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## Remey's Calming Kids with Communication

Kate Vallon

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# Pediatric Pain Management

By Kate Vallon



# Introduction

Pain management is often studied by doctors, psychologists, and child-life specialists. However, designers have a strong influence on the care, comfort and pain management of a patient, specifically one in the hospital. Pain management is a difficult topic to study and understand because everyone feels pain differently, however, by looking to the roots of pain and its affects on communication and anxiety we can learn to understand how to mollify its aches. Pediatric pain management is even more difficult to comprehend because there are many added elements involved in a painful experience.

For instance what if you had never felt physical pain before? How would you describe it? What if you had not yet learned to speak? Or even knew what pain meant? How could you communicate feelings of nervousness and anxiety?

After many years of being a kid (and I would argue I still I am), I have had my fair share of unpleasant experiences. Nothing serious or damaging, just a few teeth pulled, an appendectomy, a tonsillectomy, and a few other “typical kid type” surgeries and medical procedures. Although these events seemed unlucky to me at a young age, and certainly resulted in some very painful moments, I never felt that they were in any way more disruptive or unusual than any other “unlucky” things a child may encounter. Some of my friends had lost their pets, some were allergic to peanuts, and others got stitches. However, when I came to college I was the passenger in an “unlucky” car accident and wound up spending much of my second semester in and out of the hospital; and all of my semester, trying to find ways to mitigate my pain. It was during this time that I realized how mismanaged pain was, and how different my experience was being in school versus being in my hometown. It was also during this time that I felt my pain isolated me, and soon I began to confuse unlucky with unfair. I found that no matter what I said or did no one seemed to understand what I was trying to communicate, and no one seemed to be of any help. This frustration only made the pain worse and left me with feelings of helplessness and abandonment. Abandonment from everything I had known about the medical field. I always placed doctors and nurses in the highest regard assuming my non-traumatic medical experiences were a direct result of their skills. Although the doctors and nurses I have encountered in my life have all been very skilled, some very personable, and some...less personable, I had not realized how much of my experience had rested in the invisible structure that surrounded me at those times. Throughout my lifetime I have stayed in a variety of hospitals, and seen a variety of pediatricians. I can still recount stories of when my surgeon wore funny neon glasses in the operating room, when my anesthesiologist let me count out when I was ready to fall asleep, when my nurse told Santa Clause to save me all the best toys, when my dad spoke in Tasmanian devil, parrot or Mad hater, when me and my mom would laugh at the staff for thinking I would EVER eat JELL-O, and when my sister made and sent over necklaces reassuring me not to worry about missing her concert or play; I even had a cool nickname in the recovery room, I was Princess Wheezy.

However, I also remember when the nurse threatened to tape my arm onto a board if I kept making the I.V. beep, the doctor who told me I was being a baby, the technician who told me that breathing by accident was simply not an option while in a CAT scan, and the school nurse who yelled at me and sent me to the principal for demanding to call my mom, due to the stomach ache that later resulted in my appendectomy. What don't I remember? I don't remember what was on the walls or what my hospital gown looked like. I don't remember the color of the floor or the toys in the playroom. I remember what the bed felt like and how I was always cold, but I don't remember the color of the blankets or the color of the chair my mom slept in at my side. When I looked closely at what made my experience so different at school than at home I saw how important it was to feel a connection to someone else that was vested in my well being, and I saw how feeling comfortable at that level, allowed me to laugh at silly glasses and enjoy Tasmanian devil language.

Although it took me eighteen years to understand that it was not the glasses I was laughing at, it was the glasses being worn by a doctor in an operating room, I realized that all of these experiences, and laughs, come from objects that allow them to occur. Whether it be a single object, like glasses, or a group of objects such as a chair and a bed situated perfectly together to allow companionship; someone had created these objects so that I could gain a certain experience from them. This made me realize that I could create objects to give a certain experience to a child in pain that may be feeling the helpless abandonment that I felt at the hospital during my freshman year.

I worked as a sleep away camp counselor for 5 years and witnessed many counselors and camp nurses handle children in a very disconnected way. As a group leader during these summers I had the chance to speak with some of the staff and it made me appreciate the deep and delicate understanding, of both myself and children in general, that my childhood had been devised around. I lived in a bunk with young kids, and I watched them fight, cry, and laugh for 8 weeks at a time. Each summer the kids changed, but the atmosphere never did, and the one thing that separated my experience from many other counselors was my willingness to listen to the fights, allow the kids to cry, and most importantly, encourage and participate in the laughs.

As a designer I understand the beauty in an object, and the benefit in a carefully planned aesthetic environment. I have come to understand how powerful form, and color is, and how influential designers are in the stratum of our lives. My goal as a designer is to use that power and influence people's lives by designing with a deeper understanding of their world and psyche. I want to amalgamate the design world with the psychology world and present users with products and experiences that speak to them, and make them comfortable enough to enjoy the laughs, that can turn a painful experience into a silly, and maybe even memorable one.

*Kate Vallon*



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# 1 The Source of the Problem



# Anxiety

“It’s like building a line of dominoes, then giving one a tap and they all fall down one after the other.”



# Anxiety

The key to effective pain management lies in the understanding that pain is comprised of two components a physical component and an emotional component. Neither of which can be controlled without open communication. Communication is necessary so we can understand where something hurts, how badly it hurts, when it started, and the list goes on and on. However communication is the first facility that fails us when we need it the most.

We often lose our ability to communicate as a result of an increase in our anxiety level.

**Anxiety** : is an intrinsic reaction in response to stress that affects us emotionally and physically. It causes the body to produce more adrenalin to make the heart beat faster and more strongly  
The heart pumps more blood into the muscles so they can work harder  
More blood pumps to the brain so it can think faster,  
Breathing rate increases to get more oxygen into the body  
The pupils enlarge to see better,  
And our digestion slows down to allow all these other mechanisms to speed up  
Thus preparing our bodies for fight or flight.

(<http://www.cyh.com/HealthTopics/HealthTopicDetailsKids.aspx?p=335&np=287&id=2224>.)

Since fight or flight is not always an option in the hospital



rather than reducing anxiety



It grows deeper and bigger

Anxiety increases the duration, intensity and trauma of a painful experience. Therefore we must treat anxiety, in order to mollify the pain.

.....  
Until it becomes to much to handle.



# Fearing the unknown

After some initial research I formulated a 'day in the life' analysis, and concluded that the six main sources of children's anxiety, contributing to a more painful experience in a hospital, are: fear of the unknown, misconception, past experience, loss of control, outside influence, and anticipation.

We say painful experience because often times the exact moment of pain is not the culprit, but rather, the situation that surrounds the pain is what amplifies the sensation. In a conversation with Professor Donald Carr, we spoke about translating the painful sensations of a shot or a finger stick to sensations such as getting into a shower with unexpectedly high water pressure or being stomped on by a big dog.

“When my dog tromps all over me in the morning, and all of his body weight rests in the nails that are now digging into my skin I let it go, as most people do. However, perhaps a lesser pain, the two seconds of pain involved in getting a shot... that hurts.”

-Professor Donald Carr

# Misconceptions

This absence (of our interface) creates the opportunity for a new one, usually one that is based on assumptions and misconceptions. Once these beliefs are in place they can grow and foster seemingly irrational fears. Anxiety stemming from these fears can be the most detrimental to a child because what appears to be obvious to them can be unclear to those around them.

For instance, animism, the belief that inanimate objects have life, is a common concern amongst preschoolers. Preschoolers have trouble separating reality and fantasy and unfamiliar situations leave an open stage for their fantastically frightening thoughts to induce anxiety.

