

### *ECLIPSYS SUNRISE CLINICAL MANAGER XA PROVIDER ORDER ENTRY AND DOCUMENTATION SYSTEM*

The Johns Hopkins Health System has signed a broad based long term contract with the Eclipsys Corporation for an array of systems including a remarkable Provider Order Entry and Clinical Documentation system. The contract was signed on December 31, 2002, contingent on a Maryland Health Care Commission approval of a Certificate of Need, which passed on April 21, 2003. The Provider Order Entry (POE) system will be used in all inpatient and outpatient settings for the entry of all patient orders via a web based application. This system will provide The Johns Hopkins Hospital with the ability to integrate many of its ordering, result reporting, clinical documentation, forms, and treatment protocols into a single product. In addition, the system has the capability to trigger alerts, reminders, and rules to quickly and efficiently inform providers of drug interactions, duplicate orders, best practice guidelines, or Medical Board recommendations. It will become the primary electronic portal for all

patient care for faculty, house officers, nurses, and other allied health providers.

The POE Steering Committee, led by Dr. Wayne Koch, recommended the following departmental roll out schedule: Medicine, Adult Emergency, Obstetrics/Gynecology, Pediatrics, Surgery, Neurosciences, Psychiatry, Oncology, and Ophthalmology. A large team from the Department of Medicine, led by Drs. Paul Scheel and Henry Fessler and Linda Kissamore, RN, is working with the IT technical team to populate the core data foundation that will be used to support the enterprise. In addition, many workgroups are in process of reviewing and building pharmacy, pathology, radiology, etc. forms and pathways. Nearly 40 clinicians have been trained in the use of the system and over a thousand hours of effort per week is being expended on this project. The Department of Medicine's target for go live on nearly all of its units is May, 2004, with other services to follow incrementally thereafter.

### *JHU STUDENT INFORMATION SYSTEMS*

The Internet Student Information System (ISIS) project continues its implementation process on several fronts. ISIS will replace the mainframe applications that support the registration, financial aid, and student billing processes as well as the admissions systems that have been maintained locally at each admissions office. These four business processes will be integrated into one database. The SCT Matrix software system, on which the ISIS project is based, enables students, faculty, administrative staff, parents and other customers to access student data via the Web. The following is a list of milestones:

- The Homewood undergraduates and Peabody Institute admissions offices have implemented Matrix for prospective students.
- Homewood undergraduates and the Part-time Engineering program are planning to implement the student application process this fall.
- The financial aid process will be imple-

mented in the winter of 2004 for all schools.

- Student billing has begun work and is in the design phase, with implementation planned for spring 2004.
- Registration is slated for a summer 2005 completion and is now in the detailed requirements definition phase.
- Student services require many reports to be developed and distributed to a wide variety of groups. New software, Crystal Enterprise, has been purchased to streamline the distribution process and allow for central and local, school-based report writing.
- Room scheduling software that will interface with the Matrix application is being reviewed and will probably be purchased within the next few months.

While the ISIS project is in development, the legacy systems were given a "face-lift" by adding Web-based access for students, faculty,

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### *HOPKINSONE— JHHS/JHU COMBINED FINANCIAL SYSTEM*

The Enterprise Resource Planning System (ERP), a combined JHHS/JHU financial systems solution, has been formally named HopkinsOne. The Board of Trustees of both organizations has broadly accepted the project, with final acceptance and approval anticipated at the February Board meetings.

Led by a Project Management Office, there are five teams established to work on this project: Supply Chain Team (Purchasing, Materials Management, Accounts Payable), Financial Team (General Ledger, Budget, Payroll), Sponsored Projects Team (Grants and Research), Human Resources Team and a Technical team. During the spring and summer these teams gathered requirements from the various functional and technical groups and posted those requirements on the Web for all of Johns Hopkins to review and comment on. A Request for Proposal was developed and distributed to three major vendors: Oracle, PeopleSoft and SAP. Responses were received on September 2, 2003.

Also during the summer, teams developed detailed scenarios for the vendors to use to demonstrate their products. User Groups are being formed to participate in the review of the vendor solutions and assist in the evaluation of the products. The scenarios exemplify how the Hopkins business processes work. The vendors will spend five days responding to the scenarios.

Technically, IT @ Johns Hopkins is preparing for HopkinsOne by scheduling education sessions on ERP systems and the technical environments the three major vendors support. We anticipate a Web-based, browser system, which will make it easier for the user community to access financial data and process financial transactions. Reporting tools are being requested that will make financial data easier to get to for the end users. State of the art Data Warehouses are being reviewed to make data more accessible.

## JHU STUDENT INFORMATION SYSTEMS

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registrars, and advisors. Students from the School of Professional Studies in Business and Education (SPSBE) and Part-time Engineering can now register online and pay tuition by using e-checks or credit cards. Homewood freshmen can register during the summer before they come to campus. In addition, math placement testing can be done remotely over the Internet to provide better information on selecting math courses. Advisors receive the freshmen's test results, better enabling them to help the students select appropriate courses. In the fall, students will be able to view and pay their Hopkins bills on the web.

