

**It's time to
rethink what
the word
healthcare
means.**



Health Innovation

Risk Factors

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Why now?

If we were to condense the relatively short 200,000-year history of homo sapiens into a single year, then most of the medical progress would have occurred in the past four hours. However, over the final hour, innovation is happening faster than ever. We are witnessing an unprecedented level of convergence among various fields of science and technology. Why is this making such a difference to healthcare? Because human biology is essentially the problem of large numbers. Each one of us comprises around three billion DNA base pairs, is home to thousands of proteins, and hosts trillions of bacteria – all of which play a crucial role in our health. Until now, we simply have not had the means to collect and process these complex and sizeable data sets that pertain to our health. That's why Baillie Gifford's Health Innovation team believes that society is on the cusp of a revolution in terms of our understanding of human biology, and our approach to health and well-being. It is now time to redefine healthcare, to shift drug development away from trial and error towards being data-driven, from one-size-fits-all medicine to personalised therapies, and ultimately from treatment to prevention.

Healthier Life Span

One of the most debilitating diseases that affects old age is Alzheimer's. There is currently no treatment that can slow down, halt, or reverse the course of the disease. However, the advent of genomics is helping us unravel its biology and revealing new potential causes. Alector and Denali are among the pioneers in bringing innovative therapies to Alzheimer's patients to extend our healthy life span.



Engineering



Aortic stenosis is a life-threatening disease where the aortic valve becomes narrow and reduces blood flow from the heart to the rest of the body. Ten years ago, a treatment would require cutting open the chest bone for an open-heart surgery. Using advanced engineering, Edwards Lifesciences has transformed the field with a minimally invasive procedure called TAVR that does not require stopping the heart and patients can even go home the same day.

Access

Access to healthcare is a big problem in emerging markets such as China where hospitals are overloaded. Ping An Good Doctor is an online app that allows users to schedule consultations and get easy access to doctors. Users can enquire about their health conditions via chat or phone call, seek second opinions from experts, and receive advice on a customised healthcare plan.



Low Cost



Costs of genome sequencing have fallen from over \$2 billion in 2003 to around \$1,000 today. This tremendous decline in costs has facilitated the genomic revolution in life sciences. Illumina is working hard to lower costs even further to just \$100 per genome.

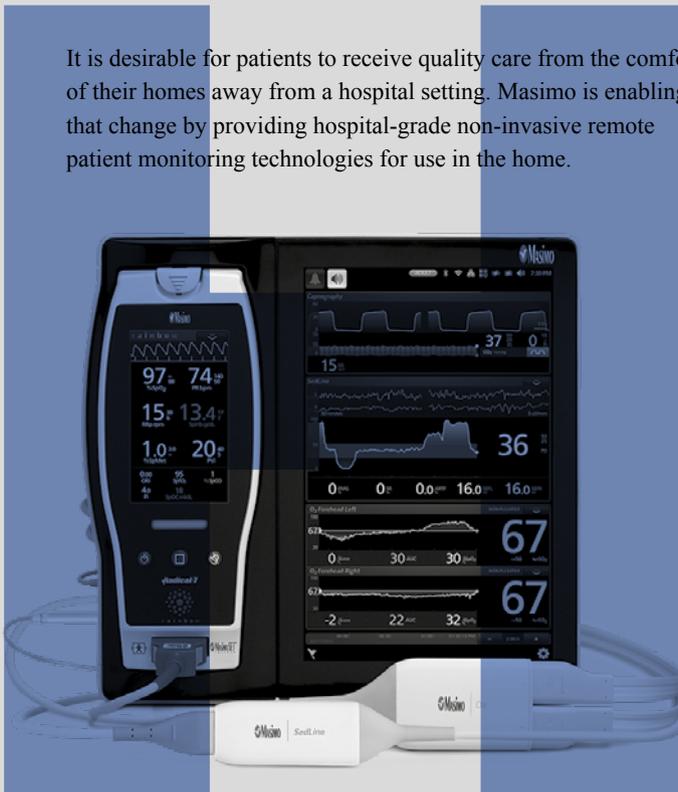
Telemedicine

Teladoc is transforming primary care in the US by using remote communication technologies that allow patients to contact doctors directly via video calls. The result is a timely, convenient, and less expensive alternative to a doctor visit.

