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Labour/Management Programme

ICT IN HEALTH CARE

**Summary record of a meeting of business representatives from the health sector held under the OECD
Labour/Management Programme**

Paris, 21 November 2007

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A Turning Point for Information & Communications Technology in Health Care

A Report from the Business and Industry Advisory Committee to the OECD

February, 2008

SUMMARY

Why is it easier to consult your bank account than your personal health records? Over the past 10 years information and communication technology (ICT) for healthcare have not kept up with the advances that have greatly benefited other sectors of the economy.

Computers have brought dramatic changes to medical procedures and treatments. Yet there has not been a similar improvement in health information services for citizens, nor improvements in productivity for health care systems that is essential to respond to the challenge of delivering health services faced by governments worldwide.

An expert group including leading representatives for doctors, patients, health programs, the employers, the pharmaceutical industry and ICT system providers was convened by the Business and Industry Advisory Committee (BIAC) to the Organization for Economic Co-operation and Development (OECD) to address these issues on November 21, 2007 in Paris.

The key messages coming from this Expert Meeting include:

- Standards for interoperability of ICT, now being adopted consistently, should be further encouraged.
- There remains a misalignment of incentives between who pays and who benefits from ICT in health.
- People, processes and change management pose greater obstacles than technology for implementation.
- The involvement of patients and users of health ICT systems is essential for developing ICT solutions.
- An emerging challenge is coming to widely held concepts of privacy and confidentiality.

The development of ICT-based systems for healthcare has been painfully slow and disappointing. At this critical turning point, the Expert Group agreed national governments hold powerful levers for policy and leadership that would accelerate adoption of ICT for health. At the enterprise level, enterprise resource planning (ERP) solutions and shared services could dramatically increase productivity, facilitate procurement and human resource management and should therefore be considered as a priority.

To further understanding of the constraints and to identify what works in terms of readiness, solutions, organizations, and funding, BIAC proposes the creation of a task group with the cooperation of the OECD. The expected outcome would be a forward-looking strategy for OECD member countries that would assure ICT implementations build on best practices and move from success to success.

A Turning Point for Information & Communications Technology in Health Care

For: The Business and Industry Advisory Committee to the OECD

Submitted by John Brosky, Rapporteur
for the Expert Meeting on ICT in Health Care
at OECD Headquarters in Paris, November 21, 2007

Paris, 21 November 2007

INTRODUCTION: Is ICT for health care at a turning point? Or has it hit a wall?

On Nov. 21, 2007, in the context of the OECD project on Information & Communications Technology (ICT) for health services, the Business and Industry Advisory Committee to the Organization for Economic Co-operation and Development (BIAC) convened an expert meeting on ICT in Health Care at OECD Headquarters in Paris.

The objective of the meeting was to provide a platform for a constructive dialogue to increase the understanding of both the successes and failures in the introduction of ICT in health care. The topics suggested for discussion sought to mark contrast with a similar forum organized 10 years earlier, by asking what is the status of ICT in health care today? How is the market evolving? What challenges lie ahead? And, which new business models are emerging?

The head of the Health Division for OECD, Peter Scherer, opened the meeting with comments to the question that served as a theme: "Are we at a turning point for ICT in health care?" Eighteen speakers responded by describing challenges faced by industry, governments and health organizations active in the design and implementation of ICT projects, and offered practical experiences from which lessons could be drawn.

After 10 years and with an estimated 1,000 projects globally, ICT for Health Care has evolved significantly. Three countries with large-scale implementations were cited by few speakers as harboring best practices each in a different region of the world with Canada in North America, England in Europe, and Australia in Asia-Pacific. Participants also agreed that several sets of standards for exchanging data had been adopted worldwide. And one speaker went so far as to say that standards no longer present the bottleneck for implementing ICT health programs, though the resulting debate shows this topic continues to dominate discussion. A promising development of standards was the announcement that, early next year, the European Commission will launch a large-scale program (PILOT) to connect up to 12 country sites for the exchange of patient summary records and medication histories.

Discussion among participants was marked by two other recent announcements. The first was alarming news from the United Kingdom the day before the meeting that 25 million unencrypted records linking bank account numbers with each citizen's social service identification had simply disappeared in the post. The previous week France conceded that its much celebrated program to create medical records for 64 million citizens would not be ready this year as planned and will, in fact, require another 10 years before the program can realistically be deployed.

These vivid reminders of the imposing scale of ICT in health care and the dangers inherent in storing sensitive medical information of citizens introduced a note of caution to the discussion. Where during the past 10 years technology was sometimes promoted as a kind of magic bullet that would bring to health care the efficiencies realized with ICT in other industries, there was nothing magic in the recommendations from the expert group regarding the hard work ahead to transform the current state of affair.

The obstacles on the road to greater ICT implementation by health services were so numerous the speakers and discussion participants needed to class them in two broad categories, economic and non-economic challenges.

Economic challenges include misaligned reimbursement schemes, a resistance to pay-for-performance programs, difficulties financing ICT systems, and an inability or unwillingness to replicate best practices that impede the creation of a market for standardized ICT products and services.

The debate about “value” showed that this term has evolved from meaning the value for money, realized through investments in ICT projects, to a code word for money flowing out from these systems. A concern is expressed throughout the discussions over who will benefit most from savings through efficiencies and who is going to cash in on the value of aggregated patient data.

The large class of obstacles, grouped as non-economic challenges, cover rock solid legal barriers to soft issues of people and process management. Significantly, out of 10 recommendations from the European ICT industry for winning wider adoption of e-health, nine of the issues fall into this category. Frustrations with governance of ICT implementations were mentioned by eight speakers. Security of data, privacy and confidentiality were frequently discussed and a specific question posed to the group was whether sharing and processing patient data is even legal in Europe. It was underlined that this is no longer a purely technical issue. The effort to transform the ways physicians and health professionals work, has globally been met with stiff resistance. Several speakers suggested that the current pattern of dedicating 80% of funding to infrastructure and 20% to front-end, user-facing applications should be reversed, as it is important to recognize that without supporting the process of change demanded of people and of traditional care delivery, any ICT implementation is doomed to fail.

Throughout the meeting there was a recognition that ICT in health care has deviated from the path taken by other industries that led to efficiencies, improved services and encouraged innovation. Presentations and discussions among the expert groups describe a road ahead that descends into a wilderness of obstacles where 1,000 ICT projects will be left to wander without any guidance due to indecision and a lack of shared goals. The sense of urgency to transform health services to meet the challenge of aging populations and the increasing burden of chronic diseases has been supplanted by an insistence on specialized interests held by a fragmented, if not fractured, collection of stakeholders.

A consultation, and not a consensus, was the objective for the meeting of this expert group drawn largely from the ICT industry, but also OECD and government experts. The council suggested in their comments that firm conviction and political courage will count most at this turning point in the development of ICT for health care.

John Brosky
Rapporteur
December, 2007

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Session I: Developments since the 1997 BIAC-OECD meeting on Medical Information Networks & Technologies

Are we at a turning point for information and communication technologies in health care?

Peter Scherer, Head of Health Division
OECD

If there was any doubt among speakers and participants whether ICT for Health Care had reached a turning point in its development, Mr. Scherer risked a cautious "yes" to start the meeting.

Compared to the situation 10 years ago he noted an increasing number of national and regional initiatives for health information infrastructures emerging across the OECD area that are proving successful. But this affirmation of the potential of health informatics is offset, Scherer said, by a growing awareness that ICT is not a magic bullet that will somehow solve all the efficiency and sustainability issues for health care systems. He noted that, France, in the previous week, announced the *dossier médicale personnalisé*, to be delivered in 2007, will, in fact, take much longer, perhaps up to 10 years to be fully implemented.

All our health care systems are struggling today with the questions of affordability, sustainability and efficiency, he said. The share of health care expenditures of the gross domestic product (GDP), have had a long-standing tendency to increase, from just 5% in 1970 to almost 9% currently. Bearing in mind that GDP is itself increasing steadily the result has been a steep increase in use of resources and opportunity costs to the rest of the economy.

While there is no consensus among OECD member countries on how much of an economy can or should be dedicated to health care, it is clear it will be difficult to continue on the current course in the future. Yet all signs indicate that countries indeed face further increases in health expenses to serve aging populations and chronic conditions, which generally require intensive treatment and monitoring.

Recent reports from the Health Division confirm that chronic diseases are a growing challenge for health care policies in all of the 30 OECD countries, and show that the care for these conditions is often suboptimal. Patients typically face a system that requires them to take sole responsibility for their care.

