INTERSYSTEMS
WHITE PAPER

# STRATEGIC INTEROPERABILITY WHITE PAPER

***Solving the Problem of Exchanging Medical Information between the DOD and the VA***

*A recommendation from InterSystems*

InterSystems
HEALTHSHARE®

# Strategic Interoperability White Paper

## Table of Contents



## I. Executive Overview

This white paper discusses the critical requirements for the U.S. Departments of Defense (DOD) and Veterans Affairs (VA) to share Service members' medical records – including real-time access to a complete composite health record – and it proposes an immediate solution via implementation of a Health Informatics Platform. This approach will provide significant and clearly visible results in a matter of months, while positioning the Departments for strategic improvements in the years ahead.

Whereas in the past the frontier of healthcare IT was providing access to medical data at the point of care through health information systems (HIS), today the frontier is strategic interoperability. This shift is vital in creating a "more connected" care environment in which clinicians provide better care through access to complete up-to-the-minute patient information – and at lower cost due to the elimination of costly duplicate tests and the reduction of medical errors. This evolution is especially pertinent to government healthcare due to:

- **Mobility of patients** – Approximately 60% of DOD and 40% of VA healthcare is provided outside of government facilities by private providers. Thus access to complete information at the point of care requires the ability to consolidate information from multiple facilities through interoperability.
- **Expanded data usage** – Healthcare data is now needed for more purposes than just access at the point of care – for example, analytics and reporting, eligibility and disability processing, health surveillance, patient and clinician gateways, and research. It does not make sense to try to burden an HIS with an ever-expanding list of user requirements such as these.

While the immediate focus of strategic interoperability will be the sharing of existing DOD and VA data, numerous other areas will also benefit – including sharing with private providers, supporting engaged clinician and patient communities, and enabling the evolution of HIS capabilities.

Since about half of VA/DOD healthcare is provided outside of government facilities, any interoperability strategy for the Departments must ultimately include sharing data with private health facilities. This objective should be a key component of the initial technology selection. The requirement to share with the private sector also makes it clear that the development of DOD- or VA-specific IT protocols and standards is counterproductive, inhibiting the effective sharing of information and needlessly driving up costs. All required technology standards already exist and are fully proven as a result of the successful partnership of the U.S. government with private providers and healthcare IT companies.

We believe that a strategic interoperability platform should be put in place before starting the acquisition of any new HIS or departmental modules – that evolving to a new generation of HIS requires strategic interoperability. Given the size and complexity of the Departments, an HIS replacement would take at least ten years, during which time both new and existing systems would need to share information. Any separately acquired modules would certainly also require interoperability with both existing and new systems. Furthermore, having a strategic interoperability solution in place would increase the effectiveness of a "fly-off," enabling real-life demonstration of the effectiveness of the procured or developed system to communicate and participate in the broader healthcare requirements of the government. Requiring this proof represents a prudent path for acquiring technology that has been very costly and risky for organizations to acquire and implement.

We recommend a paradigm shift from thinking about integration and messaging to focusing on strategic interoperability – a paradigm that will enable the rise of new models for providing and managing care and for how patients and providers interact. As an analogy, the rise of the Internet first led to email and accessing information remotely – akin to the availability of a shared health record. The Internet's effect then exploded in ways that dramatically affected how business is conducted, empowered individuals through information, and enabled social networks, including communities focused on a specific profession or common need. So too, strategic health interoperability has the ability to transform how healthcare is conducted. In private healthcare, these capabilities are already being used to create engaged communities – including patient communities and clinician communities focused on a specific disease such as diabetes or various cancers with a requirement to communicate shared care. While the U.S. government currently lags behind in these efforts, the scale and nature of its community provides the DOD and VA with a very important opportunity in these areas.

The core technology needed for strategic interoperability is a Health Informatics Platform. Such systems have been developed and deployed in recent years and are available as commercial off-the-shelf (COTS) solutions. There is no need to custom develop such a platform, which would simply increase risks and costs while negating the ability to take advantage of future product advances via software upgrades.

