

UNIVERSITY OF MICHIGAN

REGENTS COMMUNICATION

Received by the Regents  
June 16, 2011

Item for Information

Subject: Report of University Internal Audits  
**February through April 2011**

Background:

This is the report of the Office of University Audits activities for the period **February through April 2011**. The summaries of audits contained in this report were previously reported to members of the Regents' Finance, Audit and Investment Committee and included in discussions at Committee meetings.

Included in this report:

- Summaries of each audit report issued during the period, including Management's Plan to enhance specific control processes discussed with the audit client and presented in the report.
- Summaries of follow-up review reports issued during the period, including the actions taken by Management. Follow-up reviews are designed to give assurance that Management's Plan for corrective action has been implemented and controls are working appropriately.
- A report on the status of follow-up reviews as of **April 30, 2011**.

If you have any questions or would like additional information, please contact me at 647-7500 or by e-mail at [csenneff@umich.edu](mailto:csenneff@umich.edu).

Respectfully submitted,



Carol F. Senneff, Executive Director  
University Audits



## **ORIGINAL REPORTS**

### **Campus**

University of Michigan-Flint Educational Opportunity Initiatives  
Original report issued February 18, 2011

#2010-201

The University of Michigan-Flint (UM-F) established the Educational Opportunity Initiatives Office (EOI) in 1994 to centralize the many campus outreach and support programs for Flint area students, particularly those considered economically and educationally disadvantaged. EOI seeks to provide coordinated and consistent support for local students from middle school through college graduation. The unit receives funding for its programs from the state and federal governments, not-for-profit foundations, and private gifts. Today, EOI is a student support and service model unique in higher education, combining pre-college and college programs under one administrative umbrella.

Most of EOI's pre-college program participants are high school students in the Flint metropolitan area. Some programs target middle school students in an effort to reach at-risk students earlier in their educational experience. Pre-college programs offered include:

- Wade H. McCree, Jr. Incentive Scholarship Program (ISP)
- Choosing to Succeed Enrichment Program
- Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)
- Youth Empowerment Solutions

EOI's college programs have a range of objectives from increasing the diversity and number of educationally or economically disadvantaged students admitted to UM-F, to empowering current UM-F students to achieve academic success. College programs and services offered include:

- Transition and Support Services
- Bridges to Success Program
- Challenge Program
- Transitions Program (in partnership with Mott Community College)

EOI also sponsors a variety of programs and activities throughout the year through its Diversity Educational Services (DES) office. DES designs and administers programs aimed at promoting a diverse and multicultural environment on campus and collaborates with external organizations on events such as REACH 2010 (Racial and Ethnic Approaches to Community Health-Phase II) and FACTER (Flint Area Citizens to End Racism).

The primary objective of the audit was to verify EOI's internal controls, policies, and procedures were sufficient to support UM-F priorities and compliance with University policy and federal regulation.

Planning interviews and initial analysis identified the following key processes as areas of highest risk:

- Strategic planning, oversight, and guidance
- Budget planning and financial oversight, including payroll and time reporting procedures
- Grant management and compliance
- Student safety during travel

Select fiscal responsibilities were also included:

- Purchasing
- Travel and hosting
- Conflict of interest or commitment
- Business continuity and disaster recovery planning
- Cash handling

### **Risk and Control Discussion**

- Strategic Oversight and Guidance - Initially, the EOI Director was to report to the Provost. However, when the Director was hired, the Provost's position was vacant, so the Director's reporting line was temporarily shifted to the Chancellor. The reporting line was never adjusted once a Provost was hired.

Numerous transitions in campus leadership have occurred since EOI's inception in 1994. EOI's Director has reported to three different Chancellors in the last four years making it difficult to develop the consistent and effective communication necessary to ensure EOI's programs align with University priorities.

In 2005, the campus developed a five-year strategic plan. Objectives related to student persistence and success were defined at a high-level, purposely leaving room for interpretation by Deans and Directors. There is not enough specificity to conclude whether or not EOI's programs support University goals.

**Management Plan** - The University is in the midst of a strategic planning process that is scheduled to be completed by June 1, 2011. As part of that process, realignment of some operations is likely to be recommended. As part of the response to the annual UM-F budget forum, EOI's goal statement included the following: "EOI needs to become much more institutionalized, that is, its services and programming must become infused into general practices in academics and student affairs." In light of the original intent to house EOI in academic affairs and the need for greater synergy, as mentioned above, a transition plan for this to occur will be developed that will identify objectives, budgetary needs, and strategic goals for the unit.

It should be noted that plans for a Student Success Center, a combined effort of Academic and Student Affairs, may also have an impact on this transition.

- Campus Support and Collaboration - The Office of Financial Services and Budget (FS&B) and the Office of Research have been instrumental in developing EOI's financial controls by providing a significant amount of one-on-one training, analytical and financial tracking tools, and guidance on the proper interpretation of the University's fiscal policies and budget model.

Fundraising and human resource management are two areas where EOI needs additional guidance and support from central offices including:

- Fundraising support and guidance, including a feasibility study and a comprehensive fundraising plan
- Review and assessment of EOI's organizational structure, staffing needs, and job responsibilities and classifications



**Management Plan** - EOI has already enlisted the support of the Division of Development/Alumni Relations to conduct a feasibility study and comprehensive plan for fundraising.

The Human Resources department staff will work with the EOI Director to review and assess the department organizational structure and training/professional development needs.

- **Budget and Financial Management** - The Director receives budget status updates on an ad hoc basis, as the Office Manager deems necessary. The Director is the only person in the department with budget authority but his workload makes it difficult to meet regularly with the Office Manager to review budget-to-actual reconciliations. Other oversight reports are available to the Office Manager but are not run regularly. EOI's Office Manager, the person with the greatest knowledge and understanding of proper financial policy and procedure, including purchasing, is not sufficiently empowered to enforce compliance within the unit. Additional training for the Office Manager on oversight reporting, tracking encumbrances, and updating EOI's accounting structure is needed.

To reduce and eventually eliminate EOI's budget deficit the following actions should take place:

- Work with campus leadership to develop a corrective action plan to reduce and eventually eliminate EOI's budget deficit
- Delegate some of the Director's roles and responsibilities to senior managers within the department to allow time for regular financial meetings with the Office Manager
- Empower the Office Manager to authorize or reject expenditures, when the Director is not available
- Route requests for unbudgeted purchases or payments through the Office Manager for preapproval based on available funding
- Work with FS&B to provide the Office Manager with additional training on managing encumbrances and maintaining M-Pathways chartfield structure.

**Management Plan** - EOI will engage with campus leadership to discuss and create a plan for correcting the department's budget deficit. The Director will work with UM-F HR to identify and delegate some of the Director's roles and responsibilities to senior managers within the department to allow time for regular financial meetings with the Office Manager. The Human Resources staff will conduct a job analysis of the EOI Director, Office Manager, and all other staff positions in order to assess roles and responsibilities within the EOI Department. Specific attention will be focused on the delegation of duties and responsibilities as appropriate. The review process with the department will begin in February 2011.

Departmental policy and procedure will be revised to require the Office Manager's preapproval of non-standard purchases and requests for additional funding over and above approved program budgets. The Office Manager will verify sufficient funding is available for budget requests prior to routing to the Director for approval. The Office Manager will have the authority to approve, reject, or postpone expenditures when the Director is not available. Management will work with FS&B to identify additional training opportunities for the Office Manager to support management of the department's encumbrances and chartfields.

- **Staff Management** - Opportunities to strengthen controls around professional development for EOI staff were identified during the course of the audit:
  - The EOI Director should write performance evaluations for all EOI regular employees.
  - On occasion, EOI employees receive additional payments from outside departments for services unrelated to their appointment. Although no instances of noncompliance were

identified during testing, it is important management monitor these types of payments to confirm conflicts of commitment do not exist.

- EOI does not have an onboarding/offboarding checklist to help manage new hires and terminations.

**Management Plan** - In the future, Program Managers will develop performance evaluations for all direct reports and forward drafts to the Director for review, revision, and approval once finalized. The Office Manager will monitor special payments to EOI staff from other departments using M-Reports and work with UM-F HR to develop an onboarding/offboarding checklist. The Human Resources department staff will assist the EOI Director by providing consultation with regard to performance evaluations for all staff during fiscal year 2011 and annually thereafter. Human Resources staff will assist EOI in developing onboarding and offboarding checklists to use for new hires and terminations beginning in February 2011.

- Time Reporting and Payroll - EOI was struggling to find a balance between use of the University's new self-service time reporting system and the ability of management to approve time and monitor for compliance. Each program followed a slightly different procedure for reporting and approving time. Some staff used the self-service functionality, entering their time into the system themselves. Others, primarily student workers, used a combination of paper sign-in and vacation request forms to report time to their supervisors to data enter.

The unit's payroll process could be more efficient and effective. Internal control deficiencies included:

- Director's inability to review and pre-approve overtime
- Lack of system access to verify leave balances, print time reports, and run payable time reports
- Inefficient procedures for requesting and documenting leave requests and absences
- Lack of reconciliation of Gross Pay Register to source documentation

EOI implemented new procedures to address these issues shortly before the end of audit fieldwork. University Audits will revisit this area during follow-up to verify procedures are working as planned.

- Event Management – There was some noncompliance with the UM-F Event Planning Guidelines and communication with the Office of Event and Building Services (EBS) could be improved. EOI program managers do not always coordinate events through the correct departmental liaison. Staff and students need to be reminded that event logistics should be managed by the Events Secretary or her backup. It would be beneficial if the secretary's responsibilities were expanded to include:
  - Building effective relationships with other administrative and academic departments, including EBS
  - Providing oversight to ensure compliance with UM-F policy and guidelines
  - Tracking key information for recurring events including logistics and co-sponsorship information to promote consistency and efficiency
  - Working with the Business Manager to pre-approve event budgets based on available funding

**Management Plan** - Management has advised all staff to plan events through the Events Secretary. This individual's responsibilities will be expanded as recommended above.

- Cash Handling - Students enrolled in the ISP summer program are required to pay a portion of the expense associated with the trip that takes place at the end of an intensive five-week on-campus curriculum. Parents are required to organize and participate in fundraising activities to cover the student's portion of the trip costs as a condition of their students' enrollment in the program. EOI receives fundraising proceeds from each parent and deposits the money into one of the department's designated funds. An Excel spreadsheet is used to track each student's funding. Although strong controls exist to safeguard student funds, revenue of this nature should be held in a special designated or agency fund.

**Management Plan** - The Office Manager will work with FS&B to open the appropriate account to receive fundraising revenues from student activities. EOI will partner with the Office of Development and Alumni Relations to identify donor(s) to offset student travel costs.

- Business Continuity and Disaster Recovery Planning - Business continuity and disaster plans do not exist for EOI's critical processes. Loss of student information and program participation records represents the biggest risk to continuity for EOI, as it would significantly affect their ability to communicate with students, assess program effectiveness, and comply with grant requirements.

**Management Plan** - EOI will work with UM-F ITS to develop and implement the proper security measures to keep data safe and accessible in the event of an emergency.

- Documentation of Policies and Procedures - Although EOI has unit-specific policies and procedures, they are largely undocumented and some variation in procedure was observed between programs. Documented policies and procedures promote efficiency and compliance and support employee training. Key processes should include, but not be limited to:
  - o Management of supplemental budget requests and approvals
  - o Coordination of events including event budgets and logistics
  - o Management of student fundraising including accounting and reconciliation

EOI's Office Manager is using policy and procedure templates provided by the Office of Internal Controls to document departmental processes. Good progress has been made. University Audits will review documentation during follow-up.

A formal follow-up to the outstanding issues will be conducted during the first quarter of fiscal year 2012.

#### Conference Services

#2010-102

Report issued February 25, 2011

Conference Services has offered full-service conference and event planning for more than 30 years. Throughout the year, over 300 camps and conferences involving over 23,000 participants are supported by Conference Services. Nearly 200 of these groups are internal to the University of Michigan.

The Conference Services department is part of University Housing, a unit of the Division of Student Affairs (DSA). Housing recently reorganized their finance and human resources staff, previously assigned in many individual departments, to centralized functions within Housing Business and Finance and Housing Human Resources. This housing-wide centralization effort allows Conference Services to maintain focus on offering their unique services.

Conference Services handles participant registration for their clients including collection of all event fees. Event expenses are a pass through to the client and Conference Services receives a contracted fee. Once an event closes, Conference Services settles the client account, either issuing a check to the client or billing them for the balance. Budgeting and forecasting for Conference Services is challenging as they rely on clients for accurate estimates of participant counts. These estimates affect the budget for the upcoming fiscal year.

The majority of summer participants are minors. Stricter safety guidelines exist for minors than for regular conference participants, as minors require constant supervision while on campus. Employees that supervise minors are required to attend 40 hours of safety training over a two-week period. Employees are also given a detailed safety procedure manual to reference as needed. Although Conference Services has no responsibility for summer programs that do not include a stay in the residence halls, Conference Services' management are key participants in the Summer Safety Oversight Group (SSOG). The SSOG is a group of senior staff from across the University that work together to share best security and safety practices for all summer programs.

At the request of the Division of Student Affairs, University Audits evaluated the strength of internal controls in Conference Services processes. Specific objectives included assessing:

- Adequacy of procedures to ensure safety of participants and staff, including the performance of background checks for individuals responsible for the supervision of minors
- The monthly billing process and follow-up procedures for aged accounts receivable
- Processes for accepting clients and receiving client feedback
- Financial monitoring/reporting procedures and use of unique departmental systems

The following areas of fiscal responsibility were also reviewed:

- Purchasing controls, including P-Card purchases, purchase orders (PO) and non-PO reimbursements
- Cash handling, specifically credit card processing
- Payroll, including student and temporary employment
- Safeguards and monitoring of assets

### **Risk and Control Discussion**

- Contract Compliance - Prior to the start of their event, all conference and camp organizers are required to sign a contract with Conference Services. The contract specifically addresses financial responsibilities and outlines key requirements and deliverables. Depending on the type of event, clients may be required to obtain insurance and pay a security deposit.

Camp sponsors that have participants who are minors are required to complete an online orientation that addresses safety requirements. It is the expectation that all conferences and camps comply with their contract terms, most importantly the University safety guidelines and procedures.

Conference Services uses an Excel spreadsheet to track the status of signed contracts, insurance, deposits, and completion of online orientation. No one monitors the spreadsheet to ensure timeliness, completeness, or follow up with non-responsive clients. At the time of the audit, numerous signed contracts, deposits, and insurance information were missing. Some clients had not completed their online, safety orientation. Client events were held without these requirements in place.

**Management Plan** - Some changes and additions will be made to our spreadsheet that tracks documents and authentication of the online orientation training for summer guests. Additional requirements, such as the age requirement for supervisory staff and documentation of a safety plan will be added. To ensure accuracy and timeliness, the Senior Secretary will be assigned the task of monitoring the spreadsheet for compliance. The Senior Secretary, with back-up from the Administrative Assistant, will update the spreadsheet and make it available to conference managers on a weekly basis. Conference managers will clearly communicate the consequences of non-compliance to clients and will define the escalation process for non-compliance.

- Department Accounting and Reporting - Reorganization within University Housing over the past few years has created several department ID number changes for Conference Services. There are at least five different department ID numbers that are assigned to Conference Services. The numerous department ID numbers have caused confusion for both Conference Services and Housing Business and Finance staff. Management reports may be inaccurate if department ID numbers are used inappropriately. For example, one department ID number was not included in the budget process provided to the Director of Business and Finance for Housing.

Project codes are used to track revenue and expenses for each conference or camp. Housing Business and Finance is re-using project grant codes each year for the same or different camps and conferences. The reuse of the code numbers contributes to confusion and inefficiency when researching client contracts/bills.

Registration funds received for both internal and external client conferences/camps are held in a deferred revenue account by Conference Services until the event closes. The deferred revenue account is not appropriate for external clients as only a portion of the funds represent University revenue. Recording external client funds in this manner may result in an overstatement of deferred revenue.

**Management Plan** - The Senior Accountant in Housing Business and Finance will verify the relevance of multiple department IDs and project grant codes to eliminate incorrect or invalid codes being used. Additionally, the Senior Accountant will also establish an agency fund as a holding account for revenues collected for external clients.

The Senior Secretary has completed P-Card maintenance forms to update P-Card user default and appointing department IDs to eliminate confusion.

- Billing and Payment Accuracy - Conference Programmer is software used by Conference Services to track expenses and registered participants associated with each camp or conference. The information collected in Conference Programmer serves as the basis for the client bill. The bill also includes hourly rates as listed in the signed contract and chargeable coordinator hours from the Time Slips timekeeping system. The Time Slips system is used by Conference Services' managers to record time spent on each event for billing purposes. Participants are added into Conference Programmer after payments for registration are received via credit card. The list of credit card charges is not reconciled to participants in Conference Programmer to ensure accuracy. Procedurally, event expenses are reconciled in the month they are incurred on the Conference Services' Statement of Activity. However, reconciliation to ensure all event expenses are properly passed to the client occurs at the time of billing. The final bills selected for testing contained errors such as unexplained changes in participant counts, incorrect hourly rate charges, and errors in coordinator hours.



As a credit card merchant, Conference Services receives monthly bank statements. These statements, which include refund activity, are not reviewed. The employee responsible for receiving payments also receives the statements and has the capability to process refunds.

