US breast cancer guidelines: an ongoing debate

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Pre-conception health and obesity

Currently obesity is one of the biggest challenges for healthcare providers. According to the WHO 23% of women and 20% of men in Europe are now obese (BMI > 30) and the prevalence is rising rapidly. As well as exacerbating chronic conditions such as osteoarthritis, asthma and hypertension, both sexes suffer from the many life-threatening conditions to which obesity contributes, including several types of cancer, cardiovascular disease and type 2 diabetes. However obesity causes additional problems for women, affecting their fertility, the outcome of any pregnancies and the health of their children. Thus ideally the optimal time for appropriate health interventions is prior to a first pregnancy.

Obesity reduces a woman’s fertility and during pregnancy it impacts on maternal health, increasing the risk of conditions such as gestational diabetes and hypertension. The risk of early miscarriage and perinatal complications is also augmented. But evidence is now accumulating that a mother’s health during the pre-conception period, in addition to her health during pregnancy, affects her offspring’s risk of contracting a non-communicable disease or suffering from a developmental abnormality. The majority of pregnancies in the West are planned to some extent, so ideally prior to becoming pregnant women should strive to attain a normal BMI facilitated by a healthy diet with adequate fruit and vegetables as well as adequate physical exercise. Once conception has occurred health professionals are available to give appropriate help and advice, which expectant mothers are usually motivated to follow, but by then it may be too late to have an impact. Inadequate fetal growth in the first trimester of pregnancy, has, for example, been shown to increase cardiovascular risk in resulting children.

So how can pre-conception health be promoted? Ideally clinics (or general practitioners) providing contraceptive help for pregnancy prevention should extend their services to cover pregnancy planning. Similarly child health clinics should give relevant advice to those parents who are planning to increase their families. Pregnancy or fertility tests purchased at pharmacies could also incorporate information on pre-conception health. And possibly most importantly, sex education in schools, which currently puts so much emphasis on safe sex and effective contraception, should also cover the importance of pre-conception health, with information provided as an app rather than a booklet. Surveys show that the majority of secondary school students are more likely to heed information presented this way, and that they still aspire to be parents eventually!
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Simple test to detect diabetes risk after pregnancy

Gestational diabetes is one of the most common conditions that can occur during pregnancy. Although the symptoms generally disappear after delivery, women suffering from gestational diabetes are at increased risk of developing postpartum diabetes in the following years. Researchers at the Helmholtz Zentrum München have now developed an accurate method of predicting the probability of developing this progressive disease following childbirth.

For their study, the scientists from the Institute of Diabetes Research (IDF), Helmholtz Zentrum München, which is one of the partners of the German Center for Diabetes Research (DZD), collected data from 257 cases of gestational diabetes (a type of diabetes that affects women during pregnancy) which occurred between 1989 and 1999 and were followed up for a period of 20 years after delivery.

One hundred and ten of the women observed during this period developed postpartum diabetes. In order to be able to predict in which mother the disease would manifest itself after delivery, the team headed by Prof. Anette-Gabriele Ziegler, Director of the Institute of Diabetes Research, tested various parameters that are known to play a significant role in the genesis of the disease.

“Body mass index (BMI) and genetic predisposition both play a role in our calculation, as does the question of whether the mother breastfed her baby and whether her gestational diabetes had to be treated with insulin,” explains Meike Köhler, first author of the study.

On the basis of these parameters, the researchers introduced a point system to enable them to predict a woman’s likelihood of developing postpartum diabetes. For low-risk scores, the probability of developing diabetes within five years after delivery was only about eleven percent; in the medium-risk category it ranged from 29 to 64 percent, while for the highest-risk scores it was more than 80 percent.

“The test we developed is very easy to apply and in the future could be used in hospitals as a tool for predicting postpartum diabetes,” Prof. Ziegler added. “This means that both the doctor and the patient are aware of the respective risk, and it allows diabetes checks to be more closely tailored to the patient’s individual needs.”

Helmholtz Zentrum München
http://tinyurl.com/nrp6z7r http://tinyurl.com/q63rxsb

Monitoring critical blood levels in real time in the ICU

For patients in intensive care, knowing how much glucose, lactate and other substances are in the blood is a question of life or death. EPFL has developed a miniaturized microfluidic device that will allow medical staff to monitor these levels in real time and react more quickly.

No larger than a pack of chewing gum, the prototype developed by EPFL’s Integrated Systems Laboratory (LSI) is deceptively simple in appearance. But this little black case with two thin tubes sticking out contains some real miniaturized high-tech wonders. “We embedded biosensors in it to measure several different substances in the blood or blood serum along with an array of electronics to transmit the results in real time to a tablet via Bluetooth,” said Sandro Carrara, an LSI scientist.

Capable of being connected to a drainage tube that’s already in place, the new system is much less invasive than the many monitoring devices that it’s designed to replace. It keeps constant tabs on the blood levels of five substances: metabolites (glucose, lactate and bilirubin) and ions (calcium and potassium), all of which indicate changes in the condition of intensive-care patients.

“Nowadays, several of these levels are measured periodically. But in some cases, any change in level calls for an immediate response, something that is not possible with the existing systems,” said Dr. Carrara.

Building on this principle, up to 40 molecules could be monitored in real time. This advance will drastically reduce the number of machines cluttered around patients – an obvious practical advantage for the medical staff, not to mention the psychological boon for loved ones.

The prototype, which was made with a 3D printer, has been successfully tested on rodents. Discussions are now under way for tests to be carried out at the University Hospital of Lausanne (CHUV). And a number of manufacturers have already expressed serious interest in developing this device. “We could hit the market in two to three years,” said Dr. Carrara.

EPFL
http://tinyurl.com/z5wb45q
Cancer patient receives 3D printed ribs in world first surgery

An international collaboration that has led to a world-first in surgery, using a 3D printed titanium sternum and rib implant that was designed and manufactured in Melbourne. After being diagnosed with a chest wall sarcoma, the 54-year-old man’s surgical team made the decision to remove his sternum and a portion of his rib cage and replace it with an implant. The implant was designed and manufactured by medical device company, Anatomics, who utilized the 3D printing facility, Lab 22, of the Commonwealth Scientific and Industrial Research Organization (CSIRO), the Australian federal government agency for research.

The surgical team, Dr José Aranda, Dr Marcelo Jimene and Dr Gonzalo Varela from Salamanca University Hospital, knew the surgery would be difficult due to the complicated geometries involved in the chest cavity.

“We thought, maybe we could create a new type of implant that we could fully customize to replicate the intricate structures of the sternum and ribs,” Dr Aranda said.

“We wanted to provide a safer option for our patient, and improve their recovery post-surgery.”

After assessing the complexity of the requirements, Anatomics CEO Andrew Batty said the solution lay in metallic 3D printing.

“We wanted to 3D print the implant from titanium because of its complex geometry and design,” Mr Batty said. “While titanium implants have previously been used in chest surgery, designs have not considered the issues surrounding long term fixation.

“Flat and plate implants rely on screws for rigid fixation that may come loose over time. This can increase the risk of complications and the possibility of reoperation.”

Through high resolution CT data, the Anatomics team was able to create a 3D reconstruction of the chest wall and tumour, allowing the surgeons to plan and accurately define resection margins.

“From this, we were able to design an implant with a rigid sternal core and semi-flexible titanium rods to act as prosthetic ribs attached to the sternum,” Mr Batty said.

Working with experts at CSIRO’s 3D printing facility Lab 22, the team then manufactured the implant out of surgical grade titanium alloy.

“We built the implant using our $1.3 million Arcam printer,” Alex Kingsbury from CSIRO’s manufacturing team said.

“The printer works by directing an electron beam at a bed of titanium powder in order to melt it. This process is then repeated, building the product up layer-by-layer until you have a complete implant”.

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Smallest 3-D camera offers brain surgery innovation

To operate on the brain, doctors need to see fine details on a small scale. A tiny camera that could produce 3-D images from inside the brain would help surgeons see more intricacies of the tissue they are handling and lead to faster, safer procedures.

An endoscope with such a camera is being developed at NASA's Jet Propulsion Laboratory in Pasadena, California. MARVEL, which stands for Multi Angle Rear Viewing Endoscopic tool, has been honoured this week with the Outstanding Technology Development award from the Federal Laboratory Consortium. An endoscope is a device that examines the interior of a body part.

"With one of the world's smallest 3-D cameras, MARVEL is designed for minimally invasive brain surgery," said Harish Manohara, principal investigator of the project at JPL. Manohara is working in collaboration with surgeon Dr. Hrany Shahinian at the Skull Base Institute in Los Angeles, who approached JPL to create this technology.

MARVEL's camera is a mere 4 millimetres in diameter and about 15 millimetres long. It is attached to a bendable "neck" that can sweep left or right, looking around corners with up to a 120-degree arc. This allows for a highly manoeuvrable endoscope.

Operations with the small camera would not require the traditional open craniotomy, a procedure in which surgeons take out large parts of the skull. Craniotomies result in higher costs and longer stays in hospitals than surgery using an endoscope. Stereo imaging endoscopes that employ traditional dual-camera systems are already in use for minimally invasive surgeries elsewhere in the body. But surgery on the brain requires even more miniaturization. That's why, instead of two, MARVEL has only one camera lens.

To generate 3-D images, MARVEL's camera has two apertures -- akin to the pupil of the eye -- each with its own colour filter. Each filter transmits distinct wavelengths of red, green and blue light, while blocking the bands to which the other filter is sensitive. The system includes a light source that produces all six colours of light to which the filters are attuned. Images from each of the two sets are then merged to create the 3-D effect.

NASA's Jet Propulsion Laboratory
http://tinyurl.com/q63rxdb

For young patients with spina bifida, Smartphone app improves self-management

A system incorporating a smartphone app may help adolescents and young adults with spina bifida to improve their daily self-management skills, suggests a paper.

With features including mobile reminders and messaging with healthcare providers, the "iMHere" (interactive Mobile Health & Rehabilitation) system is feasible for use by young patients with spina bifida, according to the new research by Dr. Brad E. Dicianno of University of Pittsburgh Medical Center and colleagues. They write, "This system holds promise for use in many diverse chronic care models to support and increase self-management skills."

The randomized pilot study evaluated the iMHere system in 23 patients, aged 18 to 40, with spina bifida: a disabling congenital condition affecting the spine. The patients in the study had myelomeningocele--the most severe type of spina bifida.

One group of patients received the experimental iMHere system, which combined a suite of smartphone modules and a web-based portal for healthcare providers, linked by a two-way communication system. The modules were tailored to the key issues of spina bifida self-management, including information on medications, reminders to perform important daily self-care activities, and monitoring of mood and depression symptoms.

The other group of patients received routine spina bifida care and follow-up. After one year, use of the iMHere system and self-management skills were compared between groups, along with other key outcomes.