Price, D., & Gwin, J. (2007)



Animism is used in the media all the time, specifically targeted at young kids



*Trying to familiarize the unknown is one of the most common ways adults prepare children for planned medical procedures. There are tours given to children prior to their admittance and detailed explanations of the machines, feelings, and sights they may encounter. Philips design, designed a toy CAT scan machine as part of the Ambient Experience called the Kitten Machine used to explain the process of a CAT scan and allow them to conduct and control one on their own.*

# Fear of Past Experience

Unfamiliar settings may eventually turn into familiar settings, and fear of the unknown becomes fear of past experience. It is easier for people to recall a stressful experience versus a non-stressful experience due to the change in physical state. When a child goes for a repeat procedure it is more likely they remember crying versus the fast recovery. Therefore they instantly get anxious again making the procedure more painful.

“It is a common myth that children get used to the pain, in fact. The opposite is often true. For example, children exposed to painful procedures often experience increased anxiety and perception of pain with repeated procedures. Children with chronic pain may also become more sensitive to pain and other stimulation because of changes in the nervous system.”

-<http://www.aboutkidshealth.ca/News/Global-Day-Against-Pain.aspx?articleID=8097&categoryID=news-poh1>



**“A blood draw is just not as simple it sounds,**

I was scared. I know India was scared, but for different reasons. Some of her prior blood draws had been painful. So, she was not looking forward to another.”

-Toni, Mother of 10 year old India

## Loss of Control

Once we are in a state of arousal everything continues to feed off of our vulnerability, and the number of anxiety inducing stimulants multiplies, leading to a feeling of powerlessness known as loss of control.



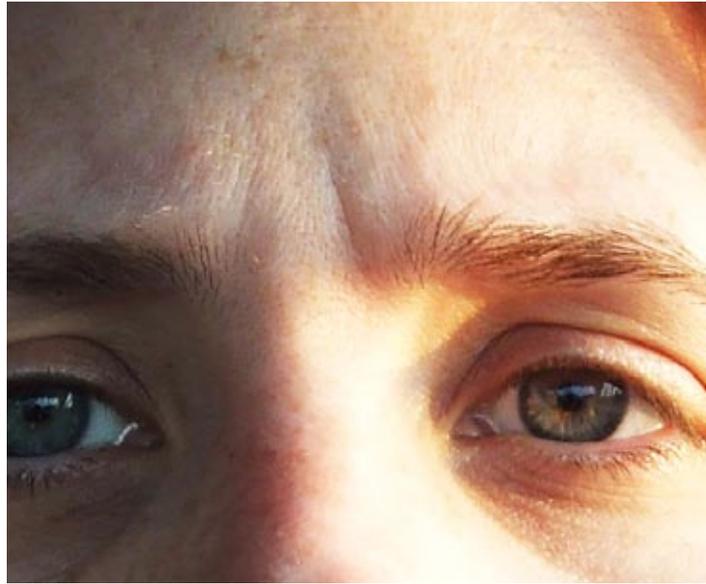
From the moment a child walks into a hospital they are guided to the children's ward by an adult, they are stripped of their identity in the form of a hospital gown, forced to wear a name tag (hospital bracelet), and then continuously put into uncomfortable situations. Their opportunities for making choices decreases, they are physically restricted, and may lose control over their emotions. They not only lose control of their surroundings and feelings, but they lose control over the one thing that they can visually identify as their own, **their body.**

# Outside Influences

Amongst all the commotion generated by confusion and misconception, helplessness and bad memories, children look to their primary caregivers for reassurance. Sometimes these outside influences can be helpful, and sometimes detrimental because the caregiver's expression builds on the child's belief that there is something to fear. Children are drawing fears from their parents or guardians and also adapt the often serious attitudes of the medical professionals around them. A hospital can be unexpectedly overwhelming for a parent. It is challenging to keep calm when plagued by fears of your child's well being. And even more difficult when that child looks to you for reprieve, and you are as powerless as he or she.

"I was only five so I don't remember much about the whole surgery but I do remember that my mom was so scared."

Kelly Anderson



We need to design a little bit for her to successfully design for him



"I'll never forget being called into the recovery room after Matthew's surgery, I cried the moment I saw him and had to walk out. His eyes were completely swollen shut and he was crying in pain. The vision was so shocking I couldn't hold back my reaction, I felt terrible afterwards. I cannot imagine why they wouldn't have prepared me for what I was about to see."

-Barbara Murphy



Finally, the sixth main source of anxiety and the most commonly identified is anxiety as a result of anticipation. With every minute spent waiting fears and concerns develop rapidly and deeply into a child's mind-set, and so presents the platform for the anxiety domino effect.

“Its all about the kids” was the concept behind many of the designs and attitudes I had researched. This was particularly interesting to me having had a very different experience with my own parents during my first surgery at age seven. With two parents in health professions I was guided through the process with a very nonchalant, matter of fact, attitude. I remained uncharacteristically calm until I was forced to lay down on a stretcher and addressed by the staff. The professionals around me were very concerned that I not get nervous and in doing so essentially instilled fear in me, by telling me there was a reason to be scared

# Leading with Little hands



# Examining anticipation

**Adults are hard wired to be goal oriented.** Whether those goals are to arrive at a meeting on time, or party at a music festival, adults are able to move through the world with ease. Stairs, doorways, beds, mugs, and menus are all designed for the average fully grown human being. Adults have all of the odds against them when it comes to appreciating the items with which they interact. When one has the ability to glide smoothly through the physical world their emotions and thoughts are rarely diverted from... (Olds, A. 2000)

meeting at 2pm!

Why is he angry with me?

Did I shut off the stove?  
I knew she'd have a girl!

I hope she got the tickets  
I need to call her for her birthday



And perhaps this is why

**“Oh sorry, I didn’t even notice**

is one of the most commonly heard and overheard phrases today.

## Children are hard wired to be observantly oriented.

They have a built in 'slow down' mechanism that does not leave room for the suggestion of 'stop and smell the roses' but rather a demand for it. Small legs mean small movements, small hands means slow and steady grasps, short arms means jumping legs, and all of this constant adapting to surroundings means constant concentration on the here and now. (Olds, A. 2000)



When was the last time  
**“Oh sorry, I didn’t even notice” ?**  
came from a child’s mouth

