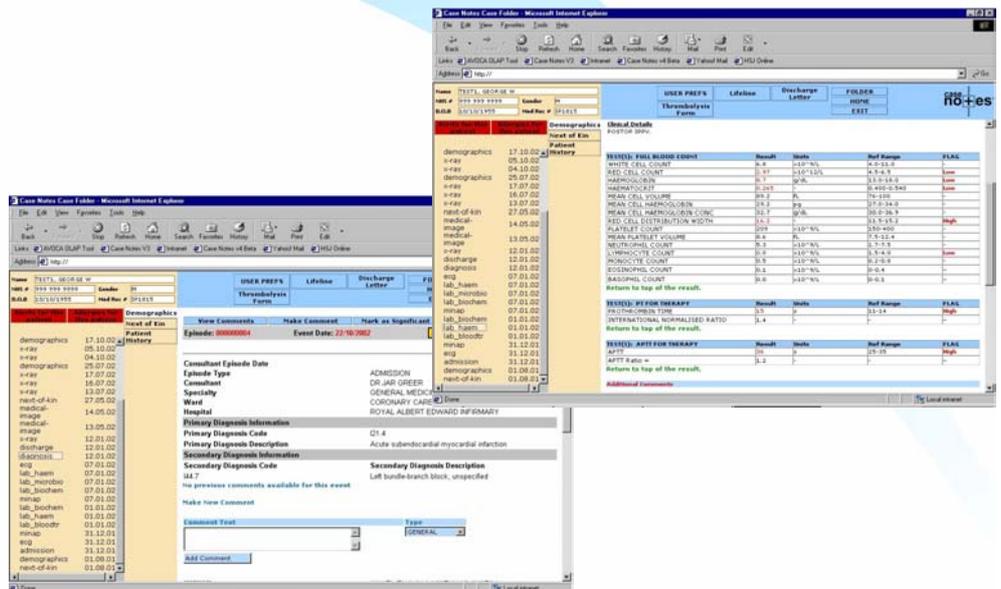


Case Study:

Wrightington, Wigan & Leigh NHS Trust

Implementing an effective, user-friendly e-technology solution for the National Service Framework for Coronary Heart Disease



The screenshot displays a Microsoft Internet Explorer browser window with a medical software interface. The interface is divided into several sections:

- Header:** Shows patient name 'TITEL, DEBORAH W', date of birth '1973 03 23', gender 'F', and NHS number '913 1193'. It also includes tabs for 'USER PAPER', 'Lifestyle', 'Discharge Letter', 'Thrombolysis Form', 'FOLDER', 'NONE', and 'EXIT'.
- Left Panel:** A list of medical events with columns for 'date', 'time', and 'type'. Events include 'demographics', 'heart of kin', 'patient history', 'consultation', 'admission', 'discharge', 'diagnosis', 'lab_test', 'lab_result', 'medication', 'image', 'miscellaneous', 'admission', and 'discharge'.
- Center Panel:** Contains a 'View Comments' section with a table of events. The selected event is 'heart of kin' on '22/10/2002'. Below this is a 'Consultation' section with details for 'ADMISSION' by 'DR JAR GREER' at 'GENERAL MEDICAL' ward, 'CORONARY CARE' department, and 'ROYAL ALBERT EDWARD INFIRMARY' hospital.
- Right Panel:** Displays 'Lab Results' for 'POSTOP 309V'. It includes a table for 'TESTED: BEFORE THERAPY' and 'TESTED: AFTER THERAPY' with columns for 'Result', 'Units', 'Ref Range', and 'FLAG'. The 'TESTED: BEFORE THERAPY' table lists various blood counts and chemistry values.

Wrightington, Wigan & Leigh NHS Trust

CSW Health, a leading supplier of XML-based solutions for health records management, successfully implemented CSW Case Notes™ at Wrightington, Wigan & Leigh NHS Trust in May 2002. By June of the same year, the Trust had rolled-out its first system using Case Notes - an effective and user-friendly e-technology solution to aid the assessment and treatment of acute coronary care patients.

