

E-health in Finland

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INVEST IN FINLAND

Business Opportunities and
Consulting Services for
International Companies

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1. Executive summary

Finland has devoted much effort to e-health since the 1990s and, over recent years, has worked on various aspects of health information technology (IT). The development of a nationwide archive system (KanTa), connected to e-prescribing and personal health records, has been a major milestone in the Finnish e-health story. KanTa is based on the development of strong local municipality-based systems, brought together under a comprehensive national umbrella.

Finland has shown a particularly early political commitment to e-health issues, making it well-prepared for e-health products and services. The national system is still under development but, when fully deployed, it will significantly change the Finnish e-health environment.

Challenges remain, however, mainly in the areas of interoperability and the decentralisation of the healthcare system.

Finland is a small country which is strongly networked, especially within the EU, making it well connected to neighbouring countries. This also means that market trends in the sector are similar to those seen globally.

There are business opportunities in various aspects of e-health. For example, telemonitoring services are expected to grow rapidly, increasing the need for technology and components. Health-related services through web-based smart card identification will probably grow too, due to changes in law. Patients will also have a greater choice of service providers, boosting the internationalisation of web-based health services.

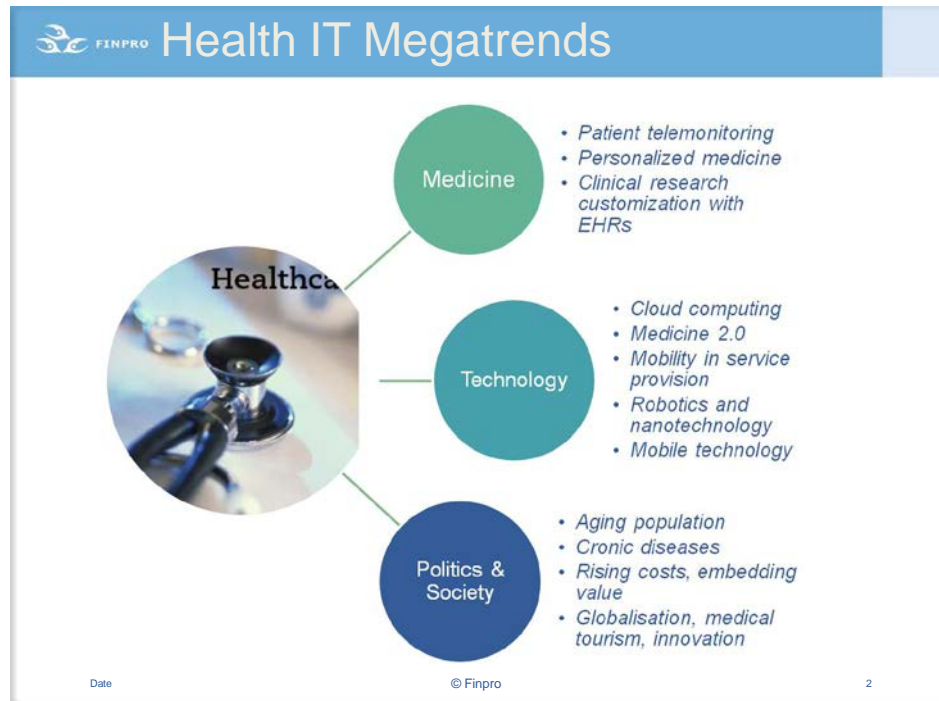
The few main companies in the electronic health record (EHR) market are well established. In fact the two biggest players, Tieto and Logica, have such a strong market positions that newcomers find it relatively difficult to enter the market. On the other hand, there are increased opportunities for collaboration in smaller niche areas.

Examining a single EHR software or nationwide system more closely, decision-support systems are being used by healthcare professionals and significantly improving care quality and patient safety. 'Current care guidelines', edited by Duodecim, the Finnish Medical Society, is used every day by Finnish professionals. In this easy-to-use tool, specific decision-support tools include information on drug interaction.

Moving from the provider to the patient viewpoint, the main trend is patient empowerment and the development of personal health records (PHR). There are already both public and private products on the market. Within the KanTa (National Archive for Health Information, page 11) system, the internet-based eView service for citizens is being developed. In the private sector there is Google Health, a major international player active in the Finnish market.

2. Global trends visible in Finland

Major global trends in health IT also apply in Finland. These trends can be divided into three groups: medicinal, technological, and political and societal.



