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e-Health and Isolated Communities

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As the European Union continues to remove barriers between its Member States for the movement of goods and services, it is natural that healthcare delivery should also breach borders. e-Health today offers a boundless landscape of possibilities for healthcare to all concerned. In spite of continuing challenges, e-Health has begun to already close the gap between imagination and reality, especially in areas like delivery of healthcare to isolated communities.

Several trends underpin the challenge of providing healthcare to islands and other sparsely populated or isolated communities.

Firstly, there is an underlying gap in requirements for professional healthcare staff in much of Europe. For some decades, it has also been difficult to access qualified medical doctors in areas distant from university towns or large cities – let alone, on isolated islands.

Meanwhile, medical specialisation itself has been growing relentlessly; this, *ceteris paribus*, calls for a larger population within which more specialised physicians can justify their skills. Last but not least, physicians (like others in the healthcare profession) have sought to more efficiently combine their private and working lives; this often entails a need to be at home but 'on call'. Luckily, these trends are accompanied by new technologies to move capacities and competencies within the healthcare arena, by means of e-Health, whose real possibilities are only now starting to open up.

E-Health Across the Ages

The process of new technological possibilities being harnessed to cope with old challenges is however hardly 'new'. Already in the late 19th century, a revolutionary enabler of telemedicine (as it was then understood) was the telephone.

In 1879, Britain's 'The Lancet' reported a case study about a doctor who declined to make a house call in the wee hours of the night – after hearing a sick child coughing on the telephone, and determining that it was not 'the croup', a barking cough also known as laryngotracheobronchitis.

When talking about telemedicine and technological progress, it is therefore useful to keep relative contexts in mind. [1879, incidentally, was when Albert Einstein, the founder of the Theory of Relativity, was born. It was also the year when milk was first sold in glass bottles and when Edison demonstrated the electric bulb – in other words, quite a long while ago].

And yet, even today, in parts of Africa, Asia and Latin America, the humble telephone could bring about a revolution in access to healthcare, and would be very much a form of e-Health.

The Nordic Experience

The rollout of e-Health in isolated communities in Denmark and elsewhere in the Nordic region has been multifaceted and not necessarily synchronous or even.

As is known, a great deal of general healthcare information is available on the Internet. To counter the possibility of bias, Danish public health care providers have since 2002 operated a non-sponsored Internet portal www.sundhed.dk, to provide impartial information on a variety of

diseases and their treatment. Given the high Internet penetration in the Nordic regions, this information is of course accessed routinely by patients and families in isolated communities.

Such users (as well as those on vacation) can also use the Internet interactively, to explain their health concerns, enter into an e-mail consultation and obtain an answer from physicians within 24 hours. If required, they can then book an appointment for a face-to-face consultation.

In general, many e-Health initiatives for isolated communities naturally interface with those directed at travellers. For example, in the Health for Regions project in the Baltic Sea (partly financed by the EU), we have worked on a pilot project to make it possible for travellers to carry medical information relevant to any acute care emergencies. This is based on USB-stick-technology (see www.ehealthforregions.net).

Reality Checks and Real-Life Stories

The data on the USB would seem more futuristic had it been in the shape of smart cards. However, the key point with technology in general, and more particularly healthcare technology, is to maintain a reality check and focus on what really works, now, and does so anywhere.

A USB stick simply requires a personal computer with a USB port, and this is more widespread than smart card readers. Indeed, in real life, the USB stick made a difference for a group of retired Germans, who fell ill while on vacation in Vietnam. Their on-site Vietnamese physician was able to use the USB stick and view their personal data (allergies, medication, former treatment history) and not only consult with their doctor in Germany, but update the information to reflect what happened in Vietnam. Such situations can indeed be useful far from home, and across language barriers. However, one does not have to visit Vietnam to encounter language challenges. Right around the Baltic Sea are 10 different official languages!

Indeed, one may well advise EU countries to agree to build up their citizens' health information in their own official language – as well as a version in English with all key data from the Electronic Health Record (EHR). This could be put on a USB stick to permit real-life interoperability just about anywhere.

Moving Capacities and Competencies Across Space and Time

In the area of professional-to-professional and/or organisation-to-organisation interaction, there are several examples of moving healthcare capacities and competencies across space and time. There also is great potential to extend standard practices used in everyday health care service to new frontiers.

The Baltic Sea e-Health for Regions Project, for example, has featured a pilot project in eCardiology. Its aim is to enhance health care provision in remote areas, increase patient comfort (confidence, security, mobility) and optimise the treatment and management of patients.

As part of this pilot project, patients and nurses are equipped with mobile ECG devices. ECG recordings are sent via telephone to a multilingual server (in Germany) and then forwarded to specialists to decide appropriate treatment. As a follow-on phase, the TT Ferry Line is now equipped with ECG devices and has their staff trained to monitor acute heart episodes at sea and to render the best possible treatment.

eRadiology, too, offers several interesting cases. X-ray pictures, for example, are taken by a nurse on an island. Through secure networks, these are despatched to a specialised centre for interpretation, and then combined with in site directions from the latter to the nurse.

On a larger scale, this may become a means for an international division of labour. It would bring required capacity without requiring a medical practitioner to move physically, for example, from Lithuania to Sweden.

As part of all this, however, there are some immediate issues to overcome in order to make establishment simple and reliable.

Legal aspects should always be taken care of as a standard practice. So too should questions arising from language (with English as the option for cross-border 'dialogue' – rather like it is the case with airlines and air traffic). Last but not least is the question of payment.

As a next step in the Baltic Sea area, the e-Health for regions project has organized a Political Steering Board. It is presently considering a e-Health project which specifically targets the challenges of the growing proportion of elderly and chronically ill patients in our societies.

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