How COVID-19 affects children and pregnant women

Using virtual reality for pediatric heart procedures
Children require specialized, compassionate and comprehensive care. The Vizient® Pediatric Tech Watch provides insights and information about new and innovative technologies that support delivery of the highest-quality pediatric care. This issue highlights the latest products and pharmaceuticals available in the market, as well as emerging technologies. It also features Vizient pricing projections for supplies, products and pharmaceuticals.
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Vizient expects overall market prices for supplies to increase 1.4% in the next 18 to 24 months. Table 1 shows the projected supply chain price inflation, Table 2 shows projected changes in drug prices and Table 3 details the projected pediatric drug price inflation rates by biologic and nonbiologic products.
### Table 1. National price inflation projections, January 2020–June 2021

<table>
<thead>
<tr>
<th>Product group</th>
<th>National price inflation projection (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology overall</td>
<td>0.6</td>
</tr>
<tr>
<td>Cardiac rhythm management</td>
<td>-0.7</td>
</tr>
<tr>
<td>Orthopedic overall</td>
<td>0.2</td>
</tr>
<tr>
<td>Orthopedic supplies</td>
<td>-0.2</td>
</tr>
<tr>
<td>Joint implant</td>
<td>-1.2</td>
</tr>
<tr>
<td>Spinal</td>
<td>-0.2</td>
</tr>
<tr>
<td>Trauma</td>
<td>1.0</td>
</tr>
<tr>
<td>Neurosurgical</td>
<td>1.3</td>
</tr>
<tr>
<td>Electrophysiology</td>
<td>2.1</td>
</tr>
<tr>
<td>IV solutions</td>
<td>2.5</td>
</tr>
<tr>
<td>Medical/surgical supplies</td>
<td>1.1</td>
</tr>
<tr>
<td>Medical equipment</td>
<td>1.2</td>
</tr>
<tr>
<td>Imaging equipment</td>
<td>0.2</td>
</tr>
<tr>
<td>Laboratory equipment</td>
<td>0.3</td>
</tr>
<tr>
<td>Laboratory consumables</td>
<td>1.0</td>
</tr>
<tr>
<td>Medical gases</td>
<td>4.8</td>
</tr>
<tr>
<td>Purchased services</td>
<td>2.5</td>
</tr>
<tr>
<td>IT hardware</td>
<td>-2.1</td>
</tr>
<tr>
<td>IT software</td>
<td>-1.3</td>
</tr>
<tr>
<td>IT services</td>
<td>1.0</td>
</tr>
<tr>
<td>Commercial printing</td>
<td>2.0</td>
</tr>
<tr>
<td>Office supplies</td>
<td>2.6</td>
</tr>
<tr>
<td>Furniture</td>
<td>3.2</td>
</tr>
<tr>
<td>Water</td>
<td>3.5</td>
</tr>
<tr>
<td>Electricity</td>
<td>1.2</td>
</tr>
<tr>
<td>Natural gas</td>
<td>2.2</td>
</tr>
<tr>
<td>Telephone (wireless)</td>
<td>-2.1</td>
</tr>
<tr>
<td>Internet</td>
<td>0.5</td>
</tr>
<tr>
<td>Food overall</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Overall projected price change</strong></td>
<td><strong>1.4</strong></td>
</tr>
</tbody>
</table>

Abbreviations: IT = information technology; IV = intravenous.
* Projections are calculated using historical pricing trends, raw material trends, internal resources, the producer price index and the consumer price index.

