

August 20, 2012

WILLIAM BRADLEY
Chair, Department of Radiology
8224

**Subject: *Department of Radiology
 Audit Project 2012-25***

The final audit report for the Department of Radiology Audit Report 2012-25, is attached. We would like to thank all members of the department for their cooperation and assistance during the audit.

Because we were able to reach agreement regarding corrective actions to be taken in response to the audit recommendations, a formal response to the report is not requested.

The findings included in this report will be added to our follow-up system. While management corrective actions have been included in the audit report, we may determine that additional audit procedures to validate the actions agreed to or implemented are warranted. We will contact you to schedule a review of the corrective actions, and will advise you when the findings are closed.

UC wide policy requires that all draft audit reports, both printed and electronic, be destroyed after the final report is issued. Because draft reports can contain sensitive information, please either return these documents to AMAS personnel, or destroy them.

Terri Buchanan
Interim Assistant Vice Chancellor
Audit & Management Advisory Services

Attachment

cc: D. Brenner
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AUDIT & MANAGEMENT ADVISORY SERVICES



University of California
San Diego

**Department of Radiology
August 2012**

Performed By:

Jennifer Hornyak, Auditor

Approved By:

Terri Buchanan, Interim Assistant Vice Chancellor

Project Number: 2012-25

*Department of Radiology
Audit & Management Advisory Services Project 2012-25*

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I. Background

Audit & Management Advisory Services (AMAS) completed a review of Department of Radiology (Radiology) business operations as part of the approved audit plan for Fiscal Year 2011-12. This report summarizes the results of our review.

Radiology is a department within the UCSD School of Medicine (SOM). Radiology management provides oversight for a number of comprehensive academic, research and clinical programs.

Graduate Medical Education

The Diagnostic Radiology Residency Program, approved by the Accreditation Counsel for Graduate Medical Education (ACGME), is overseen by Radiology management. Each year approximately six residents are recruited for the Four-Year Traditional Track; three residents are recruited for the Five-Year Research Track. The DIRECT Pathway Track is also available to residents in some years.

Clinical Services

Radiology faculty members have expertise in a number of specialties including abdominal and breast imaging, neuroradiology, interventional and vascular radiology, musculoskeletal radiology and ultrasound. Clinical services are supported by the UC San Diego Health System (UCSDHS) Imaging Services Department in a number of patient service locations within the UC San Diego Health System hospitals and outpatient centers in Hillcrest and La Jolla. Interpretation services are also provided to Veterans Administration San Diego Health System patients. To ensure that expertise is available to interpret images on a 24 hour/seven day per week basis, Radiology has also established a collaborative agreement with Nighthawk Radiology Services, LLC, now known as Virtual Radiology (vRad) to provide teleradiology services as required.

Research

For the calendar year ended December 31, 2011, Radiology was ranked 9th in the nation to receive National Institutes of Health research funding by the Blue Ridge Institute for Medical Research and the Academy of Radiology Research. Radiology research is conducted by a number of specialized research groups, including the three highlighted below, which utilize emerging imaging technologies to identify new options for clinical care.

- *Center for Functional Magnetic Resonance Imaging (fMRI)*: This Center was established in 2002. Its mission is to facilitate advanced imaging studies of function and anatomy - from mice to humans.

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- *MR3T Research Laboratory*: This laboratory conducts research on MR3T magnetic scanning equipment using customized ultrashort TE (UTE) pulse sequences.
- *Multimodal Imaging Laboratory (MMIL)*: This Laboratory is an interdisciplinary group of scientists and clinicians studying the human brain using a variety of imaging, recording and computational techniques. Their goal is to bridge non-invasive imaging technologies to the underlying neurophysiology of brain neuronal circuits for better understanding of healthy human brain function, and mechanisms of disruption of this function in diseases such as Alzheimer's, epilepsy and stroke.

Administration

Dr. William Bradley has served as Department Chair since May 2002, and has oversight responsibility for approximately 240 faculty, 50 residents, and 90 staff. Business Office personnel assist the Chair by providing support for critical department business processes including contract and grant administration, clinical research, financial analysis and reporting, human resources, academic personnel, and staff timekeeping. During our review, management was in the process of selecting a replacement for the Assistant Department Business Officer, who separated from the department in August 2011.