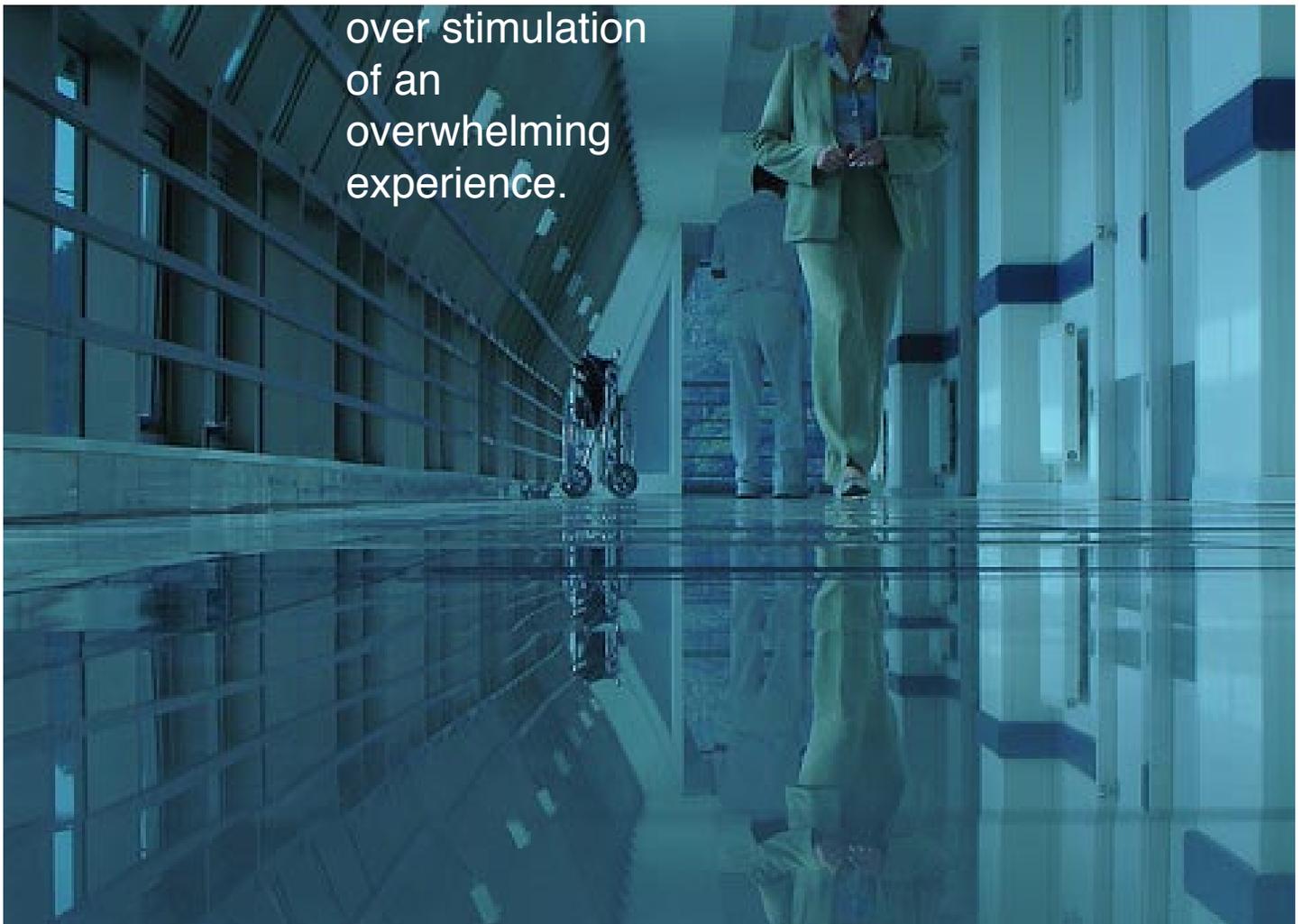
**When was the last time you looked at a mug, studied its size, and thought about how you may pick it up?** When was the last time that the only thing you focused on was taking a drink and making it through the whole physical process? Children are focused much of the time that adults are not. While an adult grabs a Starbucks cup their minds wander from thought to thought, image to image, etc... When a child grabs a Starbucks cup they are focused on keeping the glass steady, and not spilling. They have a task that prevents them from thinking about or worrying about anything other than the activity at hand, even if only for a minute. Sensory stimulations that may have effected them go unnoticed because of the heavy concentration required of them in one direction. Therefore, they have fewer sensory experiences to file in their assessment of the situation.



Maybe children would benefit from the blinders of a goal oriented mind?

While many strive to make the hospital experience easier, they are creating windows of opportunity for children to observe all of the unfamiliar. Hospital doors open automatically, the hallways are wide, the workers and patients are nearly color coded, and transportation shifts from the guiding hands to wheelchair rides. There is no need for a child to focus on anything other than all of the unfamiliar sites, sounds, people, smells, and objects surrounding him or her. They are seamlessly moved through this new territory with no expectation of task achievement thus providing excessive time for sensory deluging-

over stimulation  
of an  
overwhelming  
experience.



When a child enters a new environment they are focused on the new information surrounding them. Before even entering a hospital or doctors office a child notices the differences in size, weight, and opening mechanism of the door. They create their first assessment, and continue through the process noticing the grip of their parent's hand, the cleanliness of the walls, colors of the surroundings, the smells and noises they encounter, and more. Their ability to focus careful attention on small details creates a wealth of sensory experiences for them to call upon and register as pleasurable or painful. (Olds, A. 2000)



When researching children's environments I try to move the camera around to view the space from different eye levels. Small children are always looking up at the world, however when a child is scared or feeling sick they may be looking down, or just at their eye level. These photos helped me see how decorating walls and ceilings may not help to cover up the overall differences in the details of the environment the children are seeing.

# Techniques and Inspiration





If you stop and smell the roses you may notice the thorns, or the way each flower is starting to wilt. You see the effects from the bugs and animals, and recognize that this is a rare occasion and think about the many thoughts associated with such an experience. However, if you were navigating the streets following the street signs and watching the lights to arrive at a destination you would be void of such an experience, out of a need to focus elsewhere.



“If I can get them to look at this, maybe they won’t look at the shot”



This is essentially the principle behind the technique distraction. Distraction is used to divert attention toward something other than the procedure, the waiting time, or the current state of health. Distraction techniques cover a wide range of purpose and level of participation. For instance Dr. Abe Bartell uses a “magic wand” to divert the attention of some of his younger patients. “If I can get them to look at this, maybe they won’t look at the shot” however committing to focus on the wand is ultimately up to the patient. Waiting rooms are designed to distract kids from letting their imaginations and anxieties overcome their minds. Some waiting rooms are simply stocked with toys, magazines, a television and maybe a video game. However, some are very carefully designed by incorporating a level of control, privacy, and socialization within their walls. The waiting room at Sloane Kettering has movable partitions to offer families a chance to gather more privately, the main wall dividing the play area and the seating area is filled with glass objects that illuminate when children step on certain spots on the floor. There are video games, arts and crafts and computer games that sit on tables of varying heights so each child can feel comfortable participating. At this type of long-term care facility distraction is used to prevent kids from slipping into an anxious state on a day-to-day basis. Child-life teams structure days at the hospital to include activities such as beading, karate, painting, yoga, etc... They also keep moral up by recognizing all holidays and recreating events such as prom for the patients and families. At this level distraction becomes a lifestyle rather than a quick diversion. The main problem with distraction is the lack of requirement for attention. While a stubborn child may refuse to even look up at the “magic wand” or lack interest in waiting room toys, other children may welcome the help and divert their eyes, but diverting their mind is much more difficult.

*As part of Phillips Design of the “Ambient Experience” patients can personalize the color and feel of their CAT scan machine and scan room. Using light projection, each user can choose a different setting one after another.*



# Visualization

Visualization is another means of distraction that illustrates the difficulty in successfully diverting one's mind. Visualization techniques encourage kids to take themselves to their favorite place in efforts to mentally separate the child from the situation and calm their bodies down. However, proper visualization is a very sophisticated task. (King, M., Novik, L., & Charles, C., 1983)



When a nurse walks in with a needle, a patient may instantly remember the feelings they previously had in that situation



Proper visualization requires a patient to mentally distance themselves from the scene and become an onlooker.



It is then that they can travel somewhere else and feel the experience of sandy rocks, cool water, and salty air instead.



And even then most children end up viewing their "happy" place as an onlooker- Removed from the pleasurable sensory experiences.

I was particularly interested in studying how visualization works after having successfully separated myself from a painful experience. I had a procedure done that involved repeated incision sampling on my neck, the first round was so painful, and upon me growing more anxious and upset about the next round I was told that I actually did not have to do anything. Legally I was allowed to leave due to my age. Knowing that the healthier choice would be to stay I had forced myself to make it through the rest of the procedure, a task that I always relied on someone else to do. With a new responsibility to myself I immediately zoned out and completely separated myself from much of the pain. Having been told to “imagine you are at camp!” (my chosen happy place) many times before and always shrugging off what I thought to be a juvenile suggestion, I was shocked at the success of my new experience in actually removing the pain I felt just minutes prior.

Rather than asking children to conceit to distraction or to attempt complicated visualization techniques I looked to understand how children may better complete these tasks. To help children succeed **perhaps we can extract the metaphor and create reality**. By fusing a child's fantasy with reality we are forcing them right into their world. For instance the way Disney World creates a magical land, equipped with princesses and princes, and landscapes with houses occupied by mice. Disney world does not rely on visualization techniques of individuals; bringing ones imagination is even fairly optional. Although recreating Disney world in the hospital may not be the answer, incorporating some of their principles may help govern a good solution.

For instance the level of believability each of these Cinderella characters portray:



She is unfamiliar to the general public as anyone but Cinderella.