### Table 2. Projected drug price changes, July 1, 2020–June 30, 2021

<table>
<thead>
<tr>
<th>Product group</th>
<th>Estimated price change weighted by Vizient purchases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract products</td>
<td>1.02</td>
</tr>
<tr>
<td>Noncontract products</td>
<td>2.57</td>
</tr>
<tr>
<td><strong>Total weighted average drug price inflation estimate</strong></td>
<td><strong>3.59</strong></td>
</tr>
</tbody>
</table>


### Table 3. Estimated pediatric drug price inflation rates, July 1, 2020–June 30, 2021

| Biologics                          | 0.98                                                     |
| Nonbiologics                       | 2.47                                                     |
| **Total weighted average drug price inflation estimate** | **3.45**                                                 |

Innovative pediatric devices

A number of new innovative pediatric devices are either in development or available for use.
Amblyopia than methods that merely collect data on dramatically more accurate approach to measuring for that screening with Rebion’s blinq technology offers a Institutes of Health/National Eye Institute have shown of misalignment. Clinical studies funded by the National detect binocularity associated with as little as 1 degree second neural performance scan of the fovea to accurately that actually detects micro-strabismus and amblyopia. Currently available devices

Rebion (Boston) has developed blinq, the first pediatric vision scanner designed for vision screening programs that actually detects micro-strabismus and amblyopia. Using a novel new technology, blinq conducts a two-second neural performance scan of the fovea to accurately detect binocularity associated with as little as 1 degree of misalignment. Clinical studies funded by the National Institutes of Health/National Eye Institute have shown that screening with Rebion’s blinq technology offers a dramatically more accurate approach to measuring for amblyopia than methods that merely collect data on amblyopia risk factors.¹

Kite Medical (Galway, Ireland) is developing a device to detect vesicoureteral reflux (VUR) in children. VUR is a condition that can potentially lead to kidney damage. Current diagnostic procedures require catheterization and radiation exposure; this device could offer a noninvasive, child-friendly alternative to such procedures.²

Ocugloca (New York) is creating the EyeBOX, an eye-tracking–based test that noninvasively and instantaneously assesses intracranial pressure (ICP) in under four minutes. Quick and accurate detection of ICP in children following a traumatic brain injury would facilitate timely treatment and prevent further injury.³

Ostio (Philadelphia) is developing a novel approach to correcting skeletal deformities and deficiencies using a fully implantable, magnetically driven, bony device for distraction osteogenesis (DO) within the craniomaxillofacial skeleton. For many years, DO has been used to correct congenital skeletal defects by promoting the growth of new bone. Unlike current DO methods, the Ostio device will be fully internalized and remote-controlled, thereby decreasing the risk of infection, and improving patient and surgeon satisfaction.⁴

Vifant (Philadelphia) is developing a digital platform that identifies vision acuity impairment in preverbal children. Waiting to treat visual impairment until children are old enough to verbally communicate may result in reduced early learning development or blindness. This device will enable physicians and parents to be proactive about the health of their children’s vision without the need for verbal communication.⁵

Currently available devices

Rebion (Boston) has developed blinq, the first pediatric vision scanner designed for vision screening programs that actually detects micro-strabismus and amblyopia. Using a novel new technology, blinq conducts a two-second neural performance scan of the fovea to accurately detect binocularity associated with as little as 1 degree of misalignment. Clinical studies funded by the National Institutes of Health/National Eye Institute have shown that screening with Rebion’s blinq technology offers a dramatically more accurate approach to measuring for amblyopia than methods that merely collect data on amblyopia risk factors.⁶,⁷

Deltex (United Kingdom) (CE7100) has developed EDM+ (ODM+ outside the U.S.), the world’s first dedicated pediatric cardiac function and fluid status monitor that measures both flow and pressure. EDM+ can be safely used to guide fluid management and monitor haemodynamic changes in pediatric patients. The optional connection of an arterial line that can be used during pressure monitoring mode offers quick, easy calibration at the touch of a button.⁸

BioSense (Detroit) has developed an intelligent health and wellness monitoring system using novel noncontact electrocardiogram sensors. The sensor’s design wirelessly detects the body’s electrical signals without requiring direct contact with the skin to enable next generation health monitoring and alert systems to accurately measure the heart’s electrical activity. The sensor can be used through layers of clothing or materials without the use of radiation, and is designed to safely monitor heart health and breathing in infants.⁹

Devices awaiting funding for clinical studies

Eclipse Regenesis has developed the Eclipse XL1, a distraction enterogenesis solution designed to promote tissue regeneration in pediatric patients with short bowel syndrome. This therapy was developed to enable the mechanical regrowth of new, healthy intestine in 10–21 days while restoring bowel function with mechanical and absorptive capabilities. The Eclipse XL1 device is an investigational product and is limited by federal law for investigational use only. It is not currently available for commercial sale in the U.S. or any other region.¹⁰

