The complete solution for integrated haemato-oncology diagnostics.

Secure, web based specimen booking, tracking and reporting.

In-built audit and email notification tools.

Seamless integration with existing laboratory systems.
**Software**

Meeting the challenge of integrating haemato-oncology diagnostic tests into one comprehensive yet clear report is now achievable with the Haemato Oncology Diagnostic System - HODS. Using a web based interface, users can securely log on to the software at any site within a cancer network to request and monitor the progress of tests.

With its unique, instant work in progress interface, HODS allows the clinician secure access to integrated reports online.

For haemato-pathologists, HODS is the user friendly platform that coordinates integrated diagnostic reporting to the current WHO diagnostic standard whilst also providing real time audit and turnaround time data.

Developed in partnership between Sheffield Teaching Hospitals NHS Foundation Trust and Illuminaries, a Microsoft® Registered Partner, HODS meets the stringent NHS quality standards for system software.

Built on industry standard SQL Server and .NET technologies, HODS is easily installed and run within existing NHS IT infrastructure.

HODS is the flexible software solution for the haemato-oncologist, pathologist and scientist.

**Features**

- Accessible throughout the NHS (N3) network via web browser.
- Individual user logon credentials with defined user access levels. Passwords expire and require a minimum length to ensure security.
- Administrator access allows remote resetting of passwords and creation and removal of users.
- The software is run from user definable tables, Administrators have the ability to add, edit and remove ICD codes, clinicians, lab tests, organs and sample types.
- Remote and central test requesting is available on line. Request form displays tests requested and which department to redirect to.
- Bi-directional email alerts for booking in and sample receipt. An email alerts the central reception when samples are booked in and an acknowledgement email is sent back to referring hospital on sample receipt.
• Real-time, user defined turnaround statistics for Integrated and single laboratory reports.

• Diagnostic coding using current WHO - ICD03 and ICD10 codes against each case. WHO codes are easily managed and are updateable via administrator level access.

• Instant email alerts (with web link to online report) to requesting clinician when an episode is signed off and closed. Additional facility to alert another clinician or local MDT coordinator.

• Reports produced in printed hard copy and electronic format with front page summary sheet showing individual lab test summaries, integrated conclusion, current WHO code and disorder description. Full individual lab reports are included in the integrated report as appendices.

• Diagnostic sign-off meeting run directly from software with facility to present patient summary and view detailed reports in a meeting environment.

• Colour coded status page of work in progress showing reports expected, in progress and final (report authorised and uploaded) arranged in presentation date order.

• Easily accessible document/file repository on software with facility to upload new documents online. Upload meeting minutes, educational documents and presentations.

• Search by patient demographics or specific episode number. Ability to view all investigations performed on one patient.

• Built on Microsoft® SQL Server™ with the ability to link and query using MS Access® or similar for data extraction and manipulation.

• Common LIMS interface import format. Currently interfaced to APEX (iSOFT) and MS Access®, work in progress on Telepath, StarLIMS and WinPath.

• Uses existing IT hardware, can be accessed from any internet enabled PC on the NHS network.

• Diagnostic pathway tool that can create case specific actions and instructions for Haemato-Pathologists.

• Software allows exporting of diagnostic data to external databases eg. Cancer Registry in XML and csv format on demand. Ability to query database direct or link to read only MS Access® for data extraction.

• In-built help pages.
About Us

Sheffield Teaching Hospitals NHS Foundation Trust through a partnership with IT specialists, Illuminaries have developed HODS. This partnership enables us to continue to develop and market the software whilst conforming to the strict IT standards expected in the NHS environment.

Illuminaries Ltd are developers of bespoke IT systems for the NHS, public, private and third sector organisations. Since 1993 they have built up an impressive portfolio of work based around Microsoft technologies.

About one third of Illuminaries’ core business is related to the development and support of IT systems operating within the NHS.

Illuminaries core business is presently split into three main areas:
- Browser based intranet / extranet applications using Microsoft .net technologies
- Web sites / intranets based around Fooshy CMS, Illuminaries own content management system
- MS Office based systems using MS Access, Outlook, Word and Excel.

Key skills and areas of expertise include:
- Intranet/Extranet applications
- Database design and development
- Business intelligence
- MS Office development and integration
- Website design and development
- Content Management Systems
- Microsoft technologies

Their systems are based around standard frameworks and design standards developed over many years to provide consistent, easy to use and robust user interfaces, which hundreds of users have experienced and provided feedback on, as well as leading to reduced development times and costs.

