

Hospimedia[®]

I N T E R N A T I O N A L

Implanted Coil Device Helps Severe Emphysema

An innovative minimally invasive device is designed to improve lung function, exercise capacity, and quality of life in both heterogeneous and homogeneous emphysema patients.

The RePneu Lung Volume Reduction Coil (LVRC) system is a minimally invasive treatment effective

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Medication Reconciliation Procedures Sharply Reduce Hospital Prescription Errors

A new study shows that when pharmacists lead patient medication-history gathering and supplemented patient charts with medication progress reports, medication reconciliation errors dropped dramatically.

Researchers at the Little Company of Mary Hospital and Health

Care Centers (LCMH; Chicago, IL, USA; www.lcmh.org) tested having pharmacists lead medication reconciliation upon patient admissions into the emergency department (ED) from September 2012 through March 2013. During the first step of the process, pharmacists reviewed patient charts to identify disease

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Vascular Glue Seals Leaky Blood Vessels

A surgical glue inspired by algae reduces blood loss by creating a mechanical seal during surgical reconstruction of large blood vessels, such as the carotid, femoral, brachial, and iliac arteries.

Seal-V is an adhesive based on alginate – a carbohydrate made by algae – which mimics the way algae

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Clinicians Focus On Making CT Scans Safer for Children

Greater caution and awareness of health concerns are pushing to limit down the numbers of computed tomography (CT) scans and reducing exposure to radiation in pediatric care.

See article on page 5



Image: Technologist follows the red guide lights as she adjusts her patient's head for a pediatric CT scan.

Wound Care System Treats High-Risk Surgical Incisions

An ultraportable negative pressure wound therapy (NPWT) system promotes the healing of a surgical closed incisions (CIs), including those in anatomically challenging locations.

The ciSNaP system with controlled tension relief helps reduce surgical CI complications such as

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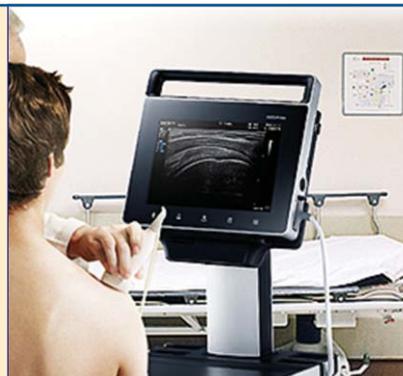
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Tablet Ultrasound System Designed for Point-of-Care

A new tablet-based ultrasound system is designed to satisfy all applications in the point-of-care field, which is the fastest growing medical segment in the healthcare industry.

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Artificial Pancreas Reacts To Real-Time Glucose

An integrated insulin pump suspends insulin delivery once a diabetic's measured blood glucose level falls below a preset level. The Medtronic MiniMed 530G with Enlite sensor is in effect an artificial pancreas that delivers better comfort and reliable continuous glucose monitoring

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Digital Breast Tomosynthesis System Introduced

A new digital breast tomosynthesis (DBT) system, which is three-dimensional (3D) imaging technology that uses a low-dose short X-ray sweep around the compressed breast with only nine exposures, has recently been approved for use in Europe. Of the 43 institutes with the technology

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RETRACTOR SYSTEM Orthozon Technologies

The Lumiere medical device is designed to provide greater access and visibility for physicians, allowing them to perform spinal surgeries more quickly and efficiently. As the result, patients have shorter and less painful recovery periods.

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SURGICAL BIOMATERIAL VEXIM

The Interface biomaterial is a biological alternative to existing orthopedic cements for treating traumatic vertebral fractures in patients with good bone quality. The Interface is used with SpineJack, and permits optimal stabilizing of the vertebral body while facilitating bone remodeling.

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ELECTROSURGICAL DEVICE Zerone Medical Device Technology

The ZEUS series offers a convenient LCD display on the front plate, and resection and coagulation by argon twin button handle. Additional features include a foot switch, nine available storages, small carbonization, and fast hemostasis even in extensive bleeding.

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WOUND DEBRIDEMENT SYSTEM Zimmer

The Pulsavac systems offer versatile solutions to wound irrigation, wound cleaning, and therapy. Three models feature lightweight design, and trigger-controlled pressure settings, and provide powerful cleaning for bone or soft tissue.

