

KELSEY HOSPITAL

Arnold Schneider

*DuPree College of Management
Georgia Institute of Technology
Atlanta, Georgia
USA*

John T. Large

*College of Public Health
University of South Florida
Tampa, Florida
USA*

ABSTRACT

The purpose of this case is to have students analyze and categorize costs of quality in a nonprofit health care setting. The case describes the need for a quality costing system in a hospital and the development of such a system for two primary treatments (intubation and bronchodilator treatments) performed in the Respiratory Therapy Department of the hospital. A list of items pertaining to quality costs is presented and described for analysis, estimation, and categorization.

“We need a way to identify quality indicators and measure these on an on-going basis. We already have some indicators of quality relating to clinical operations, but we want to add measures relating to service, such as patient waiting time. Eventually, we want to have hundreds of indicators to allow us to track performance throughout the hospital.”

Michael Hopkins, Quality Control Manager

BACKGROUND

Kelsey Hospital is a private, nonprofit hospital located in Pennsylvania. The hospital has an affiliation with a local university medical school, and as such, its staff has faculty physicians and medical student residents and interns. Kelsey Hospital was founded in 1922 and in 2003 had adjusted revenues of \$132 million and expenses of \$126 million. This margin is fairly typical for tertiary health care providers, i.e., institutions that provide most services of a traditional hospital. Kelsey serves a seven-county area within a radius of 45 miles. The vast majority of patients, however, live within 10 miles.

Like most other hospitals, Kelsey's in-patient numbers have been decreasing in recent years (currently averaging around 350 patients), while its out-patient numbers have been on the increase (an average of eight percent for the last three years). In 2003, there were 16 out-patient programs. Contracted physicians are generally working in these areas. The contracted physicians are not employed by Kelsey Hospital. In contrast, "house physicians" are those directly employed by Kelsey.

Kelsey Hospital's strategic goal is to provide as many services as possible in health care. The hospital provides the following major in-patient services: Cardiology, Obstetrics/Gynecology, Orthopedics, and Neurology. Open-heart surgery, in particular, is one of Kelsey's specialties for which it is renown. Two significant services that Kelsey does not perform, and does not plan to offer, are Psychiatry and Pediatrics. Several years prior to this analysis, Kelsey attempted to provide pediatric services, but abandoned it because of strong competition from other hospitals in the area. Kelsey has responded to market trends by increasing its capacity to handle out-patient treatments.

QUEST FOR QUALITY

In 2001, Kelsey Hospital commissioned a task force to study the issues affecting long-run success. One of its findings was that quality management would become an increasingly important factor for health care institutions. The task force concluded that all health care payers, from insurance companies to individual patients, would become more attentive to the quality management of health care service. The task force also recommended that Kelsey institute a balanced scorecard performance measurement system using the four standard categories (financial, customer, internal business process, learning & growth) found in the literature on balanced scorecards. It envisioned that quality measures would be included within the balanced scorecard.

A sense of urgency for quality control was felt largely due to the phenomenon of managed care contracts. With managed care contracts representing approximately 35 percent of Kelsey's patients, the task force believed Kelsey would need to convince these managed care organizations that it can provide high quality services at a reasonable cost. The Medicare and Medicaid programs also have a significant influence on Kelsey's revenues. For the majority of Medicare patients, their bills are reimbursed based on a system known as DRGs (Diagnosis Related Groups). For patients that cost more to treat than the fee schedule allows, Kelsey suffers a loss. Conversely, if Kelsey can treat the patient for less than the DRG reimbursement, then Kelsey is permitted to keep the difference.

As a result of the task force study, Kelsey made quality management one of its top priorities. Michael Hopkins was appointed as Quality Control Manager and, together with the Management Services Department, was instructed to develop a system for the entire hospital that would identify and measure quality indicators to be used for all of Kelsey's customers. Hopkins had been reading and hearing about cost of quality (COQ) systems in manufacturing settings and was impressed with what he came across and heard, so his first decision was to pilot a COQ system for one specific area of the hospital. He chose the Respiratory Therapy Department because of its relative simplicity. If a feasible COQ system could be developed in Respiratory Therapy, it would be used as a basis to implement COQ systems elsewhere in the hospital.