Scherer cited a newly released OECD Health Working Paper, based on a two-year investigation of the obstacles to the coordination of care, that shows health care systems remain, to a remarkable extent, cottage industries relying on apprenticeship for training, on personal contacts for diffusion of best practices, and that they still work with uncoordinated files and information systems.

Health information technologies seem particularly attractive to governments as they revisit their strategies for public health services. Yet the transition to ICT-based systems has been painfully slow over the past 10 years, and while there is not one answer to explain this, there is enough evidence to demonstrate the importance of people, financial and organizational issues in designing and implementing such systems. Health ICT must be combined with real process change in order to see meaningful improvements in delivery systems.

Public policy makers at all levels of government can play a significant role toward removing such obstacles and leveling the playing field. As major funders of health care provision, governments have an

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enormous lever to encourage or discourage particular practices, said Scherer, adding that they also hold an enormous capacity to get things wrong if they go down the wrong path.

Objective of Meeting

Alain Sommer, Chairman

BIAC Task Force on Health Care Policy

For health services, ICT is critical for improving the quality of care, quality of service and lowering costs. The productivity gains experienced in all other sectors of the economy have not yet been seen in health services. Furthermore, the new ICT services developed in the world economy have not been echoed with the same impact in the health sector.

It is difficult to understand why it is so hard to achieve the benefits of ICT in health care.

We often read in the press of unrealistic promises, haphazard management, widely missed cost targets, and objectives that are never achieved. If similar results were delivered in banking or in any other service sector few managers would still be in place today.

The inability to obtain the productivity gains achieved in all other sectors of the economy will certainly lead to social regressions. Maintaining both high prices on care coverage with an ever-increasing demand is not sustainable. This problem will result in denial of care, long waiting lists and the programmatic death of the poor and elderly due to lack of resources.

BIAC is not a new arrival on the scene. We have taken every available opportunity, in the past 10 years, to promote the development of ICT in the health care sector. However, today we remain largely disappointed.

We do not really understand why we are at a turning point. Is the health sector antithetical to successful deployments of ICT? Are these projects too complex? Or is a problem of the incompetence of those responsible for the projects?

Our confidence is beginning to be seriously eroded and we are asking ourselves whether there is a real interest in continuing. There is a need to see things as they really are.

We are meeting to try and find answers to these problems. We expect participants to openly express their expectations, share their experiences, and report on the lessons learned as well as the difficulties encountered. In this way we will be able to deepen our understanding of the question and suggest further relevant work that needs to be done.

ICT in Health Care – current issues

Eric Maurincomme,
Chairman for Meeting

A framework for the day's discussion was offered by Mr. Maurincomme, who presented 10 recommendations of how to confront the barriers to ICT in health care from the European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry, (COCIR) where he chairs the Healthcare IT Committee.

The fruit of 10 years of investment, experience with implementations and some success, Mr. Maurincomme suggested that the recommendation can help associations, hospitals, or regional decision makers work through these complex issues and avoid the pitfalls that frustrate successful deployments.

1. Define a vision

ICT is just a tool but it is a tool which tries to achieve a certain goal. The first step has to be this vision, and very often we see that this basic vision is not there at the regional, national, or even the European level.

2. Overcome governance fragmentation

There are a lot of people around the table with different and very often conflicting interests. It is essential to think of the outcomes and fix the rules. As an example he suggested the question, "Who is paying and what is the return?"

3. Develop innovative economic model

A hospital presents a straight-forward business case as there is a budget for operations and investment. But as ICT moves out of the hospital into a regional or national program, e-health delivery becomes more complex and demands an innovative approach to financing that takes into account the complete care cycle from prevention to care delivery to rehabilitation to home care. Current reimbursement schemes no longer address this shift in service delivery.

4. Build trust

General practitioners, hospitals, pharmacists, and medical specialists compete not only for reimbursement, but also over how to perform services, each preferring their traditional work processes. Building trust by documenting benefits and understanding outcomes through evidence-based analysis are crucial to prevent the confusion caused when decision-makers hear different voices and views.

5. Support citizen-patient empowerment

The ability to manage a chronic disease begins with the patient and ICT presents a powerful tool for more customization and personalized services that help influence decisions about treatment and can also affect lifestyle choices.

6. Foster standards and interoperability

There is a plethora of ICT standards for health care and the industry is responsible for creating this confusion among decision makers and the uncertainty about which standards to impose. Recently, a solution has emerged from industry, which includes processes for testing conformance and internationally accepted standards for interoperability.

7. Achieve legal certainty

As ICT enables health services to cross regional boundaries and national borders, the clarity of rules governing data privacy and security requirements breaks down. A coordinated framework across the European Union is needed to enable these services to go forward following mobile citizens' and delivering specialized services across borders.

8. Enable market development

To achieve cost effectiveness and to lower costs of ICT a true competitive market needs to emerge where administrative, financial, legal and technical barriers between EU Member States have been removed or harmonized.

9. Strengthen international position

The European Commission is driving a significant initiative to strengthen expertise in dealing with the costs of an aging population through ICT but also with a goal of exporting e-health tools, skills and knowledge.

10. Stimulate innovations

Supporting health services with the exchange of files and structured information is not rocket science. Yet supporting the treatment of disease processes with correct and timely information, from multiple areas of science and patient pathways, can sometimes be as complex and challenging as medical therapy itself. Innovation needs to be stimulated and successes should be rewarded.

Session II: Expectations and benefits: what can ICT deliver?

Primary and secondary use of EHR: Enhancing clinical research

Stan Snowball, *representing Task Force on Electronic Health Records*,
European Federation of Pharmaceutical Industries & Associations (EFPIA)

Recognizing the potential benefits to patients and a broad range of health care stakeholders of patient data stored in electronic health records (EHRs), the European Federation of Pharmaceutical Industries & Associations (EFPIA) organized in October 2007 a workshop under the auspices of the European Commission Directorate General for the Information Society and Media to focus on barriers to realizing these benefits.

Mr. Snowball reported the three discussion streams for the workshop – Data interoperability, Interaction Models & Practices, and Legal and Privacy Issues -- converged around the central issue of governance. The concern was best expressed by a question that asks, “Once we connect these systems, what will we actually be allowed to do with the data?”

Some of the uncertainty in the pharmaceutical industry regarding use of data in EHRs flows from Article 8 (1) in the European Commission Directive 95/46/EC on Data Protection that states “Member States shall prohibit the processing of personal data ... concerning health or sex life.”

Mr. Snowball explained that ‘personal data’ means not just names and addresses but all identifiable personal information that may link a citizen to a specific data set. He said ‘processing’ means more than collection and includes any operation performed on data.

While the Directive makes a fundamental distinction between primary and secondary use for medical research, the application of these standards is not clear.

Clearly there are benefits for individual patient care when a physician is able to access and review a patient's consolidated data in electronic format, irrespective of where the patient was treated. Similarly, said Mr. Snowball, there is also great value in examining health care data aggregated from entire patient populations.

The workshop discussions included concerns for who is aggregating data, for what purposes, and who then owns the data, questions left hanging somewhat in the uncertainty of the current legal framework, Mr. Snowball said. There is further a concern for the creation of third parties interested in a set of aggregated data, which might include combinations of public, private, or academic interests.

Mr. Snowball concluded his report saying the task force actively seeks to clarify legislation relating to use of EHR data for medical research to determine what exactly can and cannot be done with the data. Defining model contract terms for third party data aggregation service providers was one recommendation arising from the meeting in Brussels. Guidance is also needed on the use of privacy enhancing technologies. And finally, transparency and cooperation across EU member states is needed to support harmonized interpretations of data protection.

Mr. Snowball called for support from the OECD in furthering guidance on these governance issues in order to realize the benefits of EHR data aggregation and to encourage investment in this promising area.

Perspectives on the United States' approach to EHRs

Mr. John Hoff, Health and Human Services Attaché
US Permanent Delegation to the OECD

The focus for the United States on ICT for health is not simply on the systems but on the development of an interoperable electronic health record. Our vision is that we are not focusing on how messaging and communication are done for surgical records, prescriptions and patient behaviors, but instead on having all this information on the same page of the EHR.

We seek better quality, better information, and we want all information relevant to a patient's treatment available to the provider of that treatment in real time as it is needed. We want convenience for the patient. And, we want greater patient power, greater information both in terms of what the patient knows and how to go about getting more information.

We need efficiency to avoid duplicate tests, to avoid prescribing errors. We want to know from a large database what treatments works. There are some of us who believe we will be able to test new drugs on a much quicker basis if we have a large database that will show problems with those drugs.