Illuminaries operates a quality system accredited to BS EN ISO 9001:2008 and is a Microsoft Registered Partner.
Together we offer

Help and Support

We offer maintenance and support in a form that is cost effective and fair to both parties. By prior agreement, the client buys an appropriate number of days each quarter which can be called off as required for support activities including helpdesk enquiries (telephone, email), bug fixing, enhancements, training and site visits. Unused time may be carried over.

Telephone/email support desk is staffed Monday to Friday, 9am to 5pm (except public holidays).

We aim to respond to all requests within 4 hours and where necessary can often email out a software patch or new version within a short time or the same day. Certain types of problem require more detailed information or access to the data and/or environment to facilitate investigations.

We have remote connections to a number of our systems on N3, which often allows us to provide a faster resolution to problems.
Screenshots

1. Home page showing samples in transit on right and current episodes on the left.

2. Request tests at booking in.
3. Request form showing patient demographics, clinical details blood count data, samples taken and tests requested.

### HODS REQUEST FORM

<table>
<thead>
<tr>
<th>Episode ID</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Patient Name</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reg No</th>
<th>DOB</th>
<th>NHS</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>M</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Referring Hospital**

**Referring Clinician**

### Chronic Leukaemia

<table>
<thead>
<tr>
<th>FBC Date</th>
<th>HB</th>
<th>WSC</th>
<th>PLT</th>
<th>MCV</th>
<th>MCH</th>
<th>Neuts</th>
<th>Lymph</th>
<th>Mono</th>
<th>Eco</th>
<th>Baso</th>
<th>FBC Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>17/03/2010</td>
<td>9.2</td>
<td>25.1</td>
<td>90</td>
<td>89.2</td>
<td>25.9</td>
<td>2.1</td>
<td>22.0</td>
<td>0.5</td>
<td>0.4</td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>

**Lymphocytosis, ? CLL.**

Date/Time Present: 18/03/2010

Date/Time Created: 18/03/2010 11:52

**Samples Taken**

<table>
<thead>
<tr>
<th>Sample No</th>
<th>Sample Type</th>
<th>Sample Ref</th>
<th>Date Taken</th>
<th>Organ</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR-18-1</td>
<td>5ml EDTA Blood</td>
<td></td>
<td>18/03/2010</td>
<td>Blood</td>
</tr>
<tr>
<td>BAR-18-2</td>
<td>Unstained Slides Bone Marrow</td>
<td></td>
<td>18/03/2010</td>
<td>Bone marrow aspirate</td>
</tr>
<tr>
<td>BAR-18-3</td>
<td>10% Formalin Trophine Bone Marrow</td>
<td></td>
<td>18/03/2010</td>
<td>Bone marrow trophine</td>
</tr>
<tr>
<td>BAR-18-4</td>
<td>Peripheral Blood Slides</td>
<td></td>
<td>18/03/2010</td>
<td>Blood</td>
</tr>
</tbody>
</table>

**Investigations Required**

<table>
<thead>
<tr>
<th>Sample No</th>
<th>Sample Type</th>
<th>Test Requested</th>
<th>Testing Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAR-18-1</td>
<td>5ml EDTA Blood</td>
<td>Immunophenotyping</td>
<td>Cell Markers</td>
</tr>
<tr>
<td>BAR-18-2</td>
<td>Unstained Slides Bone Marrow</td>
<td></td>
<td>Bone marrow and PB morphology</td>
</tr>
<tr>
<td>BAR-18-3</td>
<td>10% Formalin Trophine Bone Marrow</td>
<td></td>
<td>Histology</td>
</tr>
<tr>
<td>BAR-18-4</td>
<td>Peripheral Blood Slides</td>
<td>Bone marrow and PB morphology</td>
<td>Haematology</td>
</tr>
</tbody>
</table>
4. Live status view showing reports expected in red and final (authorised and uploaded in green).

5. Diagnostic meeting view showing a summary of lab reports with a link to detailed patient reports.

Clinical Details
Neutrophilia, ? Myeloproliferative Disorder.

Immunophenotyping
Immunophenotyping shows an increase in CD13 and CD33. Blast cells <3%.

Bone marrow & PB morphology
Bone marrow consistent with myeloproliferative disorder.

Cytogenetics
Cytogenetic findings would be consistent with a diagnosis of Chronic Myeloid Leukaemia.

Molecular Genetics
Jak2 Mutation Not Detected.

Histology
Bone marrow trephine; consistent with chronic myeloid leukaemia.
6. Integrated report with individual summaries, integrated report summary and WHO (ICD-03) code. Full text lab reports are printed as appendices after this front page.