Oracle Healthcare Transaction Base:
Sharing Information for Better Healthcare

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Sharing information is essential for good healthcare

The ability to share meaningful information at the time it is needed is essential if the healthcare industry is to achieve the efficiencies required to address current challenges: spiralling costs, staff shortages, tightening regulatory requirements, increased burden of chronic disease and rising patient expectations.

A significant step towards achieving this goal has been realised through years of collaboration between healthcare professionals, resulting in the international standard for storing and sharing health information: the Health Level Seven Version 3 (HL7 v3) Standard. HL7 v3 introduces a unique Reference Information Model (RIM) that enforces consistency of stored and shared information across diverse domains within healthcare.

Oracle's Healthcare Transaction Base (HTB) is the first information system based on the HL7 v3 RIM. The tools provided by the Healthcare Transaction Base help software developers build new clinical applications and share information between existing systems on a data storage platform based on the RIM.

Maintaining consistent meaning across multiple views of patient data helps to empower health professionals to make more informed decisions with less error, delay and redundancy, thereby improving healthcare provision and patient safety.

A secure, trusted, consistent view of patient information lays the foundation for allowing patients to access their own records, interacting with their information as partners in the health provision process.

Oracle Healthcare Transaction Base: Far-Reaching Benefits

Continuity of Care
Secure exchange of usable healthcare data to enable a continuity of care record for improved clinical decisions

Public Healthcare Analysis
Enable a single source of usable data about public health, facilitating research into public health improvements and analysis of the potential impact of health risks

Quality of Care Management
Support to analyse and document the quality of the care delivered to patients

Patient Portals
Provide patients with a portal through which to interact with their electronic healthcare record, becoming active participants in their own healthcare

Enterprise Interoperability
Deliver a secure, integrated system that supports the broad range of administrative, clinical and financial processes in a healthcare organisation and that is implemented on proven, secure and scalable technology infrastructure

Data interoperability enables a single patient record

Healthcare plays a more sustained role in people's lives than almost any other industry sector, an integral part of human life from birth to old age. Each person's medical history represents a unique version of this journey, but to date it has been almost impossible for different healthcare organisations and service providers to view a trusted, common record of that journey. Patient data has been recorded in too many different formats, within different systems, using discordant terminologies with poorly developed mechanisms for sharing the data between disparate systems.

The advent of the Health Level 7 Version 3 standard and its associated Reference Information Model facilitates the creation of the long-awaited single electronic patient record. It facilitates the collection of patient and healthcare data from disparate systems, stored in a central repository without losing its meaning to be shared electronically via a secure connection across different systems in diverse organisations.

The Oracle Healthcare Transaction Base provides the framework for creating such a data repository. Designed specifically for the healthcare industry by the world's leading supplier of enterprise data management software, it enables the creation and maintenance of a secure, single, HL7 v3 compliant view of patient information, which can be securely accessed and updated by authorised stakeholders such as hospital clinicians, administrators, primary care providers, insurers, social services agencies and patients themselves.

By making information accessible and understandable, the Oracle Healthcare Transaction Base can help to provide a better standard of care at all points of interaction with patients.

Interoperability reduces risk, complexity and cost

A typical healthcare institution runs many IT systems, each of which stores an incomplete, department-specific view of a patient's status and medical history. Although this information is often useful within the specific department it is difficult to share with other departments without losing its true meaning. This makes the IT infrastructure complicated and expensive to manage, and results in redundant, incomplete or inaccurate data that can be dangerous if used inappropriately. Authorised stakeholders such as primary care providers and social services cannot access the full medical history often necessary in order to make informed decisions.

Typical implications of poor interoperability include the following:

- Unnecessary data re-entry
- Unnecessary repetition of administrative and medical procedures
- Delays in obtaining important diagnostics
- Delays in diagnosis
- Delays in commencing appropriate treatment

In the worst possible scenario, poor interoperability can result in a patient receiving inappropriate treatment, putting health at risk.

The Oracle Healthcare Transaction Base has been designed to address these problems by facilitating system interoperability.

