

Hospimedia[®]

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

ECMO Effective in Respiratory Failure

A new study finds that extracorporeal membrane oxygenation (ECMO) for COVID-19 patients' suffering from severe respiratory failure is safe and effective.

Researchers at Rush University Medical Center (Chicago, IL, USA; www.rush.edu) and Advocate

Cont'd on page 16

Symptom Tracking App Reveals Six Types of COVID-19 Infection

Researchers have been tracking the mutation rate in the novel coronavirus' proteome since the first SARS-CoV-2 genome was published in January in the hope that the exploration of mutational pathways can anticipate moving targets for speedy therapeutics and vac-

cine development.

In their new study undergoing peer review, researchers and students from the University of Illinois (Champaign, IL, USA) have shown that the SARS-CoV-2 virus is honing the tactics that may make it more successful and more stable.

Cont'd on page 14

Treaded Robot Explores Intestines from Within

A novel robotic capsule endoscope (RCE) can remotely examine the gastrointestinal (GI) tract, performing colonoscopies and taking biopsies of intestinal polyps.

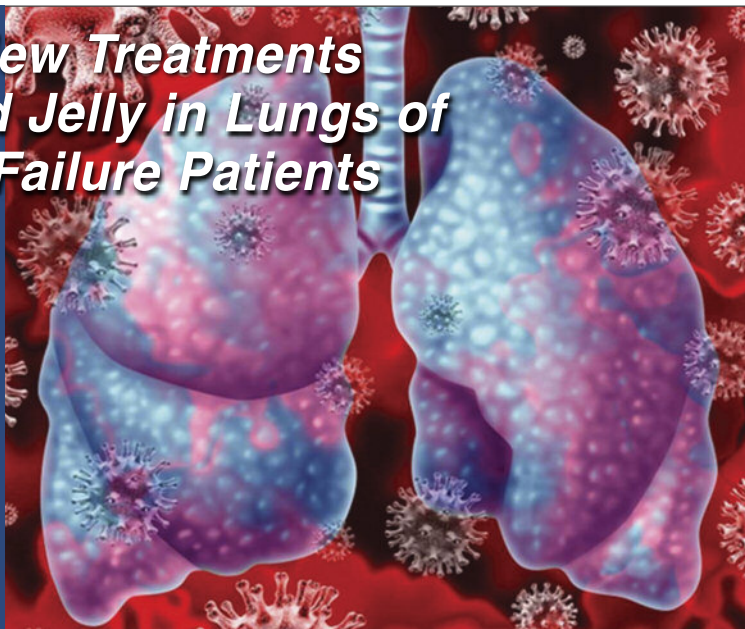
Developed at the University of Colorado (UC; Boulder, USA; www.colorado.edu), the Endoculus RCE is a small robot that moves on four motorized treads, and is designed to crawl through

Cont'd on page 20

COVID-19: New Treatments Target Liquid Jelly in Lungs of Respiratory Failure Patients

Researchers have established the active agent in the jelly formed in the lungs of some patients who die of severe COVID-19 and respiratory failure, potentially opening up the path to the development of new effective treatment therapies. Hospimedia's COVID-19 Update section starts on page 4.

See article on page 12



New Workstation Enables Multi-Modal Breast Imaging

A novel breast imaging workstation streamlines clinical workflows, enables patient-centric direct scan visualization and interpretation, and enhances the patient experience.

The Candelis (Newport Beach, CA, USA; www.candelis.com) Advanced Breast Imaging Enterprises Viewer is designed to display both past and present mammography and tomosynthesis patient images,

Cont'd on page 16

VISIT
LINKXPRESS.COM
 READER SERVICE PORTAL

- **Renew/Start your Free Subscription**
- **Access Interactive Digital Magazine**
- **Instant Online Product Information:**

- 1** Identify **LinkXpress**® codes of interest as you read magazine
- 2** Click on **LinkXpress.com** to reach reader service portal
- 3** Mark code(s) of interest on **LinkXpress**® inquiry matrix

If your subscription is not renewed every 12 months your Free Subscription may be automatically discontinued

Machine Learning System Predicts COVID-19 Respiratory Severity Risk

A rapid diagnostic that reads the immune system to predict severe respiratory failure risk in COVID-19 patients is being developed to help physicians make better hospital admission and resourcing decisions for COVID-19 patients at hospital presentation.



Cont'd on page 22

Siemens' Acquisition of Varian Medical to Forge Comprehensive Cancer Portfolio

Siemens Healthineers (Erlangen, Germany; www.siemens-healthineers.com) has entered into an agreement to acquire Varian Medical Systems, Inc. (Palo Alto, CA, USA; www.varian.com) that will lead to the creation of a



global leader in healthcare with a comprehensive portfolio to fight cancer. Varian is a world leader in the field of cancer care, with innovative solutions especially in radiation oncology and related software. With a holistic approach

Cont'd on page 21

INSIDE

COVID-19 Update 4

Medical Imaging

News Update 6
 Product News 6-10

Critical Care

News Update 10
 Product News 10-14

Surgical Techniques

News Update 16
 Product News 16-20

International Calendar .. 26



GLOBETECH
 >>> MEDIA <<<

Global Leader in Personal Protective Wear and Equipment



Disposable Protective Suit For Medical Use

Made of Non-Woven fabric with film.
Sterilization treatment: by use of ethylene oxide.
Standards: GB19082-2009.
Production Range: Class II: 14-14
Protective equipment for medical staff.
FDA, CE Certified.



Disposable Medical Face Shield

FDA, CE Certified.
Product Size: 0.2 x 310 x 230mm



KN95 Mask (FFP2)

Pass FFP2.
Comes in 3 ply, 4 ply and/or 5 ply.
FDA, CE Certified.

Get In Touch



1 305-527-7802



corporatesales@pery.com



www.perry-health.com

As hospitals and healthcare institutions around the world rush to order large volumes of COVID-19 remedies, the hospital/medical devices industry continues its unprecedented expansion to meet exploding global demand. The report that follows provides a survey of news and advances from mid-June until mid-August of this year. For a recap of earlier developments, the reader is invited to refer to previous issues of HospiMedica.

Coronavirus Targets Cells in Lungs, Nose and Intestines

Researchers at the Massachusetts Institute of Technology (MIT Cambridge, MA, USA; www.web.mit.edu) have identified specific types of cells that appear to be targets of the coronavirus that is causing the COVID-19 pandemic. Using existing data on the RNA found in different types of cells, the researchers were able to search for cells that express the two proteins that help the SARS-CoV-19 virus enter human cells. They found subsets of cells in the lung, the nasal passages, and the intestine that express RNA for both of these proteins much more than other cells. The researchers hope that their findings will help guide scientists who are working on developing new drug treatments or testing existing drugs that could be repurposed for treating COVID-19.

Mindray Launches New ME Series Portable Ultrasound Systems

Mindray Medical (Shenzhen, China; www.mindray.com) has launched its new ME series portable ultrasound systems to enhance clinical confidence during critical and emergency COVID-19 cases. Featuring smart fluid management solutions, comprehensive disinfection solution, convenient and agile mobility, intuitive interface and flexible battery solution, ME series portable ultrasound systems helps clinicians to address diagnostic challenges and make rapid decision in nowadays fast-paced, overburdened and demanding hospital environment. The ME series portable ultrasound systems are now available in Europe and other selected countries.

Study of Hospitalized COVID-19 Patients Links Comorbidities to Acuity

An analysis of the electronic health records (EHR) of hospitalized COVID-19 patients by the Northwell Health COVID-19 Research Consortium, with support from the Feinstein Institutes for Medical Research (Manhasset, NY, USA; www.feinstein.northwell.edu), has uncovered several comorbidities as a key factor in the acuity of the disease. The findings demonstrated that hypertension (57%), obesity (41%) and diabetes (34%) were the most common comorbidities in the COVID-19 patients studied.

Antibody Strategy Could Help Prevent Sepsis Induced By COVID-19

Scientists at the Feinstein Institutes for

Medical Research (Manhasset, NY, USA; www.feinstein.northwell.edu) have discovered the development of novel antibody strategy to effectively prevent the association between a harmless protein and a disease mediator that could lead to sepsis death. The research is particularly timely, as the development of these novel antibodies could be used to prevent sepsis induced by COVID-19, commonly known as the coronavirus, and other lethal pathogens.

Personal COVID-19 Ventilation Hood for Hospital Beds

Researchers from the University of Melbourne (Victoria, Australia; www.unimelb.edu.au) have designed a personal ventilation hood for hospital beds to help contain the droplet spread of coronavirus (COVID-19) in intensive care units (ICUs). The transparent, movable personal ventilation hood sucks air away from the patient while creating an effec-

tive droplet containment barrier. A personal ventilation hood for hospital beds can better protect healthcare workers by individually isolating critically ill patients with COVID-19.

Separately, a team of Israeli researchers has developed an inexpensive disposable ventilator specifically tailored to treat COVID-19 patients and has received approval from Israel's Health Ministry for the use of its prototype in a pilot study. Together with COVID-19 Sprint, a technology task force led by Assuta Ashdod Hospital (Ashdod, Israel; www.assuta.co.il), Rafael Advanced Technology (Haifa, Israel; www.rafael.co.il) and Weizmann Institute of Science (Rehovot, Israel; www.weizmann.ac.il), the Tel Aviv University's Faculty of Engineering (Tel Aviv, Israel; www.enengineering.tau.ac.il) is focused on producing a cheap, disposable ventilator from existing parts that are widely available. Their disposable ventilator, called MANSHEMA, is cheap, suitable for mass

Cont'd on page 5

TradeMed.com

WORLD'S MEDICAL PRODUCT MARKETPLACE

SIGN UP FOR FREE!

Connecting Buyers with Suppliers Worldwide

- Reach new sources of supply
- Identify latest products and technologies
- Send inquiries directly to suppliers
- Receive latest product alerts
- Chat live with suppliers

TradeMed provides a sophisticated yet easy-to-use global B2B platform for sourcing medical equipment. TradeMed connects buyers and sellers worldwide through a safe, secure and dynamic network. Solely dedicated to medical products, TradeMed is the premier choice for medical suppliers, hospital decisionmakers and buyers worldwide, regardless of size or budget.

cont'd from page 7

production, and easy to use, and can work non-stop for three months at a stretch.

Sorrento and Mount Sinai Jointly Developing COVI-SHIELD Antibody Therapy

Sorrento Therapeutics, Inc. (San Diego, CA, USA; www.sorrentotherapeutics.com) and Mount Sinai Health System (New York, NY, USA; www.mountsinai.org) have agreed to jointly investigate and develop an antibody cocktail (COVI-SHIELD) to potentially treat COVID-19. The collaboration aims to generate antibody products that would act as a "protective shield" against SARS-CoV-2 coronavirus infection, potentially blocking and neutralizing the activity of the virus in naïve at-risk populations as well as recently infected individuals.

AI Algorithms for Adjunctive Use in Detection of COVID-19

The US Food and Drug Administration (FDA) has allowed the use of Aidoc's (Tel Aviv, Israel; www.aidoc.com) cleared artificial intelligence (AI) algorithms intended for adjunctive use in the detection of findings associated with COVID-19. The product, which is the latest addition to Aidoc's suite of AI radiology solutions with FDA and CE clearances that flag critical conditions, detects and prioritizes incidental CT findings associated with COVID-19 (e.g. GGO - a non-specific imaging finding associated with COVID-19 infection) in any CT study that contains the lung or part of the lung - for example chest, abdomen or cervical spine. The prioritization of these incidental findings could help manage the adverse effects of COVID-19 by providing adjunctive information that can promote further patient evaluation.

Airtouch Portable X-Ray System Receives FDA Clearance

The AiRTouch portable X-ray system, a simple and efficient front-line tool to acquire chest X-rays to diagnose COVID-19 from Aspenstate Inc. (Plano, TX, USA; www.aspenstate.com), has been approved for human medical use by the US Food and Drug Administration (FDA). AiRTouch is the only portable X-ray system in the market with a built-in touch screen workstation that allows the user to acquire the image directly onto the device and transmit to PACS without a PC.

Philips Ultrasound Portfolio to Manage COVID-19 Complications Receives FDA Clearance

Philips Healthcare (Amsterdam, Netherlands; www.philips.com) has received 510(k) clearance from the US Food and Drug Administration (FDA) to market its ultrasound solutions for the management of COVID-19-related lung and cardiac complications. The clearance applies to Philips ultrasound systems including the EPIQ series, Affiniti series, Lumify, CX50 and Sparq diagnostic ultrasound systems, and to off-cart solutions like QLAB Ad-

vanced Quantification Software.

Royal Philips has launched its Rapid Equipment Deployment Kit for ICU ramp-ups, allowing doctors, nurses, technicians and hospital staff to quickly support critical care patient monitoring capabilities during the COVID-19 pandemic. It combines Philips advanced patient monitoring technology with predictive patient centric algorithms enabling care teams to quickly scale up critical care patient monitoring capabilities within a few hours.

New AI-driven Tool Mines COVID-19 Research

A free visual text analysis environment developed by analytics company, SAS (Cary, NC, USA; www.sas.com) uses artificial intelligence (AI) and machine learning to quickly search tens of thousands of research articles on COVID-19 and deliver potentially lifesaving answers to scientists working for new treatments and vaccine. Drawing on AI, natural language processing, linguistic rules and sophisticated modeling techniques, SAS' COVID-19 Scientific Literature Search and Text Analysis environment enables quick and intelligent extraction of relevant text and numerical data from the COVID-19 Open Research Dataset (CORD-19) containing more than 50,000 full-text scientific research articles on COVID-19 and other coronaviruses.

AI Algorithm Analyzes Chest CT Scans and Patient Data to Detect COVID-19

Researchers at Mount Sinai Health System (New York, NY, USA; www.mountsinai.org) became the first in the US to use artificial intelligence (AI) combined with imaging, and clinical data to analyze patients with COVID-19. The researchers have developed a unique algorithm that can rapidly detect COVID-19 based on how lung disease looks in computed tomography (CT scans) of the chest, in combination with patient information including symptoms, age, bloodwork, and possible contact with someone infected with the virus.

COVID-19 Antiviral Antibody Treatment Shows Improved Recovery Time

Celltrion Group (Incheon, South Korea; www.celltrionhealthcare.com) has announced positive pre-clinical results for its COVID-19 antiviral antibody treatment, with data demonstrating a 100-fold reduction in the viral load of SARS-CoV-2. The treatment was also able to show improvement in lung lesions to a normal activity level in animal models. The announcement follows the identification of antibody candidates for an antiviral treatment which Celltrion completed in April.

World's First Study of Potential COVID-19 Antibody Treatment in Humans

Eli Lilly and Company (Indianapolis, Ind, USA; www.lilly.com) has begun dosing patients

Cont'd on page 5

A GLOBETECH PUBLICATION
Publishers of: Hospimedia International • Hospimedia en Español
LabMedica International • LabMedica en Español
Hospimedia.com • MedImaging.net
LabMedica.com • BiotechDaily.com

Dan Gueron Publisher
Daniel Beris, DDS News Director
Raymond Jacobson, PhD News Editor
Jerry Slutzky, PhD News Editor
Andreas Rothstein News Editor
Sanjit Dutt New Products Editor
Theresa Herman Regional Director
Joffre Lores Regional Director
Dr. Jutta Ciolek Regional Director
Katsuhiro Ishii Regional Director
David Gueron Reader Service Manager
Stan Caines Production Director

HOW TO CONTACT US

Subscriptions: www.LinkXpress.com
Send Press Releases to: HMMNews@globetech.net
Advertising & Ad Material: ads@globetech.net
Other Contacts: info@globetech.net

ADVERTISING SALES OFFICES

USA, UK	Miami, FL 33280, USA
Theresa.Herman@globetech.net	Tel: (1) 954-686-0838
Joffre.Lores@globetech.net	
GERMANY, SWITZ., AUSTRIA	Bad Neustadt, Germany
Simone.Ciolek@globetech.net	Tel: (49) 9771-1779-007
BENELUX, FRANCE	Hasselt, Belgium
Nadia.Liefsoens@globetech.net	Tel: (32) 11-22-4397
JAPAN	Tokyo, Japan
Katsuhiro.Ishii@globetech.net	Tel: (81) 3-5691-3335
CHINA	Shenzhen, Guangdong, China
Parker.Xu@globetech.net	Tel: (86) 755-8375-3877
KOREA	Seoul, Korea
JaeW.Suh@globetech.net	Tel: (82) 02-7200-121
ALL OTHER COUNTRIES	Contact USA Office
ads@globetech.net	Tel: (1) 954-686-0838

SUBSCRIPTION INFORMATION

Hospimedia is published 6 times a year and is circulated worldwide (outside the USA and Canada), without charge and by written request, to medical department chiefs and senior medical specialists related to critical care, surgical techniques and other hospital-based specialties; hospital directors/administrators; and major distributors/dealers or others allied to the field.

