

California's Emergency Departments: Do They Contribute to Hospital Profitability?

July 2003

Background

Rising health care costs, growing demand, and a sluggish economic climate continue to fuel concern about the stability of California's hospital emergency medical system. Recently published reports¹ echo the widely held belief that California's hospital-based emergency departments (EDs) could be forced to close as their mounting financial losses threaten the economic viability of hospitals themselves.

Yet until now, there has been little systematic research about how EDs influence overall hospital financial health. This issue brief is based on a research project commissioned by the California HealthCare Foundation (CHCF) and conducted by the USC Center for Health Financing, Policy & Management in the School of Policy, Planning, and Development. It is the fifth in a comprehensive series of issue briefs published by CHCF on the capacity, use, and financial performance of the state's emergency departments. The study sought to help answer the following questions:

- Is there an ED system crisis in California?
- How do EDs contribute to overall hospital financial performance?
- Is the type of ED linked to cost issues?

Comprehensive economic analysis demonstrates that emergency departments and their financial

performance must be evaluated as part of a hospital's overall operation, rather than as independent business units. While EDs do consume a disproportionate share of hospital resources, they also provide a significant and growing percentage of new patient admissions, making them an increasingly valuable source of hospital profits.

Methodology

This issue brief provides a new perspective on the economic contributions and costs of EDs. It examines:

- ED costs in the context of hospital-wide operations; and
- the economic costs of EDs by type.

The study used data from California's general acute care hospitals as reported to the Office of Statewide Health Planning & Development (OSHPD). Statewide data from 1990 through 2000 are presented in the earlier issue brief, *California's Emergency Departments: System Capacity and Demand*, published in April 2002. Please refer to that issue brief for more detailed notes regarding data sources and study methods.

Traditional Accounting Model

Data are reported to OSHPD based on a traditional accounting model used by hospitals

to allocate costs and revenue. But traditional accounting methods have a number of important limitations. They are not standardized, so information often varies from one hospital to the next, and important costs (and revenue) generated by EDs are systematically overlooked. The traditional accounting model also doesn't recognize some important direct, indirect, and ancillary costs for emergency departments. For example, direct costs such as ED nurse managers, physician guaranteed revenue, physician malpractice premiums, costs of on-call specialists, and intensive care unit nurses who spend time in the ED are often accounted for in other hospital departments. In addition, the traditional accounting model allocates indirect costs (for example, physical plant, administration, and overhead that help to support the ED) based on arbitrary measures such as percentage of square footage or revenue in the hospital. Finally, the costs of ancillary services associated with treating emergency department patients, such as diagnostic imaging, laboratory, etc., are not allocated to the ED under the traditional accounting model.

While EDs generate costs in excess of those recognized by the traditional accounting model, they also generate more revenue than this method captures. None of the revenue generated by patients admitted to the hospital through the emergency department is credited to the ED under the traditional accounting approach; nor is the revenue generated by payments for ancillary services.

New Statistical Accounting Model

The USC Center for Health Financing, Policy & Management research team developed a new statistical accounting model that more accurately captures these overlooked costs and revenues. The model used

regression techniques that allowed the researchers to estimate the incremental effects of emergency departments on total costs and revenue, producing a more comprehensive view of the ED contribution to overall hospital financial performance. An advisory committee including hospital finance experts, ED administrators, ED physicians, and others helped to validate the model, which was then applied to California's 245 non-trauma EDs. (Trauma centers were excluded because of complex revenue mechanisms such as government subsidies.) The new statistical accounting model used data for the period 1990 to 1998 to develop inflation-adjusted estimates of the cost per ED visit in 2002 for the different types of emergency departments.

Major Findings

By employing this new accounting model, the study made a number of key findings about the relationship between emergency department costs and hospital financial performance, including:

- *The traditional accounting model under-reports true ED costs.* Traditional hospital accounting methods do not include ED-related costs booked in other cost centers, resulting in under-reporting of actual operating costs. Based on the new statistical accounting model, the cost per emergency department visit was \$292 in 2002, as opposed to \$133 using the traditional accounting model.
- *Even though EDs lose money on each visit, hospitals profit from the inpatient admissions generated by the ED.* While emergency departments lost an average of \$84 in 2002 on each patient treated and discharged on an outpatient basis, ED patients admitted to the hospital generated an average profit of \$1,220 per admission,

thus more than covering the losses generated by emergency department patients not admitted to the hospital.

