Process Mapping in Screening Mammography

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Successful screening mammography programs aim to screen large numbers of women efficiently and inexpensively. Development of an effective screening mammography program requires skilled personnel, solid infrastructure, and a robust computer system. A group of physicians, technologists, computer support personnel, and administrators carefully analyzed a growing screening mammography program as a series of steps, starting with the request for the examination and ending with the receipt of a hard-copy consultation. The analysis involved a detailed examination of every step and every possible outcome in the screening process. The information gained through process mapping may be used for identification of systemic and personnel problems, allocation of resources, modification of workplace architecture, and design of computer networks. Process mapping is helpful for those involved in designing and improving screening mammography programs. Viewing a process (ie, obtaining a screening mammogram) as a series of steps may allow for the identification of inefficient components that may limit growth.

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SCREENING MAMMOGRAPHY has been proven to be efficacious for detecting nonpalpable breast cancers in women 40 years of age and older.¹ A growing screening mammography program (with on-site and mobile facilities) was analyzed as a process, starting with the request for the examination and ending with the distribution of the final hard-copy interpretation.² The project was undertaken to evaluate the operational structure prior to the implementation of a new computer system that would allow for computer-generated reports and computerized data tracking.

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METHODS

The process mapping team (composed of physicians, technologists, computer support personnel, and administrators) met regularly (every 2 weeks). Every point in the screening mammography process was charted on paper, and the resulting map was drawn on a computer by one of the authors (S.L.V.). At the start of each meeting, the updated process map was reviewed, and then additions were made as the team analyzed the process, from patient registration to the distribution of the final consultation.

RESULTS

The completed process map for screening mammography included 30 steps for routine screening cases (with old films available). If old films were not available, additional labor resources were used and more steps were added. The process map revealed that manually sorting the final reports by American College of Radiology (Reston, VA) BI-RADS categories was labor-intensive. Throughout the process map, the radiologist served as the final problem solver, and in cases requiring additional views, the radiologist decided when the evaluation was complete.

CONCLUSION

Process mapping is useful for defining existing pathways and procedures. When process mapping is performed, inefficient components may be analyzed, and appropriate modifications (in personnel and computer support) may be suggested and implemented. Also, examining an existing process may be helpful prior to implementation of new systems (ie, picture archiving and communication systems) and new procedures (ie, full-field digital mammography).

REFERENCES

1. Feig SA, Kopans DB, Sickles EA, et al: Rationale for annual screening mammography for women ages 40-49 years. *Breast Disease* 10:13-21, 1998
2. Gryna FM: Manufacturing planning, in Juran JM (ed): *Juran's Quality Control Handbook*. New York, NY, McGraw-Hill, 1988, pp 16.1-16.59