We want the entire system to be interoperable, and here I would stress the problems that come up. While we have a number of systems sharing EHRs within their own systems, these systems can not talk with each other. That is our problem getting to the vision, but we do not believe the solution is having the government run a monolithic information exchange system. An interoperable EHR will only work if there is a model for private investment that is scalable, and where the incentives are balanced. We have clearly made a decision in the United States that we do not want a large federally run data storage facility. We do not want to develop a system but instead will let the market define what is the best, or several "bests," without imposing or mandating, but supporting and facilitating as appropriate.

We are providing supporting funds to health information exchanges (HIE).

HIEs were formerly known as RHIOs, for regional health information organizations. This is a utility in a geographic area that will collect and exchange data for patients and then would be able to exchange with other HIEs to create a national record. We just awarded over \$22 million in funding for nine IHEs to see what they can do.

Another approach offers the patient a choice for an EHR provider, which may be a private company or a non-profit organization. There may be several in any area and perhaps several could be national. Believing the patient is the one who gets the ultimate benefit of an EHR, perhaps the patient would pay this provider and perhaps the EHR provider, contrary to the other models, would pay the doctor for data entry.

The Federal Government is also promoting the development of standards, we are requiring several programs to use adopted standards and to buy systems that uses these standards. We are supporting certain certification mechanisms to assure the buyers of systems that these units will work in an interoperable system. And we are nudging, cajoling, and in some cases mandating, adoption of electronic records. We are currently issuing regulations on the use of medical records for e-prescribing.

Most important is to address the patient's concern over privacy and security of data. This goes beyond legal protections; the patient needs to have confidence that the information will not be misused.

What ICT can deliver for patients?

Ms. Nicola Bedlington, Director
European Patients' Forum

ICT can play a major role in promoting meaningful patient involvement in the European Union's health projects, programs and policy. We need to ensure a patients' perspective in this health debate, which tends to focus on health economics. Quite rightly so, but we want to ensure that a patient dimension in the equity discussion is not forgotten: Health, wealth and equity.

The European Patients' Forum undertook at the beginning of this year an extensive consultation with its members and learned patients believe ICT has the potential to contribute to patient empowerment, patient-centered disease management, patient safety, personalized health care, patient mobility, as well as a quality and continuity for health care information.

During the consultation we also identified a number of concerns patients have in relation to ICT in health. There is a need to improve e-health literacy. ICT should not alienate patients. Patients want to be equipped with the skills and knowledge to manage their disease in a useful way. Our patient members identified clearly they want stringent and robust principles to govern ICT and information, particularly when sent over the internet. Privacy and informed consent in relation to e-health records was a major theme.

Health ICT systems are seen as a complement to a patient's relationship with health professionals, and this was expressed very strongly. There was universal agreement of a need for including patients alongside other stakeholders in both the design and the evaluation of any ICT health care solution.

The European Union has recently adopted this strategy as a pillar of a future information society and the Seventh Framework Program on Research and Development (FP7) highlights within the health strand, the aim is to restructure health care services to make them more patient sensitive. It is clearly stated that "Community policy must take...patients' rights as a key starting point...This includes participation and influence on decision-making"

I would conclude with this premise: Patients are very interested, willing and able to participate in a meaningful way in developing solutions that involve ICT, and we believe it is important to involve patients through their representative organizations at a very early stage.

ICT Expectations, Benefits, and Principles: The Physician's Point of View

Mr. Roland LEMYE, Président
Comité permanent des Médecins Européens

ICT affects diverse aspects of medical practice with patients, with other doctors, with prescribing medical treatment at a distance, even surgeries at a distance, with emails to replacing phone consultations. In general, doctors welcome the development of e-health but recall that the doctor patient relationship is a physical one based on trust with a face-to-face contact.

We have doctors who are very computer savvy and passionate about EHRs, while we also have other at lower skill levels. Many are like piano students who are learning the keys but are not quite ready to play Mozart.

Our main principle is that the same high standards should apply to all services irrespective of whether the service is delivered electronically or otherwise. A service must be confidential, secure, purpose-related, identified and authenticated with reliable confirmation of the physician's qualifications, and certainty of the patient's consent.

Concerns of physicians for emerging ICT health systems include:

- * Data ownership. Although a medical record is held by a physician, the patient remains the owner of personal information. The patient should hold a secure key to the data, and moreover, patients should be asked for consent to the recording of shared data.
- * Emergency EHR use. In emergency situations, physicians should be able to access a record, providing that access is logged and an audit trail is created, this access is disclosed to the patient, and a relevant legal framework is set in place.
- * Centralized databanks. There must be clear and enforceable rules on how data is accessed and by whom.
- * E-prescribing. CPME welcomes e-prescribing as a tool to improve patient safety but recommends further investigation in close association with physicians and patients.

Session III: How to introduce IT at regional or national levels

Creating value, not infrastructure

Jean-François Penciolelli, Global Business Development Director
Oracle

A map of the world, color-coded according to each country's level of development with an EHR program, shows national champions have emerged over the past 10 years with mature programs both in large countries such as Canada, Australia, or the United Kingdom, and smaller countries such as Portugal, Denmark or Slovenia. These countries established good governance for programs, set standards and won a commitment for investment and participation from diverse stakeholders. Regional champions include Andalusia and Stockholm County.

Yet today even these champions have difficulty demonstrating the value of EHR programs because 80% of time and investment up to this point, has been dedicated to a focus on infrastructure while only 20% of resources have been applied at the interface of infrastructure with people, where the value of these systems is created.

Is there really a need to reinvent the wheel in each country in order to establish techniques for patient identification? Where is the value from years spent debating global standards when countries and then medical centers within each country refuse to adopt them in favor of locally developed standards?

The history of ICT development shows the IT industry will integrate infrastructure and establish frameworks in order to increase market size and speed up implementation because if technologies for supporting health care systems are not replicated across several countries, then there is not a market but only the sale of expensive custom-designed programs, which ultimately no single country can afford.

If the IT industry is allowed to standardize infrastructure, acquisition costs will decrease, freeing up money and time for countries to focus on areas where the value from the systems can be realized, such as with portals for health care professionals, portals for patient interaction, and public health reporting drawn from national data registers, including vigilance alerts and analysis for payment-for-performance incentives. More time can be spend on training nurses and doctors on the use of these systems.

Countries developing ICT support for health care and EHRs should study the highly replicable models built by the world's champions and then establish a set of data to be centralized, that is compliant with the global criteria. On the top of this framework they should choose an interface from among the hundreds of vendors who offer integrated, plug-and-play applications.

Having lowered acquisition costs, decreased operational cost, sped up deployment, and created greater flexibility for the future together with a globally consistent back-end infrastructure, resources can instead be spend on maximizing these value-adding, front-end applications of the system.

Interoperability in ICT: Challenges & Success Factors

Charles Parisot, Architecture and Standards
GE Healthcare

An infrastructure for health care ICT needs to do its job, but it needs to be inexpensive to deploy, sufficiently nimble to be maintained, and long-lasting, because no one wants to pay for it. A good infrastructure moves data into the local system for use in a physician's office and then pulls data out. If the system does not do this from the start, the deployment will fail.

This health data ultimately belongs to the citizen and to society, so it needs to be confidential and portable, able to move from one system to another without any loss of security or integrity. Otherwise the system will be criticized and lose its credibility.

The key lesson from around the world for ICT deployment is focus, focus, focus, because programs under multiple political and financial pressures can lose their focus. Four areas of focus that have been successful include sharing summary records with some degree of coding of the information, sharing lab results, sharing imaging information and e-prescriptions. There has been less success with medication histories than e-prescribing, but to raise a point that is very contentious, sending information from a prescribing physician to a pharmacy is a fairly useless exercise with very little return on the investment. Knowing why a medication has been dispensed and tracking it within the context of the diagnosis, the treatment and across other treatments adds a lot of value.

If you define an ICT program for just one country you will create a business hardship for most vendors. It burns a lot of resources and time and you end up with an ad hoc solution that is hard to sustain and extremely complex. There are many vendors for front edge hospital systems, ambulatory care systems, formulary systems, private practice systems and radiology systems. All of them are in at least three markets and need to participate in several national or regional ICT programs.

A harmonization of standards emerging from this community is centering on the effort called Integrating the Healthcare Environment (IHE) that offers a third-party evaluation of conformance to internationally accepted standards of interoperability. The International Standards Organization has recognized IHE as a good process and Austria, before adopting a program for implementing e-health, ordered a third-party evaluation that came back saying IHE is the only game in town, it is this or we do it on our own. IHE specifications have been adopted and are being implemented as operational standards in Italy, Canada, the United States and France; they have been adopted for a pilot just starting in Japan and are being considered by China; and, the European Commission is launching with the IHE-Europe organization its large-scale e-health project for 12 countries.

