

..... Everything Matters In

Patient Care

*Integrating
Alternative
Practices into
our Care*



At Nationwide Children's Hospital, our health care approach includes complementary and integrative practices, like aromatherapy, to provide Best Outcomes for patients.



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Pictured left: Aromatherapy is just one of the techniques used at Nationwide Children's to help patients heal.

Complementary and Alternative Therapies in Pediatrics



Linda Stoverock
DNP, RN, NEA-BC,
Senior Vice President,
Patient Care Services,
Chief Nursing Officer

Complementary and integrative health approaches (CIH)
.....
A group of typically non-mainstream therapies usually used in conjunction with traditional therapies.

In this issue of *Everything Matters In Patient Care*, several articles will speak to the use of complementary and integrative health approaches (CIH) at Nationwide Children’s Hospital. CIH has an increasing presence in pediatric practice in North America. Perhaps it is the availability of information to families through the World Wide Web or perhaps it is our melting pot of many cultures that use alternative therapies that is driving the increase. One only needs to search PubMed to find a wide range of literature both supportive and non-supportive for CIH.

What exactly is CIH? CIH refers to a group of typically non-mainstream therapies usually used in conjunction with traditional therapies. The term has evolved over the years. It once was referred to (and still can be in some literature) as Complementary and Alternative Medicine (CAM). Ng, Boon, Thompson and Whitehead (2016) published a study investigating the discourse in terms and meanings of CAM. Authors defined CAM as “integrated/integration of medicine by what it is, such as combining both conventional and unconventional therapies or accounting for the whole person.” The National Institutes of Health, which has a special center dedicated to research and evidence around these

Complementary and alternative medicine (CAM)
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Integrated/integration of medicine by what it is such as combining both conventional and unconventional therapies or accounting for the whole person.

therapies, refers to it as complementary and integrative health because these therapies are usually used in conjunction with more conventional approaches in a coordinated way. The word “alternative” refers to non-mainstream or unconventional therapies used in place of conventional approaches. CIH can pertain to use of herbal treatments, massage, acupuncture, animal therapy and more. There are many studies examining the benefits of these therapies in children with asthma, cystic fibrosis, autism spectrum disorders and cancer. There is no shortage of evidence to assist practitioners in their practice.

As patients and families find information on the internet for various types of CIH, it is important for nurses and other clinicians to know what is published, understand their own unconscious bias about the benefits of these therapies, and be able to take a thorough history on what therapies or over-the-counter herbs and vitamins a patient may be receiving. It is important to evaluate the evidence to help the patient and family understand the quality of the information they are using to make their decisions.

I hope your curiosity will be piqued by this issue of *Everything Matters In Patient Care* and you will begin exploring more literature that can help you be informed for assessment and educating your patients and families on CIH.

The Role of Complementary and Alternative Modalities in the Management of Pain in the Pediatric Population

Kathleen L. Lemanek, Ph.D, Professor of Pediatrics, Department of Pediatric Psychology and Neuropsychology
Andy Lee, RN CA Lac Dipl.Ac (NCCAOM), Licensed and Certified Acupuncturist, Certified Aromatherapist, Comprehensive Pain Services





Complementary and alternative medicine (CAM) encompasses a diverse range of products and practices that are used together with conventional medicine (complementary) or used in place of conventional medicine (alternative).

12% OF CHILDREN ages 4-17 in the U.S. use complementary and alternative medicine

CAM consists of five categories that are varied in terms of implementation by trained practitioners and the amount of empirical evidence supporting their use: (1) natural products, such as herbs, vitamins and minerals, and probiotics, (2) body-based methods, such as massage therapy, chiropractic and osteopathic manipulations, (3) energy therapies, such as therapeutic touch and reiki, (4) alternative medical systems, such as acupuncture and homeopathic medicine, and (5) mind-body interventions, such as relaxation strategies, visual imagery and hypnosis.

Among children in the United States, CAM use is common, with 12 percent of all children ages 4 to 17 identified as using CAM in a cross-sectional, nationally representative survey. The prevalence of CAM use is higher among children with chronic, recurrent or incurable health

5 Categories of Complementary and Alternative Medicine:

1. Natural products, such as herbs, vitamins and minerals, and probiotics
2. Body-based methods, such as massage therapy, chiropractic and osteopathic manipulations
3. Energy therapies, such as therapeutic touch and reiki
4. Alternative medical systems, such as acupuncture and homeopathic medicine
5. Mind-body interventions, such as relaxation strategies, visual imagery and hypnosis

conditions. CAM use is more prevalent among older children, children of parents with higher socioeconomic status and children whose parents use CAM or worry about the risks of conventional medicines.

At Nationwide Children’s Hospital, Pain Services offers an approach to health care where conventional and complementary interventions are provided in a coordinated manner to both inpatients and outpatients. Such services are offered within the Comprehensive Pain Management Clinic by a multidisciplinary team consisting of a medical provider, a psychologist, a physical therapist, a massage therapist or acupuncturist and a social worker. A range of mind-body interventions and techniques are taught to patients and families by the psychologist in the clinic. Mind-body interventions are the most familiar and mainstream CAM approach. These interventions are designed to help the mind gain greater control over the body’s functioning to impact health. Data from the national survey indicates about 3.7 percent of children in the United States used mind-body approaches. One specific intervention used in the clinic is hypnosis.

Hypnosis is defined as “a spontaneously occurring or induced alternative state of awareness (with or without relaxation) in which an individual develops a focused concentration on some idea or image with the expressed purpose of maximizing potential, creating a change, and/or reducing or resolving some problem.” Daydreaming, playing make-believe and “being in the zone” during sports are forms of hypnosis. Aspects of hypnosis may be considered similar to relaxation and guided imagery exercises. The key difference is in hypnosis, certain suggestions are given while an individual is in a state or trance. These suggestions are given to achieve a goal, such as fostering confidence or enhancing competence, or reducing pain or anxiety. Hypnosis is considered a tool to improve

Hypnosis

A spontaneously occurring or induced alternative state of awareness (with or without relaxation) in which an individual develops a focused concentration on some idea or image with the expressed purpose of maximizing potential, creating a change, and/or reducing or resolving some problem.

self-regulation skills and can result in greater benefits if practiced. Initially these skills are taught by a trained professional, but subsequent sessions are directed toward teaching self-hypnosis.

The clinical use of hypnosis and research examining its use has grown considerably over the past 30 years. Case studies, observational studies, clinical trials and, more recently, neuroimaging studies have been reported in the literature. These studies in children and adolescents have included such diverse clinical applications as habit disorders (e.g., habit cough, hair-pulling), mental health problems (e.g., anxiety, anger), acute, chronic and recurrent pain related to injury, illness and medical procedures (e.g., headaches, abdominal pain, chemotherapy, surgery), sleep disorders, and coping related to chronic medical conditions. Results from these studies suggest hypnosis offers promise in achieving stated goals within individual reports.