Beyond simply exchanging data, a Health Informatics Platform provides the technological foundation for key healthcare improvement initiatives through:

- **A shared composite health record**, which intelligently aggregates patient data across organizations and makes it available real-time to clinicians.
- The technology to enable **engaged communities** of clinicians, patients, and other healthcare professionals – improving care while allowing patients to take a more active role in managing their health.
- Strong **security** and **privacy** controls.
- Rich analytics-based population health functions that enable real-time health surveillance monitoring, proactive management of at-risk populations, reporting, and research.

Acquiring a Health Informatics Platform is an enabling procurement – the attainment of strategic interoperability is a journey, not a one-time event. Over time a wide range of applications will be procured through COTS and professional service providers or developed by agency personnel. In many cases these applications have not yet even been envisioned, but they will require the virtualization and other interoperability services provided by such a platform.

In essence, then, our view is:

- It is essential to create a meaningful VA-DOD exchange featuring real-time access by clinicians and other health professionals to a shared VA/DOD health record as soon as possible.
- The sharing needs to expand over time to include private providers, since about 50% of VA/DOD healthcare is provided by private providers.
- It is important to make a paradigm shift from thinking about integration and message passing to strategic interoperability.
- Strategic interoperability should be adopted in advance of an acquisition of a new HIS or additional modules.
- The VA and DOD should focus on utilizing existing, proven standards rather than attempting to develop unnecessary agency-specific requirements that inhibit sharing and drive up costs.
- All of this must be accomplished at moderate cost while enabling cost savings.
- The only practical way to accomplish these goals is to adopt a proven COTS based Health Informatics Platform. Using a custom-built solution for this foundation would dramatically drive up cost, implementation time, and the risk of failure.

***By purchasing an effective, proven COTS solution and leveraging the experience of State and private health information exchanges, we believe the VA and DOD can have a data exchange solution with a real-time composite VA/DOD health record deployed within a year, with initial sites up and running in a matter of months. The required software is available "off the shelf," and it is proven to operate at the scale needed by the VA and DOD.***

## II. Strategic Interoperability

It is important to understand the distinction between strategic interoperability and integration. A simple example lies in the evolution of the telephone. Initial point-to-point communications (like early integration efforts) grew into a hub-and-spoke model with a telephone operator (akin to integration engines with IT department interventions when connections are needed.) At that point the phone was very useful but the model was still simply integration. Then the telecommunications world exploded as networks arrived, and these networks evolved to support far more than voice data – giving rise to video, computer communication, the Internet, social networks, etc. This represents a far more strategic level of interoperability that enabled a wide range of applications undreamed of at the time the strategic capability was created.

Of course, this revolution did not occur without enabling technology – platforms supporting packet switching, address routing, Internet service, etc., based on shared and broadly agreed upon standards. These platforms are constantly being upgraded with new technology to be faster, more scalable, and provide greater functionality; the standards on which they are based are also evolving. Today, anyone seeking to create functionality that requires communications would naturally utilize that strategic communications interoperability platform – no one would try to build a custom hardwired communications vehicle to support a new social network.

Healthcare IT is on a cusp similar to the one communications was on at the time networks began to arrive. Functional requirements for interoperability have begun to explode – outpacing the capabilities of traditional integration – giving rise to the creation of new technologies. While the long-term viability of Regional Health Information Organizations (RHIOs) in the U.S. is uncertain, RHIOs and similar regional and national health records programs in other countries have led to a rethinking at a strategic level of the nature of sharing health information, and that has led to the creation of products designed to support such strategic sharing.

It became apparent several years ago that a product approach was essential to support the growing interoperability needs of healthcare; individual custom integration efforts were no longer viable once one tried to go beyond simple message passing. This product requirement is further reinforced by the inherent and growing complexity of healthcare data and healthcare practices, a complexity that makes interoperability in healthcare significantly more challenging than in other industries. The belief that a product approach is essential is borne out by an examination of the effectiveness of RHIO efforts. It is extremely difficult for custom-built efforts to attain significant, or even satisfactory, results. Such efforts are not scalable and do not provide a solid foundation for the future growth toward new, and often unexpected functionality requirements.