She is recognizable as the popular movie star Scarlett Johansen.

## Staying in character is key to establishing trust with an audience.



At Sloane Kettering everyone's favorite nurse is the Sheriff. The Sheriff wears a flannel shirt, a cowboy hat and rides around on a toy pony, galloping from one room to the next. The Sheriff visits each room while on duty and is never seen in any other attire, or persona. The Sheriff not only provides some entertainment and distraction from the day-to-day but he introduces a level of play into the hospital that makes children feel connected with him and understood by him. Some hospitals try to introduce doctors and friends like the Sheriff in the form of clowns to balance the seriousness and relate to the children.

The clowns at Sloane Kettering hospital are allowed almost anywhere the doctors are allowed, providing they have patient consent. "Some children love it, others have no clowns allowed signs on their doors" –Dr. Abe Bartell. But whether or not a child is benefiting from direct interaction with a clown or the Sheriff, their presence interrupts some of the seriousness.

During my trip to Sloan Kettering I had a taste of the importance of the child to clown relationship, while being guided around the unit by the doctor who takes new patients on their first visit. During a quick back track through the waiting room, I noticed a mixture of loud giggles coming from the room, the clowns had arrived! We cut through quickly and I took notice of the excitement surrounding Dr. Frankenfurts, slowly I began to notice that the clown had been watching me and following me for almost thirty minutes, until he finally got to meet me. Having noticed me with the doctor and not recognizing my face he assumed I was a new patient and was insistent on meeting me and offering his friendship and trust.

The presence of a clown or clown equivalent counterparts is valuable for many reasons including and beyond entertaining or morale boosting.



Clowns are virtually a symbol of play.



The Gesundheit! Institute started by Dr. Patch Adams rests on the philosophy care should be infused with fun and play. It is a not-for-profit establishment that aims to treat patients as friends and focuses on getting to know the patients so well that treating the disease becomes half as important as treating the patient. The philosophy, success and results of the Institute are inspiring and their vision is remarkable. The plans for the Gesundheit! Institute includes an exterior that will “stupefy and amuse the soul. Various parts of the buildings will be designed with the body in mind. A giant ear will stick off one end of the building, a huge eye will sit in the center, and giant feet will mark the entrance to the hospital. Below the main floors of the hospital, water passageways will allow people to travel from one end of the hospital to the other via paddle boat. Inside, beautiful murals will cover the walls, toys will line the floors, and secret doorways and slides will provide added mystique and amusement.” But standing in the way of Adams’ dream is \$20 million dollars. The institute is directed at long term care patients and while Adams patiently waits for his dream institute he treats patients and organizes worldwide programs to bring clowns and intimacy to communities in crisis. (Patchadams.org)

Although Dr. Patch Adams has big plans for the design of his new institute he does not let physical space dictate his healing abilities. He is able to successfully bring hope and healing to third world countries that have no brightly colored walls or interactive media spaces. The energy that he exudes far exceeds the energy that can be projected on a wall.



“Play is a major avenue for learning to manage anxiety. It gives the child a safe space where he/she can experiment at will, suspending the rules and constraints of physical and social reality. In play, the child becomes master rather than subject...Play allows the child to transcend passivity and to become the active door of what happens around her” (1995)

-Alicia F. Lieberman

## Play can be fun or serious

Serious play is a way that kids create understanding and responsibility for themselves. For instance, “playing school” is far from an adult understanding of fun. Children set up classrooms, create and follow class rules, teach lessons, have lunchtime, and even recess, a time coincidentally reserved for play. Why is it that a child may claim to “hate school” but love “playing” school?

As serious as play may get, play is still governed by three basic qualities

1. No judgment
2. No blame
3. No order

Even in a tightly fabricated school setting children will make excuses and allowances for odd behaviors or requests. And when a conflict presents itself between two participants each child believing they should get to do what they want usually drives the argument. This insistence on having things their way along with the three basic play qualities children are willing and able to freely express themselves.

Their uninhibited freedom of expression briefly lets outsiders take a peak into their world, and sometimes even be allowed inside. When people play together they are left bound together by their experience. As playtime increases bonds strengthen and the no judgment, no blame and no order qualities of playtime become implicitly understood, and best friends are made with whom secrets, thoughts, and experiences are shared.

“This one girl named Brianna had just been transferred to the floor after being in the ICU for 5 weeks. It was her first few days on the floor after being intubated and in the ICU. She was eager to get out of bed and into the playroom. As a volunteer I helped her to the playroom and got her settled with arts and crafts projects. She was very happy to be doing something she liked. After some time another girl came into the playroom. The girl at first was very cautious with her interactions with Brianna. Brianna’s appearance was a little intimidating for children since you could see stitches from her previous surgery on her jaw and she was in a wheel chair hooked up to all these tubes. When I took out spin art for both of them to use, the other girl seemed to forget about all the things that made her feel cautious and began talking and laughing with Brianna. Both the girls were able to bond and have fun over the spin art.”

—Sara Blanchard, Boston Children’s Hospital

Some hospitals try to force children into a happy play state with fanciful décor, however, forcing a sick child with deeply rooted fears to be surrounded by the suggestion of one emotion, cheerfulness, does not offer them a clean palette to express themselves; but rather, offers a suggested correct answer. The intentions of such instillations are noble, however the fallacy lies in that one shouldn't suggest play and playing criteria but rather, designers, doctors, care givers, and guardians should offer play-type opportunities. If adults present the 3 key qualities of play children could express themselves and comprehend their experience by essentially acting out the scenarios, and talking freely to those around them.

(Everding 1997)

The more an adult learns to communicate and participate in play the easier it is for children to form a bond of trust and open communication with them.



Children learn that there is a certain way to act and answer correctly in different situations, with the exception of playtime. When in the hospital children are often faced with the fear that they will “get the answer wrong” when asked how they feel, where it hurts, how badly it hurts, and more. They also like to get demanding situations over with quickly, so they may answer in a way that will provide them with the quickest outcome. This is also seen with verbal commands on physical tasks. When asked to move a certain colored brick over another colored brick, children that were recently tested in their color knowledge conducted the task in reverse, because it offered the easiest movement.



When we're children we're taught to draw in the lines, and use certain colors"- Beverly Kaye.

# 4 Communication Ups and downs



# Universal Design

Design is really an act of communication, which means having a deep understanding of the person with whom the designer is communicating” Donald A Norman (2002).

In this quote Norman identifies a crucial factor in the process of creating universal design. Universal design is the process of creating products (devices, environments, systems, and processes), which are usable by people with the widest possible range of abilities, operating within the widest possible range of situations (environments, conditions, and circumstances).

If we are attempting to design for people of all different ages and abilities is it possible to have a “deep understanding of the person with whom the designer is communicating?” It may be possible to understand and study the 100 different ways people grip a handle, but is it possible to understand the 100 different things each person is thinking or feeling when they are holding that handle? Even further, is it possible to truly understand any of those thoughts when the designer is so mentally and physically removed from the user? We can talk to the user, interview them, try to understand them, view things from his/her level, hear their ideas, etc... However, people can toss out a curve ball at any point, especially when those people are children.

Perhaps one way to combat this problem is to approach universal design as intrinsic design. An intrinsic approach to design would strip design of any need for a certain level of knowledge, understanding, or experience. It would tap into the inherent qualities that we are born with, those that morph overtime, into something that we ultimately define as our own. Intrinsic qualities or responses play a role at every step of the way throughout our lifetime requiring that our body and mind respond at some level. Therefore, these reactions require nothing to function and the need to deeply understand the individual user is eliminated to a degree. Once the opportunity for response is delivered, ideally the user could respond to it as if it were designed specifically for them, and thus, all of a sudden, the user feels as if they are being deeply understood.

“I bought [my son] Greg every toy he asked for, and for the past three days I’ve been watching him build robots with the boxes.”

