

**Testimony by:**

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**Testimony on Health Information Technology**

**By**

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Subcommittee on Technology, Innovation, and Competitiveness**

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## **I. Introduction**

Good morning, Mr. Chairman, Senator Kerry, and members of the Subcommittee. My name is Terry Ragon, and I am the CEO, founder, and owner of InterSystems Corporation – a private company headquartered in Cambridge, Massachusetts.

InterSystems, which I started in 1978, is a multinational database company with offices in over 20 countries, providing both database and integration software technology to connect enterprises. We specialize in extremely high performance large-scale systems used by tens of thousands of users, but we support systems of all sizes.

In the United States, we are the predominant vendor of database software for health care clinical applications. For electronic patient records (EPRs), more than 1,000 hospitals around the world use our technology including all of the Department of Veterans Affairs and Department of Defense hospitals, the Indian Health Service, and Kaiser Permanente. In fact, all 10 of the top ranked U.S. hospitals, as ranked by US News and World Report, are InterSystems clients. Our application partners, who build clinical application products with our software, include Epic Systems, GE, Misys, and QuadraMed, to name a few.

Since I am not a member of any government task force, I am not in a position to report on progress in standards specifications. However, I do have a number of comments on healthcare IT and the state of interoperability.

## **II. Lessons Learned**

Throughout my 28 years leading InterSystems, I have witnessed a fundamental transformation in the way health information is managed, and I have seen both successful and unsuccessful projects. There are two lessons that I have learned that I would like to share with the Subcommittee today. They are:

1. The choice of technology is critically important – far more important than vendor size or name recognition
2. Evolution works better than revolution

In some respects software development is much like an artist painting – it is the choice of artist that counts. Hiring additional artists to work on the canvas does not result in it being completed quicker or better – nor does hiring additional people to advise the artist on how to paint. Better paint, canvas, brushes, lighting – better technology – does make a difference.

As you may have seen, NBC News recently aired a special report on the radical improvement of care at VA hospitals over the last 25 years and credited much of that improvement to an extremely sophisticated computer system – a system that has evolved over those 25 years and uses our technology as its core database technology. I am proud to have played a part in that result, and I believe the VA's success illustrates that: 1)

technology can make a difference; and 2) evolution – not revolution – usually produces better results in health information technology (IT).

Another clear example of these two points lies in the Department of Defense, whose healthcare applications were initially derived from the VA's software in the 1980s. Those applications are based on InterSystems database technology and are still operating reliably in every DoD hospital. Over a decade ago, the Department embarked upon an ambitious program to specify and build from scratch replacement applications using legacy relational database technology. They now recognize the difficulty of such an undertaking and believe that the best path to rapidly create more advanced clinical systems is through thoughtful evolution – and are working with us to do so.

Kaiser Permanente provides another good example of how the choice of technology is important. Kaiser spent many years and hundreds of millions of dollars attempting to develop clinical applications using legacy relational database technology. Eventually, they decided to abandon this internal effort and selected Epic, whose applications are based upon our technology, to deploy their clinical applications, including medical records. Although the deployment is not fully complete, clinicians are now realizing the benefits of sophisticated IT.

As can clearly be seen in the VA, DoD and Kaiser examples, in healthcare evolution works better than revolution and the choice of technology is critically important. Why? Healthcare clinical applications, including EPRs, are quite complex – far more than most commercial applications. They are used by intelligent, dedicated, and demanding professionals delivering care in very sophisticated environments. Doctors expect their clinical systems to be just as sophisticated, and tolerance for errors is non-existent as the penalties for failure can be crushing. While more can be done, I urge caution in mandating sweeping changes, and I urge recognition that evolution that builds on past successes is more likely to work in a scientific setting.

### **III. Leveraging Existing Investments**

A key dilemma facing many organizations today is “How do I move forward with new technology when I have to live with existing systems that are already embedded in the organization and are doing an effective job of running the business?” As the new millennium approached some 7 years ago, many organizations rushed to “rip-and-replace” all of their legacy systems with a single new system. A high percentage of these projects were failures, either admittedly so or in fact. Companies learned first hand that they had no choice but to live with their existing systems – even as they endeavored to move forward and modernize.

Healthcare organizations share this same dilemma. Installing an EPR at a hospital has traditionally meant selecting a vendor with a comprehensive healthcare product that replaces many of the existing departmental systems such as lab, radiology, and pharmacy, even if those applications are functioning well and are beloved by their users. This “rip-

and-replace” strategy in a mature health IT market like the United States is extremely difficult, very expensive, and often leads to failure. In most cases, it is not really what the hospital wants in the first place.

I believe the future lies with a different strategy, in which the EPR is built as a new type of software application called a “composite application” that “sits on top of” existing departmental applications, communicating with the already installed departmental systems. Each system has embedded technology that optimizes the functionality of that particular application, and they are connected to support a connected enterprise.

This approach avoids the massive “rip-and-replace” scenarios that often fail, it is less expensive, and it produces positive results much quicker. It also allows the hospital to continue to use a “best of breed” approach for departmental systems. While the benefits are so overwhelming that it may seem obvious that this is the way to proceed, I can assure you that it is a revolutionary approach in IT.

In essence, this is the real interoperability issue facing healthcare institutions today. “How do I get my systems to work together, sharing information, to achieve a true connected enterprise?”

To facilitate this approach, a new generation of technology is required – which we have built. This new technology (Ensemble) makes it simpler to connect such composite applications with the organization’s existing systems, and we have begun to see its adoption over the last year in a number of highly successful projects. This technology allows organizations to retain and leverage their substantial investments while continuing to modernize and enhance functionality.