**Management Plan** - Responsibility for final bill accuracy has been defined and communicated to conference managers as their final responsibility. Conference managers will be responsible for reconciling invoices against source documentation and for resolution of any discrepancies or disputes with clients. Upon the completion of their review, they will authorize the final billing amount for each client.

Conference Services has developed a plan for monthly reconciliation of credit card merchant bank statements to participant registration information in Conference Programmer. This change has already been implemented. To ensure that this occurs each month, there will be oversight by the conference managers as well as a review and sign-off by the Director of Conference Services and Marketing.

- Payroll and Time Reporting - The Senior Secretary in Conference Services has the ability to both enter and approve time in the electronic timekeeping system. This individual is also tasked with the detail review of the Gross Pay Register. The ability to enter, approve, and review time is a concentration of duties that could allow errors to go undetected. Additionally, there is no overtime approval process in place that details acceptable overtime scenarios or that documents who has the ability to approve overtime. As a result, overtime may be verbally approved or approved after the fact. This has resulted in inadequate supervision of work schedules and comp time arrangements that are in violation of University guidelines and the Fair Labor Standards Act.

**Management Plan:** It is our plan to develop a form for preapproval of overtime, including student overtime. It will be a requirement that all overtime is preapproved in writing.

Gross Pay Registers are now reviewed, initialed, and dated by the Director of Conference Services and Marketing. A detail review is performed by the Senior Secretary. Conference Services has changed the process for payroll so that a single staff member is no longer authorized to both enter and approve payroll information.

- Statement of Activity Reconciliation - The Statement of Activity for Conference Services is not reconciled to source documentation. Housing Business and Finance is responsible for reconciling the monthly Statement of Activity for Conference Services. The reconciliation is necessary to verify expenses are accurate and in compliance with the University Standard Practice Guide. Recent reorganization of Housing has resulted in personnel changes in Housing Business and Finance. The person now in charge of reconciling is not close enough to the activity of Conference Services to know whether or not expenses are appropriate. Conference Services staff and the reconciler within Housing Business and Finance are not communicating frequently or in enough detail to ensure proper reconciliation.

**Management Plan** - The Director of Business and Finance will discuss the monthly Statement of Activity reconciliation at the next Quarterly Review meeting scheduled for February 1, 2011. At this meeting, the individuals responsible for the performance and review of the reconciliation will be determined. All procedures and responsibilities of personnel involved in the reconciliation process will be documented and retained on file by Conference Services. Going forward, it is our plan to include the designated business partner from Housing Business

Services in all staff meetings and meetings concerning financial issues. This change is intended to improve business knowledge and provide oversight.

- Background Check Verification - Conference Services' employees responsible for supervision of minors must be at least 18 years of age and have a criminal background check. The Department of Public Safety runs the background checks for Conference Services. There is no process in place to confirm completed background checks. Our review revealed that, background checks were not completed for two Conference Services' employees that supervised minors in 2010.

Conference Services also offers background checks free of charge for client staff that interface with minors. Once the client arrives on campus, there is no check performed by Conference Services to ensure the actual supervisors of minors are the cleared client staff.

**Management Plan** - A spreadsheet logging submitted and cleared criminal background checks will be developed and implemented by the start of the summer season. The spreadsheet will be reconciled with the listing of summer workers to ensure that everyone that works with minors has a clear, criminal background check.

- Client Management - There is no formal customer feedback process. Client suggestions and opinions assist in the design and execution of future events as well as understanding whether customer needs are met.

Conference Services has grown their business over the years; the majority of their clients return annually. In the past, acceptance of client requests has not been an issue. Circumstances that limit space, such as building construction or an abundance of client event requests, could place pressure on Conference Services' ability to accommodate client requests. There is no formal or documented process for the acceptance or rejection of clients.

**Management Plan** - Conference Services will develop a short customer satisfaction survey that can be administered online and sent to clients at the completion of their stay. Our plan is to request help from the Housing Research Office to develop and implement the survey in time for the 2011 summer season.

Conference Services is in the process of analyzing clients and their impact on the mission and goals of University Housing and Conference Services. As part of this analysis, Conference Services is looking at clients in terms of their contributions to our mission and goals, and ranking them according to their priority. In times where space is a challenge, or there is too much demand for certain spaces, this analysis is meant to provide a decision process for assigning space.

University Audits will follow-up during the first quarter of fiscal year 2012 to assess progress made on corrective action plans.

Division of Student Affairs Recreational Sports  
Original report issued March 2, 2011

#2010-816

The Recreational Sports (Rec Sports) department was founded in 1913 and provides athletic, education, and fitness activities for University students, staff, and faculty. It was one of the first programs of its kind in the nation. Rec Sports is home to both intramural sports and club sports. This past academic



year, 22,000 students participated in intramural sports activities and 2,500 students participated in club sports activities.

Other activities provided by Rec Sports are the Outdoor Adventure Center (OAC) and Challenge Program. OAC provides outdoor recreation equipment for rent, organizes trips, and hosts classes for a variety of outdoor activities. The Challenge Program, founded in 1990, is an activity-based program teaching team building and organizational development.

In January 2007, a University task force was convened by the Provost and Vice President for Student Affairs to make recommendations regarding Rec Sports. In 2009, the task force released their report recommending facilities use strategic planning, including investment in current facilities, expansion, a revised budget model, and a change in the unit's historic reporting relationship with Athletics. Rec Sports supervision was moved to the Division of Student Affairs in August 2009.

At the request of Division of Student Affairs (DSA), University Audits conducted an audit of the Department of Recreational Sports. University Audits examined the following processes and controls in the core operations of Rec Sports:

- Revenue management
- Purchasing, including travel and hosting
- Financial reporting
- Payroll, including overtime and supplemental pay
- Information technology
- Cash/check/credit card management
- Employment controls

#### **Revenue Management - Risk and Control Discussion**

Rec Sports generated \$4.9 million in revenue in fiscal year 2010. Approximately half of its annual revenue is from sources other than gifts and general funds. Sources include faculty and staff memberships, participation dues for intramural and club sports, facility rentals, equipment rental and sales, and special program fees.

Revenues are generated at multiple locations. A point of sale cash register system supports the collection and tracking of revenue. Facility access is verified through a membership database. Faculty and staff membership eligibility is checked at renewal and/or annually for continuing memberships. Student membership eligibility is checked each semester, and more frequently during course enrollment periods. There are policies in place to support collections.

- Rec Sport Facility Rental - Rec Sports has three tiers of published hourly facility rental rates. The rate tiers are: U-M students, U-M affiliated, and non-affiliated. The rates vary from facility to facility and use to use. Additional charges may be added for staff time, equipment use, delivery, and set-up. University Audits noted the following:
  - Rates have not been approved by the Office of Financial Analysis, as required by University policy
  - No formal cost analysis or basis for the rate structure is performed
  - Published rates are not consistently applied and are sometimes reduced and/or waived without higher level approval
  - Reconciliation processes could be improved

**Management Plan** - Management will work with the Office of Financial Analysis to develop an approved facility rental rate structure. Any rental fee waivers will be approved by the

Director. The Accounting Clerk Senior, who reconciles the monthly Statements of Activities, now receives a copy of the facility rental spreadsheet and will independently reconcile the detail records to the general ledger financial information.

- **Membership Database** - Registered students automatically have membership access to all Rec Sports facilities and do not pay a separate membership fee. Memberships are sold to faculty, staff, and affiliates. Affiliates are individuals sponsored by a student, faculty, or staff; such as spouses, domestic partners, children, or friends. An internally developed membership database is used to track membership activity including member name, address, eligibility status, membership type, renewals, and payments.

The database was developed to provide membership eligibility verification for facility access. The system, as originally designed, was never intended to support financial transactions and membership management. It currently supports \$1.5 million in annual revenues. The system lacks standard integrity controls and documentation, and database information cannot be effectively reconciled to general ledger financial information. Responsibility for the ongoing availability and maintenance of the database rests with the Rec Sports Assistant Director, Technology who originally designed the system. Management has indicated that development of a robust membership management system is a priority.

**Management Plan** - Recreational Sports will investigate membership software products to identify a solution. Features of the software must include membership management, locker controls, point of sale, inventory control, and the ability to interface with student records downloads.

#### **Information Technology - Risk and Control Discussion**

University Audits performed a high-level review of information technology at Rec Sports. The department support is comprised of one full time Assistant Director, Technology who is responsible for providing IT support for approximately 60 users, over 60 workstations, 30 servers, and several applications. Application support includes a point of sale system and internally developed systems that support facility scheduling, participant registration, facility access, and the membership database. The servers are comprised of multiple virtual systems installed on 18 physical machines. Servers, devices, and users are spread across six locations throughout the Ann Arbor campus. The Assistant Director, Technology has one student employee who works 40 hours per week during the summer and 10 hours per week during the school year. The amount of technology supported, combined with its geographical dispersion requires significant support. The Assistant Director, Technology and student support staff are struggling to meet current user and management needs for technology.

- Management is in the process of making multiple changes to the information technology environment to improve services. These changes include moving most of the server infrastructure to an ITS data center, utilizing their Virtualization as a Service (VaaS) offering, and joining the UMRoot domain, which was completed as of January 1, 2011. Management is also planning to centralize IT services wherever practical. These changes will significantly reduce risk and improve efficiency. The move to Division of Student Affairs (DSA) also provides the benefit of an established community of IT support teams that Rec Sports IT staff can leverage.

University Audits fully supports Rec Sports moving server infrastructure to ITS and transitioning to centrally provided services where practical. University Audits recommends partnering with DSA IT providers to explore other opportunities for shared resources to allow IT staff to focus more on the specific needs of the Rec Sports user community and internally

developed applications. IT staff would also benefit from the use of remote desktop management software to reduce travel time.

**Management Plan** - Discussions are underway to integrate Rec Sports into the DSA IT community. A remote management system has been put into use.

#### **Procurement, Including Travel - Risk and Control Discussion**

Rec Sports does a significant amount of procurement for their own operations and on behalf of the Club Sports teams. Purchasing and travel is done through a combination of P-Cards, Purchase Orders, Service Unit Billing, and Non-PO Vouchers. University Audits performed detailed testing and found purchases and travel had appropriate business purpose, approvals, and receipts. Hosted events were approved and documented. Purchases and travel require pre-authorization and are regularly monitored. Some opportunities for streamlining procurement and improving controls are noted below.

- Multiple P-Card holders have monthly spending limits significantly above their average monthly use. These limits are in place because of seasonal peaks in expenditures at the beginning of term and/or competitive season. Spending limits range from \$5,000 to \$50,000. There are long periods of time when an individual has an unnecessarily high spending limit. Excessive spending limits during times of low activity increases the risk of inappropriate use.

P-Card spending risks can be mitigated by reviewing spending limits and trends for all P-Card holders. Limits may be adjusted regularly to reflect seasonal spending trends. Once the department begins using Concur, holders and limits should be reviewed again. Card holders with limited activity will no longer need P-Cards due to the increased reimbursement speed provided through Concur.

- The Business Manager was approving the Director's P-Card statements. P-Card approvers should always be in a higher position of authority than those whose statements they review and approve. University Audits found all other card holders to have an appropriate approver reporting relationship.

*Auditor's Note* - Once this was brought to the attention of Rec Sports management, the problem was corrected immediately. The Rec Sports Director's P-Card is now approved by the Associate Vice President for Student Affairs.

- Approximately 40% of Rec Sports purchasing spend is done through P-Cards. Much of this spending activity is of a non-travel nature, to support the general equipment replacement and supply needs of the organization. P-Cards are used for strategic vendor purchases, or equivalent purchases that could be supplied by strategic vendors. Rec Sports is potentially forgoing discounts by using non-strategic vendors or by paying strategic vendors through a non-discounted P-Card purchase.

**Management Plan** - A detailed review and analysis of P-Card use will be performed. Card holders with consistently low spending patterns will have their limits lowered consistent with their needs. An adjustment schedule will be created for card holders with the need for a seasonally high limit. This review will be performed again once the move is made to Concur. Staff, especially P-Card holders, will be reminded to use the appropriate procurement method. Procurement Services has been contacted and a spend analysis has been completed.

### **Employment - Risk and Control Discussion**

Rec Sports employs 41 full time staff members and approximately 600 temporary staff members. Employees are spread across seven facilities located throughout the Ann Arbor campus. A detailed staffing analysis shows employment numbers at the various locations is in line with facility use. Overtime is minimal and corresponds to high facility usage and environmental demands. Representatives from both University Human Resources and DSA Human Resources report that Rec Sports follows all guidelines and neither group was aware of any inappropriate actions.

Rec Sports is the second largest employer of student temporary staff at the University. Student staff members are permitted to maintain temporary employment status as long as they are enrolled in the University and their primary purpose for being at U-M is to obtain an education. The enrollment requirement is waived for spring/summer terms. Rec Sports also employs some nonstudent temporary staff. Nonstudent temporary appointments should not exceed twelve months of continuous employment.

- As an employer, it is up to Rec Sports to ensure that temporary staff members meet the necessary employment requirements. University Standard Practice Guide (SPG) Section 201.57, *Temporary Employment*, states, "The employing unit is responsible for monitoring the duration and nature of nonstudent temporary employment to assure correct employment status." SPG Section 201.24, *Employment of Students*, states, "Departments are responsible for monitoring the ongoing status of student temporary employees to ensure that they remain eligible for employment in this category." Currently, Rec Sports depends on area supervisors to monitor a temporary staff member's employment status. There is no comprehensive monitoring of student and nonstudent employment status. The lack of systematic monitoring and tracking could result in employment of nonstudent temporaries beyond the twelve-month limit.

**Management Plan** - Rec Sports and DSA will work together to identify the best option for tracking the status of temporary employees. Once a process has been identified, it will be adopted.

### **Cash Handling - Risk and Control Discussion**

Rec Sports management has developed detailed cash handling policies and procedures that are a good resource for staff to use for daily tasks. Cash handling duties are appropriately segregated, bank deposits are timely, and cash is well secured. Cash registers are used for the bulk of cash, check, and credit card payments. Cash drawers are balanced daily. University Audits noted certain locations were deviating from policy and that there were some gaps in policy and procedure. No misappropriations or misuse of assets were noted.

- Credit cards are accepted for payments at four Rec Sports facilities. Rec Sports policy requires that all refunds be approved by a manager prior to processing the transaction. Once the manager has approved the refund, an e-mail is sent to the local facility manager and the Business Manager. The cashier adds a note to the refund receipt indicating the reason for the refund. Refund receipts and explanations are later reviewed and checked against the Statement of Activity report by the Financial Assistant. At the time of the review, the Financial Assistant was not receiving a listing of approved refunds and could not verify that refunds were approved. This communication gap could allow for an inappropriate refund to occur and not be detected during the reconciliation process.

Once this gap was brought to the attention of management, it was corrected immediately. The Financial Assistant is now receiving the approved refund e-mails and will use the emails to reconcile refunds that appear on the Statement of Activity.

- During the review, University Audits noted some locations deviated from documented cash handling policies and procedures. A reoccurring error was observed in the register close-out process at the Intramural Sports Building (IMSB). Cash registers were not accurately balanced, making the reports appear as though the register was short. An examination of the reports revealed that starting cash is not consistently recorded. Deviations were also observed in day pass handling procedures at CCRB and NCRB. Entry monitors were not properly recording their sales and carbon copies of passes were not handled according to procedure.

Supervisory staff should periodically perform walkthroughs of various shifts at cash handling locations to make sure processes are consistently followed.

**Management Plan** - Recreational Sports will set a schedule for periodic walkthroughs and policy review with staff.

#### **Outdoor Adventure Center Process Documentation - Risk and Control Discussion**

The Outdoor Adventure Center (OAC) follows the Rec Sports policy manual for cash handling and day-to-day business processes. It also maintains an equipment procedures manual that provides policy and procedures on rental equipment processing, use, care, and repair. Rental equipment is well managed. A detailed inventory is maintained and periodic physical inventories are taken. Rental equipment logs are updated after rental return noting location and condition. University Audits noted two other activities at OAC that need formal policy and procedures: sale of parking spaces in the OAC lot for home football games and reporting of missing rental items.

- As an additional departmental revenue source, Rec Sports sells parking spaces in the OAC parking lot on football game days. Parking sales can generate approximately \$1,600 in a single Saturday. The lot is typically staffed by a pair of student workers who collect and record payments. There is an informal process in place for tracking the sales and handling the cash deposit. Because of the lack of a documented process, cash handling varies depending on which staff members are working that day. Patrons are also given the option to buy a space for an entire season for a discounted rate. This adds additional complexity in tracking payments and customers.

The process would benefit from the creation and documentation of formal policies and procedures. This will provide better customer service and ensure funds are consistently and appropriately handled and tracked. Rec Sports has begun developing this process.

- OAC provides outdoor equipment for rental to individuals affiliated and unaffiliated with the University. Class sessions, trips, and some small items are available for purchase as well. Prices are set by the OAC director with no other review. University policy requires rates charged to internal and external customers to be reviewed and approved by the Office of Financial Analysis to ensure consistency with University cost accounting standards.
- OAC has no formal process for following up on items missing from the equipment inventory. Staff indicated that this was a rare occurrence and that no items had gone missing in at least the last three years. However, given the lack of a documented process for reporting and reconciling missing items, there is no way to confirm whether losses have occurred.