2.1. Medicinal trends

In some areas of telemonitoring, there are several benefits for both patients and healthcare providers. For example, systems to enable cardiologists, GPs and nurses to identify changes in patient conditions provide a prompt and appropriate medical response and reduce cardiology-related GP visits, hospital in-patient admissions and out-patient visits. This is especially true for sparsely populated areas in northern Finland, where real savings are made.

As the era of blockbuster medicines is over, the focus is shifting towards personalised medicines. The slightly wider phenomenon embracing personal and individual healthcare is termed 'i-health'. While e-health is mostly about technology, concepts, policy and infrastructure, i-health is about usage and patient needs.

Clinical trials are an important business field in the pharmaceuticals sector. E-health systems such as EHRs can be a key data source and tool for clinical research, for example to test and generate research hypotheses considering new dimensions such as genomics, proteomics or pharmacoeconomics. In Finland genomic data in particular has been stored and structured in a pioneering way following the well-known Professor Leena Palotie's work in genetics research.

2.2. Technological trends

Cloud computing is a phenomenon that reflects the large amount of information and complexity of IT infrastructure. It enables ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources.

In healthcare this can mean the development of IT services related to healthcare. Examples include hospitals linked with other systems to increase efficiency or real-time availability of critical clinical data, international access to patient data, and easy access to services through web applications and even mobile devices.

The mobility of healthcare provision is constantly growing. This is driven by increasing demand for specialist care and advice and the widening of the patient centres model. Finland is one of the world's leading countries for both internet and mobile penetration.

A third of EU citizens use internet health sources every three months. Medicine 2.0 concerns the internet's impact in healthcare. The web can be used to enhance external collaborations or internal processes.

Although robotics remains largely experimental, this field will be important long term. Healthcare robotics has the potential to link nanotechnology with artificial intelligence.

2.3. Political and societal trends

In the Western world an ageing population is a fact and IT is expected to bring great benefits in elderly health and homecare. Finland, and the Nordic countries in general, are forerunners in the field of IT solutions for the elderly, driven by their type of social system and cultural factors.

Value-based service innovation can control ever-rising healthcare costs and manage changes in social attitudes, economic conditions and the potential of medical technologies. In this context and to meet the challenges ahead, embedding value means that healthcare organisations need to collaborate in new ways and offer new services.

3. Finnish e-health characteristics and trends

Launched in 1996, the first e-health strategy was called 'Strategy for utilising information technology in the field of social welfare and healthcare in Finland'. The next big step was in 2007 with publication of Finland's eHealth roadmap. Its main principle is the development of seamless service chains with new technology, new information system architectures and better compatibility between systems. It refers to the EU eHealth Action Plan (2004). Mobile technology is another growing communication channel for health information and service content is being developed.

3.1. Telemedicine

Finland's first experiments in telemedicine took place at the end of 1960s. Activities have grown each year and, in 1999, over 200 telemedicine projects were registered in Finland, mainly in hospitals. There are now regular services in:

- Teleconsultation (emergency transport)
- Teleradiology
- Telemonitoring
- Telelaboratory functions
- Videoconferences (telepsychiatry and teleophthalmology)

Digital radiology image transmission is a standard procedure in all major Finnish hospitals, particularly in imaging. Teleradiology is available at all of the five university hospitals and in most central hospitals.

The number of televideoconferencing consultations has increased since 2003, especially in sparsely populated parts of northern Finland where relatively few doctors cover large areas. Although teleconsultation is not a common practice, several pilot projects and experiments are underway. Growth in teleconsultation services is expected as new technologies develop and device prices fall.

There are opportunities for Finnish and foreign players in videoconferencing devices. For example, although electronic and telecoms components and devices are mainly imported, Finland can ensure that designs are consumer focused and user friendly.

Overall, telemedicine is considered an efficient solution to overcome distance and it has a significant role in the Finnish eHealth roadmap.

3.2. Smart cards and unique identification of patients

The Finnish personal identity code, also called the social security number, is issued by the Population Register Centre and comprises the birth date and a four-digit code. Citizens can apply for a microchip-fitted smart identity card from police stations. It includes a PKI¹-based citizen certificate. The health insurance card (Kela card), which enables the citizens to receive reimbursements from

¹ Public Key Infrastructure (PKI) is a set of hardware, software, people, policies, and procedures needed to create, manage, distribute, use, store, and revoke digital certificates. In cryptography, a PKI is an arrangement that binds public keys with respective user identities by means of a certificate authority (CA). The Finnish smart card certificate policy, certification practice and PKI disclosure statement documents concerning its certificates are at www.fineid.fi

the national healthcare system, can be integrated in the same card. Currently the use of cards is limited mainly to travel documents.