The "meaningful use" requirements mandated of healthcare by the federal government has led to an examination by providers of how to create and share health information both internally and with outside clinicians and patients. Financial pressures have also been moving the healthcare industry to re-examine the model with which care is provided. In particular, there is increasing pressure to focus on a patient's health – not just fee for service activities – and Accountable Care Organizations (ACOs) are rapidly being adopted as the model for many Integrated Delivery Networks (IDNs) and other providers. These trends put tremendous focus on sharing information effectively between multiple providers and institutions – there is no other way to provide coordinated care plans or to track high-risk and high-cost disease populations.

CIOs know these needs cannot be met by the simple passing of HL7 messages from one system to another. CIOs know these demands cannot be met by their HIS vendor. CIOs know it is not feasible for their department to be the intermediary for each request. CIOs know they cannot meet the demands without a radically different approach. In essence, CIOs are saying, "We've outstripped the effectiveness of simple integration. The old integration approach – the logical equivalent of operator-assisted dialing – no longer works."

Increasingly, CIOs are adopting a more strategic approach to these needs. They are turning towards adopting a Health Informatics Platform as the underlying enabling technology to meet these growing requirements.

This move to strategic interoperability and a Health Informatics Platform represents a paradigm shift in healthcare IT that will enable evolution of healthcare models.

## III. VA / DOD Information Sharing

At no point in the history of government healthcare has the need for interoperability and the exchange of healthcare data been greater than it is today. Whether it is speeding up the process of approving Veteran's benefits, improving care for Servicemembers, or smoothing the transition from military to civilian life, there is a pressing need for meaningful sharing of healthcare data.

Let us consider an example:

Captain Gonzalez is a recently discharged veteran who served several tours in Afghanistan. Since his discharge he has visited his primary care physician several times as well as the emergency room of the local private hospital. His primary care doctor thinks he may be suffering from conditions related to his most recent tour of duty and recommends that he contact the local Veterans Health Administration Hospital.

If a medical record sharing system providing a composite health record were available, the VA doctor who sees Captain Gonzalez could review his complete medical record, including data from any in-theater systems, stateside Military Hospitals, civilian doctor's offices, and civilian hospitals that the captain has visited. Images, laboratory results, consultation reports, allergies, and medications are immediately available.

Without such a system, the captain is required to carry a copy of his military health record – which he may not have – or rely on the mail to send his record to the current VA facility where he will receive care. There is also a limited electronic set of data that is supported by DOD. In addition, there is no easy way for him to get his civilian records. It would take weeks, if not months, for Captain Gonzalez to complete multiple consent forms and personally request and receive information from multiple providers, and he may well not obtain all relevant data. Once such data is received, the diffuse formats make it difficult to review and nearly impossible to search.

Today, that composite health record for military personnel is not available, but the technology to enable it does exist.

Over the last several years, a great amount of effort has been put into looking for ways to provide the DOD and the VA with solutions to exchange clinical information. However, despite some successes, the results have been disappointing in terms of achieving a number of key objectives. We believe these limitations on success are related to the following:

- Lack of strategic focus on interoperability – interoperability is often simply seen as a byproduct of tactical integration efforts.
- Lack of product orientation – attained interoperability is based upon "one-off" custom-built interfaces with little or no effective applicability to future needs, and they must be separately maintained at great expense. Similarly, custom projects are aimed at meeting a discrete set of goals, and only those goals, without adequate consideration of the nature of evolving requirements.
- Failure to focus on interoperability standards established by ONC and already in use throughout U.S. healthcare. The alternative of developing Agency-specific standards will impede working with other agencies and with private healthcare and will delay meaningful results.
- Failure to focus on existing products that work, which have improved through evolution.