Patients met or exceeded expected levels of use of the iMHere system. They were most likely to use modules that reminded them to perform self-care steps that occurred less than every day; and to remind them to take medications, which changed frequently.

iMHere users "were also more likely to communicate new information or symptoms to a wellness coordinator by secure message, survey, or photograph," according to the authors.

Surprisingly, higher use of reminders did not decrease the rate of events requiring medical attention. However, patients who were high users of the iMHere system gained new independence in certain spina bifida self-management skills. All types of medical events tended to be less common for patients using iMHere, although the differences were not significant.

Science Newsline
http://tinyurl.com/gmauw2l
Introducing Touch Ultrasound*

From a world leader in imaging comes a revolution in ultrasound: The CARESTREAM Touch Ultrasound System. With a configurable All-Touch control panel like nothing the industry has ever seen, Touch Ultrasound offers a new level of intuitive operation, innovative productivity tools and a powerful processor that provides both efficiency and advanced image quality. The combination of touch and sound has arrived.
Image-based classifier calls out cancer cells

Ji and colleagues used a microscopy technique called stimulated Raman scattering, or SRS, to image cancer cells in human brain tissue. SRS produces different signals for proteins and lipids, which can then be assigned a colour (blue and green, respectively), allowing the authors to differentiate brain cortex from tumour from white matter. Biopsies from adult and paediatric patients with glioblastoma revealed not only distinctive features with SRS microscopy but also the presence of infiltrating cells in tissues that appeared otherwise normal with traditional staining. Such infiltrating cells are important to catch early because leaving them behind after surgery nearly always leads to cancer recurrence. To make this SRS microscopy approach amenable to routine use in neuropathology, the authors also created an objective classifier that integrated different image characteristics, such as the protein/lipid ratio, axonal density, and degree of cellularity, into one output, on a scale of 0 to 1, that would alert the pathologist to tumour infiltration. The classifier was built using more than 1400 images from patients with glioblastoma and epilepsy, and could distinguish between tumour-infiltrated and non-tumour regions with >99% accuracy, regardless of tumour grade or histologic subtype. This label-free imaging technology could therefore be used to complement existing neurosurgical workflows, allowing for rapid and objective characterization of brain tissues and, in turn, clinical decision-making.

Science Translation Medicine
http://tinyurl.com/oaxq8ojx

Common shoulder dislocation can heal just as well without surgery

Acromio-clavicular joint dislocation is one of the most common shoulder injuries orthopedic surgeons treat. Severe dislocations are often treated with surgery, but patients who opt for non-surgical treatment typically experience fewer complications and return to work sooner, according to new research. The AC joint is located at the top of the shoulder between the collarbone and top of the shoulder blade. The AC joint is most commonly injured during sports, but can also be caused by motor vehicle accidents or falls.

For minor AC joint dislocations, surgeons often suggest patients wear a sling for a few weeks and undergo physiotherapy, rather than undergo surgery using a plate and screws. “For severe AC joint dislocations, surgery is the common practice, but there’s not much evidence to suggest this is actually the best treatment,” said Dr. Michael McKee, an orthopedic surgeon with St. Michael’s Hospital.

Eighty-three patients with moderate to severe AC joint dislocations were assigned to receive either plate-and-screws surgery followed by rehabilitation or receive non-surgical treatment with sling and rehabilitation. Researchers followed the patients at regular intervals for two years, tracking complications, level of disability and patient satisfaction with how their shoulders looked after injury. Non-surgical patients showed greater mobility than the surgical patients at follow-up sessions six weeks and three months after their injury. There were no significant differences between the groups at six months, one year or two years after their injury.

“Three months after the initial injury, more than 75 per cent of the patients who did not have AC joint surgical repair were able to return to work, whereas only 43 per cent of those who underwent surgery were back at work,” said Dr. McKee.

Of the 40 patients who received surgery, seven experienced major complications such as a loose plate or a deep wound infection. Seven surgical patients experienced minor complications such as a minor infection or numbness at the point of the incision. There were only two major complications among the 43 patients who did not receive surgery. Both complications were a result of repeat falls that further injured the AC joint.

“The main advantages of surgery are that the joint is put back in place and the shoulder appears more symmetrical and pleasing to the eye,” said Dr. McKee. “The long-term implications of surgery for AC joint dislocation remain unclear when compared to non-operative treatment.”

St. Michael’s Hospital
http://tinyurl.com/onBxjk
Although there is no evidence that human prion disease, AD or cerebral amyloid angiopathy (CAA) is contagious (spread from person to person by direct contact), the study of eight patients suggests that amyloid beta (the peptides that form the main components of the amyloid plaques found in the brains of patients with AD) may potentially be transmissible via certain medical procedures. Human transmission of prion disease has occurred as a result of various medical procedures (iatrogenic transmission), with incubation periods that can exceed five decades. One such iatrogenic route of transmission was via the treatment in the UK of 1,848 persons of short stature with human growth hormone (HGH) extracted from cadaver-sourced pituitary glands, some of which were inadvertently prion-contaminated. The treatments began in 1958 and ceased in 1985 following reports of CJD among recipients. By the year 2000, 38 of the patients had developed CJD. As of 2012, 450 cases of iatrogenic CJD have been identified in countries worldwide after treatment with cadaver-derived HGH and, to a lesser extent, other medical procedures, including transplant and neurosurgery. John Collinge, Sebastian Brandner and colleagues at UCL conducted autopsy studies, including extensive brain tissue sampling, of eight UK patients aged 36–51 with iatrogenic CJD. The authors show that in addition to prion disease in all eight brains sampled, six exhibited some degree of amyloid beta pathology (four widespread) and four of these had some degree of CAA. Such pathology is rare in this age range and none of the patients were found to have mutations associated with early-onset AD. There were no signs of the tau protein pathology characteristic of AD, but the full neuropathology of AD could potentially have developed had the patients lived longer. The authors examined a cohort of 116 patients with other prion diseases and found no evidence of amyloid beta pathology in the brains of patients of similar age range or a decade older who did not receive HGH treatment. The study suggests that healthy individuals exposed to cadaver-derived HGH may be at risk of iatrogenic AD and CAA, as well as iatrogenic CJD, as they age. Further research is needed to better understand the mechanisms involved, but it seems likely that, as well as prions, the pituitary glands used to make the HGH contained the amyloid beta seeds that caused the amyloid beta pathology observed. The results should prompt investigation of whether other known iatrogenic routes of prion transmission, including surgical instrument use and blood transfusion, could also be relevant to the transmission of AD, CAA and other neurodegenerative diseases.

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US breast cancer guidelines revised - reportedly closer now to Europe but questions remain

Recently revised breast cancer screening guidelines from the American Cancer Society (ACS) share some parallels with practices in Europe and are similar to recommendations from other organizations. They have however generated a considerable amount of debate and controversy in the US.

First ACS revisions since 2013
The revised guidelines are the first from the ACS since 2003, and based on a review of 90 breast cancer screening studies and trials that have been completed since 2000. They were published on October 20, 2015, in the 'Journal of the American Medical Association' (JAMA).

Key points of revision include commencing mammography at the age of 45 rather than 40. The new guidelines also recommend that annual screenings be limited for one decade, or until the age of 54, when cancers are likely to be more aggressive and faster growing. After this, screenings should be once every two years, since cancer growth rates tend to slow after menopause - reached on average at age 51 by US women. Finally, according to the ACS, screenings need to be stopped when a woman’s life expectancy is below ten years. The ACS guidelines are targeted at women who have an average risk for breast cancer. They do not apply to women with a personal or family history of breast cancer, a confirmed or suspected genetic predisposition to cancer (such as the BRCA gene mutation) or a history of radiotherapy at a young age (e.g. for treating pediatric cancer).

Some confusion
This somewhat complex set of conditions and exceptions have caused some confusion. However, on balance there has also been support for the revisions. Political monthly ‘The Atlantic’ headlined an article called “The Increasingly Confusing Mammogram Guidelines” but noted that they fell “more in line with the assessment that women have been getting screened too early and, sometimes, too often.” One of the most outspoken endorsements of the new guidelines has come from ‘The Huffington Post’, which headlined a commentary: “U.S. Breast Cancer Guidelines Catch Up With The Rest Of The World.” In its commentary, ‘The Huffington Post’ noted that the ACS guidelines are now “similar” to “European health authorities’ 2003 recommendations, which suggest screenings every two years for middle-aged women.” The UK’s National Health Service, it noted, “offers free mammograms to women ages 47 and up every three years.”

European situation varies, remains nuanced
The above comments, however, do not bear up to scrutiny. As with some other healthcare-related debates in the US, erroneous comparisons with Europe may lead to additional controversies at a future date. The European initiative in 2003 referred to by ‘The Huffington Post’ is a non-binding ‘recommendation’ and practices continue to vary widely across the continent.

According to a September 2014 report in the ‘International Journal of Oncology’, five European countries (Austria, Greece, Romania, Slovakia and Sweden) continue to target 40 years as the age to commence screening, while the majority target 50, or five years more than the revised US ACS guidelines. The latter include Belgium, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Malta, Poland, Slovenia, Spain and the UK. Likewise, most countries have a cut-off date of 69 years, although some such as France, Italy, the Netherlands and Sweden recommend screening to continue till 74. Nevertheless, the majority recommend screening every two years.

References to the status of breast cancer screening in Europe are also sometimes out of date. At the end of October, for example, commentator Christie Aschwanden pointed out in an article titled ‘Science Won’t Settle the Mammogram Debate’ that “in Austria, women are told, ‘Participation is entirely up to you!’” That observation has, in reality, been invalidated for 22 months.

On January 1, 2014, Austria launched a national screening program known as the Austrian Breast Cancer Early Detection Programme. Prior to this date, breast cancer screening in the country had indeed been performed opportunistically, “meaning that women could have a screening examination if referred by a general practitioner or gynecologist.” However, a number of regional pilot projects dating to as far back as 2006 paved the way for the current Austrian system of “organized population-based breast cancer screening.”

Comparative benchmarks for revision in US itself
Rather than Europe, the real debate in the US - and benchmarks for the ACS - concern the United States Preventive Services Task Force (USPSTF), a group of independent experts convened by the Department of Health and Human Services to develop computer-simulated models comparing expected outcomes under different screening scenarios. The USPSTF’s draft recommendations on breast cancer screening were published in 2009 and are close to practices in much of Europe. They suggested that routine screening of average-risk women should begin at age 50 instead of 40 and that women get mammograms every two years instead of every year. Screening was recommended to be ended at age 74 - the only significant difference with the typical European cut-off age of 69.

USPSTF provokes major controversies
The 2009 USPSTF recommendations were met by a whirlwind of protest. “I am appalled and horrified,” one physician at the influential Memorial Sloan Kettering Cancer Center told ‘Time’ magazine. “There is no doubt that mammography screening in women in their 40s saves
One of the highest profile problems with USPSTF was its observation that breast self-exams have little value. Indeed, the task force suggested that doctors “no longer encourage their patients to conduct self-breast exams, as the practice hasn’t been proven to significantly reduce breast cancer deaths.” This particular finding is in direct opposition to the ACS.