In 2009 there were 259,000 smart cards distributed, meaning they were held by a relatively small share of the population. Of these, some 95,600 of the cards have the Kela card integrated.

However, services available with the citizen smart cards are limited. Compared with the international trend of developing public administration and e-services for citizens using smart card identification, Finland still has some way to go.

Concerning healthcare data, Finland has made a policy decision that no health-related information is saved on the smart cards. Cards are used only for identification when receiving healthcare services, in person or online.

As far as healthcare professionals are concerned, Valvira² issues a smart card and certificate which validates competences to access Kanta applications and health-related information. The Terhikki national register was established for this purpose in 2009. It is also possible to electronically sign documents. In 2010 responsibility for verifying healthcare professionals' electronic identities was transferred from Valvira to the Population Register Centre.

In 2008, 8 out of 21 hospital districts and 9% of healthcare centres used smartcards for identification.

Legislative changes are expected in this electronic authentications field, which will probably boost its development. In Finland the following laws are being prepared:

- Act on Electronic Authentication and Signatures
- Identity Act
- Revision of Passport Act and Population Register Act

Further and updated information on these regulations can be found at www.fineid.fi and www.finlex.fi

3.3. Patient safety

A key element in the quality of care, patient safety can embrace areas such as drug safety, fall detection and environmental hazards. One of the biggest risks in patient safety is drug prescription and administration. Statistics vary by source but, according to Lazarou et al, JAMA 1998, in the US 2.2 million serious drug injuries are reported each year, with a fatality rate of 0.32% – which means over 100,000 patient deaths are caused by drug injuries. The growing number of drugs, combined with the multi-morbidity of an aging population, brings interactions challenges for healthcare professionals. It is a challenge to keep updated on interactions and the constantly growing number of active pharmaceutical ingredients. In Finland, doctors have a positive attitude towards IT tools, neither considering them as control systems nor as threats to their medical expertise.

For example, in 2005 and 2007 respectively, Finland and Sweden introduced an electronic database tool to help doctors control drug interactions. The SFINX decision-support tool has been developed in collaboration with Turku University Hospital TYKS, Karolinska Institute and Stockholm's Läns Landstinget. Today the vast majority of Finnish doctors use SFINX in their daily work. More details on decision-support systems can be found on page 16.

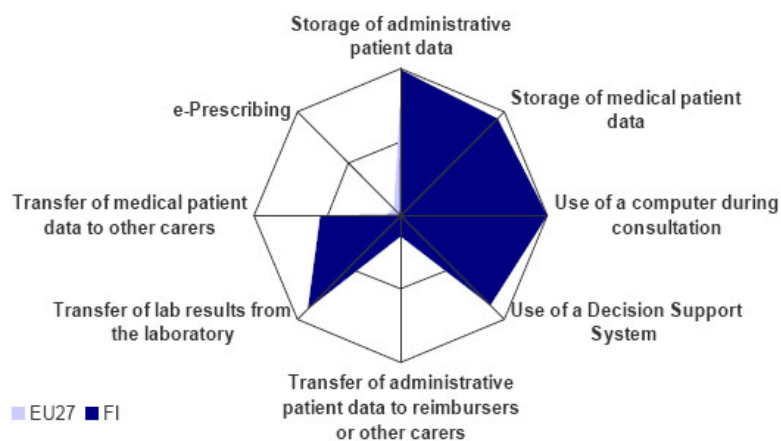
² Valvira is the Finnish National Supervisory Authority for Welfare and Health – www.valvira.fi

4. EHR systems in Finland and their integration challenges

Electronic health records (EHR) are used throughout the Finnish healthcare system. Following the transition from paper-based to EHR in primary healthcare centres in the late 1990s, EHR-use is now 100%. Usage in hospitals is also 100%, the transition taking place since 2000. It should always be kept in mind that there are many definitions of EHR and that they vary widely.

According to the Empirica report 'Benchmarking ICT use among General Practitioners in Europe', using data from 2007, Finland was found to be a pioneer in e-health practices, together with the other Nordic countries, the Netherlands and the UK. Compared with the EU average, Finland is highly developed in the storage of administrative and medical patient data, use of computers during consultation and use of decision-support systems. Data transfer of laboratory results is also fairly well developed. On the other hand, the transfer of both administrative and medical patient data among other organisations is poor and e-prescribing is behind too.