Another treatment approach offered in the Comprehensive Pain Management Clinic and, to a lesser degree, within medical units at Nationwide Children’s is acupuncture. Acupuncture has been around for thousands of years but only practiced in the United States since the 1970s. It is reported that James Reston, a New York Times reporter,

Results from these studies suggest hypnosis offers promise in achieving stated goals within individual reports.

Hair fine needles are placed into the skin at areas that are reservoirs of life force energy, called Qi, or Chi. This body energy runs along channels called meridians.

suffered a ruptured appendix while in China during the Nixon era. Reference is made in an article written by Reston about a Professor Chen Hsien-Jiu, who studied the effects of post-operative constipation along with barium observed via fluoroscopy. Professor Chen Hsien-Jiu described the manipulation of an acupuncture needle produced movement and relief in the intestine. The Chinese have a character for acupuncture that is inclusive of the insertion of needles, but this character of acupuncture is also a collective that includes nutrition, herbs, acupressure with specific reference to a type of acupressure called tuina and other methods of Traditional Chinese Medicine (TCM).

Acupuncture generally involves the insertion of hair fine needles. The average sizes used at Nationwide Children's are 34, 36 and

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40 gauge closed bore. They are placed into the skin at areas that are reservoirs of life force energy, called Qi, or Chi. This body energy runs along channels called meridians. There are techniques to insertions, depths and manipulations are done to balance Qi. These techniques are decided by the acupuncturist, who after doing an assessment on the patient, finds a root cause for the patient's ailment. Basically stated, acupuncture seeks to put the body back into balance, and when the body is in balance, there is less or no pain. If it is something

The case description presented below is a fictional account of one patient along with his or her health history to describe the benefits of acupuncture:

W.Z. is your average teenager. Active in school extracurricular activities, has many friends and achieves good grades. But, pain began in W.'s abdomen and spread to joints, along with headaches and fatigue. Weight loss ensued and skin irritations occurred. Sleep patterns became disrupted. Going to school became an extreme effort and high levels of pain became W.'s life. After traversing many tests and medications without any relief, W.Z. became a patient in the Nationwide Children's Pain Clinic. On the table for acupuncture, W.Z.'s pain level decreased from eight out of 10 to zero for the first time in more than 11 months. The parents cried and the patient smiled; the kind of smile that carries a light, where the face shines brighter and the eyes have a glint to them. This occurrence is common in the world of acupuncture. There are some things acupuncture can't change. However, acupuncture is becoming a more helpful option to add to other therapies and to add to traditional medicine.



Non-invasive acupuncture approaches are also offered in the Comprehensive Pain Management Clinic. These approaches include a Korean technique known as Korean Hand Technique. There are no needles used in this method but metallic pellets taped onto the hand. Another noninvasive therapy is auriculotherapy or ear seeds. There is a microsystem on the ear and the hand that offers a stimulus or current, which again seeks to balance the body. Moxibustion, aromatherapy and cupping therapy are also employed in the Pain Clinic.

Korean Hand Technique:

Non-invasive acupuncture approach that uses metallic pellets taped onto the hand

Auriculotherapy:

Non-invasive acupuncture approach that uses ear seeds

other than pain that is trying to be resolved, such as stress or anxiety, calmness may follow once the body is in balance. Once a treatment has begun, the patient usually feels heaviness in his or her body and relaxation sets in, with patients often falling asleep. It's like an internal massage on some level. Acupuncture may be administered to patients of all ages, from toddlers to adults. However, the needles for younger patients are usually inserted with an "in and then out" technique since their Qi, just like most everything else about them, moves very quickly.

There have been studies evaluating the effects of acupuncture that suggest the inclusion into conventional medicine. For example, short-term and long-term benefits of acupuncture have been found for patients experiencing migraines or allergic rhinitis, as well as improved symptoms of fatigue, memory and digestion.

Systematic reviews of CAM suggest the need for randomized controlled trials to account for heterogeneity of patients, presenting symptoms and methodology. CAM appears to be increasingly included in routine health care practices, but contraindications need to be considered, along with coordinated care and standards of care.



Using Aromatherapy to Improve Well-Being

Margaret McGrath, LMT, Certified Clinical Aromatherapist
Deborah Zerkle, LMT, Certified Aromatherapist

Our sense of smell can enrich our lives and create a basis of how we feel and react to the world around us. Did you start your day smelling coffee brewing? What about your shampoo, toothpaste or hairspray? Your child’s hair when you gave them a hug goodbye as they left for school?

The use of aromas as a therapy (aromatherapy) is not a new concept, but its use is expanding quickly into our communities and hospitals. At Nationwide Children’s Hospital, under the direction of Paola Genovese, MD, we are able to offer aromatherapy for our patients. Aromatherapy is defined as the use of essential oils from plants as therapy to improve physical, emotional and spiritual well-being. For example, orange oil may be used for elevating mood and refreshing the room. Other uses for aromatherapy include relaxation, assistance with sleep and improved digestion.

Specific essential oils were chosen for their historical and scientific use based on the active ingredient in the oil. The active ingredient can determine which essential oil is appropriate for a given situation, considering the patient’s age and diagnosis. Research on using essential oils for pain, anxiety and nausea is becoming more common. One study showed statistically significant reduction in daily use of pain medication post-tonsillectomy in children 6 to 12 years of age when these patients inhaled lavender essential oil on their own hands before surgery.

Aromatherapy has been used on a limited basis for several years with oncology patients to assist with anxiety, sleep problems and symptoms of nausea. “The lavender helps me relax and takes away the hospital smell,” reported a 17-year-old patient receiving a bone marrow transplant. “Peppermint helps me with the nausea caused by pain medication and line flushes,” explained a 19-year-old patient with Sickle Cell Disease admitted for a pain crisis. The essential oils used and mode of delivery are always tailored to each patient’s needs. The child is allowed to pick from eight essential oils and one blend of oils before making their choice. The oil is delivered

“Peppermint helps me with the nausea caused by pain medication and line flushes.”

through diffusion into their room, a lidded cup or in their massage therapy lotion.

The use of aromatherapy is expanding throughout Nationwide Children’s Hospital. Aromatherapy has also been used in the Pain Clinic, which is a multi-disciplinary medical and integrative setting. The psychologist uses scents for anxiety reduction, calming and centering. Acupuncturists and massage therapists use essential oils to help address chronic pain.

