

Experience the
FREEDOM of
Open Source

Medsphere® OpenVista®

The only cost-effective
and trusted
electronic health record.





Medsphere® OpenVista®: The Future

Preparing Today for the Future of Information Technology

In the twenty-first century, healthcare stands at a crossroads. Medical technology has both extended and improved life far beyond what was thought possible a century ago. Yet fundamental issues plague the effective delivery of healthcare. Today's challenges include patient safety, clinical and operational efficiency, and quality of care issues. Going forward, healthcare organizations need to practice evidence-based medicine, adhere to pay-for-performance guidelines, and deliver care based on genomic profiles, among other expectations. As patient data proliferates and regulation expands, the medical industry needs effective tools to manage the sheer volume of critical information.

While improved organization and better medical technique deliver incremental change, they cannot provide the increasing returns to scale available through information technology. An electronic health record (EHR) system affords centralized control over patient data, streamlining information gathering and enabling better decision-making. However, the high cost, proprietary nature, limited interoperability, and complexity of available solutions keep them out of reach for most healthcare organizations. As a result, there exists a widening gap between the healthcare haves and have-nots.

Building on a Solid Foundation

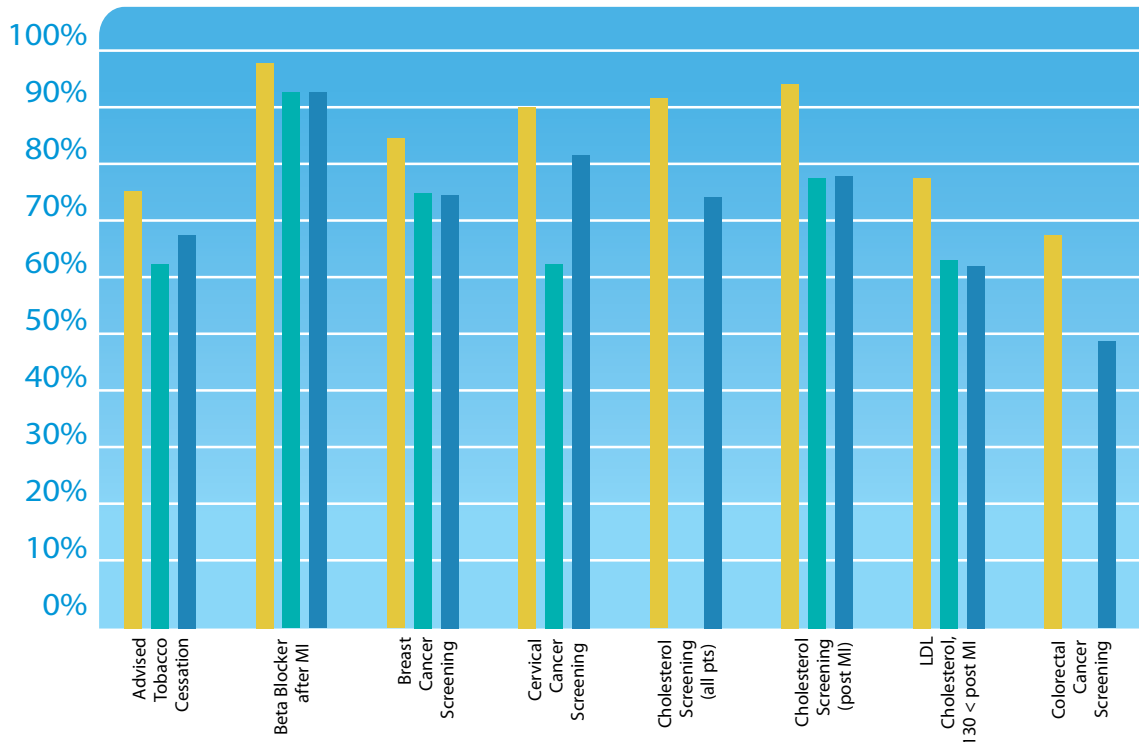
To close this gap, Medsphere is improving healthcare by leveraging various Open Source resources, among them the multi-billion dollar public investment by the U.S. Department of Veterans Affairs (VA) in the development of the comprehensive VistA EHR. Highly-acclaimed, VistA has been field-tested for more than twenty years in approximately 1,300 VA sites of care, including more than 160 medical centers and 850 related clinics. In commercializing an already valuable tool, Medsphere has transformed VistA into OpenVista, a commercially-robust, feature-rich EHR designed to meet the needs of hospitals, clinics, integrated delivery networks, and regional health information organizations.



Value profile > CEO

Medsphere OpenVista is a cost-effective, trusted and open EHR solution that enhances patient safety, increases clinical and operational efficiency, and improves the quality of care.