In 2015, the USPSTF stated that it “did not update its recommendation against clinicians teaching breast self-examination.” However, it said it believed it was “important for women to report lumps or other significant changes that they note in their breasts to their healthcare provider.”

Political factors too played a role in the protests against the USPSTF. This is because its guidelines are generally used as the basis for government health insurance policies. As the ensuing debate reached fever pitch, the US Congress passed legislation effectively overriding the USPSTF.

Nevertheless, confusion continued to prevail - above all, in those at who all medical guidelines are eventually aimed - namely, the patient.

In 2009, 'Time' magazine quoted experts observing that “every time recommendations are changed, or when respected medical organizations endorse conflicting guidelines on issues like screening,” many patients simply “opt out of the controversy altogether, preferring to forgo testing than wade through the confusing information and options presented to them.”

ACS gives USPSTF acceptability

Now that ACS guidelines are more aligned to USPSTF recommendations, as well as to the general position in Europe and Canada, it is expected that both women and their physicians will eventually start following them.

Public health scholar Dr. Elizabeth Fontham, who led the ACS team developing the new guidelines, explained they were devised with the hope that women learn and take account of both the potential benefits and risk of breast cancer screenings.

Radiation risks

The key risk in screening continues to be that of radiation. Although such concerns have been heard for decades, proponents of reduced mammography got a shot in the arm in 2012, after the respected Institute of Medicine (IoM) conducted a review of breast cancer. The IoM found that although no product or chemical could be conclusively linked to malignancy, this was not the case for radiation-based imaging tests.

In an official report titled ‘Breast Cancer and the Environment: A Life Course Approach,’ the IoM estimated that medical radiation led to about 2,800 breast cancer cases in the US every year. It concluded that “one of the most important steps women can take to reduce their breast cancer risk is to avoid unnecessary imaging tests.”

The age of patient choice

The element of ‘informed choice’ is also echoed elsewhere. For example, Dr. Nancy Davidson, president-elect of the American Association for Cancer Research (AACR) and director of the University of Pittsburgh Cancer Institute, underlines that official recommendations are just one factor women ought to consider when deciding about a mammogram.

“Each woman has her own unique risk for developing breast cancer, determined by genetic, molecular, cellular and tissue makeup, as well as by exposure to cancer risk factors,” Davidson told ‘The Huffington Post’. Screening schedules, she suggests, need to be made jointly by a woman with her doctor based on history, risk and preferences. In addition, the schedule should be updated if and when needed, since risks change over time.

Ethnic factors

Nevertheless, protests in the US against the ACS revisions continued.

Mass circulation weekly ‘Newsweek,’ for example, observed in its October 20 issue that “No One Agrees on Mammography Guidelines.” There are also more contentious attacks, this time on the ACS itself (although most of the arguments could also apply to USPSTF).

An Op Ed in ‘NBC News,’ for example, focused on the fact that though black women had lower incidence for breast cancer than their white counterparts, mortality was higher, by 40%. In addition, black women “under the age of 40 have a higher incidence rate,” it noted.

The Op Ed sought to reinforce its conclusion by noting the studies on which the new ACS guidelines are based “come largely from Canadian and Swedish studies from as far back as 25 years ago where there were few, if any, black participants.” As a result, it questioned how delaying screening (to 45) would be in the best interests of black women, and concluded that “the fact is, they don’t.”

Business-as-usual for some

Other top physicians have also pledged to continue business-as-usual. According to Dr. Therese Bevers, a medical director at the University of Texas MD Anderson Cancer Center in Houston: “If a woman wants to begin at age 40 and continue annually, there’s nothing in here that says they can’t.” In a comment in ‘The Los Angeles Times,’ Bevers added that “women in their early 40s have more years of life to gain by averting a premature death.”

Bevers chairs the National Comprehensive Cancer Network’s guideline panel on breast cancer screening and diagnosis. The Network recommends mammograms every year starting at age 40. On its part, the “American College of Obstetricians and Gynecologists recommends them every year or two from ages 40 to 49, and every year after that. It also recommends yearly clinical breast exams starting at age 19.”

lives. To recommend that women abandon that is absolutely horrifying to me.”
Breast cancer screening technologies continue to improve at a dramatic rate. In many countries, digital mammography systems have all but replaced screenfilm systems, yielding significant improvements in imaging performance in women under the age of 50, women with radiographically dense breasts, and premenopausal or perimenopausal women [1].

Today, digital systems are quickly being replaced by tomosynthesis systems, like the Hologic Selenia® Dimensions®. Clinical studies have shown that the addition of Hologic tomosynthesis to digital mammography technology is associated with a significant decrease in recall rates and a significant increase in invasive cancer detection rates across all breast densities [2].

Despite the dramatic improvements in screening technologies, we continue to debate how often to screen and what age screening should begin. Conflicting guidelines lead to confusion among women—not only about when to screen, but whether her insurance will cover it. This is troubling, especially knowing that early detection represents the best opportunity to survive fast growing cancers.

A main criticism of mammography is that it leads to false positives, which cause anxiety and stress among women. However, better technology is making a significant impact. For example, more than 100 published peer-reviewed research papers have examined the clinical benefits of Hologic tomosynthesis exams, including the fact that the technology leads to fewer unnecessary biopsies and follow-up tests [3]. Yet, we continue to weigh the benefits versus risks of screening largely based on studies done before breast tomosynthesis was available.

Screening guidelines are based almost exclusively on age. Yet breast cancer is complex; age is only one of many variables that impact a woman's chance of getting the disease. We also know that there are significant differences in the benefits of screening from technology to technology and even clinical differences in how a technology performs from vendor to vendor.

No woman should ever have to forego a mammogram because of conflicting and confusing guidelines or whether she can afford screenings. Instead we must all support women in helping them better evaluate and understand their risk of developing breast cancer. And we must allow them to articulate their values and preferences, so that clinicians can help them make well-informed decisions about when to be screened and with which technology. In addition, we must continue to take the steps necessary to ensure that women don't face economic or other barriers when their healthcare providers recommend screening.

References

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Breast screening programme effective in preventing some invasive cancers

Ductal carcinoma in situ (DCIS) is described as a very early form of breast cancer, where cancer cells are present in milk ducts, but have not yet invaded the surrounding breast tissue. Around 4,800 people are diagnosed with DCIS in the UK each year and the main form of treatment is surgery followed by radiotherapy.

Ongoing public debate about the harm caused by mammography screening through over-diagnosis has led to controversy over the value of screening for and treatment of DCIS. A major question has been the extent to which diagnosis and treatment of DCIS may prevent the occurrence of invasive breast cancer in the future.

The researchers analysed data on 5,243,658 women aged 50-64 who were screened over a four year period across 84 screening units in the UK’s National Health Service Breast Screening Programme in England, Wales and Northern Ireland.

They found that increased prior screen detection of DCIS was associated with a reduction in invasive cancers occurring in the subsequent three-year interval. In 90 per cent of the screening units, for every three screen-detected cases of DCIS, there was one fewer case of invasive cancer in the following three years. As the study is based on screening unit level data, it cannot give definitive proof of progressive potential or otherwise of individual DCIS cases.

Lead researcher Professor Stephen Duffy from QMUL said: "There has been controversy over whether ductal carcinoma in situ will ever become invasive cancer. This is the first study from the screening programme which suggests that a substantial proportion of DCIS will become invasive if untreated, and it is therefore worth detecting and treating early. People can be reassured that detection of DCIS in the breast screening programme is benefitting the patients.”

The findings suggest that, overall, detection and treatment of DCIS is worthwhile in the prevention of subsequent invasive disease. The authors note, however, that it cannot be known for certain what the outcome would have been for any individual DCIS if it had not been treated.

New guideline addresses long-term needs of breast cancer survivors

A new breast cancer survivorship care guideline created by the American Cancer Society and the American Society of Clinical Oncology provides guidance to primary care and other clinicians in caring for the estimated 3.1 million female adult survivors of breast cancer in the United States. The guideline is the third in a continuing series of guidelines to provide guidance on identifying and managing potential physical and psychosocial long-term and late effects of cancer and its treatment, as well as other key elements of adult post-treatment survivorship care. Previous guidelines address the needs of survivors of prostate and colorectal cancers.

The guideline recommends that breast cancer patients should undergo regular surveillance for breast cancer recurrence, including evaluation with a detailed cancer-related history and physical examination, and should be screened for new primary breast cancer consistent with guidelines. At the same time, data do not support performing routine laboratory tests or imaging tests, except mammography when indicated, in asymptomatic patients to evaluate for breast cancer recurrence.
The guideline also recommends that primary care clinicians counsel patients about the importance of maintaining a healthy lifestyle, monitor for post-treatment symptoms that can adversely affect quality of life, and counsel patients to adhere to endocrine therapy. In addition to recommendations about screening tests and lifestyle factors, the guideline includes information on a broad range of other issues, from cognitive impairment and body image to fatigue and care coordination.

“Breast cancer survivors face potentially significant impacts of cancer and its treatment and deserve high-quality, comprehensive, coordinated clinical follow-up care,” write the authors. “Primary care clinicians must consider each patient’s individual risk profile and preferences of care to address physical and psychosocial impacts.”

American Cancer Society
http://tinyurl.com/njdrtac

**Optimal C-section rate may be as high as 19 percent to save lives of mothers and infants**

The most commonly performed operation in the world is cesarean section, and rates of cesarean childbirth delivery vary widely from country to country, from as little as 2 percent to more than 50 percent of live births. The World Health Organization recommends countries not exceed 10 to 15 percent (10 to 15 C-section deliveries per 100 live births) for optimal maternal and neonatal outcomes.

However, new research examining the relationship between C-section rates and maternal and neonatal mortality in 194 countries concludes that as the country-level C-section rate increases up to 19 percent, maternal and neonatal mortality rates decline. C-section delivery rates above 19 percent showed no further improvement in maternal and neonatal mortality rates.

Researchers from Ariadne Labs, a joint centre of Brigham and Women’s Hospital and the Harvard T.H. Chan School of Public Health, and the Stanford University School of Medicine gathered and correlated national C-section, maternal and neonatal mortality rates in a single year (2012) for all 194 WHO member countries. Mathematical modelling was used to impute C-section rates for countries where data was missing and to account for other contributing factors such as health expenditure. This is the first study to offer a comprehensive analysis of C-section rates for all WHO counties in a single year. That approach avoids bias caused by using data from varying years, since C-section rates and mortality change over time.

“On a nationwide level, our findings suggest there are many countries where not enough C-sections are being performed, meaning there is inadequate access to safe and timely emergency obstetrical care, and conversely, there are many countries where more C-sections are likely being performed than yield health benefits,” said Alex Haynes, MD, MPH, the principal investigator of the study and co-author George Molina, MD, MPH, a research fellow at Ariadne Labs. “Rather, our study can provide countries and policymakers some guidance about resource allocation and particular goals if they are trying to improve healthcare systems.”