The Challenge

The Trust required an e-technology solution for acute coronary care to maximise CHD data quality and completeness, and subsequently, to make this information accessible to the clinicians via a responsive, easy to use, browser-based clinical workstation.

It was essential that members of the acute coronary care MDT were consulted and fully involved in every stage of the project. A study of the patient journey was completed in order

to understand how to collect CHD information effectively. Clinicians were also involved in designing the format for presenting the CHD electronic case notes for the new system.

The Technology

The solution, based on CSW Case Notes™ was implemented at minimal cost using existing IT budgets and the funding obtained from winning a Service Improvement Team (SIT) award.

Case Notes has been designed in alignment with the Government's Interoperability Framework (e-GIF), which has been shaped by three key policy decisions:

1. Alignment with the Internet
2. Adoption of XML
3. A web browser as the user interface



The screenshot displays the CSW Case Notes web application interface. The top navigation bar includes 'File', 'Edit', 'View', 'Favorites', 'Tools', and 'Help'. The main content area is divided into several sections:

- Patient Information:** Name: TESTS, GEORGE W; NHS #: 999 999 9999; Gender: M; B.O.B: 02/10/1955; Head Rec #: 31515.
- Demographics:** A list of events including 'demographics', 'x-ray', 'next-of-kin', 'medical-image', 'discharge', 'diagnosis', 'egp', 'lab_haem', 'lab_microbio', 'lab_biochem', 'menap', 'admission', and 'next-of-kin' with corresponding dates.
- Consultant Episode Data:** Episode: 000000004; Event Date: 22/10/2002.
- Primary Diagnosis Information:** Primary Diagnosis Code: I21.4; Primary Diagnosis Description: Acute subendocardial.
- Secondary Diagnosis Information:** Secondary Diagnosis Code: I47; Secondary Diagnosis Description: no previous comments available for this event.
- TESTS: FULL BLOOD COUNT:** A table showing results for various blood counts:

Result	Units	Ref Range	FLAG
6.8	110 ⁹ /W/L	4.0-11.0	?
0.97	110 ⁹ /W/L	4.5-6.5	Low
8.7	g/dL	3.3-5.8	Low
0.265	g/dL	0.400-0.540	Low
89.2	fL	76-100	?
29.2	pg	27.0-34.0	?
32.7	g/dL	30.0-36.9	?
14.2	g/dL	11.5-15.2	High
209	10 ⁹ /W/L	150-400	?
8.6	fL	7.5-12.4	?
0.5	10 ⁹ /W/L	0.7-7.5	?
0.8	10 ⁹ /W/L	1.5-4.0	?
0.5	10 ⁹ /W/L	0.2-0.8	Low
0.1	10 ⁹ /W/L	0.0-0.4	?
0.0	10 ⁹ /W/L	0-0.1	?
- TESTS: PT FOR THERAPY:**