To all others: Paid Subscription is available for a two-year subscription charge of US\$ 200. Single copy price is US\$ 20. Mail your paid subscription order accompanied with payment to Globetech Media, LLC, P.O.Box 801932, Miami, FL 33280-2214, USA.

For change of address or questions on your subscription, write to: Hospimedia International, Circulation Services at above address or visit: www.LinkXpress.com

ISSN 0898-7270

Vol.38 No.4 • Published, under license, by Globetech Media LLC Copyright © 2020. All rights reserved. Reproduction in any form is forbidden without express permission.

Teknopress Yayıncılık ve Ticaret Ltd. Şti. adına
İmtiyaz Sahibi: M. Geren • Yazı İşleri Müdürü: Ersin Köklü
Müşir Derviş İbrahim Sok. 5/4, Esentepe, 34394 Şişli, İstanbul
P. K. 1, AVPİM, 34001 İstanbul • E-mail: Teknopress@yahoo.com
Baskı: Postkom A.Ş. • İpkas Sanayi Sitesi
3. Etap C Blok • 34490 Başakşehir • İstanbul
Yerel süreli yayındır. Yılda altı kere yayınlanır, ücretsiz dağıtılır.

cont'd from page 7

in the world's first study of a potential antibody treatment designed to fight COVID-19. The investigational medicine, referred to as LY-CoV555, is the first to emerge from the collaboration between Lilly and AbCellera Biologics Inc. (Vancouver, Canada; www.abcellera.com) to create antibody therapies for the prevention and treatment of COVID-19.

Eli Lilly has announced that its partner Shanghai Junshi Biosciences Co. Ltd. (Shanghai, China; www.junshipharma.com) has dosed the first healthy volunteer in a study of a potential neutralizing antibody treatment designed to fight COVID-19. The investigational medicine, referred to as JS016, is a recombinant fully human monoclonal neutralizing antibody, which has been modified to diminish effector function. JS016 specifically binds to the SARS-CoV-2 surface spike protein receptor binding domain and can effectively block the binding of viruses to the ACE2 host cell surface receptor.

Speaking to Reuters, Daniel Skovronsky, Chief Scientific Officer of Lilly said that Lilly's third antibody treatment candidate acts on a different part of the virus and will be tested in combination with one or both of the others. If proven to be effective, the antibody therapies could be used on a large scale as a COVID-19 treatment much earlier than a vaccine.

Eli Lilly and AbCellera have speeded up their efforts to co-develop antibody products for the treatment and prevention of COVID-19 by leveraging AbCellera's proprietary AI system to empower the search. The use of AI and machine learning makes it possible to expand the quantity of data that can be screened, analyzing thousands of antibody sequences and corresponding data regarding potency and applicability for drug development that has been accumulated over years of research.

A trial, sponsored by Eli Lilly and implemented in collaboration with NIAID, will evaluate whether LY-CoV555 can prevent SARS-CoV-2 infection among people at high risk of exposure due to residing or working in skilled nursing or assisted living facilities.

Novel Cytokine Levels Correlated to COVID-19 Severity and Mortality

A new COVID-19 acute respiratory distress syndrome (ARDS) biomarker study conducted by Cerecor Inc. (Rockville, MD, USA; www.cerecor.com) and Myriad Genetics Inc. (Salt Lake City, UT, USA; www.myriad.com) has found that that levels of novel cytokine, LIGHT, were highly correlated with disease severity and mortality. LIGHT is a potential key driver of cytokine storm leading to ARDS and death. LIGHT levels were significantly elevated in the serum of hospitalized patients with COVID-19 versus healthy controls in the study.

Philips' Patient Monitoring Solutions Granted FDA EUA

Royal Philips (Amsterdam, Netherlands; www.philips.com) has been granted Emergency Use Authorization (EUA) by the US Food and Drug Administration (FDA) for its IntelliVue Patient Monitors MX750/MX850 and

its IntelliVue Active Displays AD75/AD85, for use in the US during the COVID-19 health emergency. The EUA allows Philips to start delivering the new remote patient monitoring solution to hospitals in the US, and the company is committed to submitting a 510(k) to FDA for this acute care solution in the course of 2020.

MRI Scan Reveals 'Viral Brain Invasion' of Coronavirus

Doctors have found magnetic resonance imaging (MRI) evidence of the ability of the novel coronavirus (SARS-CoV-2) to invade the brain based on brain scans of a COVID-19 patient with loss of taste and smell. The doctors believe that this is the first report of in vivo human brain involvement in a patient with COVID-19 showing a signal alteration compatible with viral brain invasion in a cortical region (i.e., posterior gyrus rectus) that is associated with olfaction.

COVID-19 Survivors May Have Long-Term Brain Deficits

Dr. Majid Fotuhi, MD, PhD, a Harvard- and Johns Hopkins-trained neurologist and neuroscientist, has warned about neurological issues in patients who suffer from COVID-19 and is encouraging more study of

Cont'd on page 5



greiner bio-one

Your Power for Health



SAFETY Blood Collection Sets

Because safety is more important than ever



- Winged needle with needle protection cap for blood collection with difficult vein conditions
- Transparent flash chamber for optical control of the initial blood flow
- Easy one-handed activation of the safety mechanism
- Available in various versions

Greiner Bio-One GmbH | Bad Haller Straße 32 | A-4550 Kremsmünster
 Phone: (+43) 75 83 67 91-0 | Fax: (+43) 75 83 63 18 | E-mail: office@at.gbo.com www.gbo.com/preanalytics

ULTRASOUND GEL PARKER LABORATORIES



The SCAN ultrasound gel has an exclusive dual-viscosity formula which allows it to be applied as a gel and scan as a fluid, suitable for medical ultrasound procedures where a less viscous gel is desired.



LINKXPRESS.COM HMI-09-20 201

BREAST IMAGING PHANTOM CIRS

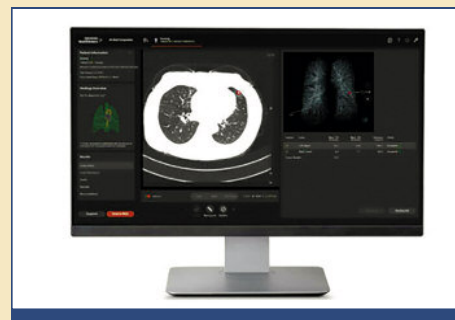


The CIRS Model 020 BR3D Breast Imaging Phantom assesses detectability of lesions of various sizes within a tissue equivalent, heterogeneous background. It contains six heterogeneous, breast-equivalent slabs.



LINKXPRESS.COM HMI-09-20 202

AI WORKFLOW SOLUTION SIEMENS HEALTHINEERS



The AI-Rad Companion Chest CT is an AI-powered, cloud-based augmented workflow solution that helps reduce the burden of basic repetitive tasks and increase diagnostic precision when interpreting medical images.



LINKXPRESS.COM HMI-09-20 203



cont'd from page 7

the neurological effects of the disease to promote better treatments. According to Fotuhi, medical director of NeuroGrow Brain Fitness Center (McLean, VA, USA; www.neurogrow.com), having an MRI while at the hospital will be an important tool in developing an optimal treatment strategy for these patients.

Protein Biomarkers Predict If COVID-19 Patients Can Become Severely Ill

Researchers at the Francis Crick Institute (London, UK; www.crick.ac.uk) and Charité – Universitätsmedizin Berlin (Berlin, Germany; www.charite.de) have identified 27 protein biomarkers that could be used to predict whether a patient with COVID-19 is likely to become severely ill with the disease. The team found 27 potential biomarkers that are present in different levels in patients with COVID-19, depending upon the severity of their symptoms. The markers could help doctors to predict how ill a patient will become and provide scientists with new targets for drug development.

Untapped Potential for AI-Enhanced Chest X-Ray Imaging In COVID-19 Diagnosis

Researchers at the John Hopkins University (Baltimore, MD, USA; www.jhu.edu) have suggested that artificial intelligence (AI) should be used to expand the role of chest X-ray imaging – using computed tomography (CT) – in diagnosing and assessing coronavirus infection so that it can be more than just a means of screening for signs of COVID-19 in a patient's lungs. According to the researchers, there is "an untapped potential" for AI-enhanced imaging to improve, "AI's

power to generate models from large volumes of information - fusing molecular, clinical, epidemiological and imaging data - may accelerate solutions to detect, contain and treat COVID-19."

COVID-19 Patients Develop Fatal Blood Clots Due to High Alpha Defensin Protein Levels

Researchers from the Hadassah-University Medical Center (Jerusalem, Israel; www.hadassah-med.com) have identified the mechanism that causes a deadly COVID-19 complication that affects 30% of patients: the formation of large and small blood clots that create lethal blockages in the patient's lungs, kidneys, heart, and brain. The researchers have discovered that alpha-defensin, a peptide (an amino-acid chain) speeds up the creation of blood clots and prevents their disintegration. This finding is crucial in understanding what is happening to COVID-19 patients as existing anticoagulant drugs do not impact alpha-defensin.

Genes and Blood Type Determine Risk of COVID-19 Severity

The world's first large-scale genome-wide study conducted by scientists at the University Medical Center Schleswig-Holstein (UKSH Kiel, Germany; www.uksh.de) and the Kiel University (CAU Kiel, Germany; www.uni-kiel.de), in cooperation with a research group from Norway, has found gene variants that significantly influence the course of the disease-one of them concerns the gene for the blood group trait. This suggests that different blood groups may be responsible for why some people become severely ill with COVID-19 while others show hardly any symptoms.

Microscopic Sponges Soak Up and Neutralize Coronavirus

Engineers at the UC San Diego (La Jolla,

CA, USA; www.ucsd.edu) have developed nanoparticles cloaked in human lung cell membranes and human immune cell membranes that are capable of attracting and neutralizing the SARS-CoV-2 virus in cell culture, making the virus lose its ability to hijack host cells and reproduce. The "nanosponges" were tested by researchers at Boston University (Boston, MA, USA; www.bu.edu), creating a new direction for fighting COVID-19.

Coronavirus Immunity in COVID-19 Patients May Not Last More Than Two Months

Initial results from an antibody testing study led by researchers and clinicians at St George's, University of London (London, UK; www.sgul.ac.uk) have revealed that COVID-19 antibodies remain stable in the blood of the majority of infected individuals almost two months after diagnosis and possibly longer. The study did not detect antibodies in everyone exposed to the virus, thus opening discussions on how best to interpret antibody and viral tests. These findings answer questions on how long people can remain immune after exposure to COVID-19 and provide insights into how different age and ethnic groups respond to infection.

AI-Based Predictive Analytics Platform Receives FDA EUA In Support of COVID-19 Patients

CLEW-ICU, a new ICU solution, developed by CLEW (Netanya, Israel; www.clewmmed.com), has become the only device to receive FDA Emergency Use Authorization (EUA) for providing early identification of patients who are likely to experience respiratory failure or hemodynamic instability, both potentially common but significant complications associated with COVID-19. The AI-based algorithms are machine-learning models trained to identify respiratory failure and or hemodynamic

Cont'd on page 5

cont'd from page 7

instability hours in advance. This allows for additional evaluation and potentially early intervention, planning, resource management.

New AI-Powered Diagnostic Solution Accelerates COVID-19 Screening

A robust AI-powered solution developed by QuEST Global (Singapore; www.quest-global.com) that uses advanced deep learning models to sort and identify chest X-rays of patients with COVID-19 can enable healthcare professionals to accelerate the screening of COVID-19 patients with pneumonia symptoms. The AI-powered diagnostic solution has an accuracy of more than 95%, allowing it to be deployed on the cloud as a service, thus making it easily accessible on edge for healthcare professionals and end-users.

COVID-19 Patients in ICU 10 Times More Likely to Experience Heart Rhythm Disorders

A study by researchers from the Perelman School of Medicine at the University of Pennsylvania (Philadelphia, PA, USA; www.upenn.edu) has found that COVID-19 patients who were admitted to an intensive care unit were 10 times more likely than other hospitalized COVID-19 patients to suffer cardiac arrest or heart rhythm disorders. The results suggest that cardiac arrests and arrhythmias suffered by some patients with COVID-19 are likely triggered by a severe, systemic form of the disease and are not the sole consequence of the viral infection.

COVID-19 Patient Isolation Transport System Minimizes Infection Risk

A new infectious disease containment system from Numotech, Inc. (Northridge, CA, USA; www.numobag.com) could provide protection to critical first responders and medical staff against infectious or contagious disease, such as COVID-19, while transporting or monitoring an infected patient. The new production-ready Numobag Disposable Isolation System (N-DIS) is a portable, easily deployed, low-cost, single-use, disposable infectious disease containment system designed to minimize risk to the patient and front-line personnel, while allowing patient monitoring and safe transport fully encapsulated in a medical-grade, oxygen-enriched, clear polyethylene membrane.

COVID-19 Infection Significantly Associated with Strokes

In the first major peer reviewed study, researchers at the Icahn School of Medicine at Mount Sinai Hospital (New York, NY, USA; www.ichn.mssm.edu) have shown that COVID-19 infection is a risk factor for acute strokes and patients with the infection should undergo more aggressive monitoring for stroke. The researchers have suggested that patients with COVID-19 should be evaluated early for acute neurological changes and timely workup should be performed in patients suspected to have stroke to reduce morbidity and mortality.

Low Oxygen Levels in COVID-19 Patients Due to Damaged Blood Cells

Researchers from the University of Colorado Anschutz Medical Campus (Aurora, CO, USA; www.cuanschutz.edu) and Columbia University (New York, NY, USA; www.columbia.edu) have found that the damage caused by the coronavirus to the membranes of red blood cells that carry oxygen could explain why several COVID-19 patients have alarmingly low oxygen levels. According to the researchers, the findings suggested a significant impact of SARS-CoV-2 infection on RBC structural membrane homeostasis at the protein and lipid levels.

Nasal Powder Inhaler Blocks 99% of SARS-CoV-2 Viruses from Reaching Nasal Mucosa

An innovative nasal powder inhaler named TaffiX from Nasus Pharma (Tel Aviv, Israel; www.nasuspharma.com) that effectively blocks viruses from reaching nasal mucosa was able to block more than 99% of SARS-CoV-2 viruses. TaffiX powder creates a unique thin acidified gel above the nasal mucosa that lasts five hours, significantly shielding the nasal cells from inhaled viruses through both mechanical and chemical

protection. As such, TaffiX may be an important new protective tool for preventing SARS-CoV-2 viral infections in addition to the multiple preventive measures being taken currently.

COVID-19 Neurological Complications Could Cause Long Term Brain Damage in Recovered Patients

Based on a study by the University College London (London, UK; www.ucl.ac.uk), researchers have warned that COVID-19 neurological complications, including delirium, brain inflammation, stroke, and nerve damage, could result in large scale brain damage in recovered patients over the long term. The research team identified one rare and sometimes fatal inflammatory condition, known as acute disseminated encephalomyelitis (ADEM), which appears to be increasing in prevalence due to the pandemic. Some patients in the study did not experience severe respiratory symptoms, and the neurological disorder was the first and main presentation of COVID-19.

Tocilizumab Lowers Risk of Dying by 45% in COVID-19 Patients on Ventilators

A study by the University of Michigan (Ann Arbor, MI, USA; www.mich

Cont'd on page 5

Proven Tissue Equivalent Phantom Solutions

CIRS is recognized as a leader in the manufacture of tissue equivalent phantoms and simulators for medical imaging, radiation therapy and procedural training. CIRS is one of a few companies worldwide with proprietary technology that permits the manufacture of phantoms for every commercial imaging modality.

