

Neuroscientists claim rare pair of research grants, totaling \$23 million

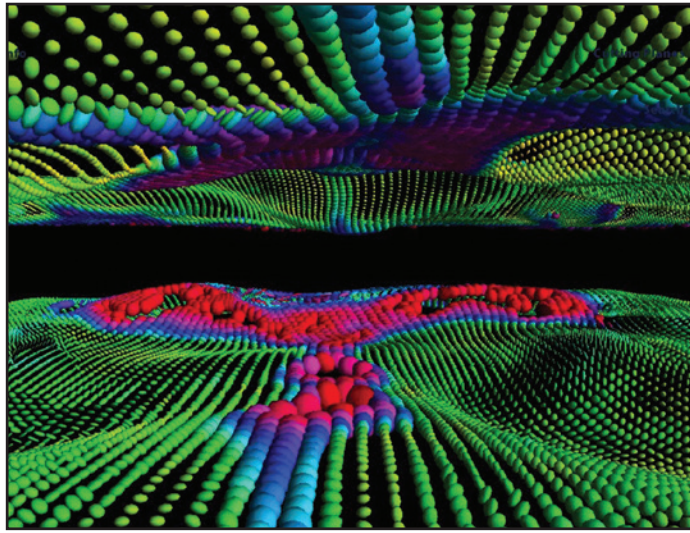
By Carl Marziali and Alison Trinidad

In a rare distinction for one university, neuroimaging world leaders and USC professors Arthur Toga, PhD, and Paul Thompson, PhD, will receive two major research center awards to advance their exploration of the human brain.

Toga and Thompson each will establish a Center of Excellence under a National Institutes of Health initiative to mine discoveries from the vast and exponentially growing amounts of data created by imaging science, genetic sequencing and many other biomedical fields.

The awards total \$12 million and \$11 million for Toga and Thompson, respectively, over four years. NIH is funding several Centers of Excellence, including the two at USC, under its Big Data to Knowledge initiative.

The two researchers' teams have gathered what they believe to be the world's largest collection of brain scans. The collection is housed at the USC Institute of Neuroimaging and Informatics and continues to double in size every two years. The two center grants will allow the researchers to move from



Courtesy of the USC Institute for Neuroimaging and Informatics and Laboratory of Neuro Imaging

Images of the human brain like this one can describe diffusion in the brain, allowing researchers to determine connections between brain areas and measure differences in wiring from person to person.

data collection to large-scale analyses that could point to new treatments for autism, Alzheimer's disease, mental illness and many other neurological diseases and disorders.

Toga and Thompson came to USC a year ago as leaders of a massive neuroimaging cluster of 110 faculty, researchers and multidisciplinary staff. Their recruitment was a signature moment in the university's drive to attract scholars with the potential to transform their fields.

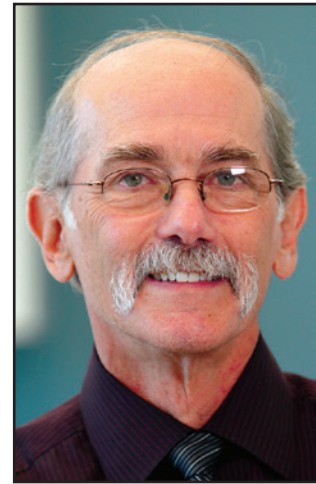
When the recruitment was announced, USC President C. L. Max Nikias said: "This cluster hire will help

us move one step closer to understanding the structure and function of the human brain."

The NIH initiative signals the agency's commitment to invest in the same goal. The university's own Digital USC initiative, established last year by Provost Elizabeth Garrett, JD, supports neuroimaging research as part of a commitment of \$1 billion over 10 years toward gathering, interpreting and applying digital data on a massive scale.

"In receiving substantial grants supporting one of the NIH's priority initiatives,

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"We are proposing to create the framework that is essential to truly understand how the brain works and functions."

—Arthur Toga, PhD



"We are extending the mathematics currently used for code-breaking and pattern recognition to find patterns in the brain."

—Paul Thompson, PhD

Body Computing Conference highlights key medical technology

By Hope Hamashige

The are small but powerful: a tiny injectable device that monitors cardiac activity, a wireless sensor that keeps track of the pressure on the pulmonary artery and can alert patients if they need to adjust their medication, and a smart phone application that allows patients to receive non-emergency health care confidentially via phone.