Stanford University
http://tinyurl.com/j8hfe7

**Delaying chemotherapy in breast cancer patients reduces overall survival**

Postponing the start of adjuvant chemotherapy for more than 90 days following surgery may significantly increase risk of death for breast cancer patients, particularly those with triple-negative breast cancer (TNBC), according to a new study from The University of Texas MD Anderson Cancer Center. Further, the researchers found that factors and sterile environments, all contribute to general strong healthcare systems,” Weiser said.

The study emerges from ongoing research at Ariadne Labs and Stanford looking at access to surgical care as a key indicator of comprehensive healthcare systems.

“It’s important to recognize that our findings do not pertain to individual patients or individual facilities,” said study co-author George Molina, MD, MPH, a research fellow at Ariadne Labs. “Rather, our study can provide countries and policymakers some guidance about resource allocation and particular goals if they are trying to improve healthcare systems.”

Stanford University
http://tinyurl.com/j8hfe7

**EXAPad**

PORTABLE ULTRASOUND FOR ANESTHESIA
such as socio-economic status, insurance coverage and ethnicity were associated with delayed treatment.

Adjuvant chemotherapy, which is given after primary surgery, has been demonstrated to benefit patients by decreasing the risk of recurrence and death, explained Mariana Chavez Mac Gregor, M.D., assistant professor, Health Services Research and Breast Medical Oncology. However, delaying the start of adjuvant chemotherapy may allow small remnants of the tumour to grow or become drug-resistant.

Currently, there are no guidelines recommending the optimal time to initiation of adjuvant chemotherapy. The Centers for Medicare & Medicaid Services (CMS) considers the administration of adjuvant chemotherapy within 120 days of diagnosis for certain patients as a quality metric. Eleven cancer hospitals, including MD Anderson, are now reporting on this metric.

Past studies have suggested that delaying the initiation of therapy could result in adverse patient outcomes, but the optimal timing for starting adjuvant therapy has not been defined. To clarify this time frame relative to modern treatments and identify factors contributing to delayed treatment, the researchers analysed data from the California Cancer Registry. This population-based study examined data from 24,823 patients with Stage I to III invasive breast cancer diagnosed between January 1, 2005 and December 31, 2010 and treated with adjuvant chemotherapy. This is the largest study investigating the effects of delayed chemotherapy initiation with contemporary treatment regimens.

“Compared to patients starting chemotherapy in the first month after surgery, we observed that those who initiated chemotherapy between 30 and 90 days following surgery did not have adverse outcomes,” said Chavez Mac Gregor, lead author of the study.

Cancer decay could attract, capture malignant cells

A small, implantable device that researchers are calling a cancer “super-attractor” could eventually give doctors earlier warnings of relapse in breast cancer patients and even slow the disease’s spread to other organs. The sponge-like device developed at the University of Michigan is designed to attract cancer cells that emerge in the bloodstream during the early stages of cancer’s recurrence—before tumours form elsewhere in the body. A new study in mice shows that the device attracts detectable numbers of cancer cells before they’re visible anywhere else. In the study, cancer cells spread to the lungs 88 percent more slowly in mice that received the implants. Researchers envision the super-attractor being implanted just beneath the skin of breast cancer patients. Doctors could monitor it using a non-invasive scan and it could enable them to detect and treat relapse sooner. It also has the potential to be used as a preemptive measure in those who are at high risk for breast cancer.

“Breast cancer is a disease that can recur over a long period in a patient’s life, and a recurrence is often very difficult to detect until the cancer becomes established in another organ,” said Dr. Jacqueline Jeruss, associate professor of surgery in the U-M Comprehensive Cancer Center. “Something like this could be monitored for years and we could use it as an early indicator of recurrence.”

Jeruss said the idea for the super-attractor was born from the knowledge that cancer cells don’t spread randomly. Instead, they’re attracted to specific areas within the body. So the team worked to design a device that exploited that trait.

“We set out to create a sort of decoy—a device that’s more attractive to cancer cells than other parts of the patient’s body,” said Lonnie Shea, the William and Valerie Hall Department Chair of Biomedical Engineering at U-M. “It acts as a canary in the coal mine. And by attracting cancer cells, it steers those cells away from vital organs.”

The device takes advantage of interaction that naturally takes place between cancer and the body’s immune system. Cancer co-opts the immune system, turning a patient’s immune cells into drones that gather in specific organs to prepare them for the arrival of cancer cells. The immune cells then act like a beacon in the body that attracts cancer to that location. In essence, the team has built a brighter beacon.

Identifying patients with advanced cervical cancer who may not benefit from bevacizumab

Patients with advanced cervical cancer who were at intermediate and high risk of poor outcome, as assessed by the Moore criteria, gained survival benefit from having bevacizumab added to their chemotherapy regimen while those at low risk of poor outcome did not, according to results of a major objective of the phase III NRG Oncology-Gynecologic Oncology Group protocol 240 (GOG 240) clinical trial. “The Moore criteria are five clinical factors that have been proposed to be prognostic for poor outcomes among patients with advanced cervical cancer,” said Krishnansu S. Tewari, MD, professor and director of research in the Division of Gynecologic Oncology at the University of California, Irvine. “The factors are being of African-American ancestry and having a performance status of 1, pelvic disease, prior platinum-based treatment, and progression-free survival of less than one year. Patients who have zero or one negative prognostic factor are proposed to be at the lowest risk for poor outcome, those with two or three at intermediate risk, and those with four or five at high risk.

“Our study prospectively validates the Moore criteria as prognostic for outcome among patients with advanced cervical cancer and identifies a population, those at low risk for poor outcome, who are unlikely to gain benefit from treatment with bevacizumab,” added Tewari. “Therefore, the Moore criteria represent the first prospectively validated scoring system in cervical cancer. They provide oncologists with a clinical instrument to help them counsel patients and their families regarding anticipated outcomes and the potential benefit, or lack of benefit, of adding the recently approved cervical cancer drug, bevacizumab, to standard chemotherapy.”

American Association for Cancer Research

http://tinyurl.com/tnrgzlwv
The challenge of cleanliness - hospitals seek new approaches

Resistant bacteria do not only resist antibiotics. They have also demonstrated the capacity to successfully fight antimicrobial agents and once-robust sterilization processes. Public pressure on hospitals to do more is illustrated by British daily ‘The Telegraph’. An October 2008 headline in the newspaper warned readers: “Scientists say hospital bacteria which can survive an attack by disinfectants and antisepsics are becoming ultra-resistant superbugs.”

New agents, methodologies and genomics
In recent years, hospitals have been compelled to develop more efficient approaches to cleaning, disinfection and sterilization. Meanwhile, researchers have been seeking alternatives to traditional cleaning agents and disinfectants as well as approaches to sterilization. Part of the search includes genomic studies on bacterial biology and physiology, which aim to identify precise mechanisms of action for next-generation biocides. It is hoped, the latter, will target resistant strains and ideally, avoid creating new resistance.

Over recent years, a range of standards covering the antimicrobial activity of disinfectants and their use in the hospital environment have been defined in Europe and by the Centers for Disease Control and Prevention (CDC) in the US. On its part, hospital sterilization is a validated process and translates into an absolute, certifiable objective - the inactivation of all viable forms of life. It is usually expressed in terms of sterility assurance levels (SAL) - the probability of a single unit being nonsterile after sterilization. For medical devices, SALs are usually set at $1 \times 10^{-6}$, or a one in million chance of containing a nonsterile unit.

Key pathogens, growing problems
Some of the most important pathogens from the point of view of disinfecting and sterilizing today's hospital environment include methicillin-resistant Staphylococcus aureus (MRSA), Clostridium difficile (C. difficile), Pseudomonas aeruginosa, vancomycin-resistant Enterococcus spp. (VRE), Acinetobacter baumannii and some Enterobacteriaceae strains. Viruses too, such as HIV and noroviruses pose specific challenges, as do fungi.

The problems have been growing. For example, strains of enterobacteriaceae like Klebsiella, usually inactivated by straightforward low-steam pasteurization at 63°C for a half hour, have been found to survive on medical devices sterilized to the strictest specification. Klebsiella is hardly the toughest of the lot. It is, for example, less resistant than Mycobacterium.

Resistance and superbugs
The risk of superbugs in medical devices has damaged faith in sterility assurance. In the US, for example, certified sterilization procedures abjectly failed to do their job with duodenoscopes across several facilities in the country, from Seattle and Illinois to the prestigious Ronald Reagan UCLA Medical Center and Cedars Sinai in Los Angeles.

After these incidents in early 2015, which led to a "rash of infections and deaths", one commentator asked: "If neither antibiotics nor sterilization can destroy antibiotic-resistant superbug organisms, we are faced with a double whammy. And if it took a recognized and important microbe to discover that sterilization processes failed, the question arises: What else is happening that isn't being investigated or recognized, such as hospital-acquired infections?"

Hospital-acquired infections
Indeed, hospital-acquired infections (HAIs) are now believed to be among the major causes of death and morbidity in hospitalized patients, responsible (according to one estimate) for 175,000 deaths every year in industrialized countries.

HAI has been growing exponentially worldwide since the 1980s, among other factors due to the indiscriminate use of antibiotics which have triggered the growth of multidrug resistant (MDR) bacterial strains (or superbugs) and the transmission of such strains between patients, as well as between patients and hospital staff and vice versa.

At present, almost two-thirds of HAIs are linked to the presence of pathogens in medical implants and devices such as venous or urinary catheters, heart valves and orthopedic prostheses or fracture-fixation devices. Under these circumstances, the only option is to replace the
implant, which is both expensive and distressing for patients, and can entail additional health complications. Bacteria have also been found on basic medical equipment such as otoscopes, stethoscopes etc. and on non-medical plastic items such as cell phones.

**Hand, clothing and surface transmission**

A seemingly-avoidable but still-major and persistent challenge is bacterial transmission via the hands (or gloves and clothing) of healthcare personnel, contaminated by contact with infected patients or surfaces. Aside from medical implants and devices, this source accounts for an estimated 20-40% of HAIs - in other words, the bulk of the remainder.

Certain pathogens, it is now known, are surviving for increasingly longer periods on surfaces in the hospital. For example, it has been shown that nosocomial transmission of norovirus, *C. difficile* and *Acinetobacter* spp. correlates to inadequately cleaned surfaces. The most frequently contaminated surfaces are floors, doorknobs, TV remote controls, bed-frame lockers, mattresses, bedside tables and toilet seats. In other words, apart from the human body and medical equipment, the hospital environment too is a reservoir of dangerous infectious agents. Such environmental persistence (and transfer to a human host) goes beyond expected surfaces such as hospital linen and crockery or cutlery to plastic or even steel. Indeed, bacterial adhesion to stainless steel and the ensuing cross-contamination poses a very immediate and specific challenge as it is the most commonly used material in the medical industry and hospitals.

