



Establishing benchmarks and metrics for utilization management

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ABSTRACT

The changing environment of healthcare reimbursement is rapidly leading to a renewed appreciation of the importance of utilization management in the clinical laboratory. The process of benchmarking of laboratory operations is well established for comparing organizational performance to other hospitals (peers) and for trending data over time through internal benchmarks. However, there are relatively few resources available to assist organizations in benchmarking for laboratory utilization management. This article will review the topic of laboratory benchmarking with a focus on the available literature and services to assist in managing physician requests for laboratory testing.

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1. Introduction

As a result of the changing healthcare environment, many clinical laboratories are designing quality improvement initiatives and identifying cost reduction strategies. One common target which not only reduces healthcare costs but also improves laboratory processes and patient care is utilization management of laboratory testing. Strategies for utilization management are discussed in detail in other chapters (e.g. redesign of requisitions, changing standing orders, provider order entry and clinical decision support, physician profiling, educational initiatives, implementing admission templates, eliminating obsolete tests and instituting testing algorithms) [1–7].

Benchmarking is one tool that is frequently utilized to assess clinical laboratory performance and to inform quality improvement initiatives such as utilization management [8,9]. In the clinical laboratory benchmarking has historically been utilized for performance indicators such as productivity, assessing testing costs and determining the appropriate staffing mix. Benchmarking for financial and operational targets such as utilization management also exists [10]. Benchmarking data can drive process improvement and assist laboratories to compare their performance to an explicit standard, either locally or nationally [11–13]. As laboratories strive to identify best practices and set appropriate targets for utilization management, benchmarking data can be invaluable. It can also be an impetus to engage colleagues in decision-making surrounding utilization management and to demonstrate the value of the laboratory [6,9,11–13]. In conjunction with utilizing benchmarking tools, laboratories need to define appropriate internal metrics to assess the success of utilization management strategies and to identify future opportunities [14].

A survey by Chi Solutions in 2006 showed that 56.5% of hospital clinical laboratories utilize benchmarking to some extent [9]. Of the

56.5%, 11.8% utilize internal benchmarking and 32.9% use subscription services such as Chi Solutions. The remaining 55.3% submit and receive data as a part of their internal hospital-wide benchmarking program. This chapter will discuss available external and internal benchmarking tools for utilization management as well as their advantages and disadvantages. The development of metrics to measure success will also be reviewed.

2. External benchmarking

Many clinical laboratories choose to use external sources including subscription services, laboratory professional organizations and/or shared peer data for establishing benchmarks for utilization management. External benchmarking can be a valuable resource, but potential limitations of the data should be understood. Before participating in external benchmarking and determining which source to utilize, laboratories should determine what they hope to gain and how they will utilize the results [13].

2.1. Consulting or subscription services

Consulting or paid subscription services are available such as Chi Solutions (<http://chisolutionsinc.com/>) or Intertek (<http://www.intertek.com/outsourcing/laboratory/benchmarking/>). With these services individual laboratories submit requested data related to test utilization typically quarterly or bi-yearly. Specific metrics will be discussed later in the chapter. Prior to submission, in order to ensure uniform data collection, most services provide detailed instructions to laboratory directors that clearly define each metric. In addition, laboratories must also provide basic information regarding their operations such as the size of the laboratory, affiliation with a medical school, budget, test complexity (e.g. CPT codes) and scope of clinical services that they support (e.g. pediatrics, transplant) so that the benchmarking organization can place the laboratory into the most appropriate peer group. Once all

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the data from each laboratory is received, the benchmarking service performs the data analysis and provides each laboratory with a detailed report, usually electronically. The report typically displays the metrics among the peer group, demonstrates any trends or drifts and summarizes and interprets the laboratories performance. Some services also provide a breakdown of performance by individual specialty laboratory (e.g. chemistry, hematology).

2.2. Pathology or healthcare organizations

Pathology or healthcare professional organizations such as the College of American Pathologists (CAP) (www.cap.org/) and the University Health Consortium (<https://www.uhc.edu/>) also offer a variety of benchmarking services. CAP conducts Q-probe studies on various aspects of laboratory performance and supports Q-tracks which provides continuous monitoring of a targeted area in the clinical laboratories. Recent Q-probes have compared laboratory turnaround time, staffing and productivity [11,13]. To date, neither Q-probes nor Q-tracks have investigated benchmarking for utilization management.