Needing somebody with COQ expertise, Hopkins engaged the services of an experienced consultant, Norma Highlander. Highlander had developed COQ systems in several other service industries such as lodging and transportation. Hopkins arranged an introductory lunch meeting with Highlander, Morry Easton (Director of Respiratory Therapy Department) and Mildred Berger

(Administrative Director of Respiratory Care Services). Easton was managing three different departments, the smallest one of them being Respiratory Therapy. Berger had over 20 years of experience as a therapist and was working directly for Easton at the time. The following conversation took place at this first meeting:

- Hopkins:** Norma will look at your operations and try to develop indicators of quality. We want to look at both clinical and service indicators.
- Easton:** Well, we already have our clinical indicators identified. But, I don't see how you can measure our service level.
- Berger:** That's right. I mean, you perform the therapy and either it helps the patient or not. How do you determine after the fact how performance was?
- Hopkins:** The main reason for going through this exercise is to assign costs to what we are doing. We need to categorize our quality costs as being prevention, appraisal, or failure costs. Hopefully, from this, we can assess our performance.
- Berger:** I just don't see how you break down what we do into neat little categories. If we were actually making something, a product, then maybe. But we are working on people.
- Easton:** I'd like to see us do this, but I just don't think it can be done. If you and Ms. Highlander can come up with something, that would be great.
- Highlander:** I know I have my work cut out for me, but I'm sure we can come up with something useful.

Their lunch ended soon thereafter and a second meeting was scheduled for Highlander to become acquainted with the procedures in the Respiratory Therapy Department.

RESPIRATORY THERAPY

To make the project more manageable, Hopkins and Highlander decided to focus further study on only two of the nine primary treatments performed in Respiratory Therapy. The two chosen were intubation and bronchodilator treatments because these were felt to be most representative of all the primary treatments.¹

Intubation is the process of placing a breathing tube down the patient's nose, or more typically, throat. This procedure can only be ordered by a physician. Usually, intubation is ordered as the result of an emergency call. A total of eight to ten doctors, nurses, and therapists typically respond to the call. Once on the scene, one or two therapists examine the patient and another one or two get the equipment ready for use. A therapist is given two attempts at correctly placing the tube. If unsuccessful, another therapist makes an attempt. The wrong size tube is occasionally placed in the patient and, when this happens, must be replaced. All of this information is recorded and delivered back to Respiratory Therapy for quality review purposes. Exhibit 1 contains a flowchart for the intubation process.

Bronchodilator treatments are also ordered by physicians. A bronchodilator is anything that opens or expands the bronchi (that part of the body that conveys air to and from the lungs). Unlike

¹ Examples of other treatments are mechanical ventilation, oxygen treatment, and saline solution treatment.

intubation, however, bronchodilator treatments do not result from emergency conditions. Once the treatments begin, they are given every four to six hours thereafter. The treatments last for four days and then a written order must be received for continued treatments. Once Respiratory Therapy receives an order for bronchodilator treatment, a therapist examines the patient for at least one of five medically necessary criteria (e.g., reversible air flow obstruction). If the patient fails to meet any one of the criteria, the therapist notes this on the patient's chart. However, even if none of the five criteria are present, the therapist still provides the treatment unless he/she feels it would be harmful to the patient. Exhibit 2 contains a flowchart for the bronchodilator process.

Sharon King serves as the Respiratory Therapy Department's quality coordinator. Her duties include monitoring clinical quality for all nine primary treatments performed in Respiratory Therapy and also providing training for those therapists identified as having clinical skills deficiencies such as performing unneeded therapies² or installing tubes incorrectly. For example, King will make random spot checks of patients' charts to determine how many unneeded therapies were performed within a given time period (as evaluated and noted by a physician). Based on these checks, therapists with clinical skills deficiencies may be identified and then sent to obtain additional training. If retraining does not solve the problem, then the therapist's employment is usually terminated.

The department holds meetings on a monthly basis to discuss quality problems and to determine corrective courses of action. These meetings also serve to review the performance of therapists. If a therapist is continually being written up by physicians for improper procedures (e.g., intubation installation), then the therapist is given an opportunity to explain the circumstances. If deemed unsatisfactory by Mildred Berger, then Sharon King will be asked to provide retraining for that individual.