Nurses that complete basic aromatherapy training will be able to initiate the use of oils and follow the effects with documentation in Epic. The policy for aromatherapy is available on ANCHOR along with the Helping Hand™ and lists of indications and contraindications for use. Education for parents and families interested in using essential oils in the hospital and at home is an important part of the Aromatherapy program. The education includes benefits, uses, safety guidelines, physician and pharmacy approval and effects.



Comfort Holds

Julia Covert, RN, MSN, H8B PICU Program Manager
Terri Smith, MBA, Director of Dental Services

Medical procedures can be a frightening time for children. Children often exhibit fear, anxiety and the inability to sit still during a procedure, whether it is a lab draw, dressing (or wound) changes or obtaining vitals. Comfort holds are a best practice technique used to ease or comfort children and parents during such procedures. The comfort holds can be utilized during a number of procedures, tests and/or therapy treatments. These techniques are easy to use, minimize movement during a procedure and allow the child to be in an upright and secure position.

As a part of the hospital’s Zero Hero campaign, we strive to eliminate employee injuries that occur due to improper holding methods or lack of holding during patient care. The incidents of needlesticks tend to happen during and right after procedures, which means the majority of the time the needle has been contaminated with the patient’s blood. In addition, many of the sticks occur in ambulatory settings where there is limited availability of staff to assist. The staff relies on the parent to help hold the child during the procedure. A need was identified to educate and implement the use of comfort holds so providers and parents can work together as a team to provide safe care for patients while also maintaining a safe environment for the staff.

A team was developed to benchmark resources across the country and develop new standardized guidelines. This team involved departments such as Child Life, Laboratory, Emergency Department, Primary Care, Dental, Inpatient Services, Professional Education and

Behavioral Health. The team reviewed articles, research and other hospitals’ practices. As a result, five methods of holding patients were identified as best practice standards.

While the comfort holds themselves are very important, there are additional attributes that are keys to their success. By having the parent or caregiver assist, these holds provide comfort to the child while keeping them still to prevent injury to the employee or the child from unexpected movements. In addition, the team recommends using distraction techniques suitable for different ages of patients. Lastly it is important to stress that the parent or caregiver does not release the hold until the provider has safely put the needle away.

The comfort holds are being rolled out to all departments within the hospital and resources to assist our providers. This initiative started last September, and was timely, since this year the flu immunizations were only given as injections. The team continues to provide support and is currently working on an online learning module for all staff. There has been a 19 percent decrease in needlestick incidents associated with holds between 2015 and 2016; however, there is still more work to be done.

Resources are available for comfort holds:

Helping Hands™ #HH-II-230 is available by searching COMFORT HOLD TECHNIQUES on ANCHOR and by visiting [NationwideChildrens.org/Helping-Hands](https://www.nationwidechildrens.org/helping-hands)

Comfort holds video on the Nationwide Children’s YouTube channel: <https://youtu.be/Y1xHf3Flg-w>



The Biosimilar Boom

Kelly Wise, PharmD, Advance Patient Care Pharmacist

The development of targeted biologic therapy has become one of the greatest accomplishments of modern medicine. It has led to dramatic improvements in how we care for patients with inflammatory conditions such as Crohn’s disease and rheumatoid arthritis. Unfortunately, the manufacturing process for biologics is extremely complex, which leads to high costs for these products. The U.S. expenditure on biologics was expected to hit \$210 billion in 2016. The financial burden of biologics is a considerable concern that causes lack of access to effective treatment worldwide.

THE U.S. EXPENDITURE ON BIOLOGICS WAS EXPECTED TO HIT \$210 BILLION IN 2016.

In the U.S., many biologics are at the end of their patents, opening the door for manufacturers to investigate the development of “biosimilars.” The World Health Organization has defined a biosimilar as a “bio-therapeutic product that are similar in terms of quality, safety and efficacy to an already licensed bio-therapeutic product.” Generic small molecule products can be replicated to be identical to the reference product. In contrast, biologics are complex products made from living systems so it is impossible to develop a product entirely identical to the reference product.

BIOSIMILARS
Bio-therapeutic product that are similar in terms of quality, safety, and efficacy to an already licensed bio-therapeutic product.

In general, biosimilars are 15 to 30 percent less expensive than respective reference products. One factor that supports lower costs of the products is an abbreviate approval pathway by the FDA. Compared to the reference product, a biosimilar must have the same mechanism of action, route of administration, strength of medication and dosage form. The 351(k)

abbreviated pathway focuses on structural and functional characterization, pharmacokinetics, pharmacodynamics and clinical immunogenicity. Once non-inferiority is established in one or two disease states, the FDA approval is extrapolated to all disease states that the reference product is approved for. Biosimilar products

BIOSIMILARS ARE 15-30% LESS EXPENSIVE THAN RESPECTIVE REFERENCE PRODUCTS.

have a four-letter suffix added to the medication name (i.e. infliximab-dyyb). This suffix was created to indicate there is no inferiority between the brand name and generic medication.

Inflixtra® (infliximab-dyyb), released in late 2016, is one of the first biosimilars released on the market in the United States. It was studied in patients with rheumatoid arthritis and ankylosing spondylitis, and its approval was extrapolated to use in ulcerative colitis, Crohn’s disease and psoriatic arthritis. Nationwide Children’s Hospital has approved the use of Inflectra® for all rheumatologic conditions, pediatric Crohn’s Disease and adult ulcerative colitis. Amjevita® (adalimumab-atto) and Erelzi (etanercept-szss) are other monoclonal antibodies that have been approved by the FDA, but are waiting to come to the market. Zarxio (filgrastim-sndz) was the first blood product to be approved by the FDA in 2015. Biosimilars for peg-filgrastim and epoetin are expected to launch in 2017. Therefore, we can anticipate a large impact of biosimilars over the next several years.

It is important to be cautious when prescribing and administering biologics and biosimilars to ensure the correct medication is utilized for each patient. In order to prevent administration errors, it is best to practice the Five Rights of administration (right patient, right route, right dose, right timing and right medication.) The integration of biosimilars at Nationwide Children’s can improve access to live-changing medication, and we are excited to see the impact biosimilars have on providing best outcomes to our patients.

An Introduction to Reiki Therapy

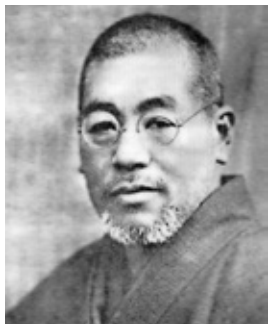
Julie Kusiak, MA, CEIM, C-AIYT, Clinical Services, Care Coordination, Family Resource Center





Reiki Therapy

A complementary health approach in which practitioners place their hands lightly on or just above a person, with the goal of facilitating the person's own healing response.



