

Structural Changes in a Radiology Department
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NOTE TO FACILITATOR: This exercise requires no set-up. It is useful as a 30-minute interest generator just before introducing new topics. Your debriefing can focus on the specific topics you intend to cover in subsequent lectures or discussions (note that there is no such thing as INI technology—it just has a nice “ring” to it). You can use the exercise to illustrate:

- the concept of sociotechnical systems in general.
- technology’s impact on HR and staffing issues.
- technology’s impact on organizational structure (particularly at a micro-level).
- shifts in power sources from legitimate to expert (i.e., from physicians to INI certified technicians)

The scenario is a take-off on Barley’s (1986) research involving structural change in radiology departments. (Barley, S. R. 1986. Technology as an occasion for structuring: Evidence from observations of CT scanners and the social order of radiology departments. *Administrative Science Quarterly*, 31: 78-108).

Student Handout

You are Director of Radiology at an 800-bed, university-affiliated, teaching hospital. The department medical staff consists of five physicians and one medical resident with monthly rotation of two third-year medical students per month through the department. The allied health staff consists of 40 FTEs who are American Registered Radiological Technician (ARRT) certified. Five ARRTs have additional training and expertise in computerized axial tomography (CAT) scanning and three have additional training and expertise in magnetic resonance imaging (MRI). Your radiology department is a clinical affiliate of the university and allows an average of three fourth-year radiological technology students per month to rotate through the department during the fall and spring semesters.

Assume that a new technology, infiltrated nanowave imaging (INI), has recently been introduced. This new technology is likely to phase out CAT scans and MRIs over the next several years. You’ve recently hired two ARRTs who have gone through the INI manufacturers’ nine-month training program to become INI certified. The staff physicians have received brief online training in the basics of INI interpretation, but the training was brief and the physicians felt the training was sub par. The two INI certified ARRTs, on the other hand, are competent in INI interpretation, safety, administration of INI technology, preventive maintenance, and all other aspects of INI. Introduction of INI is anticipated to affect only CAT scans and MRIs; other traditional services such as nuclear medicine and radiography are expected to continue well into the future.

Once acceptance of INI technology among your hospital's physicians becomes widespread, you anticipate your department will provide about 650 INI procedures each month. Although each INI procedure is tailored to the specific diagnosis a physician is ruling out, the average INI procedure takes about 20 minutes. Procedure set up takes roughly an additional 10 minutes, so the average total time per procedure is 30 minutes. Nurse assistants transport patients to and from the radiology department, so your department need not factor in patient transport.

Instructions

- Step 1: Draw your department's organizational structure (or HR needs) prior to INI.
- Step 2: Draw your department's organizational structure (or HR needs) soon after implementing INI.
- Step 3: Anticipate changes in your department resulting from increasing use of INI during the first three years and draw your departments' future organizational structure (or HR needs).