**Management Plan** - Recreational Sports will create a ticketing/receipt system for football parking. The process will be documented and added to the OAC manual. Recreational Sports



will have a review of pricing done through the Office of Financial Analysis for rental items at OAC. A process will be created and added to the OAC handbook for handling lost rental items.

### **Business Continuity - Risk and Control Discussion**

In the event of a disaster, it is important for departments to have a plan to ensure a swift recovery. An effective business continuity plan covers all mission critical operations.

- Rec Sports has a detailed disaster recovery/business continuity plan for their IT infrastructure. This plan does not address non-IT operations. This plan should include backup locations, call lists, designation of duties, and update and testing of procedures.

**Management Plan** - A detailed business continuity plan will be developed. This plan will be reviewed and tested annually.

Business practices at Rec Sports are generally sound. A formal audit follow-up will be conducted in the first quarter of fiscal year 2012.

Division of Student Affairs Recreational Sports - Club Sports

#2010-816

Original report issued March 2, 2011

*This report contains audit observations and recommendations related to Club Sports, a program within the Department of Recreational Sports. This report should be considered in conjunction with the Recreational Sports audit report.*

The Club Sports Program (Program) is an integral part of the Department of Recreational Sports (Rec Sports). Club Sports (Clubs) are student-led sports organizations composed primarily of students, but may also include faculty and staff. Each club is formed, developed, governed, and administered by the Club student membership. There are currently forty-two recognized sport clubs on campus.

Club teams from U-M regularly compete at regional and national competitions. The Club Sports program is home to a number of national champion programs, with repeat winners among those ranks. Five of the Club teams have a Varsity Club status created by the Department of Intercollegiate Athletics in 2000. A table listing the current Clubs is below.

#### **Varsity Clubs**

Lacrosse - Men	Synchronized Skating - Women
Lacrosse - Women	Synchronized Swimming - Women
Rowing - Men	

#### **Non-Varsity Clubs**

Aikido Yoshokai	Ninjitsu	Table Tennis
Baseball	Rifle Team	Tae Kwon Do
Boxing - Men	Roller Hockey	Tennis
Boxing - Women	Rugby - Men	Triathlon
Brazilian Jiu-Jitsu	Rugby - Women	Ultimate Frisbee - Men
Cycling	Running	Ultimate Frisbee - Women
Dance	Sailing	Volleyball - Men
Fencing	Shorin Ryu Karate-Do	Volleyball - Women

Field Hockey	Shotokan	Water Polo - Men
Gymnastics	Soccer - Men	Water Polo - Women
Ice Hockey - Men	Soccer - Women	Waterski
Ice Hockey - Women	Softball	Wrestling
Kayak		

Rec Sports provides the Clubs with administrative oversight, facilities access, and limited direct financial support. Administrative and logistical support is provided by two Rec Sports staff employees, the Senior Assistant Director, who also directs the Intramural Sports program, and an Assistant Director. Temporary student help is used to augment Program staff. The extent of a Club's contact with Program staff varies, depending on Club needs. All Club leadership are required to meet and orient with Program staff at least once a year. Program staff have developed a comprehensive Club Sports Program Guide that provides specific procedures and guidelines that all Clubs are expected to follow.

All forty-two clubs are treated as University Sponsored Student Organizations (SSOs). Rec Sports acts as the sponsoring unit of the Clubs. University SSOs have unique benefits:

- University tax exempt status
- Ability to accept tax deductible contributions
- University insurance coverage
- Access to University procurement contracts and mechanisms
- Use of "The University of Michigan" or derivation thereof in the organization's name
- Access to University support and facilities
- Use of the University logo
- Access to the University motor pool

The University assumes significant responsibility and liability under the SSO model. Sponsored status is a statement of recognition by the University that the student organization is a key element in helping the University realize its mission. SSOs are held to the same standards as a University unit in terms of policy and procedure. To qualify for sponsored status, student organizations are required to meet certain requirements:

- Completion of a formal sponsorship proposal and agreement using a University provided template
- Annual registration with the Office of Student Activities and Leadership
- All contracts must be signed by the appropriate University department. Student leaders of Sponsored Organizations may not sign contracts on behalf of the University with external entities.
- The use of outside bank accounts is strongly discouraged. Any donation or gift to the Club must be maintained in a University account to qualify as a charitable contribution for tax purposes.

At the request of the Division of Student Affairs (DSA), University Audits conducted an audit of the Department of Recreational Sports, which includes Club Sports, following the institutional decision to transfer supervision to DSA from a joint reporting relationship to the Office of the Provost and Department of Intercollegiate Athletics. The scope of this portion of the audit was to evaluate the adequacy and effectiveness of controls within the U-M Club Sports Program. A separate report was issued specifically for the Club Sports Program because of the size, complexity, and unique risks of student-led sports activities.



The audit objectives included evaluating controls and compliance with University policy in the following areas:

- Club sponsorship eligibility and status
- Supervision and coaching relationships
- Management of Club funds, including gifts
- Club travel, use of University vehicles, and hosting

Along with evaluating Program management of the Clubs, University Audits selected twelve of the forty-two Clubs, including all Varsity Clubs, for an in-depth review. The selected Clubs are:

- Men's Lacrosse (Varsity)
- Women's Lacrosse (Varsity)
- Men's Rowing (Varsity)
- Women's Synchronized Skating (Varsity)
- Women's Synchronized Swimming (Varsity)
- Men's Ice Hockey
- Men's Rugby
- Sailing
- Cycling
- Men's Ultimate Frisbee
- Women's Ultimate Frisbee
- Water Ski

The following processes, common to all Clubs, were examined for each selected Club:

- SSO registration status
- Finances
- Coaching agreements
- Practice, game, and fitness space
- Injury prevention and medical support
- Charitable donations and use of gift funds
- Equipment management and disposal
- Disciplinary functions
- Team operation
- Travel
- Program oversight and guidance

### **Risk and Control Discussion**

The following section provides observations common to many of the Clubs.

- Sponsored Student Organizations - Club Sports are receiving the benefits of a sponsored University organization but in many cases do not fit the SSO model
  - The level of activities and assumption of risk varies, from loosely organized local area clubs to clubs that are part of competitive leagues with national governing bodies
  - Several Clubs have separate 501(c) 3 charitable organizations (Booster Clubs), potentially blurring legal responsibility, accountability, and tax exempt status
  - Many of the Clubs use outside bank accounts.
  - Club Officers are signing coaching contracts, vendor licensing agreements, and other contractual arrangements that potentially obligate the University
  - No sponsorship agreements were ever formally documented for the Clubs and many Clubs were not up-to-date with annual student organization registration requirements

U-M Risk Management Services has performed a separate risk assessment of Club Sports. Risk Management Services' recommendations regarding Club sponsorship include:

- Undertaking a review of the sponsorship designation for each Club and identifying criteria for sponsorship
- Considering sponsorship affiliation for varsity sports only, with associated sponsorship obligations for the Clubs
- Evaluating whether current staffing provides sufficient resources for oversight and monitoring of activities for compliance with University policies and procedures
- Delineating clear criteria for U-M authorized events versus non-authorized events

**Management Plan** - DSA plans to launch a comprehensive review of the SSO model in winter 2011 and will determine the appropriate relationship of Club Sports to the University in this context. If a sponsorship relationship is determined appropriate, Rec Sports will work with Athletics, General Counsel, and Division of Student Affairs (DSA) financial staff to develop agreements and proper procedures pursuant to this recommendation.

- **Guidance** - Rec Sports Program staff provides financial and administrative support to the Clubs. Program staff has developed a well thought out Club Sports Program Policy Guide and staff is available for consultation and assistance. Club conduct expectations and consequences are clearly articulated in the Program Policy Guide and are reviewed at bi-annual mandatory Club President/Representative's Meetings. Interviews with selected Club student leadership showed an inconsistent awareness of University and Rec Sports policies and procedures.

Rec Sports requires each Club have one active faculty or staff advisor. The responsibilities of the advisor include:

- Approving the Club's annual budget
- Serving as a resource person for Club matters
- Encouraging leadership development, initiative, and responsibility

University Audits noted many Clubs had no designated advisor, and when there was a named advisor interaction was often limited.

Mandatory attendance by the Club President/Representatives at twice yearly meetings is critical to ensuring each Club understands its responsibilities as a University sponsored activity. Rec Sport's Management should enforce mandatory attendance at required Club meetings by withholding funding and facilities access for noncompliant Clubs.

The Club Sports Policy manual does a good job setting out policy but Club leadership awareness is inconsistent. Consider creating a website repository of Club best practices, frequently asked questions, templates, forms, links to relevant University policy and contacts to reinforce and augment information covered at mandatory meetings.

**Management Plan** - Recreational Sports will review all club policies and forms and create a website repository for easy access. Further, policies delineating consequences for missed mandatory meetings will be clearly articulated and enforced. The broader issue of active faculty/staff advisors for SSOs will be considered as part of the comprehensive review of the SSO model.

- **Financial Management** - The Clubs operate using multiple funding sources. Not every Club has the same accounting and funding model.

Rec Sports expenditures are primarily for team travel, facility rental and equipment purchases. Club gift and general funds administered by Rec Sports are well managed. Expenditures are appropriately approved, with sufficient documentation and business purpose. Gift expenditures are consistent with donor intent. University vehicle usage follows standard Transportation Services procedures, and Transportation Services noted very little problems with Club vehicle usage. Any concerns raised by Transportation Services regarding Club Sports vehicle usage are immediately addressed by Rec Sports Program staff.

Rec Sports management requests Clubs provide a copy of any outside bank account statements twice a year, in the fall and winter term. Approximately half of the clubs complied with this request. Rec Sports staff believe the majority of Clubs use some form of outside banking, either directly, or through booster clubs, and that not all Clubs are providing statements. University Audits reviewed available statements and noted Clubs carry significant outside account balances; substantially more than their internal University accounts.

**Management Plan** - DSA plans to launch a comprehensive review of the SSO model in winter 2011 and will determine the appropriate relationship of Club Sports to the University in this context. If a sponsorship relationship is determined appropriate, Recreational Sports will work with the University and DSA financial staff to assure proper agreements, protocols, and financial oversight are in place.

- **Practice, Game, and Fitness Space** - Rec Sports facilities are built for student recreational use and are not always well-adapted to support the growing demand for competitive club sports. A recurring concern raised by Club leadership is access to practice and game facilities. Many Club teams use space that is managed by Athletics to accommodate the needs of their sport. This space, by its nature, is intensively used by Athletics and access times are limited. Some Clubs use city, school, and/or county facilities on an unofficial basis. Teams also rent practice and game space at commercial facilities at a substantial premium.

**Management Plan** - Club and Intramural Sports needs are included in the Recreational Sports Strategic Facility Planning process currently underway in cooperation with Architecture, Engineering and Construction. Recreational Sports will work with Risk Management and Athletics to determine proper levels of involvement and possible facility modifications in the short-term.

- **Medical Support** - Many of the Club teams are competing at a national level in contact sports with inherent injury risk. Unless specified by a league or tournament, Club participants are encouraged, but not required to have medical insurance. Only a few of the teams interviewed have a formal relationship with an athletic trainer or other medical personnel. Current standard practice for Club teams without a medical support relationship is for athletes to use University Health Services for sports injuries.

**Management Plan** - In April 2010, University Health Services and Recreational Sports met with the medical staff assigned to Intercollegiate Athletics. Recreational Sports is now coordinating referrals with UMHS Neurosport and its training staff to identify and refer concussion injuries. UMHS Neurosport is creating training materials to enhance identification of head injuries. Once these materials are available, Recreational Sports will incorporate these materials into all supervisor emergency trainings. Recreational Sports will work with the

University Health Services to develop a protocol for assisting Intramural and Club Sport participants with other sport-related injuries.

- **Property** - Some Clubs own the equipment used in practice and competition; others require members to personally provide equipment. Some Clubs use a mix of Club-owned and personally owned equipment. Club equipment is purchased with funds maintained in by University accounts, booster clubs, and outside bank accounts. Athletic equipment manufacturers also donate equipment. No Club maintains an inventory of equipment or the original funding source of the equipment. When the equipment is no longer needed, the item is sold and the funds are retained by the Club. Sale methods include eBay, sales to other teams, sales to leagues, and sales to private individuals. No teams interviewed reported using University Property Disposition for the disposal of equipment. Many teams were unaware of the University requirements regarding equipment disposal and there is substantial risk of equipment loss due to lack of standard processes and tracking.

**Management Plan** - Recreational Sports will work with Procurement and Property Disposition to develop a policy and procedures for managing equipment and will investigate a software solution for equipment tracking.

The clubs that make up Club Sports vary from student-led teams competing locally to coach-lead nationally ranked teams. Rec Sports provides solid management and oversight of certain aspects of the program but there are significant areas of the Clubs that are not under their control. The University, in some cases, is assuming legal responsibility for the Clubs without sufficient span of control. The magnitude and complexity of the Program has grown beyond its current governance model. University Audits has created this report to be a starting point for Rec Sports, the Division of Student Affairs, and other University units to evaluate the needs and the appropriate governance and accountability model for the Clubs. University Audits will conduct a follow-up review in the second quarter of fiscal year 2012.

University of Michigan-Flint Cashier's Office  
Report issued March 22, 2011

#2011-804

The UM-Flint Director of Financial Services and Budget requested an audit of the UM-Flint Cashier's Office due to the phased retirement of the Accounts Receivable Manager. The Cashier's Office provides a wide range of cash-related services to faculty, staff, and students including:

- Acceptance and posting of payments to student accounts for tuition, miscellaneous fees, student loans, and enrollment deposits
- Facilitation of deposits to University bank accounts for UM-Flint departments
- Management and oversight of petty cash funds within UM-Flint departments and programs
- Issuance of checks or processing cash disbursements for:
  - Travel and business hosting advances
  - Refunds (credit balance on student accounts)
  - Petty cash reimbursements
  - Human subject fee payments
  - Short term emergency loans

The Cashier's Office also collects payments on outstanding student accounts. An account is considered outstanding after thirty days of non-payment. Once an account is outstanding, a hold is placed on it and the student is not able to receive transcripts or register for classes. It is the Cashier's Office policy to write off student account balances after two years of non-payment. A student can continue to pay on an account that is written off to release the hold.

The audit focused on central processes performed by the UM-Flint Cashier's Office to determine if established policies, processes, and internal control structure are sufficient to protect University assets and comply with federal regulations, University guidelines, and department procedures.

#### **Risk and Control Discussion**

- **Vault Balance** - The vault balance at the UM-Flint Cashier's Office consists of funds in the cashier's cash box, change fund box, five teller cash drawers, revolving petty cash, human subject incentive program funds, and petty cash advances. When the vault was established, the beginning balance was not recorded and responsibility for approval and continual monitoring was not documented. Management must establish and record a beginning vault balance as well as perform an assessment of cash needs.

**Management Plan** - An existing report, Journal Detail Listing for Balance Sheet Accounts, already exists in M-Pathways. The total petty cash year-to-date (YTD) figure on the M-Pathways report is matched to the petty cash total on the monthly bank reconciliation. The report from M-Pathways is being printed each month and added to the monthly bank reconciliation report. This step was added to the procedure manual effective January 2011.

To date, no formal assessment of cash levels has been done. The Cashier's Office will start tracking activity to determine what the daily cash balance should be. We will communicate this assessment to the Treasurer's Office. The goal is to complete the assessment by the end of the calendar year.

- **Accuracy of Cash** - Current procedures for performing the daily cash reconciliation are not consistently performed and there is no formal documentation surrounding the process. Therefore, the month-end reconciliation does not provide an accurate account of reconciling items or discrepancies made in the month.

A surprise cash count is an important and useful technique to confirm the accuracy of cash on-hand and to discourage mishandling of funds. The Cashier's Office does not perform surprise cash counts. Prior to this audit, the last surprise cash count was performed by University Audits twelve years ago.

**Management Plan** - Cash was being reconciled on a daily basis, but best practices were not being followed. A new daily cash count sheet has been created and will be implemented. The cashier will report any overage or shortage on the sheet. Each cashier will be required to sign the sheet and turn it into management daily. Management will review the forms.

Management continues to log cashier overages and shortages in the red cashier over/short book. This book was started in 1979. In 2010, a total of seven entries were recorded, this is an ongoing process that will continue to record all discrepancies.

The monthly bank reconciliation procedures have been revised to reflect that in addition to the signatures of the preparer and the Accounts Receivable Manager, the report will now be sent to the Director of Financial Services and Budget for approval. This additional procedure is effective with the February 2011 reconciliation, which will be done in March 2011.

The Accounts Receivable Manager has created a Quarterly Audit Sheet. She is in the process of creating procedures for the quarterly surprise cash audits. The Accountant Intermediate will be



responsible for performing the surprise cash audits and turning the completed sheets into the Accounts Receivable Manager.

- Petty Cash Reimbursement - Petty cash is disbursed from teller cash drawers for items such as travel advances and student organization or department petty cash requests. Teller drawers are reimbursed a few times a month as part of the vault reconciliation process. Frequent reimbursement of petty cash using a standardized process is a critical component of a complete and accurate reconciliation of total cash on-hand.

Sampled petty cash reimbursement requests were reviewed. Two requests containing receipts not in compliance with petty cash policies were reimbursed in full by tellers.

**Management Plan** - Due to staff size and time constraints, it is not feasible to reimburse petty cash disbursements on a daily basis. Petty cash reimbursements are done on a weekly basis by the Billing Clerk Intermediate. In addition, if circumstances warrant it, she reimburses the cashiers on an as needed basis. This is an ongoing practice that will be formally documented.