SRS QA

Stereotactic End-to-End Verification Patient Phantom

High fidelity simulation for your SRS program

Model 038



Cone Beam CT

ATOM MAX

Our most realistic maxillofacial phantom for dental cone beam CT & panoramic X-Ray

Model 711HR



Motion Management

MRgRT Motion Management Phantom

Programmable motion for image acquisition, treatment planning & dose delivery

Model 0082



Tissue Elastography

Shear Wave Liver Fibrosis Phantom

Measure known tissue with shear wave systems

Model 039



Image Fusion & Tracking

Image-Guided Abdominal Biopsy Phantom

Visualize biopsy insertions with minimal needle tracking

Model 0718



Ultrasound QA

Multi-Purpose Multi-Tissue Ultrasound Phantom

The Standard for ultrasound quality assurance

Model 040GSE



Mammography QA

Mammographic Accreditation Phantom

Required for MQSA Program

Model 015



ACR Digital Mammography Phantom

Evaluate FFDM system performance

Model 086



CIRS

900 Asbury Ave. • Norfolk, Virginia 23513 • USA • Tel: 757-855-2765 • www.cirsinc.com

ULTRASOUND SYSTEM EDAN INSTRUMENTS

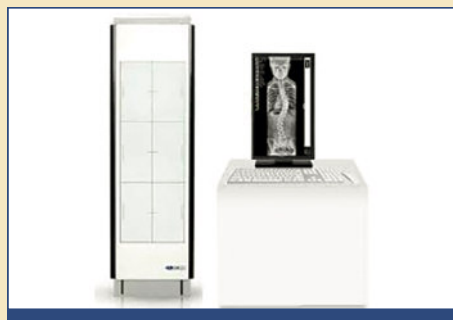


The U2 PE (Prime Edition) is a digital diagnostic ultrasound system that features advanced signal processing for delivering exceptional image quality and uncompromised diagnostic capabilities.



LINKXPRESS.COM HMI-09-20 204

FLAT PANEL DETECTOR ICRCO



The iDR-L is a seamless, high-resolution detector that offers full spine, regional, and zone scanning capabilities, boasting of a higher resolution than standard DR while maintaining the same workflow.



LINKXPRESS.COM HMI-09-20 205

DOSIMETRY SYSTEM FLUKE BIOMEDICAL



The RaySafe i2 is an active dosimetry system that provides real-time insights about radiation exposure, helping medical staff and physicians evaluate and directly adjust their behaviors.



LINKXPRESS.COM HMI-09-20 206

COVID-19 Update

cont'd from page 7

iganhealthlab.org) has found that critically ill COVID-19 patients who received tocilizumab, a drug that calms an overreacting immune system, were 45% less likely to die and more likely to leave the hospital or get off a ventilator one month after treatment, compared with those who did not receive the drug. The study found that the risk of death in patients who received a single dose of intravenous tocilizumab was lower despite the fact that they also had twice the risk of developing an additional infection, on top of the novel coronavirus. The findings suggest a benefit from timely and targeted efforts to calm the "cytokine storm" caused by the immune system's overreaction to the coronavirus.

Roche has announced that the first global, randomized, controlled Phase 3 trial investigating Actemra (tocilizumab) in patients with COVID-19 associated pneumonia did not meet its primary endpoint of improved clinical status or the key secondary endpoint of reduced mortality.

Low-Dose Lung Radiation Therapy Improves Outcomes in Patients with COVID-19 Pneumonia

A study by doctors at the Emory University (Atlanta, GA, USA; www.emory.edu) has shown that administering a low dose of radiation to the lungs of COVID-19 patients with pneumonia can quicken their recovery. The doctors have concluded that low-dose whole-lung radiation is safe, shows early promise of efficacy, and warrants further study in larger prospective trials.

Preventative Nasal Spray Reduces Coronavirus Replication by Up to 96%

A new preventative nasal spray treatment that has been shown to reduce viral replication by up to 96% in a COVID-19 challenge study could protect people from the SARS-CoV-2 virus and prevent its transmission.

The novel product, INNA-051, has been developed by Ena Therapeutics (Melbourne, Australia; www.henarespiratory.com) to boost the natural human immune system to fight common colds and flu. INNA-051 has proved remarkably successful in tests by reducing COVID-19 viral replication by up to 96% in a gold-standard animal study. The INNA-051 compound works by stimulating the innate immune system, the first line of defense against the invasion of pathogens into the body. By boosting the immune response in this way with INNA-051 prior to

infection, the ability of the COVID-19 virus to infect the animals and replicate was dramatically reduced the study showed. The study provides evidence that INNA-051 can be used as a stand-alone method of antiviral preventative therapy, complementary to vaccine programs.

Heart Abnormalities In Recovered COVID-19 Patients

A new study of patients from the University Hospital Frankfurt's COVID-19 Registry (Frankfurt, Germany; www.kgu.de) has revealed abnormal heart imaging findings in recently recovered COVID-19 patients, suggesting that COVID-19 significantly impacts the cardiovascular system. In the observational cohort study, the researchers performed cardiac magnetic resonance (CMR) imaging which showed heart involvement in 78 patients and active cardiac inflammation in 60 patients, irrespective of their underlying conditions, disease severity, course of illness, and time from diagnosis to CMR.

Neuro-Axonal Damage Found in Mild-To-Moderate Cases of SARS-CoV-2

A new study by Quanterix Corporation (Billerica, MA, USA; www.quanterix.com) has offered first-time evidence of neuro-axonal damage in mild-to-moderate cases of SARS-CoV-2 and validated serum neurofilament light chain (sNfL) as a highly specific biomarker to measure and monitor damage during and post infection. Quanterix performed quantitative testing using its sNfL Assay and Simoa technology to show that COVID-19 can affect the neurological integrity of adult patients who experience a mild-to-moderate form of the virus. The study offers new evidence of SARS-CoV-2's neuro-destructive capabilities as it relates to less severe cases.

Hepatitis C Drug Sofosbuvir to Treat COVID-19 in Combination with Remdesivir

Researchers have reported that Sofosbuvir-terminated RNA is more resistant to the proofreader of SARS-CoV-2 than Remdesivir-terminated RNA, supporting the use of the FDA-approved hepatitis C drug EPCLUSA - Sofosbuvir/Velpatasvir - in combination with other drugs in COVID-19 clinical trials.

The SARS-CoV-2 exonuclease-based proofreader maintains the accuracy of viral RNA genome replication to sustain virulence. Any effective antiviral targeting the SARS-CoV-2 polymerase must therefore display a certain level of resistance to this proofreading activity. The new study by researchers at Columbia Engineering (New York, NY, USA; www.engineering.columbia.edu) builds upon their earlier work. Last January, before COVID-19 reached pandemic status, the team posited that EPCLUSA might inhibit SARS-CoV-2, the virus responsible for COVID-19.

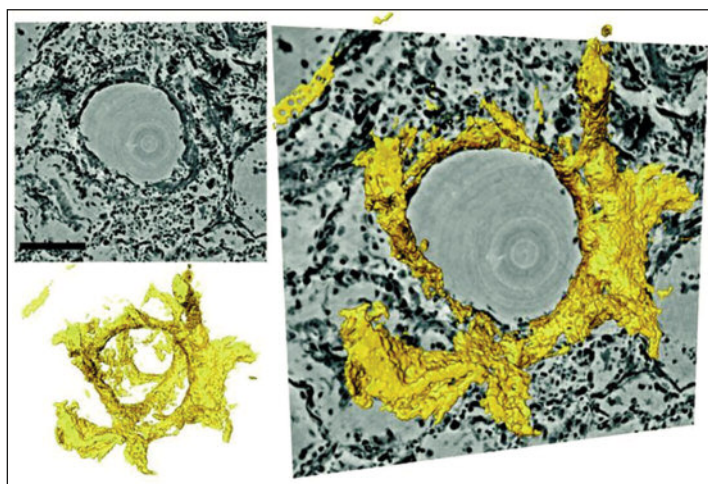
3D Imaging Offers Insights on Lung Involvement in COVID-19

A novel three-dimensional (3D) imaging technique enables high resolution representation of damaged lung tissue following severe Covid-19.

The new technique, developed at the University of Göttingen (Germany; www.uni-goettingen.de) and the Medical University of Hannover (MHH; Germany; www.mhh.de/), is based on multi-scale phase contrast x-ray tomography, allows virtual histology and histopathology autopsy of the parenchymal architecture of unstained lung tissue from patients who succumbed to Covid-19. By combining parallel and cone beam geometry, autopsy samples with a maximum cross section of 4mm can be scanned and reconstructed at a resolution and image quality which allows for the segmentation of individual cells.

By using the zoom capability of the cone beam geometry, regions-of-interest are reconstructed with a minimum voxel size of 167 nm. In a proof-of-concept study, the researchers showed the capabilities of the new approach by visualizing diffuse alveolar damage (DAD), including prominent hyaline membrane formation, via mapping the 3D distribution and density of lymphocytes infiltrating the tissue, and by providing histograms of characteristic distances from tissue interior to the closest air compartment. The study was published on August 20, 2020, in *eLife*.

"Using zoom tomography, large areas of lung tissue embedded in wax can be scanned, enabling detailed examination to locate particularly interesting areas around inflammation, blood vessels, or bronchial tubes," said lead author Professor Tim Salditt, PhD, of the University of Göttingen Institute of X-ray Physics. "Since X-rays penetrate deep into tissue, this enables scientists to understand the relation between the microscopic tissue structure and the larger functional architecture of an organ. This is important, for example, to visualize the tree of blood vessels down to the smallest capillaries."



3D imaging via computerized tomography (CT) is not sufficient to detect tissue structure at cellular or sub-cellular resolution. The researchers therefore used phase contrast tomography, which exploits the different propagation velocities of X-rays in tissue to generate an intensity pattern. Special illumination optics and algorithms were then used to reconstruct sharp images from these patterns. This allowed examination of lung tissue at scalable size and resolution, yielding both larger overviews and close-up reconstructions.

Image: 3D reconstruction around a pulmonary alveolus with hyaline membrane (yellow) (Photo courtesy of Tim Salditt/ University of Göttingen)

High-Resolution Thermal Imaging Helps Monitor Breast Tumors

Thermographic detection of pathophysiologic changes within the breast could aid tumor monitoring without the need for ionizing mammography radiation, according to a new study.

Researchers at the University of Texas Dallas (UTD; USA; www.utdallas.edu) and the University of Texas (UT) Southwestern Medical Centre (UTSW; Dallas, TX, USA; www.utsouthwestern.edu) conducted an experimental study to determine the individual thermal characteristics of breast cancer by constructing a computational thermal model calibrated to clinical data consisting of high-resolution infrared (IR) images, three-dimensional (3D) breast surface geometries, and histologically diagnosed internal breast cancer tumor definition of a specific volunteer.

To do so, the researchers quantified blood perfusion rate, metabolic heat generation rate, and other thermal features of both normal and cancerous breast tissues that best matched surface temperatures as recorded on a state-of-the-art IR camera; a 3D scanner recorded surface geometries; and magnetic resonance (MR) imaging data provided tumor definition such as size and spatial location. The 3D scans and tumor definition served as geometric inputs to the model, whereas IR images were used to calibrate the model.

The results showed a detectable temperature differential in metabolic heat generation between the patient's normal and cancerous breasts, as well as increased perfusion rates in the affected breast. They cautioned, however, that the computational model cannot be applied to all types of breast cancer, and that it is specific to each subject's unique breast cancer molecular subtype, stage, and lesion size. In addition, not all breast cancers generate sufficient heat to be detected via IR thermography. The study was published in the October 2020 issue of *Nature Scientific Reports*.

Accu-Gold TOUCH for X-ray QA and Service

Introducing

Radcal's New DAP Chamber for CBCT and Dental Applications

The 'DAP' Chamber

- Easy to use chamber mounting and alignment fixture that minimizes set-up time
- Auto ranging and convenient unit selection for Gy-m² or Gy-cm²
- Flat energy response over all RQR and RQA beams
- Add to your existing Accu-Gold system - no calibration adjustments, just update your software and plug it in
- Use with an Accu-Gold multi-sensor to simultaneously measure DAP, kVp, and hvl



Radcal

Call Us **626-357-7921**
sales@radcal.com www.radcal.com

MRI SYSTEM GE HEALTHCARE

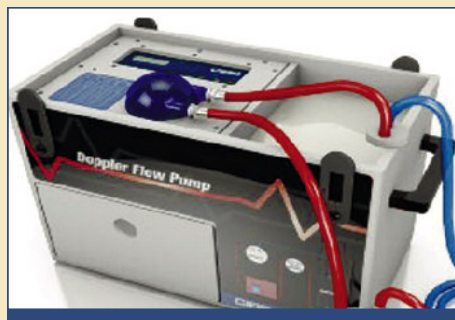


The Optima MR450w 1.5T with GEM Suite combines benefits of wide-bore imaging with GEM, or Geometry Embracing Method, conforming the geometry of the equipment and technology to that of the patients.



LINKXPRESS.COM HMI-09-20 207

DOPPLER FLOW PUMP CIRS



The new improved Model 769 Doppler Flow Pump, compatible with both its ATS Urethane flow phantoms and its new Model 069A Zerdine flow phantom, provides a complete solution for QA testing of Doppler ultrasound devices.



LINKXPRESS.COM HMI-09-20 208

MOBILE DR SYSTEM BROWINER



The NeoAR mobile DR system is specifically designed for newborns with features such as low-dose exposure, small space requirement, and simple quick operations, integrated X-ray machine and user-friendly software interface.



LINKXPRESS.COM HMI-09-20 209

Chlorhexidine Antiseptic Halves Post-Surgical Infection Risk

Pre-procedural skin antisepsis with alcoholic chlorhexidine gluconate (CHG) is twice as effective as povidone-iodine (PVI) in preventing surgical site infection (SSI), according to a new study.

Researchers at the University of Leeds (United Kingdom; www.leeds.ac.uk) and the University of Bern (Switzerland; www.unibe.ch)



Image: Alcoholic CHG should be the preferred skin preparation disinfectant (Photo courtesy of Shutterstock)

Obtain Multiple Views Without Relocating the Patient

Designed with feedback from a leading medical imaging facility, the innovative Multiview Positioning Platform obtains multiple weight-bearing anatomical views.



Helping to reduce patient movement and costly retakes, the Platform helps increase patient and professional satisfaction with four imaging-panel placement locations and two grab bars for patient stability.

clear image devices
ADVANCING MEDICAL IMAGING

Call For More Information
734.474.6537
ClearImageDevices.com

conducted a systematic search for randomized or nonrandomized studies comparing efficacy and relative risk (RR) of different preparations of CHG and PVI on the dichotomous outcome of SSI. The studies included those of adults undergoing clean surgery, and excluded those that dealt with indwelling vascular catheters, blood sampling, a combination of different antiseptics, or in sequential applications of different antiseptics.

The results, as analyzed from 17 studies comparing five antiseptics in 14,593 patients, showed that the overall rate of SSI was 3%. Alcoholic CHG (4–5%) was ranked as the most effective antiseptic as it halved the risk of SSI when compared to both aqueous PVI (RR 0.49), and alcoholic PVI (RR 0.51), although the uncertainty was larger. Adverse events, as related to antiseptic application, were only observed with patients exposed to PVI. The study was published on September 1, 2020, in *Annals of Surgery*.

“This research should be of benefit to all healthcare professionals around the world who perform any type of invasive procedure on a ‘clean site’. Even though the risk of infection in this type of surgery is low, anything we can change to reduce this risk is very important,” said lead author Ryckie Wade, MD, of the University of Leeds School of Medicine. “Our findings suggest that the number of

Cont'd on page 11

ECMO Effective in Respiratory Failure

cont'd from cover

Christ Medical Center (Oak Lawn, IL, USA; www.advocatehealth.com/cmc/) conducted a retrospective study of 40 consecutive COVID-19 patients with severe respiratory failure between and who were supported via ECMO. A single-access, dual-stage right atrium-to-pulmonary artery cannula was implanted, following which ventilation was discontinued while the patient continued to receive ECMO. Primary outcome was survival following safe discontinuation of ventilatory and ECMO supports, with emphasis on early extubation.

Demographic data revealed that mean age was 48.4 years, 75% were men, 40% were African American, and 35% were Hispanic. Obesity was the primary preexisting condition in 70% of patients. All patients reached maximum ventilator support, with 90% placed in a prone position, paralyzed, or both; 11 patients could not be placed in a prone position because of increasing hemodynamic instability and/or worsening oxygenation or ventilation with pronation. All patients demonstrated considerably elevated levels of inflammatory markers, such as D-dimer and ferritin, prior to ECMO use.