Exhibit 5-26 eHealth use in Finland



The Scandinavian market is considered a forerunner in EHR. Denmark and Sweden were the first countries to adopt electronic information flows for patient data.

The Finnish market is highly oligopolistic, with two main EHR suppliers: Tieto and Logica (see the detailed analysis on page 11).

The main challenge in Finland, and Europe in general, is interoperability. This is because organisations use different systems, which often do not understand each other, making data exchanges across healthcare organisations difficult. To develop a better healthcare system, it is necessary to integrate patient information from all kinds of healthcare organisations. The inability to communicate and the lack of IT standards undermine capabilities.

There have been major investments in Finland to develop a more co-ordinated national electronic patient record platform. This issue is treated in detail in the next section.

Standards help to harmonise different systems and make them interoperable. In Finland the international healthcare standards HL7 and DICOM are in use. These standards define messages between systems to make two systems communicate and exchange data.

Electronic patient record systems are increasingly shifting to complementary mobile solutions, creating new opportunities for wireless technology (mobile systems and smart phones) in the healthcare sector. New technology makes the use and registration of information possible, for example when visiting a patient's home. Mobile solutions are used particularly in home care, saving care professionals up to 40% of their time.

One example of mobile programmes is Raisoft, which enables wireless RAI-information³ to be used. The programme can be used by a pocket-size computer or smartphone. Patient reports can be registered in a mobile system, and users can read the RAI manual, RAI meter and data management plan and check medical information, wherever they are. At the end of the working day, users move all registered information to the head office information system.

Patients are increasingly using newly developed technology equipment such as alarms and information registers, which control patients' health in real-time without the need for a visit. Some Finnish municipalities have started to assess the potential of new mobile technology, and some have already evaluated different mobile systems for use in homecare. In Imatra, for example, the adopted AbaCare application is based on individual service agreements and home visits based on patients' wireless alarms. To enhance patient care, AbaCare includes interfaces with other programmes and uses communal patient records.

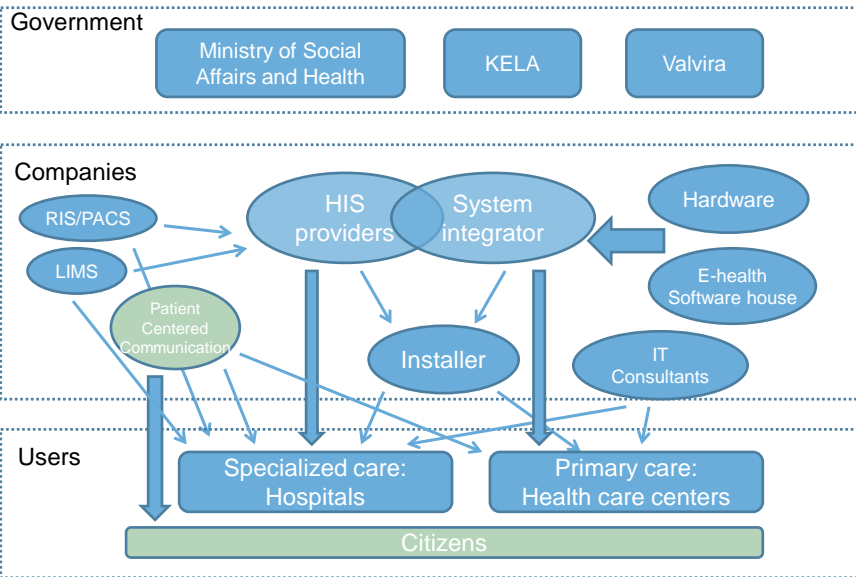
4.1. Value chain in EHR business

The healthcare sector is regulated by the Ministry of Health, Valvira and the Social Insurance Institute of Finland (KELA). Market players vary from software and hardware suppliers to systems integrators.

The major players are full hospital information system providers (such as Tieto), imaging system (RIS/PACS) providers (such as Neagen and Commit) and laboratory information management systems (LIMS) providers (such as Software Point). There are also IT consultants who serve as independent advisors to assist users in selecting the right solutions.

The patient/citizen-centred communication system is growing steadily as patient empowerment increases. Several risk management tools are available to help the consumer to stay healthy. Prevention has a long tradition in Finland and so such tools are accepted more than in other countries.