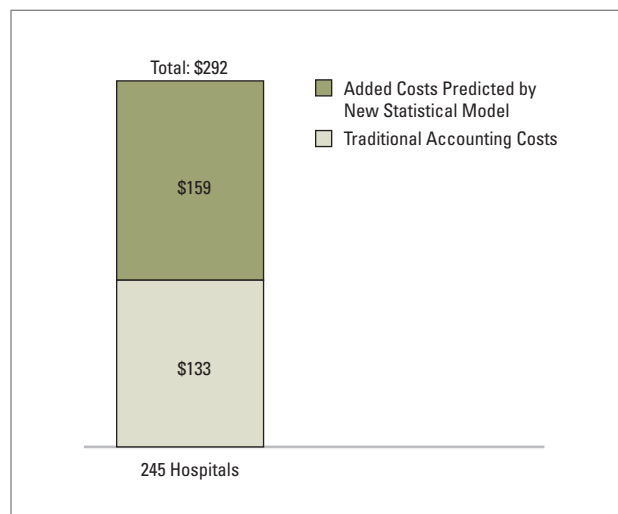
- *EDs must be evaluated as part of the hospital's total operations.* Because nearly one in seven ED visits results in an inpatient admission, EDs continue to be a primary source of hospital inpatients — and overall hospital profitability.
- *ED visit volume, location, and type of facility significantly affect ED costs.* Any one of these three factors can have a large impact on emergency department accounting.

ED Contributions to Hospital Financial Stability

An Alternative Measure of ED Costs

The new statistical accounting model provides a more inclusive estimate of the true economic costs associated with emergency department operations. The total 2002 cost per ED visit using the traditional accounting model was \$133 per visit (for all patients seen in the ED, including those discharged from the ED and those who were admitted as inpatients). But using the new statistical accounting model, the research team estimated the more accurate cost of \$292 per visit for those patients who were seen and then discharged. For patients who were admitted through the ED (14.5 percent of all ED visits), the statistical model estimate for the ED cost per visit was about 7 percent higher than the cost of those discharged as outpatients. These findings indicate that traditional accounting methods capture less than half of the true economic costs of an average emergency department visit (see Figure 1).

Figure 1. Traditional Accounting vs. New Statistical Model: Cost Per ED Visit in 2002



Hospital and ED: Inextricably Linked Performance

A key aspect of the analysis involved tracking the inter-relationship between inpatient departments and EDs. Study findings suggest that in most hospitals, inpatient operations are so dependent on emergency departments as to make them inextricable. Even though ED per-visit costs were significantly higher under the new statistical accounting model, and even though emergency departments lost an average of \$84 in 2002 on each visit in which the patient was treated and released, hospitals more than compensated for these losses through the inpatient admissions generated by EDs. The estimated average profit per inpatient admission was \$1,220. (Hospitals also lost \$26 on each outpatient non-ED clinic visit.)

EDs: A Growing Source of Inpatient Admissions

The interdependence between inpatient and emergency department financial performance becomes even more evident when the ED is viewed as a source of inpatient admissions for the hospital. Over the study period, California's EDs increased their role as a pivotal point of inpatient entry.

Over the study period, both ED visit volume and the percentage of emergency department patients admitted to the hospital increased. In 1990, 13.5 percent of patients visiting an emergency department were admitted as inpatients. By 1998 this percentage had risen to 14.7 percent.

Based on the study sample of non-trauma EDs, the percentage of inpatients admitted through emergency departments represented 31 percent of total inpatient admissions in 1990. By 1998, emergency departments accounted for, on average, 38 percent of the state’s 245 non-trauma center hospital inpatient admissions. (The 32 trauma center hospitals also have seen their admissions from EDs rise, from 33 percent of total admissions in 1990 to 42 percent in 1998.)

