

Creating the impossible: Key innovations, solutions in med ed

OCT 5, 2015

Staff News Writer

Nothing is impossible. That’s the powerful message that surged through discussions last week at a three-day conference covering new ideas, technologies and breakthrough innovations poised to transform future physician training. Didn’t have a chance to attend? Not to worry—here’s a roundup of the best highlights and themes from the AMA’s **CHANGEMEDED** conference.

How medical educators can accomplish the impossible



Before presenters could unpack their PowerPoint slides and laptops, Mick Ebeling (pictured right), founder of non-profit Not Impossible Labs, kicked off the conference with an inspirational presentation on how he used tenacity, curiosity and lessons from failing to create innovative health technologies. The EyeWriter, a low-cost device utilizing an inexpensive camera and open source software to interpret the blinking of those who are completely paralyzed and allow them to write and

draw, was one of his first patented successes.

Ebeling also shared how he met Tom Catena, MD, a physician who treats patients in the war-torn Nuba Mountains of South Sudan. Dr. Catena makes less than \$500 a year at the 435-bed Mountain of Mercy Hospital, caring for patients who suffer ailments resulting from the frequent battles between local rebels and a Sudanese government that drops bombs on its civilian communities.

Ebeling shared how Dr. Catena introduced him to Daniel, a 14-year-old boy who lost his arms when a bomb detonated near his home.

After reading Daniel's story, Ebeling said he instantly felt compelled to do something—anything to help the boy who survived his amputation surgery to say, “Without hands, I can't do anything. I can't even fight. I'm going to make such hard work for my family in the future. If I could have died, I would have.”

Several months and test trials later, Ebeling and a team of collaborators designed a prosthetic arm for Daniel using 3-D printing. They also launched the first 3-D printing lab in the Nuba Mountain region so community residents can print their own affordable prosthetic limbs. Prosthetic limbs available in more developed countries are prohibitively expensive and inaccessible in the area. When Ebeling left Sudan, he said residents had printed two new prosthetic arms before his plane landed in Los Angeles the following day.

At some point in history, everything—from woven clothes to cellphones—was impossible before it was possible, Ebeling told educators at the conference.

“Anything that's impossible now is on the trajectory of being possible,” he said, noting that “the second someone [attempts the impossible] it paves the way for everybody else to do it. And in your profession, you see that time and time again.”

He urged conference attendees to grant themselves permission to break down conformities, rules and the need for perfection to approach challenges in medical education with a “beautiful limitless naivete.” By doing this, Ebeling said, educators free themselves to abandon limited thinking and outdated education models.

“You all have to take that existing model and scrap it and make it obsolete, so you can come up with a new way to teach our future doctors—and that's really exciting,” Ebeling said.

Top conference takeaways

In the spirit of Ebeling's suggestions, creating and pushing forward new models for teaching physicians is precisely what educators and students did during the conference. During the 55

sessions, 360 attendees representing more than 110 institutions planned the future of medical education through a series of robust conversations on various topics in physician training.

Some of the key themes they discussed included:

Teaching patient-centered care. Several sessions highlighted the importance of keeping patients at the center of care in future physician training and addressing the predicted physician shortage by bolstering the number of students entering primary care. Presenters from Kaiser Permanente and the University of California–Davis School of Medicine discussed their joint six-year program that will usher diverse students through medical training and into a successful career in primary care.

“Over half the students who come to medical school come from incomes that are the highest in the country, and if you look at the lowest level of income, only 5 percent of students come from that community,” said Tonya Fancher, MD, *program director and associate professor in the department of internal medicine at the UC Davis School of Medicine*. “We want to make medical school accessible to everyone, so we have to take a hard look at ourselves and the students we’re accepting and supporting.”

Promoting diversity

Diversity ranked as one of the most important topics educators wished to discuss during a special “Unconference” debriefing at the end of the three-day event.

William McDade, MD, immediate-past chair of the AMA Council on Medical Education and deputy provost for research and minority issues at the University of Chicago, dived into evidence-based research as well as the myths around diversity in medical education. He discussed affirmative action policies, the reasons educators must seek non-traditional solutions to promote diversity in undergraduate and graduate medical education, and the crucial link between diversifying the physician workforce and eradicating health disparities. One physician in attendance said he “nearly brought [her] to tears.”

Explore more diversity recommendations and read Dr. McDade’s thoughts on the 5 most common diversity myths in medicine.

Digital data, informatics and e-learning

From using online simulation to e-portfolios to track student assessments, technology emerged as an important factor in reshaping student learning. Popular sessions included a presentation from Suraiya

Rahman, MD, an assistant professor at the University of Southern California Keck School of Medicine, on the gamification of student training. Will video games spawn a new wave of student learning? Dr. Rahman explored this question and shared examples of innovative gaming tools.

During a special showcase, Marc Triola, MD, director of the Institute for Innovations in Medical Education at New York University and associate dean of educational informatics at the university, also shared how the school successfully teaches students to understand and use big data across a health system consisting of more than 2.5 million patient records. The innovative Healthcare by the Numbers course is part of the school's work within the AMA Accelerating Change in Medical Education initiative.

Health systems science

Schools such as Stanford University School of Medicine and Penn State College of Medicine shared how educators immerse students at their schools in health systems science as early as their first year of training. Faculty from the schools noted the importance of creating “value-based” opportunities for students to focus on patient-centered care, teaching students how to navigate complex health systems and solidifying learning objectives for what medical educators often broadly label as the “third science” of medical education.

Jed D. Gonzalo, MD, of Penn State College of Medicine said that determining the name for the third science had been a real struggle. To help his colleagues agree on a term, Dr. Gonzalo took a small quantitative survey of educators at the conference who determined that “health systems science” is the best term to use when describing this new “third science” that’s becoming a bedrock of student training.

Learn more about Dr. Gonzalo and how faculty at Penn State give students an early taste of patient care.

Moving from time-based to competency-based training

Multiple sessions discussed ways to immerse students in experiential learning and build competencies early in training. Embedded in this conversation is a complicated question educators continually discussed during the conference: Could medical schools shorten the length of physician training and courses on basic sciences?

Partnering with students to build creative solutions

Many students presented novel approaches for student-led curriculums and ideas on how educators can better collaborate with students to share new program solutions. For instance, Abhimanyu N. Amarnani, an MD-PHD student at SUNY Downstate Medical Center in Brooklyn, New York, gave an engaging presentation on how educators can help students use the AMA's Medical Student Section networks to better communicate with their peers and share ideas on new curriculums to implement. This was the progressive student-led thinking that allowed Amarnani to help his school offer a new course based on the big data curriculum New York University launched.

Interested in additional med ed innovations?

- Read about the 11 medical schools in the AMA's Accelerating Change in Medical Education Consortium.
- Discover the current projects these 11 founding members have underway.
- Find out why the consortium is expanding—and how your ideas can help.