References

COVID-19: its impact on children and pregnant women

Market watch

COVID-19, the disease caused by the novel coronavirus SARS-CoV-2, was first identified in China in December 2019 and has since spread around the world. As of May 6, 2020, the World Health Organization (WHO) has reported 3,557,235 confirmed cases, 205 affected countries and 245,150 deaths across the globe.1 COVID-19 seems to be affecting children at lower rates than adults, and those who contract the virus typically have mild illness.2 However, two infants—one in Connecticut and one in Illinois—have died from what are believed to be complications of COVID-19.3

Symptoms in children

Symptoms of COVID-19 in children include fever, cough, congestion, rhinorrhea, and sore throat, according to Kate Woodworth, MD, MPH, COVID-19 Response Maternal Child Health Team, Centers for Disease Control and Prevention (CDC). Some patients have reported vomiting and diarrhea. Transmission occurs primarily through respiratory droplets, so to avoid becoming infected and infecting others, children should wash their hands regularly, cover their mouths when they cough or sneeze, stay home if they are sick, avoid people who are sick and avoid touching their faces.4 No antiviral drugs have been approved for treatment, and there are no data on which underlying conditions put children at higher risk of severe disease. Testing criteria for children are the same as those for adults. Clinicians should consider the presence of symptoms, travel history, whether there has been contact with a confirmed COVID-19 patient and local epidemiology, and should also rule out other potential causes of illness.

Pregnant women: an at-risk group

In general, pregnant women are at an increased risk for infection and serious illness due to physiological and immunologic changes in their bodies.5 While data on COVID-19 in pregnant women are limited, Denise Jamieson, MD, MPH, chair, department of gynecology and obstetrics at Emory University School of Medicine, has stated that this group should be considered at-risk for this disease. According to the CDC, it is not known if a pregnant woman with COVID-19 can pass the virus to her baby during pregnancy or delivery, although currently no infants born to mothers with COVID-19 have tested positive for the virus. In the small number of cases in which a baby was born to a mother with COVID-19, the virus was not found in either the amniotic fluid or breast milk.5
Additional resources

The following resources provide up-to-date information on COVID-19:

• Hear experts discuss what they know about the impact of the SARS-CoV-2 virus on children and pregnant women during this CDC webinar.

• The CDC’s website answers frequently asked questions about the impact of COVID-19 on children.²

• The American Academy of Pediatrics provides coding guidance for COVID-19 patients to help with data tracking and payment.⁶

• The CDC has posted guidance on infection prevention and control in inpatient obstetric settings as well as frequently asked questions about COVID-19 and pregnancy.⁷

References


Innovative technology experts and cardiac radiologists are continuing to work toward creating virtual models for complex heart diseases. The goal is to take these models from the teaching room to the operating theater for complex surgeries prior to a cardiopulmonary bypass. In pediatric patients with congenital or acquired heart disease, virtual reality (VR) can be transformative for the patient, medical students, surgeons and the family. Unlike diagrams and plastic models, VR visualizes the heart and identifies where surgery is needed, enabling student surgeons and family members to understand the procedure. Clinicians are using VR to rehearse before surgery to shorten surgery length, reduce patient risk and improve outcomes. Students at Stanford University School of Medicine are already using the Stanford Virtual Heart to learn about congenital heart defects and visualize the procedures that pediatric heart surgeons use to correct these conditions.¹

At Texas Children’s Hospital, a multidisciplinary team of cardiologists, radiologists, exercise physiologists and surgeons has created an algorithm to evaluate children with anomalous coronary arteries.² In addition, novel imaging strategies—such as stress magnetic resonance imaging and virtual angioscopy—look at the opening of the coronary artery and the length and degree of potential intramural segments to help with surgical decision-making. Care teams for children with cardiomyopathies and heart failure have created advanced therapies, both beyond traditional medical management and prior to heart transplantation.²

The future of device development is exciting; however, it depends on innovative collaboration between cardiologists and catheter-based companies. Through advancements in technology, VR, artificial intelligence, novel drug and device delivery systems, and data analytics, heart center teams will be able to continually improve children’s health and well-being.
In pediatric patients with congenital or acquired heart disease, virtual reality can be transformative for the patient, medical students, surgeons and the family.

