Successful Methodology for improving the quality of clinical data

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Overview

Consensus is growing in the healthcare industry that organizations with fully integrated clinical information systems will become the leaders in a fiercely competitive environment. Kaiser Permanente's Northern California Region (KPNCR) believes that such a system can support the organization's goal of providing affordable, accessible, high-quality patient care only if the data in that system is accurate, timely, and consistent.

KPNCR's vertically integrated system of 16 hospital-based medical centers and 16 other medical centers, including medical office clinics and ambulatory surgery centers, provides healthcare to 2.5 million members. Increasingly, the organization realizes the strategic importance of its huge database of member-specific clinical, financial, and administrative data. Large aggregates of quality data are the key to identification of best clinical and operational practices, which in turn lead to higher quality healthcare.

During the past five years, physicians and health information managers have developed a successful methodology for improving the quality of clinical data. This partnership, which originated in the inpatient realm before it branched into ambulatory care, has expanded and succeeded in unexpected ways.

Background

Created in California in the 1940s as the country's first health maintenance organization (HMO), Kaiser Permanente (KP) remained for many years the only healthcare organization in the US devoted to the traditional HMO concepts of prepaid, preventative care paid by the employer. KP now serves nearly seven million health plan members in 11 regions in 16 states. KP's largest region, KPNCR, provides healthcare to one in every four northern Californians.

The organization currently faces intense competition from both for-profit and non-profit managed care organizations in California's HMO-saturated market, as well as from other merging and reconstituting healthcare delivery systems. These challenges have forced senior leadership to reassess its assets and priorities, and these evaluations consistently point to quality data as a strategic priority for continued success.

Beginnings: Variations in Data on Breast-conserving Procedures for Carcinoma

In 1991 researchers from KPNCR's Department of Quality and Utilization (DOQU) noted variations in data on breast-conserving surgery for carcinoma that could not be explained by known practice patterns. Initially, they suspected coding problems and therefore solicited input from Regional Coding Services (RCS), KPNCR's internal auditing and education arm for coding.

RCS partnered with surgeon Stephen Lipson, and together they discovered that physicians had no uniform terminology for describing lumpectomies, mastectomies, axillary node dissections, and breast biopsies. An internal survey revealed that KPNCR surgeons had eight ways to describe a lumpectomy, nine ways to describe axillary node dissection, and 13 ways of describing mastectomies (Table 1).

Together, physicians and coders developed consistent terminology for each procedure. At the end of eight months, new documentation and coding guidelines were distributed for implementation (Table 2). A new physician-HIM relationship also

emerged based on shared values and purpose.

Table 1
Internal Survey Results: Physicians' Common Terminology for Breast Procedures for Carcinoma

Lumpectomy	Axillary Node Dissection	Mastectomy
Excisional Biopsy	Removal of Single Axillary Node	Mastectomy
Lumpectomy	Simple Node Biopsy	Simple Mastectomy
Partial Mastectomy	Single Node Biopsy	Total Mastectomy
Quadrectomy	Assay	Modified Mastectomy
Segmentectomy	Axillary Lymph Node Dissection	Modified Radical
Subtotal Mastectomy	Axillary Node Plucking	Extended Modified
Tylectomy	ALN Sampling	Extended Simple
Wide Local Incision	Lymphadenectomy	Total Mastectomy with Axillary Node Dissection
	Radical Excision	Radical
		Radical Mastectomy
		Extended Radical
		Super Radical
		Completion

California Hospital Outcomes Project

Almost immediately, this new partnership encountered another project as external forces presented new challenges to its health information systems. Through the Hospital Out-comes Project, the California Legislature instructed the Office of Statewide Health Planning and Development (OSHPD) to perform three risk-adjusted medical outcomes studies per year based on inpatient data submitted by all California hospitals. The goal of the project was to provide the public with diagnosis and procedure-specific risk-ad-justed outcome data to help patients, providers, and purchasers make more informed healthcare decisions.