- Charlie Dullon



The cardboard box is one example of good design. It could be a t outfit, a palette, a hide-a-way, a stool, desk, storage, etc... It can be never be broken. It can be enjoyed even when you are not interac

Picture yourself in a waiting room looking around and seeing a b

That’s weird..I wonder why there’s a box there.

Who put it there?

what’s that box for?

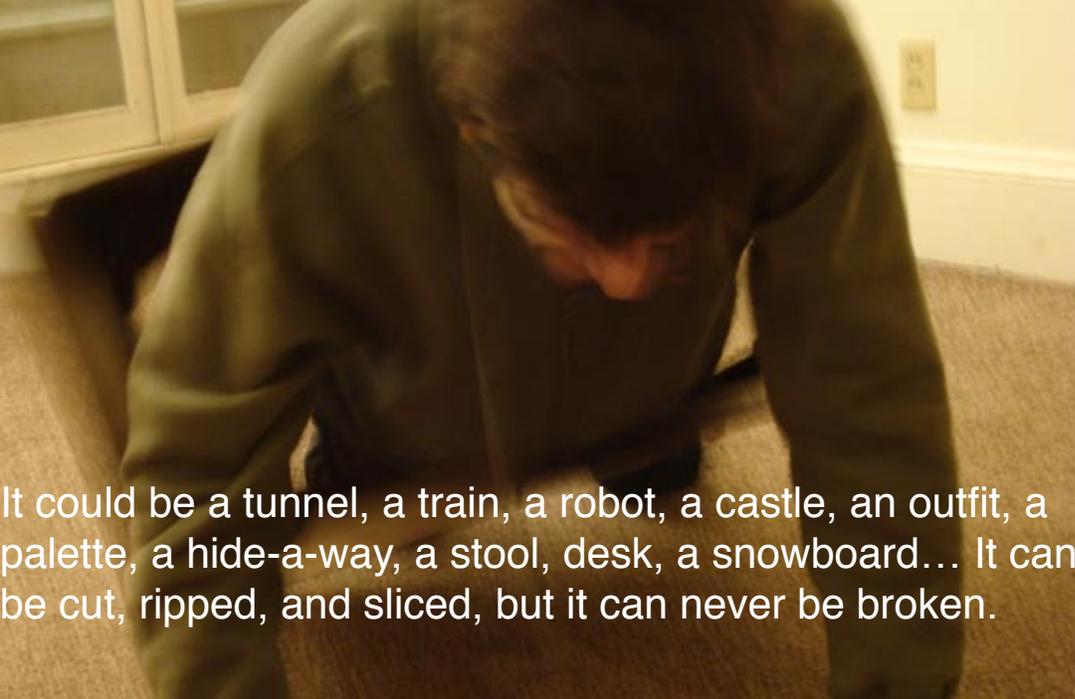
And you are probably not thinking about what’s around the box. Then you look across the room and see someone else staring at the box and they look up at you and you both know you were thinking the same thing. Now you are connected to him. Now a little girl comes and turns the box into a stove and boils some water for a tea party. And all the while you are entertained by seeing what this child has chosen to do with this seemingly misplaced object.

What if this object was a handheld video game? Would any of this have happened?



So the ability to make something your own, can create a product of great value to both you and those around you

It could be a tunnel, a train, a robot, a castle, an outfit, a palette, a hide-a-way, a stool, desk, a snowboard... It can be cut, ripped, and sliced, but it can never be broken.





# Mismatched Communication

One of the biggest problems with communication especially in the medical field is mismatched representational symptoms. The ability to treat the patient and not the disease can be challenging. Although two people may have the same disease, the portion of their pain resulting from anxiety can be different. Therefore it is important for the doctor to listen carefully to the words the patient is using to describe their concern.

(King, 1983)

“I do not want to have surgery; you’re going to cut open my mouth! It is going to hurt.”

“ It’s important that you have surgery because there is a big cyst, like a ball, that is taking up a lot of important space in your jaw, and that’s what’s making you get strep throat. See, if we take out the ball and just one tooth you will not get sick as much”

“But I’m scared that I will feel bad after surgery, it is going to hurt. I don’t want to stay here, I want to stay in my own bed where I’m warm and comfy and won’t have to be cut or pricked

“Okay, but the ball is not going to get smaller, probably it will get bigger so we have to take it out. It will be over fast and I bet you will get a shiny present from the tooth fairy!”

“I don’t care; I don’t want to do this.”



Having had many discussions with medical professionals regarding pediatrics I found myself constantly clarifying my thoughts. Whether it was due to some specific design jargon or a design minded train of thought, I had to carefully execute my comments and questions to receive the type of feedback I had set out to study. This made me realize how often people must have unsuccessful conversations. The conversation between doctor and patient is a typical. Often time's adults will validate the situation as a result of the patient being a child; of course this child does not want to have surgery! However, by examining the predicates one can see that the child's concerns were not addressed at all. The patient was expressing himself primarily in kinesthetic terms. Talking about how the experience may feel. The doctor was responding in a primarily visual way and trying to simplify a medical explanation for his young patient. Extracting the content magnifies the problem that these people were having two different conversations.

Cut, hurt, feel, warm, comfy, pricked

Big, ball, space, see, smaller, bigger, shiny

The patient was expressing himself in primarily kinesthetic terms. Talking about how the experience may feel. The doctor was responding in a primarily visual way and trying to simplify a medical explanation for his young patient. Extracting the content magnifies the problem that these people were having two different conversations. And thus the child found little comfort in what the doctor had to say.