These were a few of the innovations that were discussed at the 8th annual Body Computing Conference organized by the USC Center for Body Computing (USC CBC) held on Oct. 3. The annual gathering brings together leaders in the digital health revolution including physicians, engineers, designers, investors and entrepreneurs.

"Historically, medical apps have been under-represented, but new apps and innovations, like those we are unveiling today, equip patients to take control over their personal health," said Leslie A. Saxon, MD, a Keck Medicine of USC cardiologist and founder/director of USC CBC.

It is not only patients who benefit from the new technology, but also their physicians. The new devices and apps are increasingly able to collect health data from an individual but also can share that information with their physician. Saxon noted that more physicians are testing such apps and incorporating them into their practices.

The time and cost savings for both doctors and their

See CONFERENCE, page 4

Nikias says Keck Medicine of USC to be area's largest, academically elite health system

By Hope Hamashige

The early part of the 21st century has seen seismic shifts that, for most universities, have posed serious challenges. But, while so many have wrestled with difficult financial decisions since the recession, USC was making investments that set it on course to become a major force in academic medicine, President C. L. Max Nikias, PhD, said, before a standing-room-only crowd in Mayer Auditorium on Oct. 9.

"For us, uncertainty was the beginning of a great adventure," said Nikias.

Nikias was referring to USC's purchase in 2009 of Keck Hospital of USC and the USC Norris Hospital, the bold move that initiated

five years of sweeping change for Keck Medicine of USC.

Since then, Keck Medicine of USC has fanned out from its home on the Health Sciences Campus, opening and acquiring clinics and a hospital across Southern California. It has also successfully recruited new world-class faculty from schools such as Harvard University and Stanford University, a sign of Keck Medicine of USC's growing prominence in academic medicine. It has also launched major research initiatives such as two new research centers funded by \$23 million in awards from the National Institutes of Health devoted to brain research (see story above).

These investments gave USC a competitive advantage moving into the future, said Nikias, because health sciences are going to become increasingly more important.

One-third of the university's current fundraising campaign, which set of a goal of \$6 billion, is dedicated to fund biological sciences and health care, said Nikias. And so, while so much change has already taken place, he said much more change is on its way for Keck Medicine of USC.

"We want to be the largest, academically most elite health system in Southern California with a global presence in medicine, biological sciences, translational research, biotechnology and patient care," Nikias said.

Keck School tapped as the National Center on Elder Abuse

By Sherri Snelling

Keck School of Medicine of USC has been named the sole grant recipient to become the National Center on Elder Abuse (NCEA). NCEA is a vital clearinghouse created by the Administration on Aging, part of the Administration on Community Living in the U.S. Department of Health and Human Services.

The \$2.2 million three-year grant funds NCEA's programs, which include technical assistance and training to states and community-based organizations to develop effective prevention, intervention and response efforts addressing elder abuse. The NCEA will also conduct research and advocate for policy changes on behalf of older adults.

"One in 10 Americans over age 60 suffer some form of elder abuse — that is 5 million seniors each year," said Laura Mosqueda, MD, chair of the department of Family Medicine and Geriatrics at the Keck School of Medicine of USC and

director for the National Center on Elder Abuse. "We see elder abuse, neglect and exploitation as one of the most pressing civil rights issues facing our aging society, and we're proud to be named the National Center on Elder Abuse to help educate, inform and address the injustices inflicted on our nation's seniors."

Elder abuse is a growing problem as Americans are living longer. In fact, 10,000 baby boomers turn 65 every day and people over the age of 85 represent the fastest growing segment of our society. As the senior population grows and the number of people who will care for our frail elders declines, the problem of elder abuse will only grow. Elder abuse is manifest in many forms: physical abuse, emotional abuse, sexual abuse, exploitation, neglect and abandonment. Perpetrators can be family members or spouses, health-care workers and others preying upon the vulnerabilities of older people.

The National Center

on Elder Abuse will be spearheaded by Mosqueda and the team at the Keck School of Medicine of USC, in collaboration with the USC School of Gerontology, the American Bar Association and other organizations dedicated to supporting an aging America. The NCEA will be dedicated to increasing identification and reporting of elder abuse; improving the aging community's ability to detect, intervene and prevent elder abuse; and stimulating sustainable and innovative systems.

"This prestigious designation underscores Keck Medicine of USC's commitment to the health, safety and wellness of our growing population of older Americans," said Tom Jackiewicz, senior vice president and CEO of USC Health which oversees Keck Medicine of USC, the university-based medical system. "As a health system dedicated to education, research and clinical care, we are perfectly matched to administrate the National

Center on Elder Abuse."

