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Medical Errors Arising From Outsourcing Laboratory And Radiology Services

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Abstract :

OBJECTIVE: Document errors and the nuisance factor inherent in the informational .exchange that occurs with the outsourcing of laboratory and radiology examinations

METHODS: Three infectious diseases physicians at a tertiary care hospital recorded problems involving data transmitted by telephone or fax from outsource providers for 4 months. This included in- and outpatients, and those in transition from one status to .another

RESULTS: Outsourcing laboratory and radiology examinations of insured outpatients is a common practice. Insurance compan[1]ies determine which healthcare facility performs these tests based on contrac- tual agreements with outsource providers. This leads to confusion and frustration for the doctor and patient alike, and occasionally, to medical .error

CONCLUSIONS: The exchange of patient data involved in outsourcing is subject to systemic errors that do not allow of easy solution. © 2007 Elsevier Inc. All rights reserved.

KEYWORDS: *Outsourcing laboratory; Outsourcing radiology; Medical error*

Introduction

Background:

Insurance companies regularly subcontract with other cor- porate entities for services such as radiology and laboratory examinations for outpatients. Consequently, insurance com-

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Riyadh
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panies determine “when and where” diagnostic tests are performed. Insured outpatients seen in large hospitals equipped with the technology to perform requested tests are frequently required to travel to other locations to have the test performed. This is required for the patient to qualify for insurance coverage of the requested test. For example, Insurance Company A allows a hospital-based physician to obtain laboratory tests on an outpatient in the hospital clinic, whereas Insurance Company B, which does not have a contract with the hospital for outpatient laboratory exami- nations, requires the outpatient to travel to another location to obtain the test. These rules are unyielding and may lead to incongruous situations. For example, a patient hospital- ized for weeks is discharged to be followed in the hospital’s outpatient clinic.

However, due to contractual agreements, the patient, now an outpatient, is ineligible for laboratory or radiology services performed in the hospital and must travel to another site to have the tests performed.

Off-site laboratory and radiology services perform re- quested tests in a timely fashion. However, where requested examinations are performed is fraught with difficulties. We describe situations illustrating the frustrations and mistakes involved in outsourcing laboratory and radiology services.

METHODS

There are 10 hospitals in Tucson, Arizona with full-service radiology and laboratory services, and most physicians asso- ciated with these hospitals conduct outpatient clinics in the hospitals or in adjacent buildings. The preponderance of out- sourced radiology tests go to Radiology Ltd. (Tucson), which has 10 freestanding sites, and laboratory tests to Sonora Quest Laboratories of Tucson (Tucson), with 8 sites, or Laboratory Corporation of America (Burlington, NC), with 11 sites.

The study was conducted at University Medical Center, the major teaching hospital for the University of Arizona Health Sciences Center. It has 365 beds and more than 450 credentialed physicians, most of whom have outpatient clinics in the hospital proper. The clinical laboratory and radiology services are located in the hospital and are fully accredited with their respective accrediting organizations. Three physicians documented incidents involving outpatient laboratory and ra- diology requests over a 4-month period of time.

RESULTS

Examples of Outsourced Laboratory and Radiology Tests Resulting in Medical Errors:
HIPAA Trumps Cause of Meningitis. A 6-month-old boy presented to his primary care phy- sician (PCP) with acute onset of fever. His clinical appearance was consistent with sepsis, and blood for culture was sent to an off-site laboratory. The provider administered an intramuscular dose of ceftriaxone and admitted him to the hospital. A lumbar puncture revealed cerebrospinal fluid (CSF) with 75 neutrophils, glucose of 24 mg/dL, and a protein 167 mg/dL. The Gram stain did not demonstrate bacteria. Vancomycin and ceftriaxone were administered for presumed bacterial meningitis, but vancomycin was discontinued when the off-site labora- tory called the PCP and stated that Gram-negative diplo- cocci were growing from the blood culture, consistent with Neisseria meningitidis. Attempts to confirm the blood cul- ture results were unavailing as the laboratory refused to release information to anyone but the referring PCP (who was not available over the weekend). Forty-eight hours after admission, the patient developed

seizures, respiratory fail- ure, and shock requiring admission to the Pediatric ICU. Vancomycin was begun again because of concern that the blood culture results were in error. The patient stabilized. CSF subsequently cultured Gram-positive diplococci, eventually identified as penicillin- and ceftriaxone-resistant Strepto- coccus pneumoniae. Six days after admission the initial blood culture results were communicated by letter to the PCP report- ing S. pneumoniae. The patient survived and has seizures and cognitive delay resulting from his meningitis.