The three-month results showed that ventilator support was successfully discontinued in all patients, resulting in a mean time of 13 days from ECMO initiation to extubation, at which time 80% of the patients were no longer receiving ECMO care. Complications were minimal, with no ischemic strokes, inotropic support, or tracheostomies performed. Mortality was 15% (six patients in all). The study was published on August 12, 2020, in *JAMA Surgery*.

"The single-access, dual-stage cannula offered several advantages: direct pulmonary artery flow, thus improving oxygenation and ventilation; early mobility once off the ventilator; minimal cannula-associated complications or revisions; and finally, support of the right side of the heart in case of right ventricular dysfunction," concluded lead author Asif Mustafa, MD, PhD, and colleagues. "Given the higher prevalence of associated mortality with acute cor pulmonale in patients with COVID-19, protecting the right side of the heart was critically important."

ECMO is a form of veno-venous extracorporeal life support (VV ECLS), an emerging therapy designed to provide a higher level of life support by infusing oxygen directly into the blood using an oxygenator that acts as an artificial lung. A tapered cannula provides omni-directional flow, optimizing gas exchange and reducing stress on the right side of the heart.

Chlorhexidine Antiseptic Halves Post-Surgical Infection Risk

cont'd from page 10

infections may be halved if surgeons used a different skin cleaning agent before surgery."

CHG is used for skin disinfection prior to surgery, sterilize surgical instruments, and disinfection of the hands of healthcare providers. CHG salts dissociate and release positively charged chlorhexidine cation molecule, which causes a bactericidal effect by binding to negatively charged bacterial cell walls. At low concentrations, a bacteriostatic effect occurs; at high concentrations, membrane disruption results in cell death. It can be applied topically as a gel, wash, or powder.

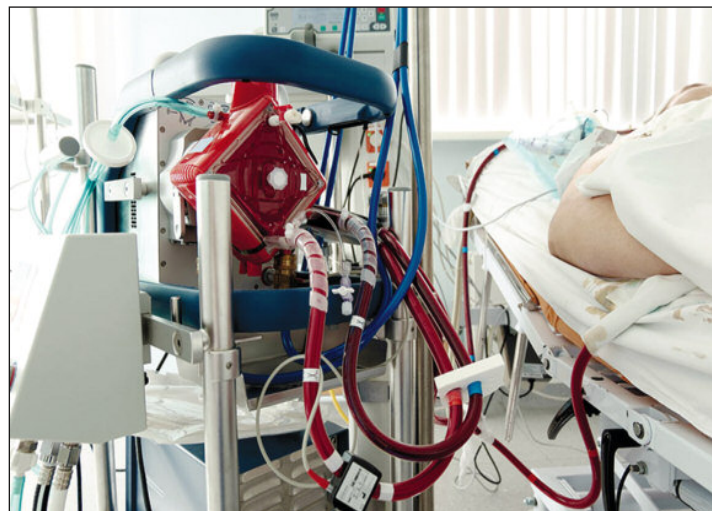


Image: ECMO can support respiratory failure in COVID-19 patients (Photo courtesy of Getty Images)



EUROSON 2021



WFUMB 2021



SRUMB 2021

18th World Federation for Ultrasound in Medicine and Biology Congress

26-29 of May 2021 Timișoara, România



Save the date!

www.efsumb.org

**TIMIȘOARA
WORLD
CAPITAL OF
ULTRASOUND**

FETAL MONITOR EDAN INSTRUMENTS



The F3 is a portable fetal monitor featuring an elegant design, bright color screen and enhanced functionality, and offers an extensive set of monitoring parameters such as FHR, TOCO, DECG, IUP and fetal movement.



LINKXPRESS.COM HMI-09-20 210

VENTILATOR DRAGER MEDICAL



The Evita V600 ventilator combines high performance ventilation with an aesthetic design, enabling quick efficient operation. Its brilliant user interface combined with glass touch technology supports intuitive operation.



LINKXPRESS.COM HMI-09-20 211

PATIENT MONITOR INFINIUM MEDICAL



The Omni (K) patient monitor offers an extremely simple and adaptable user interface, allowing patient information along with vital sign settings to be quickly modified to meet the needs of a patient's changing condition.



LINKXPRESS.COM HMI-09-20 212

COVID-19: New Treatments Target Liquid Jelly in Lungs of Respiratory Failure

Researchers have established the active agent in the jelly formed in the lungs of some patients who die of severe COVID-19 and respiratory failure, potentially opening up the path to the development of new effective treatment therapies.

When performing lung scans on critically ill patients with COVID-19 infection, medical professionals have been able to see white patches. Additionally, the autopsies of some deceased COVID-19 patients have shown that the lungs were filled with a clear liquid jelly, much resembling the lungs of someone who has drowned. It was previously unknown where this jelly originated from. A group of researchers at the Translational Research Centre at the Umeå University (Umeå, Sweden; www.umu.se) have shown that the jelly consists of the substance hyaluronan, which is a polysaccharide in the glycosaminoglycan group.

The presence of hyaluronan is normal in the human body, with various functions in different tissues, although it generally acts as a useful characteristic in the connective tissue. Addition-

ally, Hyaluronan is involved in the early stages of wound healing and is also produced synthetically in the beauty industry for lip augmentation and anti-wrinkle treatments. Since hyaluronan can bind large amounts of water in its web of long molecules, it forms a jelly-like substance. And it is this process that runs riot in the alveoli of COVID-19 patients' lungs resulting in the patient needing ventilator care and, in worst case, dies from respiratory failure.

Currently, a drug called hymecromone is used to slow down the production of hyaluronan in other diseases such as gallbladder attacks. There is also an enzyme that can effectively break down hyaluronan. As an example, this enzyme can be used in the event that an unsuccessful beauty treatment needs to be terminated abruptly. Even cortisone reduces the production of hyaluronan. In a British study, preliminary data showed positive effects on treatments with the cortisone



drug dexamethasone in severely ill COVID-19 patients.

"There are already therapies that either slow down the body's production of this jelly or breaks down the jelly through an enzyme. Our findings can also explain why cortisone seems to have an effect on COVID-19," said Urban Hellman, a researcher at the Umeå University.

High-Risk Hospital Surfaces Exacerbate Coronavirus Spread

Hospital bedrails, door handles, and electrocardiogram (ECG) monitors are hotspots for SARS-CoV-2 contamination, claims a new study.

Researchers at the Sichuan Center of Disease Control (CDC; Chengdu, China; www.sc-cdc.cn), Fudan University (Shanghai, China; www.fudan.edu.cn), and other institutions collected samples from 31 surfaces in different hospital wards before daily cleaning and disinfection routines were implemented. For each positive SARS-CoV-2 case, seven surfaces were designated, including bedrails, the fingertip of ECG monitors, and bathroom door handles. The method used for SARS-CoV-2 identification was loop-mediated isothermal amplification

(LAMP), which uses the N gene for detection.

In all, the researchers obtained 49 positive results from 14 positive cases, with two to six contamination sites identified per case. More than 70% of surfaces were contaminated by the virus from confirmed COVID-19 cases, which indicates a strong chance of cross-infection by surfaces in isolation wards. Over 70% of positive cases showed contamination of the ECG fingertip, which showed a higher viral RNA as well; the second highest risk was with the bedrail, with 10 positive samples. The study was published in the September 2020 issue of *Science of The Total Environment*.

"Virus monitoring should be added as a routine procedure in ward management. The door

handles and fingertips of ECG monitors should be sampled daily for contamination analysis," concluded senior author Guodong Sui, PhD, of Fudan University, and colleagues. "If the sample from a door handle obtains a positive result, a more precise and thorough cleaning should be performed. As surface contamination may cause nosocomial viral infection, general cleaning is mandatory in wards."

SARS-CoV-2 is an enveloped virus; as such, it is very susceptible to most cleaning agents, which destroys the envelope and deactivates the virus. When left untreated, SARS-CoV-2 remains viable for up to 72 hours on plastic and steel surfaces, and for up to eight hours on copper and cardboard surfaces.

AI-Driven Tool Mines COVID-19 Research for New Treatments and Vaccines

A free visual text analysis environment uses artificial intelligence (AI) and machine learning to quickly search tens of thousands of research articles on COVID-19 and deliver potentially lifesaving answers to scientists working for new treatments and vaccine.

The COVID-19 Scientific Literature Search and Text Analysis has been developed by analytics company, SAS (Cary, NC, USA). Leading research groups have gathered and released to the public more than 50,000 full-text scientific research articles on COVID-19 and other coronaviruses through the COVID-19 Open Research Dataset (CORD-19). The articles include studies on treatment effectiveness, vaccine development, mitigation efforts, genetic analysis, economic impact and more. With so much scientific literature available, it's impractical – if not impossible – to analyze it all manually. Drawing on AI, natural language processing, linguistic rules and sophisticated modeling techniques, SAS' COVID-19 Scientific Literature Search and Text Analysis environment enables quick and intelligent extraction of relevant text and numerical data from CORD-19. The free and publicly available environment aims to quickly and efficiently connect the global research community with the most relevant scientific literature through its self-guided, cloud-based system. With SAS' new visual text analysis environment, users can interactively explore relevant research on coronavirus topics such as incubation period, genetic variations, risk assessment and more. They can also visualize extracted keywords and summarized quantitative data, quickly identify co-citations and the authority of papers using network analysis visualization, and search for key terms in free text.

SAS Viya powers the interactive environment through advanced analytics and AI methods that help researchers explore the CORD-19 dataset. Using SAS Visual Text Analytics and SAS Visual Data Mining and Machine Learning, SAS augments the dataset with models developed by linguists and health and life sciences experts. Researchers can explore topics such as PPE effectiveness, social distancing efficacy and the transmission environment. The models also extract and visualize quantitative data, such as the incubation period and reproduction number of COVID-19.

As part of its COVID-19 response, SAS has also released the COVID-19 Epidemiological Scenario Analysis, an interactive environment that builds on medical resource optimization models. These models run different virus-projection scenarios to predict the impact of a disease outbreak and quantify the effectiveness of public health mitigation strategies. Additionally, SAS' dedicated COVID-19 Data Analytics Resources Hub includes free analytical models, a public

dashboard to monitor the spread of the pandemic, a data-discovery environment built on SAS Viya, and access to free training.

"SAS is committed to using advanced technology in innovative ways to help customers across every industry combat the pandemic," said Bryan Harris, Senior Vice President of Engineering at SAS. "Our new AI-powered environment goes beyond current offerings in the market and provides an intuitive, visual way to find complex connections in research. Because we're not only relying on machine learning, but also human-in-the-loop approaches, users can view different data slices to find exactly what they need to support their own research needs."



Image: New AI-driven Tool Mines COVID-19 Research for New Treatments and Vaccine (Photo courtesy of SAS)



Basic Metabolic Panel. **STAT.**

INTRODUCING the GEM Premier ChemSTAT, a rapid Basic Metabolic Panel analyzer from Instrumentation Laboratory. Offering a customized menu for the emergency department, lab-quality Creatinine (Crea) results and advanced connectivity, this new solution ensures simplicity at the point of care or in the lab. Features Intelligent Quality Management (IQM) for quality-assured testing to support rapid triage and patient care—STAT.

In a single, venous or arterial lithium-heparinized whole-blood sample:

Na ⁺	K ⁺	Ca ⁺⁺	Cl ⁻	Glu	Crea
BUN	tCO ₂	Hct	Lac	pH	pCO ₂

Calculated parameters

eGFR (MDRD)

eGFR (CKD-EPI)

Acute Care Diagnostics

For more information, please contact your local Werfen representative/distributor or visit InstrumentationLaboratory.com.
©2020 Instrumentation Laboratory. All rights reserved.

Instrumentation Laboratory
A Werfen Company

GEM Premier ChemSTAT is not available in all countries. Not Health Canada-licensed. Not for sale in Canada.

INFANT WARMER FANEM



The Ampla Neonatal Total Care is an infant radiant warmer to keep the newborn heated through radiated heat along with thermal stability, safety and easy access by the entire care team.



LINKXPRESS.COM HMI-09-20 213

OXIMETER HUNTLEIGH DIAGNOSTICS



The Smartsigns MiniPulse is a handheld pulse oximeter designed to provide clinicians with fast, reliable, portable measurements in almost any setting. It is available with a choice of two lightweight handheld models.



LINKXPRESS.COM HMI-09-20 214

INFOTAINMENT TERMINAL ADVANTECH EUROPE



The Patient Infotainment Terminal is based on the patients' situation as a starting point, allowing patients to easily provide feedback, as well as providing internet services, health education information, and more.



LINKXPRESS.COM HMI-09-20 215

Symptom Tracking App Reveals Six Types of COVID-19 Infection

cont'd from cover

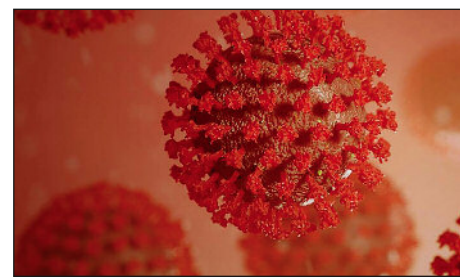
The team tracked the mutation rate in the virus' proteome—the collection of proteins encoded by genetic material—through time, starting with the first SARS-CoV-2 genome published in January and ending more than 15,300 genomes later in May. They found some regions still actively spinning off new mutations, indicating continuing adaptation to the host environment. However, the mutation rate in other regions showed signs of slowing, coalescing around single versions of key proteins. Importantly, however, the stabilization of certain proteins could be good news for the treatment of COVID-19.

The research team documented a general slowdown in the virus' mutation rate starting in April, after an initial period of rapid change. This included stabilization within the spike protein, those pokey appendages that give coronaviruses their crowned appearance. Within the spike, the researchers found that an amino acid at site 614 was replaced with another (aspartic acid to glycine), a mutation that took over the entire virus population during March and April. The spike protein, which is organized into two main domains, is responsible for attaching to human cells and helping inject the virus' genetic material, RNA, inside to be replicated. The 614 mutation breaks an important bond between distinct domains and protein subunits in the spike. The

614 mutation was associated with increased viral loads and higher infectivity in a previous study, with no effect on disease severity. Yet, in another study, the mutation was linked with higher case fatality rates.

Remarkably, sites within two other notable proteins also became more stable starting in April, including the NSP12 polymerase protein, which duplicates RNA, and the NSP13 helicase protein, which proofreads the duplicated RNA strands. The researchers also noted regions of the virus proteome becoming more variable through time, which they say may give us an indication of what to expect next with COVID-19. Specifically, they found increasing mutations in the nucleocapsid protein, which packages the virus' RNA after entering a host cell, and the 3a viroporin protein, which creates pores in host cells to facilitate viral release, replication, and virulence. According to the researchers, these are regions to watch, because increasing non-random variability in these proteins suggests the virus is actively seeking ways to improve its spread. These two proteins interfere with how our bodies combat the virus and are the main blockers of the beta-interferon pathway that make up our antiviral defenses. The researchers believe that their mutation could explain the uncontrolled immune responses responsible for so many COVID-19 deaths.

According to first author Tre Tomaszewski, a



doctoral student in the School of Information Sciences at Illinois, "In vaccine development, for example, you need to know what the antibodies are attaching to. New mutations could change everything, including the way proteins are constructed, their shape. An antibody target could go from the surface of a protein to being folded inside of it, and you can't get to it anymore. Knowing which proteins and structures are sticking around will provide important insights for vaccines and other therapies."

"Considering this virus will be in our midst for some time, we hope the exploration of mutational pathways can anticipate moving targets for speedy therapeutics and vaccine development as we prepare for the next wave," added Tomaszewski. "We, along with thousands of other researchers sequencing, uploading, and curating genome samples through the GISAID Initiative, will continue to keep track of this virus."

Mobile Computing Workstation Advances Nursing Performance

A new point-of-care (POC) platform mobilizes e-health records and supports efficient and accurate medication management.

The Capsa Healthcare (Portland, OR, USA; www.capsahealthcare.com) Trio mobile workstation is designed to meet the traditional needs for clinical documentation and medication administration, but can also be configured to support a variety of additional applications, including telehealth, reg-

istration, and phlebotomy. An intuitive control center with touch screen navigation provides easy access to personal data, helpful information, communication tools, and memory presets for each user. To aid hygiene maintenance, easy-to-clean smooth surfaces and an embedded antimicrobial additive on high touch points are provided.

Additional features include the N-Stride steer assist mechanism and a lightweight, small foot-

print for ease-of-mobility; a new scalable GoLife power platform for extended runtime, exceeding 24 hours; the MaxBin flexible storage system for any medication administration workflow, with high-capacity bins and soft-close drawers; and enhanced N-Sight cloud-based fleet management software to assist the hospital information technology (IT) department in managing cart assets across the health system.