"With the leadership of Mosqueda, the National Center on Elder Abuse at Keck School of Medicine of USC becomes a beacon to all of us as we age and face the potential darker issues of getting older," said Carmen A. Puliafito, MD, MBA, dean of the Keck School of Medicine of USC. "We will be the entity others look to

when they need information and we will be the leaders that push the field forward through education, research, advocacy and other programs to end elder abuse."

A top-ranked medical system in several specialty areas, Keck Medicine of USC was ranked No. 33 in this year's *U.S. News and World Report* "Best Hospitals" issue.

USC Norris researchers awarded \$3.5 million grant from NCI

A team of scientists from the USC Norris Comprehensive Cancer Center was recently awarded a \$3.5 million grant from the National Cancer Institute to conduct a five-year research project to study how prostate cancer patients respond to hormone therapy.

The project is co-led by three researchers: Amir Goldkorn, MD, assistant professor of medicine at USC Norris, part of Keck Medicine of USC; Jacek Pinski, MD, associate professor of medicine and co-director of the prostate cancer research program; and Sue Ingles, PhD, associate professor of preventive medicine at the Keck School of Medicine of USC.

The three long-time collaborators said they were excited the NCI awarded them a grant because they believe the results of their research will ultimately help doctors make better treatment decisions for their patients with advanced metastatic prostate cancer.

"Our purpose is to provide a mechanism to predict who will respond to hormone therapy and who won't and to identify specific biomarkers to do that," said Goldkorn.

Because prostate cancer grows when exposed to testosterone and related hormones, standard therapy involves hormone treatment to suppress production of testosterone. What puzzles physicians is that some patients respond well to hormone therapy while others fail after just a few months. Giving physicians tools to predict how patients will respond will help them make better treatment decisions.

The researchers plan to get samples from 1,500 prostate cancer patients who are participating in a nation-wide phase 3 clinical trial. Using white blood cells, primary tumor tissues and circulating tumor cells, researchers will analyze the genes of the androgen pathway, which plays a role in prostate carcinogenesis. They hope to identify which ones drive either the response or resistance to hormonal therapy.

Flu season nears, vaccines urged

By Talar Shahinian

As flu season approaches, Keck Medicine of USC staff, faculty and visitors are encouraged to get a flu vaccine.

If you are a faculty physician or a staff member of Keck Medicine of USC, you can receive your vaccine through Employee Health Services in USC Healthcare Center 1, or the Evaluation and Treatment Center on the first floor of Keck Hospital of USC.

Staff and faculty are reminded that once again this year — in light of the Los Angeles County Department of Public Health mandate — all Keck Medicine of USC personnel are required to either receive a flu vaccination or wear a facemask if within three feet of a patient. This includes physicians, researchers, admitting

representatives, volunteers, direct patient-care givers, support services personnel and all other staff.

All employees can also receive a free flu vaccine at the HSC Pharmacy in USC Healthcare Center 1.

Staff and faculty who receive their vaccines will be given a special sticker to place on their badge.

Proof of vaccination from other locations will be accepted.

Students may receive flu vaccines at the Eric Cohen Student Health Center. Vaccines are free with USC's student health insurance or \$15 without.

Patients and visitors are advised to check with their physicians before receiving a flu vaccine, but can visit the HSC Pharmacy for vaccinations. Cost depends on insurance coverage, or is \$28 without insurance.



Tom DeSanto

Bring on the beer and bratwurst — The Keck School of Medicine hosted a Good Neighbors Campaign kick-off event on Oct. 7, featuring free beer and bratwurst at Harry and Celesta Pappas Quad. The university's Good Neighbors Campaign, USC's annual employee-giving initiative organized by Civic Engagement, is celebrating its 20th anniversary this year with a \$2 million fundraising effort to support key university-community partnership programs. For more information or to give online, visit goodneighbors.usc.edu.

HSC News

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Editor: Jon Nalick

Contributors: Hope Hamashige, Cristy Lytal, Leslie Ridgeway and Alison Trinidad

Director, Internal Communications: Virginia Baca

Executive Director, Creative Services: Tom DeSanto

Associate Vice President, Health Sciences Public Relations and Marketing: Deborah S. Fullerton

Vice President, Public Relations and Marketing: Brenda Maceo

Phone: (323) 442-2830 Fax: (323) 442-2832
Email: hscnews@usc.edu Web: hscnews.usc.edu

Keck Medicine of USC expands urology services to Bakersfield

By Meg Aldrich

Keck Medicine of USC announced that the highly respected urologic practice of Bruce J. Joseph, M.D., is now part of the Trojan family. The practice now provides comprehensive, world-class urologic care to Kern County and the greater San Joaquin Valley area as part of the USC Institute of Urology.

