Medical Device Daily™
The Daily Medical Technology News Source
Thursday, March 29, 2012 Vol. 16, No. 60 Page 1 of 11

The MDD Interview

Ideas abound, but entrepreneur follows a set of rules

Interview by JIM STOMMEN, *MDD* Contributing Writer

1st of 2 parts

Amir Belson, MD, is a serial entrepreneur who has thus far founded nine companies, including **NeoGuide Systems** (Los Gatos, California), a company that developed platform technology for minimally invasive surgical procedures and was acquired by **Intuitive Surgical** (Sunnyvale, California) in 2009. His latest start-up firm is **Zipline Medical** also Los Gatos), a wound closure company.

Many of these companies were inspired by the years he served as a flight surgeon in the Israeli air force, while others evolved from serving in a neonatal intensive-care unit while serving a pediatric nephrology fellowship at **Stanford University Medical Center** (Stanford, California). He also has been involved with Stanford's Biomedical Technology Innovation Program.

AMIR BELSON
9 companies so far

MDD: The term "serial entrepreneur" obviously fits you. Does that bring with it extra responsibilities once you get involved with an idea?

Belson: For me, at least, it does, because the analogy is like bringing another child into the family. You bring another life into the family and you give it a lot of attention, but you can't give less attention to the other children. So I will bring in a new company but still make certain that the other companies are doing well. That's in addition to everybody's expectations, once you have a couple of successes, that every new company will be a success. These lofty expectations

See Belson, Page 7

Consumer Reports points to inadequate device testing

By AMANDA PEDERSEN
***Medical Device Daily* Senior Staff Writer**

A new investigation by **Consumer Reports** (Yonkers, New York) points to inadequate testing of several types of common implantable medical devices. The investigators also claim that because of the "broken regulatory system," in such cases the only safety testing that occurs is in the bodies of unsuspecting patients.

"While most of us have heard about the safety problems with metal-on-metal hips in the news, these devices are just one illustration of a much larger failure in our regulatory system," said Nancy Metcalf, senior program editor at *Consumer Reports*. According to a recent survey by the Consumer Reports National Research Center, nearly one in five (17%) American adults has an implanted medical device.

See Testing, Page 8

Washington roundup

Opposition to user fees widely voiced in MDUFA III session

By MARK McCARTY
***Medical Device Daily* Washington Editor**

WASHINGTON — The final public meeting on the medical device user fee program for 2013-2017 was populated with the kinds of comments one might expect from the speakers on hand, but if the meeting was noteworthy for anything, it was that user fees in general are not seen in a particularly friendly light. Despite the opposition to user fees, it seems likely that Congress will pass the user fee schedule and attached conditions more or less as they are, although several bills are in circulation on Capitol Hill that could add somewhat to the agency's regulatory workload.

"This agreement was not easy to reach," said Jeff Shuren, MD, director of the Center for Devices and Radiological

See Washington, Page 10

Don't miss today's MDD Extra: Orthopedics

INSIDE:

AHC Media

American College of Cardiology 2012

CABG on, off pump techniques found to have similar benefit

By OMAR FORD
***Medical Device Daily* Staff Writer**

Which is the better technique? Is it performing a coronary artery bypass surgery (CABG) off-pump, or doing the procedure on-pump. A new study that was released on Monday at the **American College of Cardiology** (ACC; Washington) 61st Annual Scientific Session, shows that there are no differences in the results between the techniques overall.

Nearly 4,752 patients were evaluated in the CORONARY trial. The mean patient age was 67.6 and nearly 80.9% were men and the average number of grafts was 3.1%. The trial was conducted at 79 centers in 19 countries. Plans call for the trial to conduct safety and efficacy follow-up at five years and assess total costs and neuro-cognitive results at 30 days and at five years CABG. The 30-Day cost data and neuro-cognitive results are expected within six months.

"It's a neutral trial and the benefits are balanced on both sides," Andre Lamy, MD, Division of Cardiac Surgery at Canada's **McMaster University** (Hamilton, Ontario) told the audience. "From our point of view these results show that both techniques are good."

Previous smaller randomized clinical trials and meta-analyses have not been able to determine conclusively whether one CABG technique has better outcomes than the other.

Results show that for the primary composite outcome of death, heart attack, kidney failure and stroke at 30 days post bypass, the results were statistically neutral: 9.9% for off-pump patients and 10.3% for the on-pump group. Similarly, no differences were seen for individual events of the composite outcome.

According to Lamy, these results were a surprise, as researches affiliated with the trial expected that off-pump CABG would decrease the rate of stroke and renal failure.

Researchers were also thrown off course a bit, when data from the ROOBY (Randomized On/Off Bypass) Trial were published showing poor results for off-pump bypass.

Lamy pointed out that when the ROOBY trial results came back, his colleagues again looked at the CORONARY trial design and decided to continue with the "approbation" of the Data Safety Monitoring Board. He added that there were key differences in the trials adding that, ROOBY was much smaller and done through the U.S. Veterans Administration at only 18 hospitals.

"Our trial was international and much larger. It had more women and sicker patients and our surgeons were more experience in off-pump procedures," he said.

In on-pump CABG the patient's heart is stopped and blood is circulated to a heart-lung machine, where it is oxygenated and pushed back into the patient. In the off pump procedure the surgeon uses a retractor to lift the still beating heart and perform all -beating heart and perform all coronary artery grafts.

"We found that off-pump did reduce the amount of blood products needed, reoperation for bleeding, pulmonary complications and acute kidney injury, but there was also more revascularization in off-pump patients meaning that surgery didn't work completely," Lamy said.

He added that this was a rare occurrence that happened to 16 of the 2,375 patients in the on-pump group, but it was considered a technical failure and requires the patient to return to the operating room for a repeat CABG or for a stent in the cath lab, where imaging systems guide those catheter-based procedures.

"This introduces a new concept in cardiac surgery, allowing patient-specific decisions for by pass surgery," Lamy said. "Off-pump procedures are trickier and more stressful, and the benefit is for the patient, not the surgeon, so in many places they're simply not done. My goal is to persuade surgeons to individualize the technique – to do off-pump bypass or on-pump when indicated – so their patients will benefit." ■

Omar Ford; 404-262-5546;
omar.ford@ahcmedia.com

Medical Device Daily™ (ISSN# 1541-0617) is published every business day by AHC Media, 3525 Piedmont Road, Building Six, Suite 400, Atlanta, GA 30305, U.S.A. Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Medical Device Daily™ is a trademark of AHC Media, a Thompson Media Group, LLC company.

Financings roundup

Strand to receive $30M funding from NantWorks

A *Medical Device Daily* Staff Report

Strand Diagnostics (Indianapolis), the maker of the know error system, and **NantWorks** (Los Angeles) said they have entered into an agreement whereby Strand will receive up to $30 million in funding from NantWorks for the next three years. The money will be used to accelerate the company's growth, scale its operations infrastructure, and expand sales and marketing efforts.