The Veterans' Administration: A Model for Healthcare Quality



of Healthcare Technology

Maximizing the Open Source Advantage

Medsphere harnesses the creative power of the VistA community via an Open Source model that facilitates an organic ecosystem centered on OpenVista. Medsphere's OpenVista community editions (available at both SourceForge.net and Medsphere.org) serve as both education and outreach tools and include commercial enhancements of the public domain VistA source code that adapt the software to the needs of non-VA facilities, modernize the graphical user interface, and extend the lifecycle of the VistA system. Medsphere welcomes input from interested users of the OpenVista community editions, and incorporates valuable suggestions back into the solution. All Medsphere enhancements are tested and validated in commercial OpenVista deployments, notably at Midland Memorial Hospital in Midland, Texas. Open Source also gives health organizations the flexibility to make decisions among alternative EHR architectures driven by costs and benefits. OpenVista meets the performance and functionality demands of modern healthcare while remaining a cost- and clinically-effective tool that delivers value well into the future.

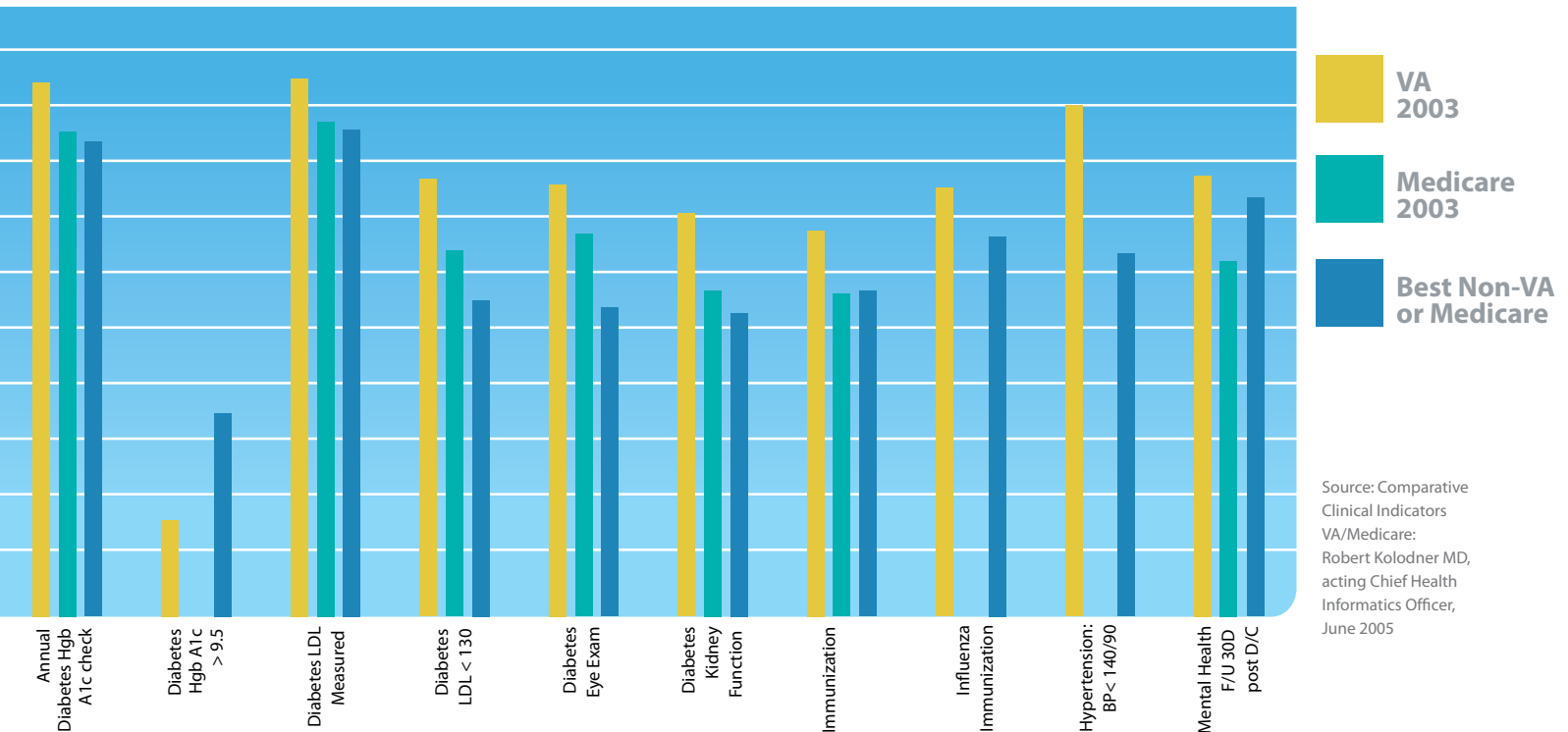
Removing Financial Barriers to Entry

Medsphere addresses the capital constraints of the healthcare industry through an innovative subscription-based pricing model enabled by Open Source. This pay-as-you-go model means that upfront software costs are significantly less than those of other industry solutions, eliminating traditional cost barriers to entry. Medsphere creates ongoing value via product upgrades and application support included with every subscription, helping customers get the most from their solution now and for years to come.

