



ORIGINAL ARTICLE / *Professional information*

Improvement of radiology requisition



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KEYWORDS

Medical history taking;
Radiology;
Medical order entry systems

Abstract

Purpose: Inadequate or incomplete information on radiology requisitions may have a substantial impact on the radiological process. This study aimed to evaluate the impact of standardization and computerization of radiology requisitions on the quality of provided data, satisfaction of hospital staff and access time.

Methods: The impact of requisition support was assessed at each step of the improvement process for inpatients: before (Step 1), after standardization (Step 2) and after computerization of radiology requisition (Step 3). The quality of information provided was assessed by proportion of missing data on MRI and CT requisitions. Satisfaction was assessed by an anonymous auto-questionnaire filled by ordering physicians, radiologists and radiology technicians. Access time was prospectively assessed.

Results: Standardization of radiology requisition resulted in a significant drop in proportion of missing data. Computerization of radiology requisition, based on the single standardized radiology requisition, further improved the quality of information reported on radiology requisitions. The median access time was significantly improved (from 5 to 3 days) for the largest provider of CT requisitions.

Conclusions: Standardization and computerization have a synergistic effect on the overall quality improvement. Moreover, the computerized provider order entry enables traceability of information, makes communication between radiologists and ordering physicians easier and improves examination planning.

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The quality of prescription is an important issue in the process of care, and this is more critical for imaging [1]. In this regard, several studies have evaluated the quality of information provided on radiology paper prescriptions and found rates of inadequate or incomplete prescriptions ranging from 2% to 29% [1–4]. Incorrect prescription has substantial impact on the radiological process, including errors in interpretation [5], potential complications for patients [6,7] and waste of time and money for the hospital [8]. A recent study has reported discrepant or incomplete clinical information in 62% of the paper prescriptions for CT scans by comparison with electronic information available to radiologists [9]. In addition, most of discrepancies had a substantial clinical impact. The final output of the radiologist is the report delivered to the relevant radiology stakeholder (referring physician, patient or administration) in a timely manner [10]. Some studies suggested that the radiology imaging completion might be improved by conformity of radiology requisitions along with quality and relevance of information provided [2]. One option to improve the quality of radiology requisition could be computerization [11]. One study has evaluated whether an appropriately designed computerized order entry system for radiology may be clinically accepted and influence ordering practices [12]. Another study showed that requests from a computerized radiology requisition system were more likely to contain pertinent clinical questions than more conventional paper-based requests [5].

A radiology requisition improvement project was conducted for MR imaging and CT examinations in our Institution, which is a tertiary care hospital. The project was led by the Department of Public Health. The heads of Radiology Departments were member of the steering committee. The multidisciplinary project team included representatives of each Radiology Department and representatives of the main ordering departments (Internal

Medicine, Neurology and Abdominal Surgery). The diagnostic phase lead to six areas of improvement: two for ordering departments (quality and relevance of the prescription), two for radiology departments (times to obtain appointment and deliver report) and two regarding links between radiology departments and ordering departments (standardized radiology requisition and harmonized exchange process). Indeed, more than 10 different radiology requisition forms were available, and each radiology department has its own requisition form. Thus, a process of standardization and computerization of radiology requisition was conducted in our hospital.

The goal of this study was to evaluate the impact of standardization and computerization of radiology requisitions on the quality of information provided on radiology requisition, satisfaction of hospital staff and access time in radiology examinations.

Material and methods

Fig. 1 presents the three steps of the study and the sample size for each of the three metrics (quality of information, satisfaction, access time).

Diagnosis phase (2008)

The diagnosis phase was conducted between May 2008 and October 2008 and included a process analysis, an assessment of quality of data provided on radiology requisition and an assessment of access time, defined as the time between the requisition date and the date of appointment for imaging examination. Moreover, satisfaction on the all radiology process was assessed among the staff of the three radiology departments and among ordering physicians.

MR imaging or CT examination requisitions for diagnosis for inpatients were collected during three consecutive

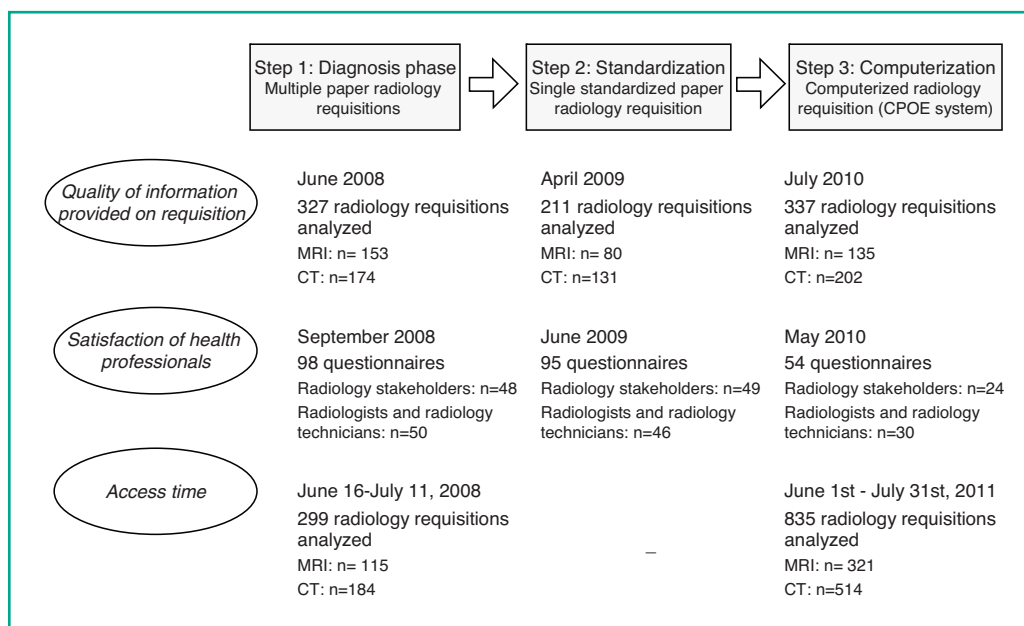


Figure 1. Study design.

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