Petty cash transactions for individuals and/or departments are processed through the Flint Cashier's Office. However, the cashiers are not responsible for ensuring that the receipts attached to the form are in compliance with University policies. This is the responsibility of the petty cash requestor and authorized approver. When the petty cash reimbursement forms reach Financial Services and Budget, the general accounting staff performs their own audit.

The Accounts Receivable Manager and the Assistant Controller will provide training through the Accounting and Reporting Group on imprest cash procedures.

- Deposit Delays - The Cashier's Office is responsible for depositing checks. A cash receipt ticket number is necessary to record a deposit. Ticket numbers for checks received for payment on delinquent student accounts, sponsored student tuition, and miscellaneous non-tuition charges cannot be created by tellers as these payments require additional information from outside units. Check copies may be sent to the responsible unit to generate a ticket number. The number is then sent to the Cashier's Office to complete and record the deposit. This process causes a deposit delay of more than one day, which does not comply with Standard Practice Guide (SPG) Section 519.03, *Cash Management Policies*.

**Management Plan** - The Accounts Receivable Manager will be writing and implementing new procedures for depositing checks as received. A request was sent in February to the Assistant Controller to establish two clearing accounts for immediate deposit of received checks. The Assistant Controller will contact Financial Operations regarding the new clearing accounts. The Accounts Receivable Manager and Assistant Controller will work together to determine who will be responsible for reconciling the accounts.

After the accounts are established, the Accounts Receivable Manager will develop the procedures detailing the processes for continued notifications of received checks and reconciliation of the clearing accounts for the Cashier's and Student Accounts office to follow. The Accounts Receivable Manager will be responsible for overseeing that the new procedures are implemented.

- Segregation of Duties - Proper segregation of duties decreases the risk of fraud, errors, or misuse of assets. Several opportunities to further segregate duties were noted.

- *Mail* - Incoming mail may contain payments that are not logged upon receipt. Tellers that open and process mail also post payments to student accounts.
- *Deposit* - Two tellers reconcile daily teller cash activity (including their own) and prepare the deposit. On alternate days, one of the tellers performs both duties.

#### **Management Plan**

- *Mail* - Staff size does not allow for all mail to be opened with two cashiers present. The Accounts Receivable Manager has created an Excel spreadsheet for use as an incoming mail log. Once the form is complete, procedures will need to be written.
- *Deposit* - As of February 21, 2011, cashiers are following new procedures whereby the person who reconciles the night drawer cannot be the same person who prepares the morning deposit.

The Accounts Receivable Manager has created a night drawer daily cash count sheet. The cashier reconciling the night drawer will fill in the cash count for the drawer. In the morning, the cashier preparing the deposit will fill in the audit section of the form. The Accounts Receivable Manager is still in the process of writing the procedures for the sheet.

- Collection Process Efficiency - Accounts receivable collection is a highly manual process that includes targeted reviews of outstanding student accounts. One staff member is responsible for the collection process and also monitors aging of student accounts receivable. All collection documentation is maintained in hard-copy format because Banner has limited tracking and reporting capabilities for outstanding accounts and collection follow-up. As payments can be made on accounts that have been written off, the retained collection documentation spans over thirty years. These system and personnel limitations have resulted in a manual system that is prone to process, time, and reporting inefficiencies.

**Management Plan** - We will assign a cashier or a student-worker to assist the Accounts Receivable Clerk in assessing and documenting current collection processes. This information will be used to evaluate what type of electronic collection process might work best for UM-Flint.

Further discussions need to take place between the Director of Financial Services and Budget and the Accounts Receivable Manager regarding this topic. The goal is to complete the process review by the end of the calendar year and determine a feasible timeframe for implementation of an electronic collection system.

- Security and Access -The UM-Flint Cashier's Office is equipped with the following security features:
  - Surveillance cameras
  - Door alarm system with unique access codes for each employee
  - Vault with a combination lock located in a room that can be locked
  - Change fund box and a cashier's cash box, both of which are locked and stored in the vault until they are needed
  - Teller cash drawers that are locked and stored in the vault when they are not in use

The teller cash drawers, vault, and vault room door remain unlocked throughout the day including times when not all staff members are present (e.g., lunch). The vault combination has not been changed in the past twelve years.



Cash is taken to areas that are not visible by surveillance cameras. The Intermediate Billing Clerk counts and reconciles cash at her desk when reimbursing teller drawers for petty cash disbursements and performing month-end reconciliation.

**Management Plan** - As of August 2010, the vault room door remains locked throughout the day. The cashiers are locking the drawers at their cashier stations when they leave the office during working hours. At night, their cash drawers are put in vault, which is locked. In addition, the vault room door is locked at night.

The vault combination was changed on February 28, 2011, after an employee with knowledge of the combination transitioned to another department. The vault combination will be changed on an annual basis as well as when anyone having knowledge of the combination leaves. The new combination is known by the three cashiers and the Accounts Receivable Manager. It is noted that previously the cashiers hung their coats in the vault room. As of fall 2010, the cashiers now use a new coat rack in the stock area of the office.

The Intermediate Billing Clerk currently does the petty cash reimbursements from her desk, which is not visible by surveillance camera. As the Clerk uses her computer while doing this process, it is not feasible to have her move to another desk when doing this process. The UM-Flint Department of Public Safety was contacted in regards to installing a surveillance camera near the Clerk's desk. This is an ongoing discussion.

- Policies, Procedures, and Training - Policies and procedures should be updated to ensure documented processes are accurate and followed consistently.

**Management Plan** - In November 2010, the Accounts Receivable Manager started reviewing cashier policies and procedures. The goal is to make sure that procedures are documented correctly and that all cashiers are following the same procedures. This is an ongoing process. Each cashier is assigned to document their procedures and then review with them with the Accounts Receivable Manager. Changes are made as needed.

Credit card refund procedures are one of the procedures to be documented. To assist with this, the daily cash count sheet that each cashier will complete has a question asking the cashier if all credit card refund slips have appropriate approval. The teller needs to answer this question and also sign the form. This new process will make it easier to hold the cashier accountable for following proper procedures.

A new cashier, who started in February 2011, is required to take depository and cash handling training as well as credit card merchant training courses. The Accounts Receivable Manager is in the process of getting the appropriate training set up through Human Resources and the Assistant Controller. The credit card merchant training for the two existing cashiers expires this summer. We plan to add depository and cash handling training to their list when they have to renew the other training.

University Audits will conduct a follow-up review during the second quarter of fiscal year 2012 to assess the effectiveness and adequacy of internal control improvements implemented by management.

The mission of the Office of the Vice President and General Counsel (OGC) is to provide timely and responsible legal advice about a broad array of legal issues that concern the University. OGC addresses existing and potential legal matters to assist the University in achieving its mission.

OGC coordinates and supervises all legal representation for the University, including the use of outside counsel. It manages the legal matters for the Ann Arbor, Dearborn, and Flint campuses as well as the University of Michigan Health System.

OGC is organized into the following law practice groups:

- The Fleming Office focuses on academic affairs, civil rights, employment, faculty issues, public safety, purchasing, research, student issues, taxes, and a variety of other University related matters.
- The Health System Legal Office responsibilities include accreditation, compliance, contracts, credentialing of medical staff, human subject research, and medical malpractice.
- Development Legal Services concentrates on development related activities such as bequests to the University, gifts, charitable trusts, and taxes related to charitable giving.
- Technology Transfer assists the Office of Technology Transfer with licensing agreements, patents, technology related litigation, and export controls.

The total OGC budget in fiscal year 2010, excluding outside counsel, was \$5.6 million. OGC has a staff of 35, including 21 attorneys. Total gross expenditures for outside counsel during fiscal year 2010 were \$12.9 million, including \$6.1 million for patent counsel. Patent counsel is administered through the Office of Technology Transfer.

OGC has experienced significant management changes in the last several years. The current General Counsel has been in position since 2008. The two Deputies General Counsel assumed their roles in early 2010. A new position, Chief of Staff, was created to provide more sophisticated management of OGC initiatives. In 2009, the unit developed an organizational assessment system with the objective of valuing the legal service work performed for the University. Management developed performance measures using input from staff, General Counsel Advisory Committee members, interdisciplinary leaders, and University clients. This assessment system provides information to OGC management that contributes to improved decision making, performance, and accountability.

For the past several years, a number of campus units, particularly smaller ones, have been exploring ways to share services and staffing. Offices within the Fleming Building share IT staff and have expanded the sharing of services into other functional areas, such as human resources, finance, procurement, reconciliations, and reporting. The goal of the shared services concept is to deliver higher quality services at lower costs. OGC transferred several administrative processes to Fleming Shared Services beginning in April 2010. Major processes that are now shared include human resource related transactions, invoice payment including payment to outside counsel, Statement of Activity reconciliation, OGC checkbook handling, and financial and budgetary reporting.

The scope of the audit was to evaluate the adequacy and effectiveness of controls within OGC. University Audits evaluated the following processes:

- Monitoring, oversight, and approval of the processes that have migrated to the Fleming Shared Services unit
- Data security including management of electronic and paper files

- Management of outside legal services
- Procurement, travel, and hosting
- Cash handling
- Recharge activity
- Conflict of interest/conflict of commitment management
- Payroll

### **Risk and Control Discussion**

- Physical and Electronic Document Security - Legal matter files often contain sensitive information. It is very important that the documents contained in both electronic and physical files remain secure at all times. University Audits identified the following related issues:
  - File cabinets in the common area of the OGC office in the Fleming Building were not locked after normal business hours.
  - Security administrators were not periodically reviewing the appropriateness of user access to the FileTracker system, an online document management application. Staff scan important legal matter documents into the FileTracker system, which users access through the University website with their username, Kerberos password, and MToken code. University Audits found no evidence of inappropriate access.
  - Management did not have a standard personnel on-boarding/off-boarding checklist, which would assist in timely removal of access to the FileTracker system, and recovery of building and file cabinet keys from departing employees.

During the audit, OGC management remedied the security issues noted above by locking the file cabinets after hours, implementing periodic review of user access to the FileTracker system, and developing a comprehensive employee on-boarding/off-boarding checklist. These issues are closed.

- Conflict of Interest/Conflict of Commitment (COI/COC) - OGC has a formal, well-written COI/COC policy in place, which requires annual attestation that staff have reviewed the policy and disclosed potential conflicts. University Audits observed that OGC staff had inconsistently attested since publication of the policy in 2008 and new employees did not always complete required COI/COC training during the new hire orientation process.

OGC management resolved the issue during the audit. Staff have completed a COI/COC disclosure addendum with their most recent performance evaluation, which was conducted in January 2011. Also, the recently developed OGC employee on-boarding checklist includes new employee COI/COC training, which will help ensure that employees take the training in a timely manner. This issue is closed.

- Monitoring of Legal Matters Requiring Retention of Outside Counsel - During the review of management of outside legal services, University Audits noted that OGC had opportunities to improve monitoring of legal matters requiring retention of outside legal counsel:
  - OGC management, staff, and Fleming Shared Services have a number of manual techniques to monitor legal matters; University Audits noted this process was fairly well controlled. However, there is no formal, written procedure for monitoring legal matters. Without a clear procedure noting roles and responsibilities of employees, duplicate activities may occur creating inefficiencies. Business continuity may also be negatively impacted if key personnel leave the unit and OGC is not aware of the monitoring tasks they were performing.
  - Specific budgets are not set-up by legal matter, which could lead to late detection of cost overruns.

- OGC and Fleming Shared Services staffs use an Excel spreadsheet to monitor and capture expense detail along with other important information about legal matters. Excel has a number of shortcomings as a monitoring tool including potential data corruption and inability to accommodate concurrent users.

**Management Plan** - OGC will develop formal written procedures for monitoring legal matters. These procedures will include the administrative tasks associated with the recordkeeping of the OGC legal affairs as well as defined roles and responsibilities of staff involved in the monitoring process.

Discussions between OGC management and attorneys who monitor outside counsel will be conducted at the outset of legal matters when outside counsel is retained to make a decision about a case budget. A process will be developed that will allow OGC management, as well as the financial staff, to monitor the billing and, if necessary, to make adjustments to the budget. OGC management is currently reviewing options to purchase a database application that will more comprehensively monitor the expenses of the OGC, especially those expenses relating to legal matters. The OGC is committed to replacing the current Excel spreadsheets with a more robust database that will include case management and expense reporting.

- Document Management - The FileTracker document management system was developed by OGC and is maintained by The Whole Brain Group, a web-based software provider. Attorneys' use of FileTracker ranges from mere logging of legal matters to an electronic repository of important legal documents. This flexibility was, by design, an effort to allow attorneys to manage their legal matter documentation in a manner that makes sense for their unique cases. University Audits identified the following concerns:
  - There is no non-disclosure agreement on file with The Whole Brain Group. This is critical since this vendor has access to confidential legal matter documentation in the FileTracker system.
  - Due to the phased transition from paper to electronic files, the FileTracker system is not yet fully utilized by attorneys. Consequently, the benefits of document management, such as efficient tracking and storage of electronic documents, are not completely realized.

**Management Plan** - OGC will work with Procurement Services to confirm that any contracting documents or service agreements with the outside vendor of record management systems are appropriate and meet the University security standards. A RECON assessment of the Fleming Building, including OGC related systems, is in progress. Documented standards will be developed within the OGC for full utilization of the record management system. This will include a robust record retention and destruction policy for the OGC. The standards will also include coordination between the OGC and its IT support staff for routine and special backup of documents in the system.

- Expense Reimbursements - Based on the review of a sample of approved P-Card transactions, University Audits noted the following:
  - Hosting expense forms submitted did not always include attendees at the events. Without this supporting information, required by University policy, the per person hosting limit cannot easily be reviewed during the approval process.
  - A clear business purpose was not always provided for expenses. Although no inappropriate expenditures were noted, documentation of clear business purpose assists

reviewers in efficiently assuring all expenses are appropriate and leaves a clear documentation trail so expenses cannot be later questioned.

With the recent transition to the Concur travel and expense system on February 15, OGC management is educating staff on the new tool and building appropriate business processes into their Concur procedures. Concur can aid OGC in better documenting both of these items. Concur allows users to save a list of common attendees to make data entry on hosting expenses efficient. Business purpose is a required field and can be filled out at the report header or line item level as appropriate.

*Auditor's Note* - University Audits will review a small sample of Concur expenses during the follow-up review to ensure documentation improvements have proceduralized.

- OGC Procedures - Well-written procedures and guidelines allow employees to understand their roles, responsibilities, and limits. Also, documented procedures are critical for business continuity so that processes can continue correctly. OGC has formal, written procedures in some areas including retention of outside counsel and conflicts of interest and commitment; in other areas, procedures are in place, though not formally documented. For example, a formal OGC authority matrix is an important tool that would assist Fleming Shared Services staff in determining the appropriate approvers of documents and transactions. Improved documentation would benefit other key OGC operational processes including:
  - Processing legal matter bills
  - Concur expense processing
  - Destruction of legal matter files, including sensitive documents onsite
  - Legal matter insurance claim process with Veritas
  - Determining legal matter budgets

**Management Plan** - Formal written guidelines and procedures relating to the business processes of the OGC will be developed as well as a process for periodic update of the guidelines. These procedures will standardize the informal processes that currently guide OGC management and will also formalize the procedures that are now shared with the Fleming Shared Services team.

- Annual Certification and Internal Controls Assessment - Each year, University management is required to assess and certify to the level of departmental compliance with University stewardship and fiscal responsibilities policies. An important part of this annual certification process is the completion of internal controls gap analysis tools. OGC management completes the tools to identify any gaps in internal controls as they are initially rolled-out by the Office of Internal Controls and then informally reviews them in subsequent years. Due to this informal review process, management may not be aware of important changes or updates to controls posted by the Office of Internal Controls. In the future, Fleming Shared Services will complete the gap analysis tools for OGC, although OGC leadership will still review and certify the results of the analysis.

*Auditor's Note* - This recommendation was also shared with the Fleming Shared Services staff. University Audits will review the gap analysis joint process during follow up.

Overall, OGC management has developed a strong monitoring and business practices environment. University Audits will conduct a follow-up review in the third quarter of fiscal year 2012.



## Information Technology

Information and Technology Services Shared Desktop  
Report issued February 28, 2011

#2010-315

The U-M Shared Desktop is a project to develop a standardized desktop configuration by creating a base image of the Windows operating system and common applications. Information and Technology Services (ITS), CAEN (formerly Computer Aided Engineering Network), the College of Literature, Science, and the Arts (LSA), and Business and Finance worked together and created a base desktop image of Windows® Vista (Vista) and Windows®7. The expectation of the Shared Desktop project is to increase collaboration among units and save time for IT staff by standardizing settings, applications, interfaces, tools, and upgrade strategies. College and departmental IT staff can use the Shared Desktop image to build staff, faculty, and student lab computers more efficiently and, as a result, encourage standardization across campus.

The objective of the audit was to verify that the Shared Desktop image is available to the users and is designed and configured in a secure manner by reviewing and testing controls over:

- Design and configuration
- Configuration and change management policy/procedures
- Patch management
- Upgrade policy/procedures
- Software distribution
- Disaster recovery plans

University Audits reviewed the Window's Vista and Windows®7 builds provided by ITS and the Engineering Base Desktop deployed through CAEN, ITS, CAEN, and the IT Procurement Team personnel were interviewed. Availability, design, and configuration of the shared desktop images were the main areas of concentration.