This is a point for further investigation, something to be verified, but it is something I believe OECD can confirm and integrate in a strategic recommendation to encourage wide adoption of robust interoperability.

eHealth as an Infrastructure Service

Berthold Sterzl, International Strategy
T-Systems Business Services

National and regional health care systems are challenged to deliver services more efficiently and effectively. Demographic change in industrialized countries is the driver but investment is required to stimulate innovative services for health delivery.

Based on its experience of successfully developing a large-scale public service, T-Systems suggests the public-private partnership as an organizational vehicle capable of transforming national e-health infrastructures. This new business model directly addresses the major impediment for advancing these programs, which is not technology but the decision-making bodies. A public-private partnership (PPP) creates a shared and sustainable mechanism for decision-making.

Such partnerships have been successfully applied to transforming infrastructure in other industries, such as transport, and are delivering good results. T-System's eight-year partnership with German regional authorities for a private toll collecting program, Toll Collect, is an example of such a financially successful PPP.

As a PPP is designed as a funding vehicle for a health care system, the sharing of risks and rewards must be decided early on, and it is essential to determine appropriate incentives for performance. Open, transparent but firm management is necessary that clearly communicates goals and clearly assigns responsibilities. In the health industry where cooperation is often limited and there is a lack of transparency, the PPP becomes an instrument for planning, financing and operating the infrastructure.

Is there a bridge from Toll Collect to "National eHealth Connect"? Toll Connect is the largest PPP for an IT implementation of a public infrastructure. While the program has not yet been replicated on a European scale, such a project is being tendered and cross-border interoperability is being tested.

Privacy, security, and performance are key challenges for any health care infrastructure, but again, technology is not the determining factor for a program's success. Ownership in e-health is highly fragmented with markedly different and often independent stakeholders, who nonetheless share a single infrastructure. To transform the industry not only is a new delivery system needed but new payment mechanisms as well. A PPP could bridge this fractured landscape.

The proposal to the OECD is to help formulate a firm vision for PPPs, to promote them, and to help coordinate activities with the European Commission.

Session IV: Challenges to be addressed in implementing solutions offered by the IT industry

Financing health care IT systems

Elaine Ingebritson, Market Development Manager
GE Healthcare Financial Services

Faster adoption of health care ICT systems is good for everybody, but investment is hard to justify. Health care providers want to invest in health care information technology systems to improve patient safety, reduce errors, and create efficiencies. Yet it is difficult to justify acquisition based on a traditional return on investment analysis. Many benefits are hard to measure.

Initial acquisition of systems and ongoing costs of ICT are among the greatest barriers to adoption. Where most large hospitals and health systems have access to multiple sources of capital, the challenges are significant for mid-size providers seeking financing for health care ICT. Smaller hospitals, physician practices, and clinics and who need ICT financing may not qualify due to weaknesses in cash flow, financial strength, collateral, or the ability to provide guarantees. Health care ICT offers virtually no collateral due to the high level of software in the valuation.

Three examples of ways to overcome the acquisition challenges are guaranty programs, government payments, and leasing. In France there is an example of a government payment program called Avenant 24 that pays a premium reimbursement rate to encourage the purchase of ICT equipment. An example of a loan guarantee program can be found with the US Small Business Administration.

The third path for a hospital is to lease, rather than to own, the ICT equipment, spreading the expense over a fixed period of time rather than requiring cash up front and continuing financial liabilities. Leasing could encourage earlier adoption of health ICT systems for hospitals that hesitate in their decisions due to the high risk of rapid obsolescence. Additionally, as an operating lease is not a capital acquisition it may become easier for smaller providers to obtain approval.

Creatively providing access to financing for needed equipment is essential for health ICT adoption and further suggestions for alternative financing are needed from the accounting, legal and financial communities, as well as strong government support for ICT programs.

The journey towards shared services

Debbie Brockbank, Shared Service Director
National Health Service, UK

Providing administrative services to the NHS is not a headline grabber, yet we are saving in real cash terms 3% of the controllable spend for 100 finance departments. This may be finance, it may seem boring, but this program does have size and scale with 30,000 users at more than 1,000 sites, which is about a quarter of the NHS. And we are freeing up GBP 224 million for frontline care, which equates to some 12,000 nursing jobs.

NHS Shared Business Services, a public organization, operates on a commercial model through a 50-50 joint venture between the Department of Health and a private company, Xansa. This is not a PPP, but we both have skin in the game, we both make investments, and we have commercial rigor because the only way either party gets anything out of this is venture is when it starts to make money.

Our shared services are not mandated, in fact there was legislation saying there is no obligation by any hospital or primary care trust to accept this service, so we needed to create a commercially attractive service focused on what people will pay for, and then convince them there is a continuing value. We had to do better than they could do themselves.

I agree with previous speakers that any project that involves ICT, and this shared service does have a technology component, is doomed to failure if approached from the technology point of view. There are objective arguments, but we also need to address what was emotionally acceptable as this is a change process. And true to the recommendation of previous speakers, 20% of our efforts went into the actual program design and 80% went into addressing the concerns of the end-users, the people who were expected to use the service, and convincing them that it was the right thing to do.

Standardization is key in our core processes and I have heard the discussion today about getting everyone around the table to hash out the standards for such a program. As you asked me to speak straight on this, I need to say you can never design a standard by committee. At some point someone needs to make a decision on one thing over another. So by all means consult, but do not let that consultation get in the way of your end objective.

The only point I will make about technology here is to use a plain vanilla solution wherever possible. Three years later we have a quarter of the NHS operating on very standard processes, all using the same chartered accounts and these 100 organizations come from diverse parts of the system, including primary trusts, as well as large hospitals.

The service was launched in October 2005 and we grew from the original 36 trusts to 140 trusts in 18 months. We are implementing a new system each week, and we do not have to deal with the ICT issues for every implementation. Instead we are able to focus on shaping legacy data and the changes around the staff processes and people. If we did not have this standardization, there is no way we could maintain such low migration costs, nor would we have been able to build so quickly the scale of the service.

In conclusion I would underline that the issues and challenges for this type of service are not technology-based but people-centered. We have a team of specialists that is heavily utilized and these are not

technologists but change management consultants who combine specific NHS knowledge and change management skills.

Challenges to Implementation: Lessons Learned

Mike Bainbridge, Technology Office

Connecting for Health, National Health Service, UK

Before looking at the implementation of the e-prescription service that I will present today, it is useful to look at the bigger problems we face, one of which is the current paper-based system. Paper-based medical practice is no longer fit for purpose, but to take that even further, it is unethical to continue practicing medicine in the way we do today.

I have not heard much urgency in today's discussion about a second issue that concerns NHS. We have a chart on the wall of our office with two lines, one showing the increase in the number of people over 60 years old and one showing the decrease in the people under 16 years old. Where those two lines cross, the health service model stops working. That will be 2012 in England. It may be sooner, it may be later in other countries but the issue is that simple. It is not a question of throwing more money at this problem, the issue is that there are not enough people to do the job. We had actually run out of people in the Northeast of England to do the re-keying of prescription data and we needed 2,000 more people to do that until we started the ICT project that I will describe today.

If we continue on our current trajectory, health services will cost four times as much in 2050. It is worth remembering England has a GBP 100 billion budget for the health service, which is about 9% of gross domestic product (GDP). Four times 9% GDP is unaffordable, and if you are in America, four times 12% or 18% is out of the question.

The e-prescription service is not isolated from the rest of these issues. The paper they are writing on needs to be rekeyed by the physician at the pharmacy for the proper labeling, and then these are sent in the post to the center where they are rekeyed a third time to be put in the registry. Putting that in perspective, there are about 1.5 million prescriptions being issued every working day in England for a population of 55 million people. There are obvious savings to be made, especially when you consider a 5% increase per year. Today 94% of the prescriptions from general practice offices in England are generated electronically, which is 25% of the daily volume. There will be more as we move to hospitals and then to dentists.

The benefits are obvious, including safety, transparency and the start of a fully shared prescription record. Looking at adverse drug events, a study published in British Medical Journal concluded that one in 16 hospital admissions are the result of an adverse drug reaction. This equates to 4% of English bed capacity occupied at any one point by problems that are avoidable, and at a cost of GBP 500 million.

