environment can be suffocating, and offers no reprieve, save for brief periods of sleep between late-night vitals checks. Now imagine what that does to a child's psyche.

Pediatric healthcare professionals have aimed to combat this stress and pain through distraction, which often means providing young patients with toys, art supplies, or even opportunities to participate in



Stanford Chariot Program, https://chariot.stanford.edu

fun activities hosted by the hospital. When distraction isn't enough, a patient is provided with common over-the-counter pain medication like acetaminophen (Tylenol), or, when necessary as determined by the patient's care team, deliberate and carefully controlled doses of narcotics such as morphine or oxycodone. For many patients experiencing severe, chronic pain, however, the limitations of these options become crystal clear very quickly. When a patient's pain is strong enough, no amount of Tylenol or simple distractions is enough to offer them true relief. In these situations, opioids may be the only thing that can significantly reduce or eliminate their perception of pain. However, because these drugs are brain-altering, a patient cannot be safely administered repeated doses of opioid pain medications with the frequency they would need to maintain a constant level of pain suppression. This leaves them forced to sit with severe, unmedicated pain for the vast majority of their inpatient stay. The Stanford Chariot Program at LPCH offers these pa-



San Francisco Business Times, https://www.bizjournals.com/sanfrancisco/news/2018/07/23/why-your-childs-next-painkiller-may-be-a-vr.html

tients a new option: VR. Harnessing the immersive powers of VR technology, the Stanford Chariot Program and many other programs like it are relieving children's stress, anxiety, and perception of pain while in the hospital without the use of analgesics. By creating a sensory experience for the child distinct from their hospital environment, they bring fun and play into parts of inpatient treatment that would have otherwise been upsetting or even traumatic.

> **"VR actually reduces the amount of pain and anxiety that is experienced by patients."**
> **- Diya Li**

## Pain and Anxiety Control

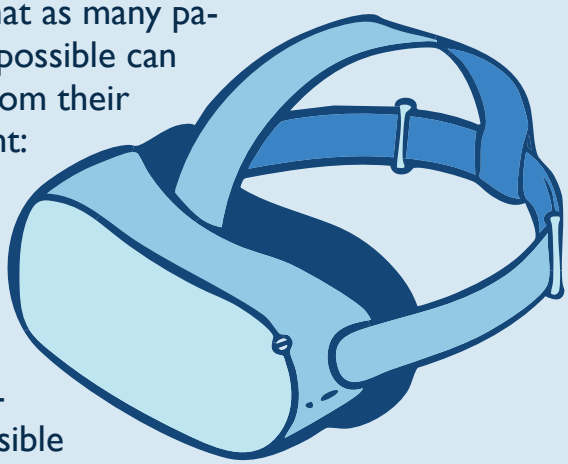
One of the most promising applications that VR offers to children in the hospital is a unique and strikingly effective form of pain control. In hospitals around America, "VR headsets are … being used to help sick and injured children deal with treatments by providing an escape into digital worlds and games. By distracting them from their pain and anxiety, VR actually reduces the amount of pain and anxiety that is experienced by patients" (D. Li). Rather than relying on pain medications or simple toys to provide children with relief or distraction from their pain, healthcare providers can offer children a fun and engaging experience that transports their senses out of their current environment and immerses them into a new one, often causing patients to completely forget that they're in pain. This application of immersive technology can be critical in transforming a child's inpatient experience, bringing

a sense of relief and comfort that traditional methods never could have provided. Reducing pain and anxiety also has the effect of making patients more likely to cooperate with otherwise stressful and upsetting parts of their treatment, such as procedures and painful dressing changes. According to Veronica Tuss, Certified Child Life Specialist, "With VR, an often-intimidating setting suddenly becomes this really cool thing or place that they get to explore." Common elements of inpatient treatment, like IV insertions, can even transform from "a negative experience into a positive one" (qtd. in DeTrempe). The use of VR in these common procedures can be the difference between a child developing a fear of the hospital and being comfortable returning if the need arises.

## Accessibility

As incredible as this technology can be, VR equipment is also notoriously expensive and can involve a steep learning curve for some users. "Differences in user backgrounds, including technological literacy and financial resources, remain access barriers for health care systems [in implementing immersive technologies], creating a digital divide" (B. Li). Unfortunately, a lack of resources and funding often means that a hospital is simply unable to provide VR as a resource for its patients, no matter how much they could benefit from it. Even well-funded hospitals such as Lucile Packard Children's Hospital Stanford heavily rely on philanthropy and large grants to maintain and develop their VR programs. For LPCH, this means supporting their Stanford Chariot Program by finding generous donors who believe in and are willing to fund the program's initiative.