Using bar coding, forensic principles, and DNA matching, the know error system is designed to ensure that surgical biopsy samples being evaluated belong exclusively to the patient being diagnosed. Less than three years after the company's launch, hundreds of physicians in a variety of specialties have incorporated the know error system as their standard for patient care. Currently, the most popular offerings are the know error systems for breast biopsy and prostate biopsy, the company claims.

Strand co-founder Peter Knapp said, "We are excited to have this relationship with NantWorks as DNA Specimen Provenance Assignment – or DSPA testing – increasingly becomes the standard of care for the diagnosis of cancer and other conditions. DSPA testing completes the cancer diagnostic testing cycle to provide patients a complete and accurate diagnosis, allowing physicians to proceed with the best treatment for the appropriate patient."

NantWorks says its core mission is to converge a wide range of technologies to transform scientific research and healthcare.

In other financings news:

• **Relievant Medsystems** (Redwood City, California), a privately held device company pioneering the therapeutic use of basivertebral nerve ablation for the treatment of chronic axial low back pain, has secured $30 million in a Series D equity financing to advance and expand the company's clinical development programs. New Enterprise Associates (NEA) led the financing with participation from existing venture capital investors Canaan Partners, Emergent Medical Partners, Morgenthaler Ventures, and Onset Ventures.

"NEA is excited to partner with the Relievant founders and management team because of their effort to bring a game-changing technology to the millions of people who suffer from chronic axial low back pain," said NEA Partner Justin Klein, MD. "Relievant's early clinical results indicate that Intracept has the potential to be a highly effective, durable, safe, and minimally invasive procedure to address a multi-billion dollar market. As important, we believe the company's dedication to demonstrating the benefits of Intracept through a rigorous, randomized controlled trial — working in close partnership with its clinical advisors and the FDA — is exactly the right approach to providing a therapy that addresses the needs of patients, spine surgeons and interventionalists, and payors."

• **Health Care REIT** (Toledo, Ohio) has priced $600 million in aggregate principal amount of 4.125% senior unsecured notes due April 1, 2019. The notes were priced at 99.694% of their face amount to yield 4.176%. Subject to customary closing conditions, the offering is expected to close on April 3, 2012.

The company intends to use the net proceeds from this offering to redeem or settle upon conversion about $126 million aggregate outstanding principal amount of its 4.75% convertible senior notes due 2026 at a redemption price of 100% of principal amount plus accrued and unpaid interest or the conversion price specified in those notes, as the case may be, to repay up to $226 million of certain secured indebtedness and, to the extent of remaining proceeds, for general corporate purposes, including investing in healthcare and seniors housing properties.

Barclays Capital, J.P. Morgan Securities, and UBS Securities acted as joint book-running managers for the offering.

Health Care REIT is a real estate investment trust that invests across the full spectrum of seniors housing and healthcare real estate. ■

Patent watch

Vermillion wins patent for ovarian cancer diagnostic

A *Medical Device Daily* Staff Report

Vermillion (Austin, Texas), a molecular diagnostics company, said it has received a notice of allowance from the U.S. Patent and Trademark Office for a patent, "Methods for Diagnosing Ovarian Cancer."

This patent expands the list of biomarkers Vermillion has used in the diagnosis or status determination of ovarian cancer, the company noted. In this case, the granted claims cover the use of Protein C Inhibitor (PCI) in ovarian cancer tests using blood and several other types.

"Vermillion continues to expand its already extensive portfolio of biomarker-related patents in ovarian cancer and other important disease states," said Donald Munroe, PhD, chief science officer and VP of R&D at Vermillion. "The latest patent allowance further strengthens the ovarian cancer franchise behind our lead product, OVA1, and offers creative new options to detect and manage this silent killer." ■

HIT roundup

Accuray releases PlanTouch for radiation treatment plans

A *Medical Device Daily* Staff Report

Accuray (Sunnyvale, California) reported the release of PlanTouch, a software application in radiation oncology that allows physicians to remotely review and approve patients' radiation treatment plans on the iPad. The PlanTouch software, developed in partnership with **MIM Software** (Cleveland), is designed to free the physicians using the CyberKnife robotic radiosurgery system from work stations and provides them with increased collaboration, mobility, flexibility and convenience in delivering high-quality patient care. PlanTouch has received FDA clearance.

PlanTouch's interface is integrated with the CyberKnife system's data management and planning software. Physicians can now review dose volume histograms, isodose curves, contours, and images and approve treatment plans directly from their iPads, the company said. This new mobile solution can enable improved collaboration between the radiation oncologist and referring physicians, such as thoracic surgeons, urologists and neurosurgeons. Physicians are no longer tied to planning workstations, but instead can access treatment plans remotely, wherever and whenever they need to, ensuring a seamless and efficient workflow. The ability not only to review, but also to approve a treatment plan is a function not available with any other tablet-based radiation oncology application on the market today the company asserted.

Users can now purchase a software license upgrade for their CyberKnife systems and download the app through the Apple App Store to enable PlanTouch.

In other HIT activity:

• **Cytta** (San Francisco) reported the installation and rollout of its CyttaConnect remote medical monitoring ecosystem through the Heritage Provider Network's (HPN) Glendale, California location. The CyttaConnect system is being used to develop a new paradigm for delivering improved care and wellness to their clients who can benefit from Cytta's remote monitoring system, the company noted.

The CyttaConnect system is based on cellular technology, Cytta said.

• **HealthExpense** (Sunnyvale, California) said it has been selected by **Sterling Health Services Administration** (Sterling HSA; Oakland, California) to provide its medical claims turnkey solutions for Sterling business clients.

The company provides an automated medical expense management system that reduces administrative hassles for employers and their employees, makes medical costs easily transparent and provides recommendations for treatment options to patients. Sterling will introduce the service to its clients early in the third quarter.

HealthExpense enables employees and dependents to automatically manage their healthcare expenses in one place, including, tracking deductibles and out-of pocket expenses. The company's turnaround time for claims payments and reimbursements can be as short as three days. "This is 10 times faster than industry averages," said Vineet Gulati, CEO of HealthExpense.

The technology also makes medical costs transparent so that patients have a better understanding of their bills and it provides personalized, targeted information designed to improve an employee's access to healthcare and benefit from better outcomes.

• **Hello Health** (New York) says it has signed 13 new practices across 10 states to its patient management platform. Hello Health aims to help doctors generate an independent revenue stream, at no cost to the practice, while making the transition from paper to electronic medical records.

• **Agilent Technologies** (Santa Clara, California) released GeneSpring 12.0, a major expansion of its bioinformatics software designed to enable a new level of medical science breakthroughs. GeneSpring users can now analyze next-generation sequencing data and conduct joint analysis at the pathway level across multiple "omics" platforms in a familiar software environment, Agilent noted. ■

People in the News

• **CareCloud** (Miami) said that Ken Comée will join its board. Comée is currently the CEO of PowerReviews. CareCloud is a provider of cloud-basded practice management, electronic healthcare record and medical billing software and services.

