

September 6, 2013

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**Subject: *Telemedicine Business Process Review
Audit & Management Advisory Services Project 2013-58***

The final audit report for Telemedicine Business Process Review, Audit Report 2013-58, is attached. We would like to thank all Health Sciences and Health System staff 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 mail code 0919 or destroy them at this time.

David Meier
Assistant Vice Chancellor
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Attachment

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UC San Diego

AUDIT & MANAGEMENT ADVISORY SERVICES

Telemedicine Business Process Review August 2013

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Approved By:

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Project Number: 2013-58

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I. Background

Audit & Management Advisory Services (AMAS) has completed a review of Telemedicine Services business processes at Telemedicine management's request. This report summarizes the results of our review.

The UCSD-*Anywhere* Telemedicine Initiative (UCSD-*Anywhere*) is the clinical services segment of the UC San Diego Telemedicine Program. UCSD-*Anywhere* functions under the oversight of a Governing Board comprised of UC San Diego Health System (UCSDHS) senior leaders. Telemedicine Services business operations were managed by a Telemedicine Business Officer, Technical Project Manager, and a Business System Analyst, who executed contracts; invoiced contracted sites, collected and transferred tele-clinic income; and facilitated equipment purchases and deployments.

Contracting and Clinical Income Management

Telemedicine Services management collaborates with the School of Medicine (SOM) Contracting Office to negotiate and execute agreements between the UCSDHS (hub sites) and remote hospitals or outpatient clinics (spoke sites) services, and Memoranda of Understanding (MOUs) between UCSD-*Anywhere* and SOM departments to procure physician services. Although subject to change, telemedicine clinics (tele-clinics) are typically scheduled in three or four hour time blocks once or twice monthly.

Tele-clinics are scheduled in the UCSDHS GE-IDX scheduling system. Each tele-clinic patient encounter is documented in the Epic electronic health record system. The appropriate Current Procedural Terminology¹ (CPT) consultation code and the GT telemedicine services modifier are generated in Epic for each encounter for reporting purposes only.

Charges for telemedicine services are not billed directly to the patient or the patient's insurance company. Telemedicine Services prepares monthly invoices to spoke clinics based on contract rates. SOM departments invoice Telemedicine Services for the tele-clinic hours attended by a physician on a quarterly or biannual basis.

Telemedicine Equipment

Specialized telemedicine equipment permits remote (spoke) clinics to connect with UCSDHS (hub) clinic physicians to evaluate patients with the aid of medical assistants or nurses at spoke sites. The equipment in hub clinics consists of large monitors with cameras that enable a virtual face-to-face consultation between the physician and patient. Telemedicine carts deployed to spoke sites include medical devices (such as a

¹ CPT (Current Procedural Terminology) codes are numbers assigned to every task and service a medical practitioner may provide to a patient including medical, surgical and diagnostic services.

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stethoscope, ophthalmoscope or otoscope), which transmit medical information from the spoke site to the physician at the hub site to assist with medical decision making.

Each equipment cart has a codec unit that encrypts and decrypts communications between spoke and hub locations using a 128 bit Advanced Encryption Standard (AES)². The AES complies with Health Insurance Portability and Accountability Act (HIPAA) security requirements and UC San Diego network security standards.³

California hospitals or outpatient service centers that provide medical services to an underserved population, qualify to receive telemedicine equipment funded by California Proposition 1D.⁴ In the event that one of the qualifying sites contracts for UCSDHS telemedicine services, Telemedicine Services purchases the equipment, allocates the cost to the UC San Diego Proposition 1D grant, and deploys the equipment to the spoke clinic site. If a spoke clinic does not meet Proposition 1D requirements, the site is responsible for purchasing the necessary equipment and paying the cost of applicable connection fees and incidental supplies.

II. Audit Objective, Scope, and Procedures

The objective of our review was to evaluate UCSD-*Anywhere* business process controls with a focus on contracts; equipment management; and clinical income for the following three agreements:

- Catalina Island Medical Center: Pain Management and Endocrinology services
- Central Valley Hospital: Hepatology services
- Heffernan Memorial Healthcare District: Endocrinology services

We completed the following procedures to achieve the audit objective:

- Evaluated applicable UC, UCSDHS and UC San Diego campus policies;
- Reviewed the contracts and MOUs for the four tele-clinics listed above;
- Interviewed the following Telemedicine Services, UCSDHS and SOM personnel:
 - Telemedicine Services Business System Analyst;
 - Telemedicine Technical Project Manager;
 - Biomedical Equipment Services Supervisor;
 - Department of Anesthesiology Financial Analyst and Business Officer;
- Evaluated the effectiveness of business processes;

² The Advanced Encryption Standard is maintained by the United States Department of Commerce, National Institute of Standards and Technology, Information Technology Laboratory (ITL).

³ UC San Diego PPM 135.3: *Network Security*.

⁴ The California Kindergarten-University Public Education Facilities Bond Act of 2006 (Proposition 1D) provides funding for selected facilities programs. UC received funds to expand medical schools and enhance its telemedicine programs.

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- Reviewed telemedicine equipment purchase orders (POs) and invoices for equipment purchases;
- Validated telemedicine equipment purchases by comparing information on the purchase order with the invoice and the information entered into the Campus Asset Management System (CAMS); and
- Verified that the spoke site invoices included contracted services and were consistent with invoices submitted by SOM departments.

III. Conclusions

Based on the audit work performed, we concluded that the tele-clinics evaluated during this project were operating in accordance with the contract terms. In addition, the deployment and use of related telemedicine equipment generally complied with Proposition 1D requirements and University policy.

We further concluded that selected Telemedicine Services equipment management and contracting process controls; and SOM department invoice format and content could be improved.