Accessibility being a key facet of its mission, the Stanford Chariot Program aims to ensure that as many patients as possible can benefit from their equipment: "We are trying to make [immersive technology] accessible and give this stuff away to as many hospitals out there as we think can use it and not charge anybody for anything. We don't charge for our services. We don't charge for our games that we're making" (Hunter). This means that when a child at LPCH needs VR to help them through a difficult procedure, manage their pain, or simply to alleviate stress, the Chariot Program will provide them with a headset without putting any financial burden onto the patient's family–so no one, no matter their situation, is left without relief.

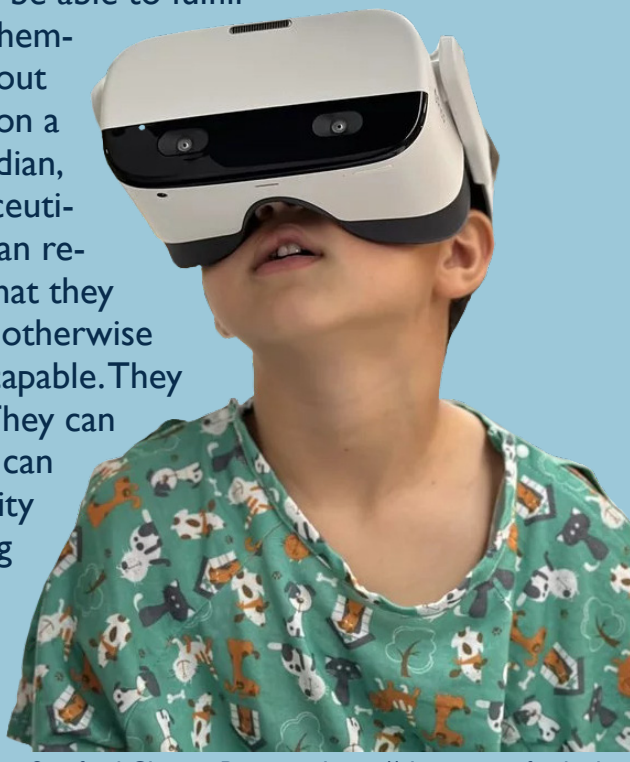


## Transforming the Patient Experience

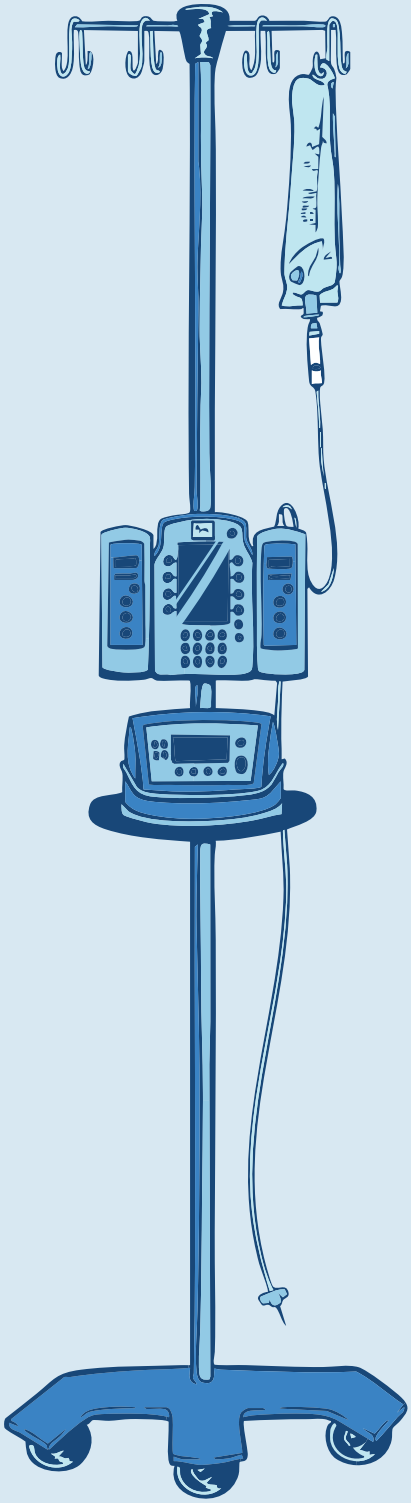
Life in the hospital looks very different after bringing immersive technology into a patient's care. VR games may become their main source of exercise, or their favorite activity throughout the day. The technology may even transform the way they experience routine procedures. It may seem small, but these changes to everyday hospital affairs drastically transform a child's overall experience with their treatment. Without immersive technology, each procedure, IV insertion, blood draw, dressing change, etc. builds up into a swirling pool of anxiety, sadness, and

exhaustion. But diminishing the mental impact of each of these events can protect a child's psyche and significantly reduce the trauma they are left with after discharge. Mary Hunter, PT, emphasizes that the "immersive nature of the technology gets [patients] out of their head. They're thinking about something else. Their brain's focusing on different things. The pain is still there, but their mind is somewhere else. It's looking at something different. And so they start moving. And the more we move … the better you're probably going to feel. And … it's a cumulative effect." VR's ability to encourage mobility and exercise alleviates both emotional and physical burdens on patients; instead of having to force themselves to move around while in immense discomfort, patients can play VR games that make them exercise their body without even realizing it. Simultaneously, their consistent movement and exercise while using the VR equipment improve their body's physical condition and act as a stress reliever. In other words, VR can turn exercise from a miserable chore into an incredibly beneficial byproduct of playing a fun game. This can be the key to bringing consistent exercise into the lives of countless hospitalized children, allowing them to reap the benefits of increased mobility and have fun while doing it.