This need for interoperability within a hospital – the need to share information among departments - is strikingly similar to the emerging need to share information between organizations. There are, however, two additional issues in a regional or national EHR that typically do not occur within a hospital: 1) determining whether or not two patients seen at different facilities are in fact the same patient (which currently involves human intervention due to the lack of a national medical record number), and 2) differing clinical terminology– it’s hard to communicate effectively if we don’t have a shared vocabulary for diseases, treatments, medications, and so on.

The same technology we built for connecting an organization and supporting composite applications is also being used to link organizations into regional and national entities. For example, in the Netherlands, Ensemble is being utilized to implement a national Electronic Health Record (EHR), linking all hospitals, clinics, and physician practices.

Clearly, the technology to achieve regional and national EHRs exists today - the key questions are how to use such systems and for what purposes. That is why the health industry is currently in a phase of launching pilot projects, known as Regional Health Information Organizations (RHIOs), as experiments.

Because of the volume of opportunities we have seen both in the US and abroad for such regional and national EHRs, we are building a Health Information Exchange product designed specifically for that market. We look forward to better interoperability standards, which we will enthusiastically adopt, but we are not waiting.

This same technology could be easily used to connect VA and DoD health records.

#### **IV. The Role of Government in Electronic Health Records**

What should be the federal government's role in this area?

The main inhibitions to further adoption of EPRs by individual hospitals, clinics, and physicians is not standardization and certification – it is money and, in some cases, the usability of the software. However, a lack of standards for interoperability does inhibit the sharing of medical data between facilities to create a regional or national Electronic Health Record (EHR). A lack of interoperability standards also inhibits health surveillance and other important public health projects.

I believe the government can be, and is being, extremely helpful in establishing standards for interoperability, including both technology protocols for communicating and medical content standards.

However, I would like to emphasize the importance of limiting that standardization to interoperability – such as HL7 messaging standards – and not to the specification of what a medical record should be, or what its database should be, or how medical information should be structured within a system. Such specifications are unnecessary, stifle innovation, and encourage costly “rip and replace” strategies that are not in the national interest.

In my opinion there is no need for the federal government to fund the development of EPR or regional EHR technology. The key enablers already exist, and we, along with other companies, are already building and deploying such products. Rather, the federal government should continue to facilitate evolutionary improvements to existing systems, especially to federal clinical systems within the Veterans Administration, Indian Health Service, and Department of Defense, and support RHIO pilot projects that can demonstrate interoperability and provide “proof of concept” validation. Importantly, these pilot projects can be accomplished through limited, targeted funding, and do not require massive capitalization. Ultimately, federal funding of a national EHR may be appropriate, but not today.

One factor that limits the utility of an EHR is that regional EHR systems rely upon a human to determine if two patients seen at different facilities are really the same patient. While the computer can make estimates of the likelihood of it being the same person, in the absence of a unique nationwide medical record number, human intervention is likely to be a continuing requirement. Other countries are actively considering the establishment

of national medical record numbers for their citizens and, while I do not have a formal position on this issue, it is something that the Subcommittee may want to explore further.

In short, while the federal government has an important role to play, I believe it is already providing necessary and effective support.

## **VI. The U.K. Experience**

As the Subcommittee considers avenues to accelerate the adoption of health information technology, I would like to caution against the approach taken in the United Kingdom (U.K.) over the last few years, which is an example of how well intentioned public policy can produce extremely counterproductive results. A few years ago, the U.K. government concluded that improving health IT was simply a procurement problem that required the participation of big public companies. They divided the country into several regions, appointing a large well-known company for each region even though those companies often had little or no expertise in implementing complex healthcare systems.

Rather than selecting existing software products, detailed specifications for new systems were created. The systems to be installed became huge development projects with the objective of “ripping-and-replacing” all existing systems, even those legacy systems that were functioning well. Software development and delivery is well behind schedule.

The results have been poor for everyone involved. Health IT in the U.K. has been stagnant for years. Clinicians and patients are seeing no significant benefit and little in the way of new systems, large sums of money have been wasted, and vendors have reported huge loses. The companies who were previously providing successful health IT solutions have been frozen out of the market, and they are either no longer in business or have been damaged. A concurrent effort to connect U.K. hospitals, clinics, and doctors into a national EHR has met with a similar fate.

The difficulties with this approach are becoming more evident each day. Cost estimates for completing the project range from £15 to 30 billion and the Times of London recently warned that “the new NHS computer system could be the biggest IT disaster in history”.

I would argue that the lessons to be learned from the U.K. experience are essentially what I have stated: 1) that evolution works better than revolution; 2) that prior success in healthcare is critical in vendor selection; 3) that existing systems that are functioning well should be leveraged; and 4) that embarking on massive development projects when the needed technology already exists is counter-productive and a bad use of taxpayer dollars. Most importantly, the U.K. government failed to recognize that the choice of technology is critically important, and it is far more important than vendor size or name recognition.

## **VII. Conclusion**

In closing, I would like to emphasize that the technology to achieve affordable and effective EPR and EHR exists today, and that the EHR vision can be more quickly

realized through an approach that stresses “Evolution, Not Revolution.” Our nation has invested substantial resources in legacy systems that continue to provide useful and necessary clinical information. These investments can continue to be effectively leveraged - avoiding the need to discard and replace existing healthcare systems – and system functionality can be enhanced through incremental modernization that connects composite applications to installed departmental systems.

Mr. Chairman, thank you for the opportunity to testify today. I look forward to your questions.