• **Endologix** (Irvine, California) said that after a 15-year career with the company, Franklin Brown reported his decision to retire as chairman at the end of his current term. John McDermott, Endologix's president/CEO, has been named to the additional position of chairman. Brown joined the company in 1997 and served in several executive leadership positions, including CEO from 1998 to 2003 and chairman from 1998 to 2012. Endologix makes minimally invasive treatments for vascular diseases.

• **Exosome Diagnostics** (New York) reported that Kapil Dhingra has joined the Exosome Diagnostics board. Dhingra is managing member of KAPital Consulting, a healthcare consulting firm he founded in 2008. Exosome Diagnostics is a maker of biofluid-based molecular diagnostic tests for use in personalized and non-invasive cancer diagnostics.

• **Sermo** (Cambridge, Massachusetts) has named Tim Davenport as CEO. Davenport was previously the president of Revolution Health. Sermo is an online physician community.

Court report

Judge finds Texas healthcare damages cap Constitutional

A *Medical Device Daily* Staff Report

A Texas law that caps pain and suffering-type awards in healthcare lawsuits was ruled constitutional by a federal judge.

U.S. District Judge Rodney Gilstrap issued a brief one-page ruling stating "all claims by plaintiffs in this matter are denied" leaving the state's 2003 cap on non-economic damages standing.

In 2003 Texas joined 26 other states in limiting awards in medical lawsuits for hard to quantify injuries such as mental anguish, emotional distress or loss of companionship. The capped amount varies from $250,000 to $750,000, depending upon the variety of defendants in the suit. Past, present and future medical costs as well as lost wages remain uncapped.

"The court's decision removes any lingering uncertainty about the voter-approved cap on non-economic damages," said Mike Hull, general counsel of Texas Alliance For Patient Access, the statewide healthcare coalition that defended the cap. "A trial lawyer victory would have gutted the benefits of reform and been a big blow to the delivery of health care."

"The 2003 medical liability reforms have been good medicine for the people of Texas," said Texas Medical Association President Bruce Malone, MD. "Thanks to the reforms, we have more physicians available to care for the sickest and most badly injured Texans. The reforms have kept their promise to our state, and this ruling means we won't break that promise."

"We're pleased with the court's decision in this case because it upholds one of the key 2003 medical liability reforms that has improved access to health care in Texas, " said Dan Stultz, MD, President/CEO of the **Texas Hospital Association** (Austin, Texas)**.** "Since implementation of these reforms hospitals have invested savings from reduced liability insurance coverage back into hospital operations, including new technology that saves lives and improves patient safety. Hospitals also have been able attract new physicians to their community and offer new or expanded services to patients."

In 2008, ten plaintiffs filed a federal lawsuit in Marshall claiming the state's non-economic cap violates the U.S. Constitution. Among the plaintiffs was the family of the late Dallas Cowboy Ron Springs who died after a four-year coma.

The suit argued the cap had a direct impact on an injured patient's potential jury award and whether the cost of proving up the damages was worth pursuing the case. Named as defendants were healthcare providers who sought to enforce the damage cap and more than 600 Texas trial court judges who are required to enforce the damage limits. The judge subsequently removed those parties from the suit.

Today Judge Gilstrap dismissed the remaining two claims: that a cap on damages unconstitutionally takes private property and that the cap bars access to the courts.

Texas lawmakers passed the cap in 2003 in response to a medical lawsuit crisis. Later that year Texas voters affirmed the legislature's authority to set caps on non-economic damages in health care lawsuits. Unlike most cap challenges, the federal suit in Marshall did not claim the non-economic cap violated the state's constitution. Rather, the plaintiffs claimed the cap violated the U.S. Constitution. This argument, they contended, gave them the right to have the issue resolved in federal court.

Prior to the passage of the cap, most Texas doctors had seen their insurance costs double and many had stopped taking emergency calls or restricted their practice out of fear it would make them vulnerable to a career-threatening lawsuit.

Proponents argued that emergency room services for head injuries, child birth and trauma involving small children were in shorter supply due to the prospects of an over-sized award.

Since the passage of reforms, Texas doctors have seen their liability rates cut in half and new doctors have flocked to the state in record numbers. Counties that lacked an orthopedic surgeon, an emergency medicine physician or a cardiologist now have one.

Physician growth has outpaced population growth every year since 2007 and the ranks of high-risk specialists have grown twice as fast as the state's population, according to Jon Opelt, executive director of the **Texas Alliance for Patient Access** (Austin, Texas), an organization that supported the cap.

Myriad case sent back to Federal Appeals court

On March 26, the U.S. Supreme Court sent the much-discussed **Myriad Genetics** (Salt Lake City) patent case back to the Federal Circuit Court of Appeals, instructing the lower court to reconsider its decision from July 2011 that upheld the company's patents. This unsurprising decision comes on the heels of a decision last week that **Prometheus Laboratories** (San Diego), a small diagnostics company, could not patent the relationship between drug metabolites in a person's blood and the optimum dosage of the drug (*Medical Device Daily*, March 21, 2012). In a strongly worded opinion, the Supreme Court unanimously concluded, "that the patent claims at issue here effectively claim the underlying laws of nature themselves. The claims are consequently invalid." The Supreme Court clearly wants the appeals court to reconsider its earlier Myriad decision in light of this new precedent.

At the center of the case is Myriad's licensing of two patents regarding genes BRAC1 and BRAC2. Patients with inherited mutations in these genes have an increased likelihood of developing breast cancer or ovarian cancer

See Court, Page 11

Agreements/contracts

Luna extends Intuitive's technology integration

A *Medical Device Daily* Staff Report

Luna Innovations (Roanoke, Virginia) said it will be extending its development work through 2012 under its development and supply agreement with **Intuitive Surgical** (Sunnyvale, California), as they work towards the integration of Luna's shape and position sensing technology into Intuitive's medical robotic products.

This extension is to the multi-year development and supply agreement the companies entered into in June 2007 (*Medical Device Daily*, June 15, 2007), under which Luna would supply and license to Intuitive its fiber-optic based shape sensing and position tracking system for use in Intuitive's products. Intuitive Surgical is the global technology leader in robotic-assisted minimally invasive surgery. Luna has made great leaps in advancing its shape sensing technology and will continue these efforts through 2012 as Luna and Intuitive aim towards commercialization.

"This new agreement with Intuitive Surgical enhances our relationship with the leader in the medical robotics market and reinforces Luna's commitment to the development of our technology and its value toward the advancement of healthcare. Through this partnership, Luna and Intuitive strive to help surgeons more precisely guide and control surgical tools during robotically-assisted procedures," said My Chung, Luna's CEO. "Our partnership with Intuitive has continued to advance and we look forward to completing our technology development and transitioning to product integration with Intuitive's systems. The end goal is to assist surgeons with these very complex, minimally invasive surgeries and promote the best outcomes for patients."

