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Orion Health has been delivering successful eHealth solutions across the globe for almost two decades.

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UK: +44 870 486 8406

France: +33 1 76 21 23 40

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HEALTH

# UK hospital group shares data among dozens of legacy systems to streamline hospital processes

One of the largest Trusts in England exchanges 40,000 electronic messages per hour to streamline 22 clinical processes, including patient admissions, improving patient care by providing relevant information to clinicians and saving thousands of hours of time

**H**eat of England NHS Foundation Trust is one of the largest Trusts in England. It includes Birmingham Heartlands Hospital, Solihull Hospital, Good Hope Hospital and Birmingham Chest Clinic. The Trust's hospitals offer national and regional clinical services, as well as secondary care, and emergency and elective practice. It has a total of more than 1200 beds and serves over a million people throughout north and east Birmingham, Solihull, Sutton Coldfield, Tamworth, Burntwood and the surrounding areas.

As part of their modernisation programme, The Trust has been integrating systems and automating data feeds with the Orion Health™ Rhapsody® Integration Engine.

## The need for better data integration

As part of these ongoing efforts to modernise its operations and improve patient care, Heart of England has been working for the past 10 years on initiatives to improve data exchange among its IT systems. With a wide range of best-of-breed systems used throughout its hospitals and clinics, the only way the Trust could originally share information was by re-keying the data - a slow and inaccurate process.

The Trust began its efforts to integrate its systems using a solution it had developed in house. However, according to Dave Hextell, Head of Systems Development: "Integration quickly became so critical to our operations that we decided it was too risky to have a system that was developed and maintained by one person. We needed system that more people could support."

## Choosing an integration engine

After considering several solutions, Heart of England selected the Orion Health™ Rhapsody® Integration Engine. Mr. Hextell said: "We got a demo version. It was very easy to install. And without referring to the manuals at all, I had messages flowing within an hour. Next, we hired an Orion Health consultant for one day and after that we were quite convinced. The system was very impressive."

## Implementation

About six years ago, the Trust replaced its in-house-built data feeds that distributed patient demographic data from the main hospital system to its accident and emergency, radiology, maternity and pharmacy systems through automated data feeds developed using Orion Health technology.

"With its configurable, drag-and-drop graphical interface, Rhapsody makes it extremely fast and easy to create new interfaces. For example, if I want two systems to exchange a message, I just define the two systems and draw a line between them. The same procedure applies if I want the data to go to one, two, three or even ten systems," said Mr. Hextell. "I'd say the time difference to create new data interfaces is as much as 20 times faster than using our previous tools. Plus, if I'm not around, someone else can easily understand what I've done."

Rhapsody tools enable significant reuse, saving additional development time. "If I develop an application for, say, processing orders," said Mr. Hextell, "I can recover that effort six months later. The reuse is fantastic."

## Richard Cotman

Marketing Director  
EMEA, Orion Health

## For further information

Orion Health Limited, 1 Kingdom Street,  
Paddington Central, London W2 6BY  
Telephone +44 870 486 8406  
[www.orionhealth.com](http://www.orionhealth.com)

# SPONSORED PROFILE

Testing and troubleshooting are easy as well. “Rhapsody offers very good error reporting,” said Mr. Hextell. “It also includes tools that allow me to examine messages and set up simulations so I can easily see what’s going on. Using the test environment, I can upload complete configurations, do testing and find out what’s wrong—all in minutes. I can also easily back up a current configuration, make changes and, if I don’t like them, roll back the changes seamlessly.”

Mr. Hextell adds: “The graphical environment also makes it easy to manage HL7 messages. HL7 is a delimited format, which isn’t very readable. Using a standard environment, I’d have to count delimiters and sub-delimiters and, needless to say, I’d make a lot of mistakes. With Rhapsody, I can load HL7 messages into the graphical environment and it will show me the tree structure.”

Mr. Hextell added: “Our system has to run 24x7. The reliability is fantastic.”

## A massive deployment

Today, sixteen systems send messages to Rhapsody and 24 systems receive messages from it. Rhapsody therefore processes a total of 40,000 messages per hour. The Trust is currently redeploying Rhapsody on a clustered IBM AIX

- Blood bank
- Bone densitometry
- Maternity
- National Choose and Book system for patient choice in England
- Endoscopy
- Radiology
- National baby registration
- Clinical alerting
- Referral management
- Bed management
- Electronic prescribing
- Order communications
- Electronic patient record
- General practitioner (GP: a UK family doctor) communication
- Community-based alerting
- Finance / billing
- Theatres

In addition, connection to national programme spine services was completed at the end of 2009.

## Continuous improvement

As a result of the ease of development, Mr Hextell says that the Trust has been able to continually improve the system and develop new interfaces and processes. He said: “We’ve reconfigured the

else in the Trust where the patient is seen

- Alerts for paediatric patients who are seen too frequently during a given time so clinicians are aware of potential victims of child abuse
- Violent patient alerts
- Automatic exchange of information from the patient’s electronic health records to the finance office to ensure that patients are billed correctly for services and that charges are not lost.