Transforming Your Organization into a Healthcare Quality Improvement Leader

VistA was designed specifically for the outcomes-oriented management of patients with chronic disease, which sets it apart from most health information systems. Lauding the VistA system as a transformative change agent, the Institute of Medicine (IOM) recognized VistA's "framework for using performance measures to improve quality," declaring it "one of the best in the nation." In fact, changes at the VA in the 1990s can be considered the largest case study ever of objectively improving care. Peer-reviewed articles clearly document the VA's higher compliance with performance standards, unparalleled patient safety improvements, and better overall health outcomes than private-sector organizations. The VA has become a model healthcare delivery organization, and VistA is a potential foundational element in the creation of a National Healthcare Information Network.

and the Inspiration for Medsphere OpenVista





Medsphere OpenVista: An EHR Solution for

One Solution for Multiple Care Environments

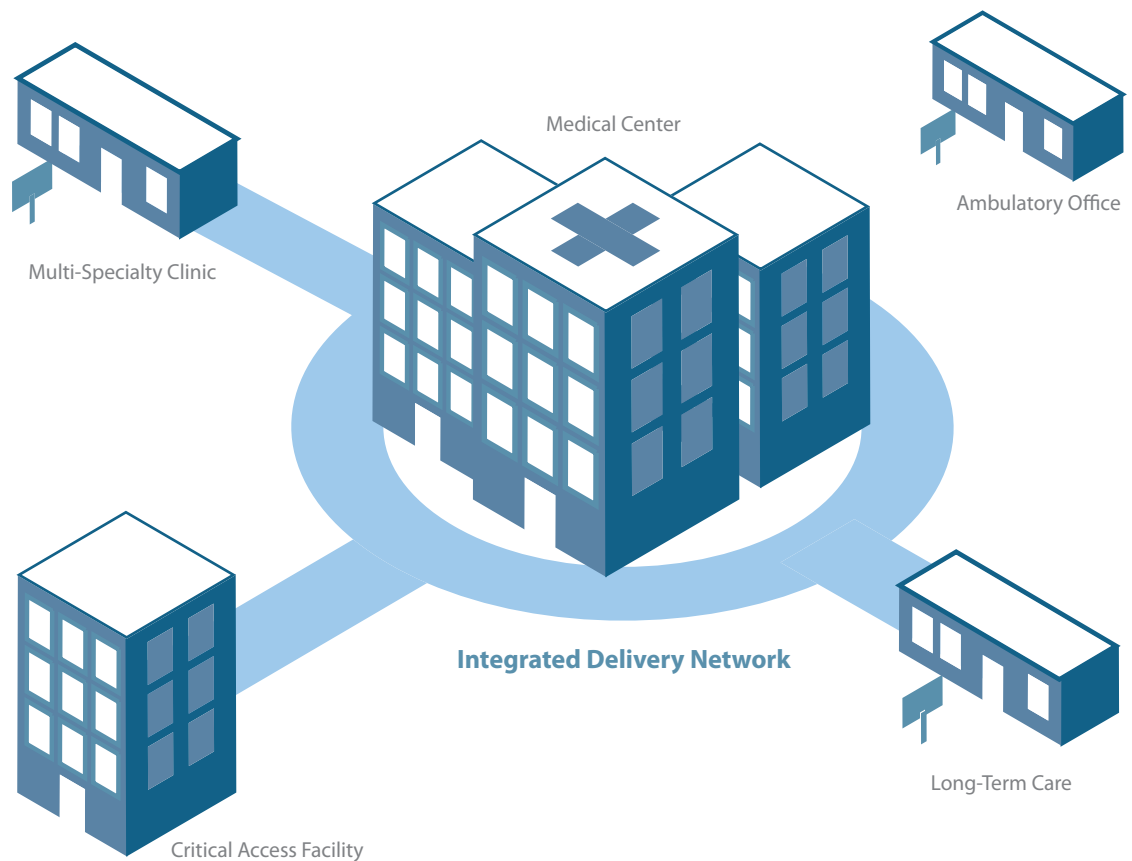
Medsphere OpenVista represents a single solution that can be leveraged across the continuum of acute, ambulatory, and long-term care environments as well as in multi-facility, multi-specialty healthcare organizations. The high degree of integration across the enterprise offers significant advantages in increasing clinical performance, reducing costs, and improving healthcare outcomes. It also facilitates the collection of data for the extended care team and for non-clinical care uses such as billing, quality management, outcomes reporting, and resource planning.

The Medsphere ecosystem serves client facilities as a constant source of system upgrades and enhancements. The economic value of this Open Source network is difficult to calculate, but the costs to replicate it within a single organization would be substantial. Medsphere OpenVista also makes clients members in a cooperative venture oriented around improving healthcare for all involved.



Value profile > CIO

By applying open source concepts to the technical infrastructure, Medsphere OpenVista is able to increase flexibility, enhance functionality, and deliver exceptional value. Medsphere OpenVista interoperates with legacy systems, preserving investments in existing hardware and software. When deployed across the enterprise, the integrated platform delivers superior return on investment.