Comment. The failure of the off-site laboratory to properly identify the causative microorganism, as well as to notify the hospital in a timely fashion of the correct identification led directly to inadequate antibiotic coverage for meningitis and adverse sequelae for this patient. Subsequent review revealed that a corrected blood culture result was available at the commercial laboratory before the CSF culture result ob- tained in the hospital. Had it been released, the patient's course might have been altered. The laboratory maintained that Health Insurance Portability and Accountability Act (HIPAA) regulations prevented them from providing the information. The hospital B, where the nodule was removed surgically. It demonstrated only coccidioidomycosis.

This illustrates a common problem. Off-site radiology examinations for outpatients are dictated by the radiologists and then faxed to the requesting physician's office. Rarely, if ever, does the PCP even see the radio- graph, much less have the ability to compare films from different sources. Occasionally, CDs of radiology examina- tions are sent with outpatients, but more often than not there is no compatible computer program to "read" them. Review of the radiographs in this case revealed that the nodule had not changed in size and that surgery was unnecessary. If the chest radiograph had been repeated in the same hospital, the confusion about the size of the nodule would not have occurred.

Further Examples of Error Involving Patient Care Due to Outsourcing. Two other notable errors occurred in 4 months. One, a patient with a pituitary abscess, received prolonged and unnecessary intravenous antibiotics because a repeat magnetic resonance imaging scan could not be obtained in the same facility for purposes of comparison. Another patient with coccidioidomycosis requiring hospi- talization obtained serological tests at 2 laboratory facilities. The results were divergent and therapy was stopped prematurely, leading to a relapse in disease.

Incomplete or missing reports from outsourcers are com- monplace and potentially place patients at risk (Table 1). We studied all laboratory reports faxed from the 2 major laboratory outsourcers for HIV-1 infected outpatients and found that 47% of the reports were duplicates or pending results; 9% were reports that contained no relevant patient.

Table 1 Examples of Errors Committed at Outsource Laboratories and Their Consequences

Test Ordered	Outsource Laboratory Report	Consequences of the Error and/or Comments
Any blood or urine test	Specimen improperly collected, inadvertently discarded, request overlooked, and results not communicated in timely fashion	Commonplace mistakes; these errors lead to repeating the test, cancellation of a scheduled outpatient visit, and/or delaying or interfering with therapy
Specific examples		
Viral culture for Herpes simplex	Collection date not noted at outsource laboratory site, therefore, culture discarded	Lesion disappeared and consequently there was no definitive diagnosis
Brucella serology	Test not performed; inappropriate specimen	Patient never had the test performed; refused to drive 90 miles to repeat it
HIV-1 RNA	Wrong test performed; sometimes HIV-1 DNA or HCV RNA are erroneously performed	Physician must recognize the problem and reorder the test
Nitroblue tetrazolium assay	Test not performed; technician unfamiliar with test and unable to identify test code	Diagnosis of chronic granulomatous disease delayed by 2 months due to inability to perform tests at outsource laboratory (test finally performed elsewhere)

DISCUSSION

Most large clinics have laboratory and radiology facilities on-site with integrated data bases. However, a patient's insurer may require the outpatient to travel elsewhere for required examinations where the training and skills of the employees are not necessarily equivalent to those of the hospital.[2] We describe what occurs when physicians affili- ated with hospitals order tests on outpatients who are re- quired by their insurance companies to go off-site for tests. Some of the problems were similar to those previously reported, such as turnaround times for test reports, compro- mised specimens, incorrect tests, and problems with the courier service.[3,4] In addition, we also document significant medical error due to outsourcing of laboratory and radiol- ogy requests.

It is difficult to resolve problems with outsourcers be- cause their employees are not knowledgeable regarding specific tests, and when the physician finally does find someone who understands the issue, there is little that can be done. This type of problem is exemplified by the last entry in Table 1.

Patients are often upset when informed that they must obtain their examinations elsewhere. Not uncommonly, they fail to have the requested test performed in a timely manner, or at all (Table 1, third entry). Physicians need to follow-up on tests that have been ordered to ensure that they are performed. This requires a sophisticated and complex track- ing system.[4,5]

Addressing the issue of outsourced radiology examina- tions, Wachter remarked that outsourcing may have virtue but the practice can be harmful if quality is sacrificed.[6] Outsourcing has implications beyond monetary savings, and the real financial and human costs must be factored into the overall equation.[7] Although some outsourcing is unavoid- able, outsourcing to the magnitude practiced in our tertiary care hospital is not likely to be cost-effective given the numerous errors encountered, some of which are grave. A more systematic study of this practice is needed.

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