References


Pediatric pharmaceutical watch

The pediatric drug price inflation rate is projected to be 3.45% through June 30, 2021, with a 0.98% estimated price change in biologics and 2.47% in nonbiologics, weighted by Vizient member purchases.
Our drug forecast for 2020 indicates that gene therapy leads the high-cost target drug list in pediatrics. In addition, specialty drugs, gene therapy and chimeric antigen receptor T-cell treatments continue to inflate hospital budgets. As in other clinical areas, pediatric pharmaceutical costs are rising due to rare diseases that require specialty or orphan drugs. Approximately 80% of known rare diseases are based on genetic mutations.

Our 2019 drug shortage survey indicated the annual cost of labor needed to manage drug shortages has increased to $359 million. Increased transparency and commitment to supply are critical as Vizient continues to advocate for legislative changes.

New drugs

Elexacaftor, tezacaftor and ivacaftor (Trikafta) (Vertex Pharmaceuticals)

This triple-combination therapy is indicated for the treatment of cystic fibrosis (CF) in patients aged 12 years and older who have at least one F508del mutation in the CF transmembrane conductance regulator gene. This is the first Food and Drug Administration (FDA)-approved triple-combination therapy to treat patients with the most common CF mutation.

Golodirsen (Vyondys 53) injection for intravenous use (Sarepta Therapeutics)

Golodirsen is an exon-skipping therapy approved to treat patients with Duchenne muscular dystrophy (DMD) whose disease is amenable to exon 53 skipping. Golodirsen is the second ribonucleic acid exon-skipping treatment approved by the FDA for DMD. A trial to confirm its benefit is currently enrolling patients, and is expected to be completed in 2024. Golodirsen will be priced at parity with eteplirsen.

Influenza A (H5N1) monovalent vaccine, adjuvant (Audenz) (Seqirus)

Audenz is an inactivated vaccine indicated for active immunization for the prevention of disease caused by the influenza A virus H5N1 subtype contained in the vaccine. It is approved for use in patients 6 months of age and older who are at increased risk of exposure to the influenza A virus H5N1 subtype contained in the vaccine. In children aged 6 months through 5 years of age, the most common adverse reactions are injection site tenderness, irritability, sleepiness, change in eating habits and fever. Audenz is the first FDA-approved vaccine indicated for protection against influenza A/H5N1 (avian flu) in the event of a pandemic.

Peanut allergen powder-dnfp (Palforzia) for oral administration (Aimmune Therapeutics)

Palforzia is the first FDA-approved treatment for patients with peanut allergy, and more broadly, it is the first approved therapy for food allergies in general. It is approved for use in patients aged 4 years and older who have a confirmed diagnosis of peanut allergy. Peanut allergen powder should be used in conjunction with a peanut-avoidant diet. A boxed warning states that there is a risk of anaphylaxis with this treatment.

Tazemetostat (Tazverik) tablet for oral use (Epizyme)

Tazemetostat is the first FDA-approved EZH2 inhibitor; it is also the first targeted option for the treatment of epithelioid sarcoma. This methyltransferase inhibitor is indicated for the treatment of adults and pediatric patients aged 16 years and older with metastatic or locally advanced epithelioid sarcoma who are not eligible for complete resection. Despite the FDA’s concerns about a low objective response rate and a safety signal, the FDA advisory committee voted unanimously in favor of drug approval. Tazemetostat treatment has been associated with development of secondary malignancies.

New indications

Fidaxomicin (Dificid) tablet or suspension for oral use (Merck Sharp & Dohme Corp.)

Fidaxomicin is a macrolide antibacterial indicated for the treatment of *C. difficile*-associated diarrhea; this new approval expands the drug’s indication to include use in pediatric patients 6 months of age and older. Along with this new indication, a new formulation (oral suspension) was also approved.