Result	Units	Ref Range	FLAG
15	s	11-14	High
- TESTS: APTT FOR THERAPY:**

Result	Units	Ref Range	FLAG
36	s	25-35	High



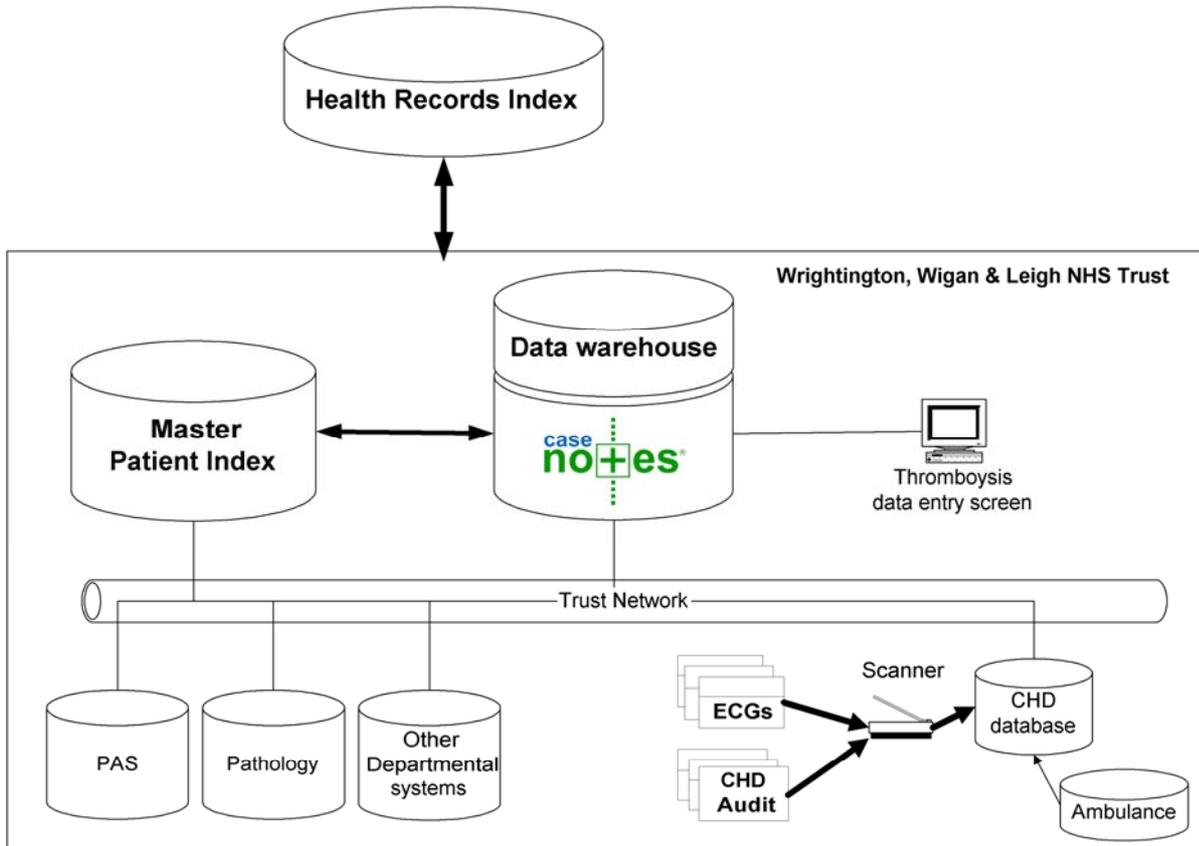


Fig 1. Architecture

Case Notes uses open standards technology such as the eXtensible Markup Language (XML) and is fully extensible through a system of plug-in modules. These modules can be links to existing clinical systems or to CSW's own modules such as Discharge Letters, In-tray and Order Communications.