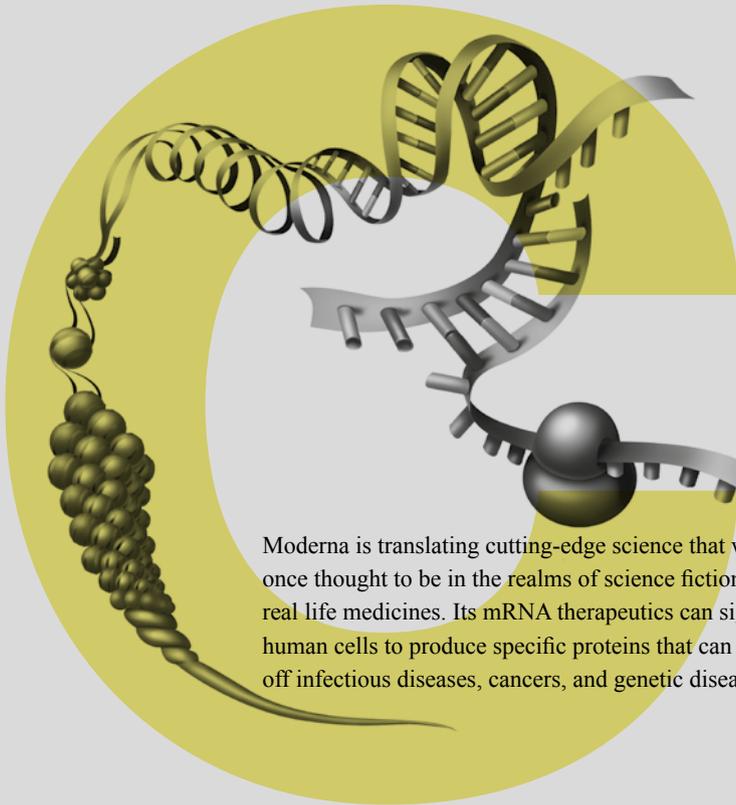


Home Care

It is desirable for patients to receive quality care from the comfort of their homes away from a hospital setting. Masimo is enabling that change by providing hospital-grade non-invasive remote patient monitoring technologies for use in the home.



Convergence



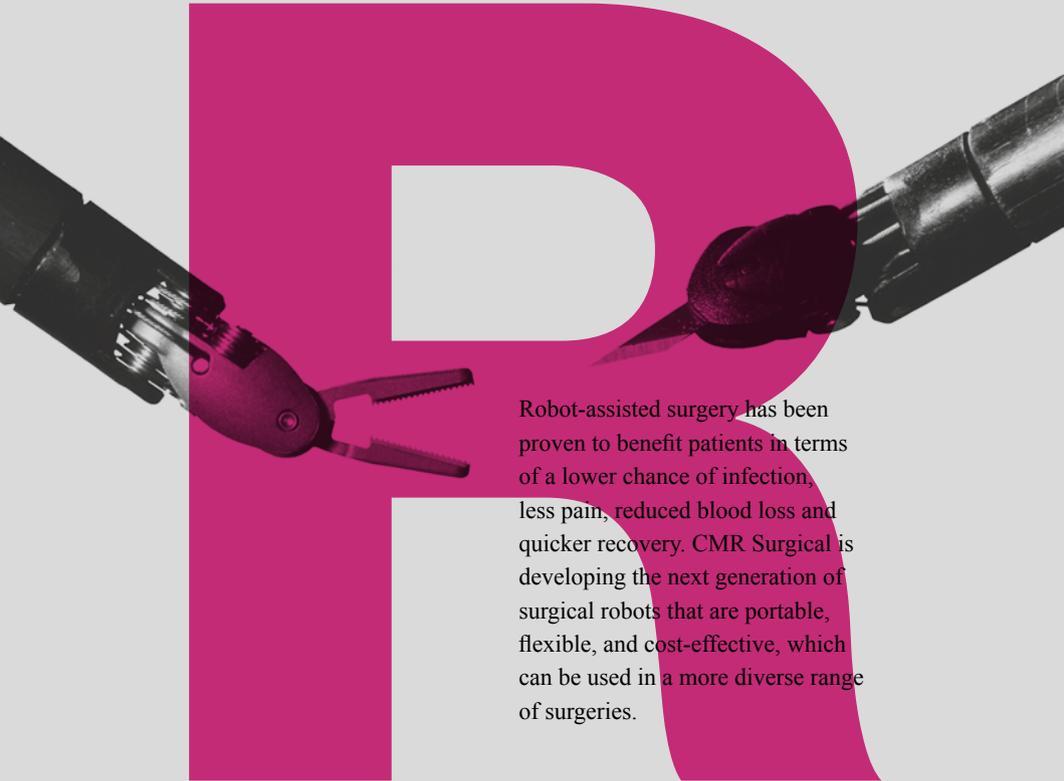
Moderna is translating cutting-edge science that was once thought to be in the realms of science fiction into real life medicines. Its mRNA therapeutics can signal human cells to produce specific proteins that can fight off infectious diseases, cancers, and genetic diseases.