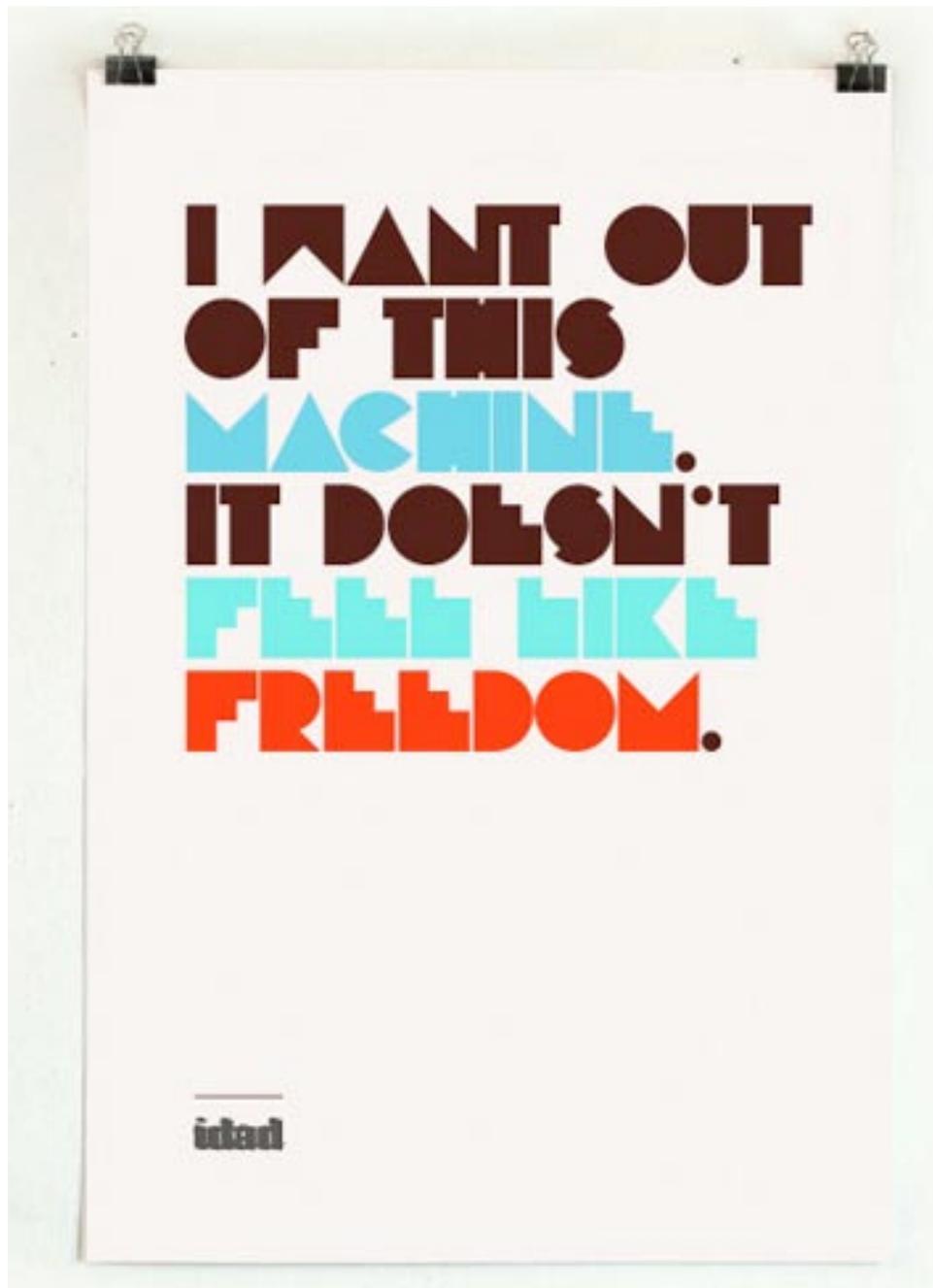
# Art Therapy

If it is this difficult to understand concerns when a child is speaking, it is even more difficult to understand their concerns when they are not. This is why therapists try to use drawing and painting to gain clues into the mind of a child.



Art therapy is a good way to simultaneously calm a patient down while offering caregivers a little insight into their thoughts. As children mature, specifically in long-term care they may seek this style of expression out on their own. For instance the Urbalist CD is a lyrical account of a teen boys battle with cancer. A series of posters by Eric Smith is a response to his battle with cancer. And Ben's game, a video game designed by Ben to represent his fight with leukemia.





These forms of expression introduce control into the patients' lives in many ways. However, one of the most important ways it does so is by allowing overt expression of their thoughts in their own "play" environments. This allows others to understand them better, ultimately leading to more effective pain management.



# Intrusive and Intrinsic silliness



# Designing Responses

Being that we are ultimately unaware of the detailed concerns chipping away at individual children maybe we can design the tools that simply offer each child the opportunity for resolution. Designers can become victims of mismatched representational systems when the root of the problem becomes too tightly defined. Then we end up designing for one specific problem or user, rather than designing for user-based solutions.

Revisiting the main problem with anxiety, “If we don’t need to fight or run away we are left with these feelings in our bodies and may need to find a way to deal with them, like go for a run, dance, shout or sing out loud to use up all that extra energy.” Those are difficult things to do in a hospital, and one may not know to do them, and most paralyzing of all, one may not want to do them.  
(<http://www.cyh.com/HealthTopics/HealthTopicDetailsKids.aspx?p=335&np=287&id=2224>.)

Therefore designers must tap into the intrusive level of design that does not ask a person to interact with it, but rather interacts with the person, via an intrinsic response. One that rivals the success of the tangible and malleable cardboard box

What are these  
intrinsic responses?

When learned techniques of communication fail or when we are too young to have developed any, we rely on the systems we were born with for help.

Resting on the belief that we are primarily social beings, we find comfort in togetherness because it relieves the pressure that solitude presents. The burden of our fears and needs suddenly become a shared responsibility. Touch, as a form of communication is elemental because when anxiety is at its peak, and stress clouds our rational thought, interaction through physical contact remains unobstructed. This quiet conversation continues, as we get older, and remains as a source for comfort.

Matthew Murphy underwent two brain surgeries as a three-year-old boy. The experience in the MRI prior to the surgery proved to be particularly traumatic. “Matt absolutely could not get through the MRI, we were there for hours, until I was finally allowed to go in the machine with him. I had to hold myself upright over his tiny body throughout the duration of the scan, but as soon as I did that, Matt laid still and quiet the entire time. Matt soothed himself in this way too-he would hold his teddy bear in such a way that helped him deal with the pain he was in, you can still see the impressions of his fingers.



**Touch** is an innate and powerful system because it communicates to the body that we are not alone.

Healing in its **purest** form



## Touch



Kangaroo Care is the idea of placing a preemie on its mother's chest, the way newborns is handled in nature. Newborns experience the world in a primarily kinesthetic form which is why we need to reach out to them in their own language, the language of position, movement, and temperature

The ability to achieve comfort through togetherness is a powerful property that designers have been studying through the development of interaction design. However to benefit patients, relationships must be fostered rapidly. Touch rapidly achieves body relaxation providing there is already a relationship between the two people interacting. Therefore designers need to search for a way to replace touch with a force equally as strong yet broader in the range of people it could affect.

“Laughter is the tonic, the relief, the surcease for pain.”

-Charlie Chaplin



Laughter is a universal expression that needs no translation across cultures, releases natural endorphins and provides instant relaxation.

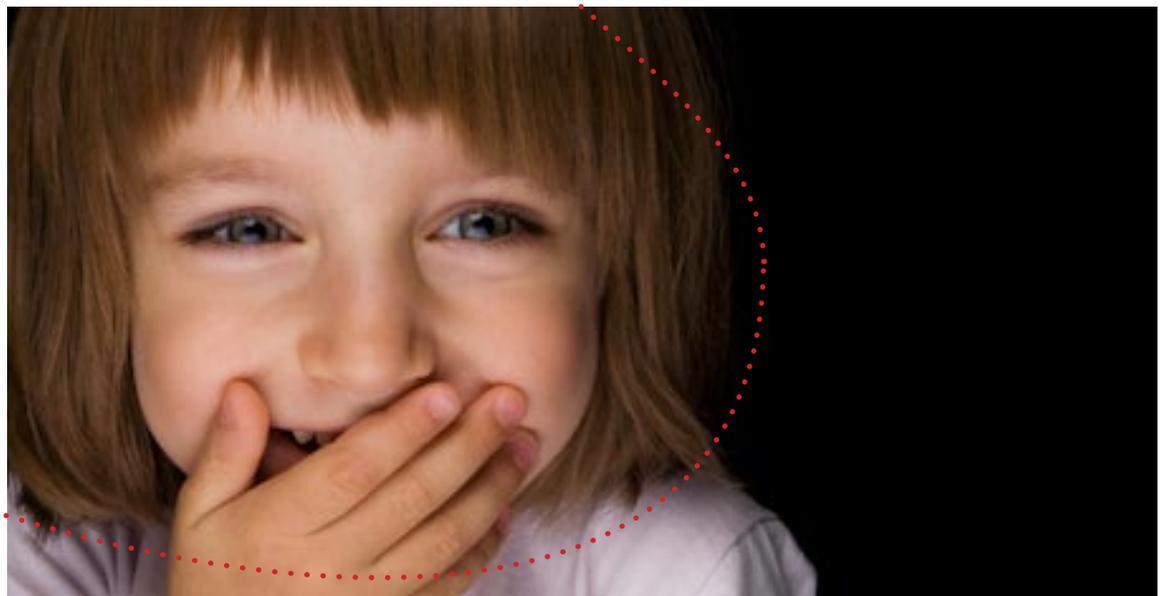
The simple suggestion of laughter is contagious enough to start a cure.



“Laughter is the trick to pediatric communication, get a kid to laugh and you can get them to open up. It’s also a great tool for relaxation before and during procedures. We have clowns come in all of the time, but I have a secret weapon...the fart machine. I’ve never had to push it more than three times with any given patient or parent to get a laugh in my entire career.”