## Connecting to the NHS National Information Network

Over the next seven to eight months, the Trust will complete a project to connect its internal network to the National Information Network for the NHS. When patients arrive at one of the Trust’s facilities, they may not know their national identification number. With this new connection, the Trust will be able to automatically look up a patient’s ID number on the national system. With this number, the Trust systems will then be able to communicate with other health care facilities across the UK.

While the current system ensures patient confidentiality by running on a secure network, the Trust will address security standards for the NHS National Information Network through the use of digital certificates and encryption.

## Benefits for patient care and hospital management

Overall, from a patient perspective, Rhapsody has enabled the Trust to improve patient care by ensuring that a wide range of relevant patient information — demographic information, information about recent hospital stays and infections and so on — is automatically available to healthcare providers when they need it. The system also helps streamline 22 processes, for example, by immediately providing patient treatment information to the billing department. Perhaps most importantly, Rhapsody enables the Trust to continually improve its service to patients by making it extremely fast and easy to improve and develop new services.

## About the Orion Health Rhapsody Integration Engine

The Orion Health Rhapsody Integration Engine was developed to manage and provide seamless message exchange and integration between hospital applications, databases and external systems. Rhapsody has been specifically designed to meet the present and future needs of health integration by delivering a solution with the lowest cost of ownership and highest return on investment without having to replace existing information systems.

**“With its configurable, drag-and-drop graphical interface, Rhapsody makes it extremely fast and easy to create new interfaces. I’d say the time difference to create new data interfaces is as much as 20 times faster than with our previous system”**

**David Hextell, Head of Systems Development, Heart of England NHS Trust**

configuration that will allow it support even greater message throughput.

The system can translate between the following message types:

- HL7 2.3, HL7 2.4
- XML
- HTML
- Custom EDI messages
- HL7 customisation using “Z” segments

It supports the following message transport protocols: TCP/IP (Transmission Control Protocol/Internet Protocol), HTTP (HyperText Transfer Protocol), file transfer.

These messages currently support 22 hospital processes:

- Accident and emergency
- Planning
- Patient administration
- Laboratories

system a number of times — each time it took a single day. If we had to do that programmatically, it would take hundreds or thousands of hours.”

In addition, the Trust continues to add projects. Just a few recent ones include the following:

- Connections that allow 90 GP practices, each with up to six doctors, to access electronic patient records from the Trust. In addition, automated alerts notify physicians if the Trust has seen one of their patients, for example, if the patient is seen at the Accident and Emergency centre
- Connections that allow GPs to schedule appointments at a Trust facility using the Trust’s Choose and Book system
- A new infection control application. If a patient is diagnosed with a suspected MRSA infection in one department of the hospital, the system will automatically alert clinicians everywhere



#### About Orion Health

Orion Health's easy-to-use solutions and applications improve patient care and clinical decision-making by providing integrated health data in a single, unified view. By enhancing existing healthcare information systems, the Orion Health Rhapsody Integration Engine, Clinical Portal, and workflow solutions provide healthcare workers with easy access to patient data and trends, and reduce errors and omissions by streamlining information transfer.

Worldwide, Orion Health has been implemented in health information communities involving over 35 million patients with tens of thousands of active users. Orion Health's partners include leading health system integrators and IT vendors such as Accenture, IBM, Oracle Corporation and others. Orion Health has more than 1000 clients around the world, including the New Zealand Ministry of Health, UCLA (USA), Capital Health (Canada) and NHS Greater Glasgow and Clyde.

#### Executive Summary

##### Customer Profile

- 3 hospitals and one chest clinic
- One of the largest NHS Trusts in England
- 1200 beds
- Serves over one million people
- Website: <http://www.heartofengland.nhs.uk>

##### The Business Challenge

The trust needed the ability to exchange data among a wide range of legacy hospital systems without having to re-key data. Although it had been using an in-house-developed solution, the Trust wanted a new solution that allowed it to develop interfaces more quickly and was supported by more people.

##### Business Solution

Orion Health's Rhapsody Integration Engine makes data from disparate systems accessible with minimal investment from IT. Repetitive data entry is eliminated and data accuracy is improved.

#### Business benefits

- Streamlines 22 hospital workflows
- The Trust has linked its internal network with the national information network for the NHS
- Improves patient care by ensuring that a wide range of relevant patient information is automatically available to healthcare providers.

#### Technology benefits

- Configurable drag-and-drop interface allows IT to create new interfaces up to 20 times faster than programmable systems
- Reuse' further speeds development
- Good error reporting
- Easy troubleshooting
- Rollback capabilities make it easy to back out of new configurations if necessary
- High reliability
- Technology environment
- Clustered IBM AIX configuration