The first study was on acute myocardial infarction (AMI) mortality and revealed wide variation among KPNCR's 16 hospitals, even though its chiefs of cardiology had been auditing and overseeing practice patterns. Again, documentation and associated coding inconsistencies were suspected.

A review of ischemic heart disease cases confirmed that the problem was related to documentation, but we were surprised to discover that providers were inconsistent in the terminology they used to diagnose unstable angina patients versus those with subendocardial myocardial infarction. Specifically, no agreement existed when an unstable angina patient who had "spilled a little cardiac enzyme" should be called a subendocardial myocardial infarction patient. Since myocardial infarction (including subendocardial infarction) was the denominator of this mortality study, this inconsistency seemed to play a significant role in the variation among hospitals.

This realization led to a rapid sequence of events. The chiefs of cardiology formed a task force to more specifically define ischemic heart disease syndromes. Again working with RCS, the task force established more specific terminology and documentation and coding guidelines on AMI, coronary artery disease, unstable angina and chest pain. In the meantime, the newly created physician reviewer helped carry the new guidelines to KPNCR's 3500 physicians and 60 HIM department coders.

Table 2
KPNCR-specific Coding and Documentation Guidelines:
Breast Procedures for Carcinoma

Breast Procedure	Use This Code if Physician Terminology Indicates:	Seek Clarification if Documentation Indicates:
Breast-conserving Surgery Removal of less than 1/4 of breast, with negative margins	Lumpectomy (85.21) Excisional Biopsy (85.21) Wide Excision (85.21)	If more than 1/4 of breast was removed, refer back to physician for clarification of whether quadrectomy or subtotal mastectomy was performed.
Removal of 1/4 of breast	Quadrectomy (85.22)	If less or more than 1/4 of breast was removed, refer back to physician for clarification of whether lumpectomy or subtotal mastectomy was performed.
Removal of more than 1/4 but less than entire breast	Subtotal Mastectomy (85.23)	If 1/4 or less than 1/4 of breast was removed, refer back to physician for clarification of whether lumpectomy or quadrectomy was performed.
Axillary Node Dissection	Axillary Lymph Node Dissection (40.3)	
Breast Removal Removal of entire breast(s) with chest muscles and axillary lymph nodes remaining in place	Simple Mastectomy, Unilateral (85.41) Simple Mastectomy, Bilateral (85.42)	If axillary lymph nodes or chest muscle was removed, refer back to physician for clarification of whether a modified radical mastectomy was performed.
Removal of entire breast with simultaneous axillary node dissection	Modified Radical Mastectomy, Unilateral (85.43) Modifed Radical Mastectomy, Bilateral (85.44)	If axillary nodes were not removed, or chest muscles were also excised, refer back to physician for clarification.
Removal of entire breast with excision of pectoral muscles and regional lymph nodes	Radical Mastectomy, Unilateral (85.45) Radical Mastectomy, Bilateral (85.46)	(Rarely performed)

The Physician Reviewer

In the summer of 1991, KPNCR had created a new position-regional coding coordinator-to work in partnership with the 16 HIM departments to improve the quality of ICD-9-CM coding. Around the same time, a physician at one of its facilities realized that providers had little sense of ownership of coding their records. Together these two developed a proposal to have a physician reviewer participate in the coding process as medical record reviewer, clinical advisor to coders, and bridge to the medical staff. Senior management funded this innovative project for one year.