At the same time, pilot programs have clearly demonstrated with existing COTS solutions connected to government systems the ability to:

- Share health information between the VA and DOD – including presenting a composite health record viewed within a browser.
- Share health information between the VA and private healthcare providers – also presenting a composite health record viewable within a browser.

In addition, the national health record system in Sweden and a variety of State-level exchanges in the U.S., which are operating effectively in daily use, clearly demonstrate the ability to share such information and provide a composite health record for populations as large as the VA and DOD. These systems are all based upon a Health Informatics Platform and all utilize proven interoperability standards.

We believe a product approach combined with a paradigm shift is essential to solving these immediate sharing problems and positioning the VA/DOD to enable connected care health paradigms. An effective solution that enables the DOD and VA to easily share clinical data with each other and with other healthcare systems, such as private hospitals and primary care, would:

- Support the current healthcare systems in use at the DOD and the VA and be flexible enough to support any future upgrades or replacements to these systems.
- Have a proven ability to support interoperability with private providers.
- Be based on proven, broadly adopted, open standards.
- Be capable of supporting the scale of operations likely to evolve.
- Be sensitive to security, auditing, and patient consent.
- Be capable of being implemented quickly and cost effectively.
- Achieve sustainable clinical adoption by physicians and other care deliverers.
- Serve as the basis for providing a wide range of other functionality that will be required over time.

This is a very attainable vision.

## IV. Eligibility and Disability Processing

Eligibility and disability claims processing has been a major and growing issue. Clearly the issues involved are more than just the availability of appropriate medical information, since effective claims processing is based upon:

- Adequate and appropriate staff
- Procedures
- Training
- Culture
- And, of course, access to information

However, it is also true that it is very difficult to process claims without timely access to complete and trustworthy information. Furthermore, the introduction of a new system that provides better information is an ideal opportunity to make other changes to procedures and culture.

The accessibility and format of information made available to processing personnel can be improved through:

- Immediate online access to more complete information.
- Organizing and formatting information in a manner suited to the nature of case review.
- Being able to access and search clinical notes and other unstructured text.

A Health Informatics Platform that provides a consolidated health record can present that medical data in the most suitable format for claims processing, without the need to modify the source HIS systems to do so.

An important function that can be provided by the Health Informatics Platform is the ability to analyze and search unstructured data – such as clinical notes – within which much of the most pertinent information for claims processing often resides. The VA has already begun to do so for research purposes, and this could readily be extended to information originating from the DOD as an aid in determining eligibility.

## V. Health Informatics Platform

A Health Informatics Platform provides the software foundation for achieving strategic interoperability and creating a more connected healthcare environment. It is a software product that consolidates health information from a variety of sources into a single regional or national health record, shares such information in real time with authorized consumers, provides powerful analytics on the data, and enables the rapid development and deployment of innovative applications based on rich medical information. Health Informatics Platforms are used by healthcare providers, payers, Health Information Exchanges, and government agencies around the world.

Not all of the information accumulated is necessarily part of a patient health record – in many cases financial and other non-medical data is shared, as well as public health information and de-identified information for research. Nor is the patient data necessarily stored in a central database. While it is certainly possible to build a consolidated record in the Platform's database, in other cases the data is retained in a provider's existing systems and consolidated on-demand.

A Health Informatics Platform provides a wide array of capabilities in support of this mission, and these provide the building blocks for communities to engage in a range of activities unique to their areas of interest. While these communities certainly need authorization to access the information, they are empowered to utilize these capabilities without burdening a central IT group. Thus, these communities and the applications they support can grow organically and much more quickly than otherwise – much the way smart phones have enabled a wide range of useful mobile applications.