Cont'd on page 5

Low-Cost Ventilator Supports Developing Economies' Needs

A low cost, easy to manufacture ventilator meets the requirements for affordable device technologies in emerging markets during the COVID-19 pandemic.

Developed at The National Physical Laboratory (Teddington, United Kingdom; www.npl.co.uk), the national measurement standards laboratory for the United Kingdom, the PocketVent is a compact, low power ventilator that is compatible with pressurized oxygen. At an estimated manufacturing cost of just USD 1300, the device can provide an alternative to expensive, bulky standard ventilators for developing economies, without sacrificing key functionality. All parts are either made with common machine tools, are easily sourced off-the shelf-components, or can be shipped by multiple global suppliers.

Features includes a manual control panel and detailed data display enabling clinicians to maintain a high quality of care; dual purpose use as a continuous positive airway pressure (CPAP) respiratory device; a limited training time for healthcare professionals to learn to operate the ventilator; widely available cheap parts for rapid repair turnaround time; and performance requirements that meet UK Medicines and Healthcare products Regulatory Agency (MHRA) specifications for ventilation. Initial production is scheduled in Nigeria, to be followed by other African countries.

Contact Tracing Apps Alone Cannot Stop COVID-19 Spread

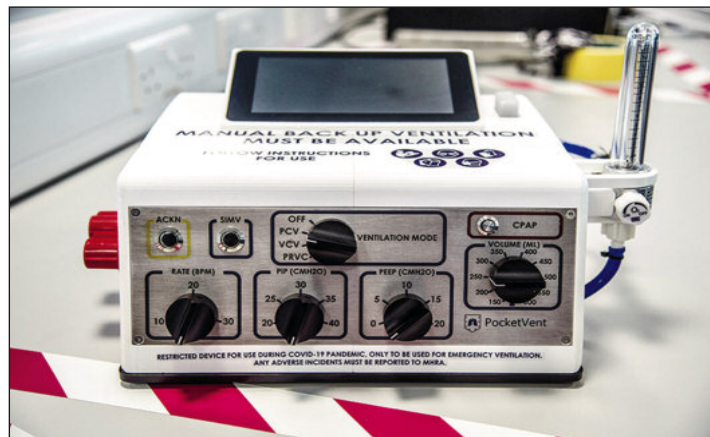
Contract tracing apps used to reduce the spread of COVID-19 are unlikely to be effective without proper uptake and support from concurrent control measures, according to a new study.

Researchers at University College London (UCL, United Kingdom; www.ucl.ac.uk) conducted a systematic review of studies that examined the use of automated or partly automated contact tracing of COVID-19, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), influenza, or Ebola virus spread. The primary outcomes were the number or proportion of subsequent contacts identified; secondary outcomes included indicators of outbreak control, uptake, resource use, cost-effectiveness, and lessons learnt. In all, 4,033 papers were reviewed, of which 15 were identified with useful data.

The results showed no empirical evidence of the effectiveness of automated contact tracing. Four of the seven studies suggested that to control COVID-19, high population uptake of automated contact-tracing apps (56-95%) is required, typically alongside other control measures. Partly automated contact tracing generally reported more complete contact identification and follow-up, compared with manual systems. The researchers concluded that at present, reliance on automated contact tracing approaches without additional extensive public health control measures is unreliable. The study was published on August 19, 2020, in *Lancet Digital Health*.

"Although automated contact tracing shows some promise in helping reduce transmission of COVID-19 within communities...none of the studies we found provided real-world evidence of their effectiveness," said lead author Isobel Braithwaite, MBBS, PhD, of the UCL Institute of Health Informatics. "Automated approaches raise potential privacy and ethics concerns, and also rely on high smartphone ownership, so they may be of very limited value in some countries. Too much reliance on automated contact tracing apps may also increase the risk of COVID-19 for vulnerable and digitally-excluded groups such as older people and people experiencing homelessness."

Contact tracing is a method used in the management of infectious disease outbreaks, which aims to interrupt chains of infection transmission through quarantine of contacts, and has formed part of the response to the COVID-19 pandemic in many countries. It involves a person recalling their recent close contacts and activities; those deemed to be at risk of infection are then contacted and advised to take action to reduce onward transmission by self-quarantine for a specified time period.



"Working collaboratively on this project with several colleagues from different disciplines meant there were a broad range of ideas that ultimately lead to the design of this easy to produce and affordable ventilator," said NPL team leader research engineer Jean Morris, MPhys. "We were encouraged to give this project as much time as required, which gave us the freedom to explore new ways of working as a team."

"Creating a low cost and easy to produce ventilator in short duration and from a standstill would seem an impossible task, though that is what the NPL Ventilator team have achieved. The foundation of this instrument development has been NPL's measurement and test capabilities," said Professor Paul Shore, PhD, head of engineering at NPL. "This testing ability at NPL guided the design of the PocketVent which was created by staff within NPL's Instruments Group. The dedication of the whole NPL Ventilator team during the pandemic has been inspiring."

Image: The PocketVent affordable ventilator (Photo courtesy of NPL)

Our Diagnostic Imaging QA virtual booth is now open.

Explore the latest **CT, Mammography, and Ultrasound QA** solutions, leveraging **Gammex® technologies**. Our virtual booth offers quick videos, webinars, and informational links —all at your convenience.

Take a tour: sunnuclear.com/diagnosticqaboosth



VENTILATOR PHILIPS HEALTHCARE



The Philips Trilogy EV300 hospital ventilator delivers enhanced performance in noninvasive (NIV) and invasive (IV) ventilation, so patients can be treated with a single device throughout their hospital stay.



LINKXPRESS.COM HMI-09-20 216

INFUSION PUMP COMEN MEDICAL

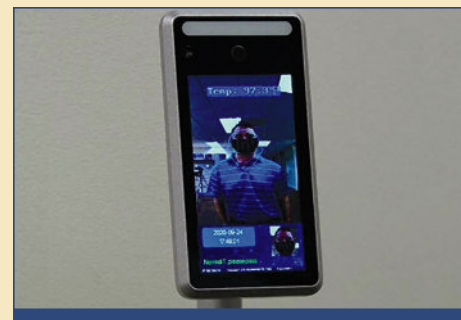


The ME600 infusion pump features a sophisticated motor and dual detectors ensuring infusion precision and stability. Intelligent pulse compensation tly and heating technology ensure consistency of long-time infusion rate.



LINKXPRESS.COM HMI-09-20 217

FACIAL RECOGNITION THERMAL CAMERA AMPRONIX



Ampronix introduces our latest addition to our product line which is a Facial Recognition Thermal Camera with optional LED kiosk, perfect for screening employees or customers for accurate temperature readings.



LINKXPRESS.COM HMI-09-20 218

COVID-19 Biocontainment Boxes Provide Protection During Intubations

A novel biocontainment unit that uses negative pressure to filter out viral particles during intubation procedure can limit exposure to SARS-CoV-2, according to a new study.

Researchers at the U.S. Army CCDC Army Research Laboratory (Aberdeen Proving Ground, MD, USA; www.army.mil), the University of Pittsburgh Medical Center (UPMC, PA, USA; www.upmc.com), and other institutions conducted tests of a commercial passive protective enclosure (also known as an intubation box) to evaluate and compare it to a modified intubation biocontainment unit (IBU) with an active air filtration vacuum system. Three experts reviewed both during simulated intubations and negative-pressure isolation using visual smoke pattern analysis, aerosol leak testing, and air velocity measurements.

The results, as confirmed by qualitative evaluation, revealed smoke escaping from all passive enclosure openings, while the aerosol leak test showed elevated particle concentra-

tions outside of the enclosure during simulated intubations with a medical mannequin. In contrast, when they tested the vacuum air filter equipped IBU enclosures, the visible smoke was fully contained, and test aerosols met standards consistent with class I biosafety cabinet certification. The study was published on September 3, 2020, in *Annals of Emergency Medicine*.

"The ability to isolate COVID-19 patients at the bedside is key to stopping viral spread in medical facilities and onboard military ships and aircraft, particularly to limit transmission through close quarters or shared ventilation systems," said co-lead author Cameron Good, PhD, of UPMC. "When we tested the passive intubation box, we ob-



served more than three times the aerosol concentration outside the box—where the healthcare provider is located—than inside the box. It is not safe to use these intubation boxes without actively filtering the air."

Image: The IBU being tested for leaks (Photo courtesy of U.S. Army)

New Workstation Enables Multi-Modal Breast Imaging

cont'd from cover

without waiting, regardless of scan format. Thanks to enhanced pre-fetching capabilities, the viewer can transfer data from 2D mammography, 3D breast ultrasound, MRI, CT, and tomosynthesis exams to any workstation at high speeds and at prescheduled times, thus providing radiologists with all the necessary information before the patient comes in for a breast examination.

The system permits multi-vendor, multi-modal picture archiving and communication systems (PACS) capabilities to enable comprehensive image visualization and analysis at the point-of-care (POC), thus empowering a quick, accurate diagnostic interpretation. Conditional tag morphing capabilities ensure that the identified

exams match the patient, by manipulating DICOM header information associated with each image to identify all the scans connected to a single patient, providing radiologists with a full mammogram and tomosynthesis history.

Radiologists thus have access to the patient's entire diagnostic picture immediately after completing the screening tests, allowing for precise interpretation of the rendered images while the patient is still in the clinic. If there is an area of concern requiring further examinations, radiologists can direct patients for an ultrasound or biopsy on that same visit. The system is powered by the proprietary ImageGrid platform, which minimizes data duplication sent through the network.

"Candelis launched the Advanced Breast

Imaging Enterprise Viewer with its flagship ImageGrid platform, providing exceptional speed and multi-vendor viewing. It displays past and present mammography and tomosynthesis patient images from leading OEMs almost instantly, regardless of scan format," said industry analyst Poornima Srinivasan, of Frost and Sullivan (Mountain View, CA, USA; www.frost.com). "With enhanced pre-fetching capabilities, hospitals can view all mammography and tomosynthesis exams from any radiologist workstation and they have the necessary prior exam data before the patient comes in for a breast examination."

Frost & Sullivan awarded Candelis the 2020 Global New Product Innovation Award for the Advanced Breast Imaging Enterprises Viewer.

Magnetic Stimulation Improves Neuropathy Fecal Incontinence

Translumbosacral neuromodulation therapy (TNT) of nerves that regulate muscles in the anus and rectum dramatically reduce episodes of fecal incontinence (FI), according to a new study.

Researchers at the Medical College of Georgia (MCG; Augusta USA; www.augusta.edu/mcg) and the University of Manchester (United Kingdom; www.manchester.ac.uk) conducted a study involving 33 patients with FI (23 women, average 60 years of age) who were randomized to receive six sessions of weekly TNT treatments. The treatment consisted of 600 repetitive magnetic stimulations over each of two lumbar and two sacral sites with 1, 5, or 15 Hz frequency stimulations. Stool diaries, FI severity indices, anorectal neurophysiology, sensorimotor function, and quality of life were compared.

The results revealed that FI episodes decreased significantly in all the groups when compared with baseline; but the 1 Hz group showed a significantly higher responder rate when compared with the 5 Hz group or 15 Hz groups. No difference was found between the 5 and 15 Hz groups. Anal neuropathy, squeeze pressure, and rectal capacity improved significantly only in the 1 Hz group compared with baseline, but not in other groups. And quality of life domains improved significantly within the 1 and 5 Hz groups. The study was published on July 29, 2020, in *The American Journal of Gastroenterology*.

"We found there was significant improvement in fecal incontinence across the board, which told us something is happening with this treatment. There is an effect on nerve function which, in turn, is leading to improvement of symptoms," said lead author Satish Rao MD, PhD, of MCG. "We have identified

that nerve damage is an important mechanism in the pathogenesis of stool leakage. A noninvasive and targeted treatment to correct the nerve damage addresses this pervasive problem."

Fecal incontinence, also known as accidental bowel leakage (ABL), is the inability to control bowel movements and is a common problem, especially among older adults. FI particularly affects women who have experienced pregnancy, childbirth, or nerve or muscle damage in the pelvic region. As there are multiple causes for bowel control problems, effective treatment is particularly difficult, and usually includes dietary modification, medical management, physical therapy, and often surgery or surgical implants. FI impacts women about twice as often as men.



Image: Dr. Satish Rao MD performing TNT on a patient with FI (Photo courtesy of Medical College of Georgia)

14 > 16 APRIL 2021 | SPRING IN PARIS

EURONEURO 2021 | 11TH EDITION

UPDATE ON NEUROANESTHESIA & NEURO-INTENSIVE CARE



**PALAIS DES CONGRÈS
ISSY-LES-MOULINEAUX**



WWW.EURONEURO2020.COM

INFORMATION & REGISTRATION | Emergence : +33 240 867 679 | www.euroneuro2020.com | contact@euroneuro2020.com

Mobile Computing Workstation Advances Nursing Performance

cont'd from page 7

"With a focus on user specific ergonomics and superior performance, wrapped into a lightweight, small form factor workstation, we have developed a solution that will serve as a caregiver's most reliable partner at the point-of-care," said Craig Rydingsward, VP of Acute Care Sales at Capsa Healthcare. "Trio's innovative advances in power system runtime combined with robust fleet management and communication capabilities now offered in N-Sight, enable IT and administration to realize true value in their POC fleet."

"Capsa is pleased to deliver a solution that combines the reliability of our proven platforms with enhanced intelligent features that customers expect in today's mobile computing workstations," said Avi Zisman, President and CEO of Capsa Healthcare. "With the addition of Trio, our product portfolio now offers customers an unmatched scope of solutions that support healthcare delivery at the point-of-care."

SURGICAL NAVIGATION SYSTEM CLARON TECHNOLOGY



The Navient Cranial is a simple, accurate and affordable surgical navigation system for cranial procedures featuring a sleek, compact and portable cart along with a large touch screen for natural interaction.



LINKXPRESS.COM HMI-09-20 219

SURGICAL LIGHT KARL STORZ



The LEDVISION 65 surgical light offers high illumination intensity for examinations and minor procedures with the illumination intensity adjustable in three levels through gesture control.



LINKXPRESS.COM HMI-09-20 220

SURGICAL HEADLAMP ENOVA ILLUMINATION



The Qubit Warm (PLT-80F) warm cordless LED surgical headlamp provides 80,000+ lux of pure homogeneous light at 4500 degrees Kelvin for true tissue color rendition and reduced eye fatigue.



LINKXPRESS.COM HMI-09-20 221

Smart Glasses Advance Surgical Telemedicine Collaboration

Innovative video glasses live stream patient surgeries for up to 16 hours for consultation, education, and training purposes.

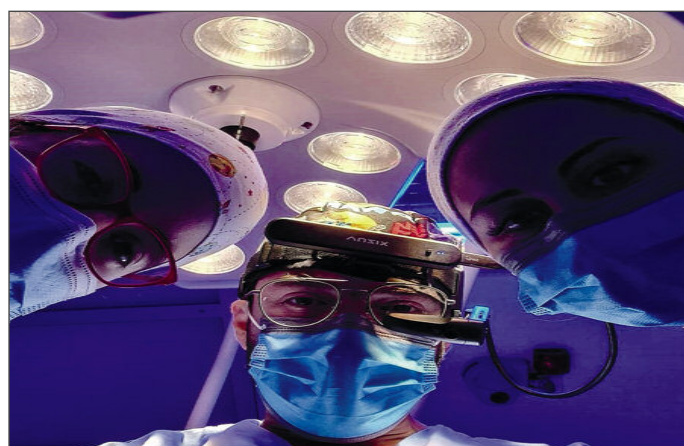
The Vuzix (Rochester, NY, USA; www.vuzix.com) M400 Smart Glasses feature a ruggedized, waterproof mechanical design optimized for a wide range of applications where safety and durability are needed most, such as warehouse logistics, manufacturing, field service, and telemedicine. In addition to its role in surgery, the M400 can also be used in the intensive care unit (ICU) in order to enable doctor-to-doctor consultation, in the emergency room (ER) to connect medical staff with remote medical experts, and for clinical education and training.