Luna's shape sensing system tracks the position of an optical fiber along its entire length, providing real-time measurements that can assist surgeons in navigating through the body. This technology could be particularly helpful in certain minimally invasive surgical techniques because of the need to track the position of medical instruments in the patient, using optical fibers as thin as a human hair to provide sensing and feedback, as the nervous system does for the human body.

Intuitive Surgical makes the da Vinci Surgical System to treat early stage lung cancer patients.

In other agreements/contracts news:

• **M*Modal** (Franklin, Tennessee), a provider of clinical documentation services and Speech Understanding technologies, reported **Duke University Health System** (DUHS; Durham, North Carolina) has selected the company's cloud-based Speech Understanding technology to support the rollout of its Epic electronic health record (EHR). The technology will be made available to more than 1,000 inpatient and ambulatory care physicians upon the EHR's implementation.

Once fully deployed, M*Modal's technology will enable physicians throughout the enterprise to efficiently capture the patient's complete clinical story and extract meaningful, actionable information to populate the Epic EHR. As a result, providers across the continuum of care will have access to comprehensive and highly contextual intelligence that supports effective clinical decision making and further strengthens the organization's research environment.

M*Modal's Speech Understanding technology alleviates difficulties associated with standard point-and-click templates by allowing providers to use their voice, in addition to keyboard and mouse, to document care and navigate clinical applications. The technology automatically converts the narrative into structured and encoded information, augmenting discretely captured data with meaningful information that drives improvements in care.

• **Bristol-Myers Squibb** (Princeton, New Jersey) and **Meso Scale Discovery** (Gaithersburg, Maryland) reported they have entered an agreement to develop diagnostic assays that will measure cerebrospinal fluid biomarkers for use in Alzheimer's disease research.

The companies will develop these assays based on the Meso Scale Discovery Multi-Array technology platform. Meso Scale Discovery will commercialize the assays for Alzheimer's disease research and drug development, and plans to release the assays in 2Q12. Terms of the agreement were not disclosed.

"The collaboration with Meso Scale Discovery demonstrates Bristol-Myers Squibb's commitment to advancing the science of Alzheimer's disease research," said Jane Tiller, VP, global clinical research, Bristol-Myers Squibb. "These assays could provide the Alzheimer's disease research community with an important tool to help advance understanding of this complex and devastating disease and may lead to advances in the diagnosis and treatment of Alzheimer's disease."

• **Sermo** (Cambridge, Massachusetts), an online community dedicated to physicians, and **Joslin Diabetes Center** (Boston), a diabetes research and clinical care organization, reported a strategic partnership to improve quality and efficiency for diabetes care. The partnership will join Sermo's market research and crowdsourcing capabilities with Joslin's CME-certified quality improvement education, tools and resources. The combined reach of the two entities will support among the largest online accessible population of primary care physicians, endocrinologists, and other relevant specialists in the mission to fight diabetes.

The collaboration, in part, entails the exchanging of resources whereby Sermo analytic reports and surveys will be distributed to Joslin's network of physicians; and Sermo's platform will be leveraged by Joslin Professional Education to ensure use among Sermo members of Joslin's specialized tools and innovative ABIM MOC Part IV qualified longitudinal Performance Improvement PI CME pathways. Additionally, programs and surveys will be jointly developed and distributed. ■

Belson

Continued from Page 1

certainly put you under more pressure.

For me, I'm asking myself as I'm sitting on 250 patents, "When is the right time to bring the next company out of this portfolio?" I usually start one company at a time and try to bring in the right CEO so that I can start the next one. I just want to be comfortable that when I bring one up that the others are doing well. It is very important for me to make sure that I find the right CEO before I hand over control of the company, then I can turn to starting the next company.

MDD: Is there a common denominator among the nine companies you have founded?

Belson: The first company, NeoGuide Systems, was a very complicated robotic endoscope company. It started as a colonoscopy focused technology and refocused after five years to NOTES (natural orifice transluminal endoscopic surgery). What I am trying to do now is start companies that have very strong solutions to a problem that everybody agrees exists – I don't want to go against the egos and the beliefs of the end users.

I want to have the technological solution be as small and practical a device as is physically possible and be one that does not bear a lot of technical risk. I just don't want to spend another eight years on solving technical issues. So the common denominator is that the technology is a direct answer to a medical problem that is fully agreed upon, and it offers a clear solution to the problem.

The first product was a colonoscope, and I knew it was a problem as a practicing physician who tried to do colonoscopies and failed, so I realized there was a problem. But you go speak with GIs and they all tell you, "Oh no, there's no problem." So if you're working on a solution where the end users say there's no problem, it's time to go on to the next company.

MDD: Tell me about Zipline, your newest company.

Belson: Zipline clearly solves a big problem. When you have surgical wounds, there are two ways to close them. The first is to close them with sutures, which give you the best medical outcome, but it takes time. The average time to close a wound with sutures is between 30 and 60 seconds per centimeter of closure. The other way of closing is with staples, which provide a very quick closure but the cosmetic outcome after a couple of years is much worse. With the pressures under which physicians are working today to save time and get on to the next case, many are using the staples.

So we said, "OK, let's come up with a solution that will close a wound with the speed of a stapler but the quality of sutures." That's exactly what the Zipline device does. It's an FDA-Class 1 exempt device, so we can start selling soon. You put it on the patient before the surgery; there's a slot in the middle where you cut, and at the end of the procedure, there's a lock that brings the two sides of the device together in the exact orientation that it had before you cut the skin while spreading the tension over the entire length of the suture.

It's a very simple idea, but it is designed to be very effective. We have done some animal studies where the outcomes were really unbelievable. I think there's a huge need for it, in all types of surgeries. Best of all, we're not getting into the egos of anyone who's proud of what they do as a skin-closer; no one is proud of what they do in that area.

MDD: What factors particularly lend themselves to cultivation of innovation in medicine? Some say it's because doctors are tinkerers at heart.

Belson: It's a very competitive field, and everyone wants to have better outcomes than other physicians, and they have to use tools to do that. That's No. 1. No. 2, when one starts using a new technique or new technology that works well, others need to do so as well. There's a famous story about a chief of surgery in Poland who refused to move to laparoscopy because he said they had such good outcomes with open surgery, why do laparoscopy? Within two years, they shut down his department because no patients wanted to have open surgery.

So there is pressure from patients to have less-invasive procedures and better outcomes, and pressure from other physicians who are being recognized on the basis of their experience and expertise with a new technology. Many have become famous that way. But you're right, it has to do with the nature of physicians – they want to work with better tools and try new technologies.

MDD: We're in the age of the informed consumer, and once they hear about a new technology that may still be in trials, they want to know when it's going to be available. They may in fact decide to put off having a procedure done while awaiting approval of some new technology.

Belson: You're 100% right. When **Given Imaging** [Yokneam, Israel] came with capsule endoscopy for the small intestine, patients would tell their GIs, "I want the capsule." The GI would say, "No, you need a colonoscopy for the large intestine," but the patients insisted that they want "the capsule" People just don't want invasive procedures, and that is what has driven many of the advances we have seen in recent years.