**Limitations to traditional disinfection**

The growth in outbreaks due to inadequate decontamination also underline limitations to traditional disinfectants and disinfection procedures, most of which are effected by applying chemical agents in solution. These have several disadvantages. Firstly, application has to be made with care as some of them can cause skin, eye or even respiratory tract irritation. Secondly, most require exposure of 5–10 minutes. Thirdly, some products can react with acids or lose their effectiveness after contact with organic substances.

Principal new approaches to surface disinfection include the use of hydrogen peroxide vapour (HPV), steam vapour and ultraviolet (UV) light.

**Hydrogen peroxide**

Hydrogen peroxide vapour (HPV) has been shown to be particularly effective against *Mycobacterium tuberculosis*, which “can contaminate surfaces and is highly resistant to disinfection.” A test sample was completely deactivated in 2007 following 90 minutes of HPV exposure. HPV has also demonstrated its potential in studies against MRSA, *C. difficile* and other tough pathogens in a range of locations, including surgical wards, ward side rooms, single isolation rooms, multipled bed ward bays and bathrooms. One of the greatest pluses for HPV is that it has low toxicity and excellent compatibility with most of the inanimate materials used in hospitals.

**Steam vapour**

On its part, steam vapour “completely inactivated” *E. coli*, *Shigella flexneri*, VRE, MRSA, *Salmonella enterica*, methicillin-sensitive *Staphylococcus aureus*, MS2 coliphage (used as a surrogate for non-enveloped viruses including norovirus), *Candida albicans*, *Aspergillus niger*, and the endospores of *C. difficile” within 5 seconds of application of a novel, portable steam vapour system.

**UV light**

Another major new disinfecting agent, with especially exciting potential for room decontamination, is UV light. In a 2013 experiment at Yale University School of Medicine, UV light successfully destroyed micro-organisms in air-handling systems, air-purifying systems and room surfaces. Other successes have been recorded, for example against MRSA, VRE, multi-drug resistant *Acinetobacter baumannii*, both in the line of sight and behind objects, within 15 minutes. One of the earliest demonstrations of the disinfecting capabilities of UV light is almost a decade old. In 2006, researchers at a Biosafety Level 3 lab in Omaha, Nebraska, showed that ceiling-mounted UV lamps reduced the viability of both *Bacillus cereus* and *Bacillus anthracis* (cells and spores) after exposure of 1 hour at an intensity as low as 8 μW/cm².

Nevertheless, in a hospital context, it is important to note that both HPV and UV require the removal of patients and healthcare personnel from rooms. They also have a high acquisition cost. Some experts, in fact argue, that they have not yet been “assessed for their ability to reduce healthcare-associated infections.”

**The biofilm challenge**

For sterilization professionals, adhesion of pathogens to a surface, followed by the formation of biofilm, is one of the most critical challenges. One immediate problem is the increased resistance of bacterial species to disinfectants due to the biofilm. A second problem is that here are few prevention techniques to control biofilm formation without causing side effects. Some estimates place disinfectant concentration necessary to kill so-called sessile (or anchored) bacteria at up to 1,000 times more than for planktonic bacteria of the same strain. Indeed, it has been known since the end of the 1990s that antimicrobial therapies fail to kill biofilms most of the time, although some recent approaches have begun to show promise.

New research is focused on developing surfaces with antimicrobial coatings. These consist of metals or antiseptics and antibiotics. The coatings inhibit the formation of biofilm by several new techniques. The first is adhesion prevention, based on a super-hydrophobic covering. The second disrupts cell membranes in contact with the surface. The final step is bioicide leaching, which involves the release of a cytotoxic compound to kill attached microorganisms.

**Surface modification: from metal alloys and nanotech to bioactive compounds**

Many of these techniques consist of surface modification by the use of antimicrobial properties of certain alloyed metals such as copper, titanium and silver, or peptides such as magainin I and nisin. These modifications are often effected by new nanotechnologies. Another new technique is to make surfaces which produce biocides only after external application of chemical, electrical or optical energy. One example of bioicide leaching is Surfacine. This incorporates silver iodide (a powerful anti-microbial) in a surface-immobilized coating, which then interacts with a microorganism by electrostatic attraction, penetrates the cell and finally kills it. Silver iodide-treated surfaces have been shown to eliminate VRE for almost 2 weeks, and also retained an antimicrobial effect after cleaning, and the compound is part of the CDC’s 2008 Guideline for Disinfection and Sterilization in Healthcare Facilities. There is research into several other such bioactive compounds, not only for surfaces but also in medical material implants and protective clothing. On their part, hospitals clearly stand to benefit from growing interest in the field by consumer, food packaging and industrial textiles companies around the world.
Rethinking online health information: How about personalization?

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Dr. Howard Koh, Former Assistant Secretary of Health and Human Services (HHS) explained, “While [health literacy] may not necessarily attract headlines, it is absolutely at the core of everything we do as health care... professionals.” Yet making health information that is searched for on the Internet accessible means not only reducing jargon but also reducing volume. Personalization is one answer that Medivizor, a start-up featured in Forbes, has developed to answer the need. Hospitals and providers partner with Medivizor to improve the health literacy of patients, enhancing engagement and collaborative decision-making.

Faire des recherches en ligne sur les informations de santé, par ordre alphabétique, personnelles et plus faciles
Le Dr. Howard Koh, ancien sous-secrétaire du Health and Human Services (HHS) a expliqué, « Tandis que [l'information en matière de santé] peut ne pas nécessairement faire la une, elle est absolument au cœur de tout ce que nous faisons comme soins de santé... professionnels. » Pourtant, fournir des informations de santé qui sont recherchées, sur le moyen accessible qui est Internet, signifie non seulement réduire le jargon, mais en réduire aussi le volume. La personnalisation est une réponse que Medivizor, une start-up en vedette dans Forbes, a mise au point pour répondre à ce besoin. Des hôpitaux et des professionnels ont fait un partenariat avec Medivizor pour améliorer l'instruction des patients en matière de santé, pour améliorer leur engagement et la prise de décision collaborative.

No turning back – prospects and challenges of eHealth

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ABSTRACT: eHealth is a term referring to tools and services using information and communication technologies (ICTs) that can improve health care in many ways, such as prevention, diagnosis, treatment, monitoring and management. The small 'e' in front of the eHealth (original abbreviation for "electronic health") has been given several meanings: 'e' also refers to efficiency, empowerment of patients, evidence-based health care, enabled cross-border communication, and equity access to services, for instance. Furthermore eHealth includes the attitude and commitment to networking and global way of thinking. The purpose of the article is to describe the many-sided eHealth, prospects and challenges, changes in roles of health care staff and patients, and to encourage discussion.

Pas de retour en arrière - perspectives et les défis de la e-santé
L’e-santé est un terme qui fait référence aux outils et services utilisant des technologies d’informations et de communication (TIC) qui peuvent améliorer les soins de santé à bien des égards, tels que la prévention, le diagnostic, le traitement, le suivi et la gestion. Au petit « e » devant e-santé (initialement abréviation pour « santé électronique ») ont été ajoutées plusieurs significations : « e » se réfère également à l’efficacité, la responsabilisation des patients, les soins de santé fondées sur des
If these walls could talk: utilizing health data from the home to reduce unnecessary readmissions

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ABSTRACT: In the post-Affordable Care Act landscape (ACA), comprehensive care management has become an essential component in the universal goal to reduce hospital readmissions and their associated costs. Utilizing real-time home health monitoring technologies, hospitals can transform transitional care from hospital to home while significantly improving long-term home care outcomes. To achieve the Institute for Healthcare Improvement’s Triple Aim, we need widespread commitment and investment in home healthcare IT that connects clinicians, providers, and payers to patients with speed and accuracy. Technology that generates real-time actionable health care data from the home is an essential key to progress in this endeavor.

Si ces murs pouvaient parler : utiliser les données depuis la maison pour réduire les réadmissions inutiles
Dans le contexte qui suit la loi sur la protection des malades et les soins abordables, la gestion de la prise en charge globale sont devenues une composante essentielle de l’objectif mondial de réduire les réadmissions à l’hôpital et les coûts associés. En utilisant les technologies de surveillance de la santé, les hôpitaux peuvent transformer les soins traditionnels de l’hôpital à la maison, ainsi qu’améliorer de manière significative les résultats des soins de longue durée à la maison. Pour atteindre ce triple objectif de l’Institut d’amélioration des soins de santé, nous avons besoin d’une volonté généralisée et de l’investissement dans la technologie des soins à domicile, qui relie les cliniciens, les fournisseurs et les payeurs, aux patients avec rapidité et précision. Une technologie qui génère des données de soins de santé en temps réel à partir de la maison est une clé essentielle pour progresser dans cette entreprise.

Grasping the health horizon: toward a virtual, interoperable platform of health innovations

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ABSTRACT: The emergence of digital health, wearables, apps, telehealth and the proliferation of health services online are all indications that health is undergoing rapid innovation. Health innovation however has been traditionally slow, high cost and the commercialisation journey was not a guaranteed path to adoption outside the setting where it was developed whether in a hospital, university, clinic or lab.

Most significant with this new explosion of health innovations is the sheer volume. The startup revolution, mobile health, personalised health and globalisation of knowledge means that consumers are demanding innovations and are pulling health innovations through commercialisation with new modes of funding such as crowdsourcing and direct vendor purchases. Our Australian team initiated a project to use machine learning, data mining and classification techniques to bring together and analyse this explosion of health innovations from all over the world. Following two years of data aggregation and quality analysis we present our findings which are applied to over 200,000 innovations from more than 25,000 organisations. Our findings have identified the dynamics and basis for a marketplace for health innovations that could assist innovators, health practitioners, consumers, investors and other health participants to research, evaluate and promote these innovations.

Saisir l’horizon de la santé : vers une plate-forme virtuelle, interoperable de santé
L’émergence de la santé numérique, des wearables, des applications, la télé santé et la prolifération des services de santé en ligne sont tous des indicateurs qui nous portent à croire que le santé fait l’objet d’une innovation rapide. L’innovation en santé a toutefois été traditionnellement lente, le coût élevé et le chemin de commercialisation n’était pas un chemin pouvant garantir l’adoption en dehors du milieu où il a été mis au point, qu’il s’agisse d’un hôpital, d’une université, d’une clinique ou d’un laboratoire.
Physician Collaboration – Now needed more than ever

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ABSTRACT: Driven by the changing reimbursement climate from volume to value-based, hospital systems must initiate technology and training to ensure that communications between all team members involved with a given patient are coordinated and all test results and care plans are immediately available at every point of care in the system.