The Laboratory Management Index Program (LMIP) is a paid subscription service through CAP which replaced its previous workload recording system in the early 90s [9,10]. Laboratories submit data quarterly on various metrics. In 2001 a LMIP study looked at trends in laboratory efficiency, laboratory productivity and test utilization in 73 clinical laboratories from 1994 to 1999 [14]. It was the first national, multi-institutional study of clinical laboratory utilization. In the study the authors found that reference laboratory expenses per test did not change significantly over a 6-year period. Although the proportion of tests sent a reference laboratory grew slightly (3.06% increase/year, $p < 0.001$) the average percentage of tests sent to reference laboratory was $< 2\%$ [14]. The authors also reported an increase in the number of tests/year but a decrease in the proportion of testing from inpatients. An annual decline of 4.60 inpatient tests per discharge and an annual decline of 3.36 inpatient tests per hospital day were reported [14]. The authors postulated that the decrease was due to more parsimonious use of laboratory tests, since the acuity of patients had increased. Two strengths of this study were that one, only laboratories that continuously participated in the program were compared so that the data would not be skewed and, two, strict standards for how tests were counted were employed.

The UHC provides not only healthcare benchmarking but also laboratory benchmarking opportunities. Unfortunately the laboratory services that accompany the benchmarking tools have lagged behind the support provided for hospital benchmarking which currently includes consultative site visits and a dedicated support line. However, a UHC 'listserv' is available for laboratorians, who are members of UHC, to pose questions to their colleagues. The UHC then consolidates the answers, distributes them via email and posts them on their website. UHC recently published a comparison of tests per discharge for 16 similar hospitals and found that it ranges from 34.8 tests/discharge to 94.1 tests/discharge. These results are useful for all laboratories to benchmark inpatient test utilization against their peers and to identify areas of improvement in those laboratories whose results deviate significantly from the mean. Once the relative standing of an individual hospital is established it is important to follow the metric over time to assess if any progress has been made in reducing potential overutilization as shown in Fig. 1.

2.3. Published guidelines and literature

Published guidelines or peer-reviewed literature describing diagnostic testing algorithms, practice standards or interpretative guidelines can be helpful as benchmarks for utilization management [4,7,15]. While guidelines and practice standards usually do not allow laboratories to quantitatively compare their test utilization to other laboratories, guidelines and standards can provide laboratories with evidence to

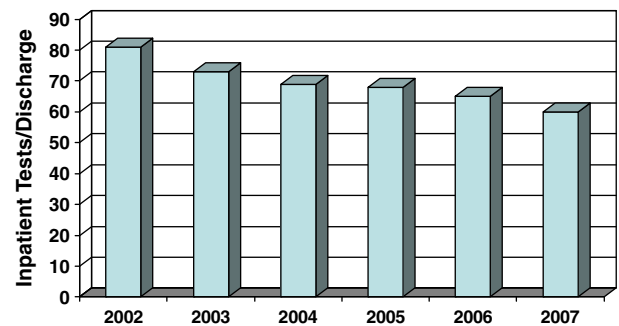


Fig. 1. Annual inpatient tests per patient discharge over time.

decrease inappropriate test utilization and/or encourage the correct diagnostic testing to be ordered [4,7,15]. Wu et al. [7] recently listed several antiquated tests in the laboratory and provided evidence such as poor test performance or limited clinical utility for their discontinuation. As a supplement to published articles, CAP proficiency testing surveys are a valuable resource as the surveys can identify tests which are decreasing in volume and may be targets for utilization management.

A study in 1993 from the LabTrends Hospital Laboratory Comparative Program described benchmarking in the clinical laboratory [16]. While the article focused on financial and operational performance including test costs, staffing mix, productivity and organizational structure, the study also reported on utilization and factors affecting utilization. The authors showed that inpatient tests/discharge were higher in academic teaching hospitals in which residents ordered tests vs. non-teaching hospitals in which medical staff ordered tests acknowledging that patient acuity was also a factor. The study concluded that hospital size, length of stay, case mix and teaching vs. non-teaching were important factors to consider when examining test utilization. Most of these factors are now incorporated into the selection of peer groups for external benchmarking as discussed earlier.

2.4. Benefits

External benchmarking allows laboratories to compare their data to national standards, learn best practices, set achievable goals and modify processes and utilization management accordingly (Table 1). External benchmarking, in many cases, can provide a more realistic gauge of success. For example, a clinical laboratory may modify their admission templates to reduce the volume of an antiquated test such as CK-MB [7]. Several months after the intervention, the orders for CK-MB may have declined and the laboratory may declare success. However, external benchmarking may reveal that most other clinical laboratories in the peer group have eliminated CK-MB testing completely. This data may prompt the laboratory to change its goal and introduce additional interventions to eliminate CK-MB testing [14]. While external benchmarking may not clearly identify what is considered appropriate test utilization,

Table 1
Advantages and disadvantages of external benchmarking.

Advantages	Disadvantages
1. Allows laboratories to compare themselves to national standards, set realistic goals and learn best practices	1. Lack of data currently available on establishing benchmarking for utilization management
2. Provides data that can be utilized to further improve utilization management	2. Many forms of external benchmarking cost money
3. Allows laboratories to determine if their test utilization is significantly different than most other laboratories	3. Selection of peers may not be ideal and well-defined standardized metrics may not be utilized, making data difficult to interpret
4. Data analysis performed by others reducing time commitment from laboratory directors	4. Laboratory directors need to insist on having control of submitted data

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