MDD: Conversely, what are the limiting factors to medical innovation?

Belson: As I have mentioned, one of them is definitely old habits of users. Many physicians do not admit that there is a problem or difficulty with the current practice or technology, which can delay the development of new technologies. That can even have an impact on fundraising when investors call on physicians who say, "Oh, we don't have this problem." I have seen that before.

Some other limiting factors are the regulatory environment and reimbursement. Another limiting factor is the power that large corporations have. For example,

See Belson, Page 9

Testing

Continued from Page 1

The report details risks associated with four common devices: surgical mesh, Lap-Bands, metal hips, and cardiac devices.

Last year the Institute of Medicine (IOM) shook up the device industry when it recommended that FDA dump the 510(k) program and start over. The report drew considerable criticism from the industry and FDA was quick to note that it has no intention whatsoever of making such a move (*Medical Device Daily*, Aug. 1, 2011).

"Instead, Congress is now debating legislation that would keep the present system virtually intact and ratify an agreement between the FDA and industry to get devices on the market even faster," *Consumer Reports* notes in its statement.

A few months after the IOM report came out, at the Transcatheter Cardiovascular Therapeutics meeting, William Vodra, a member of the IOM panel remarked that the FDA's 510(k) process is a "backward-looking process" and asserted that the agency would clear a commercial jet liner via a 510(k) filing based on its similarity to a camel because both are used on conveyance of human passengers. Vodra's comment was not well-received by Bill Maisel, MD, the deputy director for science at FDA's Center for Devices and Radiological Health, who responded that while the analogy "sounds great, the truth is that the horse-to-camel" conversion could probably happen in a 510(k), but the "camel-to-plane" could not (*MDD*, Nov. 11, 2011).

In response to the *Consumer Reports* investigation, Mark Leahey, president/CEO of the **Medical Device Manufacturers Association** (MDMA; Washington) told *Medical Device Daily* via e-mail that "the 510(k) process remains an important pathway for medical device innovators to deliver new therapies into the hands of patients and providers, and has been proven through multiple studies to have a tremendous safety record."

In fact, Leahey added, The FDA's Maisel conducted a study demonstrating that about 99% of devices cleared by the 510(k) process were not subject to Class I recalls. "While the medical device community considers even one adverse outcome unacceptable, and we constantly strive for perfection, we must be careful that any changes to the regulatory pathway do not adversely impact America's innovators as they seek to improve patient care," Leahey said.

The **Advanced Medical Technology Association** (AdvaMed; Washington) took a similar position on the issue as the MDMA in defense of the 510(k) process.

"For more than 30 years, what is known as the 510(k) process has produced an excellent safety record that serves patients extremely well, so it is especially disappointing that *Consumer Reports* chooses to so dramatically mischaracterize this FDA device review process," Janet Trunzo, executive VP of technology and regulatory affairs at AdvaMed, told *MDD* via e-mail.

"On numerous occasions over the years, FDA officials and outside experts have stressed the system's rigor and effectiveness and its basic structure is sound. Serious safety issues are in fact very rare – several recent studies have shown that only about 0.16 to 0.45 percent of 510(k)-cleared devices are recalled because of any serious issues," Trunzo said. "Of course no process is perfect, and that is why the medical technology industry is working with FDA, Congress and others on improvements that will make the review process even more efficient and predictable," Trunzo said.

According to the *Consumer Reports* investigation, "no testing" is required to ensure the safety of surgical mesh. The report notes that tens of thousands of women have been implanted with transvaginal mesh for proplapse repair and bladder support. Despite thousands of reports of adverse events, these products are still being sold and are still classified as "moderate risk" devices. "They took advantage of a loophole in the law that allowed them to grandfather their products onto the market without any advance safety testing," the report states in reference to how the manufacturers of such products got them onto the market.

Another problematic area of implantable devices is Lap-Bands, for which only minimal testing is required, according to the report. Approval of this device, from **Allergan** (Irvine, California), was based on a study of 299 people. Of those participants, 51% reported nausea, vomiting, or both, and 25% had their bands removed before the end of the three-year study because of complications or failure to lose enough weight.

"Imagine if a car had a recall rate that high," says John Santa, MD, director of the *Consumer Reports* Health Ratings Center. "Consumers and regulators would be up in arms. But in the world of medical devices, these things often stay hidden."

The report is critical of metal hips being on the market, noting that the artificial hip was introduced in 2005 by **DePuy** (Warsaw, Indiana), the orthopedic division of **Johnson & Johnson** (New Brunswick, New Jersey) without clinical testing. Instead, the report notes, the product went to market based on "substantial equivalence" to earlier devices, though metal-on-metal hips such as this one had long been on the agency's high-priority list for requiring advance clinical trials. DePuy recalled all 93,000 of these hips worldwide in 2010. Evidence suggests that metal-on-metal hips fail far more often than average and can cause metal poisoning and tissue destruction, according to the Consumer Reports investigation.

As for implantable cardiac devices, the *Consumer Reports* investigation found "significant problems" particularly with implantable cardioverter-defibrillators and the leads, or wires, that connect these devices to the heart. The report notes that since 2009, the FDA has

See Testing, Page 9

Testing

Continued from Page 1

received reports of close to 29,000 deaths or injuries from these devices.

Adding fuel to the fire, a new study published in *HeartRhythm*, the journal of the **Heart Rhythm Society** (Washington), found that electrical malfunctions in the Riata and Riata ST leads from **St. Jude Medical** (St. Paul, Minnesota), which were recalled in December 2010, caused at least 22 deaths.

The study was conducted to assess the deaths of Riata and Riata ST patients that have been reported to the FDA in order to determine if they were due to lead malfunction, the study authors noted. A similar analysis was performed for Quattro Secure leads from **Medtronic** (Minneapolis).

The researchers searched the FDA's MAUDE database for deaths associated with Riata, Riata ST, and Quattro Secure leads. The MAUDE search found 133 deaths; of these, 22 were caused by Riata or Riata ST lead failure, and five were caused by Quattro Secure failure. Riata and Riata ST deaths were typically caused by short-circuits between high voltage components. No death was due to externalized conductors.

The Riata and Riata ST leads, which have silicon insulation, were approved by FDA in June 2001. St. Jude pulled the leads from the market late last year over concerns that their electrical insulation could cause the devices to malfunction (*MDD*, Dec. 20, 2010). The FDA classified the issue as a Class I recall.

The company already has a newer version of the leads which reflect significant design changes, including a different coating, optim insulation. The new coating is intended to make the devices about 50 times more abrasion resistant than silicone, the company said late last year (*MDD*, Dec. 28, 2011).

"Without major changes in the system, there really isn't much consumers can do protect themselves, but we do urge people to ask their doctors about alternatives. Surgical mesh is a perfect illustration of a medical implant that is frequently unnecessary," says Metcalf.