Reiki therapy is a complementary therapy that can be integrated into traditional health care. The National Center for Complementary and Integrative Health (NCCIH) at the National Institutes of Health defines reiki therapy as “a complementary health approach in which practitioners place their hands lightly on or just above a person, with the goal of facilitating the person’s own healing response.”

Reiki therapy has origins in the Eastern medicine model, which often addresses health issues via the subtle energies of the body and mind. Mikao Usui, having studied the Sanskrit Sutras, is credited with rediscovering the system he named reiki in Japan during the 1920s; however, the roots of reiki may reach back over 2,500 years to the time when these ancient texts were written. The age-old practice of “prana vidya,” the science and study of energy from the yogic tradition, shows similarities with reiki.

Modern science is trying to understand the underlying mechanisms of action of reiki therapy. One hypothesized mechanism, direct from Eastern thought, is energy is present and instrumental in all bodily

processes. Examples of this energy are the electrical frequencies of the brain and heart, as represented by the various brain and heart waves and the energetic influence of hormones on our health, such as low or high levels of thyroid or adrenaline. Each breath that is taken — on average 17,000 per day — is an energetic exchange of chemicals between the body and the surrounding environment. Reiki is also based on the principle that the human body has an innate capacity to heal, and that this process of healing is internally-guided. The physiological drive to maintain homeostasis exemplifies this.

A second underlying mechanism is reiki therapy works through the parasympathetic nervous system. Several studies show reiki therapy reduces pain, anxiety and stress, which is consistent with parasympathetic

Reiki is also based on the principle that the human body has an innate capacity to heal, and that this process of healing is internally-guided.

effects. In addition, the standard reiki therapy treatment protocol involves the practitioner placing their hand near or over the various endocrine glands and nerve plexus locations. It is hypothesized these specific hand placements may help activate the body’s own internal bio-regulation efforts. Studies examining the effects on the autonomic nervous system, such as heart rate variability with reiki therapy intervention, appear to support this potential mechanism of action.

Clinical application of reiki therapy is quite comfortable for the client as it is a non-invasive practice. Reiki is applied with a light touch or with the practitioner’s hands placed slightly off the body. The person being treated remains fully clothed, resting supine (massage table or hospital bed) or seated upright (in a chair.) The direction of treatment typically moves from the head down to the feet. A complete treatment for an adult tends to be about 60 minutes in length. Sessions for young children or for those who are very ill may only last 20 to 30 minutes. The standard reiki therapy protocol includes four hand positions on the head and five on the torso, with connections out to hands and feet. There are also four additional positions for the back of the body. With the increasing development and use of programmable medical implants, it is important the reiki practitioner be informed of the location of any implanted device. In this way, they can be mindful not to encircle their hands surrounding the implanted device. This simply allows the implanted device to maintain its prescribed function. No negative side effects have been reported in research studies on reiki therapy; hence, it is considered to be a low-risk intervention.

Reiki therapy is an effective non-pharmacologic treatment for pain. Several studies document the reduction of the pain in patients. Two recent studies examining the effects of reiki therapy found significant reductions in pain post-surgery. In one of

these studies the reiki group required fewer analgesics at longer intervals compared to the control group. The pain management outcome post knee replacement was so beneficial that the participating hospital trained ten nurses in reiki therapy as a result. Yet, more research is needed about reiki. To date, most of the research involving reiki as a therapeutic intervention focuses on adults. This research has focused on reducing symptoms experienced in the clinical areas of oncology, medical-surgical and psychology. Reiki therapy is beneficial in mitigating cancer treatment side effects, helping patients feel less anxious and more relaxed during chemotherapy infusion, and reducing surgical pain. Reiki therapy is also beneficial for stress management. Few studies have addressed pediatric populations; indicating more research is needed with this group.

Reiki therapy is beneficial in mitigating cancer treatment side effects, helping patients feel less anxious and more relaxed during chemotherapy infusion, reducing surgical pain and for stress management.

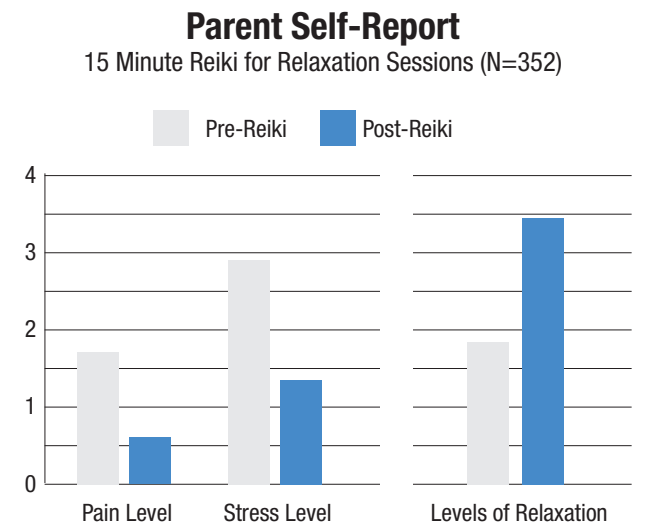




With the current evidence-basis reiki therapy is becoming a standardized treatment in several hospitals around the country, despite the need for more research to further document the clinical benefits of reiki. In a 2007 survey by the American Hospital Association, 800 hospitals in the United States reported offering reiki therapy, including the Mayo Clinic, Cleveland Clinic and the MD Anderson Cancer Center and pediatric facilities such as Boston Children’s, Cincinnati Children’s and Cleveland Clinic Children’s Hospital. The U.S. Army has incorporated reiki therapy as a component of their highly successful Warriors Re-Set Program, which is an intensive 11-week program for veterans who are struggling with severe PTSD.

Nationwide Children's Hospital offers reiki therapy in a limited capacity. Over the past few years, the Family Resource Center has piloted a small “Reiki for Relaxation” program for parents and caregivers of patients. For a window of time each week, parents can schedule mini 15-minute chair reiki therapy sessions. Most of the parents who have scheduled these sessions are new to reiki and have not heard about it before. The feedback from these parents has been very positive.

Parents often find both pain and stress relief after treatments. The graph below shows the parents’ ratings of their levels of pain, stress and relaxation before and after their reiki therapy experience. More research is planned at Nationwide Children’s Hospital to study the feasibility of offering reiki therapy and its potential benefits to patients.



Reiki therapy is a non-invasive treatment used to reduce pain, anxiety and other symptoms in patients and their families. Reiki is an old treatment with some very new evidence supporting its use alongside Western mainstream therapies.