A Single, Trusted Source of Clinical Information

As a secure, patient-centric, point-of-care EHR for clinicians, OpenVista enables multiple clinicians to simultaneously review information concerning patient history, diagnosis and treatment protocols, drug allergy alerts, documentation and consults, food and nutrition, radiology and imaging results, and other relevant patient data—all in real-time, enterprise-wide for informed medical decision-making.

Organizational standardization around various care processes coordinated with OpenVista has an immediate and lasting impact on clinical performance and healthcare outcomes.

Hospitals, Clinics, and Integrated Delivery Networks

Technical Innovation to Keep Pace with the Dynamics of Modern Healthcare

The defining characteristic of OpenVista is flexibility. Medsphere has innovated at every level of the technology stack to transition VistA from a clinically effective but organization-centric tool to one limited neither by environment nor the inclusion of different components.

Client. VistA employs a graphical user interface (GUI) created in Delphi that uses a Remote Procedure Call (RPC) broker to communicate with the MUMPS server. The OpenVista client employs either Microsoft .NET or Mono, an Open Source implementation of Microsoft .NET, to provide modern functionality in a cross-platform GUI. (Interoperable, language independent, and simple to deploy, .NET is key to OpenVista's flexible nature.) The OpenVista architecture enables the client to run natively on Windows or Linux systems. Medsphere's development plan will standardize the OpenVista GUI across both character-based VistA applications and those developed by Medsphere.

Network. At the network level, VistA connects client and server via an RPC broker that causes actions executed on one computer to also execute on another. Medsphere updates this approach through the use of the OpenVista Bridge, which manages interaction between server and client, handles raw communication with the VistA Broker (server), provides a Binary Remoting interface to the client (the client uses one or the other for a given connection), and enables the use of GTK to internationalize the OpenVista system. The OpenVista Bridge enables on-the-wire encryption for greater levels of security and allows the system to interact with Web-based applications.

Server. The OpenVista server layer uses Sun Microsystems' Java to provide improved market viability and extensive commercial benefits. Through Java, Medsphere preserves the legacy VistA MUMPS code at both the server and application server levels (see below), thereby advancing OpenVista and preserving product longevity. The incorporation of interfacing standards such as Health Level 7 (HL7) enable OpenVista to communicate effectively with third-party applications (administrative, financial, PACS), creating a complete, efficient solution.

Database. Java technology is also crucial at the Database Management level, where Medsphere creates a more functional relational database interface with VistA's hierarchical FileMan (MUMPS-based) database management system. A Java Database Connectivity (JDBC) interface enables data warehousing and the use of Structured Query Language (SQL), expanding OpenVista's ability to create, retrieve, update, and delete data kept in FileMan. Data partitioning among providers limits access where appropriate and enables the storage of discrete data without necessitating additional servers.

Application Server. Java gives OpenVista more flexibility in the form of a MUMPS engine called JUMPS (internal product name). Medsphere developed JUMPS to realize greater development flexibility and facilitate desirable functionality. Through JUMPS, OpenVista provides enhanced debugging capabilities and connects the system with other Java-based applications. Medsphere also gives clients the choice of either InterSystems Caché or Fidelity GT.M, an Open Source commercial solution, at the Application Server level.

Operating System. Historically, the use of the OpenVMS operating system has made VistA dependent on Alpha (VAX) hardware. Medsphere offers freedom of choice at the OS level by allowing users to choose Linux, UNIX, or Windows operating systems, and hence a wider variety of hardware.

Hardware. Unlike VistA, which is limited to Alpha or Intel Itanium technology, OpenVista runs on any Intel x86 hardware. Medsphere provides recommended sizing guidelines for server-based configurations to support the optimal performance of the OpenVista system. This gives clients a variety of choices, including Hewlett-Packard's Intel-based products.

The Biggest Innovation of All: Affordability

Medsphere OpenVista was conceived as an affordable EHR solution. Unlike existing vendors who mandate large, upfront software costs in addition to installation charges, Medsphere employs a pay-as-you-go subscription model. This results in a lower barrier to entry for small- to medium-sized healthcare organizations traditionally unable to realize the benefits of an integrated EHR. With 24x7 support, system monitoring, and module enhancements included in every subscription, hospitals, clinics, and integrated delivery networks can unleash the full potential of EHR technology in delivering superior patient care and enhanced operational efficiencies.





Medsphere OpenVista: Solutions

Addressing Specific Organizational Needs

Medsphere understands that augmented information technology—more bells and whistles—is not the ultimate goal in developing an EHR if the enhancements don't actually improve patient care. Over twenty years of practical testing and re-testing at the VA have made VistA a rich and reliable clinical support system, and preventive care statistics conclusively demonstrate the success of the system in improving and protecting patient health. The commercial enhancements of OpenVista by Medsphere provide familiar graphical interfaces and improved reporting capabilities, but also retain the core functionality of the respected VistA suite of applications.



Value profile > CNO

With its comprehensive suite of integrated modules, Medsphere OpenVista saves valuable time by centralizing and streamlining clinical documentation and multi-disciplinary care processes. Best practices and evidence-based medicine principles can be incorporated into clinical reminders, alerts, and templates to improve patient safety and healthcare quality.

