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Healthcare Information Technology in Austria and Switzerland

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E-health is seen in Austria in relatively prosaic terms, as “a set of new business models and tools to enhance the delivery of healthcare services”. Its legal foundations include Austria’s Health Reform Act 2005 (a framework for quality strategies and national standards) and the Health Telematics Act (for the secure exchange of individual health data). Also relevant is the 2004 eGovernment Act (especially in its identity verification objectives) and the convergence vision of EU programmes such as i-2010.

The key driver of e-health in Austria is a stakeholder forum known as the eHealth Initiative (EHI), which brings together participants from government, hospitals, social and private insurance companies, universities, IT vendors and healthcare professional societies.

Austria’s e-health Strategy was officially unveiled in January 2007. It has seven key facets: Interoperability–standardisation, Patient identification and archiving, Network of the health care and social system, Customer related information systems, Health care system related information systems and Telemedicine. Its goal is to synergise experiences from isolated clusters of prior experience and continuously refine the national e-health strategy.

e-Prescription and e-Card

Practical steps achieved so far include a pilot e-Prescription project which demonstrated an increase in efficiency and quality for benefit both patients and payers. Another initiative is the Austrian e-Card, which has replaced paper health vouchers progressively since 2005. Based on a smartcard, and upgradeable upon a patient’s request to a Citizen Card, the e- Card has been used by private physicians for a range of activities, from the identification of patients to payment for services. Patient data is verified, via a smartcard- reader, with a central social security database and, if necessary, updated. A VPN-based health information network GIN (Gesundheitsinformationsnetz), set up alongside roll-out of the e-Cards, provides the connectivity.

Hospital Projects

Austrian hospitals have launched their own ambitious health IT projects.

The Allgemeines Krankenhaus Linz (AKH), one of Austria’s largest general hospitals, has equipped its nurses with smartcards to identify themselves when working with the hospital information system, thus providing a higher level of control over access to patient data.

One of the most noteworthy independent, hospital initiatives, however, is NÖMED WAN, among Europe’s largest medical networking projects. This provides physicians and hospitals access to patient medical histories at 27 hospitals in Lower Austria, without the need to invest in new hospital information systems. At the moment, a half dozen hospitals are piloting an electronic medical history, with direct access to discharge letters. Patients are identified, offline, by their e-Card. A key facet of is NÖMED WAN is its decentralised approach: medical data stays with individual hospitals rather than a central storage. Its proponents believe such a model addresses some of the most profound concerns on security and privacy, and could be replicated across Austria, and beyond.

NÖMED WAN’s philosophy of decentralisation is also reflected in the GIN health information network. This has been conceptualised as a ‘closed network’ with ‘open architecture’ – with the former limiting access (for privacy and security reasons) to a defined group of users, while the latter permits the seamless extension of services to the future medical information highway (including payments to physicians by health insurance funds and access by private physicians to databases).

To sum up, the goal of Austria’s e-health vision is the implementation of a decentralised electronic health record system. Within such a framework, patient data will remain with individual hospitals, but made accessible to physicians and patients via the e-Card. So too will be other medical applications such as e-prescriptions, medication data, lab results and discharge letters.

IT Infrastructure for e-Health

To accommodate such a vision, there is a general consensus in Austria that its healthcare IT infrastructure is service-oriented, with an open system in tune with the realities and requirements of both the country's healthcare system and evolving EU-level e-health programmes.

Austria's eHealth Initiative (EHI) has made recommendations on using SOAP, XML, SAML for messaging. In addition IHE XDS has been proposed as the fundamental architectural framework for data interchange. For semantic structuring of the health records CEN prEN 13606, HL7 (V3), CDA, UN/CEFACT CoreComponents, and DICOM (for graphic data) are under consideration and evaluation.

Major developments are also under way at the University for Health Sciences, Medical Informatics and Technology (UMIT). Its priorities include cross-institutional information system architectures, the support of information exchange and management between different healthcare institutions.

One specific project at UMIT seeks to specify, develop and operate an EHR prototype. Its main focus is to demonstrate customised but simple solutions for networked online services and healthcare service offerings, ranging from the transfer of results right up to the comprehensive electronic health record, and including process-oriented tasks such as appointment and process planning.