Maximising current investment value while building towards the future

The Oracle Healthcare Transaction Base provides a development platform and a set of tools for governments, health networks and individual institutions to create a single repository of healthcare information, with services designed to support interoperability with existing and future IT systems.
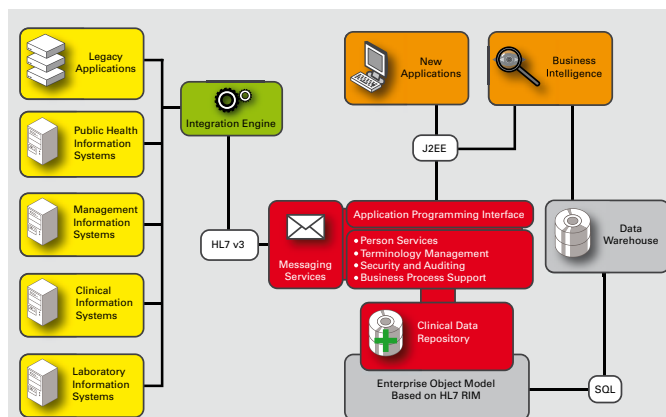

Fig 1: The Oracle Healthcare Transaction Base as the foundation for information sharing between healthcare providers, insurers, pharmaceutical companies and clinical research institutions

The Oracle Healthcare Transaction Base (HTB) is a layer of data integration software that gathers, de-duplicates and stores data from existing systems to create a single, persistent electronic health record compliant with HL7 v3 standards. Rather than replacing existing systems, it gathers data from them and normalises the meaning of the data between the various systems. The HTB helps to maintain the meaning of the information so that it is communicated without ambiguity. This ability to share the meaning rather than just the structure of the data is called Semantic Interoperability and it is critical for information systems to share health information without causing ambiguity.

Drawing on Oracle's unrivalled security features, the HTB ensures that data is protected, whether internal or external parties access it. Primary care providers, insurers, social services staff and specialist consultants can then be authorised to view aspects of a patient's medical record. This can be restricted to only certain parts of the record with the ability to easily customise and manage levels of access using Oracle's security, identity and access management functionality. The system supports sophisticated user authentication techniques, including dual-identification methods such as tokens and smartcards.

Supporting intelligent healthcare decision making

Oracle Healthcare Intelligence allows analysts and decision makers in healthcare organisations to interactively analyse and report on data held in Oracle HTB and share them with healthcare professionals. Oracle Healthcare Intelligence integrates with and extends Oracle HTB to support the following healthcare intelligence services:

• Analysis and reporting clinical and administrative measures
• Analysis and reporting of key claims based financial measures

Oracle Healthcare Intelligence provides additional analysis and reporting tools to meet the complete Business Intelligence requirements of healthcare organisations.

Approaching a single, trusted patient record

Enabling data interoperability with the Oracle Healthcare Transaction Base can improve the quality of patient care while reducing IT and administration costs. Specific benefits include:

Single source of patient and clinical data: All employees with appropriate authorisation, from admissions staff to doctors, nurses and specialists, can be given access to the patient's full, accurate and up-to-date medical record, allowing authorised professionals to view information, update the record and make fast, informed decisions at every point of interaction with the patient.

Shared data across organisations: Using the HTB, access to patient records can be extended via a secure internet connection to authorised external parties, including hospitals, primary care providers, social services agencies, insurance providers, pharmacies and independent consultants.

Improved process efficiency: The HTB automates the aggregation of patient and clinical data from multiple systems, eliminating redundancy and reducing human error associated with manual data entry. The HTB supports the automatic creation of standard documents such as admissions forms, which can be entered directly into the system. Built-in workflow systems ensure that information is automatically circulated to parties that need it and alerts can be triggered when pre-defined anomalies or critical events occur.

Improved traceability and auditability: The creation and maintenance of a single patient record delivers major improvements in the auditability and traceability of patient and treatment-related information for easier compliance with existing and emerging healthcare industry regulations.

Reduced costs: The HTB contributes to cost-containment initiatives. It reduces the need for manual IT integration work, speeds up administrative processes, eradicates duplicated processes and medical procedures and provides a single source of data for fast and accurate executive and departmental decision-making, including bed and resource management.