To conclude, we face an emergency in terms of a demographic time bomb. We have convergent thinking across Europe with everyone wanting to move in the same direction with electronic records, something that we must do because we can no longer do it with paper.

Better Breathing: ICT as a tool to assist in better health care

Claus Duedal Pedersen, International Manager
MedCom (Denmark)

Denmark faces the same issues evoked by the previous speaker. There is no way we can build hospitals to take care of people in the way we are doing things today, so we must find new ways of doing things.

We chose chronic obstructive pulmonary disease (COPD) as one of the cases for developing e-care tools for alternative care delivery as this is one of the most expensive diseases for health services. A late-stage COPD patient is in the hospital an average of four times each year for a stay of eight to 10 days. We want to treat them at home, so we developed a suitcase that takes the place of a hospital bed with monitoring equipment and communication tools to deliver the same quality of care but at a distance.

The patients, all of whom are over 70 years old, are first admitted to the hospital and after an overnight stay are furnished with the suitcase and sent home. They remain connected by satellite or ADSL link with the hospital staff just as if they were in a bed on a ward at the hospital. If they want to speak to a nurse they push a button, just like the button at their bedside in a hospital. The nurse responds and examines the patient.

This is no longer a pilot program. This is the way the Funen Hospital manages these patients now, and it is going quite well. We deliver the same quality of service and we are delivering the same results measured against a control group of patients with hospital stays. We save 25 hospital days each month and with an average stay costing EUR 500, you can do the math yourself.

The program and tools are currently being clinically validated, but preliminary test results indicate that over 50% of re-admissions were prevented and the saving per suitcase per year is estimated at EUR 125,600.

A first, the challenge is convincing physicians that this alternative treatment is the way we are doing things now, and then convincing the health care professional to use this workflow and assure them about the comfort of the patient. Patients actually prefer this service because they like to stay at home.

The real difficulty we face is that there is no reimbursement for this service. Hospitals are no longer receiving the revenues for the patient stays and in fact are losing money. So we need to get reimbursement changed, because this is the way we have to deliver HC for ageing patients in the future. Changing reimbursement is proving to be difficult.

Future services we are developing include e-rehabilitation to reduce the cost and inconvenience of transporting severely sick people from their home to the training facilities. As a part of the European project other services like e-communities will be built for patients through an online facility where COPD patients can communicate with each other, as these patients tend to become more isolated as the disease advances. Other services to be build include e-learning educational services that will instruct them on how to tackle their disease.

Fully Integrated Hospital Solutions

Thierry Mitouard, Director
McKesson France

Shared issues among countries in Europe are inadequate funding for ICT at around 2% for the majority of hospitals and legacy equipment with pieces of software dispersed everywhere. All these need to be integrated into an interoperable system.

Key lessons for meeting these challenges can be drawn from a case study of ICT development at the Academic Hospital of Clermont-Ferrand, ranked as one of the best in France. Three hospitals were part of the medical center accounting for almost 2,000 beds, and in 2006 a new hospital was built with 565 beds. The opportunity of building a new hospital from scratch provided the inspiration to rethink the existing ICT infrastructure and to anticipate emergent needs such as the French patient medical record, a new e-prescribing program, improved information exchanges among clinical care departments, tracking billing across diverse departments and eliminating the reliance on paper-based systems.

A change in leadership at the hospital brought a clear vision for the scope of the ambitions and a decision to work with a unique supplier for these solutions, thereby ending a narrow view of one-time and isolated program investments in favor of a wider strategic partnership able to focus on forward-looking programs.

Drawing on this experience, the recommendations for taking on ICT implementations for regional hospitals include:

- * Increase funding for these projects with precise guidelines that include greater planning and cooperation between industry and the hospitals.
- * Encourage the emergence of industry leaders favoring those who adopt interoperable standards and putting in place new rules for public procurement that are more flexible and encourage competition among providers.
- * Increase the training skills for both ICT and medical processes among hospital staff.
- * Encourage bold leadership.

Session V: Enabling innovation: factors and challenges

Innovative business and reimbursement models

Karl-Jürgen Schmitt, Corporate & Public Affairs
Siemens Medical Solutions

There is great potential to improve health care efficiency. We have seen huge successes in Stockholm with a 73 % reduction of prescription errors due to ICT support. In the United States such programs have returned cost savings and reduced waiting times. There are the examples of telemedicine programs in Germany that enjoy not only great acceptance among patients but also result in significant cost reductions of 77%.

The question is why these models have not been implemented more widely and the answer is in another question: In whose interest is it to keep these people healthy? We have not seen a direct link between the interest of care providers and the payers of health services to keep people healthy. An approach that integrates these different interests is needed.

For integrated models in Germany and Switzerland both the payers and the care providers negotiate care contracts with capitated payments for providers but also a shared morbidity risk for payers.

The model pursued by Kaiser Permanente in the United States, where the payer and the provider are the same, has shown amazing results. The people covered by this plan are the only ones in the world to have a higher probability of dying from cancer than from a cardiovascular disease. For breast cancer screening there is a 79% compliance rate where here in Europe the highest is Sweden with 70%, and in Germany we are happy if we reach 40%. For controlling high blood pressure, the Kaiser plan helps 76% of such patients stay within their prescribed ranges whereas in Germany we have only 50% who do so.

It is obvious that we need to change to reimbursement models for medical care that reward continuous processes rather than a fee-for-service in order to link the interests of care providers and payers to keep people healthy. The recommendation to the OECD is to endorse such a change and encourage a focus for early detection and prevention, to give a priority to keeping people healthy and helping patients manage their own illnesses, rather than building systems that seek to cure them when they are ill.

ICT in health care: Challenges to innovation

Graham Vickery, Information, Computer and Communications Policy Division
OECD

We have heard it said today that if we get the big picture right, then we can forget about the details. I suggest there are details that continue to pose challenges to the success of these programs and the ability to realize a greater vision.

Three areas of challenge with a major potential to become barriers to innovation are electronic health records, digital imaging for diagnostics, and delivering health care at a distance.

For EHRs if you think about technology and ICT by themselves it is a recipe for disaster and the 80/20 rule discussed today is indeed very important. There are e-health programs that have been very successful yet

there are many that are poorly designed with low implementation flexibility that have ended in failures or disappointments, including the recent experience in France.

In the area of digital imaging technology for diagnostics, it is true that procedures in health care today are nothing like they used to be. Diagnostics have changed so radically, thanks to some of the companies around this table today. Yet there remain challenges of joining up all this information and sharing it in meaningful ways. These challenges include the details of interoperability standards, usability of legacy records, privacy and legal issues. We have not heard today discussion of offshore processing for diagnosis, but I believe this will become an important issue to contain costs.

For monitoring the chronically ill and elderly at a distance there are opportunities for focusing on higher impact health improvement using different technologies for different health conditions, as these patients often have several acute conditions. There is a need to foster greater patient involvement and overcome today's inertia. And finally, there is a pressing need to develop objectives of evidence-based evaluations for health care performed at a distance.

Turning to new areas of innovation, the whole area of participative medicine, where patients are able to actively participate in their health management, is very exciting and deserves much more attention and study. Opportunities for social computing, creating communities and health networking platforms are going to become very important for the future of health care.

Finally, there are significant organizational issues behind the difficulties we have seen for implementing these systems. The problem is in the hospitals themselves, we are asking for these changes in daily organization from the best people in the world, but who are also very busy people, flat out busy all of the time.

Transforming Health: Challenges and opportunities

Petra Wilson, Public Sector Health Care Director
Cisco Systems

I find it is a luxury to talk about these issues today because 15 years down the line it will not be a luxury as we will have more and more people to care for and fewer and fewer people to do that caring. We cannot afford to continue doing health care as we have done and must instead scale health care provision to meet future needs.

Of key importance is how we access care at the intersection of primary and secondary care. We should not bring people into hospitals for this care when we can deliver it in their homes. In the interest of more green living, we can even bring services to the workplace. We have the technology to do this but the system is set up to pay people to provide services in traditional settings. Until we get over the issue of how we pay people for services, I don't think it is possible to solve this problem.

The non-technical challenges are one of the biggest issues we face and it is one where the most money needs to go. So many of the systems in Europe have gone wrong here pouring so much funding into the technology, forgetting that an amount three or four times greater needs to go into handling change management properly and applying the same interoperability principles to work processes.

We also need to move from traditional notions of privacy and confidentiality to new notions of information governance, based on concepts of shared access and shared responsibility even new responsibilities. It does not win me many friends when I talk about shifting our ideas of privacy and confidentiality to a new information governance. We are very much oriented, certainly in Europe, around the idea that there is one person who is the keeper of information and one person who is the provider of information. Yet there is a lot of information on any citizen (citizens) out there covering a life from cradle to grave. There is a lot of information that is continuously shared and stored about you (one, us).