Cobicistat (Tybost) tablet for oral use (Gilead Sciences)

Cobicistat is a CYP3A inhibitor indicated to increase systemic exposure of atazanavir in combination with other antiretroviral agents in the treatment of HIV-1 infection; this new approval expands the use of cobicistat to include pediatric patients weighing at least 35 kg.

Ledipasvir and sofosbuvir (Harvoni) tablet and pellet for oral use (Gilead Sciences)

Harvoni is a fixed-dose combination (FDC) of ledipasvir, a hepatitis C virus (HCV) NS5A inhibitor and sofosbuvir, an HCV nucleotide analog NS5B polymerase inhibitor indicated for the treatment of chronic HCV in pediatric patients 3 years of age and older for genotype 1, 4, 5 or 6 infection without cirrhosis or with compensated cirrhosis. This new approval expands the indication for use from age 12 years and older to age 3 years and older; in addition, a new oral pellet dosage formulation was approved for both the FDC of ledipasvir/sofosbuvir and single-agent sofosbuvir. Ledipasvir/sofosbuvir and sofosbuvir are the first...
direct-acting antiviral agents indicated for the treatment of chronic HCV in pediatric patients as young as 3 years of age. The recommended dosage in pediatric patients is based on weight. A boxed warning states that there is a risk of hepatitis B virus (HBV) reactivation in patients coinfected with HCV and HBV.

**AbobotulinumtoxinA (Dysport) for injection (Ipsen Biopharmaceuticals)**

AbobotulinumtoxinA is an acetylcholine release inhibitor and a neuromuscular blocking agent; this new approval expands its use to include the treatment of upper limb spasticity in pediatric patients 2 years of age and older, excluding spasticity caused by cerebral palsy (CP). A boxed warning states that there is a distant spread of toxin effect. Following recent approvals, both abobotulinumtoxinA and onabotulinumtoxinA are now approved for upper and lower limb spasticity in pediatric patients.

**Burosumab-twza (Crysvita) injection for subcutaneous use (Kyowa Kirin)**

Burosumab-twza is a fibroblast growth factor 23 (FGF23) blocking antibody indicated for the treatment of X-linked hypophosphatemia in adults and pediatric patients 6 months of age and older. This new approval expands the indication of burosumab to include infants as young as 6 months of age. Prior to this new approval, the drug was indicated for the treatment of adults and pediatric patients 1 year of age and older. In addition to the indication expansion, the label was updated to include new clinical data in pediatric patients that demonstrates that, compared to conventional therapy, burosumab shows a meaningful improvement in rickets severity.

**Glecaprevir and pibrentasvir (Mavyret) tablet for oral use (AbbVie)**

Mavyret is a fixed-dose combination of glecaprevir, an HCV NS3/4A protease inhibitor, and pibrentasvir, an HCV NS5A inhibitor. It is indicated for the treatment of adults and pediatric patients 12 years of age and older who weigh at least 45 kg and who have chronic HCV genotype 1, 2, 3, 4, 5 or 6 infection either without cirrhosis or with compensated cirrhosis. A boxed warning states that there is a risk of HBV reactivation in patients coinfected with HCV and HBV. This new approval shortens the duration of treatment with glecaprevir and pibrentasvir from 12 weeks to eight weeks in treatment-naïve HCV patients with compensated cirrhosis across all genotypes. With this approval, the glecaprevir/pibrentasvir combination becomes the first pan-genotypic treatment to be FDA-approved for an eight-week treatment duration in patients with compensated cirrhosis.

**Mepolizumab (Nucala) injection for subcutaneous use (GlaxoSmithKline)**

Nucala is an interleukin-5 (IL-5) antagonist monoclonal antibody indicated for add-on maintenance treatment of patients with severe asthma who are 6 years of age and older with an eosinophilic phenotype. This approval extends the current indication of mepolizumab to include patients aged 6 to 11 years old. Of the respiratory monoclonal antibodies that are FDA-approved for eosinophilic asthma, mepolizumab is the first approved for this age group. This approval was partly based on an open-label study that characterized the pharmacokinetics and pharmacodynamics of mepolizumab in pediatric patients 6 to 11 years of age.