The functional capabilities of a Health Informatics Platform include:

- Patient Registry, indicating which patients have data at which provider organizations, and providing mappings to the patient identifiers of each provider.
- Provider Registry, which identifies people and organizations providing care.
- Identity Matching Services to determine, for example, if information about two patients or clinicians at different sites actually refers to the same person.
- Consent Services, to manage patient privacy.
- Proven clinical data models that are extensible and capable of supporting the breadth, depth, and richness of health information in a manner suitable for rapid storing, searching, and sharing.
- Gateways for aggregating information from disparate sources at a provider into a single coherent patient record, and for providing such a record on demand (which then can be aggregated with similar records for that patient from other providers). This Gateway often includes an "Edge Cache" for storing the provider's aggregated view of the patient, which can also be used by the provider for other purposes.
- Consolidation services for combining information from different providers into a single health record.

- Browser-based Clinical Viewer that can display a view of the consolidated record to a clinician. Often these viewers can be configured with custom views for different types of clinicians. (Of course, the data can also be consumed and displayed by a provider's EHR if it has that capability.)
- Powerful analytics services.
- Secure messaging services.
- Clinician and patient alerts and notifications.
- Patient Gateway Portals.
- Services for supporting IHE and other health and interoperability standards.
- Terminology services for normalizing clinical data.

Key technical characteristics of a Health Informatics Platform include:

- A massively scalable database with the ability to process millions of database accesses per second on big databases, and capable of storing and processing a wide range of data objects, while using only moderate amounts of hardware.
- Powerful integration capabilities that support both standard protocols as well as the flexibility to easily support custom interfaces for non-compliant systems.
- Rapid development capabilities to allow communities to easily develop additional functionality based on the core component services.
- The ability to store unstructured data and analyze clinical notes in a meaningful way – not just word search capabilities.
- The proven ability to operate 24 hours a day, every day, as enterprise systems in healthcare settings.

## VI. Engaged Clinician and Patient Communities

A Health Informatics Platform delivers the key capabilities needed to create and sustain engaged communities of clinicians, patients, families, and other healthcare participants. For clinicians this includes the ability to share clinical data, coordinate care, and provide a series of alerts and other notifications. Such systems can also help facilitate secure message-based communications with patients, book appointments, request refills, and provide patient reminders.

### Engaged Clinicians

There is great value in a physician being able to monitor the health of a high-risk population, such as diabetes patients. A clinician would often like to be immediately notified if one of these patients visits the emergency room, or interacts with the health system in any of a number of other well-defined ways. The clinician would also like some simple means of ascertaining whether the patient is making and keeping appointments the physician recommended, and is adhering to the prescribed care plan. The ability to monitor and be alerted to deviations from the care plan can radically improve the patient's health while significantly lowering costs. Such capabilities are enabled by – and in many cases require – shared health information. These are new capabilities that are just now evolving.

A more unique opportunity arises for certain specialties – particularly those focused on chronic diseases – where care is often coordinated with other clinicians, many of whom may be in other provider organizations and hence using a quite different EHR/HIS.

For example, suppose our Captain Gonzalez is seeing an oncologist, a cardiologist, and several other specialists. He is undergoing chemotherapy and radiation therapy and has frequent lab tests performed. These specialists are not all at the same health facility – his primary care doctor is a private practitioner he has seen for many years, his oncologist is at a high-profile private hospital, and his cardiologist and other specialists are at a VA hospital where he also has a number of lab tests performed.

His care plan is constantly being modified based on evolving conditions. The ability for his oncologist to immediately see the results of recent visits in a structured manner suitable to his/her profession is of enormous value, as is the ability to quickly and accurately communicate new care plans to a dispersed treatment team. Clearly the ability to do so is greatly enhanced by strategic interoperability capabilities connecting the healthcare community.

Exactly how these engaged clinician communities will evolve is not yet clear. Just as the availability of the Internet preceded social networks without being able to predict their format or function, so does strategic interoperability enable professional healthcare communities in ways we are just beginning to understand – and in ways that are very likely to evolve rapidly once the enabling technology is present.

### Engaged Patients

The opportunities for healthcare consumers – all of us – are equally profound. "While sitting at the beach I can bank, buy stocks, participate in a live wine auction, and use Skype to talk with my buddies overseas. How come I can't see my medical record, check my lab results, or communicate with my physician?" many people wonder.