The SOM Corporate Statement of Revenue and Expenses for Fiscal Year 2010-11 reported total revenues of \$41.6 million associated with the following Radiology funding sources:

- \$21.5 million (52%) in clinical funds;
- \$13.9 million (33%) in research funds; and,
- \$6.2 million (15%) in academic or other funds.

Expenditures totaled \$37.5 million; \$28.7 million (77%) of which were for salary and benefits costs.

II. Audit Objective, Scope, and Procedures

The objective of our review was to determine whether Radiology business process controls provided reasonable assurance that financial results were accurately reported, operations were effective and efficient, and activities complied with relevant policies, procedures and regulations. The scope of the review included an evaluation of current business procedures, and selected financial transactions completed during Fiscal Year 2010-11, and during Fiscal Year 2011-12 to date.

We completed the following audit procedures to achieve the project objective:

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- Compiled and analyzed a Radiology financial snapshot of revenue and expense distribution for Fiscal Year (FY) 2011-12;
- Reviewed the FY 2010-11 School of Medicine Corporate Statements, for the Quarter ended March 31, 2012, and the FY 2011-12;
- Reviewed the Radiology Accounts Receivable Aging Report dated November 11, 2011 for the research organizations 414871 and 414966;
- Evaluated Business Office separation of duties matrices and Internal Control Questionnaires;
- Reviewed the status of the Radiology Deficit Reduction Plan;
- Evaluated the completeness of research effort (eCert) reports as of November 14, 2011;
- Reviewed Departmental Approval Hierarchy Templates;
- Analyzed ledger review activity for Fiscal Year 2011-12;
- Evaluated cash processes for compliance with Business and Financial Bulletin 49 (BUS-49), *Policy for Cash and Cash Equivalents Received* and other related policies and guidance;
- Evaluated Zotec Partners *HIPAA Policies & Procedures, dated January 1, 2008* and *Corporate Compliance Program, dated January 1, 2008*;
- Reviewed processes related to the vRad teleradiology program services;
- Evaluated the information security management environment for three research laboratories; and
- Selected a sample of 30 financial transactions for two awards and evaluated compliance with Office of Management and Budget (OMB) Circular A-21 (A-21), *Cost Principles for Educational Institutions*.

Radiology contracts with General Electric were being evaluated in a separate AMAS project, and were therefore excluded from the scope of this review.

III. Conclusion

We concluded that Radiology business controls were generally adequate and provided reasonable assurance that financial results were accurately reported, operations were effective and efficient, and activities complied with relevant policies, procedures and regulations in most cases.

Although controls were in place in selected processes, we identified several opportunities for process improvements related to research unit information system support, contractor invoice monitoring, cash handling, and research income and expense monitoring.

Attachment 1 provides the results of the business process review. Specific management actions planned or in process for those areas that were rated “satisfactory” or “improvement suggested” are noted in *Attachment 1*. Those areas which were rated “improvement needed” are described in more detail in the remainder of this report.

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IV. Observations and Management Corrective Actions

A. Research Unit Information System Support

Several research units rely on researchers and research staff rather than IS support staff to ensure that systems are compliant with UCSD Minimum Network Connection Standards.

Radiology Information Services (I/S) serves as the main point of contact for the majority of business computing needs, with the exception of research units. Many researchers employ dedicated I/S analysts to assist with network and desktop support and security services.

AMAS interviewed the designated I/S administrators in three research laboratories. One laboratory was adequately supported by information security administrators. However, another laboratory did not have information system support staff; and support was being performed by research staff and the Principal Investigator. The I/S administrator position was vacant in the third laboratory; and responsibility for managing the system was being transitioned to Radiology I/S. During the transition, reliance was placed on the previous administrator's system configuration, which was appropriate in this case. However, because the level of system support was not comparable in all units, we determined the research I/S support strategy should be re-evaluated.

Information is a principal UCSD asset and must be protected from unauthorized modification, destruction or disclosure. Security weaknesses could cause lost, stolen, modified, or destroyed data. Also, computer resources could be used for unauthorized purposes or to launch attacks on other computer systems or to disrupt critical operations. The UCSD Data Communications Network (Network) must therefore be kept secure. The level of protection on the Network must be high enough to ensure that the most sensitive information traversing it is protected. As the Network is a shared resource, protection of this resource is the responsibility of all Network participants. Therefore, Radiology I/S should provide oversight of all Radiology information system security to ensure adequate controls are implemented and compliant with University policy and applicable regulations.