The concepts behind information governance revolve around a recognition that while health information is special and different, the value of health information is (lies) in sharing it. Because if we are proposing to move the setting where health care is delivered, to move across boundaries into that intersection where health and social care come together, where different sets of services are providing care to the same patient, then we will move to a situation demanding far more shared ownership of information and a need to build new legal frameworks to accommodate that ownership.

It is not necessary to compromise someone's privacy to share information about that person. But to build trust in that system, we have to give patients some involvement in that system, a right to more control in managing their information.

Focus on Health Information Exchange (HIE)

Mourad Ameziane, Managing Director Public Health Service, Europe
Accenture

Everyone, including private sector companies, is unhappy with the progress in health ICT today. Non-economic challenges have been well discussed today and they are considerable in scope. And there remains the economic challenge, a mismatch between who pays and who gets the benefits. It is difficult to establish a proper business case with tangible benefits and funding for ICT in health care.

Developing an HIE, a uniquely American term, we dealt with challenges that were both economic and non-economic and I will share some of the lessons learned.

HIE refers to any electronic information exchange between players in the health care industry including providers, medical plans and payers. It is a robust ICT platform that may take different forms but is built on an underlying bridge linking organizations. An HIE provides access to standardized health care data. Patients have access to their personal health record supported by analytical engines allowing them to know best treatment options. Physicians have a complete data set on patients and tools to assist them. Health plans, the payers, and health care institutions can improve quality utilizing fact-based outcome data. For pharmaceutical companies, access to patient data can revolutionize how drugs are developed, how clinical trials are run, and how pharmacovigilance is done. Finally, governments have access to health care data that will not only drive improvements in care delivery, but will help protect citizens through public health surveillance and drug monitoring.

There remain significant economic challenges for HIEs. At the macro level, there is a mismatch of benefits and investment. Providers have low incentives to invest in HIE as it is the payers, in theory, which accrue much of the savings related to potential clinical savings. At the local level, the administrative HIE has a compelling business case as it is transaction-based, while the clinical HIE is still a rarity demonstrating a

far weaker, poorly understood business case for the provider. The business case for employers to fund or ask their payer to fund an HIE has not yet been documented

There are a variety of unresolved non-economic challenges inhibiting the growth of HIEs and there is still no consensus on what we are going to do with it once we get it. Much of this we discussed today, including significant governance issues, human capital constraints, and privacy and security. As it is not clear who owns the data this can be a constraint in selling the data.

The vision remains very expensive and we still have not found solutions for making the economical balance between the cost of these solutions and the value and the benefits. As mentioned earlier, there is a vision on the horizon and the intention to build these HIEs, but we need to find a way to start small and identify the sequencing of building up from basic blocks to give us a way forward.

Closing Remarks

Issues raised at this meeting relevant to the OECD project.

Elettra Ronchi, Administrator, Directorate for Employment, Labor and Social Affairs
OECD

Considering the volume of information exchanged in caring for patients, managing the accountability, tracking financial transactions, or for conducting research, it is surprising to learn how far health care systems are lagging behind other industries for ICT.

Clearly there are sensitivities in the health care market and we heard today that we are dealing with a special industry sector, so we should be cautious when we try to seek solutions by making parallels with other sectors. A major task will be reconciling the different needs of the different stakeholders.

What was confirmed today is that the most significant impediment facing ICT in health care is financial with significant purchase and implementation costs, and a great need for investment on an ongoing basis. There is also evidence of a misalignment between the beneficiaries and the payers in health care. We heard suggestions for experimenting with incentives, such as pay for performance models, and we know that OECD countries are currently considering such incentives as well as others that could go beyond the models we have heard about so far and could prove very useful in encouraging, purchase, implementation and adoption.

We heard in the debate today that there is – in a very broad sense- a lack of productivity gains perhaps due to the fact that while much health information is generated and stored, it is often not shared effectively, among the care community or with the patient. Today OECD countries generally identify as a top priority the need to improve continuity of care, particularly information sharing between primary and ambulatory care, for chronic disease management, and for empowering patients to manage their conditions better themselves. We heard today, and you have been successful in delivering this message, that communications limited to point-to-point sharing will not meet this priority.

Therefore, a critical issue to reflect upon is how to move from local solutions, and you mentioned many that are very interesting, to national solutions, and then to the final and ultimate point, how to move to global solutions.

You touched on this today asking why there has not been improvement here, given that the value of ICT comes from integration. Is it because this requires radical systemic change? Is it because the standards are not there? Is it too bold a step? The views expressed provide important points to reflect upon.

We are still left with the big questions, which are part of the OECD project. Given the time constraints, I will not get into the project details, but these are the key questions that governments are asking to form their priorities: To what end? How best to implement? Where can ICT make a difference in terms of efficiency, costs, and quality?

As we are looking for country case studies, I was very glad to hear you feel that there are mature applications such as for the sharing of summary records with some degree of coding of the information, of lab results, imaging information and e-prescriptions. But we have also heard the inverse, so that it becomes

important to look closer at the history of ICT in health care to learn how this area has evolved and the lessons learned.

There are some statements you made that are not new. One statement, in particular dates back to considerations made in 1970, and yet still stands in front of us today, namely that technology is not enough, there needs to be an equal commitment to change in other aspects of health care delivery.

What I take away from today is that we need to apply our convening powers to establish a better dialogue between the various stakeholders to determine what can be done to speed up adoption.

Moving from a crisis of confidence to successful outcomes

Alain Sommer, Chairman of the BIAC Task Force on Health Care Policy

I believe we have reached in this sector a crisis of confidence, if not a crisis of legitimacy. Decision makers of the OECD health institutions have invested a lot of time and money in this area and sometimes, too often, without sufficient return on that investment at different levels.

This is true for all kinds of projects, for both hospitals and national organizations. We cannot always see savings and improvements in the figures in cases where ICT has been implemented.

And this is also true for financial investors. The health service market represents only one minor part of activity among the leading actors in the ICT world. If the investors are disappointed, they will invest elsewhere. Nonetheless, this sector is in desperate need of capital for innovation. Imagine the results if funding for investment in ICT had stopped five years ago.

There are many different reasons for this current crisis of confidence. One major happens to be the extreme diversity of the outcomes of ICT projects:

- Highly successful projects (Medical Insurance Cards for example).
- Risky projects using technically innovative solutions without adequate mitigation plan or an understanding of the potential risks.
- Projects with poor implementation because of a lack of appropriate change management.
- Projects which were prevented from reaching their targets because they were launched with limited skills and without secured funding.

Still, BIAC remains convinced that ICT projects will be pivotal for improving health care systems. Lowering the pace of their development will have negative impacts. Moreover, all the stakeholders will benefit from their success.

BIAC proposes to create a small group of experts interested in working together with the OECD to describe what works in terms of readiness, solutions, organizations, and funding. This will help to identify how progress that can be made in the area of ICT. For instance it could help to describe a 'decision tree' for a program of implementation of the existing solutions.

As businesses, we are able to show track records. We know where successes are. We need to determine what works and show how it can be prioritized, to give OECD member countries an idea of what could be a strategy for implementation and how progressively we can move from success to success.

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On top of that, BIAC experts have a sound knowledge for financial issues. BIAC can convene health insurers, bankers, ICT companies, healthcare providers, pharmaceutical and medical devices, employers to address together the most critical financial issues related to ICT. The private sector has often shown its ability to innovate successfully in funding infrastructures and services. Why should the health sector not be a new success story?

To start with, we suggest an event, under auspices of the OECD. We would appreciate your feedback on whether we should go ahead with our propositions.

Expert Group Discussion

The discussion following each presentation session often began in a traditional question-and-answer format but quickly expanded to speakers from any session and comments from participants in this expert group who included representatives from OECD member countries, the European Union and multi-national companies. The five discussion sessions have been consolidated here to reflect this continuous development of topics and the interaction between participants.

Mr. Rob Thwaites, representing GlaxoSmithKline, rolled the first apple of discord onto the table asking, “Doesn't the database aggregating patient records become an asset for a health system that can be developed as a revenue stream to offset the costs of creating and maintaining the records?”

Dr. Bainbridge with the British National Health Service affirmed there is, indeed, a secondary use for medical records that are anonymized for deriving health screening data for health services, or auditing data for responding to parliamentary questions. Could these records also be used for commercial use? Yes, they could. Has that been decided? No, it is a bold step, he said.