Joseph has joined Keck Medicine of USC, and the practice, which remains in its current Bakersfield location, and is known as USC Urology Associates - Bakersfield.

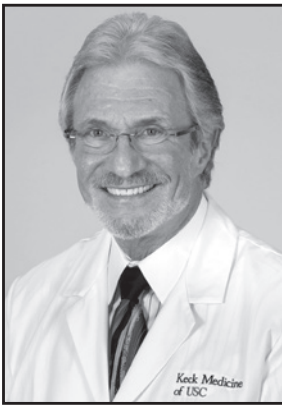
"I want the best for my patients, and now people here in Bakersfield and Kern County will have access to a range of sub-specialty expertise and treatments that only a top-flight urology team at a major institution can bring,"

Joseph said. "I am pleased to join some of the nation's best urologists that make up the talented team of physicians and surgeons at USC Institute of Urology."

Kern County patients now have enhanced access to world-class services and treatments by the renowned specialists of the USC Institute of Urology for complex urologic conditions and advanced, comprehensive urologic cancer care for the kidney, prostate, bladder and testis.

State-of-the-art, sub-specialized consultation for female urology, male infertility, endourology/kidney stone disease, reconstructive urology/prosthetics, genitourinary trauma and pediatric urology are provided. USC Institute of Urology also focuses on urologic preventive medicine.

Working hand-in-hand



Bruce J. Joseph

with Joseph, USC urologists are treating patients in Bakersfield as much as possible, thus allowing patients to stay close to home while receiving the highest quality specialty urologic care.

Inderbir S. Gill, MD, the chairman, professor and founding executive director of USC Institute of Urology and a world-renowned advanced robotic cancer surgeon, is personally seeing and treating patients at this Bakersfield site, along with Joseph and other USC urology faculty physicians from Keck Medicine of USC.

"We are committed to closely and collegially working along with local Bakersfield urologists and physicians to bring our innovative urologic treatments to patients in Kern County," Gill said. "The USC Institute of Urology team is known globally for its innovative therapies, break-through research and robotic and open surgical expertise."

The growth of Keck Medicine of USC in South-

ern and Central California falls under the leadership of Tom Jackiewicz, senior vice president and CEO of USC Health and Amar A. Desai, MD, MPH, and CEO of USC Care & Ambulatory Services, part of Keck Medicine of USC.

"We aspire to bring the best of USC to more people, including our extensive expertise in complex care, by extending our reach into

more communities. We are thrilled to come together with practices such as Joseph's that are committed to the highest quality care," said Desai. "Keck Medicine of USC is becoming the practice of choice for physicians in Southern and Central California because we partner with the community in a distinctly collaborative way."

NIH: Grants help expand USC's lead in neuroscience

Continued from page 1

Professors Toga and Thompson and their USC colleagues expand this university's leadership in the areas of neuroscience, informatics and big data. More important is the potential for consequential research produced within these new centers to influence our basic understanding of the brain and identify causes of brain-related diseases," Garrett said.

Toga's NIH award will establish the Big Data for Discovery Science Center, which aims to develop database systems and computational strategies to help scientists and physicians mine complex data about the brain.

"The unifying focus of the BDDS Center is to promote a 'science of discovery,'" said Toga, who also directs the USC Institute of Neuroimaging and Informatics. "Around the globe, we are collecting massive amounts of biomedical data, but the technology to process it all does not exist. We are proposing to create the framework that is essential to truly understand how the brain works and functions."

Thompson will head the ENIGMA Center for Worldwide Medicine, Imaging and Genomics, a global consortium of more than 300 researchers sharing data to study nine major brain diseases. The global effort is developing tools to discover predictive factors in the genome that affect brain development and disease.

"ENIGMA is the largest alliance in the world studying factors that help or harm the brain," said Thompson, who also is director of the

USC Imaging Genetics Center. "We will develop new computational algorithms to integrate this vast array of data available to us to find biomarkers of mental illness and brain diseases, allowing for better diagnostics and more personalized medical treatment. In a way, we are extending the mathematics currently used for code-breaking and pattern recognition to find patterns in the brain."