The School of Engineering has deployed over 360 computers with the Engineering Base Desktop. The Engineering Base Desktop is identical to the Shared Desktop with the exception that CAEN deploys the image from its own servers.

Numerous units throughout the University have also adopted the Shared Desktop. They include:

- Campus Computing Sites
- CAEN
- Business and Finance IT
- Medical School - Department of Human Genetics
- Medical School - Center for Computational Medicine and Biology
- Office of Development
- Center for Research on Learning and Teaching
- School of Natural Resources and Environment
- A. Alfred Taubman College of Architecture and Urban Planning
- Gerald R. Ford School of Public Policy
- Law School
- Duderstat Center (Digital Media Commons)
- Life Sciences Institute
- Human Resources and Affirmative Action Records and Information Services
- School of Education

- School of Nursing
- Population Studies Center
- ITS User Services
- College of Engineering
- Center for Professional Development

### **Risk and Control Discussion**

- Included Software - Applications distributed with the Shared Desktop image require appropriate licensing. Commonly used applications are included in the Shared Desktop image that is distributed to units across the University.

University Audits was unable to locate licenses for one of the applications. Another was signed by someone not on the approved signer's list.

**Management Plan** - The Shared Desktop team will work with U-M Procurement to secure the necessary distribution license agreements. The team will also work with Procurement to identify what process they should follow to verify future software licenses. The team is beginning the process now, but much of this work needs to be done by Procurement. On March 14, 2011, the Shared Desktop team will evaluate the state of these licenses and begin the process of removing software that does not successfully yield proof of licensing.

The team will obtain copies of all deployed software license agreements to keep on file (physical or electronic).

- Shared Desktop Program - The Shared Desktop program is still considered a pilot program by ITS even though units throughout the University use the image as a production service. The shared desktop program has extended its pilot phase beyond the original scope of two years with no plans or dates set to take the program to production. Failure to move the Shared Desktop to production can result in services failing to receive the level of attention required to maintain consistent support, a lack of robust change control, inadequate backups, ineffective control over access, and incomplete disaster planning.

**Management Plan** - ITS Desktop Infrastructure is currently working on a project to move the Shared Desktop service from a pilot to a full production service. This group is working with the ITS Infrastructure Services (IS) Product Management Team to create a roadmap for the service, define what is needed to label the service as production, and establish a timeline for this transition.

- Disaster Recovery Plan - The primary objective of disaster recovery planning is to protect the University in the event that all or part of its operations and/or computer services are rendered unusable. Disaster recovery plans (DRP) do not exist for the Shared Desktop or Engineering Base Desktop images. As units adopt the concept of using centrally provided images to build their computers, the need for a comprehensive DRP will grow. Unplanned outages and lengthy downtimes can result in serious problems for those units that depend on the Shared Desktop and Engineering Base Desktop. A DRP provides guidance on how to maintain essential IT functions during a crisis. When effectively documented and executed, a DRP can minimize the effect of a disaster on the distributed image deployed by ITS and the School of Engineering. The DRP should describe system recovery strategies that include detailed recovery instructions, references to restoral procedures, vendor references and contacts, system diagrams, and other related recovery materials.



**Management Plan** - The Shared Desktop team, in conjunction with the ITS IS Product Management team, is working to establish a Service Level Agreement (SLA) for customers of the production service. This SLA will include information about defining service maintenance windows, service expectations and responsibilities, as well as a full system disaster strategy.

Part of the transition from pilot to production will be to develop new system architecture for the service. Output from that process will help form the DRP. The DRP and the SLA will be completed prior to the Shared Desktop production service going 'live'.

*Auditor's Note* - CAEN has developed and implemented a DRP titled Desktop Operating System Infrastructure Restoration Plan in response to this audit finding.

- **Windows®7 Security/Configuration Design** - The Windows®7 Shared Desktop image lacks security and configuration design documentation. The security and configuration design of the Windows®7 shared desktop image has a direct impact on the ability to protect the confidentiality, integrity, and availability of information stored, processed, or transmitted by the shared desktop image. Documenting baseline security and configuration designs establishes and maintains a disciplined approach for providing adequate security. The Windows®7 image requires the same level of documentation that supports the Windows Vista shared desktop image.

**Management Plan** - Detailed documentation of security and configuration settings will be part of any future OS release. As noted, the documentation created for the Windows®7 image was not as detailed as that of the Windows Vista image. We will begin a project to go back and more thoroughly document the Windows®7 configuration settings.

- **Updates (Patch level)** - Vulnerability scans performed by University Audits with Retina Network Security Scanner identified missing security patches for Adobe and Java (JRE/JDK) products. ITS and CAEN deploy the Shared Desktop (CAEN's Engineering Base) Image via servers running Microsoft Deployment Tool Kit (MDT). Within MDT, system administrators are able to configure "Install Updates Task Sequence" that updates the operating system and Microsoft applications prior to the build being complete. The update task sequence does not address non-Microsoft applications. Updates for these applications only occur if the system administrator installing the image manually updates the non-Microsoft applications after the build has finished.

**Management Plan** - As part of the service design, it was decided that products would be deployed with auto-update features disabled. This choice was made to give Departmental Administrators more control over their patching cycles. Version releases of Shared Desktop images would contain all updates and patches that were available at the time of the release. It was understood by pilot participants that it was their responsibility to keep software up to date between releases. The Shared Desktop Oversight/Advisory Committee (now being formed) will reevaluate this stance and determine the best way to ensure that machines are adequately patched at build time.

Additionally, the Shared Desktop service will remind customers in its SLA that individual units are responsible for ensuring that their end users' machines are kept up to date.

This audit reviewed design and configuration, change and patch management, upgrades, software distribution, and disaster recovery plans for the Shared Desktop project. The team responsible for the

project began with a good support structure on SharePoint. Change control documents were updated and saved; configuration settings were tested and documented. The members of the team met regularly to ensure the Shared Desktop project was progressing. However, over the past year, progress on the project has slowed significantly. Documentation, team meetings, upgrades, and overall progress towards moving the Shared Desktop project to production has ceased.

By implementing the same criteria that was placed on the Shared Desktop project during the initial stages and mitigating the issues discussed above, the Shared Desktop can achieve the goals that were set at the beginning of the project. The Shared Desktop aligns with the direction that the University of Michigan wants to take in IT. With the growth of Virtual Services and other centrally managed services by ITS, adoption of the Shared Desktop image should increase.

University Audits will conduct a follow-up of management's progress on action plans in the first quarter of fiscal year 2012.

### **Health Care and Research**

C.S. Mott Children's and Von Voigtlander Women's Replacement Hospital Activation Planning #2011-601  
Report issued February 28, 2011

C.S. Mott Children's Hospital and the Von Voigtlander Women's Hospital (C&W) are part of the University of Michigan Health System (UMHS). Since the current facility opened in 1969, the two hospitals have collectively provided specialized care to hundreds of thousands of patients. In 2005, the U-M Board of Regents approved the construction of a C&W replacement hospital to keep pace with advances in research, science, and medical technology and ensure that future generations will continue to have access to the highest quality medical care.

The new C&W is scheduled to open in November 2011, almost one year ahead of the original plan. The hospital exterior construction is complete and work on the interior is currently under way. When finished, C&W will be a 1.1 million square foot facility and will consist of two connected towers: a nine-story clinic tower and a twelve-story inpatient tower. The two towers will bridge inpatient and outpatient services within the same disciplines to create a programmatic approach to patient care on each floor. The new C&W will house 348 private inpatient beds.

The new hospital will be home to one of two Pediatric Emergency Departments in the state. The Emergency Department will have a separate entrance and will be staffed by dedicated pediatric health care workers. A helipad on top of the twelve-story tower will have direct elevator access to the pediatric emergency room and will provide patients flown in by Survival Flight, the UMHS air ambulance, with immediate access to emergency and urgent care.

The new facility will have many new, family-centered features. The



pediatric inpatient rooms will be equipped with computers and wireless network access, areas for parents to stay 24 hours a day, and areas for the patients to decorate and personalize. An extension of the current Ronald McDonald house will be available on site and will feature twelve bedrooms with private baths for families of critically ill children. In addition, families with children in the pediatric intensive care unit will have access to areas with private beds, showers, and desks to accommodate their short-term needs. Within the new hospital, a two-story lobby offering entertainment and other activities will connect to an outdoor garden park that will have play space for children and a reflection area. The labor, delivery, and recovery rooms within the Women's Hospital Birth Center will have adequate space for families to celebrate the birth of their new babies. Other areas will include a meditation space, a gift shop, retail dining options, and a family workout room.

### **Construction Management**

The following University departments and outside contractors are responsible for the construction of the new building:

- Architecture, Engineering and Construction (AEC), a division of Facilities and Operations, under the Executive Vice President for Business and Finance, is responsible for managing the design and construction activities for C&W. AEC works closely with UMHS and C&W executive management to make decisions related to hospital construction and financial management.
- HKS, an international architecture firm headquartered in Dallas, Texas, was selected to design the project.
- Barton Malow, a local company with headquarters in Southfield, Michigan, was selected as the construction manager to build the new facility.

### **Project Budget**

The total cost of this project is estimated at \$754 million. This is one of the largest construction projects in the State of Michigan and is the largest single investment the University has made in its history. The project is funded primarily by UMHS reserves and in part by bond proceeds and philanthropy. No state support will be required for this project. To help fund the cost of the facility, UMHS has set a fund-raising goal of \$75 million.

University Audits conducted an audit of the construction of the new C&W in fiscal year 2009. The scope of that review included construction budget management, change order processes, vendor selection, safety and security procedures, project schedule management, major contract compliance, and infrastructure. Processes reviewed and detailed testing performed provided reasonable assurance that adequate controls existed in the aforementioned areas.

The purpose of the current audit was to review the activation planning processes for the new C&W – the process for preparing the new facility for opening and day-to-day operations. Construction, which is nearing completion, was considered outside the scope of this review. University Audits attended activation planning meetings, interviewed key personnel in the planning process, reviewed current plans for adequacy and completeness, and conducted analysis and testing on a sample basis as appropriate.

The following areas were included in the scope of this review:

- Hospital activation planning
- IT infrastructure activation planning
- Procurement and accounting of capital equipment
- Certificate of Need and other regulatory requirements
- Contract compliance
- Security
- Gifts

- Financial management

C&W leadership has established a robust structure and processes that will help minimize risks and ensure an efficient and smooth transition between facilities. The current status of activation plans, upcoming steps, and potential inherent risks are discussed below.

## **PROJECT STATUS AND FUTURE STEPS**

### **Activation Planning Project Management**

C&W leadership has established a sound infrastructure charged with developing activation plans, communicating these plans to all departments, and following up on issues and concern. A basic diagram is included below.

C&W Executive Steering Committee	<ul style="list-style-type: none"> <li>• Provides oversight for the entire C&amp;W Replacement Hospital Project</li> </ul>
C&W Operational Steering Committee	<ul style="list-style-type: none"> <li>• Provides oversight and coordinates construction and operational activities</li> </ul>
C&W Activation Steering Committee	<ul style="list-style-type: none"> <li>• Provides oversight for all planning initiatives and activities</li> </ul>
Data Consulting Group (DCG)	<ul style="list-style-type: none"> <li>• Outside company with headquarters in Detroit, Michigan</li> <li>• Hired to coordinate project management and activation planning services</li> <li>• Charged with developing detailed project plans, including all tasks, responsible parties, and timelines required to activate the new facility by the opening date</li> </ul>
C&W Activation Planning Committee	<ul style="list-style-type: none"> <li>• Composed of department leaders and other key C&amp;W personnel</li> <li>• Serves as the focal point for global information sharing on the project</li> </ul>
Activation Teams	<ul style="list-style-type: none"> <li>• Composed of a mix of C&amp;W units</li> <li>• Develop and implement critical aspects of the move</li> <li>• Address issues related to the project schedule, budget, major changes, and occupancy</li> </ul>
C&W Departments	<ul style="list-style-type: none"> <li>• Dedicate time to complete work as assigned and follow-up on any outstanding issues</li> <li>• Department leads communicate overall plans on a regular basis</li> </ul>
Other Work Groups and Task Forces	<ul style="list-style-type: none"> <li>• Specialized teams that focus on unique tasks</li> <li>• For example, a Family Steering Committee was created to offer physical and emotional support to families during the transition</li> </ul>

Besides the aforementioned committees, there are other key units that collaborate in the planning process, including Capital Equipment, Medical Center Information Technology (MCIT), Hospital Security, and Interior Design. Overall, there is a robust organization and continuous communication between the different committees, departments, and work groups responsible for the oversight and management of daily operations for the new hospital activation.

### **Patient Move**

One of the most critical tasks of the transition is the move of patients from the old to the new C&W. The goal of the patient move plan is to transfer all patients in a safe, well-organized, and efficient manner. C&W administration with assistance from DCG has developed a formal patient move plan. The patient move plans are detailed and carefully designed. Patients are divided into several types based on needs for resources and equipment for each type. The move route and the unit order for the move have been identified. On move day, a central command center will use information gathered from each unit based on these predefined plans to determine how resources will be deployed.

### **Training and Orientation**

Over 6,000 hospital employees will go through training and orientation that will prepare them for the opening of the new C&W. A formal training and orientation process is being formulated to provide an organized, disciplined approach. Training sessions include building orientation and navigation, specialized equipment and systems training, clinical classes for medical staff, emergency preparedness, and department-specific training. A dedicated project team is in the process of finalizing class schedules, developing curriculums and training materials, and identifying the individuals responsible for conducting the training sessions. Training and orientation plans are thorough and in line with the opening of the new hospital.

### **Information Technology Systems**

The construction management team has designed and built the infrastructure needed to support the IT components. MCIT is responsible for the installation of IT components in the new building (e.g., networks, telephones, computers, laptops, and printers). MCIT will manage the servers that support numerous systems in the new C&W such as access control, infant protection, and nurse call. The IT infrastructure is in the early process of deployment. A patient entertainment system that will deliver television, movies, games, internet access, and patient education has been selected. MCIT is currently working with C&W units to determine their needs for telephones and other IT devices.

There are inherent risks in this process. Currently, C&W administration and MCIT have designed adequate plans to mitigate these risks. Careful, continuous monitoring during the transition period will ensure any unexpected issues are promptly addressed.

- There is a risk that the IT infrastructure as built may have changed from original specifications due to project design changes during construction. The infrastructure needs to be tested as soon as possible so any potential discrepancies are detected and escalated in a timely manner. Sections of IT infrastructure will continue to be completed over the next six months so construction management and MCIT are working closely to ensure timely testing.
- While most C&W applications are maintained by MCIT, some C&W units may use systems that are not supported by MCIT (e.g., in-house developed applications or databases). It is important that such systems are clearly identified early in the process to ensure adequate transition plans. Currently, DCG and MCIT are coordinating efforts with units to identify these systems and plan their transition.

### **Capital Equipment Purchasing and Accounting**

Hospital Capital Equipment has worked with C&W units to identify re-use equipment (equipment that will be transferred from the old to the new C&W) as well as new, incremental equipment. Capital Equipment personnel are in the process of placing equipment orders with vendors. Delivery and installation of equipment in the new facility is expected to be substantially completed by July 2011. Capital equipment is tracked in the UMHS systems and will be capitalized once the building is activated. The process has robust tracking mechanisms and is effectively monitoring cost containment. It appears to be well-coordinated within the activation planning operations.



### Certificates of Need and Other Licensing Requirements

Certificate of Need (CON) is a state regulatory program that requires health facilities, among others, to obtain approval from the state for large-scale building projects and capital equipment such as magnetic resonance imaging and computerized tomography scanners. The process for obtaining required CONs is under way. UMHS has already obtained several CONs for the building and equipment and has filed the appropriate letters of intent for others. These certifications are pending approval from the state. Some letters of intent will be filed at a later date, as associated equipment will not be used until after the hospital opens.

AEC is responsible for coordinating most state licensing related to the occupancy of the new building, including the Certificate of Occupancy. The Activation Planning Committee with assistance from DCG is currently working with C&W units to identify any areas that may require licenses from governmental agencies because of their unique nature of operations (e.g., Radiology). The process for obtaining required CONs is well coordinated with overall activation plans and is in line with the new hospital opening.

### Security

Contractually the construction site is currently under Barton Malow's management. Hospital Security patrols the perimeter of the construction site on a regular basis and the interior after regular work hours. Physical access is well controlled through security checkpoints throughout the building. During the spring and summer months, there will be a sizeable mix of individuals who will be working in the building. These include Barton Malow construction workers, equipment vendors and delivery personnel, and U-M staff (e.g., AEC, MCIT, hospital staff in training and orientation). This influx of personnel and activity will increase the risk of safety issues and asset misappropriation. Implementation of the building's access control system relies on the IT infrastructure, which is in the early stages of development. Until such a system is implemented, additional cost will be incurred to provide physical security on site.

### Gifts

As of January 2011, Hospital Development has raised approximately \$69 million in gift pledges from the total \$75 million goal. Approximately \$45 million of these pledges have been received. If necessary, fund-raising for this capital project will continue after the opening of the hospital.