This attention to use e-health to derive additional efficiencies in healthcare delivery is also on the radar of IIG, the Institute for Health Information Systems. In association with local industrial and hospital partners, IIG is conducting an investigation on process management in health care – with methods for comprehensive process analysis, modelling and assessment.

Switzerland

Switzerland's e-health Strategy was formally launched in 2007 for the period until 2015.The strategy, which seeks to implement electronic medical records (known as 'patient dossiers') at a national level by 2015, follows extensive wrangling between the federal government and the country's powerful Cantons, and between

governments and health professionals.

Critics allege that the e-health Strategy leaves too much space for interpretation. Its supporters, however, counter that it was the best compromise, given the strongly federal system in the country. They also say that its bottom-up approach, based on working real-life solutions, reflects similar processes in neighbouring Austria, as well as major European countries such as France and Germany.

Key facets of the Swiss e-health Strategy include the following: a roadmap for the nation-wide implementation of regional smartcard-based EMRs in a phased manner by 2015, preceded by a Webbased nation-wide electronic health platform in 2012. Part of the latter goal is aimed at strengthening the Swiss population's individual awareness about healthcare, in order to drive overall efficiency from the side of personal demand and expectations. Outlined in a 58-page document, the e-health Strategy also provides information on targets and costs, priorities for action, partnerships and procedures as well as a timeline.

Underlying the 2007–2015 e-health Strategy is a framework agreement concluded between the Swiss Federal Department of Home Affairs and the Conference of Cantonal Ministers of Public Health. This agreement, which seeks to flesh out the e-health Strategy, has identified several tangible goals:

Guarantee of interoperability throughout Switzerland of e-health projects and solutions. Networking of key healthcare players Development of higher-quality, safer and more cost-effective procedures Studying information exchanges between patients and healthcare specialists; The provision of health services irrespective of location and time, and The enhancement of individual competencies in health matters.

To achieve these goals, the framework agreement has set up a coordinating organisation to draw up e-health implementation plans. Its mandate includes not only further development of the e-health strategy, but also the definition of uniform standards and a nationwide e-health architecture for Switzerland. Under its remit too are proposals to amend the law at both federal and cantonal levels and coordinate the interoperability of cantonal pilot projects and promoting acceptance of e-health by the general public.

Examples of key enabling e-health projects are discussed briefly below.

The Swiss Insurance Card

An electronic health insurance card forms the foundations for Switzerland's e-health strategy. In February 2007, the federal government adopted

a decree on the card for compulsory insurance. Its key purpose is to reduce administrative costs through an increase in the use of electronic – rather than paper – data.

One interesting feature of the Swiss insurance card – in terms of its role as a gateway to e-health – is that it already functions as a light version of the electronic patient record.

Holders can agree for vital data (such as current illnesses, allergies and highlights of their medical history) to be stored on the card, and increase its utility, especially in emergencies. The personal data will not only be protected by the PIN (personal identification) code of the holder, but can also be deleted if requested by the holder. Crucially, insurers will not be provided access to the additional data.

E-Nursing

Switzerland has launched a wireless system to enable nurses and doctors at hospitals to use tablet PCs running electronic nursing documentation software, including an electronic medical chart which replaces paper-based solutions. The Swiss-developed workload management tool, known as LEP, has since been adopted in Germany.

GPS Patient Tacking

Switzerland has seen the launch of a personal safety and location system for patients known as AlarmTouch. The GPSequipped remote care device includes a ‘geofencing’ feature, which sends an SMS or initiates a voice call to a monitoring centre or caregiver when the wearer wanders outside a specified zone. This identifies the caller’s location, enabling immediate assistance.

E-Toile

Geneva-based e-toile is an advanced project centred on the electronic patient record. It is designed to be open to receiving and transmitting data from telemedicine treatments.

E-toile aims to eventually connect all healthcare facilities in Switzerland via a secure medical information network. The issue of privacy rights has also been taken on upfront. Patients can use a smart card to specify access rights to their data, as well as layer such rights. The project has cost an estimated CHF 50 million for development.

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