The M400 is powered by the Qualcomm Snapdragon XR1 platform, with a heterogeneous computing architecture that includes an ARM-based multicore central processing unit (CPU), a vector processor, a graphics processing unit (GPU) and the Qualcomm artificial intelligence (AI) Engine. The Snapdragon XR1 also delivers an immersive user interface (UI) experience, with features such as native voice processing, motion tracking, head tracking,

and more. The M400 also features an OLED display with 4K resolution, a 12.8-megapixel camera, and an Android operating system.

"The global pandemic caused by COVID-19 has helped accelerate corporate decision making regarding the deployment of new technology such as Vuzix Smart Glasses to support business continuity especially around healthcare and remote support," said Paul Travers, President and CEO of Vuzix. "We are pleased to broaden the availability of our M400 Smart Glasses to support our resellers and end customers. When you can't send a person, you just send a pair of Vuzix Smart Glasses."

"The Vuzix M400 Smart Glasses provided hands-free HD video streaming performance for up to 16 hours non-stop during surgeries from the operation. After the operation, this technology also provided an instant communi-



cation between intensive care units and the surgeon," said Bor-Chih Cheng, MD, of Chi-Mei Medical Center (Taipei, Taiwan). "The device is very lightweight and all-day wearable and is a terrific tool to provide medical instructions, education, training and collaboration from the point-of-view of the surgeon during live patient surgeries or for medical staff to triage patients."

Image: The Vuzix M400 Smart Glasses (Photo courtesy of Vuzix)

Novel Suture Anchor Expands Rotator Cuff Repair Options

A disruptive suture anchor technology enhances the body's biological response by promoting bone healing and formation.

The Smith & Nephew (London, UK; www.smith-nephew.com) HealiCoil Knotless absorbable suture anchor is based on a proprietary vented architecture design that facilitates better bony in-growth and bone density around the anchor six months after rotator cuff repair, as compared to non-vented, solid-core anchors. An additional interference fixation point and an

interlocking polyetheretherketone (PEEK) plug ensure the suture is securely locked in place, by lowering the plug into the distal implant. The combination contributes to higher pull-out strength.

The HealiCoil Knotless suture anchors also feature Regenesorb, a unique biocomposite that contains polylactic-co-glycolic acid (PLGA), and dual osteoconductive components, β -TCP and calcium sulfate. The combined physical and biochemical mechanisms of action encourage the implant to be absorbed and replaced by bone

within 24 months. The pre-loaded bioabsorbable suture anchor is provided with up to three strands of non-absorbable sutures, and is available in two sizes, 4.75mm and 5.5mm.

"We are fully committed to providing our customers with world-class, comprehensive procedural solutions that help not just fix their patients, but truly heal them so they can get back to living life unlimited as quickly as possible," said Scott Schaffner, general manager and senior vice president of sports medicine at

Cont'd on page 21

Mixed Reality Display Improves Cardiac Ablation Accuracy

A real-time holographic mixed-reality display can significantly improve the electrophysiologist's point navigation and accuracy during cardiac ablation, according to a new study.

Developed by researchers at Washington University School of Medicine (WUSTL; St. Louis, MO, USA; www.medschool.wustl.edu) and Sentiar (St. Louis, MO, USA; www.sentiar.com), the Enhanced Electrophysiology Visualization and Interaction System (ELVIS) combines proprietary software with the Microsoft (Redmond, WA, USA; www.microsoft.com) HoloLens headset to display three-dimensional (3D) digital images from a standard 2D electroanatomic mapping system (EAMS), along with real-time catheter locations.

The result is an augmented reality platform with real-time holographic visualization of the patient's actual anatomy "floating" over the surgical field, allowing electrophysiologists to perform the procedure by using their gaze to guide the controls. For the study, two electrophysiologists were trained on ELVIS, and then tested the system on 16 patients undergoing electrophysiology studies. The physicians were given 60 seconds to navigate to each of five target points within the geometry of the heart, using both the 3D ELVIS and standard 2D EAMS technology.

The results showed there was no difference in navigation times with either ELVIS or EAMS, but the physicians were significantly more accurate with ELVIS, with an error margin of just 2.99 mm, compared to 4.50 mm for EAMS. When translated to cardiac ablation outcomes, 34% of the ablation lesions created using EAMS would be made outside of the target area, as opposed to just 6% when using the ELVIS 3D display. The study was published on August 17, 2020, in *Journal of the American College of Cardiology: Clinical Electrophysiology*.

"Given the widespread promise of this technology, mixed reality has the potential to overtake and aggregate current displays in the cardiac catheterization laboratory," concluded lead author Jennifer Silva, MD, director of pediatric electrophysiology at WUSTL. "What ended up being equally important, if not more important, was that...not only that we can visualize it better, but that we can control it. There are people working in this extended reality space who have come to conclusions that the control is the strongest value-add, particularly in medical applications."

Catheter ablation is an invasive procedure used to obliterate faulty electrical pathways in the heart using radiofrequency (RF) energy in people suffering from cardiac arrhythmias such as atrial fibrillation (AF), atrial flutter, supraventricular tachycardias (SVT), and Wolff-Parkinson-White syndrome.

Image: The ELVIS creates a 3D augmented reality view of the heart (Photo courtesy of WUSTL)

Surgical Techniques

INTERNATIONAL



VicoLab®

YOUR GLOBAL SOURCE FOR STERILIZATION ACCESSORIES

THERMO RESISTANT GLOVES
Up to 37 cm in length

STERILIZABLE INSTRUMENT & WORK-SURFACE MATS

- ▶ Thermo-Resistant (-60 °C to 300 °C)
- ▶ Fully Washable & Flexible
- ▶ Suitable for central sterilization services
- ▶ Sterilizable

TURBO WASHING MACHINES TRAYS
Heavy Silicone Cover & Transport Tablet

SILICON INSTRUMENT MAT

MICRO INSTRUMENT MAT
Front Back

WASHING TRAYS MAT
Front Back

WASHING TRAYS MAT
Front Back

NEW! SILICONE TABLET AND STEEL COVER NETS
Exchangable Nets

NEW! SILICONE WASHING MACHINE TRAY & TABLET
Exchangable Net

STERILIZABLE WORK SURFACE MATS
100% Silicone Size: 2400 x 1200 mm (3 mm thick)

MEDICAL FAIR ASIA

13th International Exhibition on Hospital, Diagnostic, Pharmaceutical, Medical & Rehabilitation Equipment & Supplies

IMPORTANT NOTICE

MEDICAL FAIR ASIA 2020 GOES DIGITAL!
9-18 DECEMBER 2020

Member of **MEDICAlliance**

ELECTROSURGICAL UNIT ERBE ELEKTROMEDIZIN



The VIO 100 C is a compact generator with proprietary VIO modes designed for specialty outpatient practices. Compact and lightweight, it has up to four storable programs and enables return electrode monitoring.



LINKXPRESS.COM HMI-09-20 222

OPERATING TABLE FAMED



The Hyperion operating table features mobiWeight™ technology which guarantees a maximum load capacity of 500 kg and maintains a high degree of maneuverability.



LINKXPRESS.COM HMI-09-20 223

SUCTION UNIT HERSILL



The V7 mx high vacuum portable suction unit featuring an ABS ergonomically designed case is specifically intended for ambulance, transport and emergency field use.



LINKXPRESS.COM HMI-09-20 224

Treaded Robot Explores the Intestines from Within

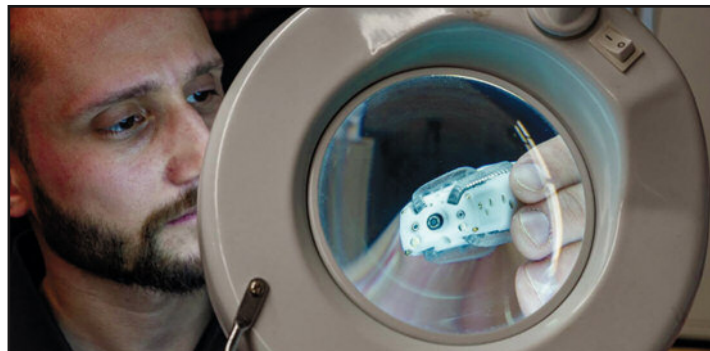
cont'd from cover

a mammalian colon. The tank-like micro-pillared treads are powered by a double-worm drive that removes axial gear forces while reducing radial moments, allowing for two-degrees of freedom (2-DOF) skid-steering at speeds of up to 40 mm/s and the ability to traverse haustral folds, even in a collapsed lumen.

The Endoculus contains all the functionality of a traditional endoscope: a video camera, adjustable light emitting diodes (LEDs), channels for insufflation and irrigation, and a port for endoscopy instruments, such as forceps, snares, etc. In addition, it carries an inertial measurement unit, magnetometer, motor encoders, and motor current sensors to aid in future autonomy strategies. The RCE is controlled via an Xbox gaming controller. The prototype device, which is the size of a C-type battery, has been evaluated in porcine models.

"One of the things I've always wanted to enable is for people to swallow robots to do procedures on them. I think the science is aligning to allow that, whether it's in five years or 50," said biomedical engineer Mark Rentschler, PhD, who leads the development team. "You have to forget about everything you know from a locomotion standpoint, because driving around inside the body is very different than driving around in a car. The environment is highly deformable. It's very slick. There are sharp peaks that you have to go over."

Colonoscopy is the endoscopic examination of the colon and the distal



part of the small bowel with a video camera or a fiber optic camera on a flexible tube passed through the anus. It may provide a visual diagnosis (e.g. ulceration, polyps) and grants the opportunity for biopsy or removal of suspected lesions. Virtual colonoscopy, which uses imagery reconstructed from computed tomography (CT) scans or from nuclear magnetic resonance (MR) scans, is also possible, as a totally non-invasive medical test, although it is not standard and still under investigation regarding its diagnostic abilities.

Image: The Endoculus RCE colon explorer (Photo courtesy of UC Boulder)

Novel Flow Diverter Promotes Brain Aneurysm Healing

A new cobalt chromium flow diverter offers effortless delivery, predictable deployment, and excellent vessel wall apposition.

The Stryker Corporation (Kalamazoo, MI, USA; www.stryker.com) Surpass Evolve flow diverter is a small 64-wire cobalt chromium self-expanding braided stent that is used to direct blood flow in an intracranial artery away from a weakened blood vessel sac or aneurysm. The number of braids and the design of the braid angle have been optimized to maintain high mesh density and radial pressure for reliable implant opening, distal to proximal. Features include smooth delivery and low push forces, even when deployed in tortuous anatomy.

The Surpass Evolve flow diverter can be positioned using standard interventional devices,

including most appropriately sized sheath or guide catheter, appropriately sized intermediate catheter, and the Stryker Excelsior XT-27 Standard Straight microcatheter with a 135cm or 150cm length.

"This device builds on the success of Surpass Streamline, offering a highly optimized and easy to use flow diverter. By increasing the braid angle, the novel 64-wire device delivers excellent flow diversion and a highly flexible implant for enhanced vessel wall contact," said Ajay Wakhloo, MD, who completed the first case in the United States. "The higher mesh density of Surpass Evolve versus traditional 48-wire flow diverters may lead to faster aneurysm occlusion for patients."

"Surpass Evolve Flow Diverter is the culmination of many years of flow diversion re-

search, extensive physician feedback from around the world, and Stryker's engineering prowess. This high performing device will be a great addition to our hemorrhagic portfolio to help physicians in the treatment of brain aneurysms," said Mark Paul, president of Stryker's neurovascular division. "Stryker is dedicated to working with our customers to bring life-saving technologies to patients suffering from brain aneurysms."

While originally indicated for wide-necked or fusiform aneurysms from the petrous segment to the clinoid segment of the internal carotid artery (ICA), flow diversion today is being more broadly applied to small aneurysms, anterior cerebral artery aneurysms, recurrent aneurysms, and other endoluminal and intrasaccular defects.

Novel Skin Closure Device Reduces COVID-19 Exposure Risk

An innovative micro-anchor skin closure system that replaces sutures and staples can be removed by patients in the comfort of their own home.

The BandGrip (Chicago, IL, USA; www.bandgrip.com) is a minimally invasive, transparent, flexible, and water-resistant 8.9 X 3.8 centimeter skin closure dressing that obviates the need for sutures or staples by using micro-anchors that grip the skin gently and securely to pull wound edges together; and as it is transparent, the surgeon can clearly see the incision line through the BandGrip. And as it is simple and intuitive, a wide range of healthcare professionals can apply the bandage without the involvement of a general or orthopedic surgeon. BandGrip can also reduce wound closure time by more than 30%.

In addition, the BandGrip holds a host of benefits for patients. It permits them to shower with the wound dressing as they recover and to alert their surgeon to any concern of an infection; They can use video conferencing and telehealth to consult with their physicians if the surgical incision needs to be examined; and they can remove the BandGrip themselves, preventing a return visit to their physician's office or hospital to have sutures or staples removed, preventing potential exposure to COVID-19.

"BandGrip already has established itself with hospitals and health systems as an operating room time-saver that results in an improved patient experience with the minimal scarring it

leaves behind. Now, BandGrip is responding to the challenges of mitigating risk amid the coronavirus crisis," said Fred Smith, Founder and CEO of BandGrip. "As we need to keep our physical distance, physicians are establishing a new standard of care. Patients now can intuitively remove BandGrip themselves from home and then check-in with their surgeon remotely. It's easy, safe and convenient. It's the telemedicine suture."

"Telehealth has evolved to become a standard part of my practice. Virtual post-operative visits and wound management are now a permanent component of the patient experience, with BandGrip playing an indispensable role," said professor of orthopedic surgery and rehabilitation medicine Sherwin Ho, MD, of the



University of Chicago. "BandGrip has enabled me to watch my patients heal from a distance. I can view the incision through the clear bandage to make sure no infection is developing. It's the next generation of wound closure."

Image: The NovoStitch Pro Meniscal Repair System (Photo courtesy of Smith & Nephew)

PREMIER MULTIMEDIA PLATFORM SERVING THE WORLD'S HOSPITAL/MEDICAL COMMUNITY *Anytime, Anywhere, On the Go...*

PRINT MAGAZINE

INTERACTIVE
DIGITAL EDITION



WEB PORTAL



AVAILABLE ON THE
App Store

GET IT ON
Google play

Website Editions:

■ English ■ Spanish



HOSPIMEDICA.COM

Novel Suture Anchor Expands Rotator Cuff Repair Options

cont'd from page 18

Smith+Nephew. "The launch of HealiCoil Knotless as part of our advanced healing solutions portfolio is further reinforcement of our commitment to redefine the body's healing potential."

"The real advantage of the HealiCoil Knotless open architecture is that the marrow elements from the bone can reach the bone-tendon interface to promote healing where it is most needed," said Ian Lo, MD, of the University of Calgary (Canada). "We have seen that the anchor leads to more robust healing of the tendon to the bone."

The rotator cuff is a group of muscles and their tendons that act to stabilize the glenohumeral joint and allow for the extensive range of motion in the shoulder, including abduction and internal and external rotation. Of the seven scapulohumeral muscles, four make up the rotator cuff—the supraspinatus muscle, the infraspinatus muscle, the teres minor muscle, and the subscapularis muscle. A rotator cuff tear is an injury of one or more of the tendons or mus-

ENDOSCOPY CAMERA M.I ONE CO.



The INSIGHT-i Endoscopy Camera is an all-in-one system with Full-HD camera, a medical light source and endoscope that allows the user to enhance the accuracy of endoscopic diagnosis.



LINKXPRESS.COM HMI-09-20 225

SURGICAL OPERATING TABLE HEAL FORCE



The HFease-400 is an electro-hydraulic surgical operating table that can be set up and positioned easily with a remote controller and has an interchangeable top made of shape memory material for providing great comfort.



LINKXPRESS.COM HMI-09-20 226

4K SURGICAL DISPLAY MONITOR AMPRONIX



The Eizo Curator EX3140, a 31.1-inch 4K surgical display monitor has a resolution of 3840 x 2160 pixels, four times the size of a full HD monitor. 4K UHD endoscope and microscope images can be reproduced in high definition.



LINKXPRESS.COM HMI-09-20 227

Machine Learning System Predicts COVID-19 Respiratory Severity Risk

cont'd from cover

Inflammatix (Burlingame, CA, USA) has been awarded USD 1.1 million by the Defense Advanced Research Projects Agency (DARPA) for further development of the rapid diagnostic named CoVerity COVID-19 Severity Test. The Inflammatix approach – known as host-response diagnostics – rapidly reads the immune system using multiple mRNA biomarkers and a machine learning algorithm. The

company is developing other host-response diagnostic tests that identify the presence and type of infection (viral or bacterial), in addition to predicting the risk of severe disease, to enable physicians to make more informed decisions for patients with acute infection and sepsis.

