

# HS&S Strategy OUTLOOK

Summer 2004 Volume Seven, Number Three

## Forecasting Demand For Health Services

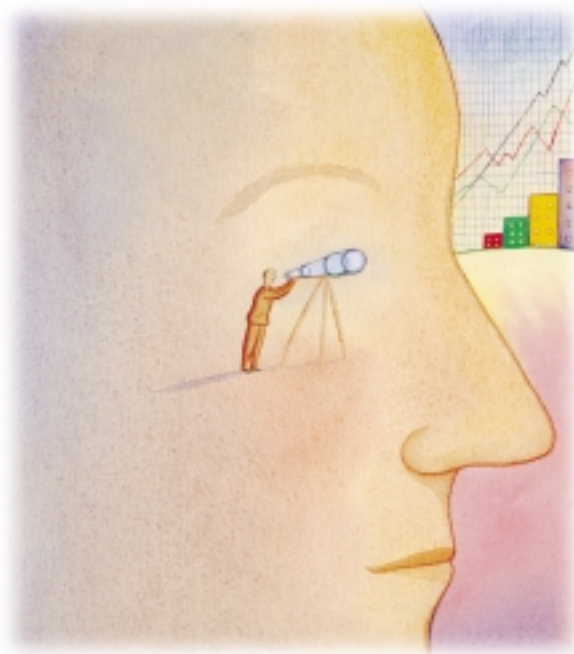
**M**any hospitals and health systems have experienced a significant increase in program and service utilization in recent years. Emergency departments are frequently overcrowded. Critical care beds are in short supply. Keeping pace with the growing demand for ambulatory services, especially for high technology imaging services, has been challenging as well.

Since the demand for many health care services increases almost geometrically across broad age cohorts, population aging is a key factor driving the increased demand in most market areas. Medical and technological advances also play a major role, as more sophisticated diagnostic procedures and new treatment options are made available to a more knowledgeable patient population.

Whether dealing with current capacity constraints, planning to expand programs and facilities in anticipation of future utilization increases, or taking advantage of new market opportunities, hospitals and health systems have become more aware of the need to forecast the future demand for services using comprehensive, carefully constructed models that incorporate as many causal factors as possible. These causal factors fall into two categories: those influencing population-based demand, and those affecting the volume and mix of services at the provider level (see sidebars).

The level of detail required in the demand forecasting model depends on the nature of the question(s) that need to be answered. In some cases, it may be sufficient to forecast total admissions and

[continued on next page](#)



### Causal Factors Influencing Population-Based Demand

- Size and health status of population
- Service area demographics
- Medical practice patterns
- Technology development
- Structure of the delivery system
- Patterns of insurance coverage
- Consumer behavior
- Seasonal factors

### Causal Factors Influencing Provider-Level Utilization

- Competitive market position
- Medical staff capabilities
- Technological capabilities
- Adherence to treatment protocols
- Configuration of services and facilities
- Capacity constraints
- Operational efficiencies

patient days, or total emergency department visits, or total catheterization lab procedures. But other applications require forecasting admissions by product line, patient days by type of nursing unit, emergency department activity by patient type (fast-track, trauma, pediatric, adult), or catheterization lab utilization by procedure type (diagnostic catheterization, PTCA, EPS, device implant, or peripheral vascular procedure).

No matter the level of detail required, there are a series of steps that should be carried out in forecasting future demand for health services.

**Step 1** is to assemble data that reflect the current and/or historical demand for the services in question. Most often, volume or activity data need to be assembled and analyzed along two or three dimensions, such as patient age, patient origin, patient type, product line, procedure type, or setting of care delivery.

**Step 2** is to analyze historical volume trends over at least a three-year period, measuring both absolute and percent change from year to year. Data from multiple sources should be compared to identify and resolve any inconsistencies in the way data are classified or statistics are measured. Any unusual year-to-year changes in activity levels should be investigated to ensure that classification systems or data definitions have not changed in the interim.

**Step 3** is to identify key demand drivers, which fall into several categories, including population growth aging within the service area; changes in population-based use rates due to emerging or anticipated changes in

treatment patterns that are driven by new technologies or the discovery of new uses for existing technologies; changes in market share that might result from planned strategic initiatives, new program development, or medical staff recruitment; changes in patient acuity; or changes in the capacity or structure of the delivery system that might improve accessibility to services.

**Step 4** is to gather external data or benchmarks to provide a point of reference for current or projected use rates. Although there are no normative rates that apply in all situations or all markets, it is important to know if prevailing use rates or practice patterns are very different from what is observed in comparable markets. Other sources for benchmarks include best practice standards, documented treatment protocols, results of clinical trials, or service-specific guidelines or performance measures published by organizations such as the American College of Cardiology or the American College of Surgeons.

**Step 5** is to create a spreadsheet model that best replicates the latest verifiable data and utilization statistics for the entire market area (such statistics are often more than a year old). The approach here is to develop the most reasonable combination of assumptions for the key demand drivers (population, use rates, market share, etc.) in prior years, so that the resulting demand levels (calculated in the model) closely fit the historical data. If the spreadsheet model cannot replicate existing conditions, it cannot be used to predict future demand.

**Step 6** is to develop core assumptions for all of the external demand drivers. The most important assumptions are usually those surrounding future changes in population-based use rates. Sometimes these assumptions are based simply on an analysis of historical trends compared to other markets, an analysis that may suggest whether historical rates of change are likely to accelerate, moderate, or stay the same. At other times, comparing current use rates to regional or national averages will suggest a future direction and rate of change.