Artificial Intelligence

Butterfly Networks is reinventing the ultrasound machine from a bulky, expensive instrument only found in hospitals to a handheld device that can be plugged into a smartphone. Its AI algorithms can guide users and interpret the images, so that it can be used by any doctor and, eventually, consumer.

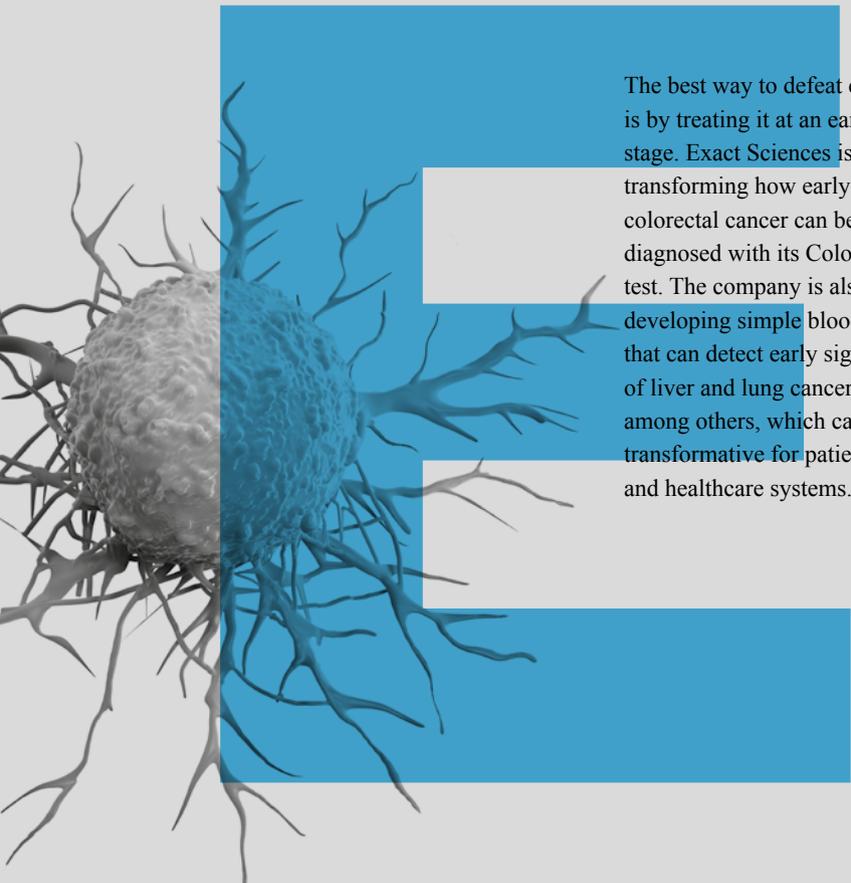


Robotic Surgeon



Robot-assisted surgery has been proven to benefit patients in terms of a lower chance of infection, less pain, reduced blood loss and quicker recovery. CMR Surgical is developing the next generation of surgical robots that are portable, flexible, and cost-effective, which can be used in a more diverse range of surgeries.

Early Detection



The best way to defeat cancer is by treating it at an early stage. Exact Sciences is already transforming how early-stage colorectal cancer can be diagnosed with its Cologuard test. The company is also developing simple blood tests that can detect early signs of liver and lung cancers, among others, which can be transformative for patients and healthcare systems.

Why us?

Baillie Gifford's Health Innovation strategy is a concentrated global equity portfolio investing in companies driving transformational changes in the future of healthcare. We believe such companies are best positioned to deliver attractive investment returns over the long term.

We also recognise that the most creative companies often lie at the intersection of different disciplines, being driven by the great convergence of technologies. Therefore, it is critical that we do not limit our scope through the traditional definition of the healthcare sector. We will also engage with companies while they remain unlisted. Although we can't invest in unlisted companies for this strategy, we find it helpful to get to know innovative companies at an early stage in their development.

Our ambition extends beyond generating attractive returns for clients. We believe that one of our most important roles is to engage with companies to encourage the pursuit of a long-term vision. We also try to encourage visionary companies to remain independent and to protect them from acquisitions that rarely lead to the true potential of a promising idea being realised. Finally, we believe that we can help the realisation of the scientific potential of companies by acting within and contributing to an ecosystem of scientists, entrepreneurs, thought leaders, clinicians, researchers, public institutions and private companies.

A strategy which is designed to improve human health, lengthen life expectancy and reduce healthcare costs fits naturally for investors who look to achieve goals beyond simply investment returns.





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