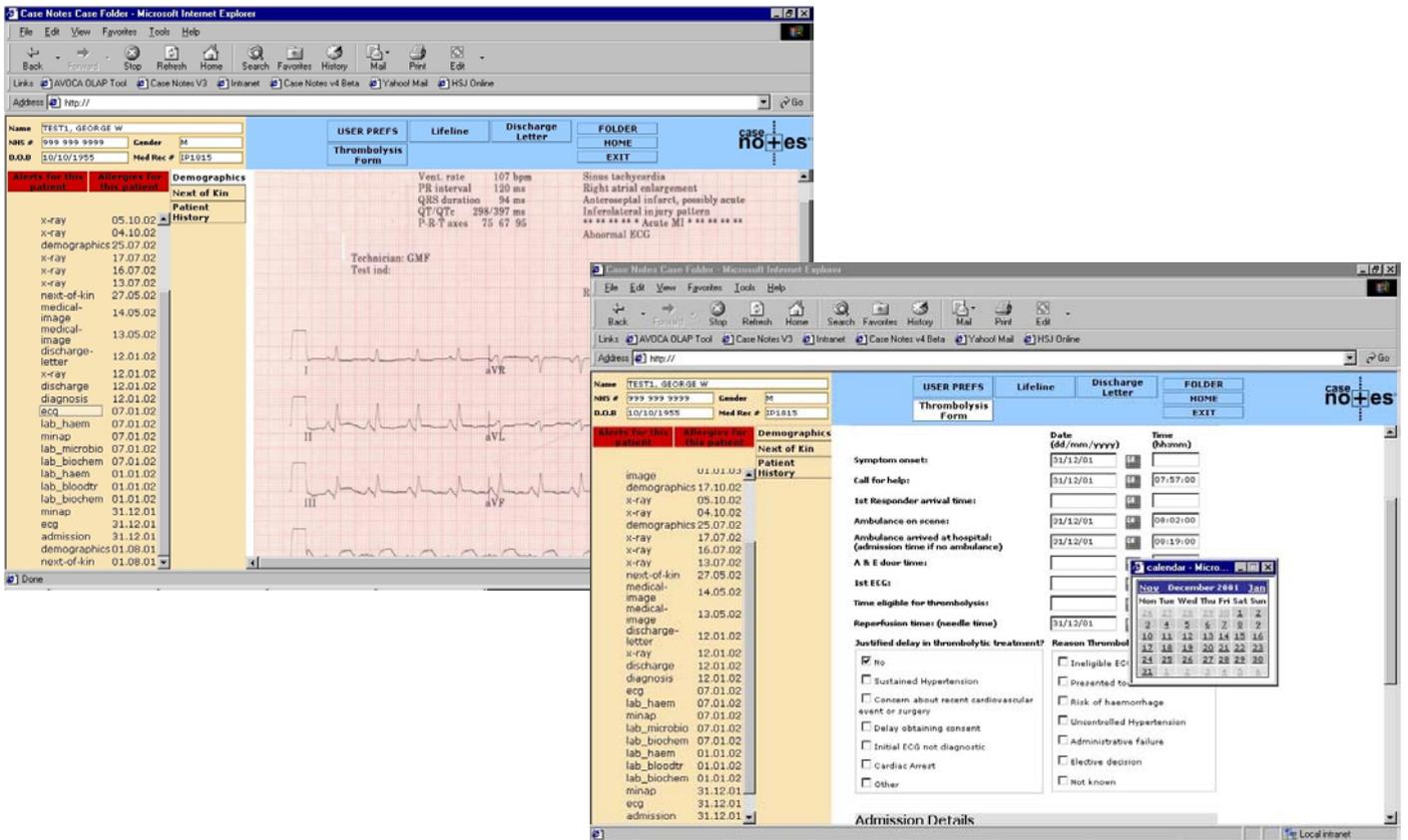
At Wigan, interfaces between the e-technology solution and departmental systems (including PAS ADT, Clinical coding, ECGs, Pathology and Cardiology outpatients) were developed in-house, making full use of CSW's flexible import module, and utilising NHS Standards such as e-GIF, XML, and HL7.

There is currently a great deal of enthusiasm, especially from local GPs, to link the acute and primary care databases to form a borough-wide

CHD register. The e-technology solution is designed to be accessible via the Health Records Index (HRI), or any browser-enabled device linked to the NHSnet, and, as such, it has already gone a long way towards achieving this objective.

Results

By logging into CSW Case Notes™ clinicians are now able to access ECGs in seconds, rather than the hours it can take to recall case notes from medical records. Previous ECGs are used to assess a patient's eligibility for thrombolysis, and as such are a vital source of information for assessing patients for treatment within 30 minutes. Feedback from clinicians points to the fact that this will significantly improve patient care.



Any clinician in the acute coronary care multidisciplinary team (MDT) is now able to view Coronary Heart Disease (CHD) medical records in the form of electronic case notes. Clinicians have rapid access to a wide range of information, including PAS in-patient data, ECGs, the CHD minimum data set, diabetes information, pathology results, and patient alerts. When viewed as a single integrated electronic patient record, this e-technology solution provides clinicians with a very powerful National Service Framework (NSF) information resource.

The system also includes a data entry screen for nurses to key in thrombolysis treatment/door-to-needle times directly.

By making full use of CSW's web technology, these CHD electronic case notes are viewable in seconds, cross-referenced with acute coronary care information held on other systems (such as pathology results), and linked to evidence-based medicine via NHSnet and the National Electronic Library for Health (NeLH).

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