³ interRAI is a collaborative **network of researchers** in over **30 countries** committed to improving healthcare for people who are elderly, frail or disabled. The goal is to promote **evidence-based clinical practice and policy** decisions through the collection and interpretation of high-quality data on the characteristics and outcomes of people served in various health and social services settings.



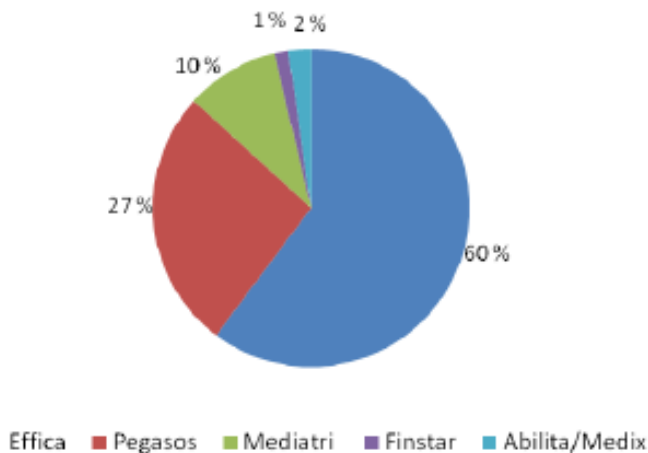
Professional users can be divided into: primary care, operated through healthcare centres organised in municipalities; and secondary or specialised care, organised in hospital districts.

4.2. Major EHR players

Between 2002 and 2009, the number of EHR brands fell from eight to five in the municipalities responsible for primary healthcare. This reduction has been due mainly to the market consolidation trend explained earlier in the report.

In 2002 eight EHR brands covered 75% of the municipalities. In 2009 the major market shares were held by Effica (Tieto), with 60%, and Pegasos (Logica), with 27%, these two companies accounting for 87% of the primary care market. Other companies are relatively small, such as Mediconsult and Abilita. There are also some university hospital-originated products, such as Finstar and Esko.

EHR market shares (2009)



In the hospital districts, which are responsible for specialist healthcare, EHR coverage was 48% in 2002, and there were five different brands. The market share of the two biggest brands was 70%. In 2010, while all hospitals districts used an EHR, there were six different trademarks, the largest with a market share of 48%. Only one hospital district had changed a brand for another.

Organisational changes, quality and efficiency issues, as well as the orders of the authorities, can place a strain on changing an EHR brand, although it is also a laborious process.

Company	Product	Hospitals	Health Centers
Tieto	Effica	x	x
Logica	Pegasos	x	x
PPSHP	Esko		x
Mediconsult Oy	Mediatri	x	x
(KYS)	Graafinen Finstar (GFS)	x	
Abilita Oy	Abilita	x	x

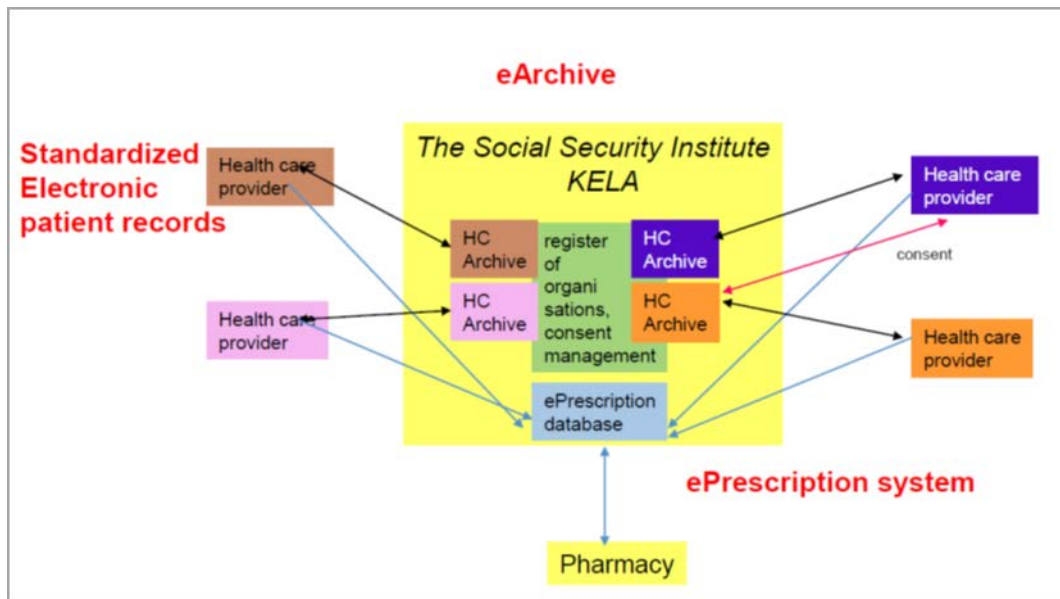
Tieto is a Finnish IT company, headquartered in Helsinki and listed in the Nasdaq OMX in Helsinki and Stockholm. The company has around 17,000 employees and a turnover of 1.7 billion euros (2010). It was founded in Finland in 1968 as Tietotehdas Oy and, in 1998, changed its name to Tieto Corporation. In 1999 there was an important merger with Tieto and Sweden's Enator, giving it the name Tieto-Enator until 2009 when it became Tieto Oyj. Healthcare IT is only one of its 12 sectors. Tieto's EHR product, Effica, has a top-two market share in Finland. It has been adapted to integrate with the new Kanta system.