We all know that a lot of companies today spend billions to get clinical data that often is of a questionable quality. To access an overarching database with 55 million population records is the Holy Grail for pharmaceutical companies and we have certainly been approached. Where those discussions go, and whether anyone would be popular for reducing income tax for a compromise in privacy is a very complex and difficult question and I would not like to predict what the outcome may be.

Ms. Ingerbritson with GE Healthcare Financial Services said that in the United States some early adopters of the EHR, such as InterMountain Health in Salt Lake City, are starting to see some benefit from their database that is measurable in terms of their return on the investment. It is a fascinating idea, certainly something to keep in mind, but not anything helpful in the near term.

Mr. Penciolelli from Oracle said many people propose medication management as the principle reason for developing electronic health records (EHRs), and that indeed this is something the OECD might propose as a first benefit for member countries. Looking at the example of radiology records, the problems of exchanging records between equipment from competing manufacturers was resolved relatively quickly by those companies in an enlightened self interest to assure patient safety, but also to sell more equipment.

There is a similar interest among pharmaceutical companies, he said, which seek to reduce adverse drug events, to assure patient safety, but also to sell more products. Yet today, the pharmaceutical companies are completely outside of the efforts to develop EHRs. The companies involved, such as Oracle, Microsoft, or Agfa Healthcare, are only building the infrastructure to make it possible. Yet these companies do not benefit from the resulting records and database. The obstacle to developing EHRs is not ICT but bringing together the people who stand to benefit most from these records.

If the OECD wants to say what no one has said to this point, then it should call for the pharmaceutical companies, and for the insurance companies, to come to the table and participate in the development of EHRs.

Why have pharmaceutical companies not participated in developing EHRs?

Mr. Penciolelli directly addressed his question to Mr. Snowball representing the European Federation of Pharmaceutical Industries & Associations (EFPIA).

Mr. Snowball agreed that the industry had not been active and EFPIA only became formally involved at the beginning of this year. There has been some development with the industry in the United States that indeed demonstrated value, but there has not been an equivalent action in the European arena. Yes, the industry is late, he agreed, adding there has been a lack of clarity as to what can be done with the data. We took a decision to become active, he said, yet the issue of standards to be used for the governance of use of the data is still not resolved and it has taken 10 years to settle a single policy question.

Mr. Parisot from GE Healthcare said we need to be very clear that e-prescribing alone will not deliver the anticipated benefits from patient medication records. In order to deliver these you need all the other elements of the records, including especially a view of the diagnosis. It starts with e-prescription and medication management, but let's make sure we do not oversell, he said. A fuller context is needed to avoid creating a medication information silo isolated from the larger sets of medical data information. The large-scale EU project as an example includes both a patient summary and e-prescribing. This is something a little more complex, and it begins to solve the problem of how to connect the systems, which is more effective clinically, technically and makes greater business sense.

Measuring, quality and performance.

Mr. Parisot suggested another avenue worth considering, one that is less contentious, and that involves secondary use of data in the area of measuring quality of medical service delivery and quality management. It makes the physicians and care practitioners a little nervous, but in a proper pay-for-performance program this would be something that would actually give both an incentive to the physicians and a benefit to the overall system, thereby helping to justify the overall investment.

Dr. Bainbridge added that quality measures derived from NHS electronic records for patients with cancer, heart disease and other specific clinical pathways are used to calculate from 35% to 40% of a general practitioner's paycheck. It is a contractual term set with physicians, that has made a tremendous improvement in the quality of primary care in the UK and which the NHS is currently testing in acute care areas to see if similar outcome measures can be applied.

Insurers and providers add complexity.

Vice Chairman of the BIAC Task Force on Health Care Policy, Mr. Machel Nuyten said Europe also has private insurance companies who provide finances for systems. He asked if there is a difference for industry in approaching insurers and what challenges they presented.

Using her experiences in providing shared services for the NHS, Ms. Brockbank said the private sector presents a problem in sharing data across systems. There is a reluctance to have same-data sets shared with other companies and organizations which undermines the integrity and benefits of a multiple-source database.

Mr. Parisot cited an example from the United States where a small change to policy subsequently released multiple projects for data sharing among private providers. The attitude toward data sharing among private providers in the US, he said, was previously expressed in one word: "never." Yet there remained an acute need for hospitals to share data across local outpatient clinics and general practitioners to enhance patient referrals from these primary and secondary care networks. Previously it was illegal for hospitals to provide an ICT system to these clinics and physicians' offices, but this law was relaxed under the condition that the

ICT system allows clinics to connect in a standardized way that also enables them to connect to multiple hospitals.

Mr. Hoff, the US Department of Health and Human Services Attaché to the OECD, said he was delighted to hear that changes to the Stark law had made a difference. But part of problem with health care policy is that it took six years for this little change to come about, with unintended consequences in the regulatory process. And the world is full of these kinds of landmines, which is both encouraging and discouraging.

The concern for patient rights for data.

Ms. Ronchi from the OECD said there has been a great deal of debate on the issue of the degree of control for patients over the information which is stored and available to the broader care community and its use. There are concerns on confidentiality, and mistrust on the part of patients. Are the stakeholders talking to each other and how is this issue progressing?

Ms. Bedlington from the European Patients' Forum said that there has been considerable work at the European level among associations and stakeholders and that there is a significant concern on the issue of a repetition of patient consent for multiple and diverse uses of the data. She said that in 2008 her organization would be investigating patient rights in clinical research trials and the uses of data and confidentiality as an associate partner for the RESPECT program, Relating Expectations and needs to the Participation and Empowerment of children in Clinical Trials. The association will develop a formal positioning from this work.

Few concerns expressed by physicians.

The Chairman of the BIAAC Task Force on Health Care Policy and organizer of the conference, Mr. Sommer, said he was surprised to not hear more concern expressed by physicians as to secondary use of medical records, the misalignment of incentives and benefits, and more generally the slow adoption of EHRs.

When I speak with physicians, he said, they complain about a lack of compensation for the time spent setting up and using these systems, about being required to re-enter data, and that they have to buy the EHR system out of their own pocket. I have only heard little concern (on that) today. Should we consider these problems solved? I had the impression that there is a widespread lack of acceptance by physicians.

Dr. Lemye from the Comité Permanent des Médecins Européens said a statistical profile of computerization of physician practices shows that there is a significant obstacle to wider adoption. He suggested there was not a single reason that emerges across the complex landscape of diverse European programs, for why acceptance rates vary greatly. And he could not say that physicians' acceptance was the most significant obstacle for the launch of EHR systems.

As for the issue of patient privacy and confidentiality he is confident that the same principles that apply to personal data in Europe would also apply to clinical trial data.

Mr. Parisot offered an unusual strategy for wider physicians' adoption used in Singapore. There is a heavy insistence there on the EHR being included in physicians' training. It is as if Singapore is saying our deployment plan is simple, we will wait 15 years to make sure every student during seven years of medical study has used the EHR every day. It is an admirable and sure policy that should not to be overlooked, he said.

The United Kingdom adopted the policy that collecting and storing medical information for future use is in itself a medical act, he said, and it is therefore reimbursable just like an examination or ordering a radiology image. The task of practicing medicine with support from an electronic record system is recognized as adding a value to the health system and the physician is reimbursed as such. He suggests that when the physician understands that what he is doing is on behalf of the patient, this would solve a lot of the consent and legal questions...

Reimbursement is not enough to solve the problems.

Michèle Thonnet from the European Health Telematics Association said there is a suggestion that if reimbursement and financial incentives were aligned there would be no more problems winning wider adoption of EHRs. She disagreed saying there remain significant obstacles of liability and responsibility, as Ms. Wilson presented. As we move health care from the hospital to the home setting these issues become more significant, she said, and there is indeed a need for a new model of responsibility toward patient data, though she wondered how such an innovative model could be introduced and accepted.

It is also not necessary to widely share data for an EHR system to be effective, she said. Point-to-point exchanges of information are a near-term solution that brings immediate benefit. Controlling that access allows a system to also control the benefits of using the data, she said.

Mr. Parisot said that there is a very big difference between sharing information within one institution, or even one country and the sharing of information on a scale that is emerging with the European large-scale program or the wider use of data for secondary purposes.

Even within hospitals there are problems with care coordination due to limited exchanges and restricted access to patient information. If you cannot share information then how can you achieve a shared, coordinated task between hospitals and home care? Look how people are working today, he suggested. They are asking for information they do not get, and they are treating patients without the information they should have.