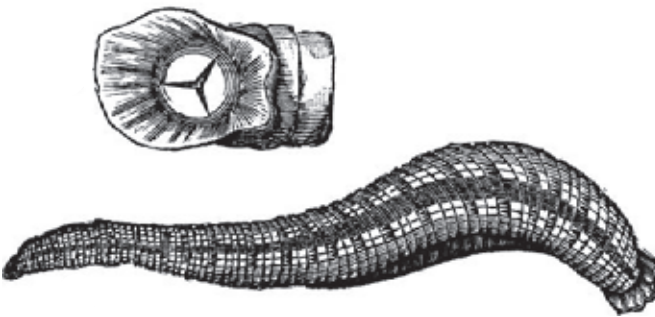
At this time, reiki therapy is available only for parents or caregivers who have a child in the hospital. To schedule a 15-minute “Reiki for Relaxation” session, please contact the Family Resource Center at (614) 722-2252. These sessions are available on Wednesdays and Thursdays. You can also call this number if you have questions or would like to learn more about reiki therapy.

FOR MORE INFORMATION
please call the Family Resource Center (614) 722-2252

Leeches: They Want to Suck Your Blood

Michelle Robosky, Pharm.D., PGY-2 Pediatric Pharmacy Resident
Karla Johnson RN, MSN, Program Manager H2B PICU

What exactly is Leech Therapy? When you first hear about this type of treatment or see a leech, the first response is to say, “They look disgusting. Why would this be used in modern medicine?” This is a great question and a normal response since the use of leeches dates back to thousands of years ago. The use of leeches as a medical treatment was approved by the Food Drug Administration (FDA) in July 2004. Leeches are used today to help promote venous blood flow to damaged tissues, for certain types of surgeries such as muscle flaps for grafting and other microsurgeries.



Leech saliva contains both anticoagulant and vasodilator properties due to a substance called hirudin. Their unique saliva helps prevents clotting and allows for increased blood flow and circulation. The goal is to produce enough blood flow from the tissue by adjusting the number of leeches applied. Leeches secrete an anesthetic when they are feeding which is why the patient cannot feel the leeches.

The size of the area to be treated determines the number of leeches that need to be applied. Typically, one to ten leeches are applied to the treatment area two or more times a day. The leeches usually feed for 30 to 90 minutes. Leeches will only attach to the area until they are full which is approximately five to 15 milliliters of blood. Gauze dressings are applied around the treatment area so when the leeches are full and detach themselves, they will be collected in the gauze. Leech therapy is usually required for three to seven days, until new vessel growth develops sufficiently. Some cases may take longer so treatment needs to be continued to avoid failure. Leech

therapy should be continued as long as signs of venous insufficiency persist between leech applications. The treatment area is evaluated for color and capillary refill. A Doppler is used as a monitor in some cases.

While leeches are very helpful, they can also harbor bacteria, most commonly a specific bacterium called *Aeromonas hydrophila*, so there is a risk of infection. Antibiotic prophylaxis starts prior to applying the first leech and continues for 24 hours after leech therapy is discontinued. Antibiotic options include cephalosporins (second, third and fourth generation), aminoglycosides, sulfamethoxazole/trimethoprim and ciprofloxacin. A pharmacist can help choose the best agent for the patient.

The two most important things to avoid are heat and chlorinated tap water. As soon as the leeches are delivered to the pharmacy, they are placed in a leech mobile home, commonly called the “Leech House,” filled with distilled, non-chlorinated water. The water is changed in the “Leech House” every 48 hours. Two grams of a salt mixture provided by the leech company are added to each gallon of water. Leeches like to be kept cool, between 42 to 45°F.

Leeches are ordered from Leeches USA through pharmacy. Orders are shipped the same day or by overnight delivery with a seven leech minimum order.

Fun Leech Facts

- Leeches can eat up to five times their own weight in blood
- When a leech is full, they detach from the skin
- More than 650 species of leeches have been identified
- The longest recorded leech measured sixteen inches long

Organic Tube Feeding Formulas Made From Whole Foods

Jessica Nieves, MS, RD, LD, CLC, Clinical Dietitian, Clinical Nutrition and Lactation

Enteral nutrition provides nutrients to patients when they are either unable to eat by mouth or unable to meet their body’s needs through oral feeds. A feeding tube can be placed into the stomach using a gastrostomy tube or into the small intestine using a jejunostomy tube to provide nutrition. There are various formulas available for patients who require enteral nutrition or tube feeding services while inpatient or at home. The multitude of formula choices available have recently expanded to include a newer type of formula which uses whole foods from organic ingredients.

Liquid Hope® was first introduced as an adult tube feeding formula that uses real and organic food ingredients. Liquid Hope formula is unique because it is made from plant-based protein sources with organic ingredients. Nourish™ was introduced after Liquid Hope as a pediatric tube feeding formula for sole source and supplemental nutrition. Per manufacturer recommendations, Nourish pediatric formulas are suitable for 4- to 8-year-old patients and are not suitable for infants under 12 months of age. Patients are recommended to work with a pediatrician or dietitian when determining nutritional adequacy for individuals, especially if the patient is transitioning from another formula.

When compared to standard tube feeding formulas, Liquid Hope and Nourish are different due to the ingredients used to provide protein, fat, carbohydrate and fiber sources. Most standard tube feeding formulas

are either milk-based, hydrolyzed protein or soy-based protein. Liquid Hope and Nourish are dairy-free and soy-free. They have organic plant protein sources which come from whole grain brown rice, green peas, garbanzo beans and quinoa ingredients. Liquid Hope has fats sourced from organic flax seed oil and organic almond butter. Nourish has fats sourced from organic extra virgin olive oil and organic flax oil. Fiber source in these formulas come from organic ingredients like garbanzo beans, green peas, carrots, sweet potatoes and kale. A standard tube feeding formula may have carbohydrates derived from corn and fiber derived from soy-based products. Liquid Hope and Nourish do not contain added sugar in the formulas but do include natural sugars from the vegetables and whole grain ingredients. Other standard formulas may contain added sugar.