Opportunities for process improvements are discussed in the remainder of this report.

IV. Observations and Management Corrective Actions

A. Invoice Reconciliation

Process controls for the preparation and reconciliation of tele-clinic invoices should be formalized.

The Telemedicine Services Business Officer and Analyst serve as the UCSD-*Anywhere* financial intermediaries by invoicing spoke clinic sites monthly and reimbursing SOM departments for physician services from those proceeds.

AMAS reviewed the invoices sent to the Central Valley Hospital⁵, and compared the charges to the Hepatology physician services invoices for the period October 2012 through January 2013. During our review we identified differences between Telemedicine and department invoices. Hepatology invoices to Telemedicine included the number of patients treated, while the Telemedicine Services invoices to Central Valley Hospital included contracted clinic hours and rates. The following table provides a summary of invoice information.

⁵ UCSD-*Anywhere* has provided services to the Central Valley Hospital since February 2011.

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B. Synchronization of Agreements

One spoke site agreement included tele-clinic hours that were not scheduled; and exceeded the physician commitment defined in the department MOU.

The Telemedicine Services contract with Catalina Island Medical Center included 16 hours of physician services in October 2012, and eight hours of service each month thereafter. While reviewing the support for tele-clinic services, we noted that the initial tele-clinic was not held until December 2012. In addition, the related MOU between Telemedicine Services and Endocrinology promised only twelve hours of physician time in October 2012, which was inconsistent with the Catalina Island Medical Center contract time commitment for that month.

Telemedicine contracts include provisions for the possibility of expanded clinic hours based on mutually convenient terms. In this case, the contract with the spoke site included more clinic hours in the initial month of operation than the physician committed to provide.

As the contracting intermediary, Telemedicine Services personnel review both the spoke site agreement and department MOU for consistency prior to execution to ensure that contracted clinic hours at no time exceed commitments made by departments. The variance noted above was likely an oversight. However, tele-clinics cannot be held until physicians obtain telemedicine credentials or certifications. A delay in obtaining appropriate credentials, certifications or privileges, which may continue after agreements are signed, may result in a technical breach of contract if not identified and corrected via a contract amendment.

Management Corrective Action:

Telemedicine Services management will coordinate with the SOM Contracting Office to prepare a contract amendment to be approved by both parties if original contract terms cannot be met.

C. Agreement Terms and Conditions

Telemedicine agreements did not include important terms related to UC San Diego equipment.

Proposition 1D funds may be used to provide remote clinics with equipment for tele-clinics in underserved California communities. Agreements with spoke clinics make that statement, in addition to an “Entire Agreement” clause which

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establishes that the agreement “contains all the terms and conditions agreed upon by the parties...”

AMAS reviewed the agreements for the three spoke sites selected for focused review. UC San Diego provided the Heffernan site with telemedicine equipment. However, the agreement did not address directly, or by reference to an attachment, that Heffernan provides services to an underserved community, and that UC San Diego will provide the site with equipment. In addition, the agreement did not reference that UC San Diego would retain title to the equipment, or include provisions for the return of the equipment when the agreement expires.

As a Proposition 1D grant recipient, UC San Diego has a responsibility for ensuring that equipment purchased with Proposition 1D funds are deployed only to qualifying entities. Therefore, agreements should be clear about site qualifications and other related issues.

Management Corrective Actions:

Telemedicine Services management will:

1. Document the criteria used to verify that each site receiving telemedicine equipment meets Prop 1D requirements.
2. Collaborate with the SOM Contracting Office to modify future contracts to include:
 - a. Language that confirms the contracting site operates in an underserved community within California and meets the provisions of Proposition 1D.
 - b. A clause stating that UC San Diego retains title to any telemedicine equipment deployed at a remote site.
 - c. A provision that addresses the disposition of telemedicine equipment in the event that an agreement with a spoke site is terminated.

D. Equipment Management

Equipment management responsibilities were not assigned and procedures were not documented.

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UCSD-*Anywhere* deploys equipment not only to remote hospital or clinic sites, but also to UCSDHS clinics; and is therefore required to comply with the requirements of University of California (UC) Business and Finance Bulletin (BUS) 29: *Management and Control of University Equipment*; Health System policy (MCP) 818.2: *Medical Equipment Management Program*; and MCP 428.3: *Equipment Control and Procedure*.

BUS 29 requires that departments designate an equipment custodian who is not involved in equipment acquisitions; and that assets exceeding \$5,000 be recorded in the Campus Asset Management System (CAMS). MCP 428.3 also specifies that an annual inventory of clinical equipment be completed by the equipment custodian. MCP 818.2 requires that Biomedical Engineering Services (BES) be notified when equipment is delivered to UCSDHS patient care areas to ensure that equipment is thoroughly evaluated and calibrated upon delivery, and entered into the BES equipment maintenance database to ensure that periodic maintenance is performed.

We noted that the Technical Project Manager facilitates the purchase and deployment of telemedicine equipment for UCSD-*Anywhere*, but the responsibilities of that position did not appear to include those of an equipment custodian. In addition, a review of the telemedicine equipment inventory in the CAMS showed that the serial numbers had not been entered for three pieces of equipment. As the UCSD-*Anywhere* program grows equipment management responsibilities will become increasingly important to provide the control needed to help ensure that all equipment can be accounted for, and is maintained in accordance with manufacturer specifications. It is important that equipment management responsibilities be documented, and include procedures that are required by policy.

Management Corrective Actions:

Telemedicine Services management will:

1. Assign equipment custodian duties to a new staff member and identify an alternate.
2. Ensure that the Equipment Custodian and alternate receive CAMS training.
3. Document equipment management procedures.