Medsphere OpenVista	
Health Information Management System	
> Document Management	> Electronic Signature
> Record Management	> Transcribed Documents
Clinical Information System	
> Patient Summary	> Orders Communication
> Clinical Alerts and Reminders	> Results Reporting
> Consults Tracking/Vital Signs	> Intake/Output
> Clinical Documentation	> Clinical Image Viewer
> Computerized Provider Order Entry	> Bar Code Medication Administration
Laboratory	
> Anatomic Pathology	> Microbiology
> General Laboratory Electronic Data Interchange	
Pharmacy	
> Adverse Reaction Tracking	> Inpatient/Outpatient Pharmacy
> Electronic Medication Administration Record	
Radiology	
> General Radiology	> Nuclear Medicine
Nutrition and Food Service	
> Clinical Nutrition	> Food Service Management
Interface Suite	
> ADT Inbound	
> Patient Charges Outbound	
> Orders/Results Inbound (including Laboratory, Radiology)	
> Orders Outbound (including Laboratory, Radiology)	
> Radiology Image Viewer Link (from PACS to the Clinical Documentation Module [non-DICOM])	
> Transcribed Results Inbound (to Clinical Documentation)	
> Document Image Inbound (to Clinical Documentation)	

* The OpenVista Clinic configuration includes the Clinical Information System, Electronic Signature, ePrescribing, and Imaging modules.

Spanning the Entire Continuum of Care

Facilitating a Straightforward Reporting Process

OpenVista database management tools offer extensive flexibility to create ad hoc and persistent clinical reports. Identifying the required reports/fields up front is highly useful and allows Medsphere to use these reports in training facility technical staff on the use of the system. These advantages also positively impact regulatory compliance, particularly JCAHO regulatory evaluations. Unfettered access to clinical information ensures rapid responses to queries, as well as easy tracer methodology compliance. Robust audit trail functionality ensures that all records can be scrutinized with complete accuracy. JCAHO and other reviews become straightforward, perfunctory tasks.

Streamlining Facility Processes

OpenVista offers powerful workflow tools that enable providers to rapidly manage patient information and deliver evidenced-based care to patients. This includes pre-set orders, user designed templates, and clinical reminders/alerts that ensure the delivery of high quality care. Each of these major functional areas is completely integrated into the product and is highly customizable to fit the needs of the organization and individual providers. Medsphere continues to develop and augment other workflow items including patient care status boards, provider messaging, and nursing flowsheets.

Providing Robust Departmental Systems with Integrated Performance

Health Information Management. The OpenVista Health Information Management System (HIMS) enables healthcare facilities to implement a paperless environment and gain operational efficiency through an EHR. Critical user identification and medical record management integrates care delivery, including document management, transcription and electronic signature.

Clinical Information System. The OpenVista Clinical Information System (CIS) provides a comprehensive electronic medical record (EMR), enabling clinicians to accurately and efficiently capture clinical encounters. Providers can enter, review, and update all order-related information connected with any patient, including ordering lab tests, medications, diets, radiograph exams, consults, and procedures. In addition, clinicians can record a patient's allergies, vitals and treatments, and request and track consults. Through the use of a bar code reader, the Bar Code Medication Administration (BCMA) Module immediately validates the "rights" of medication administration—right patient, right medication, dose, route, time, reason and documentation—and provides real-time access to the medication administration record (MAR).

Laboratory. Medsphere OpenVista Laboratory is fully integrated with the entire Clinical Information System and provides support for General Laboratory, Microbiology, Histology, Cytology, Surgical Pathology, and Electron Microscopy. Providers are able to access laboratory information remotely, review data, respond to alerts and order additional studies. In addition, OpenVista can use third-party applications to automatically populate results from myriad laboratory instruments and foreign laboratories.

Pharmacy. Medsphere OpenVista includes a fully-integrated pharmacy system facilitating a closed-loop medication management process. OpenVista Pharmacy modules ensure the availability of an always-current, accurate and complete medication profile accessible at any time to allow professional evaluation of treatment plans.

Radiology. Medsphere OpenVista Radiology is an integrated system that automates the entire range of diagnostic functions performed in imaging departments, including registration of patients for exams, order entry of requests, tracking and verification, and the generation of management statistics and reports.

Nutrition and Food Service. The OpenVista Nutrition and Food Service (NFS) application automates many clinical nutrition, food management, and management reporting functions. With OpenVista NFS, healthcare organizations can more effectively screen and assess nutrition, place diet orders, request tube feedings, and track patient food preferences. OpenVista NFS is fully integrated with OpenVista CIS, ensuring a 24x7 real-time diet census.

Interface Suite. The comprehensive OpenVista solution includes a suite of interfaces based on industry Health Level Seven (HL7) and ANSI standards. The suite of interfaces includes functions related to ADT, Orders, Results, Procedures, Charges, Images, and Text. Medsphere works with the client's technical team in delivery, testing, deploying, and supporting these standard interfaces. Required interfaces outside the standard suite are handled on a contractual basis.