**Rituximab (Rituxan) injection for intravenous use (Genentech)**

Rituxan is a CD20-directed cytolytic antibody indicated for the treatment of granulomatosis with polyangiitis (GPA) and microscopic polyangiitis (MPA), two potentially life-threatening blood vessel disorders that are rare in children. Rituximab is the first and only FDA-approved therapy for pediatric patients with GPA and MPA, and this new approval expands the current indication to pediatric patients aged 2 years and older. Due to an orphan designation, rituximab biosimilars will not be approved for the treatment of pediatric GPA and MPA. A boxed warning states that there is a risk of fatal infusion-related reactions, severe mucocutaneous reactions, HBV reactivation and progressive multifocal leukoencephalopathy.

**Sacubitril and valsartan (Entresto) tablet for oral use (Novartis Pharmaceuticals)**

Entresto is a combination of sacubitril, a neprilysin inhibitor, and valsartan, an angiotensin II receptor blocker, and is indicated for the treatment of symptomatic heart failure (HF) with systemic left ventricular systolic dysfunction; this approval expands the current indication of sacubitril and valsartan for the treatment of HF to pediatric patients aged 1 year and older. A boxed warning states that there is a risk of fetal toxicity. An oral solution can be compounded from the tablets for administration in pediatric patients.

**Baloxavir (Xofluza) tablet for oral use (Genentech)**

Baloxavir is a polymerase acidic endonuclease inhibitor indicated for the treatment of acute uncomplicated influenza in patients 12 years of age and older who have been symptomatic for no more than 48 hours and who are at high risk of developing influenza-related complications. With this expanded approval, baloxavir becomes the first antiviral with this indication.
OnabotulinumtoxinA (Botox) for injection for intramuscular use (Allergan)

OnabotulinumtoxinA is an acetylcholine release inhibitor and neuromuscular blocking agent indicated for the treatment of lower limb spasticity; this new approval expands the use of onabotulinumtoxinA to include treatment of lower limb spasticity in pediatric patients aged 2 to 17 years old, excluding spasticity caused by CP. The approval specifically excludes use in patients with CP because Ipsen’s abobotulinumtoxinA received an orphan designation for the treatment of lower limb spasticity in pediatric patients with CP in 2016. A boxed warning states that there is a risk of distant spread of toxin effect. The most common adverse reaction for the treatment of pediatric spasticity is upper respiratory tract infection.

Ravulizumab-cwvz (Ultomiris) injection for intravenous use (Alexion Pharmaceuticals)

Ravulizumab-cwvz inhibits complement-mediated thrombotic microangiopathy, and is indicated for the treatment of adults and pediatric patients 1 month of age and older with atypical hemolytic uremic syndrome (aHUS). With this label expansion, ravulizumab is now approved to treat adult paroxysmal nocturnal hemoglobinuria and adult and pediatric aHUS. A boxed warning states that there is a risk of serious meningococcal infections.

Insulin aspart (Fiasp) injection for subcutaneous or intravenous use (Novo Nordisk)

Insulin aspart is a rapid-acting human insulin analog indicated to improve glycemic control in pediatric patients with diabetes mellitus. This new indication expands its use to treat children as young as 2 years of age. The main advantage of insulin aspart compared with other rapid-acting insulins is that it does not need to be dosed pre-meal.