Metcalf also recommends that consumers research the device by using the FDA's website at www.FDA.gov for information about warnings, complaints, and recalls. ■

Amanda Pedersen, 912-660-2282;
amanda.pedersen@ahcmedia.com

Belson

Continued from Page 7

bundling several products and the hospital's concern that they will have to pay more for other products made by a company that will lose a market to a company that develops a better new technology. Those are all things that can rein in development of new technology. All those things together, unfortunately, can make it extremely difficult to get funded and bring a product to market.

(In Part 2 next week, Amir Belson discusses how ideas have a way of changing, the status of financing for medical start-ups, the impact of greater regulatory scrutiny, the status of medical innovation in the U.S., which disciplines seem particularly ripe for new technologies, and offers some bits of advice for would-be entrepreneurs). ■

Product Briefs

• **Avioq** (Research Triangle Park, North Carolina) has received FDA approval for the Avioq HTLV-I/II Microelisa System. The test is used for the qualitative detection of antibodies to Human T-Lymphotropic Virus Type I (HTLV-I) and Human T-Lymphotropic Virus Type II (HTLV-II) in human serum or plasma. It is intended for screening individual human donors, including volunteer donors of whole blood and blood components and other living donors for the presence of anti-HTLV- I/ HTLV-II, and for use as an aid in clinical diagnosis of HTLV-I or HTLV-II infection and related diseases. It is also intended for use in testing blood and plasma specimens to screen organ donors. The Avioq HTLV-I/II assay features a microplate design suitable for various testing volumes and automation. In addition to being used as a manual assay, the assay is also intended for use with the Ortho Summit System in the screening of blood donors.

• **BD** (Becton, Dickinson and Company; Baltimore) reported FDA clearance of the BD MAX Group B Streptococcus (GBS) Assay and Clinical Laboratory Improvement Amendments (CLIA) moderate complexity test categorization on the second-generation BD MAX System. The BD MAX GBS Assay is an *in vitro* diagnostic (IVD) test for detection of GBS DNA in Lim Broth cultures – enabling laboratories to comply with the 2010 CDC guidelines for GBS screening. The BD MAX GBS Assay is an automated IVD method for polymerase chain reaction (PCR) detection of GBS from Lim Broth with a moderate complexity test categorization. The assay provides a method for laboratories seeking access to a molecular method and optimized resource utilization for GBS testing. BD MAX is a bench-top molecular system designed to perform a broad range of molecular testing, offering unmatched flexibility and versatility.

• **DDN** (Menomonee Falls, Wisconsin) reported the market launch of DDN Urgent Access, a new service for manufacturers of life-saving products with time-sensitive delivery requirements. DDN is a provider of outsourced business services to the life science industry.

User fee agreement calls for more interaction

The device user fee agreement includes some novel items that may improve workflows at the Office of Device Evaluation and the Office of In Vitro Diagnostics. Among the new features is a pre-submission program that starts with "a formal request from an applicant for feedback" from FDA via either a formal written response or a meeting or teleconference. This program is intended for device marketing applications and applications for investigational device exemptions.

The agreement also calls on FDA to issue a guidance spelling out the criteria for acceptance of device applications. Much of the controversy – at least from FDA's end – regarding device turn-around times is that the Center for Devices and Radiological Health (CDRH) works with any and all applications, even those deemed profoundly deficient, whereas the Center for Drug Evaluation and Research maintains the right to simply reject an application if it is deemed inadequate in some important respect. The document does not, however, indicate when FDA might publish a draft of acceptance criteria.

The document indicates that CDRH will continue to support the third-party review program, although details are lacking and interest in the program seems to have never caught on in meaningful numbers. CDRH also reaffirmed its commitment to discuss patient tolerance for risk based on specific disease states by consulting with patient groups. Among the considerations here, of course, are unmet medical needs.

Much of the document spells out the device review performance goals, including that the Office of Device Evaluation (or Office of In Vitro Diagnostics) will inform an applicant within 15 days whether a PMA or 510(k), or variants thereof, is accepted for filing. PMAs requiring advisory committee input, including some PMA supplements, will be acted on within 320 days for half of all filings in 2013, a metric that rises gradually to 90% in fiscal 2017, the last year of MDUFA III. Applications that do not require advisory committee action will be decided within 180 days for 70% of such filings next fiscal year, with the ratio to rise to 90% in the last two fiscal years of MDUFA III. The metrics are somewhat different for 180-day and real-time supplemental filings.

As for 510(k) filings, which number in the thousands per year, the document notes that the agency will communicate with the applicant within 60 calendar days of receipt of the filing for 65% of 510(k)s in fiscal 2013. That percentage will rise to 95% in fiscal 2016 and 2017. FDA's ambitions for 510(k) decisions are to decide on 91% of such applications within 90 days in the coming fiscal year, and 95% of all filings in the final three fiscal years of MDUFA III.

– Mark McCarty, Washington Editor

Washington

Continued from Page 1

Health. He also observed, "nobody got everything they wanted," but he said the agreement would work for the benefit of all. He also said, "we hope to avoid the unintended consequences" of undesired burdens on FDA, perhaps a remark aimed at some industry-supported legislation.

Shuren noted that one and a half years have elapsed since the first public meeting on the Medical Device User Fee Agreement III (MDUFA III), and he remarked, "neither FDA nor industry believes" the user fee program has lived up to its promise of facilitating the timely and appropriate review of devices, although he did not say that regulator and regulated see identical problems.

"Insufficient funding is at the root of or [is] a factor" in many of the issues at CDRH, Shuren said, but he noted that the user fee schedule under MDUFA III will provide roughly 200 additional full time-equivalent employees, a few of which will work at the Center for Biologics Evaluation and Research, which handles some applications for diagnostics and combination products.

In his remarks, Malcolm Bertoni, assistant commissioner for planning at FDA, who served as point for CDRH during the user fee discussions, quipped, "those discussions at times were spirited."

Regarding FDA's first proposal for the aggregate level of user fees, Bertoni said, "industry's first response was one FDA could not support" because it called for "uncertainties to resolve themselves before" a full re-authorization. "So we developed a plan to mitigate some of those uncertainties," he said, some of which resolved spontaneously in succeeding months. "Industry came back with a comprehensive set of proposals in late July," Bertoni continued, triggering a back-and-forth "on the technical aspects" of performance goals.

The two sides "reached a comprehensive redesign of the commitment letter" by the end of October, Bertoni said, adding, "it took a fair amount of time to bridge that gap," in reference to the agency's initial proposals of user fee levels, which came to roughly $800 million over five years. Bertoni also told those in attendance that the deadline for comment on the agreement is April 16, and he said, "we do not anticipate extending that period."

Bertoni said "we think [the agreement] is a careful balance" between what FDA could do and what industry "was willing to pay."

Lana Keeton, president of **Truth in Medicine** (Miami Beach, Florida), was perhaps as outspoken as any of the consumer/patient representatives in her opposition to user fees, but she opened with the remark that the device regulatory structure "is completely inadequate. Americans are not safe," she claimed, adding, "industry is here to preserve and protect" profits for shareholders, implicitly at the expense of patients.