As the infrastructure for any system is built, including those with near-term point-to-point capabilities, it is essential to scope the infrastructure so that it is capable of more widely sharing information in the future as restrictions are lifted.

Standards for data exchange may have advanced but they continue to dominate debate.

Peter Scherer from the OECD said the points made by speakers about the need for standards in ICT infrastructure reminded him of the lessons from Australia, which built a rail system with different sized tracks for each province and as a result even today you cannot run the same train from one end of the country to another.

He said that unless there is success in aligning standards on a global level, e-health systems and EHRs will diffuse in silos, as part of local solutions but will never reach a goal that everyone agrees too early on, which is to share information across boundaries.

While the OECD is not an active player in the development of performance-tested, robust and interoperability standards and technical specifications, the OECD could play a role through its convening powers as a policy forum on this tremendous challenge with the support of organizations and people at this meeting.

Mr. Hoff said that like Australia, there is a history in health ICT where large companies created an interoperability barrier, in order to dominate a given market with a specialized standard. This has led to the paralysis today. What then, is the chance that this current process for re-making standards will work over the long term? He said no one could say whether the success of developing the widely accepted medical imaging standard DICOM (Digital Imaging and COmmunications in Medicine) was due to the radiologists or to the manufacturers of imaging equipment. The SNOMED standard (Systematized NOmenclature of MEDicine) was developed by the College of American Pathologists with the support and encouragement of the US government. The HL7 standard (Health Language Seven) has long been adopted by the international community. There is a plethora of organizations promoting standards for the EHR, and Mr. Hoff's question is whether this is a system that is working or one that is broken? Our belief is that it is a system that needs financing on the front end of the process and encouragement on the back-end.

The Chairman for the meeting, Mr. Mauricomme said while DICOM standards began with radiology, the robustness and strength of this standard has allowed it to be extended to other medical imaging. Over the past 10 years it has become the medical JPEG, a standard for exchanging and storing images. During this same period, medical imaging migrated from the clinical setting and today it is found everywhere including cardiology, gynecology, obstetrics, even endoscopy, where the use of video is disappearing in favor of digital images. Currently the challenge is adoption of DICOM for lab results with images of microscope slides.

There has been resistance throughout the process, he said, but it continues to progress, largely through the support of users. It is important to note the timescale, he said, and how slow the process can be.

Mr. Sommer agreed that we need to set norms for health ICT, but we are not going to write (a) the Bible. We should not wait for years until everyone agrees. Instead we need to set a timeframe and a framework to help win agreement on what is proving to be a fast-moving and quickly developing area.

Mr. Ameziane from Accenture said that we agree on the end stage of the process yet what we do not agree on is how to attack the problem. There is a need to identify the sequences to this process and then to cut this elephant into digestible chunks.

Mr. Parisot estimated there are 1,000 health ICT projects underway in the world today, so the audience is very large for standards with up to as many as 3,000 system vendors and 100,000 hospitals to connect. Over the past three years these projects have aligned with a few core standards that you mentioned, and these standards will solve about 70% of the problems for infrastructure and advancing progress in web services drawing on those infrastructures.

These base standards are no longer the bottleneck as we gain consensus. The challenge before us today is connecting these standards through a large number of projects and linking it to local delivery. The definition of standards must be global but implementation is local. The question that Europe needs to address is how to specify from the top down and be mindful of the interpretations and national or regional preferences from the bottom up. Each project can remain national in nature, such as the NHS Connecting for Health, as long as they do things in a cookie-cutter fashion according to global standards. If they are consistent, then each project becomes an island that can be linked to the larger system and these projects become incremental efforts rather than one-of-a-kind sets of problems.

Dr. Bainbridge said that if any of the multinational suppliers to the Connecting for Health program were to develop something special for England, it will not be well done, it will be expensive and when we try to reap the benefits of a standardized system, which is to peel-off the data and switch to a new supplier, we would find ourselves locked in. There are requirements from the system that are specific to England, such as issues we are required to control locally, reimbursement processes and statutory reporting. Yet, the fundamentals of the infrastructure are identical to other countries and a multinational supplier would rather do something once for England and then take it to other countries.

Mr. Penciolelli said that from an ICT industry perspective there are two key issues slowing the development of standards from his experience in Europe. First there is the size of the market. At the moment, there is the NHS in England, but outside of this there is no other market for health ICT in Europe, or very small markets for the kinds of products being developed. The second, he said, is the syndrome that countries do not want an ICT system that was not invented here. We hear that someone does not want the same system developed by the Portuguese, or the Danish, or in Andalusians. When one looks at the Danish MedCom system there is a 15-year old history of medical messaging, reaching something like 2.5 billion messages per year. We might look to the NHS, or to Australia or Canada where they are operating best practices today. Why do other countries not want to do the same?

From an ICT industry perspective, if we do not see this kind of replicability or the same kinds of decisions being taken then we can forget this business because industry is not interested. We will continue to do the business we are given, but this will not change the health systems of these countries and will not create the added value they are seeking.

Why can ICT in health care not reach a critical mass?

The Vice Chairman of the BIAC Committee on Employment, Labor and Social Affairs, Mr. Nagasaka said that he had heard during this meeting that ICT for health care is not at the level of integration as it is in other industries and that there is no scale to encourage the market for ICT solutions. He asked several speakers to offer their opinion as to why this is the case.

Mr. Ameziane said this is the million-dollar question. He suggested that the scale and complexity of problems creates the difficulties. Contrary to other industries, the complexity of what we are trying to take on in health care is up another magnitude as we demand we present the complete information needed for every patient everywhere at any time. And we need to remember that this is the most sensitive information you can imagine.

Returning to an earlier point, Mr. Ameziane said this challenge of finding a large-scale solution cannot be tackled without first cutting it into smaller elements that are sustainable on their own. These elements need to match the reality of the ICT industry, which has yet to provide an integrated large scale solution that is replicable, cost-effective and on its own delivering value.

Mr. Vickery from the OECD suggested that the one who pays and the one who benefits are different in health care which explains why the sector does not respond to the typical innovation model that pushed advancement of ICT in other industries. While there are outstanding advances in health care practices, such as microsurgeries as only one example, these practices remain isolated applications and are not integrated progressively as was the case in the automotive industry as it linked centers of excellence. This integration is where there is a payback, a return on the effort.

Mr. Schmitt suggested that in the end the incentive issue creates the greatest barrier. If we continue to pay hospitals to have patients in their rooms, then they will have patients in their rooms. If we pay a physician to do ultrasounds, he will do ultrasounds.

Ms. Brockbank said there is not an economic reason for why the European market has failed to achieve size and scale. Instead the growth of the market depends on the cultural acceptance of solutions to the organizations within each market. Citing the example of shared services in England, she said Portugal has developed similar programs and suggested that there is nothing that prevents hospitals in France from launching similar services to reduce costs, but that she suspects what stops them is cultural. What drives a cultural change is a compelling event, she said, which in the UK was a political pressure to get more effective public services. There are political drivers emerging in other European countries today, she said.

Ms. Wilson said we should not be quite so hard on health care systems, agreeing there have been huge advances in care and delivery from which everyone at this meeting has benefitted at some point. There is much that has been oversold and under delivered, however, and the medical profession is not very forgiving in that regard. Today the industry landscape resembles a string of islands, and there are a host of reasons for this, not least of which are cultural ones that say change will be slower in health care.

As an example of a unique culture in health care she said that doctors are universally taught not to trust other people's collection of information, and are reluctant to base a medical decision on evidence they did not observe themselves.

Another cultural issue is that it takes political courage to do this and we need to be mindful we are often asking political courage from someone who will likely not reap the benefit during his or her term in office. The benefit of a large public health care project is not going to accrue to the health minister making that decision and it is not going to help that government get re-elected. This makes it difficult on the political scene to take the big gamble required for health care.

If we want to shift models of health care delivery, we will first need to shift the models for governing health care today, Ms. Wilson said. In other industries perhaps it is possible to do things the other way around with innovation pushing the change, but health care is one area where that would never be acceptable.

A big bang change in governance is never going to happen, she said, but it can be done piece by piece. A lever for changing behavior incrementally that has proven effective is reimbursement. The NHS has had very good results from paying doctors to collect information about patients' health and for preventative care. A result is seeing how many of their under-five year olds are vaccinated, because physicians do not receive a payment unless they achieve certain targets. For COPD and diabetes we can target a goal of 20% home delivery and pay them a bonus for doing it. If we can do things like that, taking areas of health care that lend themselves to this kind of incremental shift in policy, we may have a chance for success.