The company's host-response diagnostic approach for predicting COVID-19 severity risk was shown to be superior to clinical biomarkers, including IL-6, in a new study presented recently at the 2020 European Society of Clinical Microbiology and Infection Diseases (ESCMID) Conference on Coronavirus Disease (ECCVID). In a prospective study of 97 patients with PCR-confirmed SARS-CoV-2 pneumonia and blood drawn on the day of hospital admission, CoVerity demonstrated an area under the receiver operating characteristic curve (AUROC) of 0.88 (95% CI 0.81-0.95) for identifying patients who developed respiratory failure or died, independent of age, while IL-6 had an AUROC of 0.73 (95% CI 0.62 - 0.85). The new classifier had the highest accuracy among all single biomarkers tested, including IL-6, procalcitonin, C-reactive protein, lactate, and SuPAR.

"While major progress has been made in developing rapid platforms to diagnose SARS-CoV-2 infection, predicting severity in COVID-19 patients remains an unmet medical need," said Evangelos J. Giamarellos-Bourboulis, MD, Professor of Internal Medicine and Infectious Diseases at ATTIKON University General Hospital in Athens, Greece, Chairman of the European Sepsis Alliance, President of the European Shock Society, and lead investigator for the study. "In this study, the host-response approach demonstrated very high accuracy for identifying severe disease in COVID-19 patients and outperformed clinical markers for risk stratification. Existing tools have shown limited accuracy in enabling us to confidently identify high-risk patients early who need close monitoring or discharge non-severe patients to recover at home."

"We are grateful that DARPA has recognized the promise of our host-response approach to benefit COVID-19 patients and caregivers, and we look forward to accelerating development and availability of our CoVerity COVID-19 Severity Test as a result of this agreement," said Inflammatix CEO and Co-founder Tim Sweeney, MD, PhD. "The 5-mRNA classifier for CoVerity was developed on a training set of more than 20 clinical studies and we intend to translate it into a rapid assay that can be used as a clinical tool to help triage patients after diagnosis with COVID-19. Improved triage has the potential to reduce morbidity and mortality while enabling hospitals to allocate resources more effectively."

SERIES 1140 SmartLab™
NEW Ventilator Testing Kit #263210

INCLUDES:

- ☒ Flow and Pressure Module
- ☒ Lung Compliance and Resistance Processor
- ☒ Rudolph Pneumatich Flow Sensor, Heater and Calibration Syringe
- ☒ SmartLab Insight™ Software for Real Time Ventilation Parameter Measurements
- ☒ Capability of Simultaneous Testing of Two Ventilators
- ☒ Flow Accuracy of $\pm 2.0\%$
- ☒ Pressure Accuracy of $\pm 0.3\%$

Compatible with
Hans Rudolph Pneumatichs

Calibrated with
Hans Rudolph Calibration Syringes

**HANS
RUDOLPH**

www.rudolphkc.com | hri@rudolphkc.com | 913-422-7788

Hip Replacement Implant Choice More Important Than Surgeon Skills

A new study suggests that long-term survival of a total hip replacement (THR) is primarily due to implant choice decisions, rather than surgical technique.

Researchers at the University of Bristol Medical School (United Kingdom; www.bristol.ac.uk/medical-school/), the University of Exeter (United Kingdom; www.exeter.ac.uk), and other institutions conducted a study that analyzed a UK registry of all THRs performed over 14 years in 461 hospitals. In all, 664,761 patients (mean age 69.9 years, 61.1% female) were compared, with survival of THRs implanted in one exemplary unit, the Royal Devon & Exeter NHS Foundation Trust (RDE; UK; www.rdehospital.nhs.uk) compared to all others. The main outcome was revision surgery of any part of the THR construct for any reason.

The results showed better implant survival at RDE, with an all-cause construct failure of 1.7%, compared with 2.9% in the rest of England, Wales, Northern Ireland, and the Isle of Man. The researchers showed that when the patient's outcomes from RDE were compared to cases nationwide where the same three implants used at the RDE were implanted, there was no difference in how many of the hips lasted 14 years, suggesting that consistent use of a reliable THR implant may be a more important determinant of success than the surgeon performing the operation. The study was published on August 31, 2020, in *PLOS Medicine*.

"These findings are vitally important to making sure as many of our patients have a good outcome from their hip replacement as possible," said lead author Jonathan Evans, MD, of the University of Bristol Medical School. "We want patients across the country to feel empowered to ask their surgeon not only what implants they plan to use for their hip replacement, but more importantly to ask for the long-term evidence that the implant works well. If they do not feel happy with the answer, then patients should feel confident asking for another opinion or even vote with their feet and go to a different hospital."

The National Joint Registry for England, Wales, Northern Ireland and the Isle of Man (NJR) is a national database that has collected data since 2003, and currently contains in excess of one million records of primary THRs. In 2017, the NJR identified at least 415 different hospitals performing THRs, using at least 822 different combinations of femoral stem and acetabular socket. During this time, the RDE used only three.



Image: Which THR implant is used is more important than technique or surgeon (Photo courtesy of iStockPhoto)

VeinSight VS400 Infrared Vein Viewer

The VS 400 Vein Viewer projects near-infrared light with no radiation. The near-infrared light is absorbed by the blood but reflected by the surrounding tissue to present a clear image of a patient's vein pattern.

The VS400 features:

- High resolution imaging
- 5 color modes for different skin tones
- 3 projection sizes
- Long life rechargeable battery
- Fixed and mobile support arms available



Phone: 727-455-8160
Email: sales@outpatientsupply.com
Web: www.outpatientsupply.com

SURGICAL TABLE HILL-ROM



The TruSystem 7500 SensorLine surgical table offers intelligent functionality for increased safety and flexibility with configurable functions to adapt to all needs.



LINKXPRESS.COM HMI-09-20 228

ENT TREATMENT UNIT M.I ONE CO.

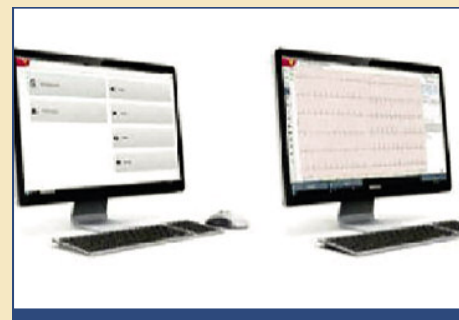


The IU-3000 ENT Treatment Unit is designed for human body engineering and optimized for medical examinations, enabling the user to monitor patient reactions intuitively by using buttons linked to alert sounds.



LINKXPRESS.COM HMI-09-20 229

REMOTE FLEET SYSTEM SCHILLER



The LifeDataNet G2 ensures that the defibrillators are always ready to use, regularly informing about the status of all devices. The plug and play system automatically connects compatible devices.



LINKXPRESS.COM HMI-09-20 230

Meniscal Repair System Expands Treatment Options

A handheld, disposable surgical instrument aids surgeons in the approximation of soft tissue in meniscal repair procedures.

The Smith & Nephew (London, UK; www.smith-nephew.com) NovoStitch Pro Meniscal Repair System is designed to arthroscopically place stitches in tight joint compartments, by utilizing meniscus-to-meniscus vertically placed, circumferential sutures. This allows both parts of the meniscal tear to be sutured evenly all around, similar to a sewing machine stitch, increasing the chance that the tear will heal more thoroughly, and increasing meniscal repair options to include horizontal cleavage,



radial, complex, and root tear patterns.

The system includes an ergonomic and intuitive handle design and well-defined visual cues for precise stitch placement and control in order to tightly close the meniscectomy gap. The sterile delivery handle includes a preinstalled cartridge that delivers a 2-0 braided, nonabsorbable, polyethylene surgical suture through the soft tissue during the arthroscopic surgery. The system can reliably deliver up to six stitches (including the one in the preloaded handle assembly), and up to five additional cartridges.

"The NovoStitch Pro has been of great benefit to my practice and my patients. In the past, I've been limited to meniscectomies for certain tears, but now I can offer my patients a second treatment to relieve their knee pain," said orthopedic surgeon David Abrutyn, MD, of Summit Medical Group Orthopedics (Westfield, NJ, USA). "NovoStitch Pro opens up meniscal repairs for more patients and more types of meniscus tears. Having a choice beyond living with the pain or trimming the tear away will be of benefit to many of my patients."

Treatment options of the meniscus include nonsurgical treatment with rest, ice, compression, elevation, and physical therapy; surgical repair; surgical removal of the torn section (partial meniscectomy); and surgical removal of the entire meniscus (total meniscectomy). Successful repair of meniscus tears depends to a large degree on where the tear is located. While tears at the outer edge of the meniscus tend to heal well surgical repair of a tears that extend into the center of the meniscus are questionable, due to reduced blood supply.

Image: A novel AI platform scores breast cancer malignancy (Photo courtesy of Therapixel)

Kuala Lumpur, Malaysia
29 August - 2 September 2021
49th World Congress of the International Society of Surgery (ISS/SIC)

International Surgical Week

The World's Congress of Surgery isw2021.org

Jointly organized with the 47th Congress of the College of Surgeons Academy of Medicine Malaysia (CSAMM)

International Society of Surgery / Société Internationale de Chirurgie (ISS/SIC) and its Integrated Societies:

- IAES - International Association of Endocrine Surgeons
- IATISIC - International Association for Trauma Surgery and Intensive Care
- IASMEN - International Association for Surgical Metabolism and Nutrition
- BSI - Breast Surgery International
- ISDS - International Society for Digestive Surgery
- ASAP - Alliance for Surgery and Anesthesia Presence

SAVE THE DATE!

#ISW2021 | isw2021.org

Abstract Deadline.
29 January 2021
(no extension)

Siemens' Acquisition of Varian Medical to Forge Comprehensive Cancer Portfolio

cont'd from cover

to cancer care, the company is increasingly leveraging technologies such as artificial intelligence, machine learning and data analysis to further improve cancer treatment and expand access to care. Since 2012, both the companies have been working together in the strategic "EnVision" partnership to shape the future of cancer treatment, combining Varian's innovative therapeutic systems and Siemens Healthineers leading imaging technology. This transaction builds on this long-standing partnership to develop improved cancer therapy solutions-from imaging for treatment planning to focused radiation therapy-for efficient workflow and effective, personalized treatment. Varian's decades of progress in developing and delivering multidisciplinary, integrated cancer care makes the company an ideal fit for Siemens Healthineers' leading businesses in medical imaging, laboratory diagnostics and interventional procedures.

"With this combination of two leading companies we make two leaps in one step: A leap in the fight against cancer and a leap in our overall impact on healthcare. This decisive moment in the history of our companies means more hope and less uncertainty for patients, an even stronger partner for our customers, and for society more effective and efficient medical care. Together with Varian's outstanding and passionate employees, we will shape the future of healthcare more than ever before," said Dr. Bernd Montag, CEO of Siemens Healthineers AG.

"Varian's innovative and patient centric culture has enabled us to become an iconic leader in radiotherapy and multi-disciplinary cancer care, with a trusted global brand and strong customer loyalty," said Dow Wilson, President and Chief Executive Officer of Varian. "Siemens Healthineers values our talented and engaged employees and recognizes the strength of the Varian brand, our cutting-edge portfolio, and the relationships we've nurtured. We are thrilled to partner with Siemens Healthineers to extend our renowned customer care, serving clinicians and patients from the very first stage in the fight against cancer. With Siemens Healthineers, we will transform care for a greater number of patients worldwide, as well as broaden opportunities for our employees as part of a larger and more global organization. That is why our Board is confident that combining with Siemens Healthineers is the right path forward for Varian – delivering immediate and compelling value to our shareholders, while bringing us even closer to our transformative vision of a world without fear of cancer."

"With the acquisition of Varian, Siemens Healthineers is entering another attractive growth market that offers the company significant potential for value creation and aligns perfectly with the upgrading phase of Siemens Healthineers' strategy. Siemens Healthineers is creating an unprecedented, highly integrated portfolio for the global fight against cancer," said Prof. Dr. Ralf P. Thomas, Chairman of the Supervisory Board of Siemens Healthineers AG.

AI in Medical Imaging to Reach USD 1.5 Billion by 2024

The global market for AI-based clinical applications for use in medical imaging is set to reach almost USD 1.5 billion by 2024 despite a slower-than-expected uptake of these products and the impact of the COVID-19 pandemic.

The market growth is projected to accelerate as the pandemic subsides and customer confidence in AI-based clinical solutions increases, with a peak annual growth rate of 44% forecast for 2022. These are the latest findings of Signify Research (Cranfield, UK; www.signifyresearch.net), an independent supplier of market intelligence and consultancy to the global healthcare technology industry.

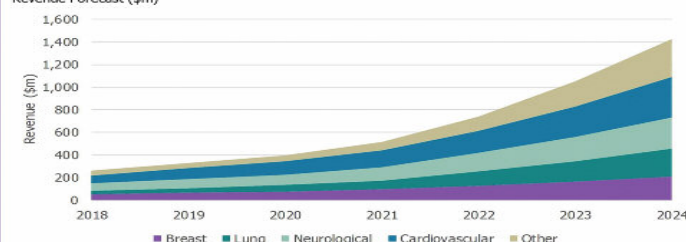
In 2019, 86% of the world market for AI-based clinical applications for medical imaging was accounted for by four clinical specialties (in order of market size): cardiology, neurology, breast, and pulmonology. Cardiology is forecasted to enjoy the largest revenue growth, followed by pulmonology, and these four clinical segments are projected to still account for more than 75% of the market in 2024. However, new product introductions of AI solutions for other clinical segments, most notably prostate and liver imaging, are on the rise.

Until now, the growth of the global market for AI-based clinical applications for use in medical imaging has been less rapid than anticipated by several industry experts due to several technical and commercial barriers, and a further set back dealt by the COVID-19 global pandemic. These barriers to market adoption, including the utility of AI in clinical practice, lack of clinical validation, challenges of workflow integration, and limited reimbursement, must be fully addressed before the use of AI in radiology becomes mainstream.

"The market is highly dynamic and continues to evolve at a rapid pace," said Dr. Sanjay Parekh, Senior Analyst at Signify Research. "There are frequent product launches, and the availability of regulatory approved products is accelerating. Since 2018, almost 60 AI-based clinical applications for medical imaging have received US-FDA approval, while a similar number of solutions have received CE Mark approval."

Despite the many challenges of bringing medical imaging AI solutions to market, "radiology AI is here to stay," added Dr. Parekh. "From enhanced productivity and increased diagnostic accuracy, to more personalized treatment planning and improved clinical outcomes, AI will play a key role in enabling radiologists to meet the demands of their workload. The increasing volume of diagnostic imaging procedures, exacerbated by the current backlog of imaging exams due to national lockdowns, coupled with the shortage of radiologists in many countries, will undoubtedly further increase the need for AI in radiology."