COSTS OF QUALITY

Norma Highlander came up with the following list of items pertaining to costs of quality after spending two months reviewing manuals and other documents, conducting interviews and surveys with employees (particularly Sharon King) and customer groups³, and examining financial records (e.g., payroll, budgets):

- a) **Quality Planning and Procedures** — involves tracking of quality and actions to improve quality; primarily performed during a monthly three hour meeting with the Director of the Respiratory Therapy Department, Administrative Director of Respiratory Care Services, three Supervisors, and three Lead Therapists; also includes costs associated with activities of a Program Instructor from a local university who also serves as Respiratory Therapy's quality coordinator (approximately one day per week of her time is spent on quality improvement).
- b) **Quality Audits** — every time therapy is ordered by a physician, a therapist must ascertain the appropriateness of the therapy (takes about five minutes per newly ordered therapy); also includes checking patient charts, generating quality reports, and developing indicators (performed by the quality coordinator one day per week).

² While intubation and bronchodilator treatments are ordered by physicians, other primary treatments performed in Respiratory Therapy are initiated by therapists.

³ For a listing of key personnel, see Exhibit 3.

Exhibit 1
INTUBATION FLOWCHART

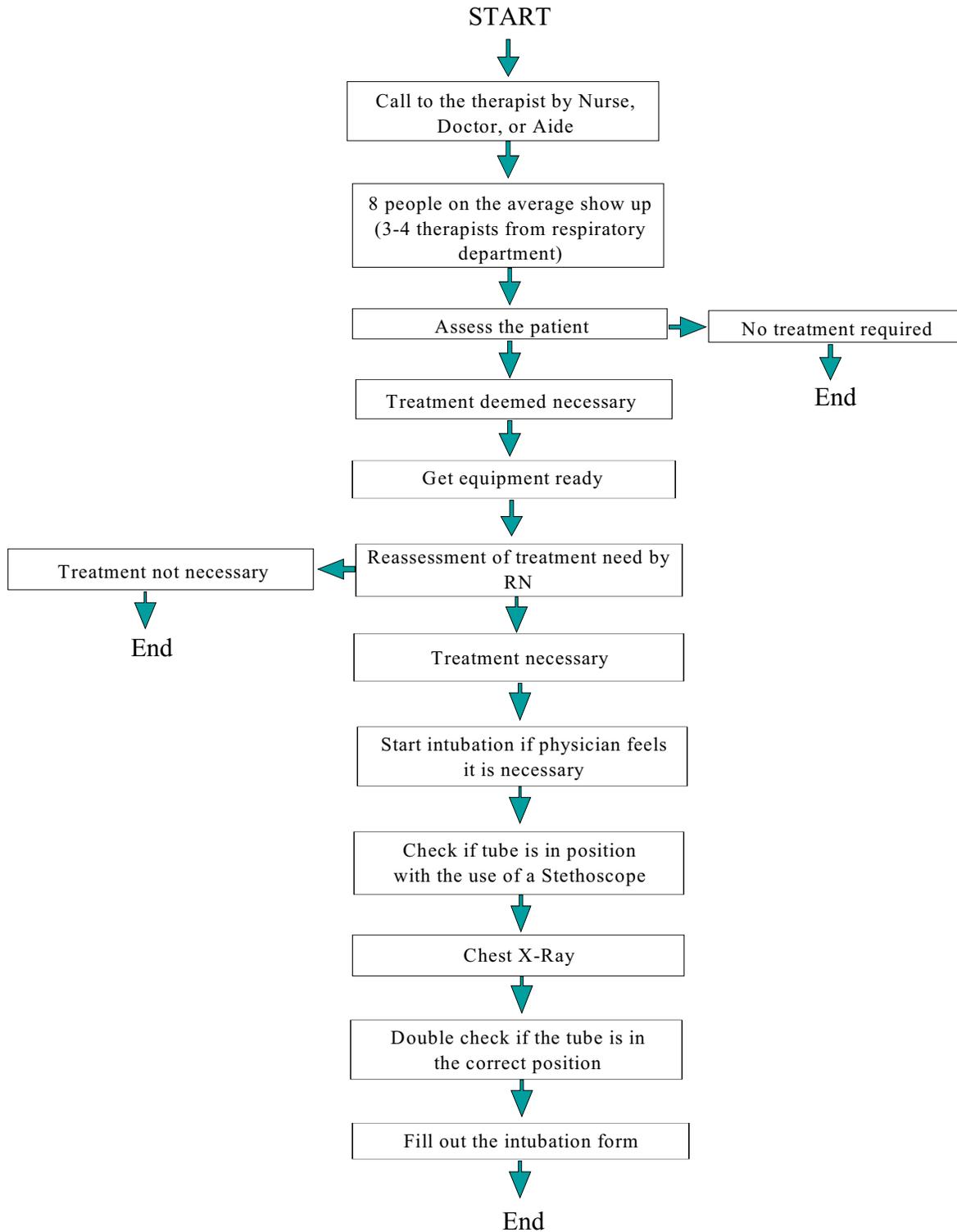
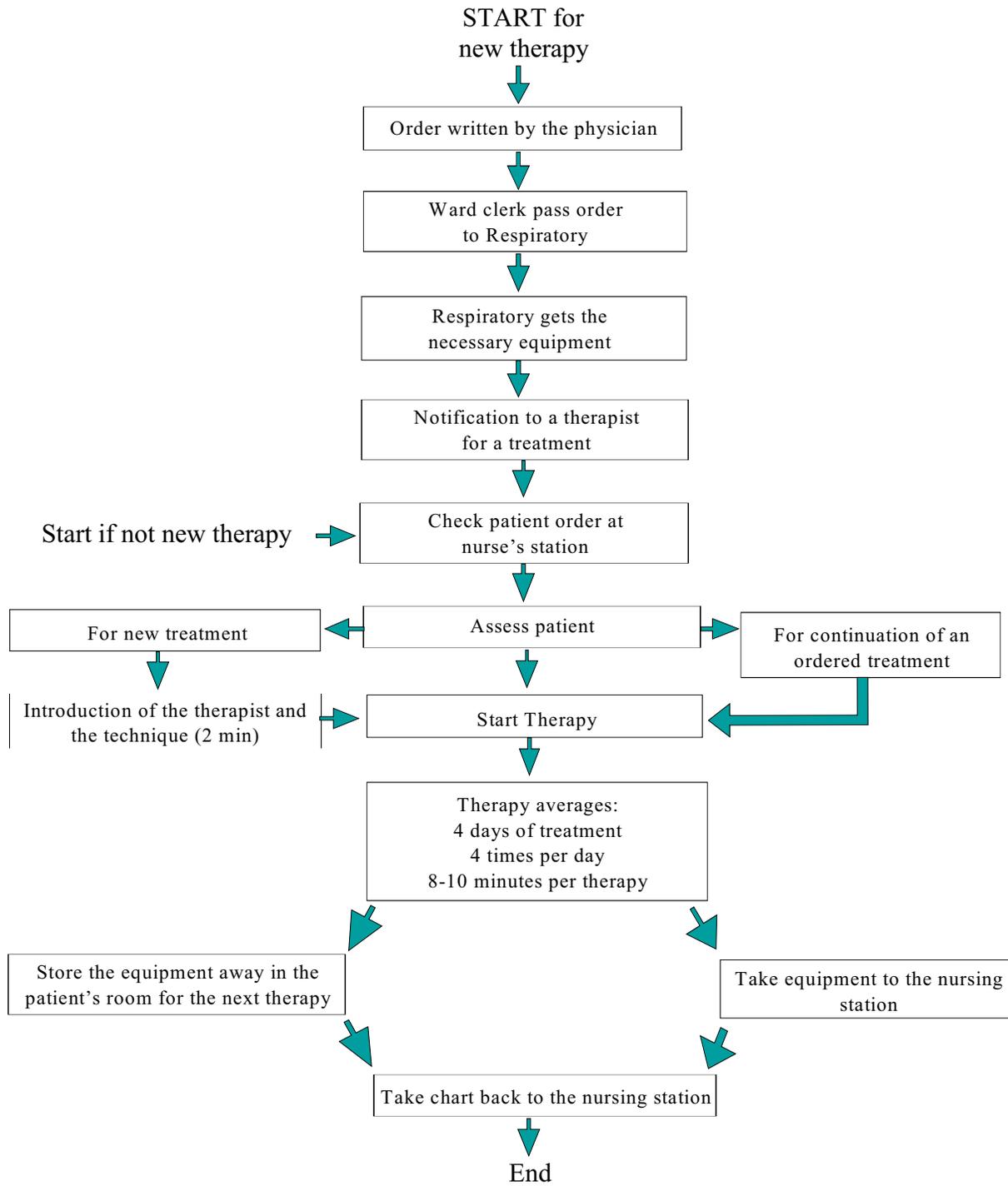


