

The Effect of Utilization Review on Emergency Department Operations



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Study objective: Increasingly, hospitals are using utilization review software to reduce hospital admissions in an effort to contain costs. Such practices have the potential to increase the number of unsafe discharges, particularly in public safety-net hospitals. Utilization review software tools are not well studied with regard to their effect on emergency department (ED) operations. We study the effect of prospectively used admission decision support on ED operations.

Methods: In 2012, Los Angeles County + University of Southern California Medical Center implemented prospective use of computerized admission criteria. After implementation, only ED patients meeting primary review (diagnosis-based criteria) or secondary review (medical necessity as determined by an on-site emergency physician) were assigned inpatient beds. Data were extracted from electronic medical records from September 2011 through December 2013. Outcomes included operational metrics, 30-day ED revisits, and 30-day admission rates. Excluding a 6-month implementation period, monthly summary metrics were compared pre- and postimplementation with nonparametric and negative binomial regression methods. All adult ED visits, excluding incarcerated and purely behavioral health visits, were analyzed. The primary outcomes were disposition rates. Secondary outcomes were 30-day ED revisits, 30-day admission rate among return visitors to the ED, and estimated cost.

Results: Analysis of 245,662 ED encounters was performed. The inpatient admission rate decreased from 14.2% to 12.8%. Increases in discharge rate (82.4% to 83.4%) and ED observation unit utilization (2.5% to 3.4%) were found. Thirty-day revisits increased (20.4% to 24.4%), although the 30-day admission rate decreased (3.2% to 2.8%). Estimated cost savings totaled \$193.17 per ED visit.

Conclusion: The prospective application of utilization review software in the ED led to a decrease in the admission rate. This was tempered by a concomitant increase in ED observation unit utilization and 30-day ED revisits. Cost savings suggest that resources should be redirected to the more highly affected ED and ED observation unit, although more work is needed to confirm the generalizability of these findings. [Ann Emerg Med. 2017;70:623-631.]

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INTRODUCTION

Since the Social Security Act of 1965, the Centers for Medicare & Medicaid Services (CMS) has issued retrospective payment denials for an increasing number of medical services deemed inappropriate.¹ In 2013, CMS reported an improper payment rate of 8% for inpatient hospital services, with an estimated cost of approximately \$9.4 billion.² These errors in reimbursement account for nearly a quarter of the overall Medicare fee-for-service improper payment rate and are a focus of the national call to reduce excessive health care expenditures.^{1,2}

As one solution to this crisis, utilization review has been increasingly used by hospitals, managed care organizations, and public and fee-for-service payers to ensure accuracy of

care, time, place, and cost.^{3,4} To align with CMS recovery audit contractors by identifying inpatient stays that may subsequently be deemed inappropriate, hospital systems across the United States are incorporating commercial evidence-based admission decision support software into their daily operations. Such decision support tools are intended to reduce the number of denied days, minimize variations in care across hospital systems through standardized criteria, and improve transparency between health care providers and payers.⁵ They may be used in a prospective manner such that medically unnecessary stays are avoided by screening before admission, or more commonly in a concurrent manner such that inpatient admissions are reviewed daily to reduce denied days and optimize the level of care.

Editor's Capsule Summary*What is already known on this topic*

Reducing unnecessary admissions from the emergency department (ED) can help contain costs in resource-constrained hospital environments.

What question this study addressed

The authors analyzed the effect of prospective structured utilization review software on admissions in over 245,000 visits to a public hospital ED.

What this study adds to our knowledge

Review decreased ED inpatient admissions by an absolute 1.4%, whereas observation unit utilization and 30-day revisits increased by 0.9% and 4.0%, respectively. Estimated savings were \$193 per ED visit.

How this is relevant to clinical practice

Utilization review appeared to decrease some disposition outcomes but increase others. More detailed understanding of costs versus benefits is needed.

Although utilization review is increasingly widespread, there is concern that it could potentially overreach and prioritize cost containment, possibly at the expense of patient outcomes.⁶ In 1989, the Institute of Medicine urged researchers to study the effect of use management on the delivery of patient care.⁷ Since then, few studies have been published on the effect of utilization review on cost containment, achieved through a reduction of admissions and denied days.⁸⁻¹¹ As a result, relatively little is known about the influence of utilization review on the quality of patient care, patient safety, and operations. In this study, we examine the effect of prospective admission decision support software on patient disposition and 30-day ED revisits at a large, urban, safety-net hospital during a 22-month period.

MATERIALS AND METHODS

Los Angeles County + University of Southern California Medical Center is an urban, public, safety-net hospital with an emergency department (ED) patient volume of approximately 170,000 visits annually. In the fall of 2012, the center implemented admission decision support through InterQual (versions 2012 and 2012.2; McKesson, Newton, MA). Previously, the California Department of Health Care Services used a treatment authorization request process to perform 100% utilization review for Medicaid fee-for-service (inpatient stays). In 2008 to 2010, the Department of Health Care Services piloted and expanded

a program using standardized, evidence-based review criteria through decision support software.

This software package is linked in real time with the admissions process as follows: Using the admission decision support tool, all requests of admission are screened by utilization review nurses located within the ED 24 hours a day. Admissions that meet decision support tool appropriateness criteria are allowed to proceed with bed assignment. Admissions that do not meet appropriateness criteria are referred to another on-site emergency physician to review for medical necessity. Cases deemed medically necessary on secondary review are then allowed to proceed with bed assignment. All patients being considered for admission were screened by utilization review nurses with this software regardless of insurance (eg, Medicare, Medicaid, uninsured). Because some private insurers (health maintenance organizations) do not require prospective admission review as a condition of reimbursement for inpatient stays, criteria were not applied for stabilized patients authorized for transfer to hospitals covered by private insurance. Patients who underwent and did not pass secondary review for medical necessity were either discharged or observed in an observation unit. Decision support criteria for observation level of care were not used.

This retrospective study included all adult patient (18 years and older) visits to the Los Angeles County + University of Southern California Medical Center ED from September 2011 through December 2013. Incarcerated patients and behavioral health visits were excluded from this analysis. The study was approved by the University of Southern California Institutional Review Board.

Implementation of this utilization review process was initiated in the fall of 2012 in a stepwise fashion, starting with informal admission review and provider training. The formal review process, involving a "hard stop" on bed assignments pending approval, started in January 2013. To allow a clear comparison between pre- and postimplementation operations, patient visits in the 6-month rollout period (August 1, 2012, to January 31, 2013) were excluded. **Figure 1** depicts the number of ED visits, exclusions by category, and final number of visits analyzed.

The following operational data, summarized by month, were abstracted from the ED Information System (Wellsoft, Somerset, NJ): patient demographics (monthly average age and sex distribution), initial Emergency Severity Index score, ED volume, average ED length of stay (defined as arrival to departure time), observation unit length of stay (defined as arrival to ED to departure from the observation unit), 30-day ED revisit rate, and 30-day admission rate. The 30-day admission rate was defined as

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