Since the enactment of the Patient Protection and Affordable Care Act (PPACA), there has been intense pressure on hospitals and health systems to reduce costs. Many hospitals are responding by merging and buying doctors’ practices, while some are beginning to offer their own health plans for the first time and setting up accountable care organizations that would provide coordinated high quality health care for large groups of patients.

With new hospital mergers being announced weekly and more practices being added to hospital systems daily, the need to collaborate through virtual health initiatives is gaining strength. The addition of inexpensive secure telemedicine to the availability of an intelligent patient record form based on best practice guidelines will enable greater collaboration across the hospital system.

This type of technology will increase revenues, cut costs, improve outcomes and increase patient and provider satisfaction.

Collaboration du médecin - Maintenant plus que jamais nécessaire

Poussé par le climat changeant du remboursement qui passe du système basé sur le volume à celui basé sur la valeur, les systèmes hospitaliers doivent promouvoir la technologie et la formation afin d’assurer la coordination de la communication entre tous les professionnels de la santé impliqués dans un patient donné et la disponibilité immédiate, chaque point de service dans le système, de tous les résultats des tests et des plans de soins.

Depuis la promulgation de la loi sur la promotion de la protection des patients et des soins abordables (PPACA), il y a eu d’intenses pressions sur les hôpitaux et sur les systèmes de santé pour réduire les coûts. Beaucoup d’hôpitaux réagissent en s’unissant et en adaptant les pratiques des médecins, tandis que certains commencent à offrir leurs propres plans de santé pour la première fois et la mise en place des organismes de soins responsables qui permettraient la coordination des soins de santé de haute qualité pour de grands groupes de patients.

Avec de nouvelles fusions d’hôpitaux annoncées toutes les semaines et avec l’ajout quotidien de systèmes d’hôpital, la nécessité de collaborer à travers des initiatives de santé virtuelles gagne en force. L’ajout de la télémédecine sécurisée peut coûter à la disponibilité d’un dossier patient intelligent basé sur les meilleures lignes directrices de pratique permettra une plus grande collaboration au sein du système hospitalier. Ce type de technologie augmentera les revenus, réduira les coûts, améliorera les résultats et augmentera la satisfaction du patient.

MASK-rhinitis, a single tool for integrated care pathways in allergic rhinitis

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ABSTRACT: Allergic rhinitis (AR) is among the most common diseases globally. MASK-rhinite is a simple ICT tool to implement care pathways for allergic rhinitis from patients to health care providers using a common language and a clinical decision support system. This is based on the assessment of the control of allergic rhinitis by a visual analogue scale on an App and a tablet. MASK-rhinite will allow (i) the patients to screen for allergic disease, (ii) the pharmacists, to guide them in the prescription of OTC medications and direct the uncontrolled patients to physicians, (iii) the primary care physician, to prescribe appropriate treatment and to follow-up with the patient according to the physician’s instructions (CDSS) and assessment of control and (iv) the specialist and outpatient clinics in allergology, if there is failure to gain control by the primary physician. MASK-rhinite will be important for establishing care pathways across the life cycle, stratify patients with severe uncontrolled rhinitis and to perform clinical trials.

MASK-rhinite un outil unique pour des soins intégrés dans la rhinite allergique
La rhinite allergique est une des maladies les plus fréquentes dans le monde. MASK-rhinite est un outil TIC simple permettant la mise en place de parcours de soin pour la rhinite allergique pour les patients et les soignants. MASK utilise le même langage et un système de décision clinique. L'ensemble est fondé sur la centrale de la rhinite en utilisant une échelle visuelle analogique avec un téléphone mobile (patient) ou une tablette (médecin, pharmacien....). Le même outil, MASK-rhinite, permet: 1- au patient d'adapter son traitement au contrôle de la rhinite, 2- au pharmacien d'optimiser et suivre la prescription et de savoir quand adresser au patient au médecin, 3- au médecin généraliste de proposer un traitement adapté et de suivre l'efficacité du traitement selon son schéma thérapeutique. En cas de mauvais contrôle d'adresser le patient au spécialiste et 4- au spécialiste ou au centre d'allergologie de vérifier le diagnostic et d'adapter le traitement. MASK-rhinite peut être utilisé à tous les âges de la vie, permet de stratifier les patients sévères mal contrôlés et de réaliser des essais cliniques.
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Esaote MyLab: Ultrasound imaging technology tailored for the user

As a leading player in the diagnostic ultrasound market, active since 1983, Esaote has a long experience in developing and fine-tuning ultrasound systems and probes for a broad range of clinical segments.

MyLab Ultrasound solutions are shaped to answer the most demanding clinical needs in many applications: from abdominal to vascular, including musculoskeletal, internal medicine, cardiology, obstetrics and gynecology, as well as interventional ultrasound guidance.

Esaote puts a high effort in designing systems that offer top image quality for confidence diagnosis from difficult-to-scan patients up to fully detailed superficial image resolution. This has been achieved over the years through advanced research, with several patents and publications, and effective implementations on the system and also on the probe side, the latter offering a broad choice of in-house made transducers ranging from traditional phased, linear, convex and endocavity to dedicated solutions for surgery and intervention. The Esaote probe family has recently been extended with the brand new High Frequency Hockey Stick probe IH 6-18 and the Biopsy dedicated 0 degree insertion convex transducer SI2C41. Customizable buttons on the probe body enhance comfort and increase possibilities.

Advanced hemodynamic evaluation tools such as XFlow and HD CFM, tissue stiffness evaluation with ElaXto as well as Virtual Navigator for easy-to-perform real-time fusion imaging are just a few examples of Esaote advanced technologies tailored to meet any requirements up to the most demanding ones.

Virtual Biopsy and Needle Enhancement technology are valuable tools to facilitate needle insertions for simple biopsies as well as percutaneous treatments.

Top level Contrast Enhanced Ultrasound (CEUS) as well as advanced cardiovascular tools such as the 4D XStrain volumetric cardiac deformation analysis tool and the Radiofrequency-based Intima Media Thickness (QIMT) and Arterial Stiffness (QAS) measurement tools are featured, reflecting the “Creativity in Healthcare” Esaote mark.

Esaote’s commitment to ergonomics and innovative design solutions is embodied in its systems and probes portfolio which addresses the issue of ultrasound (US) systems ergonomics mentioned in many standards and guidance documents (regulatory organizations, healthcare institutions and sonographers associations). As many as 80% of sonographers report work-related musculoskeletal disorders (WRMSD) within 5 years of entering the profession.

Workflow optimization and automation tools have been designed with the help of, and collaborations with important clinical and technical reference centres and universities.

Interviews and extensive scanning sessions with numerous ultrasound users ranging from sonographers to physicians, from surgeons to paramedics helped us to have a clear view of the different environments and user needs our systems have to be designed for.

The eTouch screen-based fully automated workflow, customizable protocols and ergonomically shaped appleprobe transducers maximize productivity.

The user interfaces are readily understandable and intuitive enabling easy operation of the system in any scanning condition.

EVOlution is Esaote’s continuous system updating programme, offering the latest technological and clinical updates and anticipating on future standards, giving the necessary peace of mind for hospitals, clinics and private practices with regard to their investment.

MyLab ultrasound solutions are available as properly dimensioned systems for any floor space and clinical requirements. Today our ultrasound product family expands with the MyLabSix CrystaLine.
Esaoe’s MyLabSix CrystaLine Ultrasound system offers exceptional image quality for confident diagnosis in a compact design. CrystaLine top level image technology is now embedded in a solid system with a particular attention to ergonomics and ease of use. CrystaLine represents a significant evolution of Esaoe ultrasound technology that delivers new levels of accuracy, quality, versatility and value. Its superior technical capabilities enable high quality images to be captured at greater depth in the body. This significant improvement overcomes the challenges associated with larger and more difficult-to-scan patients.

Today CrystaLine technology is also available on the compact MyLabSix CrystaLine Ultrasound system, providing top image quality in an innovative design system able to fit comfortably in any environment.

Improved diagnostic value results from the optimization of all aspects of the signal chain, from the echo generated by the patient up to the display on the system, together with maximization of ultrasound scanning efficiency.

CrystaLine represents Esaoe’s latest technological innovation and is especially focused on image quality enhancement regarding penetration and increased image details and resolution.

Difficult-to-scan patients are comfortably examined with the MyLabSix CrystaLine upgrade thanks to its better penetration, optimal image contrast, increased spatial resolution and fewer speckle artefacts. Detailed images are acquired also with obese patients, providing clinical confidence even in very deep areas.

CrystaLine engine is fine-tuned with Esaoe IQ probes in order to optimize penetration frequencies to completely exploit the energy delivered, thereby achieving a higher level of diagnostic clarity. CrystaLine provides a further significant reduction in speckle while increasing signal-to-noise ratio.

The combined use, at the same time, of XView and MView Spatial Compound Imaging gives the user a superior ultrasound imaging quality.

A higher frame rate is achieved thanks to the system’s improved front end, higher density probes and faster data processing.

The CrystaLine-powered MyLabSix represents a major improvement in all relevant clinical aspects of diagnostic ultrasound scanning, namely,

- Improved penetration
- Higher spatial and contrast resolution
- Maximized temporal resolution due to higher frame rate

Esaoe has always implemented the latest visualization tools and technologies in order to ensure clear, information-rich images through a continuous updating of both hardware and firmware of visualization monitors and screens. This tradition continues also with MyLabSix CrystaLine where the latest digital panel innovations have been used.

MyLabSix CrystaLine is a fully usable system in everyday clinical practice, enabling natural operator actions with minimum musculoskeletal stress and mental concentration.

Controls within reach, reduced distance from the trackball of the most used functions, shortcuts and automated macro recalling capabilities speed up frequent operator actions.

Wireless and wired connectivity options offer numerous data saving and transmission options.

Finally the core of MyLabSix CrystaLine system reduces energy consumption, thereby lowering operational costs.

The appeal of MyLabSix CrystaLine's innovative technology is further enhanced by its stylish made-in-Italy design.

The author
Massimo Rosa
Chief Global Marketing Officer
Esaoe S.p.A.
What's next in medical device testing technology

Modern medicine mostly relies on practitioners’ expertise and knowledge, along with a wide array of instruments and devices for diagnostics, therapy, and life support. Some of these instruments, like infusion pumps, blood pressure monitors, pulse oximeters, electronic thermometers and stethoscopes are commonplace in exam and hospital rooms. Others like anesthesia machines, physiologic monitoring systems, electrosurgical units, ventilators, C-Arm displays, are typically used in operating rooms. Diagnostic imaging equipment, which allows one to see what’s happening within the body, is found in specialized departments.

All of these medical devices have one thing in common. They all need to be regularly tested to ensure compliance with stringent medical standards / regulations such as the International Electrotechnical Commission (IEC). These standards complement regulatory frameworks in geographic regions and countries, and require devices be safe to use, perform as intended, and provide benefits that outweigh the risks.

