

## FEATURE

## MEDICAL INNOVATION

## Which idea is likely to make the biggest impact on healthcare by 2020?

In the *BMJ*'s debate to find the idea that will most influence healthcare in the next few years, innovations aimed at low income countries were pitted against others that could transform health in richer nations. **Sabreena Malik** reports

Sabreena Malik *clinical community editor*

BMJ, London WC1H 9JR, UK

New inventions and discoveries continuously change the face of healthcare. Smallpox vaccination, penicillin, in vitro fertilisation, magnetic resonance imaging—the list is long. But what's next?

At the 2011 Innovation Expo conference in London in March, the *BMJ* invited four innovation champions and an expert guest panel—NHS medical director, Bruce Keogh; founder of Medical Futures, Andy Goldberg; and science journalist Vivienne Parry—to decide on the idea most likely to make the biggest impact on healthcare by 2020.

The champions, selected by *BMJ* clinical adviser, Ashley McKimm, battled it out in front of an eager audience of conference delegates.

### Do it yourself spectacles

Josh Silver, inventor of the world's first self adjustable spectacles, believes bringing corrective eyewear to those who need it for about £1 (€1.1; \$1.6)—and without the need for eyecare professionals—will have huge influences on education, quality of life, and poverty worldwide.

Professor Silver is director of the Centre for Vision in the Developing World (<http://vdwoxford.org>). He estimates that at least one billion people in low income countries currently need vision correction but don't have it.

He showed how a wearer simply puts on the glasses and corrects his or her own refractive error by altering the density of the fluid filled lenses with adjusters on the spectacle arms. The adjusters are then removed. Referring to papers supporting use of his self adjustable glasses in adults and teenagers,<sup>1 2</sup> Professor Silver said: "There is no reason why this technology should not be applied to bring vision correction to about a billion people by 2020."

Learning that large scale production has been available since 2004, Dr Goldberg asked why the number of glasses in use was not higher than the current figure of 40 000. In his reply, Professor Silver admitted that, after licensing the technology to a private equity firm in the United States for a large sum of money, he had retired to the south of France but reassured the audience that bringing clear vision to those who need it is still important to him.

### Build your own toilets

Robert Chambers from the Institute for Development Studies is a devoted champion of community led total sanitation (CLTS) and believes it will transform the health and wellbeing of hundreds of millions of people by 2020 ([www.communityledtotalsanitation.org](http://www.communityledtotalsanitation.org)).

[smalik@bmj.com](mailto:smalik@bmj.com)

Video on [bmj.com](http://bmj.com) (see also <http://bmj.com/video>)



Watch the first in a series of films explaining the innovative projects in more detail.

With enthusiastic gesturing and frequent use of the word “shit,” he explained how CTLS facilitators identify rural communities where defecation in open areas—be it on the road, out of train windows, or near food – is commonplace, then work to stop such behaviour and encourage community latrine building. “There is no hardware subsidy, no engineering design, no teaching; there is only facilitating,” he said.

Women in particular have gained enormously from the programme, especially in parts of South Asia where, without latrines, they defecate only before dawn or after dark, Professor Chambers pointed out. This has appalling implications for women’s safety and health, including knock on effects of malnutrition, he added.

In response to Ms Parry’s probing questions about implementation of the scheme, Professor Chambers invited the panel to experience facilitating CTLS programmes for themselves.

## Biobank of health data

Next, chief executive of UK Biobank ([www.ukbiobank.ac.uk](http://www.ukbiobank.ac.uk)), Rory Collins, described how work at his organisation will affect healthcare in coming years. UK Biobank aims to conduct detailed studies of the health records and saliva, blood, and urine samples of half a million Britons to find cures for major causes of premature death and disability (including vascular disease, cancer, Alzheimer’s disease, and arthritis). “Findings will have worldwide significance,” Professor Collins said.

Questioning this, and after disclosing that he is on the council of the British Heart Foundation, which funds UK Biobank’s work, Sir Bruce asked Professor Collins: “Will your findings apply to genetically diverse populations such as the Chinese, Japanese, and the people in South East Asia, or Africa?”

Professor Collins responded that: “We need studies like UK Biobank in a number of different populations because, in many respects, Britons are not normal.” For example, they have abnormally high cholesterol levels, he added.

## Twitter, Facebook, etc

After discovering that virtually every audience member had an iPhone, head of the City University London ehealth research centre, Patty Kostkova, explained why she believes social networking and health’s impact on healthcare will be huge by 2020. “In the 21st century, it’s not just the internet we have daily access to, it’s the mobile phone. A lot of people in rural areas of poor countries like Uganda have more access to mobile phones than to wired internet.”

Dr Kostkova used the London School of Hygiene and Tropical Medicine’s Global Handwashing Day Facebook page and the Twitter hash tag #swineflu as examples of social networks influencing health.<sup>3 4</sup> She described how, while studying swine flu tweets, she learnt that Twitter discussions may predict pandemics up to a week before official surveillance.

## The vote

When it came to voting, the winner was clear from the coloured cards waving in the audience. The do it yourself glasses had done it. Professor Silver was delighted and confirmed he was now most certainly coming out of retirement.

Competing interests: The author has completed the unified competing interest form at [www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) (available on request from her) and declares no support from any organisation for the submitted work; no financial relationships with any organisation that might have an interest in the submitted work in the previous three years; and no other relationships or activities that could appear to have influenced the submitted work.

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