Management Corrective Action:

Radiology I/S work with Health Sciences Information Security management to complete an annual risk assessment of all department systems, including research systems, to identify areas that would benefit from additional I/S support and/or expertise.

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B. Validation of vRad Invoice Support

The Business Office did not have the information needed to validate the accuracy of vRad invoices.

Radiology has a contract with vRad, a company that provides teleradiology interpretive services between 11:00 pm and 7:00 am daily. Per the contract, a standard fee is charged based on the number of interpretations performed. vRad invoices include data to identify each service. The February 2012 invoice for vRad services totaled \$4,485.

We noted that because the Business Office was not provided with a report from hospital Imaging Services that identified exams that were interpreted by vRad physicians, staff was re-calculating the invoice rather than validating that the services were actually performed. That process provided no assurance that vRad invoices accurately reflected the services provided.

Management Corrective Action:

The Business Office will coordinate with the Imaging Services Information Services staff to request that they generate a monthly report of images referred to vRad for interpretation and use that report to validate vRad invoices.

C. Cash Handling Procedures

Selected cash handling activities were not compliant with BUS-49 and other applicable University policies and guidance.

The Business Office directly receives check payments for clinical service agreement (CSA) invoices. A CSA payment process flowchart is provided in *Attachment 2*. In addition, credit card payments are accepted at the La Jolla facility. An overview of the credit card process is provided in *Attachment 3*.

BUS 49 establishes policies to ensure that cash and cash equivalents are protected, accurately and timely processed, and properly reported. As identified in *Attachments 2 and 3*, opportunities for improvement were identified in the following areas:

- Cash handling training;
- Receipt, preparation, transportation and location of deposits;
- Segregation of duties; and,
- Documentation for Statement of Auditing Standards No. 112 (SAS 112).

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Annual cash training is required to ensure that personnel with cash handling responsibilities are familiar with the different forms of cash transactions and related controls and policies. Dual accountability for receipt of funds and deposit preparation and proper segregation of duties assists in ensuring the completeness and accuracy of cash deposits and transactions. Transportation requirements provide protection of persons responsible for transporting cash and ensure the completeness of cash received. Depositing cash directly to the Cashier's Office ensures timely recording of cash transactions and assists in securing cash from loss. Completion of the UCSD Department Key Control Form or an equivalent form is recommended to provide evidence of Radiology compliance with SAS 112 requirements.

Management Corrective Actions:

1. The SOM is developing a new process that will facilitate the direct deposit of CSA checks to the Cashier's Office.
2. Radiology management will implement the following procedures to improve compliance with BUS 49 and other related University policies:
 - a. Ensure that personnel with cash handling responsibilities complete annual cashiering training.
 - b. Require that two staff members participate in the deposit preparation process.
 - c. Complete the Department Key Controls form or equivalent form for reconciliations performed.
 - d. Ensure proper segregation of duties related to the receipt, recording, and reconciliation of deposits.

D. Research Revenue and Expense Monitoring

Expenses for several research projects occurred prior to the receipt of the award from the sponsoring agency. In addition, research expense transactions selected by the campus Transaction Sampling queries were not completely evaluated in some cases.

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Research Award Management

Because management expressed concerns about selected research grant and contract deficit balances, AMAS reviewed the Sponsored Project AR Aging Report in Financial Link as of November 11, 2011 to further evaluate this issue. We noted that \$236,845 of \$708,036 (33%) of research grants awarded but not yet received were greater than 190 days old. The UCSD Administrative Responsibilities Handbook and the guidance provided in the campus Blink system suggest that departments monitor research sponsor payments by periodically generating the Sponsored Project AR Aging Report using a Financial Link query.

Research Expense Monitoring

Radiology Fund Managers monitor research expenses using the Financial Link Ledger Reviewer tool. Research expenditures were selected by fund index for a specific time period. Supporting documentation was obtained for each transaction in the sample.

