

BIO SHOW DAILY

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TODAY'S DEBATE:

Health Care Reform

Senator Tom Daschle,
Senator William H. Frist, M.D.,
Governor Howard Dean,
& Karl Rove

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Today's Research is Tomorrow's Care

By Kenneth H. Buetow, Ph.D.



Modern technology has made the world flat and the planet small, and has overcome traditional limitations of time and space. In consumer hands, technology has revolutionized our interactions with each other, and in how we share the large (and ever-smaller) events of our lives.

Now, technology is on the brink of accelerating research discoveries and making health care far “smarter” – and more individualized to our unique characteristics – by using the tools and technologies that are familiar in our daily lives to unravel the mystery of disease and assist our doctors.

Most people are surprised that the standards-based connectivity developed for our modern world – such as online banking – is NOT already in use in the medical world. Most physicians' offices still use paper records, and the electronic records that do exist often aren't easily accessible and don't connect with other necessary institutional systems, hampering discovery and development of new therapies.

It's clear that we need to bring the level of Internet connectivity seen by consumers in their office work, financial transactions and social lives to consumers of health care services. The need is particularly urgent in cancer, which is fast becoming the foremost disease killer of our time.

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To that end, key parts of the cancer community are moving towards an interconnected information resource called the Cancer Knowledge Cloud. The Cancer Knowledge Cloud is simply a means of using the Internet to connect massive amounts of individual and organizational biomedical data, software applications with which to handle and analyze all those data, and the cheap computational horsepower to do the work.

The technical means to make this Cloud function is already available through caBIG® (cancer Biomedical Informatics Grid), the online information network of the National Cancer Institute (NCI) for the cancer community, which provides the standards, tools and privacy protections that are needed for cloud computing. caBIG® has a connectivity system (caGrid) that now connects the key players in cancer research, including research hospitals, Cancer Centers and other NCI-supported institutions.

Because the Cancer Knowledge Cloud isn't the way the biomedical community has traditionally worked, NCI is also pioneering a new model of collaboration across all the sectors in life sciences and health care, called the BIG Health Consortium. If such a digitally con-

ected ecosystem can be achieved, we can envision a 21st century health enterprise that connects individuals, organizations and their information in a seamless and continuous cycle of discovery, faster diagnostic and pharmaceutical product development and improved clinical care.

Here's one hypothetical use of the Cloud: Information is made accessible through the cloud from those who have biological and clinical data from cancer patients, as well as vast quantities of generic and cancer-specific genetic information. As cloud-accessible content becomes richer, information can be joined and then applied to research and clinical care questions. Authorized researchers can analyze the outcomes from patients with comparable conditions who've been treated with different therapies (known as comparative effectiveness research) and then cross-compare them with the genomic profiles to see if some drugs are working better in certain genetic sub-groups (i.e., molecularly informed comparative effectiveness.) In time, analyses like these could become a real-time system for making today's research into tomorrow's care – all enabled by the Cancer Knowledge Cloud. Booth #3805

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Amgen Scholars Expands to Europe

Hands-on Research Program Expands to Top European Universities



During the past two years, hundreds of students from across the United States participated in the Amgen Scholars Program under renowned faculty members at the country's leading universities. Now, the same opportunity is being extended to undergraduates throughout Europe. The program, which is already implemented at 10 premier universities in the United States, will be hosted in Europe by the University of Cambridge, UK; Karolinska Institute, Stockholm, Sweden; and Ludwig-Maximilians-University, Munich, Germany.

Amgen Scholars Europe – a \$2.5 million investment by the Amgen Foundation – is a two-year pilot undergraduate research program. The program will provide more than 100 selected undergraduate students from across Europe the opportunity to engage in a hands-on summer research experience under top academic scientists. Modeled on the existing and very successful U.S. program – which attracted more than 2,300 applicants from nearly 500 U.S. colleges and universities in 2008 – the European expansion brings the Amgen Foundation's global commitment to Amgen Scholars to \$27.5 million.

Internationally renowned University of Cambridge will serve as the European Coordinating Center and will play a leading role in providing coordination, technical oversight and student outreach for the program, in addition to hosting the annual Amgen Scholars European Symposium.

“The Amgen Scholars Program will provide undergraduate students from across Europe with a fantastic opportunity to experience the scientific discovery process, as well as to network with top scientists and industry leaders,” said Professor Tony Minson, Pro-Vice Chancellor of the University of Cambridge and the Director of the Amgen Scholars European Coordinating Center.

Each host institution will select participants from colleges and universities throughout Europe. In addition to their research opportunity, all participating students will take part in an annual three-day symposium at the University of Cambridge, where they will have the opportunity to hear firsthand from leading scientists working in industry and academia, and to network with other Amgen Scholars.

“With the expansion of Amgen Scholars in Europe, undergraduates from many nations will have the opportunity to immerse themselves in the real world of research and experience firsthand what it takes to contribute to the advancement of knowledge,” said Jean Lim, President of the Amgen Foundation. “Under the guidance of distinguished faculty mentors, we hope the Scholars will be inspired to discover their potential as future scientists.”

For more information about Amgen Scholars, visit: www.amgenscholars.com.