There are obvious challenges in preparing the replacement hospital facility for opening and day-to-day operations. C&W leadership has developed thorough plans for the activation of the new facility by incorporating the processes of identifying, defining, organizing, and facilitating all of the tasks required for the occupation of the new building. These tasks are designed in a logical, timely, safe, and cost-effective manner. The activation process aims at maintaining the continuity of the hospital's business while maximizing the benefits of the new facility. Successful C&W occupancy will ultimately be the result of not only a continuous, focused, and systematic implementation of the activation plans, but also a timely identification and swift resolution of any emerging issues. Management has established well-controlled processes and developed robust plans to prepare the new C&W for opening. **This audit is closed.**

University of Michigan Health System - UM-CareLink Provider Order Entry System  
Original Report issued March 30, 2011

#2010-304

In 2005, The University of Michigan Health System (UMHS) established a long-term strategic plan to support a fully electronic patient care environment. The strategic goals and direction are based on the Institute of Medicine "*Crossing the Quality Chasm: a New Health System for the 21<sup>st</sup> Century*." The UMHS vision is to:

*Enhance delivery of patient care, research, and education by capturing, organizing, delivering, and applying relevant information through a timely, assessable, integrated, and reliable electronic patient care environment.*

The Federal Health Care Reform Act of 2010 further promotes the use of information technology to improve patient safety, outcomes, and cost reduction. UMHS currently uses multiple computerized applications to deliver patient care and is committed to enhancing functionality and integration to provide innovative care that meets or exceeds all federal guidelines.

Patient orders management software is one of the cornerstones of an electronic patient care environment. In 2006, UMHS began implementation of an inpatient orders management system developed by the Eclipsys Corporation. The project was named "UM-CareLink" within the Health System. In the summer of 2010, UMHS announced the Mi-Chart implementation, a ten-year project that will eventually replace and/or augment most of the existing clinical information systems, including UM-CareLink.

The Mi-Chart implementation will focus first on clinical information systems in ambulatory care, the emergency department, scheduling, and billing. The replacement of the current orders management software, UM-CareLink, is not expected for at least five years. The focus of this audit is the current information technology controls of the UM-CareLink application.

UM-CareLink was implemented in the Women's Hospital in late 2006, the C.S. Mott Children's hospital in 2007, and throughout University of Michigan Hospitals and Health Centers (UMHHC) in early 2008. This system allows clinicians to place patient care orders electronically and further supports the ability to provide quality care to all inpatient and some outpatient locations. Electronic ordering and filling of prescriptions eliminates the risks associated with written orders and multiple hand-offs of information from one provider to the next. Electronic ordering also reduces the time it takes to get medication from the hospital pharmacy to the patient's bedside.

UM-CareLink allows caregivers to:

- Electronically order tests, procedures, and medications
- Maintain clinician work lists and nursing medication documentation
- Receive decision support information about drug interactions and patient allergies
- Speed the ordering process by electronically connecting caregivers with order receiving departments
- Obtain an electronic view of results for laboratory and radiology studies

Nearly 8,000 clinicians use UM-CareLink for patient orders. The system helps UMHHC deliver consistent functionality across the enterprise and the continuum of care on an integrated technology platform.

UM-CareLink is accessible in many areas within the health system. This includes patient rooms, nurses' stations, and ancillary departments. Once a practitioner has met their credentialing requirements from Medical Staff Services (MSS) or Graduate Medical Education (GME) and has completed the required M-Learning blended activities, an active UM-CareLink account is provided. As a result, patient health information is readily available to care providers and staff with proper authorization as described above. This promotes an enhanced patient care experience and decreases patient safety concerns.

Although the basic system was developed by the Eclipsys Corporation (now known as AllScripts), over 150 clinicians and technology professionals were involved in the design, configuration, analysis, and implementation of the application. Clinical analysts and IT professionals, in cooperation with other

MCIT (Medical Center Information Technology) departments, adapted UM-CareLink to the UMHS environment. This approach ensures that UM-CareLink meets the needs of UMHS clinicians and patients. UM-CareLink is governed by the Information Technology Executive Committee (ITEC) and Information Technology Strategic Advisory Committee (ITSAC).

The scope of the audit is to evaluate technical aspects of the UM-CareLink software to ensure the information is adequately controlled. Specific areas reviewed include access, change management, and interface controls.

As part of the review, University Audits evaluated the adequacy of internal controls to assure:

- Program/configuration changes are authorized
- Program changes are properly tested prior to migration into the production environment
- Appropriate access rights to functionality and data elements are based on assigned job responsibilities
- Access rights are assigned and removed on a timely basis
- Global security mechanisms are used to ensure protection against unauthorized access to applications
- Systems are available when needed
- Other clinical management systems interface appropriately

#### **Risk and Control Discussion**

- Access Controls - UM-CareLink uses role-based controls to manage and restrict access for authorized users. An advantage of having a role-based system is that access is consistently granted across job titles/job codes. UM-CareLink analysts, as part of their regular job duties, have system access to add permissions/rights to individual user IDs including their own. Certain analysts have both clinical and administrative IDs and can add rights to their own clinical user IDs. Once additional permissions are added, integrity of the roles is lost as is the ability to determine what access each role is designed to have. It is also difficult to review access for the roles because some permissions were assigned to roles but then either inactivated or were not valid due to UMHS system configuration. Some users are granted access via a manual process, which may create accesses inconsistent with standard roles and also requires manual intervention to ensure access is promptly removed when the user terminates or job responsibilities change.

Additional permissions should not be added to individual users. UM-CareLink analysts should not be able to add roles and rights to their own clinical user IDs. Reports listing permissions for each role should be clear. All users should be granted access via the automated standard process.

**Management Plan** - UM-CareLink utilizes Role-Based Access Control (RBAC) to securely manage an increasingly large number of users within the Health System. The advantage of employing RBAC is to provide UM-CareLink users with the appropriate access privileges that are consistent to the user's job title as defined in the automated account provisioning logic.

All UM-CareLink business analysts have on-call duties and may be called upon to grant access while on-call. The overall tenant of security in UM-CareLink is that just because individuals 'can' perform a task they are only authorized to perform those tasks authorized under the policies and guidelines of their department and job. Analysts have access and security rights based on their particular job responsibilities.

Reports are run on all security changes and follow up is performed as necessary. UM-CareLink analysts who also hold clinical roles have individual UM-CareLink accounts in production for their clinical functions.

Although it is difficult to review access, this is a limitation of the system due to the complex configuration of the system and management is accepting this risk.

Despite the application of RBAC, some users are still unable to be classified due to the dependency of UM-CareLink on other information resources such as Graduate Medical Education, Medical Staff Services, Enterprise Management Person Index (EMPI), Human Resources, and M-Learning. In these situations, the UM-CareLink security analysts perform a thorough evaluation to confirm the identity and appointment information of the user. Once this information is retrieved and verified, the user is granted access via a manual process. This process is necessary to offset the complexities encountered from the aforementioned sources.

The M-Learning interface is being investigated so that terminated and subsequently rehired employees can be granted access using the automated process. This would decrease the number of users who are manually added to UM-CareLink.

Job codes do not match an individual's job duties in all cases. In these rare occurrences, it may be necessary to grant access outside of the usual for the job code after authorization from the staff member's department supervisor/authorized signer. This access is then documented through our Remedy tracking system used to track approved changes to the UM-CareLink application.

*Auditor's Comment* - Although analysts can add capabilities to their own accounts, audit reports showing changes made to roles or an individual's access are monitored by management to ensure that UM-CareLink analysts and other users have only permissions that are necessary for their job responsibilities. Likewise, generating a system listing of permissions for each role is difficult because of system complexity. This is a risk management may reasonably accept.

- Incident Response and Escalation - All computer systems are subject to periodic downtime and to limited failures of particular functions, interfaces, and outputs. Over the past year, UM-CareLink experienced two unscheduled downtimes that highlighted gaps in incident response and integrated decision making. After the first incident, management improved monitoring, root cause analysis, and communication that positively impacted the response to the second downtime.

An incident response and escalation policy has been developed. It shows the first steps followed when computer operators and/or users identify there is something wrong with the system. The policy lists events that may happen and describes the appropriate response. It is a good guide for MCIT operators to follow and addresses many common system failures.

University Audits recommends that MCIT, ITEC, and ITSAC continue to build on the incident response and escalation plan to include information regarding notification and consultation with the primary decision maker regarding responses to downtime and other incidents requiring quick decisions on a system-wide basis.

In November 2009, UM-CareLink experienced our first extended unexpected downtime. As part of the review of this downtime, in November 2009, MCIT and UM-CareLink authored a UM-CareLink Failure Mode Impact Analysis document. The objective of this document is to

define, for a host of potential failure modes, a recommended approach to managing system availability. The document defines 'failure mode,' 'primary impacts,' 'who to notify,' and a 'communication plan.'

Since November 2009, with each review of any UM-CareLink service degradation or unexpected downtime it is our process to review our downtime documents and look for service and process improvements. To date, we are on 'Version 9' of our Failure Mode Impact Analysis. We will update and revise as needed.

*Auditor's Comment* - This was addressed during the audit and no further follow-up is necessary.

- UM-CareLink Change Control Environment (1) - The vendor system was substantially modified to meet the complexity of the health system. Because the environment is a dynamic evolving environment, change control must involve both clinical and technical (IT) professionals. Changes are reviewed and approved at the UM-CareLink Change Control Meeting prior to deployment. The UM-CareLink Change Control Meeting members are made up of clinical, technical, and support staff.

Changes are reviewed and ranked in the UM-CareLink Change Control Meeting based on their risk and potential impact. Certain types of routine changes ('Standard' changes) are exempt from review and approval. Examples of 'Standards' are:

- There is no disruption to users when change is made
- The change has a documented, detailed set of instructions for deployment
- The change follows an established path, is relatively common, and is the accepted solution to a given situation
- The change is well-known and has a proven history of successful deployments
- The scope of the change is within a single domain

As an example, a clinical 'Standard' might be adding text to Pharmacy and Nursing instructions or adding or revising an order set whereas, a technical 'Standard' change might entail adding space to a log file or starting and stopping a service.

No comprehensive listing of changes not requiring approval exists. Without such a listing, it is difficult to ensure changes are properly reviewed and approved.

**Management Response** - A comprehensive list of what a 'Standard' change is will be developed. UM-CareLink analysts will work towards listing whether the change was a Standard or Emergency change.

- UM-CareLink Change Control Environment (2) - Order sets are used in patient care to provide a standard set of orders or care protocols. UM-CareLink uses standardized order sets to facilitate care. Clinical departments "own" their order sets and periodically adjust or add to the sets to meet changing standards of care. Approved changes to order sets are put into production, but the clinical department does not know when the change is made and does not test the change to ensure that the change made meets department clinical requirements.

**Management Plan** - The order set owner or 'gatekeeper' authorizes all changes to their service-based order set(s). During the approval process, the gatekeeper is given a target date for implementation of the change. The QA (Quality Assurance) team tests completed changes for accuracy, consistency, and safety.



For product-related order set changes (shortages, changes to hospital formulary), the Hospital Pharmacy department requests the change to UM-CareLink. After the change is made to affected order sets, the QA team then runs a script to ensure that the items have been removed or replaced as appropriate.

*Auditor's Comment* - Although the requestor does not formally approve the change, they are given a definitive target date when the change will be implemented. The QA team reviews the substance of the change to ensure that it meets the objectives of the request. No further follow-up is necessary.

Based on the audit work conducted, UM-CareLink has generally sound access, change management, and interface controls. Recommended improvements are noted above and will further enhance the control environment and user satisfaction.

The biggest risk to the UM-CareLink control environment is the potential that critical resources will be diverted to the MI-Chart implementation. Although UM-CareLink will ultimately be replaced, it needs to be supported and upgraded for years to come. The beginning stages of the MI-Chart transition has significantly impacted the staffing on the UM-CareLink team. University Audits recommends that Health System management carefully monitor the impact of the transition on UM-CareLink to ensure that there is sufficient clinical and technical support to develop and maintain operations.

A formal follow up to the outstanding issues will be conducted during the first quarter of fiscal year 2012.

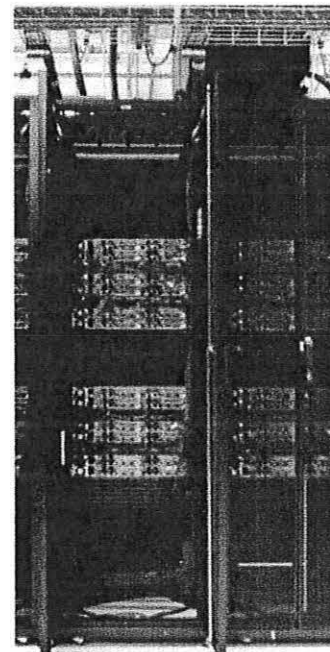
Center for Advanced Computing and Information and Technology Services Use of Federal Hardware in the Flux HPC Cluster #2011-810  
Original report issued April 12, 2011

University Audits has completed a review of controls surrounding federally funded equipment in the Flux High Performance Computing Cluster at the request of Information and Technology Services.

Flux is a high performance research computing service managed and operated by the College of Engineering's Center for Advanced Computing (CAC) under a partnership with the Office of Research Cyberinfrastructure (ORCI) and Information and Technology Services (ITS). It is a cluster of computers containing thousands of processors interconnected by a high-speed network to perform intense computation more rapidly than a standalone machine. The University purchased the computing hardware, and units or researchers purchase time on the system at a predetermined rate. This relieves researchers of the need to build and maintain their own computing resources and generates efficiencies in cost, operation, energy consumption, and many other areas.

#### **Researcher Supplied Equipment - Risk and Reward**

Some researchers obtain funds that can be used to purchase computer hardware but not time on a shared system like Flux. Many of these researchers want their hardware to be installed as nodes in the Flux cluster to take advantage of the physical environment, high-speed network, data storage, and professional administration at Flux. In many cases, this is straightforward:



Shared Flux cores in racks at the MACC

CAC obtains a quote for hardware with Flux-standard specifications and forwards it to the researcher for purchase. If the hardware is purchased with federal funds however, additional rules apply.

Equipment (including computer hardware) purchased with federal funds (such as a National Science Foundation grant) is subject to restrictions on how it can be used. The rules on equipment sharing in OMB Circular A-110 (2 CFR 215.34) have the clearest bearing on use of federally funded hardware in Flux. According to U-M's Office of Financial Analysis, these rules state that equipment must be used first for the research for which it was purchased. It may be used for other federal research as long as it does not interfere with the original use. Non-federal use is only permitted if a recharge is collected and recorded as program income.

These requirements are particularly challenging in a cluster computing environment. Clusters derive much of their efficiency from an oversubscription factor – selling more cores than are physically present in order to minimize idle time and maximize productivity. Due to the natural ebb and flow of demand, planned resource allocation, and scheduling techniques, oversubscription produces only minimal wait times in the job queue. The Flux oversubscription factor produces a 97% average utilization rate, with a wait time in the job queue of less than 20 minutes in most cases. While extremely efficient, oversubscription makes it virtually certain that a federally funded computer installed as a regular Flux node would receive and process non-federal jobs. Without a recharge mechanism in place, this appears to violate A-110.

2 CFR 215.62 describes potential penalties for violating A-110. If the University materially fails to comply with the terms and conditions of an award, whether stated in a Federal statute, regulation, assurance, application, or notice of award, the Federal awarding agency may take one or more of the following actions:

- Temporarily withhold cash payments pending correction of the deficiency by U-M or more severe enforcement action by the Federal awarding agency.
- Disallow (that is, deny both use of funds and any applicable matching credit for) all or part of the cost of the activity or action not in compliance.
- Wholly or partly suspend or terminate the current award.
- Withhold further awards for the project or program.
- Take other remedies that may be legally available.

Management wishes to accommodate these researchers so that their work may benefit from this central computing resource. To minimize the risk of noncompliance while still allowing researchers to join federally funded hardware to Flux, CAC and ITS have devised a system of controls for separating federal hardware and its computational activity from its non-federal counterpart. Many of the controls reside in Moab Workload Manager, a software product purchased from Adaptive Computing Enterprises Inc. Moab is a job scheduling and resource management tool that CAC uses to administer, regulate, and monitor computing clusters.

The goal of this review was to verify that controls on the use of federal equipment in Flux are functioning as management intends and that controls effectively address the A-110 equipment sharing restrictions as interpreted by Financial Analysis. Specific objectives include:

- Ascertain the consistency and reliability of the Moab partition mechanism.
- Review how nodes<sup>1</sup> are assigned to partitions and evaluate controls ensuring accurate assignment.
- Validate current partition assignments by comparing them to original requests.

---

<sup>1</sup> A node is a discrete computer within a cluster, including CPUs, memory, and a network interface.

- Assess monitoring practices designed to detect policy violations.
- Examine logs to verify monitoring is effective.
- Review the control of privileged access to Moab, including the ability to modify user allocations<sup>2</sup>.
- Test the control of changes to user access.
- Evaluate efforts to inform users of federal equipment sharing guidelines.
- Review the effect of maintenance on availability of federal Flux allocations.
- Verify that appropriate recharge rates are in place.

### **Risk and Control Discussion**

- Transitory Oversubscription of Federal Hardware - The federal partition in Flux, where federally funded hardware is installed, was originally set up as a "fluid pool" of cores making no distinction between which federal cores ran which federal compute jobs. Federal cores were a fungible commodity, and there were never more cores allocated than were physically present. This reduced the normal efficiencies of cluster computing in favor of supporting compliance with federal equipment sharing guidelines.