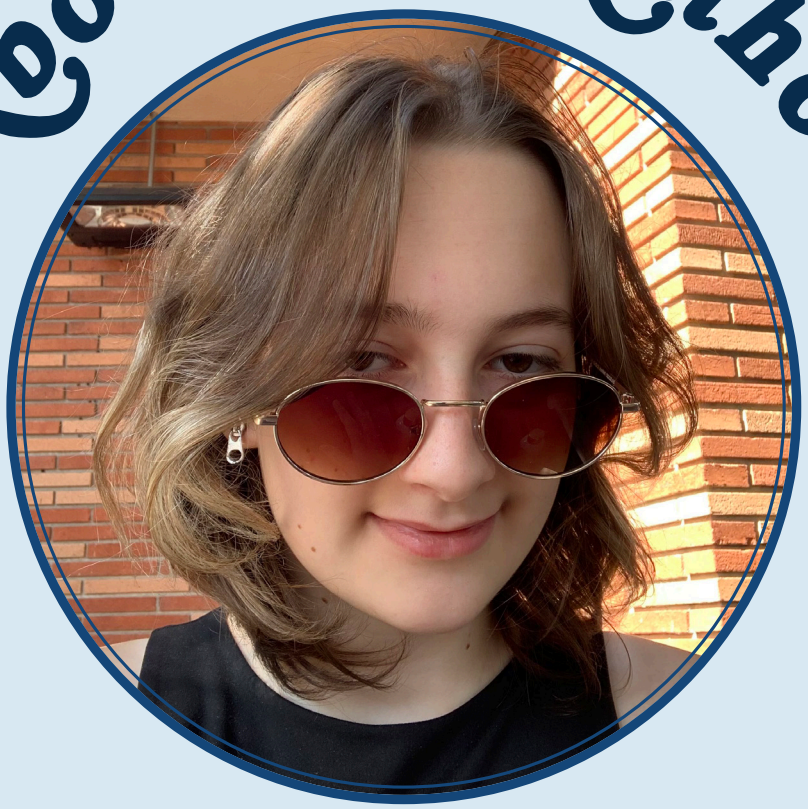
The use of VR in inpatient pediatric medical settings is incredibly exciting, not only for individuals engaged or interested in professional medicine, but particularly for the patients it helps and their loved ones. Hospitalized children can avoid pharmacological pain management and the long-term side effects that can come with it, find far more motivation and enjoyment for exercise, and immerse themselves in a virtual escape from their hospital environment whenever they need one. The uses of this powerful tool are still expanding, and the Stanford Chariot Program spreads hope that VR will one day become a ubiquitous tool that is applied to a broad spectrum of both inpatient and outpatient facets of care. For now, VR will still be making an enormous impact on hospitalized children around the world. The fact remains, children in the hospital have very little control over everything happening to them. They make none of the medical decisions, struggling to make their voices heard over the chorus of doctors explaining what medicines they need to take and what operations they may need to have. They are in an unfamiliar environment that can feel cold and frightening. They may not even know why they're sick or in pain. All they can do is to trust their loved ones and their care team and hope that they will eventually get better. VR puts the power into their hands to take control of their senses, their pain, and their mobility, to brighten their life while in an environment overwhelming them with things to feel miserable about. A hospitalized child with a VR headset can decide at any time when they need pain relief, when they need to exercise, or simply when they need an escape, and be able to fulfill that need themselves without depending on a nurse, guardian, or pharmaceuticals. They can relieve pain that they might have otherwise found inescapable. They can smile. They can laugh. They can escape reality for just long enough to feel like a kid again.



Stanford Chariot Program, https://chariot.stanford.edu



# About the Author



Nicola Colace is currently a Junior at Los Altos High School and is studying animation at Freestyle Academy. They have a passion for drawing and plan to pursue concept art in college. Nicola has two very silly cats named Charlie and Lola who they love very much. When they are not drawing, Nicola enjoys playing games, watching their favorite shows, and spending time with their family, friends, and cats. Nicola was inspired to document the Stanford Chariot Program after an extended hospitalization during which Stanford's VR equipment completely changed their day-to-day life. Nicola hopes to encourage awareness for the lesser-understood aspects of hospital treatment and living with chronic illness.