**INTEGRATED POSITRON EMISSION TOMOGRAPHY/MAGNETIC RESONANCE IMAGING**

Integrated imaging systems that combine positron emission tomography (PET) with magnetic resonance imaging (MRI) purportedly offer enhanced soft-tissue imaging detail without the ionizing radiation of computed tomography. However, high costs and uncertain reimbursement have slowed diffusion of integrated PET/MRI systems.

**DA VINCI ROBOTIC-ASSISTED SURGERY FOR PERFORMING LAPAROSCOPIC PROCEDURES**

Approved use of robotic-assisted laparoscopic surgery using da Vinci® Surgical Systems (Intuitive Surgical, Inc., Sunnyvale, CA, USA) continues expanding to include more clinical indications and to compete with indication-specific surgical systems and single-site laparoscopic procedures. The manufacturer reported 3,919 da Vinci systems installed worldwide at the end of 2016, with 753,000 procedures performed that year, a 15% increase in procedure volume over the previous year.

**INDICATIONS FOR INPATIENT NUTRITIONAL SUPPORT FOR NEONATES AND INFANTS (AGE <2 YEARS)**

Hospitalized neonates and infants may be undernourished if feedings provide inadequate energy and protein for growth and development or if they are unable to absorb nutrients from feedings due to illness. Risk factors include preterm birth, low birth weight, illness or congenital anomaly, and infants establishing feeding after necrotizing enterocolitis or gastrointestinal perforation.

**INDICATIONS FOR OUTPATIENT NUTRITIONAL SUPPORT FOR NEONATES, INFANTS, CHILDREN, AND ADOLESCENTS (AGE <17 YEARS)**

In the outpatient setting, pediatricians must carefully assess nutritional needs in neonates and infants who have transitioned from the neonatal intensive care unit (NICU) to home and in neonates, infants, children, and adolescents with nutrition-related diseases or conditions.

**INOMAX INHALED NITRIC OXIDE (MALLINCKRODT/INO THERAPEUTICS LLC) FOR TREATING PULMONARY HYPERTENSION IN NEONATES**

INomax® inhaled nitric oxide (Mallinckrodt/INO Therapeutics, LLC) is a vasodilator intended to improve oxygenation in term and near-term neonates who have hypoxic respiratory failure. INomax is usually given at a dose of 20 ppm for up to 14 days or until resolution of oxygen desaturation or when the neonate is ready to be weaned from INomax therapy.

**SURGICAL SYSTEMS FOR TREATING PEDIATRIC SCOLIOSIS**

This Special Report on Surgical Systems for Treating Pediatric Scoliosis is in the format of a PowerPoint Presentation. Scoliosis is defined as a lateral spinal curvature of 10° or more. Etiology is not known in a large majority of cases. About 2% to 3% of all children meet the criteria for diagnosis.
ETEPLIRSEN (EXONDYS 51) INFUSION (SAREPTA THERAPEUTICS, INC.) FOR TREATING DUCHENNE MUSCULAR DYSTROPHY

Eteplirsen (Exondys 51) is an antisense oligonucleotide of the phosphorodiamidate morpholino oligomer subclass indicated for treating Duchenne muscular dystrophy (DMD) in a subset of patients with a confirmed mutation of the DMD gene that is amenable to exon 51 skipping (an estimated 13% of all patients with DMD). The recommended dose is 30 mg/kg once weekly as an intravenous infusion. Eteplirsen is the only FDA-approved treatment for DMD.

Dec 30, 2016 - Custom Product Briefs

NELLCOR SYSTEMS WITH OXIMAX TECHNOLOGY (MEDTRONIC) FOR NEONATAL PULSE OXIMETRY

Nellcor™ systems with OxiMax™ technology are intended to noninvasively measure arterial oxygen saturation of hemoglobin (SpO2) by measuring light-absorbing changes resulting from arterial blood flow pulsations. Nellcor offers a line of monitors and OxiMax oximetry sensors that can be used for neonatal pulse oximetry.