The fluid pool approach, however, was flawed. It did not allow management to reduce anyone's allocation while hardware was out of service (e.g., due to hardware failure). Without such a reduction, the partition would become temporarily oversubscribed. A federal user could end up waiting in the queue, even if his or her hardware were functioning normally. This could have violated the federal equipment sharing guidelines.

To mitigate this risk, management resolved to use the "Standing Reservation" feature of Moab Workload Manager to link project accounts to the actual hardware that belongs to them. This approach is already used successfully in the Nyx cluster that CAC operates for College of Engineering researchers.

*Auditor's Comments* - CAC implemented standing reservations in the federal partition of Flux during the course of the audit. No further corrective action is required and no follow up is planned.

- Keeping Federal Hardware Out of the Fluid Pool - Researchers have an incentive to place their hardware in the fluid, non-federal partition of Flux where it is easier to expand their allocation beyond the confines of their own hardware. Researchers with federally funded hardware who are unfamiliar with the federal equipment sharing guidelines may be tempted to do this, which could violate the guidelines. The changing of the federal partition of Flux from a "fluid pool" model to a "restrictive pool" as described in the previous issue provides an opportunity to mitigate this risk.

CAC could initially place all user-supplied cluster hardware in the restrictive federal partition of Flux. Users who wish to have their hardware in the fluid partition would have to prove to CAC that their hardware was not purchased with federal funds. If they were not interested in doing so or were unable to do so, their hardware would stay in the restrictive partition, where the restrictive model ensures that federal hardware is used only for authorized federal research.

---

<sup>2</sup> An allocation defines and constrains each research project's (or each researcher's) computing resources in terms of the quantity of cores available to that project and the start and end dates those cores are available to that project or researcher.

When a Flux user provides his or her own hardware, CAC should place that hardware in the restrictive "Fed Flux" partition by default. They should then inform the user that they can move their hardware to the fluid "Flux" partition if they provide voucher/payment documentation showing the hardware was purchased with a fund code other than 20000 (Sponsored Federal Fund).

**Management Plan** - The CAC will draft the necessary policy and procedure, and implement the recommended controls. Documentation of requests and proof of non-federal funds will be retained in a support ticket whenever customer hardware is added to the fluid partition.

- Nodeless Recharge Rate - Users supplying their own hardware (cores) are not charged the equipment portion of the Flux rate because it includes a charge for shared cores that they do not use. However, the equipment rate also covers networking and storage costs that these users do incur, which should accrue to them.

A detailed breakdown of the Flux recharge rate shows 22 line items besides core charges that are classified as "equipment" costs. The two projects currently in Flux that supplied their own cores have not borne any of these costs, which are legitimately allocable to them.

**Management Plan** - ITS has calculated a preliminary rate and will review it with Financial Analysis. The rate includes depreciation on core networking and storage infrastructure. It does not include the cost of software and supplies. The overall Flux rate structure is currently based on early cost projections and will be recalculated within the next year to reflect actual costs. ITS and CAC will work together to determine whether to insert this "nodeless" recharge rate into the current rate structure or the recalculated rate structure based on the projected dollars involved.

The rules for sharing equipment purchased with federal grants are difficult to apply to a resource like Flux. CAC and ITS have taken great care to maintain University compliance with those rules while fulfilling the high performance computing needs of the U-M research community. Based on University Audits and CAC discussions with peer institutions, U-M is one of the first to tackle this compliance challenge. With the improvements recommended here, management's system of controls will honor the University's obligations to federal sponsors while integrating and centrally supporting computation-based research to the greatest extent possible.

University Audits will follow up with ITS and CAC in the fourth quarter of fiscal year 2011 to assess their progress in implementing corrective action.

### Follow-up Reviews

University Housing Fiscal Responsibilities  
Original report issued November 9, 2009

#2009-814  
First follow-up report issued August 26, 2009  
Second follow-up report issued February 25, 2011

The University Housing Fiscal Responsibilities audit report identified a number of opportunities for the new Housing leadership to improve internal controls in the central administrative and facilities-related areas of University Housing. Many of the corrective actions required long-term implementation. Others, with short-term corrective actions, were completed and closed during the first follow-up review, issued August 26, 2010, including:

- Centralization of Housing's purchasing, payroll, and billing offices
- Reorganization of the Business and Finance Office

- Hiring of a new purchasing supervisor to analyze spend, oversee inventory practices, and develop training based on purchasing best practice, specifically the proper use of Marketsite and eProRequisition (eProReq)
- Implementation of controls around Housing's fleet of business and service vehicles
- Disposing of an unsecured, inefficient, supplemental information system and transitioning to the use of M-Pathways and eReconciliation
- Redesigning the unit's core reporting structures and standardizing revenue and expense categories
- Developing meaningful oversight reports and routinely reviewing standard financial management reports
- Redefining and documenting the intended use of discretionary funds and implementing a project request process that requires review and approval by Housing leadership

University Audits recently completed a second follow-up review to assess the effectiveness of the remaining open corrective actions. A summary of the review is detailed below. Sufficient progress was observed to close all remaining items for the central administrative and facilities areas. Efforts to implement similar controls in other Housing departments are underway. **This audit is closed.**

- Purchasing Management - The following remaining action items have been completed:
  - Automatic routing of Marketsite purchases to an area manager for approval.
  - Limiting authority to process special purchases requiring a PO or Non-PO to the new Purchasing Supervisor's office
  - Implementation and documentation of the purchasing process workflow and transition to a three-way reconciliation of purchase requisition to verification of goods received or services completed to approval of payment
  - Development of policy, procedure, and training documentation identifying eProReq and Marketsite as the approved purchasing methods within Housing

Management decided not to implement the purchasing and inventory modules of the FMAX system. Initial research and conversations with Plant Operations identified a number of roadblocks to implementation. Housing leadership determined their inventory and purchasing management needs could be met with a less costly, albeit manual, process until a centrally supported University alternative is available.

Housing is scheduled to transition to Concur in February after which time account reconciliation training will be updated to include eReconciliation and Concur procedures. This documentation is critical to strengthening reconciliation procedures and the internal control environment throughout Housing.

- Standardized Policy and Procedure - Housing has been quick to adopt Division of Student Affairs (DSA) policies as they are finalized. In areas where division-level policies are still under development, Housing-specific policies and procedures have been implemented until DSA policies are formalized. Examples of policies and procedures reviewed include:
  - DSA travel expense
  - DSA overtime
  - Housing temporary employment
  - Housing student hiring including guidelines for wages and stipends
  - Housing cash handling
  - Housing cash auditing



Documentation of best practices in the areas of purchasing, account reconciliation, and fleet management are in process. Due to the magnitude and breadth of Housing's operations, procedural documentation will likely undergo numerous iterations until a standard is developed that can capture and clearly define unit best practices in these areas. Housing's Director of Business and Finance continues to participate in a DSA policy working group. This group most recently developed a division-wide travel expense policy, implemented in October 2010.

All DSA and Housing-specific policies and procedures are maintained on the Housing intranet, accessible to all Housing staff. As the DSA policy working group implements new policy, Housing will replace or revise Housing-specific policy, as necessary.

- Payroll and Time Reporting - Interviews and testing indicate Housing now follows the DSA policy on overtime. Other corrective actions observed include:
  - Formulation and implementation of guidelines for managing temporary employees and student workers
  - Revision and distribution of policy and procedure governing the use of Housing's electronic timekeeping system
  - An additional layer of management to provide high-level oversight of Facilities payroll and time reporting
- Management of Cash Operations - University Audits interviewed management and visited one of Housing's many retail operations as a sample to confirm improved cash handling controls. The implementation of the following internal controls was observed:
  - Use of a standardized daily sales and deposit log
  - Addition of cash drawers to ensure only one person has access to and is sole responsibility for each drawer
  - Participation in annual training on cash handling, reconciliation, depositing, and reporting by staff, student employees, and managers
  - Daily review of sales and deposit information for all cash operations by Housing's Billing Office
  - Monitoring and adherence to performance standards, with follow-up by management where standards are not met
  - Completion of an annual imprest fund audit including a surprise cash count for all retail operations by Housing's Business and Finance Office
- Comprehensive Internal Control Gap Analysis - At the time of the first follow-up review, a DSA working group was assessing the need for a customized set of internal control gap analysis templates for all DSA units. Since then, the working group has determined that the Office of Internal Control's templates, supplemented with a few DSA-specific questions, were sufficient to assess the internal control environment of DSA units and has recommended implementation across the division.

Housing had already completed the OIC cash handling gap analysis at the time of the first follow-up to verify internal controls prior to assuming management of additional retail operations. Interviews and testing during this follow-up review revealed prompt implementation of corrective actions for internal control weaknesses identified during the gap analysis. Housing's cash handling procedures appear comprehensive and well-monitored. Efforts to complete all internal control gap analyses are underway for fiscal year 2011.

- Fundraising and Gift Management - Housing leadership has experienced success in working with the newly appointed DSA Development Officer. In collaboration with DSA Development, Housing recently obtained private funding to support an existing residential scholarship that provides financial support for students who “contribute to the enhancement of the quality of life in the residence hall community.” Donors to the scholarship were involved in the selection process. Housing Business and Finance plans to monitor distributions of this and other Housing endowments, revising funding plans where necessary, to ensure proper stewardship of funds. Other fundraising initiatives underway include development of a three-year fundraising program to support WCBN, a student run radio station, currently supported by Housing, and development of division-wide strategies for funding deferred maintenance that would benefit the residence halls.
- Disaster Planning and Business Continuity - The Division of Student Affairs has assumed responsibility for Housing’s disaster and business continuity planning as part of a division-wide effort to develop comprehensive, standardized plans for all DSA units. Housing leadership is participating in the development and implementation of these plans.
- Conflict of Interest - Housing’s Human Resources Director collaborated with AFSCME to verify appropriate conflict or interest and commitment procedures for union employees. All of Housing’s union employees are now included in the annual conflict or interest and commitment training and disclosure initiative.

Michigan PGP Analytics Collaborative (MPAC)

Original report issued July 16, 2010

#2010-302

Follow-up report issued March 29, 2011

At the time of the original audit, this partnership by the University of Michigan Health System (UMHS) and Blue Cross Blue Shield of Michigan (BCBSM) had operated successfully for several months. Changes in MPAC’s development model that effectively narrowed U-M’s risk profile in the partnership had spurred a revision of the MPAC contract. These efforts culminated in the signing of a revised contract on March 18, 2011. This contract incorporates changes recommended in the audit and reflects a method of work that significantly reduces U-M’s risk and responsibility for stewarding BCBSM data. Based on these changes and other corrective action, **this audit is closed.**

An analysis of each issue and its related improvements follows:

- Risk Assessment of Local Data Workspace - Working copies of BCBSM data were being stored in a database closely tied to the Health System Data Warehouse (HSDW). The HSDW had not yet undergone a risk and security assessment. Under terms of the contract that was being negotiated with BCBSM, U-M was responsible for using appropriate administrative, physical, and technical safeguards to preserve the integrity and confidentiality of BCBSM protected health information (PHI), using the same degree of care as for U-M’s own confidential information.

MPAC development work by U-M personnel now takes place solely on Blue Cross owned laptops accessing Blue Cross owned servers through a Blue Cross virtual private network (VPN). Management therefore committed to remove from the HSDW all data associated with prior MPAC projects. Data that is no longer needed will be purged. Data that must be retained will be moved to a separate environment. That environment should undergo risk and security assessment when it is acquired or constructed.

- Control of Data Use/Access/Disclosure - The tools and mechanisms for ensuring appropriate data use, access, and disclosure had not been fully established. The contract that was being negotiated with BCBSM obligated U-M to establish policies and procedures governing disclosure of project data to provider organizations and physicians and to establish policy governing U-M use of project data. Management planned to craft the necessary policies and procedures once a Production Project Initiative (PPI) involving those activities arose. No such PPIs have been planned.

The contract also called for regular review of access logs for the MPAC data stored in the HSDW. Since MPAC development work is now performed solely on BCBSM owned equipment, the responsibility for access review lies with BCBSM.

- Project Governance - Some of the governance elements of MPAC had not been established as specified in the contract that was being negotiated with BCBSM. U-M did not have legal representation on the Executive Oversight Committee (EOC), the EOC charter had not been written, and the Advisory Committee had not been formed.

An attorney from the Health System Legal Office has been added to the EOC, and the Advisory Committee was formed in July 2010. The EOC still has no charter. Creation of the charter remains a joint obligation of the partners. U-M Management fulfilled their audit commitment by raising the issue of the missing charter at an EOC meeting.

- Time Limit for Reporting Breaches - The contract that was being negotiated with BCBSM provided an unreasonably brief period in which U-M was obligated to notify BCBSM of, remediate, and report security breaches exposing BCBSM PHI. The contract that was signed on March 18 provides a longer time period in which U-M can fulfill these obligations. The elimination of any project data stored on U-M systems, as management has committed to do, will significantly reduce the risk of such a breach occurring.

University of Michigan-Flint Genesee Early College Program  
Original report issued October 1, 2010

#2010-114  
Follow-up report issued April 13, 2011

University Audits reviewed the Genesee Early College (GEC) program, a collaborative effort between UM-Flint and the Genesee Intermediate School District (GISD). All short-term plans were immediately addressed, and long-term plans have significant progress and well-documented plans for successful completion.

A summary of the audit observations and management's progress is noted below. **This audit is closed.**

- Updating Formal and Informal Agreements - Representatives from the GISD, the GEC, and UM-Flint offices (including Purchasing and Contracts) have been involved in several meetings to update the formal agreement for the GEC program. A preliminary version of the formal agreement has been approved by OGC and was submitted to the GISD for their legal counsel's review. Subsequent meetings have been scheduled to discuss any remaining differences. In addition, a procedures binder has been established to document more specific operational processes, such as those relating to HR activities.

- Reportable Data and Metrics - Since the audit, UM-Flint and GEC have retained the services of NCREST<sup>3</sup> to collect and report on GEC program data. NCREST officials have met with UM-Flint and GEC on multiple occasions to demonstrate reporting capabilities. GEC and UM-Flint collaborated to prepare a Data Analysis Plan with key elements necessary to determine the program's success. Subsequent meetings have been scheduled to formalize the reporting process, such as who will be involved and how the data will be shared.
- IT Management - Approval for UM Access - One employee's unnecessary Banner access was removed. The Associate Provost now approves any GEC employee's request for access to Banner. Only two GEC employees have access and there are no plans for any additional GEC employees to have access.
- Monitoring Banner Activity - ITS was unable to produce a Banner activity tracking log for the GEC employees with access to Banner. The new mitigating controls include the employees' annual signing of the ITS Access and Compliance forms and annual FERPA training. The Graduate Programs Office will coordinate with the Registrar's Office and the Office of the General Counsel to schedule FERPA training for GEC employees.
- Access to ITS Computer Labs - The entire GEC-dedicated area of the William White building was re-keyed. In addition to improving key access for the GEC, this removed their unnecessary access to the ITS computer lab.
- GEC Access to Student Passwords - GEC employees no longer collect students' passwords for the Student Information System. GEC counselors direct students to use the UM-Flint process to establish a new PIN in the event the student forgets their password.
- GEC Sign-off on Access and Compliance Forms - All GEC employees have signed the UM-Flint ITS Access and Compliance Forms. In the future, this will be an annual requirement and will be tracked by the Graduate Programs office.
- Employment Controls for Student Temporary Employees - The GEC counselor is now signing the timesheets of student temporary employees before submitting them to the Graduate Programs office. The original timesheets (or scans) are used for time entry and reconciliation, and are retained per University records retention policies. Student status is verified as a condition of employment.
- University Obligations for K-12 Students - K-12 teachers are subject to more stringent guidelines than higher education faculty. Since the University is essentially hosting a high school, it was unclear what, if any, special provisions were needed to ensure compliance related to State of Michigan rules for K-12 teachers. The Associate Provost has discussed the GEC program with the Office of the General Counsel (OGC), and the OGC was able to offer clear guidance related to the obligations of the University.

---

<sup>3</sup> The National Center for Restructuring Education, Schools and Training (NCREST) is affiliated with Columbia University. It has contracted with the Middle College National Consortium, of which the GEC is a member, to provide data analysis and interpretation services.

Nursing and Pharmacy have corrected a number of issues and made significant progress on the remainder. The dispensing of drugs via the Omnicell system is a complex interaction of staff, patients, and processes, and management is committed to continued improvements. Based on these observations and the evidence examined, **this audit is closed**. Detailed descriptions of the corrective action taken to remediate the audit concerns follow:

- Scope of User Access

*Original Issue: Nurses had access to all drugs in all cabinets throughout the Health System, regardless of their currently assigned work area. System activity reports did not effectively support managerial oversight of Omnicell use across multiple work areas.*

Nursing and Pharmacy evaluated the possibility of granting nursing access to either inpatient or procedure area cabinets based on work assignments, but found it unfeasible since nursing assignments require the flexibility to respond to immediate patient care needs. To mitigate the risk, Pharmacy has developed a new report showing nurse managers which of their assigned staff (if any) have removed items from Omnicell cabinets in multiple areas in a single day. This allows managers to identify and evaluate the appropriateness of cross-unit activity.