Keeton argued, "$595 million is a ridiculously small

See Washington, Page 11

Washington

Continued from Page 10

amount of money" given industry's revenues, but she nonetheless asserted that FDA "should be a wholly funded government entity, not the hybrid" of taxpayer and investor funding it is at present. She blasted industry's claims about the sensitivity of innovation to regulatory impediments and the associated device flight, asking, "what is innovative about a copycat piece of mesh that has been used for 50 years?" She said med-tech jobs are not leaving because of FDA, but because of more prosaic forces. "These devices are and have been overseas now for years by choice," she asserted.

Regarding the tendency for firms to obtain regulatory approval outside the U.S. rather than in the U.S., Keeton said, "it's a shell game, a well-played shell game," asserting that devices "produce harm internationally," and that device makers go to market with their offerings "knowing they will injure patients"

Keeton did make one comment that may have resonated with anyone listening in on the session, stating, "the House, the Senate and the President have to stop using FDA as a political football,"

Andrew Sperling of the **National Alliance on Mental Illness** (NAMI; Fairfax, Virginia) spoke during the open public hearing, saying that FDA has cleared or approved "a number of existing devices to treat serious mental illness conditions" such as deep brain stimulation for treatment of resistant depression.

"I want to express support for the agreement," Sperling said, a support he said NAMI extends to performance goals for device applications. He said the organization is "especially supportive of provisions for patient tolerance for risk," adding "we believe it's critical that this provision" remain in the legislation as it goes through Congress.

Mark Leahey, president/CEO of the **Medical Device Manufacturers Association** (Washington), was one of four representatives of trade associations to present at the meeting, saying that the difficulty FDA experienced in meeting MDUFA II goals led to some simplification of goals for MDUFA III, and he also made note of a doubling of user fees from MDUFMA to MDUFA II, and from MDUFA II to MDUFA III.

Leahey acknowledged some of the antipathy toward user fees, over-reliance on which he said sparks resistance, "and rightly so," given "that there could be an influence there." Still, he remarked that the $595 million user fee amount "is not insignificant" despite comments to the contrary, and Leahey noted that the user fee agreement gives FDA 200 additional FTEs, including that the agreement frees up remaining fees from MDUFA II, which FDA will use to bring 38 FTEs on board in the near term.

"While it may not be the perfect agreement," Leahey continued, "five years from now, I think we'll be able to say that patients were well served." ■

Mark McCarty, 703-268-5690
mark.mccarty@ahcmedia.com

Court

Continued from Page 5

as compared to the general population. Myriad developed a genetic test called the BRACAnalysis test which allowed physicians to identify patients at the highest risk of developing cancer. Patients testing positive could then be monitored or undergo preventive medical treatment to minimize their risk.

Myriad has said that the genetic tests related to the disputed patents are covered by 23 issued patents with almost 500 claims, and that only 15 of the claims are disputed in the lawsuit. The true importance of this case lies more with its implications for biotechnology research, and less on the impact to Myriad's bottom line. The company and its supporters argue that the ability to patent genes is integral to innovation in biotechnology.

It is still too early to tell what the impact of the Prometheus decision and a potential denial of Myriad's patents will have on biotechnology innovation. Industry insiders who argue that these decisions will throw cold water on innovation may be correct. It is reasonable to think that patent protection is a necessary incentive to encourage new technologies. On the other hand, if investigators do not have to worry about violating patents in their research, there could be more activity. Researchers have previously been unable or unwilling to explore certain genes due to a fear of being sued. For example, the Alzheimer's Institute of America (AIA) has been accused of slowing research by filing patents against the use of a genetic marker known as the 'Swedish mutation' that is correlated with early-onset Alzheimer's. Intellectual property disputes surrounding this mutation have hampered Alzheimer's research since the early 1990s.

It is also worth mentioning that the patents in dispute in the Myriad case were not originally filed by the company. Instead, like many such patents, they were discovered at universities and licensed to the company for commercialization. The Myriad patents were primarily licensed to the company by the University of Utah Research Foundation. This distorts the issue, because academic researchers, while certainly aware of commercial possibilities for their discoveries, have traditionally been driven by science rather than profit. Rather than halting progress, the denial of patents for genes should spur these researchers to dig deeper into understanding the genetic basis of disease. So, while these decisions may have a chilling effect on biotech companies, innovative research will likely continue.

Large companies possessing platform technologies will be able to devise their own tests, without the fear of patent infringement, to compete with more expensive proprietary tests. These companies can then offer their customers more comprehensive testing at a lower price at the expense of smaller companies who may have initially developed the tests with the promise of patent protection. ■

MDD's Ortho Extra

Additional Developments in One of Med-Tech's Key Sectors

Thursday, March 29, 2012

Keeping you up to date on recent developments in orthopedics

Hip fractures account for 55% of all costs of fragility fractures in Europe . . . Researchers at the **European Congress of Osteoporosis & Osteoarthritis** in Bordeaux have presented new data which shows that the economic burden of fragility fractures in the 27 member states of the European Union far exceeds previous estimates, with hip fractures accounting for around 55% of costs. The investigators used a population based model to estimate the economic burden of fractures in 2010, using data on facture incidence, costs for pharmaceutical prevention and post-fracture healthcare, mortality, and population size to estimate total costs. Data for hip, vertebral, wrist, "other fractures" were included and a societal perspective was used as far as possible. Costs were divided into cost of fractures occurring within the index year, cost of prior historic fractures that still are associated with costs, and cost of pharmaceutical prevention. The total economic burden, including pharmaceutical prevention, of fractures in the European Union in 2010 was estimated at €39 billion. The highest costs were in the EU's five largest countries – Germany (€9.3 billion), Italy (€7.2 billion), UK (€5.6 billion), France (€5 billion) and Spain (€2.9 billion). The direct costs of treating new fractures accounted for €26 billion, long-term fracture care €11 billion and pharmaceutical prevention only €2 billion. Excluding pharmaceutical prevention costs, hip, vertebral, wrist and "other fractures" comprised 55%, 5%, 1% and 38% of the economic burden respectively. John Kanis, Professor Emeritus at the University of Sheffield, WHO Collaborating Center, and lead author of the study, concluded, "We have found that pharmaceutical prevention of fractures only accounts for €2 billion in expenditure – approximately 5% of the total cost burden of fractures. This small investment in prevention and treatment reflects the fact that osteoporosis, which is most often the underlying cause of fragility fractures, is neither being assessed nor treated in the majority of people at high risk." The economic burden of fractures in the European Union is expected to grow as the number of seniors increases in Europe. Studies have estimated that the number of fractures will more than double by 2050 unless preventive action is taken.