We noted that 1,811 (11 %) of a total a population of 16,724 Fiscal Year 2010-11 transactions across all Radiology organizations were selected for review using the Ledger Reviewer Tool. Of that group, 286 transactions (16%) were not marked “completed” in the Ledger Reviewer Tool. Those items pending review had a dollar value between \$3 and \$249,960. In addition, as of November 18, 2011, 87 transactions totaling \$107,780 in organization 434985 were pending review.

The all transactions selected for review should be verified timely to provide assurance that research projects have been charged with expenses that are allowable and allocable to the award.

Management Corrective Actions:

Radiology management will:

1. Monitor outstanding receivables and discuss collection concerns with the Office of Post Award Financial Services; and discontinue spending for projects where funding has been delayed.
2. Generate periodic Ledger Reviewer reports to include the prior six months, by organization rather than by index, to ensure that expenses in all indexes are included in the monitoring sample and all outstanding transactions are evaluated.

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E. Equipment Inventory

An equipment inventory had not been conducted since June 2005.

UC Business and Finance Bulletin (BUS) 29: *Management and Control of University Equipment* requires that the custodial department complete a physical inventory of all University inventoried equipment, government inventoried equipment, other government property, and other inventoried items at least every two years. The policy further states that the individual who performs the inventory may not also be assigned the responsibility for ordering or purchasing the property, maintaining the property records, or maintaining direct custody of the property.

As of April 2012, the Campus Asset Management System (CAMS) reported that a physical inventory of Radiology equipment valued at approximately \$24 million had not been completed in over two years. An equipment inventory is needed to ensure that location codes are correct and to remove replaced or unaccounted for equipment from inventory records.

Management Corrective Action:

Radiology management is currently conducting a physical inventory of equipment.

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Audit Results by Business Office Functional Process
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Business Office Process	AMAS Audit Review Procedure				Risk & Controls Balance Reasonable (Yes or No)	SAS 112 Key Control ¹	Audit Conclusion ²	Comments
	Analytical Review of Financial Data	Internal Control Questionnaire/ Separation of Duties Matrix	Process Walk-through (Ltd Document Review)	Transaction Testing (Sample Basis)				
Effort Reporting		√	√	Reviewed the status of eCert reports for as of November 14, 2011.	Yes	Yes Effort Reporting	Satisfactory	Compliance with effort reporting certification requirements was satisfactory.
Entertainment		√		Not performed. Low risk based on other procedures performed.	Yes	Yes Ledger Transaction Verification	Satisfactory	Based on our review of internal control questionnaires and interviews with Business Office staff, entertainment preparation and approval process controls were considered to be adequate.
Non-Payroll Expenditure Transfers		√		Not performed. Low risk based on other procedures performed.	Yes	Yes Ledger Transaction Verification	Satisfactory	Based on our review of internal control questionnaires and interviews with Business Office staff, non-payroll expense requisition and approval process controls were considered adequate.

¹ Department is not documenting key controls per campus requirement of SAS 112, refer to **Finding E** of the audit report for further detail on this finding.

² Audit conclusions used in this report included the following four levels from highest to lowest; Satisfactory, Satisfactory/Improvement Suggested, Satisfactory/Improvement Needed and Improvement Needed.

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Audit Results by Business Office Functional Process
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Business Office Process	AMAS Audit Review Procedure				Risk & Controls Balance Reasonable (Yes or No)	SAS 112 Key Control ¹	Audit Conclusion ²	Comments
	Analytical Review of Financial Data	Internal Control Questionnaire/ Separation of Duties Matrix	Process Walk-through (Ltd Document Review)	Transaction Testing (Sample Basis)				
Payroll Expenditure Transfers		√		Not performed. Low risk based on other procedures performed.	Yes	Yes Ledger Transaction Verification	Satisfactory	Based on our review of internal control questionnaires and interviews with Business Office staff, non-payroll expense requisition and approval process controls were considered adequate.
Recharge Activity		√		Not performed. Low risk based on other procedures performed.	Yes	Yes Ledger Transaction Verification	Satisfactory	Based on our review of internal control questionnaires and interviews with Business Office staff, recharge activities were managed in accordance with University policy.
Travel		√		Not performed. Low risk based on other procedures performed.	Yes	Yes Ledger Transaction Verification	Satisfactory	Based on our review of internal control questionnaires and interviews with Business Office staff, process controls were adequate to ensure that travel expenses were compliant with University policy.