Medsphere OpenVista: A Powerful Tool

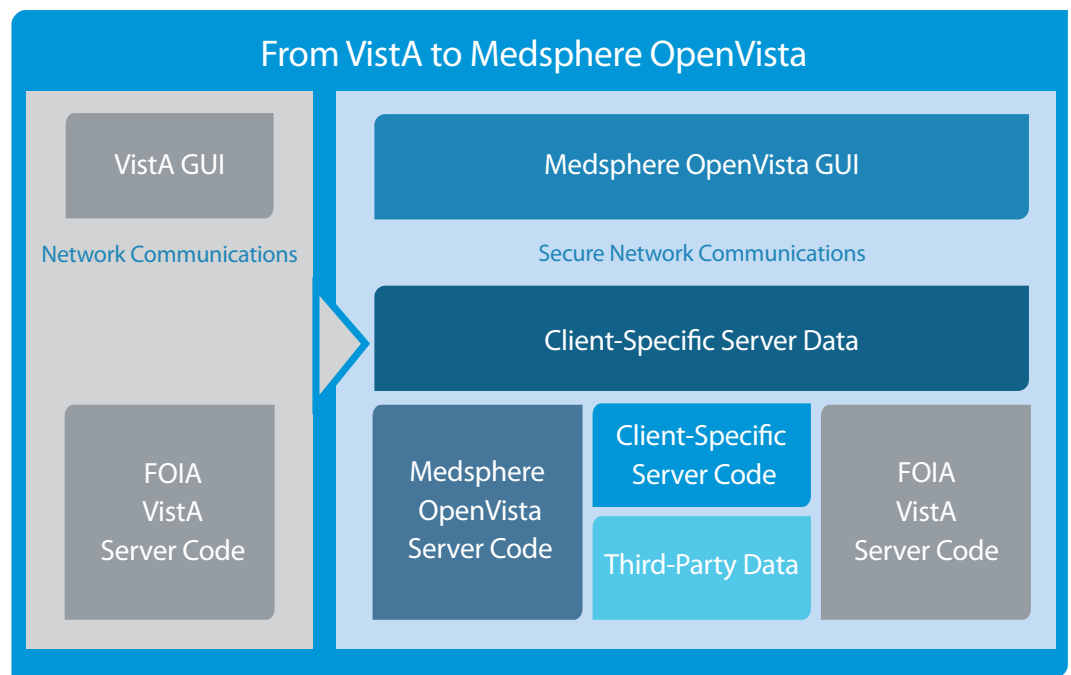
Increasing the Flexibility and Performance of the Technology Stack

Medsphere OpenVista has an architectural framework and modular design that enables tailoring the EHR to each client organization. Medsphere OpenVista is offered in two configurations: OpenVista Enterprise and OpenVista Clinic. The Enterprise configuration is aligned with the far-reaching needs of large hospitals and integrated delivery networks requiring comprehensive EHR functionality across multiple departments and locations. The Clinic configuration consists of the essential modules that small offices and multi-specialty clinics require to address patient needs in these settings.



Value profile > CMO

Medsphere OpenVista is a provider tool for improving healthcare quality. By delivering relevant patient care data when, where and how providers need it, Medsphere OpenVista directly assists with medical decision-making that supports clinical performance objectives and the delivery of high quality healthcare.



Integrating Clinical Documentation into a Comprehensive IT System

Clinical documentation is an essential component of integrated care delivery. Medsphere OpenVista provides comprehensive clinical documentation and progress note functionality. A variety of templates, clinical objects, and reporting tools enable clinicians to quickly generate and share progress notes across the organization. The flexibility of the documentation system is appropriately supported by HIPAA-compliant security measures, including role-based security keys, electronic signature functionality, and robust audit trail capabilities.

Improving Access to Relevant Patient Information

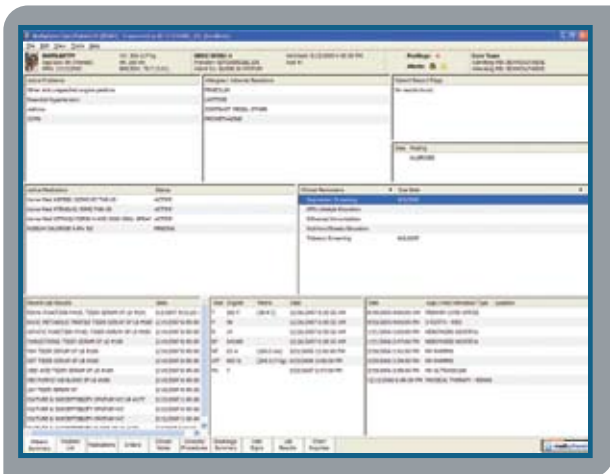
Ready access to relevant patient data is central to the efficient provision of quality healthcare. OpenVista's Computerized Provider Order Entry (CPOE) Module enables clinicians to place orders from within the same area of the clinical record that provides relevant patient data. The CPOE module also protects patient safety and saves clinician time through functions such as Quick Orders, Clinical Decision Support, Disease