Figure 1
AI-Based Clinical Applications - Clinical Segment - World Market
Revenue Forecast (\$m)



Source: Signify Research

Sep-20



19th Asian Oceanian Congress of Radiology
incorporating
Malaysian Congress of Radiology 2021
Theme: From Pixel To Clarity



1st July 2021 (Master Class)
2nd - 4th July 2021 (Main Congress)
Kuala Lumpur Convention Centre, Malaysia
aocr2020.com



Organised By:



COLLEGE OF RADIOLOGY

Supported By:



AOSR



For a free listing of your event,
or a paid advertisement in this section, contact:
International Calendar, HospiMedica International
E-mail: info@globetech.net

► OCTOBER 2020

JFR 2020 - Journées Francophones de Radiologie. Oct 2-5; Virtual Venue; Web: jfr.radiologie.fr

ANESTHESIOLOGY 2020 - Annual Meeting of the American Society of Anesthesiologists. Oct 2-7; Virtual Venue, USA; Web: www.asahq.org

88th EAS Congress - European Atherosclerosis Society. Oct 4-7; Virtual Venue; Web: eas2020.com

EuGMS Congress 2020 - International Congress of the European Geriatric Medicine Society. Oct 7-9; Virtual Venue; Web: www.eugms.org

UEG Week 2020 - United European Gastroenterology. Oct 11-13; Virtual Venue; Web: www.ueg.eu/week

Omnia Health Live Africa. Oct 12-16; Virtual Venue; Web: live.omnia-health.com

EAPS 2020 - 8th Congress of the European Academy of Paediatric Societies. Oct 16-20; Virtual Venue; Web: eaps2020.kenes.com

ISUOG Virtual World Congress - International Society of Ultrasound in Obstetrics & Gynecology. Oct 16-18; Virtual Venue; Web: www.isuog.org

CMEF 2020 - China International Medical Equipment Fair. Oct 19-22; Shanghai, China; Web: www.cmfef.com.cn

Asia Health 2020. Oct 20-22; Virtual Venue;

Web: www.medlabasia.com

EANM 2020 - 33rd Annual Congress of the European Association of Nuclear Medicine. Oct 22-30; Virtual Venue; Web: www.eanm.org

ASTRO 2020 - Annual Meeting of the American Society for Radiation Oncology. Oct 25-28; Virtual Venue; Web: www.astro.org

The Virtual EFFORT Congress 2020 - 21st Annual Congress of European Federation of National Associations of Orthopaedics and Traumatology. Oct 28-30; Virtual Venue; Web: vec.effort.org

EADV 2020 - 29th Congress of the European Academy of Dermatology and Venereology. Oct 29-31; Virtual Venue; Web: www.eadv.org

► NOVEMBER 2020

Omnia Health Live Americas. Nov 2-6; Virtual Venue; Web: live.omnia-health.com

ExpoMED Eurasia 2020. Nov 5-7; Istanbul, Turkey; Web: expomedistanbul.com

ESO-WSO 2020 - Joint Conference of the European Stroke Organisation & World Stroke Organization. Nov 7-9; Virtual Venue; Web: eso-wso-conference.org

Medica 2020. Nov 16-19; Virtual Venue; Web: www.medica-tradefair.com

EuroAnaesthesia 2020 - European Society of Anaesthesiology. Nov 28-30; Virtual Venue; Web: euroanaesthesia2020.org

ESTRO 2020 - Annual Congress of the European Society for Radiotherapy & Oncology. Nov 28 - Dec 1; Virtual Venue; Web: www.estro.org

RSNA 2020 - Annual Meeting of the Radiological Society of North America. Nov 29 - Dec 5; Virtual Venue; Web: www.rsna.org

► DECEMBER 2020

ECISM LIVES 2020 - 33rd Annual Congress of European Society of Intensive Care Medicine. Dec 6-9; Virtual Venue; Web: www.ecism.org

Zdravookhraneniye 2020. Dec 7-11; Moscow, Russia; Web: www.zdravo-expo.ru/en

Medical Fair Asia 2020. Dec 9-18; Virtual Venue; Web: www.medicalfair-asia.com

► JANUARY 2021

CACVS 2021 - Controversies & Updates in Vascular Surgery. Jan 21-23; Paris, France; Web: www.cacvs.org

ESOU21 - 18th Meeting of the EAU Section of Oncological Urology. Jan 29-31; Virtual Venue; Web: esou.uroweb.org

Critical Care Congress 2021 - 50th Annual Meeting of the Society of Critical Care Medicine (SCCM). Jan 31 - Feb 12; Virtual Venue; Web: www.sccm.org

► FEBRUARY 2021

APSCVIR 2021 - 15th Annual Meeting of the Asia Pacific Society of Cardiovascular and Interventional Radiology. Feb 24-27; Taipei, Taiwan; Web: www.apscvir2020.com

Medical Fair India 2021. Feb 25-27; New Delhi, India; Web: www.medicalfair-india.com

WCE 2021 - 14th World Congress on Endometriosis. Feb 24-27; Dubai, UAE; Web: endometriosis.ca

► MARCH 2021

ECR 2021 - European Congress of Radiology. Mar 3-7; Vienna, Austria; Web: www.mysr.org

Meditech 2021 - 7th International Health Fair. Mar 9-12; Bogota, Colombia; Web: feriameditech.com

40th ISICEM - International Symposium on Intensive Care and Emergency Medicine. Mar 16-19; Brussels, Belgium; Web: www.intensive.org

KIMES 2021 - Korea International Medical & Hospital Equipment Show. Mar 18-21; Seoul, Korea; Web: www.kimes.kr

13th SIOP ASIA 2021 - International Society of Paediatric Oncology. Mar 19-21; Mumbai, India; Web: www.siopasia2020.com

SIR 2021 - 46th Annual Meeting of the Society of Interventional Radiology. Mar 20-25; Virtual Venue; Web: www.sirmeeting.org

SAR 2021 - Annual Scientific Meeting of the Society of Abdominal Radiology. Mar 21-26; Virtual Venue; www.abdominalradiology.org

SALMED - International Trade Fair of Medical Equipment and Instruments. Mar 24-26; Poznan, Poland; Web: www.salmed.pl

EHRA 2021 - Annual Congress of the European Heart Rhythm Association. Mar 28-30; Barcelona, Spain; Web: www.escardio.org/EHRA-congress

► APRIL 2021

ECCC Dubai 2021 - 16th Emirates Critical Care

HOSPIMEDICA INTERNATIONAL

Reader Service Form

PLEASE COMPLETE THE FOLLOWING

WRITE CLEARLY IN BLOCK LETTERS
or AFFIX YOUR SUBSCRIBER LABEL
APPEARING ON COVER

Subscriber Code (Needed for All Renewals)
Name of Individual
Position and Department
Name of Institution
Mailing Address
City, Province
Postal Code
Country

A. TYPE OF ESTABLISHMENT (Check only one box)

- (1) ☐ General Hospital (incl. Univ. Hosp.)
(2) ☐ Specialized Hospital/Clinic
Please Specify
(3) ☐ Distributor/Dealer/Manufacturer
(4) ☐ Research/Univ. Education
(5) ☐ Govt. Agency/Hosp. Mgmt. Org.
(6) ☐ Consulting/Planning/Design
(7) ☐ Other
Please Specify

B. YOUR FUNCTION (Check only one box)

- (1) ☐ Hospital Director
(2) ☐ Chief Medical Director
(3) ☐ Business (Executive/Manager)
(4) ☐ Department Chief
(5) ☐ Medical Practitioner
(6) ☐ Other
Please Specify

C. YOUR DEPT OR SPECIALTY (Check only one box)

- (a) ☐ General/Internal Medicine
(b) ☐ Cardiology
(c) ☐ Critical Care/Anesthesiology
(d) ☐ Ob/Gyn
(e) ☐ Orthopedics/Rehabilitation
(f) ☐ Pediatrics
(g) ☐ Radiology/Imaging
(h) ☐ Surgery
(i) ☐ Urology
(j) ☐ Patient Care
(k) ☐ Administration/Purchasing
(l) ☐ Engineering/Technical
(m) ☐ General Management (Business)
(n) ☐ Marketing/Sales (Business)
(z) ☐ Other
Please Specify

D. Are you an M.D. (Dr. Med.)? ☐ YES

E. How many other readers share this copy of HospiMedica International?

VI. CIRCLE LINKXPRESS NUMBERS OF INTEREST TO RECEIVE FREE INFORMATION

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210
211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230
231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268	269	270
271	272	273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288	289	290
291	292	293	294	295	296	297	298	299	300

HMI-09-20

Yes, I wish to receive free copies
of **HospiMedica International**

SIGNATURE (REQUIRED)

DATE: DAY MONTH YEAR

The publisher reserves the right to qualify requests

Tel: (.....)(.....)

E-MAIL (REQUIRED):

@

For **EXPRESS** service:
visit www.LinkXpress.com
or Scan and Email this form to:
subs@globetech.net

► **Renew/Start your
Free Subscription**
► **Instant Online
Product Information**

Every advertisement
or product item
in this issue contains
a LinkXpress® number
as shown below:

LINKXPRESS.COM ► **HMI-09-20 999**

- 1 Identify **LinkXpress®** codes of interest as you read magazine
- 2 Click on **LinkXpress.com** to reach reader service portal
- 3 Mark code(s) of interest on **LinkXpress®** inquiry matrix

Or, Circle LinkXpress
Numbers of Interest on
Reader Service Card and
email Card to: subs@globetech.net

Conference. Apr 8-10; Dubai, UAE; Web: eccc-dubai.com

SEACare 2021 – 23rd Southeast Asian Healthcare & Pharma Show. Apr 12-14 Kuala Lumpur; Malaysia; Web: abcex.com

ISBI 2021 – International Symposium on Biomedical Imaging. Apr 13-16; Nice, France; Web: biomedicalimaging.org/2021

141st Annual Meeting of the American Surgical Association (ASA). Apr 15-17; Seattle, WA, USA; Web: meeting.americansurgical.org

WCN 2021 – World Congress of the International Society of Nephrology (ISN). Apr 15-18; Montreal, Canada; Web: www.theisn.org/wcn21

ARRS 2021 Annual Meeting – American Roentgen Ray Society. Apr 18-22; Virtual Venue; Web: www.rrs.org

MedtecLIVE 2021. Apr 20-22; Nuremberg, Germany; Web: www.medtecclive.com

ECTES 2021 – 21st Congress of the European Society for Trauma & Emergency Surgery (ESTES). Apr 25-27; Oslo, Norway; Web: www.estesonline.org

► MAY 2021

EuroCMR 2021 – 18th Annual Meeting on CMR of the European Association of Cardiovascular Imaging (EACVI). May 6-8; Seville, Spain; Web: www.esccardio.org/Congresses-&-Events/EuroCMR

ESPE 2021 – 59th Annual Meeting of the European Society for Paediatric Endocrinology. May 7-9; Liverpool, UK; Web: www.eurospe.org

ESTRO 2021 – Annual Congress of the Euro-

pean Society of Radiology & Oncology. May 7-11; Barcelona, Spain; Web: www.estro.org

ACC.21 – American College of Cardiology's 70th Annual Scientific Session & Expo. May 15-17; Atlanta, GA, USA; Web: accscientificsession.acc.org

Heart Failure 2021 – World Congress on Acute Heart Failure. May 15-18; Florence, Italy; Web: www.escardio.org/Congresses-&-Events/Heart-Failure

ISMRM 2021 – 29th Annual Meeting of the International Society for Magnetic Resonance in Medicine. May 15-20; Vancouver, Canada; Web: www.ismrm.org

Hospitalar 2021. May 18-21; Sao Paulo, Brazil; Web: www.hospitalar.com

KIHE 2021 – Kazakhstan International Healthcare Exhibition. May 19-21; Almaty, Kazakhstan; Web: kihe.kz

ECE 2021 – 23rd European Congress of Endocrinology. May 22-25; Prague, Czech Republic; Web: www.ece-hormones.org

ASNR 2021 – 59th Annual Meeting of the American Society of Neuroradiology. May 22-26; San Francisco, CA, USA; Web: www.asnr.org

EuroAnaesthesia 2021 – European Society of Anaesthesiology. May 29-31; Munich, Germany; Web: www.esahq.org

89th EAS Congress - European Atherosclerosis Society. May 30 - Jun 02; Helsinki, Finland; Web: www.eas-society.org

► JUNE 2021

22nd MEDEXPO Africa 2021. Jun 10-12; Nairobi, Kenya; Web: www.expogr.com/kenyamed

ESGAR 2021 – 32nd Annual Meeting of the European Society of Gastrointestinal and Abdominal Radiology. Jun 15-18; Virtual Venue; Web: www.esgar.org

SAGES 2021 – Annual Meeting of the Society of American Gastrointestinal and Endoscopic Surgeons. Jun 15-18; Las Vegas, NV, USA; Web: www.sages2021.surgery

IPR 2021 – International Pediatric Radiology Congress. Jun 15-19; Rome, Italy; Web: ipr2021.org

CMEF Indonesia. Jun 17-19; Jakarta, Indonesia; Web: www.cmefindonesia.com

7th Congress of the European Academy of Neurology (EAN). Jun 19-22; Vienna, Austria; Web: www.ean.org/congress-2021

AAEM21 – 27th Annual Scientific Assembly of the American Academy of Emergency Medicine. Jun 19-23; St. Louis, MO, USA; Web: www.aaem.org/aaem21

Arab Health 2021. Jun 21-24; Dubai, UAE; Web: www.arabhealthonline.com

ESRA 2021 – 39th Annual Congress of the European Society of Regional Anaesthesia and Pain Therapy. Jun 23-26; Thessaloniki, Greece; Web: esraeurope.org

ESHRE 2021 – 37th Annual Meeting of the European Society of Human Reproduction and Embryology. Jun 27-30; Paris, France; Web: www.eshre.eu

EFFORT Congress 2021 – 22nd Annual Congress of European Federation of National Associations of Orthopaedics and Traumatology. Jun 30 - Jul 2; Vienna, Austria; Web: congress.efort.org

► JULY 2021

AOCR 2021 – 19th Asian Oceanian Congress of Radiology. Jul 1-4; Kuala Lumpur, Malaysia; Web: www.aocr2020.com

► AUGUST 2021

Vietnam Medi-Pharm Expo 2021. Aug 5-7; Ho Chi Minh City, Vietnam; Web: hcm.medipharm-expo.com

AAOS 2021 – Annual Meeting of the American Academy of Orthopaedic Surgeons. Aug 31 - Sep 4; San Diego, CA, USA; Web: www.aaos.org

► SEPTEMBER 2021

WCA 2021 – 17th World Congress of Anaesthesiologists. Sep 1-5; Prague, Czech Republic; Web: www.wcaprague2020.com

ExpoMedical 2021. Sep 22-24; Buenos Aires, Argentina; Web: www.expomedical.com.ar

► OCTOBER 2021

ISUOG 31st World Congress - International Society of Ultrasound in Obstetrics & Gynecology. Oct 2-5; Seoul, Korea; Web: www.isuog.org

ESMRMB 2021 – 38th Annual Meeting of the European Society for Magnetic Resonance in Medicine and Biology. Oct 7-9; Barcelona, Spain; Web: www.esmrmrmb.org

► NOVEMBER 2021

44th World Hospital Congress of the International Hospital Federation (IHF). Nov 8-11; Barcelona, Spain; Web: worldhospitalcongress.org

Medica 2021. Nov 15-18; Dusseldorf, Germany; Web: www.medica-tradefair.com

VISIT
LINKXPRESS.COM
READER SERVICE PORTAL

2 EASY WAYS To Continue/Start Your FREE Subscription

1 ONLINE

Visit LinkXpress.com to enter your subscription data and reader inquiries.

2 BY EMAIL

- **Fill-out** all required data on Reader Service Card including signature and date (incomplete or unsigned cards cannot be processed).
- **Circle** inquiry numbers of interest to receive free information
- **Scan** card and **Email** to: subs@globetech.net

ATTENTION: IF YOUR APPLICATION IS NOT RECEIVED AT LEAST ONCE EVERY 12 MONTHS YOUR FREE SUBSCRIPTION MAY BE AUTOMATICALLY DISCONTINUED

HospiMedica
International

Advertising Index

Vol. 38 No.4
9/2020

Inq.No.	Advertiser	Page
—	18th World Congress of Ultrasound	11
128	Ampronix	28
—	AOCR 2021	25
107	CIRS	7
110	Clear Image Devices	10
115	Sun Nuclear	15
105	Greiner Bio-One	5
—	Euroneuro 2021	17
122	Hans Rudolph	22
—	HospiMedica	21
113	Instrumentation Laboratory	13
—	International Surgical Week	24
—	Medical Fair Asia	19
123	Outpatient Supply	23
102	Perry Health	2
109	Radcal	9
—	TradeMed.com	3
119	Vicolab	19

ASK YOURSELF:

IS YOUR EQUIPMENT

UP TO DATE?



Cath Lab
Displays

Surgical
Displays

Clinical
Displays



MODALIXX
Modality Solutions



HD RECORDERS



PRINTERS & MEDIA

Ampronix is the **LEADER** in Medical Imaging Technology. We are your go-to Resource for Cath Lab Displays, Surgical Displays, Clinical Displays, Diagnostic Displays, Medical Recorders, Ultrasound Machines, Medical Video Converters, Digitizers, Printers, & Media.

We offer Sales, Service, Repair, Replacement, & Exchanges both Domestically and in **137 countries across the world.**

Our extensive outreach allows us to extend our Direct pricing from the OEM's, such as Sony, Barco, NDS, NEC, LG, Mitsubishi, Elo, & Panasonic.

Whether you're replacing your unit, having it repaired, or are in search of a new product - **Ampronix can help.**



www.ampronix.com

15 Whatney, Irvine, CA 92618 USA



US and Canada: 1.800.400.7972

International: 1.949.273.8000

info@ampronix.com