Dec 30, 2016 - Custom Product Briefs

MASIMO SET TECHNOLOGY (MASIMO CORP.) FOR NEONATAL PULSE OXIMETRY

The Masimo Signal Extraction Technology® (SET®) is intended to provide a noninvasive measurement of SpO2 by measuring light-absorbing changes resulting from arterial blood flow pulsations.

Dec 2, 2016 - Custom Product Briefs

MAGELLAN SAFETY SYRINGES (MEDTRONIC/COVIDIEN LLC) FOR REDUCING NEEDLESTICK INJURIES

Magellan™ safety products (i.e., safety needles, safety needle and syringe combination, insulin safety syringes, tuberculin safety syringes) are intended to prevent accidental needlestick injuries. The products have a shield that encases the entire cannula after activation using a thumb, finger, or flat surface. The needle has an integrated locking mechanism that prevents device deactivation.

Dec 1, 2016 - Custom Product Briefs

OVERVIEW OF FIVE SAFETY SYRINGES FOR REDUCING NEEDLESTICK INJURIES

This overview compares five safety syringes intended to prevent needlestick injuries (NSIs) after device use.

Nov 18, 2016 - Custom Product Briefs

MONOJECT SAFETY SYRINGES (MEDTRONIC/COVIDIEN LLC) FOR REDUCING NEEDLESTICK INJURIES

The Monoject™ safety syringes (includes Monoject Insulin, Tuberculin, and hypodermic safety syringes) are intended to prevent needlestick injuries (NSIs) after device use. The syringes have a safety shield that can be extended over the needle for transport, and the needle does not have to be recapped.

Oct 20, 2016 - Special HTA Reports

IMPLEMENTING THE ENFIT ENTERAL CONNECTOR INITIATIVE FOR PREVENTING ENTERAL TUBING MISCONNECTIONS

Numerous reports describe the risks from misconnections of tubing and catheters in hospitalized patients and strategies to prevent them, yet these misconnections continue to occur. New International Organization for Standardization standards were issued in July 2016 to make it nearly impossible to connect unrelated delivery systems.

Sep 12, 2016 - Custom Rapid Responses

RADIATION EXPOSURE FROM BIPLANE RADIOGRAPHY/FLUOROSCOPY IN CHILDREN WITH CONGENITAL HEART DEFECTS

Radiographic/fluoroscopic (R/F) biplane imaging systems are designed to perform vascular imaging (angiography) during diagnostic and interventional procedures.

Aug 2, 2016 - Custom Rapid Responses
FUNCTIONAL ELECTRICAL STIMULATION FOR REHABILITATION OF CHILDREN WITH CENTRAL NERVOUS SYSTEM DISORDERS OR INJURIES CAUSED...  
Functional electrical stimulation (FES) is a rehabilitation technique intended to enhance movement or function of organs, muscles, and extremities by applying electrical currents to peripheral nerves. FES is used during rehabilitation for adults and children with neurologic dysfunction caused by impaired upper motor neuron function, while peripheral nerve function is preserved. Such conditions include spinal cord injury, brain injury, and cerebral palsy.

Jun 20, 2016 - Custom Rapid Responses

HORMONAL TREATMENT WITH GNRH ANALOGUES TO SUPPRESS PUBERTY IN TRANSGENDER CHILDREN AND ADOLESCENTS  
Gonadotropin-releasing hormone (GnRH) analogues (also known as puberty blockers), a synthetic form of human GnRH hormone, can suppress the secretion of luteinizing hormone and follicle-stimulating hormone when taken regularly. GnRH analogues may be administered by injection (monthly or every 3 months) or through a small implant (placed under the skin for up to 12 months).