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Business Office Process	AMAS Audit Review Procedure				Risk & Controls Balance Reasonable (Yes or No)	SAS 112 Key Control ¹	Audit Conclusion ²	Comments
	Analytical Review of Financial Data	Internal Control Questionnaire/ Separation of Duties Matrix	Process Walk-through (Ltd Document Review)	Transaction Testing (Sample Basis)				
Timekeeping and Payroll		√		Not performed. Low risk based on other procedures performed.	Yes	Yes Payroll Expense Verification	Satisfactory	Based on our review of internal control questionnaires and interviews with Business Office staff, payroll time reporting and approval process controls were considered adequate.
Contract & Grant Activity (Post Award Admin.)	√	√	√	Reviewed 30 research transactions selected judgmentally and traced to available supporting documents.	Yes	Yes Internal Controls	Satisfactory	We determined that \$730 (18%) of charges tested were for items that would require adequate justification to support the direct charge of these transactions. Radiology advised AMAS that those expenses could be justified to an external reviewer.
APM 025 Reporting			√	Inquired of the Human Resources / Academic Personnel Manager.	Yes	No	Satisfactory	APM 025 disclosure forms were obtained.

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Business Office Process	AMAS Audit Review Procedure				Risk & Controls Balance Reasonable (Yes or No)	SAS 112 Key Control ¹	Audit Conclusion ²	Comments
	Analytical Review of Financial Data	Internal Control Questionnaire/ Separation of Duties Matrix	Process Walk-through (Ltd Document Review)	Transaction Testing (Sample Basis)				
Express Cards		√	√	Express Card transactions were reviewed as part of the research transaction testing performed.	Yes	Yes Ledger Transaction Verification	Satisfactory	Express Card transactions were adequately supported and monitored.
Information Systems Environment		√	√	Interviewed the Radiology I/S Manager and I/S support personnel for three research units	No	Yes Security of assets and personal information	Improvement Needed	An annual I/S risk assessment should be performed of the entire Radiology information systems environment, including research units. <i>(Audit Report Finding A)</i>
Transaction Processing – Non-Payroll Expenditures	√	√	√	Reviewed 30 research transactions judgmentally selected; traced to available supporting documents. Evaluated processes related to the validation of vRad invoices.	Yes	Yes Ledger Transaction Verification	Satisfactory / Improvement Needed	The Business Office did not have the information needed to validate the accuracy of vRad invoices. <i>(Audit Report Finding B)</i>