"The value proposition of Oracle's Healthcare Transaction Base is genuine and unique. It has the potential to become a dominant player in the market for custom, highly scalable projects that require complex clinical data and a high degree of multiapplication semantic interoperability."

Gartner, *Oracle's Healthcare Transaction Base Makes Strides,* November 2004

Expanding footprint in Europe

The Oracle Healthcare Transaction Base provides the foundation for an electronic health record, supporting collaboration between Oracle and a variety of trusted and experienced software vendors and integration partners in the healthcare industry.

The Oracle HTB has been chosen by leading systems integrators and healthcare software vendors across the world to form the basis of electronic health record solutions. Deployments in healthcare across Europe include Germany's Knappschaft, the Federal State of Lower Austria, Stockholm County in Sweden, Son Llàtzer Hospital in Spain, Gorinchem Region in the Netherlands and UKBiobank in the United Kingdom. Further HTB projects have commenced in Ireland, France, Finland, Denmark, Portugal and Belgium.
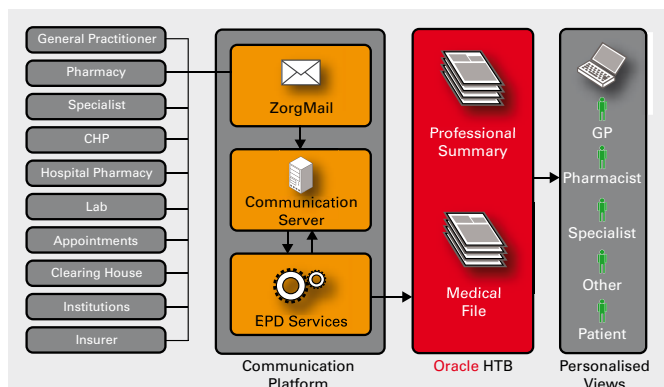

Fig 2: Oracle Healthcare Transaction Base plays a pivotal role in the Gorinchem Region Electronic Patient Record project in the Netherlands

Case Study: Gorinchem Region (Netherlands)

The Gorinchem region of the Netherlands has approximately 70 general practitioners serving primary care needs of the region. When patients move from one GP to another, however, or require after hours care it is often difficult or impossible to access the record of that patient. The Gorinchem Project has thus been established to facilitate communication between the GPs and to improve the standard of healthcare in the region by making patient information more easily available. Participating in the project are the regional association of GPs, the Rivas Care Group and local pharmacies.

The project has built a central health repository and communication platform that will allow GPs to interact with each other and with other care providers, to exchange medical treatment information for mutual patients. The repository will improve and maintain the quality of care in the Gorinchem region and provide patients with a consistent continuum of care.

Based on Oracle HTB, the solution will consolidate patient related data accumulated from the daily patient encounters and clinical acts carried out by the region's 70 GPs, into a single Electronic Patient Record. It relies on a central, custom-built communication platform that collates information from different sources like GPs, hospital specialists, regional laboratories and pharmacies, and transforms it into semantically interoperable data objects to be stored in the HTB repository.

Multiple authorised users can access the data in the HTB securely. This includes GPs, pharmacies, medical specialists and even individual patients where appropriate.

Oracle HTB brings the following benefits to the Gorinchem Project:

- A comprehensive and scalable data repository to accumulate healthcare information across participating professionals and organisations

- A standardised format for storing and sharing data while maintaining meaning

- Elimination of repeated data entries, reducing manual work and data entry errors

About Oracle

Oracle (Nasdaq: ORCL) is the world's largest enterprise software company. Oracle's business is information - how to manage it, use it, share it, protect it. For nearly three decades, Oracle has provided the software and services that let organisations get the most up-to-date and accurate information from their business systems.

Today, Oracle is helping more governments, businesses and healthcare institutions around the world become information-driven than any other company.

Oracle for Healthcare delivers a powerful combination of technology and comprehensive, pre-integrated business applications, including key functionality built specifically for healthcare providers, payers, and government healthcare agencies.

http://www.oracle.com/industries/healthcare/htb.html
http://www.oracle.com/industries/healthcare/productmap.html

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