- Inconsistent Assignment of Access Privileges

*Original Issue: Some employees had more access to Omnicell than their job needs dictated. Other employees retained access while on leave.*

Nursing and Pharmacy reviewed and corrected user access levels to align with job roles. Omnicell is now linked to UMHS Level 2 accounts, resulting in timelier deactivation of Omnicell access when employees leave UMHS. MCIT Account Administration continues to manually assign Omnicell user access roles. Pharmacy, Nursing, and MCIT are working together to enable the automatic assignment of Omnicell access roles based on employee job title and department, similar to UM-CareLink.

University Audits compared a current list of Omnicell users to M-Pathways job data and confirmed that all individuals with cabinet access have an active, appropriate appointment.

- Discrepancy Reporting and Escalation

*Original Issue: Medication discrepancies were not consistently resolved within the time period permitted by Pharmacy policy. Unexplained discrepancies were not consistently escalated through timely reporting to Hospital Security.*

Nursing has updated their departmental policy governing management and escalation of controlled substance discrepancies. The policy clearly explains the process by which discrepancies should be investigated, explained, documented, and reported for escalation. The chain of responsibility from the Charge Nurse to area management to Pharmacy and Security is clear. Any discrepancy not explained within 72 hours of occurrence must be reported to Security.

The revised policy and procedures were approved in October 2010 and presented during unit staff meetings and the Nursing Blitz, which included live demos of discrepancy procedures with an Omnicell cabinet. Nursing has undertaken a significant, front-line education effort. The policy and procedures are also reinforced through a new M-Learning module. Nursing



anticipates all staff will have completed the module by the end of April 2011. University Audits' review of discrepancies over a recent three-month interval show the revised policy and training have effectively improved the timeliness of reporting.

Pharmacy and Nursing are in the process of presenting a proposal to senior leadership for a specially focused, coordinated response to unresolved discrepancies by Pharmacy, Nursing, Hospital Security, Risk Management, and Human Resources. University Audits strongly supports this strategy.

- Discrepancy Investigation Recordkeeping

*Original Issue: Nurse Managers stored and maintained investigation records in their own work area. These documents were not consistently included with discrepancy reports sent to Hospital Security, and are retained and secured at the manager's discretion.*

To facilitate reporting of discrepancies to Security, Nursing added the "Discrepancy Report for Controlled Substances" form to the Inpatient Nursing "Print on Demand Forms" library on the Nursing Intranet. The form is also hyperlinked from the Nursing policy on management of controlled substances. Pharmacy and Nursing believe that a new reporting tool within Omnicell, called Pandora, will provide a more flexible, closer to real-time view of unit- or area-level activity, and could facilitate the storage and sharing of investigation notes.

- Misleading Disposition of Discrepancies Undergoing Review

*Original Issue: Omnicell was found to be incapable of differentiating between discrepancies that had been closed and those that had been escalated for deeper investigation. This made it difficult for managers and administration to confirm status and verify that appropriate reviews are occurring.*

Pharmacy made inquiries to the Omnicell vendor in December 2010 about new functionality for documenting discrepancy dispositions, notes, and findings. MCIT Pharmacy is escalating this to a formal feature request. This fulfills management's plan for corrective action.

- MSS Oversight and Usage

*Original Issue: Policy and formalized procedures had not been established for maintaining or using the Medication Surveillance System (MSS), which provides managers valuable information on cabinet usage and user behavior. Administration also lacked a means to ensure that managers exercised their oversight duties through MSS.*

Pharmacy updated their departmental Controlled Substances policy to address monitoring responsibilities through MSS. The scope of review and follow-up procedures are specified for the Assistant Director of Pharmacy and for managers (e.g., Nurse Managers) overseeing use of cabinets in their areas. The frequency of Pharmacy review is also specified.

Pharmacy and Nursing now review quarterly vendor-generated login reports to verify that managers are actively engaged in monitoring Omnicell activity by their staff. University Audits verified that logins have increased. Management expects biweekly review of MSS by each unit. New MSS reports, such as the report highlighting staff removing meds from more than one area per day (discussed under *Scope of User Access*), are increasing management efficiency and effectiveness of reviews.

- Floor Charges for Controlled Substances

*Original Issue: Controlled substances were issued and returned as Floor Charges in ways contrary to accepted Nursing Services practice. These floor charges could affect the accuracy of patient bills.*

Nursing has reeducated staff about appropriate use of the Floor Charge function. Nursing Administration provides backup review of floor charges to assist nurse managers, ensuring floor charges conform to accepted use. Floor charge and lost charge data reviewed by University Audits show a decrease in inpatient floor charges and a marked decrease in the net cost of all lost charges (including floor charges).

- Oversight of 'Temporary Patient' Charges

*Original Issue: "Temporary patients" are sometimes created in Omnicell to accommodate legitimate workflow issues. Transactions associated with temporary patients are usually matched to a named patient by clinical staff or Pharmacy Billing and any unmatched charges are dismissed. These dismissed charges were not reviewed to ensure that matching efforts were adequate.*

After discussing additional methods of matching temporary patients with patients of record, MCIT Pharmacy now reviews and resolves a portion of temporary patient charges and sends the remainder to Pharmacy Billing. Management states this has significantly reduced the number of charges dismissed.

Management anticipates another marked reduction in temporary patient charges dismissed.

Management anticipates another marked reduction in temporary patient charges with the arrival of Mi-Chart. Appointment changes will flow back to Omnicell so that patients are listed on the appropriate cabinet at the rescheduled appointment time, preserving the link for medication dispensing.

- Controlled Substance Wasted Without a Witness Present

*Original Issue: A controlled substance was disposed of in an Omnicell cabinet without a witness's signature. All controlled substances level II-IV must be wasted in the presence of a witness, who must also authenticate to "sign" the transaction.*

MCIT Pharmacy identified a configuration error that caused the issue. The co-signature flag had not been activated for that particular controlled substance in that cabinet. MCIT Pharmacy subsequently reviewed all controlled substances level II-IV in all cabinets to ensure that co-signature flags have been activated uniformly. They will repeat this review at least every six months. University Audits reviewed system data validating that these flags are properly set. MCIT Pharmacy also used an Omnicell feature to designate a standardized "Waste Witness Required" field value for all controlled substances level II-IV system-wide, ensuring that co-signature is appropriately required going forward.

#### Building Automation System

Original report issued September 8, 2010

#2010-313

Follow-up report issued April 19, 2011

The Building Automation System (BAS) is part of the University of Michigan's Facilities Maintenance department within Plant Operations. It allows Plant Operations staff to monitor critical functions in buildings across campus, in real time, from a central location. BAS monitors conditions such as temperature, air flow, and humidity at 142 different facilities and this number is constantly growing.

Information is gathered by data points (sensors) located throughout buildings. These data points feed information to panels, monitoring computers, and servers that are connected through a diverse and complex network. All of this information is collected on a central server that tracks building status and alerts BAS technicians to inappropriate changes and building system problems.

This follow-up review examined open audit issues and the corrective actions taken by BAS management.

- Open Ports on Monitoring Devices - Data points throughout buildings connect to panels. These panels then connect to the BAS central server via a variety of methods. There are two types of panels that have the ability to connect directly to the University network and use the network to deliver data. Other types of panels must connect through intermediate devices; one of which utilizes the University network. University Audits performed a vulnerability assessment on these network connected devices and found multiple unnecessarily open ports. An unused, open port provides an unnecessary point of access to the device and could provide an avenue for inappropriate or malicious access. University Audits recommended BAS management contact the suppliers of the network connected devices to investigate the possibility of disabling unnecessary ports.

In lieu of working with the vendor to make fundamental changes the devices, BAS management has elected to move the devices to a private, secure network. This will also require moving most of the BAS infrastructure to a private, secure network, but is a superior solution as it offers greater protection from malicious activity. Management has begun this process and work is ongoing.

- System Maintenance - BAS utilizes computers running the Windows XP operating system for monitoring and interacting with the central server and data collection devices. The central server also has a Windows-based operating system. These computers require regular maintenance and upgrades to their operating systems to continue to perform smoothly and securely. University Audits encouraged management to partner with Plant IT to ensure appropriate maintenance is performed on their desktop and server computers. Management from BAS and Plant IT have been working to improve the support relationship between the two groups. Plant IT now has BAS included in regular maintenance operations. Plant IT has taken over management of the central BAS server and is in the process of upgrading the system. The two groups are currently developing a Service Level Agreement (SLA) to ensure both sides have a clear understanding of the relationship going forward. Significant improvements in this relationship have already been made. **This item is closed.**
- User Access - When dealing with highly sensitive systems such as the BAS central server, it is important to control who has access to the system. Only users with a documented business need should have access. Restricting user access is problematic in complex environments such as U-M since users can gain access to systems because of their membership in certain user groups. University Audits recommended that all users without a documented business purpose be removed from the server's access lists. BAS and Plant IT have performed two rounds of account review and deletion on the system and have significantly reduced the number of users with access to the server. Management of users has been transferred from BAS to Plant IT to help ensure user access remains appropriately limited.

Plant IT is revising the way accounts are organized and provisioned on the server and will continue this process with the move to the new central servers. Previously, a user who was a member of an administrative group may indirectly have had access to the system. No U-M

groups now have access to the server. Access is granted to individual users only. Local groups are being developed for access management within the system. BAS and Plant IT staff have already made significant changes that greatly increase security on the current central server. There continued efforts will ensure even greater security on the new servers when they are installed. **This item is closed.**

- Network Security - BAS's central server is critical to building monitoring. It acts as the clearing house for all monitor and alarm information coming in from all of the data points across campus. University Audits recommended BAS management work with Plant IT to ensure that appropriate network security practices are being employed to secure the central server. BAS and Plant IT are in the process of replacing the single, central server with a redundant two server configuration. As part of this change, network security will be reviewed and appropriate protections put in place.
- Network Isolation - BAS building panels and monitoring systems are connected using dedicated lines, the University's data network, or a combination of the two. Newer panels and devices are designed to work over a data network. As BAS has grown and upgraded equipment, more and more of their devices are using the University's data network. As this transition has taken place, BAS has utilized existing network hardware and connections resulting in devices using multiple networks across campus. Some of these networks are unsecured and are not controlled by BAS or Plant IT. BAS and Plant IT are working with ITSComm to move BAS devices to a private, secure network. One set of data points and the monitoring PC they communicate with have been successfully moved. Work on this item is ongoing.

As part of the NextGen Michigan project, ITSComm is changing their operation model. Currently, they provide network connectivity to buildings, but no further. Department's are responsible for the management of the network from the building's border devices to their machines. As an option, departments can contract ITSComm to perform this function for them. Going forward, ITSComm will be managing the networks all the way to the wall jacks. This will create a single point of contact for all network related issues. It will also provide BAS and Plant IT the ability to more swiftly isolate and secure their network- connected devices, as they will not have to involve so many different partners.

- Local User Access - The BAS monitoring office consists of five workstations used by the current shift of Utility System Technicians. Because of staffing levels, these machines are not usually all occupied at once. Non-BAS Physical Plant staff occasionally use unoccupied systems to check e-mail and browse the web. Allowing unauthorized users access to these machines creates an increased potential for them to be compromised. At the request of BAS management, Plant IT has restricted user access to these machines to BAS personnel only. **This item is closed.**

Management is making positive progress in resolving the issues identified in the audit. Some of the issues are taking time to resolve due to their complex nature and the multiple parties involved. A second follow up will be performed in the second quarter of fiscal year 2012.

**Open Audits Follow-up Table  
April 30, 2011**

<b>Audit Title</b>	<b>Report Date</b>	<b>Issues</b>	<b>Expected Completion</b>
College of Literature, Science and the Arts Research Computing 2010-809	7/26/10	Security policy; data classification; data storage; backups; training and guidance; antivirus; disaster recovery plan; physical security	May 2011
Portable Electronic Devices UMHS 2009-305	8/26/10	Proper use standards; standard configurations; mobile devices policy; access control	August 2011
Plant Operations – Facilities Maintenance Building Automation Systems 2010-311	9/08/10	Open ports of monitoring devices; network security; network isolation	First Follow-up April 2011 December 2011
University of Michigan Dearborn Information Technology Services Data Center at Fairlane Center 2010-309	11/18/10	Disaster recovery plan; visitor control	June 2011
Information and Technology Services - Unauthenticated Wireless Access 2010-312	12/22/10	CALEA compliance; unauthorized access to licensed content	June 2011
Information and Technology Services Shared Desktop 2010-315	2/28/11	Included software; shared desktop program; disaster recovery plan; Windows @7 security/configuration design; updates(patch level)	September 2011
CAC and ITS Use of Federal Hardware in the Flux HPC Cluster 2011-810	4/12/11	Transitory oversubscription of federal hardware; keeping federal hardware out of the fluid pool; nodeless recharge rate	June 2011
University of Michigan Hospitals and Health Centers Cashier's Office 2008-206	10/17/08	Segregation of duties; bank statement reconciliation and check writing practices; follow-up of outstanding vouchers; duplicate facility refunds	First Follow-up June 2009 June 2011
U-M Medical School W.K. Kellogg Eye Center 2010-204	8/30/10	Financial monitoring and oversight; procurement and travel; grant management and effort reporting; inventory management; charge capture; payroll; cash management; management structure	August 2011
UMHS UM-CareLink Provider Order Entry System 2010-304	3/30/11	Access controls; incident response and escalation; UM-Carelink change control environment	September 2011
University Press Inventory and Receivables 2008-203	1/30/09	Accounts receivable; inventory (U-Press continues to implement internal controls in many areas, including those noted in the audit report)	May 2011



Center for Human Growth and Development 2009-206	11/17/09	Security/maintenance of sensitive data; monitoring grant budgets; imprest cash fund management/subject fee payments; disaster recovery/business continuity planning; statement of activity reconciliation/segregation of duties	First Follow-up August 2010
			October 2011
Wire and ACH Transfer Process 2009-112	1/06/10	Authorized user list; transaction limits; wire transfer policy	First Follow-up August 2010
			May 2011
International Programs – Student Safety Preparedness 2009-111	3/15/2010	Pre-travel orientations; health insurance; oversight for student-designed programs; individual program evaluations	First Follow-up December 2010
			June 2011
University of Michigan Dearborn School of Education 2010-205	4/26/10	Agreements with external entities; IT risk assessment; documentation for purchase exceptions; conflict of interest contact information	First Follow-up October 2010
			May 2011
Office of University Development Life Income Gifts Program 2010-806	6/11/10	Unit roles, sharing information, procedural efficiencies, and system opportunities	May 2011
School of Social Work 2010-813	6/18/10	Stewardship of gift funds, segregation of duties, signature authority, policies/procedures, inventory management, relationships with central service units, supplemental systems	May 2011
University of Michigan Center for Statistical Consultation and Research (CSCAR) 2010-809	6/23/10	Recharge rates and workshop fees, segregation of duties, reconciliations, supplemental systems, policies/procedures	May 2011
Center for AfroAmerican and African Studies 2010-820	6/25/10	Significant oversight and other control activities need to be implemented into many processes	May 2011
PeoplePay 2010-107	7/16/10	Payroll Office review office; clarification of PeoplePay capabilities; change management	June 2011
U-M Flint Early Childhood Development Center 2010-118	7/19/10	Financial decision-making; Kid's Care system; Web camera access; transportation agreements; imprest cash and snack station fund	First Follow-up December 2010
			June 2011
U-M Flint School of Education and Human Services Fiscal Responsibilities 2010-812	7/19/10	Financial reporting and budget monitoring; segregation of duties; faculty release time; conflict of interest and conflict of commitment; documented policies and procedures	May 2011

Division of Research Development and Administration Export Controls Compliance 2010-402	10/21/10	Training and education; export control identification; technology control plans; information technology controls; technology disposition	June 2011
University of Michigan Museum of Art 2010-201	12/17/10	Budget monitoring; collections inventory management; Museum Store inventory management; payroll processes; statement of activity reconciliation – system access; documented procedures	September 2011
UM-Flint School of Health Professions and Studies 2010-209	1/25/11	Segregation of duties; faculty and staff certifications; privacy and data security; policies and procedures; p-card controls; conflict of Interest and conflict of commitment management; affiliate payment processing	May 2011 Action Plans ----- October 2011 Follow-up
University of Michigan-Flint Educational Opportunity Initiatives 2010-201	2/18/11	Strategic oversight and guidance; campus support and collaboration; budget and financial management; staff management; time reporting and payroll; event management; cash handling; business continuity; documentation of policy and procedure	September 2011
Conference Services 2010-102	2/25/11	Contract compliance; department accounting and reporting; billing and payment accuracy; payroll and time reporting; statement of activity reconciliation; background check verification; client management	September 2011
Division of Student Affairs Recreational Sports – Club Sports 2010-816	3/2/11	Sponsored student organizations; guidance; financial management; practice, game, and fitness space; medical support; property	December 2012
Division of Student Affairs Recreational Sports 2010-816	3/2/2011	Revenue management; information technology; procurement; employment; cash handling; Outdoor Adventure Center process documentation; business continuity	September 2011
University of Michigan Flint Cashier's Office 2011-804	3/22/11	Vault balance; accuracy of cash; petty cash reimbursement; deposit delays; segregation of duties; collection process efficiency; security and access; policies, procedures, and training	December 2011

Office of the Vice President and General Counsel 2010-207	4/22/11	Physical and electronic document security; conflict of interest/conflict of commitment; monitoring matters requiring retention of outside counsel; document management; expense reimbursements; OGC procedures; annual certification and controls assessment	March 2012
--------------------------------------------------------------	---------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------