Logica is a European IT company headquartered in London and listed on the stock market (LSE and Euronext). It operates in 36 countries and has a total of around 39,000 employees. Its annual turnover is some 4 billion euros. In 2008 Logica acquired the WM-Data operations in the Nordic countries. WM-Data was one of the strongest players in the EHR field in Finland and Nordics. Founded in Sweden in 1969, it entered the Finnish market in 1983 and gained a significant market share through mergers. Today Logica is one of the two big EHR providers in Finland with its Pegasos product. It has been adapted to be integrated with the new Kanta system. Logica's turnover in Finland grew by 10% in 2010.

4.3. KanTa – National Archive for Health Information

The official definition of KanTa, published at www.kanta.fi, is: 'KanTa is a collective term used for a range of national healthcare information systems including e-prescriptions, a national pharmaceutical database, an electronic health records archive and a portal for citizens to access their own health information online.'

The Ministry of Social Affairs and Health has been working to improve the national system for years. The biggest development of information technology was achieved in December 2006, when Parliament passed new legislation concerning electronic prescription systems and patient records (KanTa). The national electronic patient information system operates by using each provider's own patient records archive, and the Social Insurance Institution (Kela) maintains a structure of the archives where all information is stored. All providers must keep their patient record archives in the national system before September 2015. The project's responsible information system provider is Fujitsu, and TEO (healthcare's legal protection centre) supports the certificate system used for electronic signatures.



According to the original law, the system was supposed to be fully functional by 2011. However, deadlines have been postponed to 2012 for ePrescription, 2014 for public healthcare to join eArchive and 2015 for private healthcare to join eArchive.

Almost all Finnish providers already have an electronic system for patient information, but the nationwide record is an important step for the country's healthcare development. The system is not only the final archive for documents, but it also has an important role to forward information between health organisations and departments. All patient information will be stored in the same technical form, which facilitates the transfer of data from one system to another. Once the data is saved, it can be reused only by the data's register. If some other register holder wants to use the patient information of another holder, permission must be gained from the patient.

One important part of this national project is ePrescription. The first pilot was started in 2002, including the electronic transmission of prescriptions and decision support. The pilot was stopped because the system was not technically ready for implementation. However, the experience was reported and evaluated. After two years of technical preparation the pilot was re-launched and, in 2004, the first clinical pilot phase was initiated. Finally, after many delays, the first e-prescription in Finland was written in Turku in September 2010. The electronic e-prescription system is an important tool for the development of Finnish healthcare because it centralises the patient's entire medical information and improves patient safety. In 2011 all providers will be obliged to write prescriptions electronically but patients are free to refuse and to receive a conventional paper prescription instead.

The advantages of e-prescription include patient medical safety because all prescriptions can be viewed together, and the side effects of different medicines being easily exposed.

Electronic patient record pharmacy systems will be based on a national medical database, to be updated twice a month. The database includes information on medicines in Finland, temporary special permission products, reimbursable basic lotions and clinical nutrition products. There is also information on prices, substitutability and interchangeability.

During the autumn of 2010 the use of e-prescription spread in Turku's healthcare organisations and now all users of the Linnea pharmacy programme can use e-prescription. The system's data security is based on Fujitsu's mPollux-product. Other Finnish cities will also start using e-prescriptions, the next being Kotka where development started in March 2011. Western-Pohja (Kemi area) and Eastern-Savo (Savonlinna area) will join this national project next.

In the first phase of adoption, organisations that use Efficia or Pegasos as their basic information system are connected. Later the project will also link with other programme suppliers.