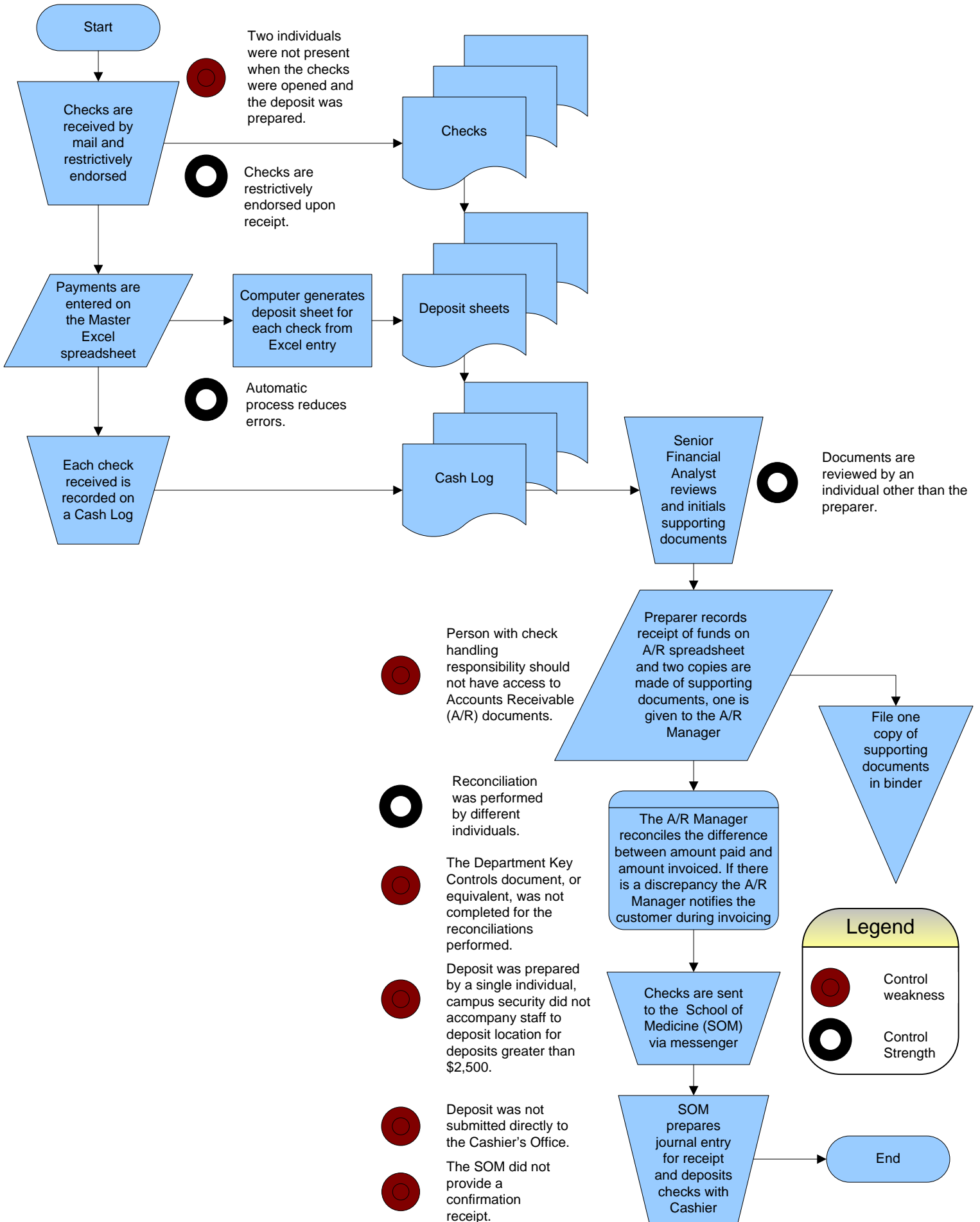
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Business Office Process	AMAS Audit Review Procedure				Risk & Controls Balance Reasonable (Yes or No)	SAS 112 Key Control ¹	Audit Conclusion ²	Comments
	Analytical Review of Financial Data	Internal Control Questionnaire/ Separation of Duties Matrix	Process Walk-through (Ltd Document Review)	Transaction Testing (Sample Basis)				
Cash Handling	√	√	√	Interviewed staff and reviewed processes for service agreement payments and lockbox and credit card receipts.	Yes	Yes Internal Controls	Satisfactory / Improvement Needed	Additional opportunities for improvement to cash handling processes were identified to ensure compliance with BUS-49 and other applicable guidance and policies. <i>(Audit Report Finding C)</i>
Operating Ledger Review & Financial Reporting	√	√	√	Interviewed management and staff and reviewed processes related to the Radiology Deficit Reduction Plan, research transaction processes, and accounts receivable oversight. Examined the School of Medicine Corporate Statement for the fiscal year ended June 30,	No	Yes Fiscal Operations Review	Improvement Needed	Additional oversight was needed for selected accounts receivable and research funds. <i>(Audit Report Finding D)</i>

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Business Office Process	AMAS Audit Review Procedure				Risk & Controls Balance Reasonable (Yes or No)	SAS 112 Key Control ¹	Audit Conclusion ²	Comments
	Analytical Review of Financial Data	Internal Control Questionnaire/ Separation of Duties Matrix	Process Walk-through (Ltd Document Review)	Transaction Testing (Sample Basis)				
				2011 and the nine months ended March 31, 2012.				
Equipment Management		√		Not performed. Low risk based on other procedures performed.	No	Yes Physical Inventory	Improvement Needed	An equipment inventory had not been performed since 2005. At the time of our review the equipment inventory was being conducted. <i>(Audit Report Finding E)</i>

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Radiology Clinical Service Agreement (CSA) Payment Process Overview – Attachment 2



**Department of Radiology
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 Radiology Credit Card Process Overview – Attachment 3**