Liquid Hope and Nourish are safe to use for both gastrostomy and jejunostomy feedings. To ensure a patient’s specific nutrition needs are adequately monitored and met, consult with a dietitian or pediatrician prior to starting or changing a formula. Due to the ingredients used to make Liquid Hope and Nourish formulas, they are much thicker than traditional formulas and have a nectar-like consistency at room temperature. There are minimum feeding tube size requirements for these formulas. For Liquid Hope, the tube size should be at least 8 French. For Nourish, the tube size should be at least 6 French. For jejunostomy feedings, a feeding pump can be safely used to administer formula as the hang time for Nourish and Liquid Hope



is 12 hours per the manufacturer. For bolus or gravity bolus feeds, these can be safely done via syringe or using a pump. Per manufacturer recommendations, once the product is open, it can be safely stored in a sealed container for 48 hours in the refrigerator. The product will thicken once refrigerated and should be brought up to room temperature using a warm water bath before use. Due to increased interest and use of these products, Nationwide Children's Hospital has added Liquid Hope and Nourish formulas to the inpatient formulary for

use while patients are admitted in the hospital. These formulas are a great option for tube-fed individuals seeking a whole foods-based organic formula. These formulas can also be used for patients who have multiple food allergies, since the formulas are gluten-free, dairy-free, soy-free and corn-free. These formulas have an assigned billing code with insurance coverage through Medicaid and some private insurance companies. Consult with a homecare company to determine coverage or contact the manufacturer, Functional Formularies.



Gluten-Free



Dairy-Free



Soy-Free



Corn-Free

Family Requests for Complementary and Alternative Treatments: An Ethical Analysis

Garey Noritz, MD, FAAP, FACP, Division and Section Chief, Complex Health Care Program, Medical Director, Cerebral Palsy Program, Associate Professor, The Ohio State University

Complementary and alternative medicine (CAM) may be difficult to characterize, as the definition shifts with each person’s training, experience, culture and belief system. CAM is especially popular in conditions for which there is no cure. While many CAM modalities do not pose ethical dilemmas for medical providers (e.g., aromatherapy combined with standard care), others can create significant ethical challenges.

The scientific practice of medicine demands an evidence base and the experience of a trained clinician who understands the importance of the scientific method in evaluating interventions. In general, reports of success in mainstream medicine describe incremental improvements with a measured review of side effects, while CAM testimonials are notable for their glowing reviews and lack of harm. It is easy to see why families are drawn to CAM.

In guiding the family, the clinician should make an objective assessment of potential harm. Most CAM

modalities are not known to cause any bodily harm, though “harm” may be defined in other ways. The patient may have a loss of benefit from standard treatments if they are foregone. Interventions that are expensive or involve large time commitments will interfere with other activities such as play, socialization and academics.

The possibility of benefit should be considered. Some CAM treatments will eventually find their way into the mainstream armamentarium, such as has happened with the ketogenic diet for seizures or melatonin for insomnia. Like any other information data on CAM needs to be reevaluated over time.

If the clinician does not feel a CAM therapy is likely to be beneficial, they should advise against it. If the clinician feels the proposed treatment is dangerous, a report to children’s services might be warranted, and mandatory reporter laws would protect the clinician.



Suggested Principles:



Be open minded.

The clinician should put aside prejudices for or against the treatment and attempt to make a judgment based on best available facts. As medical evidence changes over time, the clinician should approach each situation with a commitment to try to understand the patient’s point of view in light of the best available evidence.



Be non-judgemental.

The clinician must assess the family, but not judge them. They should not judge the use of resources or a family interaction based on how they would act in similar situations, but rather on what is best for this family and child.



Understand the unspoken agenda.

The request for CAM can be taken as a sign of frustration with the current limitations of medical science. In this era of patient empowerment and the democratization of information via the Internet, families may view CAM as a liberating factor.

When families request advice and support related to CAM methods, the clinician must be objective and open-minded, but fulfill their ethical obligations. Requests for CAM are rooted in the reality that evidence-based treatments for many childhood illnesses are limited. Even in cases of disagreement, the clinician should seek to maintain a trusting relationship for the sake of the patient.

Helping Heal Through Art Making: Art Therapy

Katelyn Sakulich, MS, ATR-BC, Art Therapist, Hematology/Oncology & Bone Marrow Transplant

A diagnosis of a life-threatening and chronic illness brings an abrupt and traumatic change to the routine and sense of normalcy for our patients and families. They are suddenly confronted with navigating and adjusting to the hospital environment and coping with new medical challenges, which can be frightening, overwhelming and stressful. Art therapy recognizes that in addition to the physical implications of a patient’s illness, there is also a huge emotional impact that accompanies a diagnosis and its subsequent treatment. Art therapy helps to care for the whole patient, understanding emotional healing and wellness is an important part of the treatment process.



art product. A more structured prompt or intervention may be offered by the art therapist depending on the needs of the patient or to meet a specific goal. Families are also encouraged to join in the session when able and appropriate, providing patients and families the opportunity to experience a positive and meaningful activity together.

Offering a familiar and relaxing activity such as making art can help to reduce stress and anxiety for our patients and families and promote a sense of comfort and normalization within the hospital environment. Helping patients feel pride and find satisfaction and meaning in their artwork can help to promote positive self-esteem and confidence.

Memory making and legacy building is a part of the art therapist’s work with patients. Creating artwork throughout their treatment journey provides patients an avenue to record and share their story and to reflect upon their experiences. Our terminal patients can leave behind a lasting legacy through their artwork, something tangible the family can hold onto.

Chemotherapy, radiation and medical interventions help to treat the physical aspects of a patient’s illness, but there is also an emotional journey with illness that is important to acknowledge and treat. Art Therapy supports the emotional wellness of our patients, helping patients and their families find hope and help heal throughout the treatment trajectory.

Art therapy helps to care for the whole patient, understanding that emotional healing and wellness is an important part of the treatment process.

Art Therapy is one of several psychosocial, supportive services offered to patients and families on the Hematology/Oncology & Bone Marrow Transplant (BMT) unit at Nationwide Children’s Hospital. The art therapist is part of a multidisciplinary, psychosocial team that works collaboratively to provide support to patients and families throughout the treatment journey. The art therapist facilitates art therapy groups on the unit and is consulted to provide individual art therapy sessions to patients at bedside. The art therapist works closely with other team members to offer co-treat sessions for patients if appropriate.

There are a number of benefits art therapy can provide our patients and families to further support coping with medical challenges and hospitalization. Engaging in the creative process and making art can promote patient self-expression and communication. Art therapy can provide an outlet for our patients to explore and process thoughts and feelings around their illness and hospital experience. It can be difficult to find the words to express

thoughts and emotions and can be especially challenging for a child who does not yet have the verbal capacity to articulate it. This is where art can be a powerful and alternative tool in helping to express those thoughts, feelings and personal experiences that words alone might not.