The NIH launched the BD2K initiative in 2013 to support research, implementation and training in data science that would enable biomedical scientists to maximize the use of large datasets in their studies.

Toga is a Provost Professor in the departments of ophthalmology, neurology, psychiatry and the behavioral sciences, and radiology at the Keck School of Medicine of USC, with a joint appointment at the USC Viterbi School of Engineering.

In addition to directing the Institute of Neuroimaging and Informatics, he leads the Laboratory of Neuro Imaging, also at USC.

Thompson is associate dean for research and professor of neurology, psychiatry and the behavioral sciences, radiology, pediatrics and ophthalmology at the Keck School of Medicine, with a joint appointment at USC Viterbi. In addition to directing the USC Imaging Genetics Center, he serves on the faculty of the Institute for Neuroimaging and Informatics and the Laboratory of Neuro Imaging.

Matthews named chief of cardiovascular medicine

By Talar Shahinian

Ray V. Matthews, MD, a highly respected leader in interventional cardiology, has been named chief of the division of cardiovascular medicine in the Department of Medicine of the Keck School of Medicine of USC.

As chief, Matthews, who is also professor of clinical medicine and director of interventional cardiology, will oversee the division's academic and clinical operations, as well as its fellowship programs.

Edward Crandall, MD, PhD, chair of the Department of Medicine, praised Matthews as energetic, thoughtful and visionary.

"Matthews is a natural and collegial leader who will help take cardiovascular medicine at USC to the next level of clinical, teaching and research excellence," Crandall said. "My expectation is that major progress will be made through partnerships with cardiovascular surgery and community cardiologists that will help Keck Medicine of USC become a premier destination for cardiac care and research. Matthews is the just the person to lead us toward those goals."

Matthews, who received a bachelor's degree in biochemistry from University of Wyoming and a medical



Ray V. Matthews

degree from Creighton University, completed his internal medicine residency at the Mayo Clinic. He later completed a general cardiology fellowship at Harbor-UCLA Medical Center and an interventional cardiology fellowship at Good Samaritan Hospital in Los Angeles.

Widely known as a leader in interventional cardiology, Matthews has served as principal investigator for more than 50 clinical trials researching new devices. He is also a pioneer in many interventional procedures that are now commonplace in the catheterization lab.

Vaughn Starnes, MD, chair of the Department of Surgery and executive director of the CardioVascular Thoracic Institute (CVTI), called Matthews a key partner in developing cutting-edge technologies in cardiac

care, adding, "We are delighted that he has taken on this leadership role in cardiovascular medicine. We are looking forward to further growth of the CardioVascular Thoracic Institute at USC working together with Matthews."

Since joining Keck Medicine of USC in 2007, Matthews has played a crucial role in increasing the procedural volume in its catheterization labs. He has helped attract new patients by creating programs for assisted high-risk coronary intervention and by co-directing the percutaneous aortic valve program — one of the busiest programs of its kind in Southern California.

Matthews praised division faculty as effective academicians and clinicians, and said he hoped to grow the division further, boosting the number of faculty to increase clinical volume and expand clinical research opportunities.

He added, "In this challenging time of health-care reform and realignment, we want the division of cardiovascular medicine to lead the charge as the USC health campus seeks to become a broader health system. This will require forging stronger working relationships — both within and outside the USC campus."

Calendar of Events

Monday, Oct 20

11 a.m. – 2 p.m. Farmer's Market. "For Sale: Berries, Jams, Herbs, Snacks and Produce bags." Keck Hospital of USC Cafeteria.

Noon. KSOM Research Seminar. "A Multi-Pronged Approach for Developing Novel Therapeutic Agents for Alcohol Use Disorders," Daryl L. Davies, USC. Aresty Auditorium. Info: Mary Jane Chua, (323) 442-7732, maryjane.chua@med.usc.edu

Tuesday, Oct. 21

1 – 3 p.m. CTSI Workshop. "Increase the Reach and Impact of Your Research," Katja Reuter, USC. Harkness Auditorium. Info: Francis Ukpolo, (323) 442-1996, francis.ukpolo@med.usc.edu, tinyurl.com/qf4m43w

5:30 p.m. Ophthalmology Grand Rounds. HC4 Conference Room, Third Floor. Info: Ty Christopher, (213) 409-5233, tyaisaac@usc.edu