for Delivering Better Healthcare

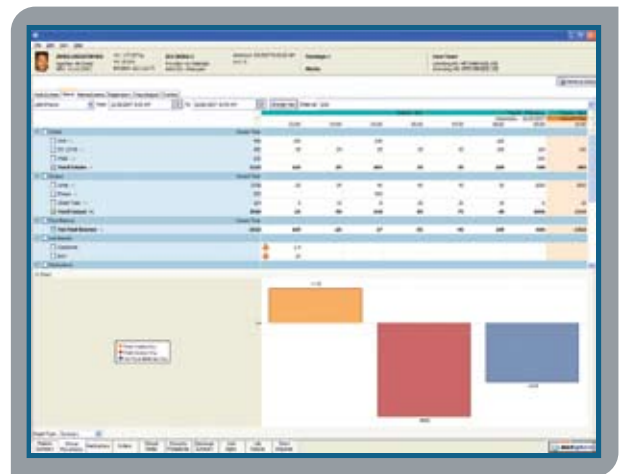
Specific Evidence-based Order Sets, and Time-delay Orders. The core imaging infrastructure captures, stores, and displays images created by all manner of digital input devices, including video cameras, digital cameras, document and color scanners, X-ray scanners, and DICOM-compliant devices like CT scanners, MR scanners, and digital x-ray machines. The Medsphere Radiology Image Viewer Link offers a real-time connection with a third-party Radiology PACS Web-based image viewer.

Using Customizable Views to Display Information in the Most Effective Way

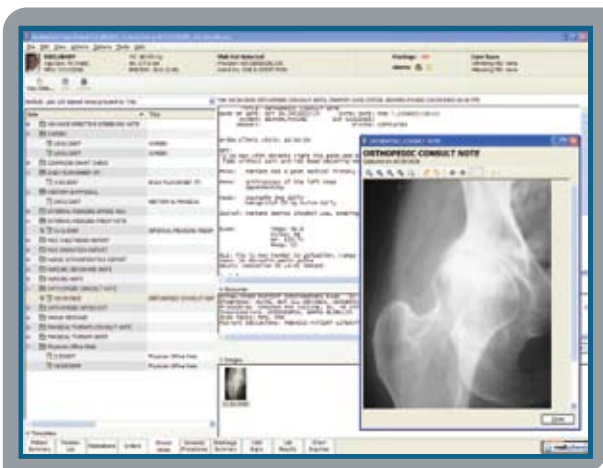
Designed as a modular application with an integrated platform, Medsphere OpenVista provides a simple and highly-functional point of access to patient data and displays various data elements in a clinically-appropriate way. Medsphere has advanced core VistA functionality by providing flexibility in how various clinical elements work together. This enables the context- or provider-specific display of information in accordance with enterprise or departmental preferences.



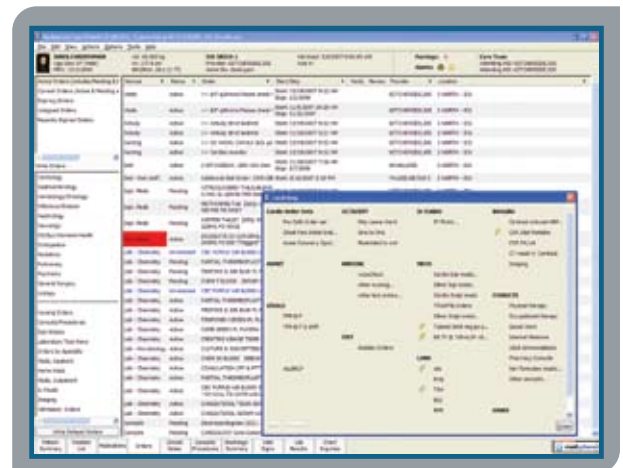
The Patient Summary tab in the Clinical Information System (CIS) provides a quick, longitudinal synopsis of the patient condition, enabling clinicians to make informed decisions about optimal approaches to care.



The Clinical Flowsheet provides a multi-disciplinary view of the patient condition, enabling clinicians to view or trend outcomes and make better clinical decisions regarding patient care.



Document Imaging functionality in CIS allows both scanned documents and clinical images to be stored with the patient record. Efficient and intuitive image processing functionality makes these images a permanent part of the patient record.



The Computerized Provider Order Entry (CPOE) Module in CIS enables quick and efficient ordering while providing clinical decision support that guides clinicians in the use of best practice, evidence-based protocols.