May 31, 2016 - Custom Product Briefs

VANISHPOINT SYRINGES (RETRACTABLE TECHNOLOGIES, INC.) FOR REDUCING NEEDLESTICK INJURIES  
VanishPoint® syringes are intended to prevent needlestick injuries after the device has been used. The VanishPoint syringe has an automatic retraction device that retracts the needle directly from the patient. After the clinician injects the patient, the plunger is depressed to activate the automatic needle retraction system while the needle is still in the patient. The needle automatically retracts into the syringe, rendering the device nonreusable.

May 31, 2016 - Custom Product Briefs

BD SAFETYGLIDE SYRINGES (BECTON, DICKINSON AND CO.) FOR REDUCING NEEDLESTICK INJURIES  
The BD SafetyGlide™ syringe is intended to prevent needlestick injuries after device use. The SafetyGlide syringe contains a mechanism that covers the used needlepoint; a cap is pushed up and over the needle to cover it.

Feb 12, 2016 - Custom Product Briefs

CYTOSCAN DX ASSAY (AFFYMETRIX, INC.) FOR DETECTING CHROMOSOMAL VARIATIONS ASSOCIATED WITH DEVELOPMENTAL DELAY AND INTELLECTUAL DISABILITY  
The CytoScan® Dx Assay is intended to aid diagnosis of children's developmental delay and intellectual disability, congenital anomalies, and dysmorphic features with a high-resolution genome-wide analysis of genetic aberrations. According to the manufacturer, CytoScan analyzes the whole genome in a single assay.

Feb 2, 2016 - Custom Rapid Responses

CLINICAL INDICATIONS FOR USING BOTULINUM TOXIN IN PEDIATRIC PATIENTS  
Botulinum toxins (BTXs) are extremely potent neurotoxins produced by Clostridium botulinum bacteria, of which seven neurotoxins have been identified. BTX Type A has been used to treat various ophthalmologic and neurologic conditions characterized by exaggerated muscle contraction or increased muscle tone. Injection of the toxin into affected muscles can decrease excess muscle activity by inhibiting the neurons that activate the muscle.

Jan 28, 2016 - Custom Rapid Responses

APPLIED BEHAVIOR ANALYSIS FOR TREATING ADOLESCENTS AND YOUNG ADULTS WITH AUTISM SPECTRUM DISORDERS  
Autism spectrum disorder (ASD) has no cure, but applied behavior analysis (ABA) may be an option for managing the condition. With this type of treatment, problematic behaviors, the events leading up to them, and the consequences are identified. Individualized corrective steps are implemented to bring about more socially acceptable actions.
GENDER DYSPHORIA

This Special Report systematically reviews clinical studies on gender dysphoria and treatments for this condition to assess their effectiveness and to determine how many of these studies have been approved by an institutional review board (IRB) and to examine the process by which individuals in these subjects are protected.

HORMONE THERAPY FOR TREATING GENDER DYSPHORIA IN CHILDREN AND ADOLESCENTS

Gender dysphoria, a marked incongruence between one's experience/expressed gender and assigned gender, may be treated in children and adolescents with hormone therapy designed to suppress puberty or promote the physical characteristics of the desired sex.

OUTDOOR BEHAVIORAL HEALTHCARE FOR TREATING ADOLESCENT MENTAL HEALTH DISORDERS

Outdoor behavioral healthcare (OBH), also referred to as wilderness therapy or adventure therapy, is a mental health intervention for adolescents with emotional, adjustment, addiction, and psychological problems. OBH typically involves immersion in the wilderness, group living with peers, individual and group therapy sessions, including backcountry travel and wilderness living skills.

CORTRAK 2 EAS (CORPAK MEDSYSTEMS, INC.) FOR ELECTROMAGNETIC TUBE PLACEMENT FOR ENTERAL FEEDING

The Cortrak® 2 Enteral Access System (EAS)™ is an electromagnetic tube placement system intended to aid and confirm placement of feeding tubes into the stomach or small bowel of patients requiring enteral feeding.