New formulations

Cetirizine hydrochloride (Quzyttir) injection for intravenous use (TerSera Therapeutics)

The Food and Drug Administration (FDA) has approved Quzyttir (cetirizine hydrochloride injection; JDP Therapeutics) for the treatment of acute urticaria in adults and children 6 months of age and older. This is the first FDA-approved intravenous formulation of cetirizine and is also the first approved intravenous formulation of a second-generation antihistamine. In a randomized, double-blind, multicenter trial, patients were treated with either a 50-mg diphenhydramine injection or 10 mg of cetirizine; treatment with cetirizine was associated with significantly less sedation, time spent in the treatment center and symptom recurrence.
Glucagon (Gvoke) injection for subcutaneous use (Xeris Pharmaceuticals)

Glucagon is an antihypoglycemic agent indicated for the treatment of severe hypoglycemia in adults and pediatric patients with diabetes aged 2 years and older. It is the second next generation glucagon product approved by the FDA; the first was Lilly’s glucagon nasal powder (Baqsimi). Glucagon was launched in the U.S. as a shelf-stable, prefilled syringe in October 2019, while the HypoPen, an EpiPen-like auto-injector, was launched in early 2020. Both will be priced similarly to Baqsimi.

Cysteine hydrochloride (Nouress) injection for intravenous use (Avadel)

Cysteine hydrochloride is a sulfur-containing amino acid indicated for use as an additive to amino acid solutions to meet nutritional requirements of neonates (preterm and term infants less than 1 month of age) requiring total parenteral nutrition. It is the second cysteine product granted approval via the 505(b)(2) drug approval pathway. The U.S. Patent and Trademark Office recently issued a patent covering cysteine solutions, which will extend until March 2039.

Diazepam (Valtoco) spray for intranasal use (Neurelis)

Diazepam is a benzodiazepine indicated for the treatment of intermittent, stereotypic episodes of frequent seizure activity that are distinct from a patient’s usual seizure pattern. It is the first intranasal spray approved for use in patients with epilepsy who are 6 years of age and older, and is the second FDA-approved nasal option that is indicated for use by a care partner outside of the medical setting for the rescue treatment of individuals with epilepsy. A boxed warning states that there is a risk of profound sedation, respiratory depression, coma and death with concomitant use of opioids.

Reference


Vizient members can view and download the full Drug Price Forecast here.
Organic cleansers for baby skin
Caring for and cleansing baby skin is vital for the health of newborns and babies. The baby skin barrier, different from adult skin, continues to develop during the first few years of life. Baby skin products are increasingly being formulated with natural, chemical-free ingredients that are milder and significantly less disruptive to baby tissue. For example, using fewer surfactants and larger micelles—an assembly of amphiphilic molecules—will result in less irritating baby cleansers that are gentle and produce a rich lather, which is important for targeting viruses and other pathogens. Cleansers are being formulated with surfactants and are partially derived from renewable sources, as opposed to petroleum. Plant oils are often modified with a polar group to create these natural surfactants. More and more, new moms are choosing baby skin care products that are pH-neutral, organic and eco-certified, and forgoing products that expose baby to chemicals, fragrances, parabens and dyes.

Abena has launched Bambo Nature (MS7431), a skin care line of lotion, shampoo, soothing balm, oil and sunscreen specifically formulated for babies. Each product contains natural and organic ingredients, and is dermatologist tested and eco-certified. Some hospitals are using these products as a starting point for implementing green initiatives at their facilities, building teams with neonatal intensive care unit nurses that are knowledgeable about the product line and its benefits. Teams make an inventory of what is currently being used, assess cost-effectiveness, create a strategy to implement the products, and track and measure outcomes to show progress.

References

Lung-protective technologies for the O.R.

Dräger anesthesia machines deliver ICU-quality ventilation to neonatal and pediatric patients
Pediatric patients, particularly preterm infants, present unique challenges to anesthesiologists in terms of mechanical ventilation, temperature management and infection prevention during surgical procedures. Preterm babies are at increased risk for developing long-term pulmonary complications, infection or sepsis, intraventricular hemorrhage and significant retinal damage.

Using lung-protective ventilation to achieve the next level of care

Dräger, which manufactures medical and safety technology products, has developed the Perseus A500 and Apollo anesthesia delivery systems. These solutions offer clinicians a wealth of information and tools to help optimize ventilation parameters, support normal temperature and humidity status in the lungs, and reduce the risk of hospital-acquired infections. Since conditions of pediatric patients are often dynamic, Dräger’s highly accurate volume-targeted ventilation modes are designed to ensure that the appropriate level of support is delivered at all times (Table 1).