The art therapist has a mobile cart stocked with a variety of materials including, but not limited, to paints, markers, crayons, pencils, air-dry clay, glitter, oil pastels and collage items. Patients are encouraged to decide what art materials they want to use. Providing the opportunity for patients to make choices about art materials, what art product to create and how they want to create it can help restore feelings of empowerment and control when so much choice and control has been taken away from them because of their illness. During an art therapy session, the art therapist provides support, assistance and encouragement to patients as they use the art materials, engage in the creative process and reflect upon the final

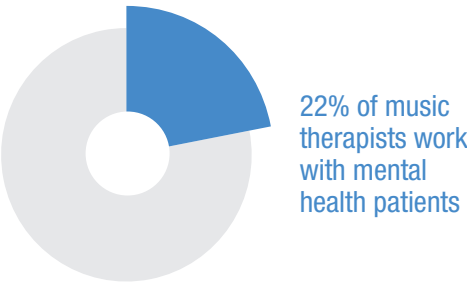
Providing the opportunity for patients to make choices about art can help restore feelings of empowerment and control when so much of that choice and control has been taken away from them because of their illness.

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WORDS ALONE MIGHT NOT.

Music Therapy and Mental Health

Jennifer Yurkovich, MS, MT-BC, Music Therapist, Family & Volunteer Services

The field of music therapy began in the 1940s with much of the earliest music therapy treatments focusing on the mental health of veterans returning from World War II. Though the field of music therapy has grown to treat many additional populations, the efficacy of music therapy within the mental health population remains strong. Music therapy interventions have been shown to decrease stress hormone levels, reduce social isolation, facilitate self-expression and greatly combat symptoms of psychosis. According to the 2016 American Music Therapy Association Workforce Analysis, 22 percent of music therapists across the country work with the mental health population in state psychiatric hospitals, medical hospitals, partial hospitalization programs and outpatient clinics. This makes mental health the largest population served by music therapists.



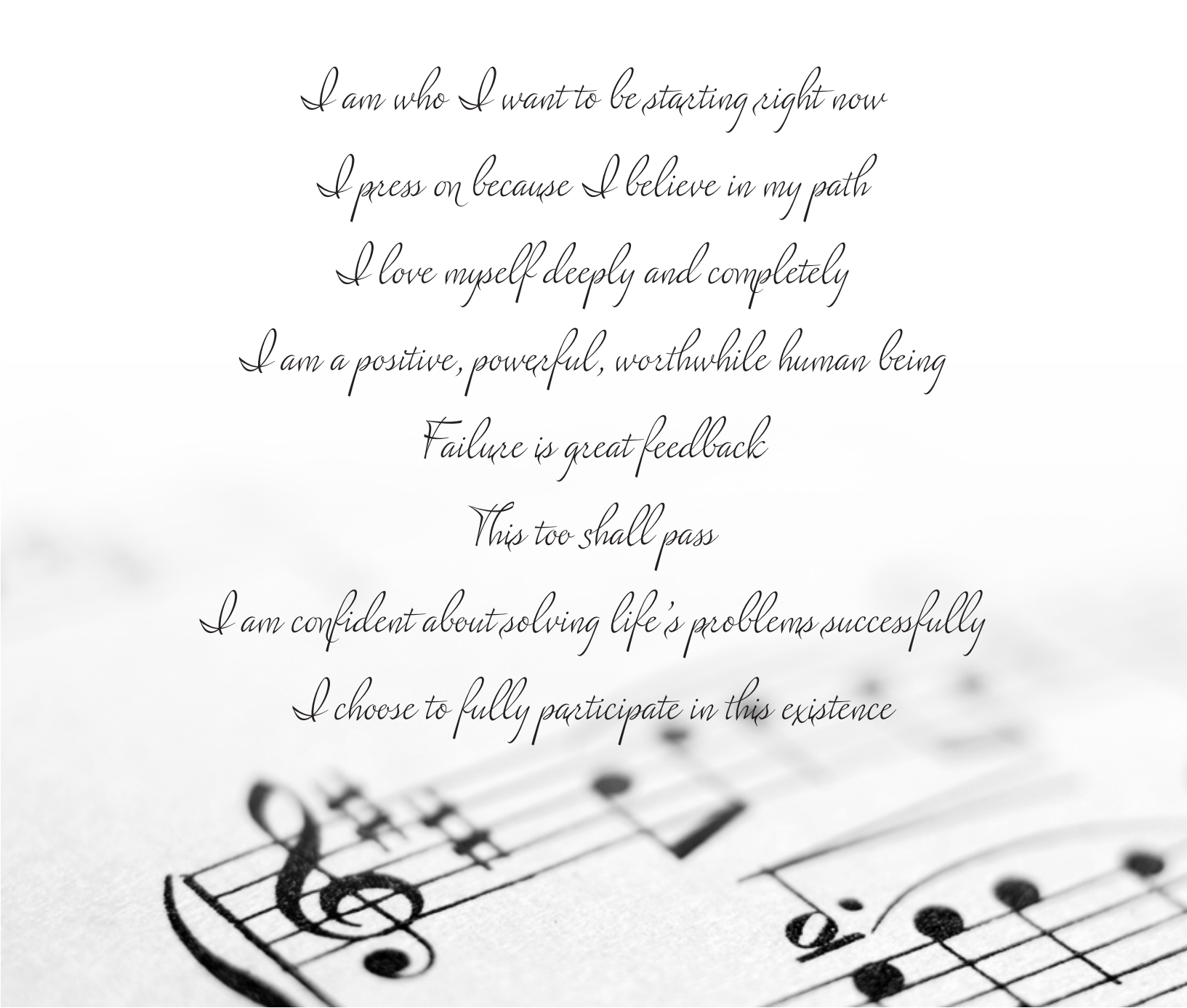
It is common to turn to music when feeling upset, angry or depressed to help boost your mood or calm you down. This helps make the correlation to understand how the clinical application of music by an educated and certified professional can be beneficial for those struggling with anxiety or depression. Many teens already use music as a coping mechanism without even realizing it. They simply know that their phone is full of music they feel connected with. It is part of who they are and how they identify themselves. In music therapy, we expand upon this existing coping strategy to make it a more successful part of the teen’s treatment. Though a teenager may independently utilize music as a diversionary tool, the therapist aids the teen in extending the use of music to be self-expressive, emotionally regulative and to gain insight. This can take the form of instrument

improvisation, songwriting, song creation, lyric analysis, instrumental instruction, song discussion or audio recording.

Music therapy interventions are created with the patient’s success in mind. We meet the patient where they are and grow their abilities from there to ensure they are not challenged to complete a task above their musical, cognitive and psychologic abilities. Although the specific diagnoses served on Nationwide Children’s Hospital behavioral health units vary, many of the challenges stem from emotional regulation. Just as music is a reflection of emotion, modulating music reflects emotional regulation. By providing a musical experience that intentionally modulates, the music therapist can lead the patient in a simulation of emotional regulation.