Medsphere OpenVista: Reducing the

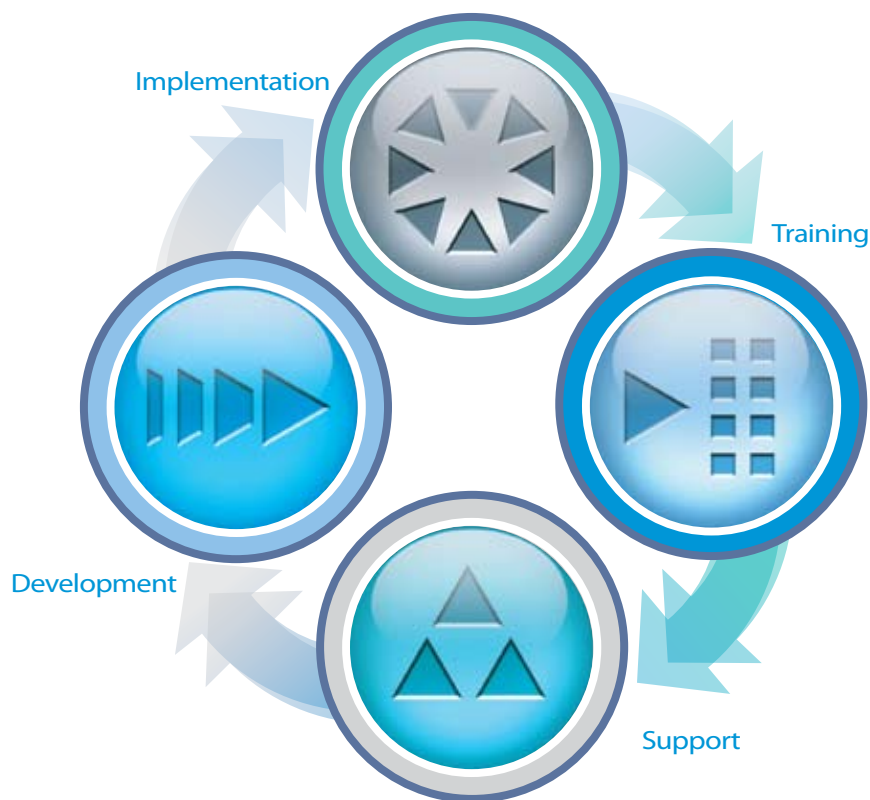
Acquisition and Implementation Timeframes Faster than the Competition

The evaluation, acquisition, and implementation of enterprise information technology solutions are major burdens for most organizations. Recognizing this challenge, Medsphere has simplified the pricing structure, contracting process, and implementation model for a straightforward and standardized, yet unique, client experience. Medsphere's experienced team of healthcare technology professionals and innovative suite of configuration tools make OpenVista implementation an efficient, streamlined process without dramatic episodes.



Value profile > CFO

Medsphere dramatically reduces acquisition and implementation costs through an innovative pricing structure and rapid implementation timeframes. Medsphere's subscription service enables a pay-as-you-go model that ensures ongoing value through system monitoring, module upgrades, and live 24x7 support.



Providing Reliable Support and Insuring Your EHR Investment

Many healthcare organizations that manage to clear the EHR price hurdle falter when it comes to adoption. Prolonged implementation timeframes, poor training, and inadequate post-install support turn many solutions into expensive relics before they are ever fully utilized. Medsphere client services are an integral component of the Medsphere OpenVista solution and are focused on maximizing the organizational impact of the Medsphere OpenVista platform. Medsphere's pay-as-you-go model ensures ongoing value through system monitoring, module upgrades, and 24x7 support. From the initial assessment to ongoing support, Medsphere is committed to the success of each client implementation.

Overall Cost of EHR Ownership

The Open Source Advantage

An Open Source approach provides clients with resources beyond what Medsphere alone can bring. Medsphere serves as the facilitator of an organic ecosystem that revolves around Vista-based IT solutions, the benefits of which flow back to customers in the form of OpenVista enhancements and upgrades. Open Source enables the community to see what Medsphere is doing, which builds trust and shared commitment, and focuses on the patient as the primary beneficiary of OpenVista development efforts.

Implementation



Medsphere's Implementation Services focus on installing the Medsphere OpenVista platform in the most efficient and effective manner possible. Each implementation begins with an Enterprise Assessment phase that includes a comprehensive analysis of current processes and a detailed collection of client data. This information feeds Medsphere deployment accelerators that automatically configure the system based on the unique parameters of each customer. This directly translates into cost savings and quicker Go Live timeframes for our clients.

Training



Medsphere's Training Services maximize enterprise adoption, user retention, and overall client satisfaction. Training begins with formal classroom instruction and core competency testing. Medsphere supplements formal classroom training with a robust Go Live support program. Working side-by-side with staff during this period, our experts help users feel comfortable and confident with the Medsphere OpenVista platform. Ongoing training programs are also available for additional training needs.

Support



Medsphere's Support Services provide responsive application support, ensure timely updates, and maximize system security and reliability. Medsphere provides 24x7 support services, including patch management, version control, and system optimization; Medsphere's subscription-based service includes the full complement of Medsphere support services in one convenient fee structure.

Development



Medsphere's Development Services are provided by a development team with substantial Vista experience. In enhancing OpenVista for different applications or environments, Medsphere's areas of expertise include application development, data migration, interface development, and systems integration.



Medsphere Systems Corporation

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