

The hackathon challenges focus on healthcare.

Focus Area: Healthcare



The hackathon challenges focus on healthcare are:

Challenge 1: Confronting Depression

Depression has been recognized as a major health challenge of the 21st century contributing significantly to global disease burden and disability worldwide. Full accounting for depression's disease burden is often understated, as its role as a causative or exacerbating factor in other chronic conditions represent an even greater impact on global health that is difficult to quantify. Despite this revelation, depression commonly goes undiagnosed leaving societies unknowingly burdened with the associated population costs which can be direct, such as increased healthcare utilization, or indirect, as in reduced occupational functioning and performance. Suicide is an unfortunately common cause of mortality in both developed and developing nations, particularly among young and otherwise healthy individuals. Depression thus represents a substantial target for any nation looking to reduce overall mortality and improve the quality of life of its constituents.

Addressing depression and other mental health disorders will include raising awareness, removing stigma, improving access to diagnostic tools, and support tools for those already suffering. With increasing access to information, mobile devices, and the emerging power of social media, the world is more amenable to technology driven solutions than ever before and represents the core focus of our Confronting Depression Challenge.

For more info contact us at: hello@hackforbigchoices.org or visit: www.hackforbigchoices.org

The hackathon challenges focus on healthcare.

Challenge 2: Health Data In Action

Looking to the future, innovation in healthcare will come from a number of different directions spanning medical devices to genetic characterization; improved health information exchange to stem cell advancements. The one theme consistent in all of these, is the presence of new data, which will be of increasing volume, variety, and velocity unlike any we have ever encountered. The ability to extract insight and opportunity from this data will be key to providing the highest quality care for patients the world over and that is why we've dedicated one track to developing a data-driven solution to any current health problem.

When Steve Jobs was at Apple, innovation didn't necessarily come from invention. The iPhone wasn't the first smartphone, the iPad, not the first tablet. What Apple did exceptionally well was open up the highly technical abilities of these devices and made them simple to understand and easily accessible to the broader public. What insightful design and an innovative marketplace has done for millions of consumers, so can well executed data evaluation do for the medical community. What we're asking is for our hackers to make sense of the technical, make it compelling, make it beautiful, make an impact. That is our Health Data in Action Challenge.

Challenge 3: Geo-Localized Health Solutions

As we challenge the global community to take on "Big Choices" it is important to remind young entrepreneurs that one of their greatest assets is an inherent understanding of the local challenges which exist in their communities. An understanding of infrastructure, stakeholders, and available resources often allow local entrepreneurs to formulate better solutions than larger entities that take a "large net" approach to problem solving, or do not invest at all fearing small profit margins.

The following are inspired by some of the large healthcare challenges affecting the various host cities. Participants will select a micro-challenge topic and use their understanding of a unique community to provide an executable solution. The Micro-Challenges are:

3.a Sanitation

Access to adequate sanitation and safe drinking water is a key contributing factor towards the alleviation of poverty and hunger, reduction in child mortality, improvement

For more info contact us at: hello@hackforbigchoices.org or visit: www.hackforbigchoices.org

The hackathon challenges focus on healthcare.

of maternal health, combating infectious diseases, along with ensuring environmental sustainability. As cheaper and better technologies emerge, we are able to bring more effective sanitation solutions to regions previously lacking. Much has been accomplished in the past decade:

- 2.3 billion people gained access to improved drinking-water between 1990–2012
- The number of children dying from diarrhoeal diseases, which are strongly associated with poor water, inadequate sanitation and hygiene, have steadily fallen over the two last decades from approximately 1.5million deaths in 1990 to just above 600,000 in 2012.

Despite positive progress, much still needs to be done:

- 2.5 billion people lack access to improved sanitation.
- 1 billion people practice open defecation, nine out of ten in rural areas.
- 748 million people lack access to improved drinking-water and it is estimated that 1.8 billion people use a source of drinking-water that is faecally contaminated.
- Hundreds of millions of people have no access to soap and water to wash their hands, preventing a basic act that would empower them to block the spread of disease.
- Data accumulation and resource allocation regarding sanitation needs in rural or developing nations (Sao Paolo, Brazil: Bangalore, India)

We believe that with a concentrated global effort, we can solve these issues at the core of our Sanitation Micro-Challenge within the next decade.

3.b- Pregnancy Complications

529,000. This is the estimated number of women who die from childbirth complications each year. In Sub-Saharan Africa, a woman has a 1 in 16 chance of surviving childbirth. This is in stark contrast to a woman in a developed country who has a survival rate of 1 in 4,000. The differences between rich and poor countries is vast and troubling. Despite

For more info contact us at: hello@hackforbigchoices.org or visit: www.hackforbigchoices.org

The hackathon challenges focus on healthcare.

this difference, we are making great improvements to antenatal care around the world. The maternal mortality ratio dropped by 45 per cent between 1990 and 2013, from 380 to 210 deaths per 100,000 live births. In Eastern Asia, Northern Africa and Southern Asia, maternal mortality has declined by around two-thirds. More women are receiving antenatal care. In developing regions, antenatal care increased from 65 per cent in 1990 to 83 per cent in 2012.

We still have a great way to go. The maternal mortality ratio in developing regions is still 14 times higher than in the developed regions. In the coming years, we will see a rapid increase in pregnancies. Sub-Saharan Africa, where fertility rates are among the highest in the world, will account for the majority of the increase. In order to ensure the safety of all mothers giving birth, along with the health of newborn babies, we must increase our global efforts to provide proper antenatal care. Let us rise up to our Pregnancy Micro-Challenge and bring 529,000 down to 0.

3.c- Metabolic Syndrome

- Environmental or community change regarding heart disease and metabolic syndrome (Singapore)

3.d- Improved Follow-up

- Methods for improved follow-up, education, or prevention of admissions relating to ambulatory sensitive conditions (COPD, Asthma, Heart Failure) (San Francisco, U.S.A., London, U.K.)

Challenge 4: Sexual Health

Each year, in the United States alone, there are more than 20 million sexually transmitted infections ranging from HPV and Chlamydia to HIV. Looking at the problem globally, the picture becomes more complex, as financial, cultural, and technological impediments leave many populations susceptible to what are largely preventable diseases.

We invite teams to make the “Big Choice” to improve sexual education access for a population with respect to its financial, cultural and technological capacity. This may include but is not limited to the following examples:

For more info contact us at: hello@hackforbigchoices.org or visit: www.hackforbigchoices.org



The hackathon challenges focus on healthcare.

- Phone or Text Resource: Provide education about sexual & reproductive health to adolescent individuals focusing on populations with low smartphone or internet penetration and low access to sexual health education.
- Smartphone Resource: Innovative smartphone applications to help patients understand their sexual health status and evaluate the risks they face with their sexual activity choices.
- Interactive/Social Resource: Apps or hacks to improve interactive and social activities around sexual health, such as discretely alerting previous partners or remote communication between physicians or counselors.