### Table 1. The occurrence of the volume error in three categories across anesthesia ventilators over all the conditions investigated

<table>
<thead>
<tr>
<th>Ventilator</th>
<th>≤5%</th>
<th>&gt;5 to ≤10%</th>
<th>&gt;10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aisys&lt;sup&gt;TM&lt;/sup&gt;</td>
<td>16 (4.9%)</td>
<td>115 (35.5%)</td>
<td>193 (59.6%)</td>
</tr>
<tr>
<td>Flow-i&lt;sup&gt;TM&lt;/sup&gt;</td>
<td>116 (36.1%)</td>
<td>204 (63.6%)</td>
<td>1 (0.3%)</td>
</tr>
<tr>
<td>Primus&lt;sup&gt;TM&lt;/sup&gt;</td>
<td>323 (99.7%)</td>
<td>1 (0.3%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Zeus&lt;sup&gt;TM&lt;/sup&gt;</td>
<td>126 (79.2%)</td>
<td>33 (20.8%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

*<p-value* (\(x^2\) test) < 0.0001

Note: In the U.S., Primus is called Apollo and Zeus is called Perseus. Source: Wallon, Bonnet and Guérin.<sup>1</sup>

Studies show that 5%<sup>2</sup> of all surgical patients experience postoperative pulmonary complications. However, increasing evidence indicates that using lung-protective ventilation strategies in the O.R. has substantial benefits.<sup>3</sup> Dräger’s lung-protective technologies provide:

- Preset, patient-specific lung-protective settings
- Low and minimal flow anesthesia techniques, including a heated breathing system to reduce the delivery of dry gas to the patient (which can lead to lung injury), anesthetic sample gas recycling and a simple online tool to assess fresh gas requirements

Support for decision-making

The O.R. can be a dynamic and highly stressful environment. Dräger’s anesthesia platforms help inform decision-making by providing valuable information about all aspects of pediatric ventilatory support and anesthetic delivery, and presenting it in a format that is easy to use and understand. Dräger’s technology also provides improved transparency about the effectiveness of respiratory therapy using real-time values and trends in respiratory and physiological responses.

Breaking the chain of infection

Hospital-acquired infections are a major challenge in the O.R. Breaking the chain of contamination is an important step in preventing nosocomial infections: Studies show that suitable hygienic measures can help prevent these infections by 20% to 30%.<sup>5</sup> Dräger’s pediatric anesthesia delivery devices can be efficiently and effectively cleaned and reprocessed,<sup>6</sup> which has been shown to reduce the potential for cross contamination.<sup>7</sup> Dräger’s certified test lab performs comprehensive tests that validate materials and disinfectants. In addition, its disposable accessories and consumables can help minimize the risk of hospital-acquired infections.

The Perseus and Apollo devices are also designed with common user interfaces and accessories to help reduce the risk of errors, shorten training time and boost productivity. These Dräger devices are backed by a comprehensive set of technical and clinical services to help ensure maximum uptime and support the hospital’s clinical staff.

Dräger anesthesia solutions provide optimal care for neonatal and pediatric patients

According to the U.S. News & World Report’s best children’s hospital honor roll for 2019-2020, the top 5 children’s hospitals in the U.S. use Dräger’s anesthesia machines.<sup>4</sup> In addition, the Dräger anesthesia portfolio has consistently been rated No. 1 on MD Buyline for overall user satisfaction for the last 23 consecutive quarters.
Protecting the lung when it matters most

With Dräger’s newest ventilation content hub, hospitals can easily stay abreast of current discussions on lung-protective ventilation. In addition, they can explore how the innovative ventilation technology of the Perseus and Apollo lines supports positive outcomes for even the most challenging pediatric patients. The hub also details how these solutions reduce gas flows and can help hospitals achieve greater cost savings while overcoming clinical challenges.

References


As the nation’s largest member-driven health care performance improvement company, Vizient provides solutions and services that empower health care providers to deliver high-value care by aligning cost, quality and market performance. With analytics, advisory services and a robust sourcing portfolio, we help members improve patient outcomes and lower costs.

 Contributor

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