As medical devices become more sophisticated and specialized, medical test equipment manufacturers need to create precise, reliable test tools that help OEM manufacturers, hospitals, military, and healthcare organizations adhere to regulatory standards while keeping patients safe.

Improved outcomes from day one
According to the World Health Organization, every year, approximately 15 million babies are born prematurely. Modern incubators significantly reduce infant mortality by maintaining an infant’s fluid balances, protecting it from temperature variations, providing isolation from external stimuli or germs, and ensuring the consistent administration of oxygen, nourishment, and medications.

While incubators tend to be very reliable, manufacturers recommend quality assurance testing at least once a year. Facilities, like children’s hospitals, with level 3 NICUs, are encouraged to test their medical devices more often, ensuring they conform to global standards. These routine preventive tests ensure neonatal incubators mask loud noises, reduce temperature fluctuations, provide appropriate oxygen concentrations, and maintain humidity level.

Traditional methods of testing infant incubators and radiant warmers can be time consuming, requiring a technician to manually run tests, and then use pen-and-paper to document the results. Along with being error prone, this method isn’t always consistent.

The use of an incubator analyzer enables the simultaneous testing of all environmental parameters, plus the ability to easily collect data, evaluate the results, and electronically document test data and protocols. To help meet these needs, Fluke Biomedical introduced the INCU™ II Incubator/Radiant Warmer Analyzer. Portable and easy-to-use, the INCU II is an all-in-one-solution that complies with IEC 60601-2-19, 60601-2-20, and 60601-2-21 standards.

Everything biomedical technicians need to test infant incubators and portable incubators is stored in the compact 3-pound unit, including foldable tripods for holding the temperature sensors. An additional case holds the five pucks for testing radiant warmers.

A key innovation of the INCU II is the ability to simultaneously capture five key measurements: humidity, airflow, sound, and temperature from six different points, using 5 independent adjustable sensors, and one k-type thermocouple for skin temperature. Its colour-coded probes match the respective ports on the top of the analyzer, minimizing setup errors. Once an incubator is warmed-up, the INCU II can generally test all of these parameters within 15 minutes.

A large LCD screen and intuitive user interface increases efficiency. Technicians can easily select the appropriate IEC standard to test or create unique testing procedures that are tailored to a facility’s protocols. Test results are then displayed in real time with a simple “pass” or “fail” indicator.

Test results can be uploaded to a computer wirelessly or by using an USB cable. Along with on-board automation, the INCU II comes with a mini Ansur® Test Automation software plug-in to support collecting, recording, storing and analyzing test results.

Seeing what cannot be seen
Before the germ theory of disease was acknowledged by the medical profession, it was believed disease came from miasma, poisonous vapours or mist, emanating from contaminated water, foul air, rotting organic material, and poor hygiene.

The inability to see microorganisms contributed to this belief. The advent of the microscope, coupled with experimentation lead to a more enlightened understanding of disease transmission. While modern medicine is diligent in minimizing the spread of germs, radiation is another potential danger – one that cannot be seen. Man-made sources of radiation, from medical procedures or nuclear medicine, provide 50% of a humans’ yearly radiation exposure.

Recognizing the importance of avoiding unnecessary radiation exposure, Unfors RaySafe introduced the RaySafe X2 X-ray quality assurance solution – accurate measurements,
Proper readings imperative to ensure safety

By nature, electrosurgical units (ESU), used for cutting and coagulating, are hazardous. An ESU that isn't properly performing or set-up with the correct flow and return of high-frequency current, can cause extensive damage, ranging from burning a patient to starting a fire when a spark ignites flammable anesthetics, germicides or fat solvents. According to the FDA, an estimated 550 to 650 surgical fires occur in the United States per year.

When working with an ESU, it is necessary, to implement rigorous safety procedures. Personnel need to verify the type of anesthetic being used, inspect patient leads, ensure coagulating tips are free of carbon and tissues, test for electrical continuity, and follow other precautionary practices. In addition, ESUs should regularly be tested with an electrosurgical analyser, ensuring they comply with global standards.

The QA-ES III is the next generation electrosurgical analyser from Fluke Biomedical. This innovative, streamlined solution has a generator output accuracy as low as +/- 5%, making it ideal for preventative maintenance and safety testing of all modern high-power ESUs. Redesigned, the QA-ES III has 8 multi-purpose ports that can be accessed from the front. It collects all measurements, including vessel sealing, patient return, contact quality monitor (CQM), high frequency (HF) leakage, output power and power distribution measurements in single or continuous mode.

Another innovation is the built-in functionality. There's no need for extra cables, RECM or switch boxes to test precision power, current, frequency, crest factor or load resistance ranges. All critical functions are either integrated into the design or included with the unit.

All measurements are saved on the base unit, mirroring the best in personal consumer electronics, such as tablets and smartphones. RaySafe recently released the latest member of the sensor family – the Survey sensor. This sensor primarily performs precise scatter and leakage measurements in diagnostic X-ray applications. Unlike a pressurized ion-chamber, the X2 Survey sensor is based on an energy compensated silicon diode array, making it possible to ship without any special considerations or arrangements. The X2 sensors have the ability to capture, and display on the base unit, dose, dose rate, mean energy, time, and dose rate waveforms. Another unique feature is its ability to switch energy response between Air Kerma (Gy or R) and Ambient Dose Equivalent (Sv) without having to recalibrate nor use another instrument.

The QA-ES III provides exceptional accuracy and a wide range of loads to test the breadth of electrosurgery generators. Notably, the QA-ES III features a 20 ohm load to support the Valleylab Force Triad electrosurgical unit. The QA-ES III can also measure current from 0-5500 milliamps.

Accuracy is important for ensuring electrosurgical units consistently deliver the current necessary to efficiently cut and coagulate. An ESU analyser should also be able to display high-resolution, precise measurements. The QA-ES III meets the challenges with a tenth of a watt resolution up to 99.9 watts, and 1 watt above 100 watts.

Another advancement is the ability to test impedance-sensing circuitry in “power guarantee” functions in new-generation ESUs. Applicable parameters – power, current, peak-to-peak voltage (closed load only) and crest factor – can be observed during the automatic, sequential output energy measurements.

Along with being able to store up to 5,000 records, which can be retrieved and archived at any time, the QA-ES III has wireless capabilities, making it possible to quickly transfer results to a PC. The addition of Fluke Biomedical Ansur software further automates and standardizes testing, helping minimize human error. Ansur also produces a single electronic test report that can combine all preventative maintenance tasks including visual inspection, electrical safety, and performance characteristics.

Continuing evolution of medical device testing

Medical devices are constantly evolving, becoming more precise, specialized, and smarter, connected through networks, and automated through software. The tools used to test these devices also need to evolve, ensuring their consistent, accurate and safe operation.
Mobile X-ray imaging system

A new lower-priced mobile X-ray imaging system can be purchased as a CR system and easily upgraded to wireless DR technology to gain faster image access and automated features. The portable imaging system features a balanced and articulating arm to capture most types of imaging exams. The unit is compact, lightweight, easy to transport and position, and features a powerful 30kW generator and eight-inch touch screen monitor. The CARESTREAM Motion Mobile System offers manual or APR (anatomical programmed radiography) mode for quick selection of exam technique and push button or hand switch controlled exposures. A tilting step is designed to help operators move the unit over uneven surfaces. A cost-effective DR retrofit upgrade provides rapid image capture with DRX detectors, a 19-inch touch screen monitor and access to advanced features. A DAP and X-ray Generator Interface automatically acquires DAP and technique information to monitor patient dose while eliminating the need for manual entry. In addition, Carestream’s DIRECTVIEW software delivers accelerated image display and delivery to PACS or printers.

CARESTREAM HEALTH
Arab Health Stand F3S10
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Diagnostic station

Schiller’s DS20 diagnostic station simplifies the daily work by uniting most vital signs and physical assessment tools in one device. Featuring a large, interactive touch screen, the DS20 immediately detects connected sensors and automatically displays the corresponding value. This fast operation allows for easy addition or removal of parameters. Thanks to its intuitive user guidance the DS20 is self-explanatory and very little training is needed. The large interactive touch screen supports the highest user-friendliness. A simple touch on the large, high-resolution colour display enables the user to record and select the highest quality ECGs and to store or export the data. The DS20 is a networked device. Seamless connectivity to EMR, PACS, HIS or Schiller’s SEMA3 Cardiology Information System is possible and bidirectional communication allows for easy data access, while Wi-Fi with strong security enables direct and fast transmission. The diagnostic station is expandable, allowing new functions and other devices or future technological developments to be easily added. The DS20 is ready for the most common functions and will satisfy new requirements.

SCHILLER
www.ihe-online.com & search 46968

Medical carts for mobile storage

DETECTO’s new Rescue and Whisper series medical carts come in multiple colour options (red, blue, yellow, and white) with five or six drawers and 360-degree rotation for tight corners. The Whisper series offers unique features, including drawer facades that quickly snap off and back on and completely-sealed drawer rails without any exposed seams for hygienic wipe-down cleaning. As the name implies, the Whisper series offers whisper-quiet rolling convenience with its insulated interior walls. The soft-close drawers glide shut for superior convenience. The carts’ balanced design will not topple over when full drawers are extended. DETECTO’s carts are manufactured from quality aluminum cart body construction that is powdercoat painted for durability with easy-to-clean ABS countertops. The keyed or EMG breakaway central lock secures all drawers at the same time for added convenience. The carts’ 5-inch-diameter wheels feature two parking locks and one steering lock. ABS bumpers protect all four corners of the medical carts. The push handle offers a user-friendly design. Multiple optional accessories are available for customization. It is also possible to purchase a fully-loaded cart pre-stocked with typical accessories needed for ER or anesthesiaology departments.

DETECTO
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**PET/CT system addresses broad range of clinical indications**

The new versatile and cost-effective Biograph Horizon PET/CT system provides clinicians with the capabilities required to serve a broad range of patients and expand into new service areas. It enables the use of all commercially available PET tracers, giving users the ability to address more indications in the specialist fields of oncology, neurology and cardiology. The Biograph Horizon utilizes 4mm LSO crystals to provide rapid scintillation with a high-light output, providing excellent image quality using the lowest achievable dose to aid clinicians with visualizing small lesions. This in turn ensures a timely diagnosis which contributes to effective care pathways, helping to reduce patient side effects related to ineffective therapies. The system also offers built-in capabilities that automate routine tasks to increase productivity and streamline workflows. The Quanti•QC runs quality control procedures overnight to save precious clinic time, while scans can be performed in under five minutes, and reconstruction runs alongside acquisition for image delivery just 30 seconds after the scan. The Biograph Horizon utilizes the syngo via Molecular Imaging Workplace image processing solution to expand clinical possibilities and help clinicians measure and report with confidence. It offers automated tools to instantly visualize diagnostic information, automate pre-fetching, pre-processing, and display and comparison of previous findings. The ALPHA technology provides automatic registration with organ-based recognition capabilities and EQ/PET feature provides precise calculation of changes in tumour uptake.