At a number of health facilities, they now can, and with the ONC mandates of "meaningful use," it is likely that within a few years they will be able to do so at most private provider facilities.

With the increasing importance of specialties and primary care being overwhelmed with too many patients and too little time, many patients are increasingly taking on a greater role in coordinating their care. Thus patients – and parents – are being empowered through interoperability at a critical time.

What is it patients want to do?

- Communicate with their physician or a nurse – with secure messaging for privacy.
- Check lab results, and be able to click on results to understand what the test measures and the meaning of abnormal results.
- See their medications, and again be able to click to learn more about them.

- See their diagnoses, and click to learn more about them.
- Review their history, look at what was written about recent hospital visits, and read clinical notes.
- Request appointments.
- Do all of the above for family members – especially their children.
- Quickly see and print a list of immunizations for their children to provide to the school system when transferring to a new base.
- Fill out and print or submit forms that will be requested when they appear for an appointment, and applications for various purposes.

A Health Informatics Platform enables all of these – in some cases providing them directly and in others providing the information and linkages to existing systems needed to make them a reality.

By empowering engaged communities, a Health Informatics Platform enables patients to take a more active role in their wellness and clinicians to practice better-informed and better-coordinated medicine – at lower cost.

## VII. Evolving Healthcare through Analytics-based Medicine

A powerful example of the breakthroughs possible with a Health Informatics Platform is how it can enable a fundamental advancement in how medicine is practiced.

The aggregation and sharing of health information does more than improve the coordination of care – it is a powerful aid in evolving our understanding of how best to provide care, enabling Analytics-based Medicine. The ability to undertake detailed and comprehensive analyses of data from millions of patients provides statistically reliable new knowledge about patients with complex medical conditions.

Analytics-based medicine is a step beyond evidence-based medicine. Evidence-based medicine is based on the very best information currently available – on studies using the "gold standard" of randomized, double blind, clinical research trials. The evidence from these studies becomes the foundation of recommended practice guidelines – and the basis for determining whether or not clinicians are providing the best treatments.

A serious current limitation of evidence-based medicine is that obtaining statistically valid findings requires the design of such studies to limit the number of clinical variables examined. However, most patients who go to the doctor's office or hospital, particularly those patients with the most complex chronic conditions and with multiple diagnoses, are excluded from the gold standard studies because of their complexity. This exclusion severely limits the knowledge of how to treat patients with such complexities.

However, with a patient population of millions, the ability to aggregate their information, and with powerful tools to conduct sophisticated analyses of that aggregated information, those confounding variables can be filtered in statistically valid ways – enabling a better understanding of the complex relationships among patient characteristics, interventions, and clinical outcomes.

Furthermore, when combined with the eventual broad adoption of DNA testing and the exploding knowledge of genetic predispositions and genetic therapies, these analytical models hold forth the possibility of individually tailored therapies of far greater effectiveness than current healthcare can provide.

A Health Informatics Platform can be of enormous benefit in this evolution of knowledge because it can provide:

- The necessary aggregation of the rich medical information from diverse sources.
- Powerful analytical capabilities, including analytical capabilities for unstructured data such as clinical notes
- Massive scalability – with the ability to process millions of database accesses per second with big databases on relatively modest amounts of hardware.
- Clinical data exchange capabilities enabling research by engaged communities.

Due to their scale and mission, organizations such as the VA and DOD are uniquely positioned to play an enormously important role in this evolution that has the potential to transform healthcare – providing enormous health benefits for service members and their families, while lowering costs due to more effective and more individualized treatment plans.

## VIII. Keys to Success

Everyone outside of healthcare underestimates the complexity of healthcare; everyone outside of IT underestimates the complexity of large IT projects, and of course the DOD and VA are large, complex, mission-critical organizations. Thus, it is no surprise these agencies face formidable healthcare IT challenges. Nevertheless, we believe that the interoperability needs that have been so challenging can be overcome in the near term while strategically positioning the agencies for long term success through adoption of the following success factors:

**Embrace "strategic interoperability"** – The departments need to move beyond the traditional low-level approach of interfacing and messaging and adopt the new paradigm of strategic interoperability.