Exhibit 2 BRONCHODILATOR FLOWCHART



**Exhibit 3
Personnel Listing**

<u>Name</u>	<u>Title</u>
Michael Hopkins	Quality Control Manager
Morry Easton	Director of Respiratory Therapy Department
Mildred Berger	Administrative Director of Respiratory Care Services
Sharon King	Quality Coordinator for Respiratory Therapy Department

- c) **Therapy Write-ups** — after each therapy and procedure, the activity is written up by the therapist; typically taking five minutes, but for non-routine activities like intubation, the write-up takes about ten minutes.
- d) **Malpractice Lawsuits** — these are legal costs and losses resulting from malpractice lawsuits.
- e) **Training Procedures** — involves maintenance of manuals (2.5 hours per month for one Supervisor), in-house educational programs, and monthly departmental awareness activities. These training procedures should help prevent problems like improper placing of tube, wrong size intubation, etc.
- f) **Incorrect Installations** — primarily limited to intubation procedures; normally, two intubation attempts are allowed.
- g) **Performance Audits** — consists of (1) time card reviews, where each of three Supervisors spends one-half hour per week reviewing time cards, and (2) order-entry reviews, where each therapist spends one-half hour per week reviewing the computerized order entries.
- h) **Forecast and Budget Generation** — performed once a month by the Director, taking approximately one hour.
- i) **Overtime** — if the number of required personnel has been underestimated for a given period, overtime cost is incurred for existing personnel.
- j) **Customer Relations** — before starting a series of treatments, therapists spend about five minutes explaining the procedure and need for the therapy to the patient.
- k) **Rework** — involves the additional cost of labor and supplies for a treatment already performed and then redone for any reason.
- l) **Retraining Current Employees** — due to unsatisfactory performance (usually by the therapist). This involves time spent in sessions by both the employees being retrained as well as those doing the retraining.
- m) **Handling Complaints** — this involves the time spent handling and correcting specific complaints made by physicians and patients.
- n) **Administrative Actions** — actions taken by management resulting from unfavorable clinician practices (identified by therapy write-ups, complaints, rework, etc.); methodologies, practice guidelines, and procedures may be reviewed and changed;

disciplinary action may ensue against the clinician or supervisor, or both; additional training may be required of the employees. This cost is measured by the time spent on these reviews and actions.

- o) **Absenteeism/Turnover** — this is measured by the amount in excess of industry averages.
- p) **Appraisal Support** — two outside departments support Respiratory Therapy in its efforts to appraise quality: the Quality Assurance Department conducts monthly reviews of Respiratory Therapy's performance and a Quality Assurance Committee examines Respiratory Therapy's performance on both a monthly and quarterly basis. This cost is measured by the time spent on these reviews and examinations.

After compiling this COQ list and before submitting it to Hopkins, Highlander began thinking about categorizing and measuring these costs as her next step in developing a COQ system for Kelsey Hospital.

CASE QUESTIONS

1. What groups and individuals are the "customers" of the Respiratory Therapy Department? Describe the concerns and perceptions about quality that might differ across the different types of customer. Identify the problems that the different customers would want quality control to prevent, detect, or correct.
2. Categorize the list of quality costs into prevention, appraisal, internal failure and external failure. Justify your choices.
3. What additional costs of quality might you suggest? How would you categorize each of them?
4. Discuss how you would estimate (i.e., measure) the following costs for the Respiratory Therapy Department: Quality Planning and Procedures, Therapy Write-ups, and Incorrect Installation.
5. Which of Highlander's COQ measures (or similar ones) might you include in a balanced scorecard for Kelsey's Respiratory Therapy Department? What other performance measures would you suggest to include? Classify each of these measures into the four standard balanced scorecard categories (financial, customer, internal business process, learning & growth).

TEACHING NOTES

Teaching notes are available from the editor. Send a request from the "For Contributors" page of the journal website, <http://gpae.bryant.edu>.