Enhancements to the legacy systems have been minimized, but several initiatives have been mandated by government programs or are significant improvements in students' ability to access their information in a more timely manner. The student information system now provides critical information to Hopkins' international offices regarding student status for compliance with the new Student and Exchange Visitor Information System (SEVIS). The student financial aid system has been updated to allow students to view and accept promissory notes for student loans on the Web, utilizing an electronic signature.

## EMAIL ANTI-VIRUS/ANTI SPAM SERVICES

Efforts to migrate departments and groups to the enterprise email relays have continued over the past year with the implementation of security controls to limit SMTP traffic into the Hopkins network. The volume of email that passes through the relays is over 10 million messages per month. The benefit of expanding the use of the Enterprise relays is that an increasing number of users can benefit from anti-virus controls before email enters the various Hopkins email systems. The relays are the initial line of defense against the spread of email-based viruses. Over the past year, improvements have been made to reduce the amount of time it takes to distribute virus signature files when they are released from vendor. On average, the relays remove about 46,000 viruses from email messages per month.

The Hopkins anti-spam solution was first implemented on the enterprise email relays in May 2003 and currently identifies approximately 38% of incoming email as spam. The original configuration has been modified over time in an effort to increase accuracy without increasing the number of false positives. The group continues to gather data and respond to reports of false positives by "whitelisting" certain legitimate email sources. In the next few months, Hopkins will participate in the beta test of a major revision of the anti-spam software product scheduled for release at the end of the year.

## ENTERPRISE TECHNICAL SERVICES AND OPERATIONS

### Disaster Recovery Planning

Significant improvements have been made to the disaster recovery preparedness of JHH and JHU for ongoing operations of key business and clinical application systems. The arrangement with Sungard Recovery Services has been well defined and exercised four times over the past two years. Each of these exercises has incrementally validated the recovery of key infrastructure and application components. Basic networking and system configuration recovery scenarios have been tested and application data restored with successful user validation conducted. New technologies are being considered, and where possible, implemented to minimize the duration of an unexpected outage. Focus on centrally managed IT assets, primarily those located at the 1830 Building data center, has been key to the initial successful deployment of DR capabilities. DR preparedness continues to be a prime consideration for any newly developed IT system at project inception to ensure broader compliance with DR policies.

The central DR recovery process has served as a model for other entities to explore and execute similar recovery plans. Working together with application support teams, Business Continuity Planning (BCP) is being conducted to complement the recovery scenarios with required business practices/procedures as transitional functions. These planning efforts will continue to focus on various JHH and JHU operational units to formulate a comprehensive strategy for unforeseen events that may impact IT systems and their staffs.

### Service Improvement

Service improvement initiatives have been undertaken to enhance customer support offer-

ings and address various customer inputs. A new on-line Service Center web site has been developed to provide users "self help" capabilities. These functions have been developed to provide improved responsiveness to user help requests and provide timely updates on problem status. You can view this site by visiting [www.it.jhu.edu](http://www.it.jhu.edu) and look for the Service Center tab.

### System Upgrades and New Builds

Over the past year a number of upgrades have been performed to various enterprise server and mid-range platforms. These upgrades continue to enhance the processing capacity and overall platform reliability of key financial and clinical systems. Some of these include JHH Pharmacy System (BDM), a new JHH Chart Tracking System, JHH Radiology System and upgrade to the JHH/JHU Enterprise Server. Enhancements are also being made to the central Storage Area Network (SAN) environment that provides a more efficient storage configuration for all newly installed server platforms.

In the coming months, system replacements will be performed for JHH Interface Engine, JHH Keane Billing System, and JHU Versata platforms. New systems have been built for JHH Operating Room Management system and we look forward to the introduction of new systems for the new HopkinsOne initiative within the next six months.

Each of these projects leverages common infrastructure components for more efficient systems administration and operations functions. These systems are also being implemented to meet regulatory requirements such as those outlined by HIPAA and Gramm-Leach-Bliley Act (GLB).

## PC SECURITY

Johns Hopkins, like any other major university, is a target for persons sending viruses, worms and other forms of an electronic attack. Over the past several years, IT@Johns Hopkins has invested heavily in products and services that can help provide a secure network environment for all of its users.

We have seen an increase in the number of attacks during the past year and especially so in recent months. While many of these viruses involve an email attack, some worms can be spread through other means. In order to prevent a computer from being damaged by an attack, and to contain the attack and avoid further problems, it is very important that the Symantec anti-virus software be installed on every machine across Hopkins. We have purchased a software license for every machine owned by Hopkins in addition to licenses for every current student who has a need to attach to the Hopkins network. Equally important is the need to keep your Microsoft operating system up-to-date with current patches.

To help us and to help yourself, it is

important that you follow these steps:

- Install the Symantec Anti-virus software (URL: <http://www.jhu.edu/anti-virus/>) and follow the installation and configuration instructions provided. It is particularly important that you set your PC to download new Anti-virus definitions nightly (a time between midnight and 6:00 AM is recommended).
- Update your computer with the latest Microsoft updates and operating system patches, additional information can be found at the following URL: <http://nts.jhmi.edu/desktop/sourcedocs/savsusenterprisedocument.cfm> In order for new patches to become effective, your computer must be restarted.
- When you leave at night, do not turn your Windows computer off. Rather, perform a "restart" on your system, but do not log into the network, (this allows an update to run nightly, but protects the privacy of information on shared drives).