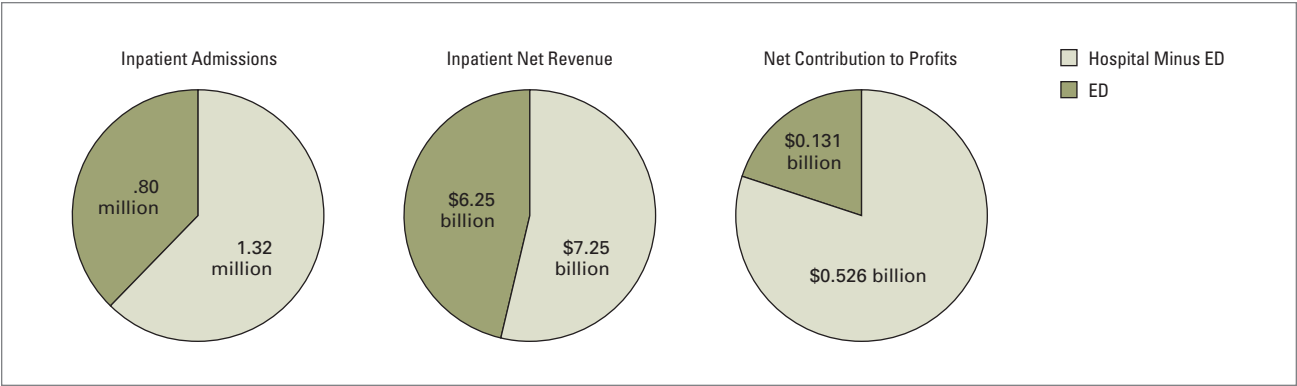
ED Contributions to Hospital Financial Performance

One way to assess the interrelationship between the emergency department and the inpatient side of the hospital is to understand the relative contribution of inpatient and outpatient operations to the overall profitability of California’s hospitals. The study’s new statistical accounting model produced profit and loss estimates for each service unit for hospital inpatient and outpatient operations, including the ED.

Under the traditional accounting model this type of analysis has been infeasible. Managed care, Medicare, and other payers typically include payments for services rendered in the emergency department when patients are admitted to the hospital. As a result, revenue for ED services is credited to the inpatient ledger, rather than to the emergency department where it originated. Similarly, under the traditional hospital accounting model, neither the costs nor the revenue for ancillary services provided to emergency department patients are properly credited to the ED. These limitations have the effect of underrepresenting an ED’s financial contribution as a stand-alone department.

The new methodology was applied to data from 1998, the most current data available at the time of the study, to estimate these broader measures of profits and losses. In that year, there were 2.12 million total inpatient admissions in California’s non-trauma hospitals, including 800,000 admitted through emergency departments. Of the \$13.5 billion in net revenue generated by the 2.12 million inpatients, those admitted through EDs generated \$6.25 billion (Figure 2). The researchers estimated that when looking at hospital total net profits, which were \$657 million in 1998, emergency departments accounted for \$131.4 million, or about 20 percent of total hospital net profits.

Figure 2. Contribution of EDs to Hospital Financial Performance

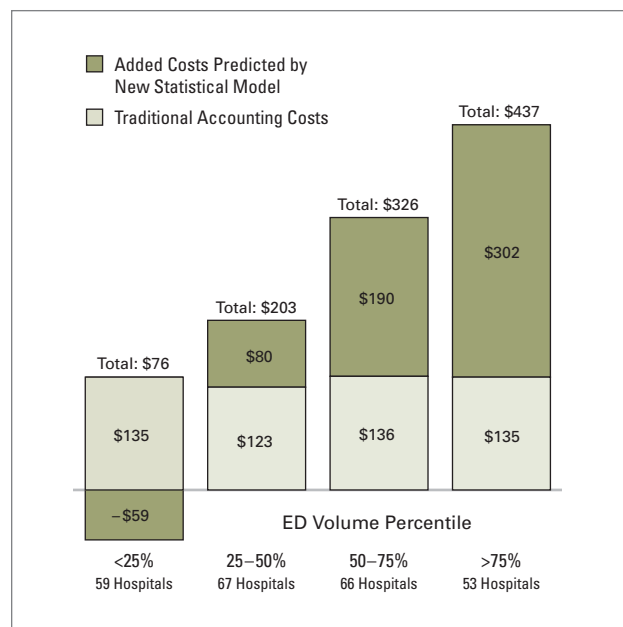


Emergency Department Costs: Variation Among Types of EDs

California's emergency department system is composed of several types of EDs that offer a varying mix of services and capacities. The new statistical accounting model, which captures a more comprehensive picture of total emergency department costs, reveals wider variations in ED costs by type than the traditional accounting method.