–Dr. Abe Bartell

We can all remember a time when we burst into laughter at an inappropriate time, maybe a lecture, ceremony or even a funeral. At those moments we instantly look to catch the eye of anyone else who is a victim of that awkward moment. Once a partner is spotted we stop feeling awkward and start feeling happy, connected and **silly**. Laughter can serve as a conversation bonding a patient and a doctor. Research shows that majority of laughter does not come from jokes but rather from situations.



# Silliness

Babies are born with the ability to laugh and that stays with them throughout their lives. Whether it's the concerned parent affecting the child or the child's personal concerns, laughing can reach out to the widest range of people all at the same time. Laughter as a form of healing is seen throughout the world with the introduction of clowns in the hospital as was mentioned before in the discussion of play. Although clowns can offer a companion for children to confide in, they are not always present, especially in shorter hospital visits. Laughter is the element that bonds the child to the clown, however, it is the overall silliness that accompanies the relationship, that opens communication between the two people.

When we think of hospitals words like serious, critical, heavy, difficult, intense, and depressing come to mind.

Children are none of those things, in fact they almost define the antonym: silly. In order to change the words associated with a hospital we need to bring in more than a few clowns, we need to bring in an atmosphere similar to that of Patch Adam's Gesundheit Institute. Silliness does not always lead to laughter, but it always allows for it, the same way that the cardboard box does not always lead to play, but always alludes to it. By introducing some silliness into the hospital we are not asking children to put on a happy face, we are simply matching their personalities to their environment.

**Children laugh an average of 146 times a day,** while adults laugh an average of 4-5, perhaps this is why children make friends and adapt to new surroundings more easily than adults ([www.ihrimpublishings.com](http://www.ihrimpublishings.com)) Their inherent silliness creates laughter and uses it to turn strangers into friends. If the average adult laughs 4-5 times a day, what does that mean for the medical professional? Or the parent of a sick child? The focus of pediatric design needs to span further than just the kids, because kids feed off of their environment and seek out ways to interact with it, therefore it must be open and willing to interact right back. A long hallway for an adult is a longer walk until they reach their destination, a long hallway for a child is a chance to run and slide, do cartwheels, walk on a runway, and put on a play- offer them an actor and they will quickly start directing. With one honest, shared experience doctors, nurses, patients, and parents can all be those actors and actresses. Enveloping the hospital in silliness offers the opportunity to grab that first experience over and over again. Silliness can be pumped into a hospital the way magic is pumped into Disney World: ever present, intrusively available, and yet not distracting to the function of the establishment.



The difference between **silly** and **funny** is that funny asks for approval.



**Funniness** is much more forceful than silliness and also much easier to ignore. Hearing a funny joke when we are in a bad mood does not always elicit a laugh; it is like placing bumper cars in a waiting room. Most people love them, but if you're not in the mood they are easily ignored.



**Silliness** is softer and omnipresent playing off of little subtleties that are out of place or unexpected; like replacing the bumper cars with a dog. Dogs bring people together, bring people joy, and bring out their honesty, whether they are interacting with the animal, or remain a bystander.

Since silliness can be felt, heard, and seen it can begin with a tactile experience or object as subtle as this (mug with dog face), or more overt like this (fun house mirrors) and then carried out through the sounds of laughter and the actions of those people succumbing to its amusement. Therefore it holds a very elastic quality, allowing it to transform an entire hospital, at varying degrees of intensity. This prevents one area from becoming a “kids zone”, that is then harshly contrasted by operating rooms and recovery rooms. Often times designers create captivating waiting rooms that grab children’s attention, however, the more the experience relies on appealing visual stimuli the less lasting the experience, and the more traumatizing the departure. They encounter a stark shift in the visual language that reminds them that they have left their area and they are now in an adult area.



Children can turn on and off in an instant, they “follow the intelligence of the heart” -Olds, (2000) and act only on what feels right. The more obvious the shift from a kids zone to an adult zone the faster they will shut down and their anxiety will turn up. Hospitals are not meant to be theme parks and trying to force that experience upon a child creates a sense of dishonesty that children pick up on very quickly. “The number one rule in communication with a child and their medical experience is to never lie.” -Dr. Hudson. Once a child loses trust in their caregivers they are left completely alone.

**Hospitals should have a more consistent aesthetic throughout the entire process, allowing designers to use it as a canvas to celebrate and personalize all forms of silliness.**



“The number one rule in communication with a child and their medical experience is to never lie.” -Dr. Hudson

“I remember going to the doctor and getting really excited to play in the waiting room. I used to talk and play with other kids on this awesome train. But I also remember how the fun instantly stopped when I heard the nurse call out my name. It was like all the fun and excitement was immediately erased the second I walked out of the train. Then I would go into the exam room and just sit there miserable while my mom did all of the talking.”

-R.J. Wattles

For example, revisiting the difference between the two digital cameras, versus the difference between a children's ipod and an adult's ipod. The cameras have an obvious contrast, and user specific appeal, between the two objects. Whereas the ipods portray an obvious similarity.



Apple's ipod is designed for all ages. Each user is made to feel that the ipod was designed for their generation. Once the ipod is in the users hands it can be transformed aesthetically with colors and textures; and emotionally with customized personalities, ranging from classic rock to hip hop to sing-along songs, or more than likely some personalized mixture that is further broken down according to the users mood. Suddenly the essence of the ipod has become a beautiful piece of finely tuned art that floats above the blank canvas that is the physical object. People return, break, switch, swap, sell, and lose their ipods all of the time but the connection to the product still remains the same. The introduction of newer and brighter versions does not aim to separate the consumers, but rather to give them something new to focus on, and thus distracting them from their frustrations surrounding their older broken model. Apple's ipod is somewhat of a functional cardboard box, leaving users with an experience rather than an object.



If a hospital can become a simple object to exhort silliness, perhaps children will not remember the moments of pain, but rather the experience of belonging, understanding, comfort, and laughter.

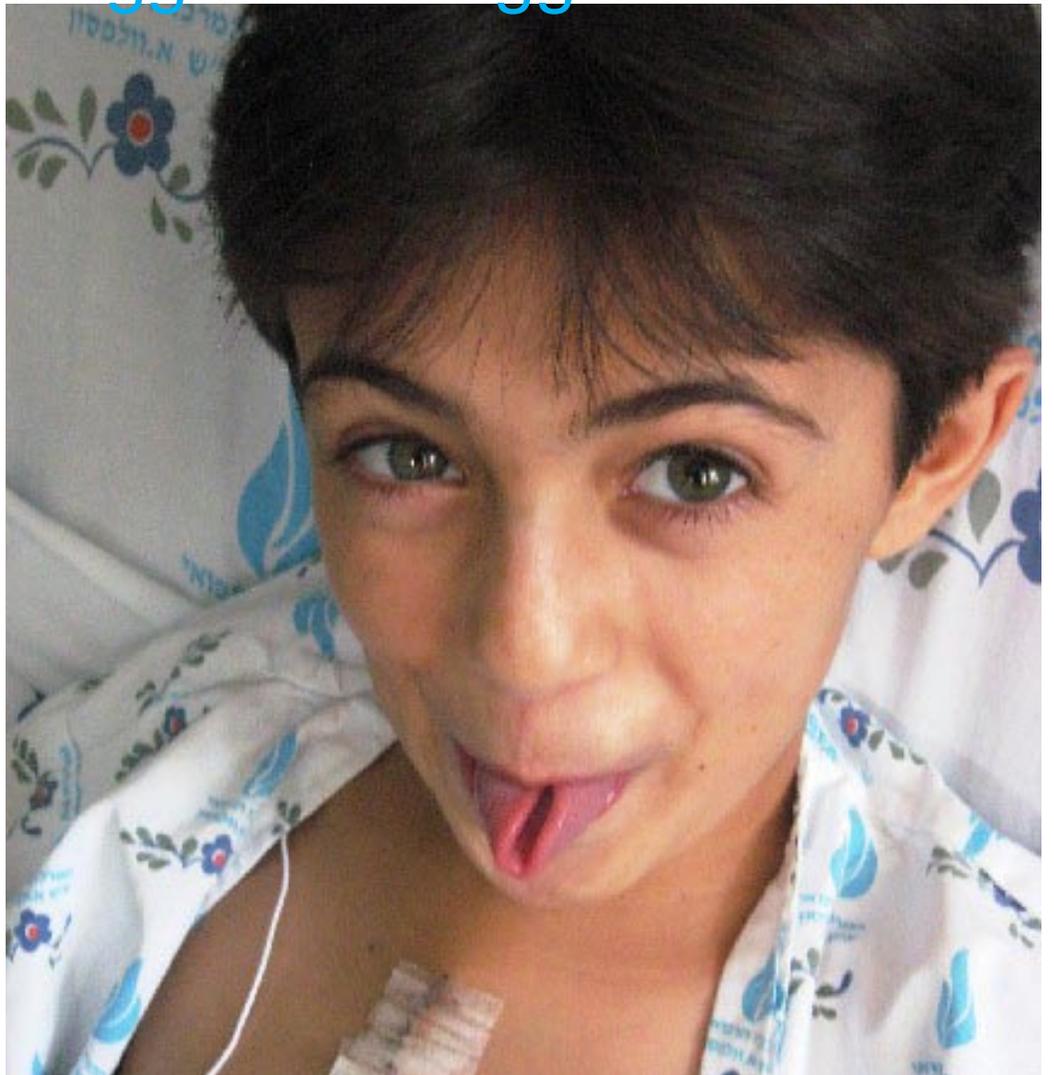
At the end of Casablanca Humphrey Bogart said, “In this world the problems of three people don’t amount to a hill of beans.” in other words don’t take yourself too seriously. The ideas and attitudes that many people have surrounding the serious nature of the health profession and environment often cause a distraction from focusing on the simple idea that kids are simply kids, ask them to say

