



## **Health for All, Care for You**

The Promise of Personalised Healthcare in Europe

**A research report,  
in partnership with**



**Karolinska  
Institutet**

# Health for All, Care for You

## The Promise of Personalised Healthcare in Europe

### A major research project and conference programme

What is personalised healthcare? A methodology – enabled by modern genetic, biopharma, diagnostic and ICT technologies – that attempts to tailor the treatment to the bio-characteristics of individual sub-groups of patients. Rather than one-pill-fits-all, doctors use their growing knowledge of the human genome, and other biomarkers, to optimise treatment strategies. The desired aim: greater effectiveness, fewer errors and side effects, longer and healthier lives. The potential challenges: technology, financing, cost and administration. It is already in use in a few medical areas – including oncology, cardiology and rare diseases. But introduction and uptake is still relatively slow, not least in Europe.

This report summarises the results of an opinion survey on the topic by Karolinska Institutet and Science|Business, and provides an overview of the challenges and opportunities ahead.

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# INTRODUCTION

## Health for All, Care for You

Personalised healthcare stands at the confluence of the most powerful technologies in the history of the life sciences. These include genomics and the prospect this embodies of carrying out – and applying – personal genome sequencing to choosing a suitable treatment. They encompass imaging, microfluidics and other diagnostic tools that will enable point-of-care identification of genes and other biomarkers. And they include computer systems and associated communications networks and embedded devices that will make it possible to organise, interpret and interrogate this information and apply it to tailoring medical treatment.

Downstream from personalised healthcare lie the floodplains of old age and chronic disease, and their associated individual, social and financial costs. The promise is that personalised medicine can help manage these costs by improving treatment, enabling people to monitor their own health, increasing compliance, and providing inputs and an intellectual framework for the development of drugs for hitherto untreatable diseases such as Alzheimer's. No one is suggesting that treatment is not already personal, in that healthcare professionals make an assessment of patients before deciding on how to treat each of them. But the tools of personalised medicine will provide far deeper insights, erasing the need for a trial-and-error approach to treatment. Early examples of this exist in cancer treatment, where a number of products now come with companion diagnostics.

We are also getting a preliminary view of how the biomarkers that are at the heart of personalised medicine could inform drug discovery and development, by making it easier in the discovery phase to spot drugs that have toxic effects on the liver, heart or kidneys, or to select a clinical trial population where all the subjects express the biomolecular target at which a particular drug is aimed. It follows that personalised medicine also offers the hope of avoiding the product recalls, warnings on labelling and lawsuits that ensue after serious adverse reactions to drugs.

So this is a very powerful technology, indeed. Then why isn't everybody using it right now?

That is the question that Science|Business has been studying for the past year, in association with researchers at Stockholm's famed medical university, Karolinska Institutet, and a consortium of industrial, non-profit and professional partners. The story of personalised healthcare is a classic case of the difficulties of getting a hot new technology from lab to market. Specialists in the field agree: it is powerful, important, destabilising, disruptive. But a host of problems slow its deployment into mainstream medicine.



RICHARD L. HUDSON, CEO and Editor, Science|Business

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