A patient summary view, which combines core data from the different EHRs, will be developed within the KanTa service, although such a view has not yet been specified.

When the system is in full use, storage capacity will be an issue. Hospitals in particular encounter serious problems in ensuring they have sufficient space for data storage. This might be a business opportunity for storage solutions providers.

4.4. Purchasing and public procurement

As the healthcare services are primarily public (70%), the trends in public procurement have a big impact on the industry. Procurement is becoming more centralised, following a pan-European trend, and tenders are the common method of purchasing in the public sector. Contracts are made for several years, causing difficulties for smaller players.

According to the Public Procurement Act, and in line with similar legislation across the EU, all investments by public organisations will need to be procured through tendering. Regardless of the value of the procurement, a tender notice must be published or a sufficient number of tenders, in proportion to the size and quality of the procurement, shall be otherwise invited.

The national system for information on public contracts is HILMA (www.hankintailmoitukset.fi). Contracts exceeding certain thresholds will need to be published in the EU official journals and the TED (Tenders Electronic Daily) database⁴.

Selection criteria for providers of services and products may include economic, technical and other conditions of performance, which are stated in the tender's public issue.

Foreign-owned companies are allowed to participate equally in public tenders, and may not be discriminated against in awarding contracts.

⁴ TED (Tenders Electronic Daily) is the online version of the 'Supplement to the Official Journal of the European Union', dedicated to European public procurement.

5. Patient empowerment is proceeding

Patient empowerment is changing the healthcare sector. Patients can now get a vast amount of information from the internet without visiting a doctor. This has two effects: firstly, there is a risk of basing a decision on unreliable data so patients must learn how to evaluate their reliability and look for evidence-based information; and secondly, patients can use information to challenge their doctors. Patients are gaining a more active role in health processes, doctors' roles are changing and they need to be aware of self-informed patients and how to deal with them. Patient empowerment is an international phenomenon and increased patient responsibility is discussed actively in EU health policy debates.

The internet and social media have an important role in people's empowerment, for instance through the contact between patients and doctors in social media. Sites have existed since 1990 and Children with Diabetes, for example, established in 1995, now includes a broad group of experts. In Finland the forerunners of these kinds of communication channels are in the field of obesity. Weight watchers' communities such as Kiloklubi and Keventäjät have created internet channels for dieters and professionals. Other providers include Leiras, which has created a successful 'Ask a doctor' page on Facebook.

Doctors often fear moving into social media, and the step from traditional doctor visits to the internet's public network is confusing. New practices are instructive though, and often even addictive. When professional instructions and ideas get widespread feedback, it is a great environment in which to develop communications. On the other hand there are many risks when people use the internet and social media as an information forum: in particular, information may not be up-to-date or it has been provided by someone who does not have the necessary healthcare experience.

Within the National Archive of Health Information there is a plan to create a service for citizens called eView, which enables them to view their own electronic health information saved in the national e-archives. This will complement ePrescription and eArchive and will help citizens to maintain their own health and participate in their care plan. The service is partially functional in the ongoing pilot programme for ePrescription data. It can also be called PHR, or personal health records.

Another interesting development in patient empowerment is the storage and sharing of health information on the web. One of the major players is Google with its Google Health service. Health information can be shared between hospitals and medical information from doctor to pharmacy. To enable this service, hospitals must collaborate with Google. While not yet available in Finland, this service probably will be in the future. In some cases it is even possible to book a doctor visit or see test results on Google Health personal pages. Google Health serves new tools for health control and for example, once added, a patient's medical information in the programme warns about side effects and medicines' combined effects. The service also reminds patients to take their medicines on time. Microsoft is developing a similar programme called Health Vault.

Elsewhere, www.suomi.fi is a portal which offers numerous public services and materials for Finnish citizens. The page is divided into many sections and users can click on subjects of interest. One part is health and nutrition, which provides lots of materials, statistics and applications. Users can register for this page and see all official decisions on their personal pages. The website also has links to the websites of other public administrations.

Another example is TerveSuomi (www.tervesuomi.fi), which gives information on different health problems and diseases.

6. Decision-support systems in Finland for evidence-based healthcare

6.1. Current care – from evidence to practice

'Current Care Guidelines' are produced for the benefit of Finnish healthcare. Guidelines are developed on topics which affect public health, when a variety of clinical practices are used and when recent findings require urgent implementation.

