

EXPERT PANEL ON EFFECTIVE WAYS OF INVESTING IN HEALTH

Request for an expert opinion: Disruptive Innovation in health care. Considerations for the future.

Background – Rationale

Health care providers are faced with extremely complex challenges of rising demand, increasing cost and insufficient funding. Current models of health care are no longer fit for purpose and major root and branch changes of organisational structures, people, processes, products, services and technologies are required in order to avoid an apocalyptic scenario.

It has been recognised that technology is the major driver of increasing costs of health care.¹ Technology is part of the problem; it has to be part of the solution. However there are different types of technology that enable major change in health care. Incremental, radical and disruptive technologies are each associated with the synonymous model of innovation. It is important to determine what type of technology and which model of innovation can best enable these major changes.

Traditional models of incremental and radical innovation are inadequate or inappropriate. Incremental technology/innovation only delivers small additional changes to current models of health care, which is not sufficient. Radical technology/innovation requires high investments and levels of expertise and is likely to further establish hospitals as the expensive remote hub of health care provision.

“Disruptive innovations enable a larger population of less-skilled, less-wealthy people to do things in a more convenient, lower-cost setting, which historically could only be done by specialists in less convenient settings.”² Based on this quote the disruptive innovation model could become very important for European health systems as it promises converting the current expensive services and products to higher quality, simpler, and/or more affordable ones through novel organisational models, new models of service provision and technologies –with the aim of improving access, quality and/or resilience of the systems.

However there are significant knowledge gaps. Disruptive innovation is an academic theory which explains certain phenomena in industry such as the demise of the mainframe computer and chemical photography sectors in favour of consumer goods such as personal computers, digital cameras and smart phones. Literature postulates the use of disruptive innovation in health care services, suggesting that ‘simplifying’ technology is at its core but needs to be

¹ Appleby, J. (2013), Spending on health and social care over the next 50 years. The King’s Fund. London

² Clayton M. Christensen, Michael B. Horn, Curtis W. Johnson (2008), Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns. New York: McGraw-Hill Professional

embedded in innovative business models and value networks³. However there are very few successful examples (i.e. drug eluting coronary stent); there is evidence that other potential disruptive innovations fail to be adopted and diffused. Little is known about the practical application; there is a lack of proven methods for developing disruptive innovations in health care and established frameworks for designing the whole system changes i.e. organisational structures, people skills and behaviours, processes, products, services and technologies. Most of the experiences have been developed and tested in the USA healthcare environment. There are promising pilots and some successful examples of innovation across Europe; however, the concept of disruptive innovation as such is less applied in EU health systems.

From the literature, from projects partly funded by European instruments, and some initiatives of the European Innovation Partnership on Active and Healthy Ageing, the following notions emerge on disruptive innovation:⁴

- Main areas for the application of disruptive innovation in health care:
 - New models of community focussed patient-centred health delivery (this implies a shift from traditional health care venues like hospitals to integrated care models with a strong primary care basis);
 - New technologies for early diagnostics, community-based therapy and care that are required to support these new models of care;
 - Person-oriented approach in the treatment of patients with multiple chronic diseases, and situations of frailty and loss of functionalities;
 - Health workforce, focusing on the education and the transfer of skills and tasks from highly trained, high cost personnel to less trained and more affordable personnel; from specialists to generalists, from generalists to nurses, from nurses to health care assistants and other physician extenders such as pharmacists, and ultimately to patients themselves.

- Some elements to be taken in account for a successful implementation:
 - New organisational models and change management to integrate the disruptive innovations in regular practice. Important dimensions in these topics are political and budgetary arrangements, protocols and care pathways, human resources, etc.;
 - The engagement of all relevant actors involved in the design, development and practical implementation of disruptive innovations (i.e. from the demand and supply side, from the public and private sectors including drug and device manufacturers, as well as patients, informal carers and payers/insurers);

³ For the origins of the concept, see C.M. Christensen. *The Innovator's Dilemma*. (1997); for its application to health care, see C.M. Christensen, J.H. Grossman, and J. Hwang. (2009). *The innovator's prescription: a disruptive solution for health care*.

⁴ See Background Documents

- Framework conditions (patent system, health guidelines, interoperability and technical standards, market incentives to drive changes) that improve the functioning of the technology markets (eHealth systems, telemonitoring);
 - New models of commissioning and financing to reduce hospitalisation and shift care provision to primary/outpatient care, day surgeries and community services;
 - Impact of the European Reference Networks model based on cooperation of experts, knowledge sharing and the use of networking tools and IT solutions as a new way to address the needs of patients suffering from rare or low prevalent and complex diseases and conditions while providing a more efficient approach in cases of scarce knowledge and need of economy of scale.⁵
- Bottlenecks in scaling up pilots to standard, sustainable service provision
 - Disruptive innovation structures need to be established and, eventually, the old ones need to be decommissioned. It should be noted that the EU health care systems, unlike the USA health care model, are mainly based on public procurement or funding;
 - Lack of clear health economic assessments; evidence of estimating the costs, resource use and impact of an innovation which would be necessary for decision makers to commit to replacing old structures with innovative measures.
 - There are stakeholders of traditional structures who will lose from any disruptive innovation and have a vested interest to block these beneficial disruptive innovations.

⁵ http://ec.europa.eu/health/ern/policy/index_en.htm

Terms of Reference

The Expert Panel on effective ways of investing in Health is requested to focus on the following points:

1. Build a simple taxonomy of disruptive innovation, by identifying key types and categories of services and technologies, illustrated by one or two examples. Technological, organisational and social innovation can all be considered in this context.
2. Provide expert view on the evidence of disruptive innovations, on methodologies used, main challenges, and the effects on cost-effectiveness, access, quality and resilience of the health systems. This should include an analysis of knowledge gaps and, if appropriate, suggestions for applied research to address these.
3. Assess the relevance of disruptive innovation for the diverse range of European health care systems.
4. Describe the drivers that trigger and the factors that are involved in successful large scale implementation of disruptive innovations; identify the main barriers and ways to overcome these bottlenecks.
5. Investigate the implications of disruptive innovation in training and education of clinicians, health care staff and other stakeholders
6. Identify strategic areas of focus with high potential of benefitting from disruptive innovations, accompanied with an explanation of their potential benefits and practical advice how to realise these innovations and embed them in regular practice.

Timing

The opinion of the Expert Panel should be finalised by June 2015

Background documents:

[Synthesis report on the public consultation on the European Innovation Partnership on Active and Healthy Ageing,](#)

[Strategic Implementation Plan of the European Innovation Partnership on Active and Healthy Ageing](#)

[Good Practices of the Reference Sites of the European Innovation Partnership on Active and Healthy Ageing,](#) in particular their “How To” Guide,

[European Scaling-up Strategy in Active and Healthy Ageing.](#)