**Leverage existing healthcare interoperability standards** – Adopt the existing interoperability standards that have been promulgated by the Office of the National Coordinator for Health Information Technology (ONC). These standards were established with in-depth participation of healthcare providers and IT companies and have been validated via extensive real-world usage. Inventing new department-specific standards only delays adoption, impedes connecting with private providers who are already adopting the ONC standards, and dramatically raises costs and risks of failure.

**Acquire a commercial-off-the-shelf Health Informatics Platform** – The fastest path to strategic interoperability is an effective COTS product operating today at the scale required for the VA and DOD populations. A solution can be implemented in months, without taking on an expensive, time consuming, and risky software development project.

**Execute a 12-month plan** – While it is important to take a strategic long-term perspective in selecting a Strategic Health Information Platform, it is equally important to focus in the short term on its rapid deployment. With the right Platform, a solution to the immediate information sharing needs between the VA and DOD can be operational within 12 months, with clearly visible results in 3-6 months.

**Use the Platform as an enabler for future HIS evolution** – The clinical IT needs of the VA and DOD continue to grow along with a need to upgrade existing Health Information Systems. Whether this upgrade is accomplished through the evolution of existing systems, the acquisition of new modules, or their complete replacement with a COTS solution (which would likely require a decade or more to complete), a Strategic Health Information Platform will leverage the old and new systems, and will smooth the transition between them.

**Catalyze strategic care improvements through engaged communities and active analytic**s – A Strategic Health Information Platform is a key component in the ongoing drive to deliver better care at an affordable price. In particular, by enabling engaged communities of clinicians, patients, and other healthcare professionals, and by using active analytics to monitor health and optimize care for individual patients as well as populations, the right Platform can provide a meaningful difference in improving the health of our service members, veterans, and their families.

## About InterSystems

Founded in 1978, InterSystems Corporation is a privately held software company with offices in 25 countries and world headquarters in Cambridge, Massachusetts. InterSystems develops and supports database, integration, and related technologies, and internationally also provides complete Health Information Systems – solutions supporting hospitals, primary care, community care, and laboratories.

InterSystems Caché is the primary database used by both the VA and DOD for their Hospital Information Systems, and InterSystems has been providing database and related software technology to the VA for over 30 years and to the DOD for over 20. Caché is also used by all 18 members of the U.S. News 2013 Honor Roll of Best Hospitals, and it is the primary database used for PAS and clinical applications at the majority of the major IDNs in the U.S. InterSystems database and interoperability products are also widely used in other industries that demand extremely high performance and reliability – including major banks and other financial institutions.

Internationally, InterSystems also provides complete Health Information Systems, often for entire regions or countries. In Scotland, InterSystems provides the Hospital Information System for all the hospitals in the leading health boards, covering more than 70% of the country's population. In Brazil, InterSystems provides a regional Health Information System for the state of Brasilia (the capital) and surrounding area serving a population of 6 million people. That system supports all the health facilities in the state along with the strategic management and distribution of pharmaceuticals - and all of the clinicians use a single shared health record. In South Africa, InterSystems provides a national laboratory information system. Other Hospital Information System clients are in Australia, Chile, China, France, Italy, the Gulf States, Saudi Arabia, and various other countries.

InterSystems HealthShare® is a Health Informatics Platform for hospitals, integrated delivery networks (IDNs), and regional and national Health Information Exchanges in the public and private sectors – both in the U.S. and internationally. In Sweden it is used to provide a National Health Exchange with real-time access for the country's clinicians. In the U.S., HealthShare powers statewide exchanges serving more than 60 million Americans, and it is also widely used by IDNs.

HealthShare's advanced technologies for supporting regional and national health records, creating engaged communities, and delivering active analytics are helping the world's most innovative healthcare organizations provide the best care possible while evolving health delivery models.

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