The Current Care editorial office is part of Duodecim, the Finnish Medical Society. This scientific society enhances the professional skills and clinical practices of doctors through further education, publications and research grants. Duodecim has 91 member organisations and its 19,000 members include over 90% of Finnish doctors and medical students (www.duodecim.fi).

Guidelines are produced using top Finnish experts in their respective fields. So far, over 700 healthcare professionals have contributed to this work, most of them doctors. The Current Care organisation is the Finnish centre for evidence-based medicine.

Current Care guidelines are based on accurate, reliable and up-to-date information which has been systematically evaluated and compiled by clinical experts in the relevant field. These guidelines play a significant role in Finnish healthcare. National recommendations provide a solid basis for the development of regional treatment protocols and chains. Furthermore, the Current Care guidelines were used as the starting point when uniform criteria for access to non-emergency care were considered and later verified by the Ministry of Social Affairs and Health.

6.2. Up-to-date information for the benefit of patients

As medicine is a rapidly advancing field, the guidelines are updated by their respective working groups every few years – or whenever required by advances in the field – to keep the treatment of patients up-to-date at all times. An online publication guarantees the availability and dissemination of updated information. In addition to being published in the Duodecim Medical Journal, Current Care guidelines, together with their abstracts and patient versions, are published online at www.kaypahoito.fi, via the Duodecim health portal TERVEYSPOITTI. The patient versions are available from Duodecim's health library at www.terveyskirjasto.fi

6.3. FINOHTA

FINOHTA is an independent, publicly funded health technology assessment agency. It produces, supports and co-ordinates health technology assessments in Finland and disseminates international assessment results within the healthcare system. FINOHTA aims to enhance the effectiveness and impact of healthcare by supporting decision-making and promoting the use of proper evidence-based methods.

In addition to assessing established methods of diagnosis, treatment and rehabilitation, FINOHTA also evaluates new methods. The Managed Uptake of Medical Methods program (MUMM) produces quick assessments of emerging technologies, especially those of major importance to public health or the national economy. Assessment research is carried out through multidisciplinary collaboration.

FINOHTA is a founding member of Guidelines International Network⁵ (G-I-N) and involved in its network activities. It is also a member of other international networks such as INAHTA, EUnetHTA and EuroScan. The Finnish Branch of the Nordic Cochrane Centre is located in FINOHTA.

Co-operation with the Finnish Medical Society, Duodecim, and its Current Care organisation is active and complementary. FINOHTA assesses the cost-effectiveness of selected Current Care guidelines, most recently on the treatment of high blood pressure and screening for glaucoma.

FINOHTA was founded in 1995 and is part of STAKES, the National Research and Development Centre for Welfare and Health. Over 40 people work for FINOHTA, some full-time and some part-time, equivalent to around 25 full-time staff in all.

⁵Guidelines International Network G-I-N is a global network supporting evidence-based healthcare and improved health outcomes by reducing inappropriate variation throughout the world. Further information is available at www.g-i-n.net

7. Security and privacy issues in e-health

Control of information security is important in every healthcare institute when starting to use electronic patient records and other digital solutions. The national project KanTa has provided its own guidelines on controlling information security in a prescription centre. In this case responsibility for information security issues and implementation is Kela, the Social Insurance Institution.

In Finland the Steering Group of Healthcare Data Security (Terveystietosuojan ohjausryhmä) working group has been formed by healthcare experts and is following and addressing the sector's privacy issues. It aims to identify, co-ordinate, respond to, and give instruction on privacy issues.

It seems that in Finland there are many ways to improve information security. In June 2010 the steering group undertook research to clarify the situation of information security in Finnish healthcare organisations. It sent its questionnaire to 1,700 healthcare providers and the response rate was about 60%. The results show that public providers take information security more seriously than private organisations. The public sector has been well prepared in information security problems and it controls the use of patients' information and reports malpractices for patients more frequently than private organisations. Less than 50% of the directors of private-sector institutes, 50% of pharmacists and 75% of public-sector directors have given the written instructions required by law to their personnel on handling patient records. Informing patients about how their personal information will be dealt has also been alarmingly neglected.

One company providing healthcare security services is Navicre. The company offers security mapping and security management including various documents for implementation and training services.

Another company is Receptum, which provides IT services for pharmacies, dentists and clinics. The company has half of all Finnish pharmacists, dentists and clinics as its clients. Its product, F-Secure Protection Service for Business, protects workstations, servers and laptops against malware and spam.

8. Sources

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