Delaying surgical repair after traumatic brain injury shown to reduce secondary brain swelling, damage . . . Immediate skull reconstruction following trauma that penetrates or creates an indentation in the skull can aggravate brain damage inflicted by the initial injury, a study by a **University of South Florida** (Tampa, Florida) research team reports. Using a rat model for moderate and severe traumatic brain injury, the researchers also showed that a delay of just two days in the surgical repair of skull defects resulted in significantly less brain swelling and damage. The study was published in the online journal *PloS ONE*. While further investigation is needed, the findings have implications for the acute treatment of traumatic brain injury (TBI), considered the signature wound of soldiers who have served in Iraq and Afghanistan, said the study's principal investigator Cesar Borlongan, PhD, professor and vice chair of research at the USF Health Department of Neurosurgery and Brain Repair. When the brain is initially penetrated - by a bullet, shrapnel, other debris, or even the force of blast waves, for instance - inflammation helps recruit the body's own good (glial) cells to the damaged site to limit localized injury. For a short time, the inflammation-induced edema, or swelling of the brain, is beneficial to help relieve pressure within the skull. However, chronic inflammation precipitates increases in intracranial pressure that perpetuate a vicious cycle leading to secondary cell injury and death. Cranioplasty is an operation to repair malformations of the skull caused by TBI; the procedure may involve replacing a missing piece of the skull protecting the underlying brain and/or improving the appearance of the skull's surface. Current clinical practice emphasizes performing cranioplasty quickly upon initial hospital admission to help reduce the likelihood of infection or other complications that may arise when the brain is exposed. "Our preclinical study indicates that reconstructing the skull too early in the brain's natural healing process may interfere with critical therapeutic benefits of brain swelling post-TBI," Borlongan said. "It's better to wait at least two days." The USF researchers studied rats with moderate and severe TBI. Post-TBI, the animals were randomly assigned to skull bone flap replacement with or with-

out bone wax (a sterile mixture to help control bleeding from bone surfaces); no skull reconstruction; or delayed skull reconstruction with bone wax alone, which was performed two days following TBI. The brains of all the animals were analyzed in the laboratory five days after surgery. While immediate reconstruction provided aesthetic repair of the skull fracture, this early surgical procedure, with bone wax alone or with bone wax and skull bone flap, significantly increased cortical brain tissue damage in both moderate and severe animal models. Overall, whether the rat model was moderate or severe TBI, delayed reconstruction limited the worsening of brain tissue damage compared to immediate reconstruction. In fact, for moderate TBI, the extent of damage observed in the brains of rats that received delayed reconstruction was on a par with that in the animals getting no reconstruction. In those with severe traumatic brain injury, the tissue damage was significantly larger. The authors suggest this may mean a two-day delay, while more beneficial than immediate reconstruction, was not sufficient to counteract the intracranial pressure generated by severe TBI. "Our results suggest that delaying cranioplasty until the TBI-induced cerebral swelling has subsided may reduce unwanted exacerbation of cortical damage associated with skull reconstruction," Borlongan said. "We need to carefully weigh the risk of infection that comes from leaving the brain somewhat exposed with the benefit of enhancing the brain's own repair of its cells."

Vast geographic variation in hip fracture risk revealed by new study . . . An extensive study of country-specific risk of hip fracture and 10-year probability of a major fragility fracture has revealed a remarkably large geographic variation in fracture risk. Even accounting for possible errors or limitations in the source data, there was an astonishing 10-fold variation in hip fracture risk and fracture probability between countries. "A systematic review of hip fracture incidence and probability of fracture worldwide", authored by the **International Osteoporosis Foundation** (IOF) Working Group on Epidemiology and Quality of Life, has been published in the journal *Osteoporosis International*. The aim of the study was to update the available information base on the global heterogeneity in the risk of hip fracture. Age-standardized hip fracture rates from 63 countries were compiled. Additionally, the study documents variations in major fracture probability as determined from 45 FRAX models from 40 countries. Fragility fractures, which affect approximately one in three women and one in five men over the age of fifty worldwide, represent an immense human and health-economic burden. Hip fractures are used to determine international burden of osteoporosis because, unlike for example, vertebral fractures, the majority of hip fractures are treated (and therefore recorded) in hospitals or clinics. As a result, much more is known about the epidemiology of hip fracture than about other osteoporotic fractures. Furthermore, although hip fractures account for less than 20% of all osteoporotic fractures, they account for the majority of fracture-related medical costs and mortality in individuals over the age of 50. The study found a marked variation in hip fracture rates between countries. In women, the lowest annual age-standardised incidences (based on recent reliable data) were found in Tunisia and Ecuador with 58 and 73 per 100,000 persons respectively. The highest incidences were in Northern European countries, with 574 and 563 per 100,000 in Denmark and Norway respectively. There was approximately a 10-fold range in hip fracture incidence worldwide. Within countries, the age-standardized incidence of hip fracture in men was approximately half that noted in women. Where higher rates were observed in women, higher rates were generally found in men and vice versa. Geographic patterns were similar for men and women, although there was a notable difference in Russia where women are shown as moderate risk, men as high. Generally, the highest risk countries for both genders are in North Western and Central Europe. High risk countries outside of Europe include Lebanon, Oman, Iran, Hong Kong, Singapore, and Taiwan. In the U.S., ethnic-specific rates place Caucasian women at high risk, whereas Hispanic, Asian and Black populations are at low risk. The challenge for researchers is to understand why the worldwide variation in hip fracture rates and in FRAX 10-year probability of fracture is so large - larger still than the significant variation between men and women. It is hoped that improved understanding of the reasons for this heterogeneity may lead to global strategies for the prevention of fractures.

– **Compiled by Holland Johnson, *MDD* Managing Editor**
holland.johnson@ahcmedia.com

Q1 PRODUCTIONS
DEDICATED TO QUALITY FIRST™

Medical Device PR & Corporate Communications Conference

Promoting Corporate Brand and Shareholder Value in the Medical Device Space through the Efficient Use of Public Relations and Corporate Communications, from Social Media Initiatives to Crisis Communications and Corporate Citizenship

CHICAGO, IL
MAY 14-15, 2012

PRESENTER COMPANIES INCLUDE:

WELCH ALLYN
ALIGN TECHNOLOGY, INC.
SIDLEY AUSTIN LLP
PHILIPS HEALTHCARE
SIEMENS HEALTHCARE
GE HEALTHCARE
STRYKER
COVIDIEN
BIOMET 3I
SWEDISH MEDICAL CENTER
MEDTRONIC
ALERE
BECTON, DICKINSON & COMPANY

WHO SHOULD ATTEND THIS Q1 CONFERENCE:

Executives that will find this program of greatest relevance are those currently involved in the public relations and corporate communications functions within the medical device space. This program has been designed to provide a greater understanding of the best practices in increasing shareholder value and corporate brand through the effective use of public relations and corporate communications to social media and corporate social responsibility initiatives. Those individuals who will find this program of greatest applicability include VPs, Directors and Managers of:

- **CORPORATE COMMUNICATIONS**
- **PUBLIC RELATIONS**
- **EXTERNAL AFFAIRS**
- **PUBLIC AFFAIRS**
- **CORPORATE CITIZENSHIP**
- **MEDIA RELATIONS**

Contact: marketing@q1productions.com or 312.602.9683

Visit event site at: www.q1productions.com/meddevicepr