The rewards were immediate despite the fact that both coders and providers were not entirely receptive to the concept. The coders were unaccustomed to answering physician questions about coding, and physicians were not used to someone telling them that they had to observe national coding rules. Nevertheless, once the fairly straightforward concept of documentation and coding consistency was understood, all parties bought into the effort. Within three months, the three facilities that participated in the pilot project saw significant increases in their case mix indices (CMI). The increased reimbursement from Medicare more than offset the time spent by physician reviewers as they fulfilled the following functions:

- Working with coders to ensure an accurate and complete translation of the episode of care
- Developing liaisons among physicians, directors of HIM, coders, and RCS
- Enhancing coders' clinical knowledge to continually improve the accuracy of the database and decrease the amount of concurrent physician review
- Developing and educating physicians and coders on Kaiser-specific coding and documentation guidelines
- Collecting and presenting data to validate or invalidate the importance of the project to the region

At the end of the year, KPNCR's leadership acknowledged the value of the physician reviewer concept and implemented it in all 16 hospitals. Four hours of physician time per week per hospital was funded-half by KPNCR's physicians and half by KPNCR's hospital/health plan. Senior management now recognized that quality data was a dual responsibility and that physician participation was the key to optimal clinical data capture.

Within six months, physician reviewers joined the physician chairs of the medical records committees, the directors of HIM, and members of RCS in a formal partnership dedicated to improving the quality of clinical data. The main elements were now

in place to systematically address other documentation, coding, and data quality issues.

Obstetrics Study

Motivated by the next California Hospital Project study on obstetrical outcomes, RCS joined obstetrician and gynecologist Dennis Randall and HIM staff from three medical centers to review the consistency of terminology, documentation, and coding for vaginal and cesarean deliveries. They found that although the national coding guidelines are quite comprehensive, they nevertheless leave considerable room for physician and coder interpretation. What is an obese mother? What is fetal distress? What is precipitate labor? Input from the obstetricians and gynecologists and coders in the region was solicited at different points in the process. After a year's work, the workgroup issued a 15-page set of new Kaiser-specific documentation and coding guidelines for deliveries. Table 3 illustrates some of these guidelines.

Surgical Anemia

The most daunting task thus far has been developing guidelines for intraoperative and postoperative blood loss anemia. ICD-9-CM coders have long struggled to gain physician agreement on expected blood loss during and after surgery. Coding surgical "complications" is still a nationally recognized problem that has yet, to our knowledge, to be solved.

Surgeon Kristine Steensma worked for almost 18 months to obtain agreement from KPNCR surgeons on accepted intraoperative and postoperative blood loss for most common surgical procedures. Detailed KPNCR-specific documentation and coding guidelines are now in place, providing more consistent data for risk adjustment of medical outcomes and identification of best clinical practices.

Table 3
KPNCR-specific Obstetric Documentation and Coding Guidelines:
Average Length of Time for Stages of Labor and ICD-9-CM Codes for Abnormal Length of Labor

Stage of Labor	Description	Parity	Average Length of Labor Time	Abnormal Length of Labor Codes (>Average in Total Hours)	Abnormal Forces of Labor Compatible Codes**
First Stage	From start of uterine contractions to full cervical dilatation				
First Stage Latent Phase	Beginning of regular contractions to 3-5 cms dilatation	Nulliparous Parous	10-20 hours 6-14 hours	662.0x	661.0x
First Stage Active Phase	3-5 cms dilatation to complete dilatation	Nulliparous Parous	6 hours 4 hours	662.0x	661.2x 661.3x 661.4x
Second Stage	Complete dilatation to delivery of infant	Nulliparous Parous	2 hours* 1 hour*	662.2x	661.1x
Total Labor Time	Beginning of regular contractions to delivery of infant	Nulliparous Parous	12-13 hours*** 8-9 hours***	662.1x ***	

* Extended by 1 hour when conduction analgesia is used, e.g. epidural.
** Use these codes when documentation supports or after referring to physician.
***It should be remembered that these are average lengths of time and the code for Prolonged Labor 662.1x (total labor experience) would not be used unless the patient was in labor greater than 18 hours as indicated in the ICD-9-CM code book.

Additional Studies

Now that the principle of documentation and coding consistency is fairly well understood by all the involved parties, we hav

e been able to complete many other diagnostic and procedural studies. During the last three years we have created guidelines for diabetes mellitus (Table 4), "history of smoking" versus "current" smoking (Table 5), and renal failure versus renal insufficiency. We are currently creating guidelines for newborns, pulmonary diagnoses and vascular access, and end-stage renal disease (ESRD) procedures.