Wednesday, Oct. 22

8:30 a.m. Division of Pulmonary, Critical Care and Sleep Medicine Lecture. "HRCT," Alison Wilcox, USC. IRD 732/34. Info: Elva Rubio, (323) 226-7923, elvarubi@usc.edu

Noon. Zilkha Neurogenetic Institute Seminar. "Functional Genomic Investigation of Neuropsychiatric Disease," Dan Geschwind, UCLA. Herklotz Seminar Room, ZNI 112. Info: Julie Carl, (323) 442-3219, jearl@usc.edu

3-5 p.m. Edmondson Faculty Center Open House. "Come Experience the Newly Remodeled Edmondson Faculty Center." Edmondson Faculty Center. Info and RSVP: tinyurl.com/nvc2lej

Thursday, Oct. 23

1 – 2:30 p.m. Massry Prize Lecture. Steven A. Rosenberg, National Cancer Institute; Zelig Eshhar, Weizmann Institute of Science; James P. Allison, MD Anderson Cancer Center. Mayer Auditorium. Info and RSVP: <http://esvp.usc.edu>, code: Massry2014.

Friday, Oct. 24

8 a.m. Dept. of Pathology Grand Rounds. "Establishing a Cervical Cancer Prevention Program in Low & Middle Income Countries: The Salvadoran Experience," Juan C. Felix, USC. Hoffman Bldg, Room 202. Info: Leslie Wauke, (323) 442-1180, lwauke@med.usc.edu

8:30 a.m. USC Center for Lung Biology Research Seminar. "Syndecan-1: A Central Regulator of Lung Repair and Inflammation," Peter Chen, Cedars-Sinai Medical Center. IRD 732/34. Info: Elva Rubio, (323) 226-7923, elvarubi@usc.edu

Noon. Center for Applied Molecular Medicine Seminar. "Consilience and Oncology: Convergence of Physical Sciences and Engineering in Cancer Research," Larry A. Nagahara, NIH. Harkness Auditorium. Info: Rosa Rangel, (323) 442-3849, rmrangel@usc.edu

Monday, Oct. 27

Noon. KSOM Research Seminar. "Viperin, Human Cytomegalovirus, Mitochondria, Metabolism And Membranes," Peter Cresswell, Yale University School of Medicine. Aresty Auditorium. Info: Mary Jane Chua, (323) 442-7732, maryjane.chua@med.usc.edu

Tuesday, Oct. 28

Noon. Dept. of Medical Education Lecture. "Faculty Development: Clinical Teaching on the Fly," Tatum Korin and Stephanie Zia, USC. Norris Medical Library, East Conference Room. Info and RSVP: Cris Argosino, (323) 442-2746, meded@med.usc.edu

5:30 p.m. Ophthalmology Grand Rounds. HC4 Conference Room, Third Floor. Info: Ty Christopher, (213) 409-5233, tyaisaac@usc.edu

Notice: Calendar submissions must be received at least 10 days before an issue's publication date to be considered. Please note that timely submission does not guarantee an item will be printed. Entries must include day, date, time, title of talk, first and last name of speaker, affiliation of speaker, location and a phone number or email address for information.

Submit calendar items at tinyurl.com/calendar-hsc.



Photo/Shiggy Ichinomiya - GoShiggyGo.Com

Keck School faculty triathlete races to help raise money for CHLA — Sarah Ingersoll, clinical assistant professor of neurology at the Keck School, competed in the 2014 Nautica Malibu Triathlon on Sept. 14. Ingersoll, a 72-year-old Pasadena resident, finished first in her age group, but noted that she was also the only one in it. The triathlon benefited Children's Hospital Los Angeles and raised more than \$1.35 million. Above, Ingersoll emerges from the surf upon completing the swim portion of the 2014 Nautica Malibu Triathlon.

CONFERENCE: Wearable tech poised to improve health

Continued from page 1
patients from such technology could be extraordinary. As the industry matures, however, those involved are beginning to realize that there are limitations and potential pitfalls from overloading people with too much information.

Speaker Todd Richmond, PhD, director of advanced prototypes at the USC Institute of Creative Technologies, warned that there is a breaking point for humans, in terms of information overload and we don't know where it is. "We know we can create great technology, but we have to make it with the users in mind."

Likewise, doctors don't need more information, but actionable information. One of the companies, AliveCor, discussed how it is improving on the information collected by its device, an electrocardiogram attached to a cell

phone case. Using an app to run an algorithm, it can detect patterns consistent

with atrial fibrillation, alert the user and send the ECG to a cardiologist.

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