**Incubator/radiant warmer analyser**

The INCU II incubator/radiant warmer analyser enables biomedical technicians to easily test and verify the performance and safety of infant incubators, transport incubators, and radiant warmers. The INCU II is an all-in-one analyser that supports IEC standards to accurately assess the environmental parameters of infant incubators and radiant warmers. Weighing under 1.4 kg, the compact INCU II can simultaneously measure relative humidity, airflow, sound, and six independent temperature points. Its colour-coded probes make it easy to switch between the sensors for testing temperature in an incubator or the five pucks for verifying the environment of a radiant warmer. The large LCD screen of the INCU II displays real-time test results, along with pass/fail indicators. Once an incubator reaches a steady temperature, it takes just 15 minutes to conduct a sequence of tests, which can be customized and stored in the analyser. Test data can then be sent and monitored from a computer, using a USB cable or the INCU II wirelessly. In addition, the INCU II comes with a placement pad that helps technicians learn how to correctly place the temperature sensors and pucks. Along with complying with the latest global industry standards, including IEC 60601-2-19 (incubator), IEC 60601-2-20 (transport incubator), and IEC 60601-2-21 (radiant warmer), the INCU II supports China sound standards (Class II).

**Oxygen-therapy and Suction Devices**

Flowmeters with floating ball, flowmeters with pre-adjusted flows, pressure regulators, oxygen-therapy accessories, vacuum regulators, ejectors, water manometers, suction trolleys, collection jars, suction accessories...

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Electromedical safety analyser

A new entry-level safety analyser provides a cost-effective solution for testing general medical and laboratory equipment. The new Rigel SafeTest 60 is a compact, robust and reliable safety analyser that is particularly well suited to high volume testing demands, with a simple colour-coded user interface, push button operation and the fast step-through of test routines. The general purpose tester includes a comprehensive range of safety tests for hospital and medical equipment such as medical beds and chairs, operating tables, hoists, infusion pumps, CPAP’s, centrifuges and other equipment that does not require patient lead testing. The SafeTest 60 helps to ensure compliance with a range of international safety standards including leakage testing to IEC 60601, IEC 62353, IEC 61010 and NFPA-99.

RIGEL MEDICAL

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WIFI-based remote cardiac rhythm monitor

TeleSense RCM is a three-in-one device incorporating complete mobile cardiac telemetry (MCT), Holter and cellular event monitoring. It is ideal for cardiology practices and hospitals seeking to easily and more effectively manage symptomatic and asymptomatic cardiac event patients. With TeleSense, clinicians have the convenient flexibility to transition as needed among the three monitoring modes (MCT, Holter and event). The TeleSense features real-time streaming for live patient visibility, auto-detection of arrhythmia events and wireless transmission of three channels of ECG data, allowing clinicians to more accurately correlate patient symptoms to changes in electrical conduction of the heart. TeleSense can transmit up to 30 days of continuous ECG data across multiple cellular networks or utilizing a patient’s home or business WiFi network. Events are received and triaged through ScottCare’s highly-tested and proven receiving platform. TeleSense’s web-accessible reporting software then supports detailed and actionable reporting through daily heart rate trends; event reports; end-of-session reports; interim and summary statistics; and advanced administrative and clinical queries. Optional EHR integration enables reports to be easily viewed and e-signed by the physician prior to automated transmission to any HL7-based electronic health record (EHR) system. TeleSense also addresses the continuous concern of patient compliance. Not only is the device comfortable to wear, it is simple to set up and configure and it can even be configured remotely. Brightly-lit icons allow the patient to easily identify whether the device has sufficient power, whether leads are properly connected, if the device is recording, and the status of the WiFi or cellular connection. Patients can quickly record and immediately transmit self-identified events via a large, easily accessible button on the front of the device.

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Point-of-care coagulation testing

CoaguChek Pro II combines two tests in a single device – the activated partial thromboplastin time (aPTT) test and the prothrombin time (PT) test with extended claims – for greater insight into patients’ coagulation status in acute care settings, such as emergency rooms, operating rooms and intensive care units, or anticoagulation clinics. CoaguChek Pro II can be used to identify the presence of vitamin K antagonists in patients with acute bleeding or to detect possible coagulation factor deficiency. It can also be used to monitor the real time anticoagulant effect in patients treated with unfractionated heparin. ER staff can run the test on the handheld device next to the patient. Transferring critical information when and where it is needed is possible with built-in WIFI connectivity. Test results can be automatically transmitted in real time from the device to patients’ electronic health records, ensuring that vital information is immediately available at every point of care. Transcription steps are eliminated, thereby streamlining workflow and reducing the possibility of human error. CoaguChek Pro II also has a first-in-market QR code feature. Test results can be transformed into a QR code and transferred, for example via mobile phone. This can be valuable in remote settings, allowing a visiting nurse to measure coagulation values for a homebound patient, and send the result using cellular data to a doctor. Based on the result, the physician can provide a new anticoagulant dosing schedule in real time – all while the nurse remains with the patient. The device is small and portable, requiring only a small sample volume of 8μl to run a full test, and accepts different blood sample types, including capillary blood from a finger prick as well as venous and arterial whole blood. Each lot of the test strips is pre-calibrated against the WHO reference method.

ROCHE PROFESSIONAL DIAGNOSTICS

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Web-enabled image and information management system

IntelliSpace Cardiovascular is a web-enabled image and information management system that provides sophisticated tools to access, analyse and share cardiovascular images and information anytime, from virtually anywhere. The system serves as a nexus of interoperability that allows all care team members to access data and launch sophisticated clinical applications, like IntelliSpace Portal, or IntelliSpace ECG within a single workspace. Other third party applications can also be accessed, providing a comprehensive view of the patient. The new way information is displayed allows all care team members to view the patient’s history, spanning diagnosis, treatment and therapy. Built-in echocardiography reporting features give cardiologists the ability to identify and eliminate inaccuracies within reports.

SAMSUNG MEDISON

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Advanced ultrasound imaging and fetal diagnosis

The WS80A with Elite is presenting a new level of imaging and diagnostic capabilities in OB/GYN, offering users enhanced tools for fetal diagnosis. The key upgrades of the WS80A with Elite include 5D Heart Color which generates nine standard fetal echocardiography views simultaneously in a single template with blood flow dynamics of fetal heart by using STIC (Spatio-Temporal Image Correlation) volume datasets; 5D Limb Vol, for semi-automatic volume measurements of upper arm or thigh of a fetus which can be used to estimate fetal weight and nutritional status; 5D CNS+ providing axial, sagittal, and coronal views of fetal brain in nine planes by automatic measurement of biometry, following the ISUOG international screening guidelines for fetal brain. Finally, Crystal Vue is an advanced volume rendering technology which enables users to assess detailed information of internal and external structures of the fetus by an intuitive 3D/4D visualization, providing increased diagnostic confidence.

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BLENDER TM

The BLENDER TM is a medical device used to provide a mix of O2 and medical AIR to the patient (FiO2). It is intended to adjust the concentration of Oxygen (from 21 to 100 %) in medical AIR. It is provided with two outlets to connect a 15 or 30 l/min flowmeter and a 1.5, 5 or 15 l/min flowmeter. It is connected to source of pressurized gas on the wall or to pressure regulators’ quick-release connectors using two hosespipes medical AIR and O2. BLENDER TM is mainly intended for paediatric and neonatology low flow applications.
The IHF 39th World Hospital Congress

The IHF 39th World Hospital Congress was held 6-8 October 2015 at the Hyatt Regency, in Chicago, USA. The IHF Congress presents a unique and important opportunity for top healthcare leaders from around the world to share ideas and solutions for transforming care delivery. The Congress was hosted by the American Hospital Association and the American College of Healthcare Executives, the theme of which was Advancing Global Health and Healthcare. Some 700 participants representing more than 40 countries attended the event.

The keynote speaker for the event was Dr. Carissa Etienne, Director, Pan American Health Organization and Regional Director for the Americas of the World Health Organization. Other plenary speakers included Dr. Claudio Luiz Lottenberg, President, Hospital Israelita Albert Einstein (Brazil), Liisa-Maria Voipio-Pulkki, Director, Health Care Group, Ministry of Social Affairs and Health (Finland); Bernard Tyson, Chairman and CEO, Kaiser Permanente (USA) and Maureen Bisognano, President and CEO of the Institute for Healthcare Improvement (USA).

The scientific programme was further enriched with poster sessions and concurrent sessions hosted by IHF national member organizations from countries such as Hong Kong, Taiwan, Australia, Nigeria, South Africa, Spain, Norway, etc. There were also special interest sessions hosted by the international Finance Corporation, the World Health Organization and others.

The IHF International Awards were for the first time presented at the Chicago Congress. These included the IHF/Dr Kwang Tae Kim Grand Award and the Excellence Awards for Leadership and Management in Healthcare; Quality and Safety and Patient-Centered Care and Corporate Social Responsibility.

For more information: https://www.ihf-fi h.org/home/?post_type=26

The 40th IHF World Hospital Congress will be held in Durban, South Africa, 30 October – 3 November 2016.

MEDICAL FAIR ASIA to host inaugural Asian edition of Medicine + Sports Conference in 2016

The MEDICAL FAIR ASIA, Southeast Asia’s leading event for the medical and healthcare industry, will host the first ever Asian edition of the Medicine + Sports Conference in 2016. The inaugural Medicine + Sports Conference Asia will be held on 1 September 2016 during MEDICAL FAIR ASIA 2016 at a new venue, the Sands Expo & Convention Centre, Marina Bay Sands Singapore. The conference is jointly organized by Messe Düsseldorf Asia and Navispace AG, with the support from founding cooperation partners namely; Sports Medical Association Singapore (SMAS), Exercise is Medicine Singapore (EiMS), FIMS (International Sports Medicine Association) and WT Wearable Technologies Group. Founded in 2013 at the largest medical trade show MEDICA, the internationally established Medicine + Sports Conference has repetitively attracted great speakers and high-level attendees from around the world. The inaugural Asian edition will feature eminent speakers on topics such as physical activity as a key to disease prevention, defining health and fitness guidelines, creating the right activity programmes for athletes and non-athletes, vital data and performance monitoring, digital systems in elite and recreational sports as well as new digital solutions such as new activity trackers, monitoring devices and other health gadgets. The conference also aims to feature a greater focus on the pertinent healthcare challenges in the Southeast Asia region, using the opportunity provided by MEDICAL FAIR ASIA, with relevant industry participants and attendance of quality trade buyers and decision makers, to generate high-level exchanges and discussions. The established conference has been brought to Asia in view of the booming sports medicine market in this region. According to market research solution ReportLinker, the Asia Pacific sports medicine market is estimated to grow at a compound annual growth rate (CAGR) of 6.96% and is expected to reach US$3.85 (€ 3.5) billion by the end of 2019.

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