Table 4
Documentation for Diabetes Mellitus

Diabetes Type	Status	Manifestations
Select one: Insulin Dependent ❑ Absolutely dependent on insulin; required to sustain life Insulin Requiring ❑ Patient who requires insulin for optimal control (now insulin dependent) ❑ Patient who requires insulin for optimal control but remains non-insulin dependent Non-Insulin Dependent ❑ Patients whose diabetes may be controlled by oral medications, diet, or exercise Select if administered: ❑ Insulin given during this hospitalization only	Select one: ❑ controlled ❑ uncontrolled • Present on admission or at any time during hospitalization • Northern California Region has established the guideline for uncontrolled as blood sugar of 300 or greater Excludes: pregnant diabetic women with blood sugar of 180 or greater Related Disorders ❑ Hyperglycemia ❑ Hypoglycemia ❑ Gestational Diabetes (Type 4) ❑ Steroid Induced Diabetes	Select as appropriate: ❑ Ketoacidosis ❑ Nonketotic coma ❑ Coma with ketoacidosis Please indicate specific manifestations under appropriate category: ❑ Renal manifestations _____ ❑ Ophthalmic manifestations _____ ❑ Neurologic manifestations _____ ❑ Peripheral circulatory disorders _____ ❑ Other specified manifestations _____

Physician signature _____ Date: _____

NCQA Accreditation

Recently, the health information/physician partnership was enlisted to prepare for the medical records portion of an upcoming National Committee on Quality Assurance (NCQA) accreditation survey. This new external pressure has moved the partnership's expertise into the outpatient arena and the rapidly evolving computer-based patient record. During this period of transition, KPNCR's medical record is a combination of both paper and electronic components.

The NCQA survey has led to two large outpatient objectives. First, each member's baseline clinical history normally contained on the problem list in the paper record is being converted into a digitized format in our computer-based record. This will be accomplished though a scannable questionnaire completed by our members and supported by our clinical staff. Second, we are asking our providers to work from an online problem list started in the scannable questionnaire but edited and maintained by them. This will require an enormous educational effort. The goal is to create provider ownership of the problem list by demonstrating that it will help them practice better medicine while it builds a clinical database. Because we now have a healthy partnership between health information and the providers in all our facilities, we believe we can make significant progress toward accomplishing these ambitious goals.

Table 5
Coding Guidelines: Current Smoker Versus History of Smoking

Note: The term smoking includes all tobacco products (cigarettes, cigars, chewing tobacco, pipes).

If Chart Documentation Suggests:	Coders Will Use:
a) Never smoked	No Code
b) Has a smoking history but has not smoked for at least one year. Includes OB patients with past history of smoking.	V15.82
c) Has a smoking history but no further information is documented regarding date patient last smoked. Includes OB patients.	V15.82
d) Current smoker, or has smoked within past year.	305.1 (648.4x + 305.1 if OB patient)
e) Exposure to secondhand smoke. Coded when documented that patient has been exposed to smoking but does not currently smoke.	E869.4 (Northern California Region specific coding guideline)

Why the Partnership Works

Clearly, the key to these successes has been new physician leadership. The process was expedited by external forces that forced the organization to confront the realities of a new healthcare marketplace. Although we still have providers who don't understand why they cannot just practice medicine and health information personnel who have not yet adjusted to increased physician involvement in health information, we now elicit fewer glassy-eyed nods in response to our discourse on the importance of quality data.

Everybody now agrees that the quality of data is critical to the survival of a healthcare enterprise. Nevertheless, in this era of diminishing resources, obtaining funding for expensive data quality initiatives is difficult. Critical to your success is the creation of a partnership of health information managers with enlightened providers who understand the meaning of consistent, quality data. It is the key to their survival. And yours.

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