5 Understanding Drug Expense Using Administrative Data

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Introduction

Myriad sources of data exist to help pharmacy managers analyze their pharmaceutical usage and expense. These sources may include purchase invoices from wholesalers and distributors, medication use evaluations (MUEs), benchmarking projects, chart reviews, and surveys. To manage pharmaceutical resources successfully, managers must seek to identify these sources and learn how to transform these data into useful information to support decisions that ultimately will affect patient safety, quality of care, and the pharmacy budget. The focus of this chapter is to introduce the concept of using administrative datasets as one source of information to help clinically support the financial management of pharmaceutical resources. The fundamentals of setting up a dataset or applying statistical interpretation will not be covered; instead, this chapter will provide managers with an outline on how administrative data can lend powerful insight to the practice patterns of the institution and can monitor compliance with national or local evidence-based guidelines.

Background

Administrative data is generated anytime a patient has an encounter with a provider or facility and for which reimbursement for those services is sought. Although there are many sources of administrative data (enrollment into insurance plans, claims from hospitals, claims from providers, pharmacy claims, etc), this chapter will refer to data that are generated from acute care hospitalizations that contain demographic information on the patient, the diagnoses assigned, procedures performed, related clinical resources consumed, and any other elements typically associated with the encounter (admission/discharge dates, associated physicians, etc.). Information that is typically not administrative in nature, and therefore not usually part of these datasets, is patients' attributes, such as laboratory values, vital signs, and satisfaction or quality of life scores. The power of administrative data is that it allows individuals to associate drug usage and patient outcomes (length of stay, cost, morbidity and mortality, etc.) within specific, clinically defined populations.[1,2,3] This is complementary to the typical information gathered from purchase invoices, showing trends of what was purchased and when, to where and by whom the medications are being used.

This chapter narrows the scope to consider only the administrative datasets typically available at the institution and most pertinent to inpatient discharges. Hospitals vary in terms of how robust their administrative datasets are, as well as how user friendly they are in locating the information and generating queries. These databases are typically used by the hospital's quality or performance improvement departments but can also be found within the finance or billing offices. Many hospitals or health systems have a centralized data warehouse, or what is often called a clinical decision support system (CDSS), to analyze combined administrative, clinical, and financial data. Commercial software products and/or service companies exist that offer products to create and maintain these systems, but some institutions have homegrown systems in place.

Terminology

The Basics

Many pharmacists have had limited exposure to the elements found within administrative datasets. Their attention should be focused on the core elements of the administrative dataset; those essential pieces of information needed to conduct an analysis and that are also typically most readily available. Once the capabilities of the internal systems and data that are available have been investigated, a pharmacy manager might find that more information (lab values, patient satisfaction scores, etc) will make analysis much more robust. For ease of discussion, these core elements will be segregated into two groups, one called encounter level and the other the line item detail level (see Table 5.1). For most hospitals, the backbone of the encounter level is generated from the information supplied on the National Uniform Billing Committee's (NUBC) uniform billing form of 2004 (UB-04), also known as the CMS-1450 claim form. The NUBC membership includes participation from all major national provider and payer organizations and is responsible for developing a single billing form and standard dataset that can be used nationwide for submission of claims. Although 86 total elements are collected on the UB-04 form, the core elements considered here are defined in Table 5.1 and typically represent the patient level information that informs the insurer about the patient's encounter.

The line item detail level data is not on the UB-04 form, and is sourced from the pharmacy system, the electronic medical record, or the medication administration record and provides the transaction level detail on what the patient received (Table 5.1). For most institutions, these two groups of data are often combined and obtained from the CDSS.

Coding

The backbone of all administrative databases is the coding. The user of this data must be familiar with the coding system used to identify diseases and procedures and must understand the local coding practices within the health information management department when analyzing data. Most clinical information within administrative datasets employs the use of International Classification of Diseases, Ninth Revision (ICD-9) codes to document the diagnoses assigned and procedures performed for patients. This system, maintained by the World Health Organization (WHO), was designed for the classification of morbidity