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Applying a “Business Process Reengineering“ Model to Radiology:

Part II - Developing Intelligent Structures and Managing the Change

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In the first part of this series on the concept of Business Process Re-engineering (BPR), we introduced BPR as a philosophy that advocates restructuring an organisation, based around processes rather than individual tasks, to generate new structural efficiencies. In this follow-up article, we explore the pros and cons of a BPR-centric radiology IT systems re-design. The aim is to allow radiological entities to not only react to financial cutbacks, but also to increase the quality of care delivery.

Redesigning IT Systems: The Ideal Solution

The first step is to analyse any IT integration needs from the point-of-view of patient flow. Designing a new integrated system begins with creating an appointment for the exam. At this point, information about the patient is entered via one interface and distributed to all relevant locations. Medical history is entered into the electronic health record (EHR), the date of the appointment is entered in both the physician’s and the scanner’s schedule and the ordering of all necessary material in the EPR system is triggered automatically for that particular exam.

Furthermore, this IT system can group similar exams to engineer new, smoother routines and place possibly complicated exams at the end of the day in order to avoid disruptions. The physician is reminded about the exam when the patient arrives, and gets all the relevant information prepared in advance of the appointment. Assistant medical technicians will no longer have to order material manually and stock can be reduced, increasing inventory reliability.

After the exam, images are sent to the RIS/PACS, which again, is hooked up to a workstation with access to other patient data (e.g. reports and test results). Hence, the physician has all relevant information in one spot and does not have to interrupt diagnosis for research into past results. Standardised tools for diagnosis and reporting can be made available to create a reliable qualitative and quantitative report. This helps physicians to perform more sophisticated diagnosis and arrive at more relevant reports given the same or even decreased time.

In summary, a system that operates on the basis of isolated work steps loses valuable time compared to an integrated BPR-centric system. A more integrated model allows automated data-processing. Thereby, redundancies and idle periods can be reduced and the quality of exams can be increased. This not only yields cost reduction, but also increases output efficiency.

Will Increasing Efficiency Decrease Safety?

As mentioned above, BPR aims at increasing efficiency. BPR is often mentioned interchangeably with Toyota's vision of LEAN production, which eliminates redundancies and increases speed. However, in radiology, increased efficiency can equate with decreased safety. For example, the reduction of idle time at scanners and acceleration of exam throughput yields a more narrow scope for spontaneous reactions by physicians in complex cases. While patients may perceive reduced waiting lists positively, an acceleration of steps may be discomfiting, as patients feel inadequately treated.

So, how can BPR resolve these concerns, while occasioning greater efficiency? Firstly, a basic process for each type of exam is designed and implemented. This process is highly standardised and restrictive. This part of the process should cover a majority of about 85% of all exams. In addition, one or more parallel processes can be predefined to address cases where the basic process is insufficient. These parallel processes are less standardised and give room for individual responses to anomalies. For this system to work:

• Decision gates are clearly defined so that staff know exactly when they have certain alternatives available, and

• Staff must be briefed on new processes to ensure decisions are made correctly.

Pitfalls of BPR in Radiology

There are potential pitfalls specific to BPR in radiology that must be kept in mind during the redesign process. If existing processes are only superficially reshaped, inferior results are seen. This is crucial to radiology, as there is a lack of alternative "business models" that would help as a starting point to rethink exam processes. Hence, interdisciplinary teams of physicians and organisational designers must collaborate on new ideas for how to better conduct radiological exams.

Summary

Though it is arguable how to measure the impact of restructuring measures in general, Coutre et al. (2009) mention considerable positive impact observed during a case study at a US hospital. Among these is "an increase in net patient revenue… to 12,909 dollars in 2007 from 11,312 dollars in 2004". It is advisable to evaluate BPR projects using a cost-effectiveness formula (Weinstein et al. 1977), taking into account effects on the patient (immediate and collateral), and staff in radiology and related departments.

Radiology managers are advised to proceed carefully when applying BPR within a healthcare setting - potential pitfalls are mainly down to complex healthcare specific requirements. If the issues laid out above do not interfere, BPR is expected to be a useful tool for radiology.

Recommended Reading List

• Coutre et al. 2009: Achieving Process Innovation, in Healthcare Executive, March 2009, pp. 25-31

• Evans et al. 1997: Cost Reduction and Process Re-engineering in Hospitals, in Journal of Cost Management 11, no. 3, pp. 20 – 27

• Hammer & Champy 1993: Re-engineering the Corporation, Massachusetts

• Ho et al. 1999: The Implementation of BPR in American and Canadian Hospitals, in Health Care Manage Rev, 24(2), pp. 19 – 31

• Klimas 1997: Re-engineering in the Real World, in Management Accounting 78, no. 11, pp. 30 – 36

• Packwood et al. 1998: Good Medicine? A Case Study of Business Process Re-engineering in a Hospital, in Policy & Politics 26(4)

• Weinstein et al. 1977: Foundations of Cost-Effectiveness Analysis for Health and Medical Practices, in The New England Journal of Medicine Vol. 269, pp. 716 – 721

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