NEEDLE-FREE INJECTION SYSTEMS FOR ADMINISTERING MEDICATIONS

This Hotline Response examines the clinical literature on the use of needle-free injection systems compared to standard needle and syringe injection methods. Special attention is given to studies reporting pain as an outcome.

GLUCOSE MONITORING WITH MUTANT VARIANT OF QUINOPROTEIN GLUCOSE DEHYDROGENASE (MUT. Q-GDH) TEST STRIPS IN NEONATES WITH G ...

This Hotline Response looks at the clinical literature on the use of glucose test strips with mutant forms of glucose dehydrogenase-pyrroloquinoline quinone (GDH-PQQ) to estimate plasma glucose levels in neonates, especially infants with galactosemia in which large quantities of galactose in the blood may interfere with GDH-PQQ-based test strips and erroneously indicate hyperglycemic conditions rather than hypoglycemia.

INHALED PROSTACYCLINS AS ALTERNATIVES TO NITRIC OXIDE FOR TREATING PULMONARY HYPERTENSION IN NEONATES AND CHILDREN

This Hotline Response explores use of inhaled prostacyclins (including epoprostenol, iloprost, and treprostinil) for treating pulmonary hypertension in neonates and children.

MAGEC SYSTEM (ELLIPSE TECHNOLOGIES, INC.) FOR TREATING SPINAL DEFORMITIES IN CHILDREN

The MAGEC® Spinal Bracing and Distraction System (Ellipse Technologies) may obviate the need for children 10 years of age or younger with scoliosis to undergo repeat surgeries to lengthen growth rods. The system incorporates an external remote controller that allows surgeons to noninvasively lengthen the rods in an outpatient procedure. We explore the evidence on this and other product claims.
LEGAL REQUIREMENTS FOR DETERMINING BRAIN DEATH BY NEUROLOGICAL CRITERIA: PUBLISHED MEDICAL GUIDANCE AND STATE LAWS

We explore published medical guidance and state laws to provide an overview of the available literature on the legal requirements for determining brain death by neurological criteria.

PREVENTING NEWBORN FALLS IN THE HOSPITAL SETTING

CDC reports that falls are the leading cause of nonfatal injuries to children 0 to 19 years of age. We explore the literature on the prevalence of falls and preventive strategies.

DA VINCI ROBOTICALLY ASSISTED SURGERY FOR PERFORMING LAPAROSCOPIC PROCEDURES

Robotically-assisted surgery with the da Vinci® Surgical System has continually increased despite the absence of additional reimbursement from payers and a lack of definitive data demonstrating that robotic technology significantly improves outcomes compared to open or laparoscopic surgery.

INTEGRATED POSITRON EMISSION TOMOGRAPHY (PET)/MAGNETIC RESONANCE IMAGING (MRI)

Integrated PET/MRI has been used primarily at large academic and research hospitals, where in addition to clinical use, investigators evaluate which applications provide the most additional benefit compared to other diagnostic imaging modalities.

TROPHON EPR (NANOSONICS, LTD./GE HEALTHCARE) FOR DISINFECTING ULTRASOUND TRANSDUCERS

Probes for ultrasound devices make contact with skin or body cavities of many patients, making them prime locations for the growth and spread of microorganisms. The Trophon EPR™ (Nanosonics, Ltd) is a device intended to provide high-level disinfection for ultrasound transducer probes.

DYNAMIC SPLINTING FOR TREATING JOINT STIFFNESS AND LIMITED RANGE OF MOTION

We examine the literature on use of stretching devices to treat joint stiffness and restricted range of motion.

FETAL SURGERY FOR CORRECTING MYELOMENINGOCELE

Myelomeningocele (MMC), the most common and serious form of spina bifida, is a congenital deformity that occurs during fetal development. Imaging techniques may allow detection of MMC before viability, which may allow for surgical repair before birth.

Updated: 6/26/2017