For example, the study found that volume matters. The higher-volume emergency departments incur higher per-visit costs (Figure 3). This could be the result of the case mix, available services, range of specialties and cost of on-call physicians, more equipment, more lab work, and other factors associated with higher-volume facilities.

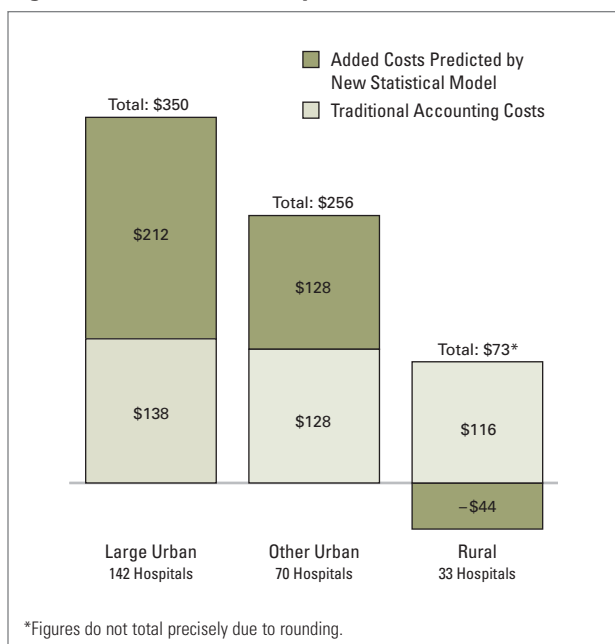
Figure 3. Per-visit Costs by ED Patient Volume



Location also matters. Large urban EDs had the highest per visit costs — \$350 per visit using the new statistical accounting model — compared to smaller urban EDs

(see Figure 4). The study found that rural EDs had the lowest cost per visit (\$73).

Figure 4. Per-visit Costs by ED Location



According to the study, for-profit hospitals had lower per-visit ED costs (\$290) than not-for-profit EDs (\$324), but their costs were higher than “other” hospitals such as public and district hospitals (\$260). More research would be required to determine whether staffing ratios, payer mix, or other factors explain this variation.

Safety-net EDs, or Disproportionate Share Hospitals (DSH), experienced lower costs per visit (\$248) than non-safety-net EDs (\$309). While this would require further study, it is possible that DSH EDs are used to a greater extent for primary care purposes, which are less expensive than acute emergencies, or that these departments simply run leaner and spread costs over higher volume than non-DSH facilities.

Conclusion: EDs Are an Economic Plus to Hospitals

The recent studies² by the California Medical Association report that on average, emergency departments generate insufficient revenue from their billings to cover the costs. While this issue brief confirms those findings, it presents a more complete view of the financial contributions of hospital EDs. The study demonstrates that emergency departments and their financial performance must be evaluated as part of the overall hospital operation. Rather than operating independently, emergency departments draw upon resources maintained by the inpatient side of the hospital, and they represent a source of inpatients that is of significant and growing importance.

Across the state, hospitals have become increasingly dependent on their EDs as a major source of inpatient admissions. One interpretation of these findings is that if a hospital decided to close its ED, it could lose one-third or more of its inpatient admissions, each of which contributes to the hospital's overall financial performance.

In the current economic environment, the ED is an essential department that few hospitals can do without. Today's ED is becoming the "front door" for most hospitals. As such an essential component of the institution, it is therefore unlikely that hospitals will close their EDs.

This issue brief provides a picture of the hospital-based ED system in California based on the experience of the average hospital. It is important to note, however, that the economic landscape for California hospitals is uneven and ever-changing. In some communities, hospitals may generate lower returns from inpatient operations to offset losses on the outpatient side (for

example, due to high levels of uninsured inpatient volume). This is particularly true for hospitals receiving DSH subsidy payments for treating low-income populations (the hospitals covered by this study received more than \$350 million in disproportionate share payments in the last year of the study period). For hospitals in such communities, the emergency department system would indeed be subject to greater financial instability. To the extent that either disproportionate share or other third-party payment for inpatient services is constrained in the future, the delicate economic balance described here could be tipped.

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ENDNOTES

1. California Medical Association, *California's Emergency Services: A System in Crisis* (January 2001); *Emergency Room Crisis: 2nd Annual Financial Loss Report* (November 2001); *A System in Crisis: ER Losses Mount* (February 2003) (<http://www.cmanet.org/publicdoc.cfm/574/1#2>).
2. Ibid.