## SNIGGLE•FRITS

3 times fast, and they’ll laugh every time.



Snigglefrits Snigglefrits Snigglefrihahahahaha



# References

- Everding, G. (n.d.). New models for pediatric space design help children cope. Retrieved November 3, 2008, from <http://record.wustl.edu/archive/1997/09-18-97/5514.html>.
- Gesundheit! News | Gesundheit Institute. (n.d.). Retrieved December 14, 2008, from <http://patchadams.org>.
- Gwin, J., & Price, D. (2007). *Pediatric Nursing: An Introductory Text*. St. Louis: Saunders.
- IHRIM Publications. (n.d.). Retrieved December 20, 2008, from [http://www.ihrimpublications.com/shop/product\\_info.php?cPath=21&products\\_id=32](http://www.ihrimpublications.com/shop/product_info.php?cPath=21&products_id=32).
- Kids' Health - Topics - Anxiety - when you are worrying about things. (n.d.). Retrieved December 10, 2008, from <http://www.cyh.com/HealthTopics/HealthTopicDetailsKids.aspx?p=335&np=287&id=2224>.
- King, M., Novik, L., & Citrinbaum, C. (1983). *Irresistible Communication: Creative Skills for the Health Profession*. Philadelphia: W.B. Saunders Company.
- Lieberman, A. (1995). *Emotional Life of the Toddler*. New York City: Free Press.
- Norman, D. (2002). *The Design of Everyday Things*. New York: Basic Books.
- Olds, A. (2000). *Child Care Design Guide*. New York: McGraw-Hill Professional.
- Price, D., & Gwin, J. (2007). *Pediatric Nursing: An Introductory Text*. St. Louis: Saunders.
- Stories of Getting Better - The Children's Hospital-Denver Area, Colorado, Rocky Mountain Region. (n.d.). Retrieved October 25, 2008, from <http://Thechildrenshospital.org/about/stories>.
- Tallandini, M., & Chiara, S. (2006). Kangaroo mother care and premature infant dyadic interaction. *Infant Mental Health Journal*, 27(3), 251-275. Retrieved September 23, 2009.
- Wilkinson, S. (2006). *The Child's World of Illness: The Development of Health and Illness Behaviour*. New York: Cambridge University Press.

# Exhibit: Display at Bird Library



## Pain and Anxiety

The six sources of anxiety

Do you remember the first time you experienced pain? Could you describe how you felt? Where you were? How long did it last? How did you feel? Pain management is challenging because everyone feels pain differently. However, by looking at the roots of pain and its effects on anxiety and an individual's ability to communicate we can learn how to help children modify their actions.

### Outside Influences

Children who have previous experiences with pain or anxiety are more likely to experience pain and anxiety in the future.



"I was only four so I don't remember much about the initial surgery but I do remember that my mom was so scared."

-Emily Anderson

### Anticipation

Anticipation of pain or anxiety can lead to increased pain and anxiety.



### Misconceptions

Children often have misconceptions about pain and anxiety, which can lead to increased pain and anxiety.



One day a curious six-year-old boy asked famous pediatrician T. Berry Brazelton a revealing question, "What are you looking for when you check children? Are you looking for their badness?"

-Karen Stevens

### Loss of Control

Children often feel a loss of control during medical procedures, which can lead to increased pain and anxiety.



### Painful Memories

Children often have painful memories of medical procedures, which can lead to increased pain and anxiety.



### Fearing the Unknown

Children often fear the unknown, which can lead to increased pain and anxiety.



"I was scared. I know India was scared, but for different reasons. Some of her prior blood draws had been painful. But she was not looking forward to another."

-Ravi, Mother of 10 year old India

## Communication

Observation and testing

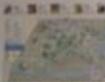
### Children's Museum

Children's Museum provides a safe and fun environment for children to learn and explore.



### The Stone Zoo

The Stone Zoo provides a safe and fun environment for children to learn and explore.



### Vividly Expressive Play

Vividly Expressive Play provides a safe and fun environment for children to learn and explore.



### Wordwide Communication

Wordwide Communication provides a safe and fun environment for children to learn and explore.



An object can become a tool for communication between children and adults. The more creativity and visual information it offers the greater the potential for successful verbal and nonverbal communication.

# REMEYS

## Calming Kids with Communication

REMEYS are designed to help children communicate their needs and feelings during medical procedures. They are designed to be used by children and their caregivers to help them understand and manage their pain and anxiety.

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Encourages doctors to include children in the process, and give them a sense of responsibility and control in their recovery.

Allows kids to write notes and reminders to bring a specific REMEY to a procedure.



Gives children control and a chance to participate in the list and enter involved in pain management.

Lets doctors assess a child's pain by understanding what is and is not working.



Empowers parents by preparing them with suggestions, and conversations to offer their child.

Child feels safe under the security of a calm and controlled parent.



Medical staff can casually explain procedures and take through problems without instilling a sense of worry.

Child can express their fears, and keep entertained through play.

**Snax**

Bub-bub-bub sometimes I'm loud  
but what can I say I'm purple and I'm proud!  
I'm here just for fun or to help you to relax  
allow me to introduce myself my name is Snax!



**Gurggle**

Hanging with Gurggles is a real treat!  
He can ease pain with his special massaging feet!  
So, if you're feeling achy or your back is sore  
This four legged friend is the one to call for!



**Rambles**

Rambles can chatter on and on,  
his friends say he's very silly.  
He is always good for a bump or a bruise,  
because he gets very chilly!  
But do you know why kids love rambles?  
It's not because of his icy glisten,  
It's because as much as rambles likes to talk,  
he also likes to listen.



**Chester McFearson**

It doesn't matter if you're young or old  
Chesey is always looking for a hand to hold.  
He may be the smallest,  
but he's the mightiest of the crew,  
so hold him tight,  
if you're scared or if you're blue [...or green!]



**Kettles**

Sometimes when your tummy aches  
a little heat is all it takes  
Kettles soothes your aches and pains  
when it's sunny and especially when it rains...  
And wait! He's a jokester too!  
Knock knock  
Whose there?  
Orange  
Orange who?  
Orange you glad Kettles is part of the crew!