Music therapy interventions can increase a patient’s insight into their condition. For many, describing one’s emotions is a challenge, but seeing it portrayed in a song can make it easier. The song’s lyrics or musical elements may lead a patient to think, “That’s it! That’s how I feel. I relate to that.” Suddenly, the patient not only possesses a way to describe what they feel, but are also reminded they are not alone in their experiences. Often in music therapy, we utilize music as a platform to further discussion through an intervention called lyric analysis.

Music therapy sessions are held individually in patients’ rooms and may or may not include family members in the session. Most commonly, the patients receiving music therapy are struggling with depression and suicide ideation. In addition to lyric analysis, songwriting is another intervention commonly used with this population. Songwriting can take on many forms; however, one method used with this population focuses on positive affirmations. Patients are given a list of positive self-statements and are asked to identify statements they believe to be true about them. The patient then works with the therapist to organize these positive statements into song lyrics utilizing the patient’s preferred music genre and style. Finally, the song is recorded for the patient to keep. Though simply saying positive statements can be helpful, patients tend to believe and internalize them more when they are set to



Positive self-statements

music, ultimately creating a “fight song” that can be accessed in moments of crisis.

On the Inpatient Psychiatric Unit, music therapy services are provided in a group environment. Three different groups, organized by age, are currently provided on Saturdays. Patients are given the opportunity to participate in a variety of music experiences including instrument play, singing, conducting, songwriting and lyric analysis. Music therapy sessions are designed to enhance self-expression, self-regulation, socialization

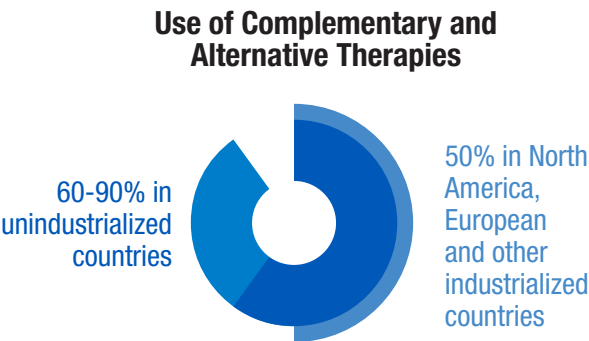
and positive mood shift. Patients and staff have reported benefits from the music therapy program and look forward to making music on Saturdays.

The music therapy team at Nationwide Children’s enjoys working with the behavioral health population and seeing patient’s responses to music therapy interventions. We are hopeful the presence of music therapy on the treatment team will continue to grow within the behavioral health populations as our hospital continues the Journey to Best Outcomes.

Complementary and Alternative Therapies: What Health Care Providers Need to Know

Jodi Mascolino, RN, BSN, CPN, Risk Manager, Department of Legal Services

The use of complementary and alternative therapies is on the rise in the United States and throughout the world. The World Health Organization (WHO) estimates that in North America, Europe and other industrialized countries, 50 percent of the population has used complementary and alternative medicine at least once. According to WHO, in other countries the use of these therapies can be as high as 60 to 90 percent, and in general there is a trend of increase usage worldwide. Complementary and alternative therapies are health practices that originate outside of mainstream western medicine.



Patients can use these types of therapies alone; however, most patients use them in conjunction with traditional western medicine. Patients use these therapies to improve their quality of life, decrease side-effects of other medications or treatment, or because the therapies are in alignment with their lifestyle and beliefs. These therapies are not without risks. The use of some herbal supplements can negatively impact the effectiveness of some medications. St. John's Wort is an herbal supplement that can decrease the effectiveness of certain transplant medications and birth control. In addition, the use of garlic, which some patients use for heart health, can decrease the effectiveness of blood thinners. With the increased use of complementary and alternative therapy, health care providers need to understand the risks and benefits of these therapies and how they may affect the patient's treatment plan.



Patients often do not communicate they are using any type of complementary or alternative therapy because they believe it is natural and has no risks. They do not want to be judged or simply may not recognize the importance of informing their health care provider of these therapies. The best tool for health care providers is developing communication that is open, honest and non-judgmental. The following are some guidelines to assist health care professionals with these types of discussions:

- Always be sensitive and respectful.
- Do not make assumptions. Be sure to ask whether the patient is using any alternative therapies, even if the patient or family does not mention them to you.
- Recognize some patients use alternative therapies as a way to attempt to maintain control of what is happening with their health.
- Make sure the patient and family understand the current treatment plan with traditional medicine.
- Advise patients and their families of the risks and benefits of complementary and alternative therapy and the effect it may have on the patient's treatment plan.
- Educate and empower patients and their families so they can make informed decisions.

Nationwide Children's Hospital has several policies that address complementary and alternative therapies. These policies give guidance to health care providers for assessing, utilizing and evaluating complementary and alternative therapies. These policies include:

- Patient/Family Care XI-35:04 Medication Reconciliation.
 - The purpose of this policy is to ensure a current completed medication record is available to all providers. Medications to be reconciled include: prescription medication, herbal medications, vitamins, dietary supplements, over the counter medications and nutritional supplements.
- Patient/Family Care XI-35:50 Herbal Therapy and Dietary Supplements
 - The purpose of this policy is to ensure the health care team is aware of herbal therapies and dietary supplements used by patients and how to minimize the potential for adverse interactions with other herbs, food and medications.
- Patient/Family Care XI-35:170 Medications: Innovative Use
 - This policy provides guidance on how to obtain approval for non-FDA approved medications or FDA approved medications being used off-label.
- Patient/Family Care QI 30:170 Aromatherapy: An Adjunct Therapy to Treat Symptoms
 - This process sets forth the process for ordering, administering and storing aromatherapy at NCH.



It is important that health care providers recognize the growing trend of the use of complementary and alternative therapies and the impact that their use may have on patient safety. These policies, along with the information above, are resources to assist healthcare providers in creating an environment of open dialogue to allow patients to discuss these types of therapies, ultimately ensuring patient safety.

Daisy Award

Eva Hummel, RN

The 16th Nationwide Children's Hospital Daisy Award was presented to Eva Hummel, RN, of C5B. The Daisy Award is given in appreciation of the important difference our nurses make in the lives of patients and families at Nationwide Children's Hospital.

Eva was nominated by several families and co-workers in honor of Eva's commitment to nursing excellence. One nominator shared: "Our nurse Eva was so sweet and caring of everything my child needed. My daughter fell in love with Eva. She is so gentle and listens to all our questions and if she could not answer them, she went and found the answer for us. I have never seen a



nurse care for anyone the way she did for not only my daughter but also my family." A co-worker commended Eva for her kindness and compassion toward patients to help them have a smooth experience.

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