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Cold LED Lamp Illuminates Surgical Field

An innovative light emitting diode (LED) technology lamp assists clinicians during minor and minimally invasive surgery, and is free of infrared (IR) emissions. The STARLED3 EVO PLUS with LED technology is a completely digital and microprocessor controlled device that offers a low power consumption of only 55 W while delivering a powerful 130,000 lux, offering an ideal color rendering index (CRI) of 95 and a color temperature of 4,900 K that allows the reproduction of the exact chromatic scale of the colors of the human body. The lamps light beam can be focused via a central adjusting handle with a simple clockwise or anti-clockwise rotation, allowing both a focused illumination field as well as a uniform ambient one.

Selective operation of any or all of its three reflectors can be adjusted separately according to different needs, using the innovative I-Sense control panel. The lamp is also equipped with the pro-

prietary ENDOLIGHT-UP system, which emits beams of light from the upper part of the lamp, thus allowing perfect visualization of the surgical field during video monitoring of the patient as well as during microscope-aided procedures.

The shape of the lamp was designed to compensate for laminar flows, avoiding obstructing airflow, reducing turbulence areas, and providing visual comfort. The exterior shell is made of a smooth, scratch resistant material that makes cleaning quick, easy, and complete, and the adjusting handle is removable for effective sterilization via autoclave. The STARLED3 EVO PLUS is a product of ACEM Medical Company (Bologna, Italy; www.acem.it), and can be supplied in different versions, such as on a trolley, with a wall or a ceiling mount, and in a single or double configuration. The lamp can also be supplied with a battery-based power supply for field use.



Image: The STARLED3 EVO Plus in a ceiling-mount configuration (Photo courtesy of ACEM Medical Company).

Special-Purpose Capsule Restores Surgeons' Tactile Sense

A small, wireless capsule helps restore the sense of touch that surgeons are losing as they shift increasingly from open to minimally invasive surgery (MIS).

A team of engineers and doctors at Vanderbilt University (Nashville, TN, USA; www.vanderbilt.edu) designed a wireless palpation probe (WPP) equipped with a pressure sensor that fits through ports used in laparoscopic surgery. Deployed through a trocar incision and directly controlled by the surgeon, the WPP is pressed against the target tissue. The data from the sensor is used to create a volumetric stiffness distribution map, which can then be used to guide tissue resection to minimize healthy tissue loss. The map can reveal the location of tumors, arteries, and other important structures that the cameras cannot see because they are covered by a layer of healthy tissue.

The palpation capsule, which is just 1.5 cm wide and 6 cm long, contains a pressure sensor, an accelerometer, a wireless transmitter, a magnetic field

sensor, and a small battery. The pressure sensor records how hard the end of the capsule is being pushed against its target; the accelerometer records its movements. The WPP is used with a fixed external magnet and its position is tracked precisely by measuring the strength and direction of the magnetic field it experiences. The wireless transmitter sends all this information to an external antenna connected to a computer that uses the data to draw the map of tissue stiffness.

In desktop testing with tissue simulated by silicone gel, the researchers reported that the capsule can measure the local stiffness of the tissue with a relative error less than 5%; in large animal tests, they achieved a relative error of 8%. The ultimate goal is to achieve a level of resolution comparable to or greater than that of human touch. One possibility suggested is using the WPP data with a commercially available "haptic glove" that would allow the surgeon to feel pressure that the capsule is exerting and how the tissue is responding almost as if they

are touching it directly. The system is described in an article published on August 21, 2013, in the journal *IEEE Transactions on Biomedical Engineering*.

"Because palpation is so important to surgeons, there have been several previous attempts to build instruments that can provide it," said lead author Pietro Valdastri, PhD, an assistant professor of mechanical engineering and medicine. "Our approach is much simpler because it isn't attached to a rigid shaft like previous tools and so does not force the surgeon to make an additional incision in the patient to use it."

"The hope behind something like this capsule is that the surgeon will be able to place it inside the body through an existing incision and leave it in a position where it can be easily grasped and used to map out the stiffness or density of the tissue when needed, much like he or she would palpate it with by hand in open surgery," said coauthor S. Duke Herrell, MD, an associate professor of urologic surgery at Vanderbilt University School of Medicine.