The most complex situation occurs when major clinical advances promise to significantly alter current treatment patterns. A recent example is estimating the likely effect of drug-eluting stents on use rates for both coronary angioplasty and CABG surgery. Changes in insurance coverage or reimbursement levels for certain services, or wholesale shifts in payment models, may also contribute to significant positive or negative changes in demand, or may create rapid shifts in the setting where most care is delivered (e.g., from inpatient to outpatient, or from hospital settings to physician offices).

**Step 7** is to develop core assumptions for the “controllable” variables, including projected changes in market share, changes in patient mix or patient flow patterns, or improved operational performance. The key here is to ensure that there are specific actions or strategies (underway or planned) that are likely to result in the changes reflected in the core assumptions. Absent such initiatives, it is unlikely that significant changes will occur.

**Step 8** is to develop a baseline forecast of future demand for all programs, services, and facilities under consideration, typically over a five-year time horizon. The recommended approach is to use moderate assumptions with the external demand drivers to create the baseline estimate of the population-based demand for services. Moderate assumptions should also be used with expected market share changes to create the baseline forecast of future utilization within the organization. Conversely, using

## 9 Steps for Building a Demand Model

1. Assemble historical data
2. Analyze historical trends
3. Identify key demand drivers
4. Identify relevant benchmarks
5. Replicate existing conditions
6. Develop core assumptions for external factors
7. Develop core assumptions for controllable variables
8. Create baseline forecast
9. Carry out sensitivity analyses

## HS&S Bookstore

### *Allies or Adversaries: Revitalizing the Medical Staff Organization*

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Craig E. Holm, CHE, CHC

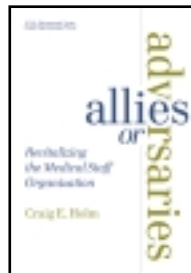
In many health care organizations, the medical staff organization has evolved into a mandated entity that exists to fulfill credentialing and accreditation requirements, rather than being a vital and strong organization that facilitates meaningful physician-hospital collaboration. Will medical staff organizations be allowed to languish into near uselessness or will their potential to be a forum for vibrant and meaningful collaboration be tapped?

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### *Competing on Excellence: Healthcare Strategies for a Consumer-Driven Market*

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Alan M. Zuckerman, FACHE, FAAHC and Russell C. Coile, Jr.

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somewhat aggressive performance improvement targets (shorter length of stay, more rapid patient throughput) is a good idea, since it tends to moderate the increase in resource requirements (staffing levels, facility capacity) that might otherwise accompany projected increases in patient volume. In any case, the baseline forecast should represent the most likely set of assumptions regarding future conditions.

### Step 9

is to test the sensitivity of the demand forecast to changes in certain of the core assumptions. The sensitivity of the forecast may be tested by changing one variable or one assumption at a time, or by creating alternative scenarios where several of the core assumptions are changed at once. The purpose of this analysis is not to create such a broad range of potential outcomes that decision-makers are afraid to act. Instead, the objective is to determine whether there is a likely combination of assumptions that might cause a decision to grow programs or expand facilities to change from what is indicated by the baseline forecast.

### Here are a few final thoughts and observations regarding demand forecasts:

- No trend continues forever
- Assumptions for key demand drivers must be compatible with one another
- Benchmarking against the best will often provide the impetus for projecting more than incremental change
- Lack of good information is often a barrier to sound strategic decision making
- Beware of decisions that only make sense under the best-case scenario

Hugo J. Finarelli, Jr., Ph.D., is a director of Health Strategies & Solutions and a recognized expert on quantitative analysis and demand forecasting.



### *Improve Your Competitive Strategy: A Guide for the Healthcare Executive*

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Build and maintain a competitive advantage with *Improve Your Competitive Strategy*. This book explains various competitive strategies and how you can apply them at your organization.

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### Society for Healthcare Strategy and Market Development

Craig Holm: "How to Address the Potential Development of a Specialty Hospital in Your Service Area...with Your Medical Staff," September 10 in Palm Springs

### Healthcare Council, National Capital Area

Alan Zuckerman: "Futurescan: Healthcare Trends and Implications 2004-2008," September 15 in Washington, D.C.

### American College of Healthcare Executives

Alan Zuckerman: "Futurescan: Healthcare Trends and Implications 2004-2008," September 22 audioconference  
Alan Zuckerman: "Strategic Planning from Formulation to Action," October 25-26 in San Francisco



**Tyler & Company Northeast  
Advisory Board**

Alan Zuckerman: "Futurescan: Healthcare Trends and Implications 2004-2008,"  
September 24 in Philadelphia

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**Connecticut Hospital Association  
Health Care Leadership Summit**

Alan Zuckerman: "Competing on Excellence: Healthcare Strategies for a Consumer-Driven Market," September 29 in Wallingford, CT

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**Amerinet Central and the Hospital  
Council of Western Pennsylvania, October  
15 in Warrendale, PA**

Craig Holm: "Building the Medical Staff Organization of the Future"

Tracy Johnson and Robert Hill: "Strategic Capital Planning and Prioritization"

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**Region 7 Healthcare Financial  
Management Association Symposium,  
October 21-22 in Chicago**

Craig Holm: "Building the Medical Staff Organization of the Future"

Tracy Johnson and Robert Hill: "Strategic Capital Planning and Prioritization"

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**Off the Press Recent Articles**

"The Importance of Being Earnest about Your Business Plan," by Alan Zuckerman, August issue of *Healthcare Financial Management*.

For article reprints, please contact

Roxanne Jackson at [rjackson@hss-inc.com](mailto:rjackson@hss-inc.com)

or (215) 636-3500, ext. 100.



**Above l to r:** Robert Hill, Christine Markham, Keith Pryor, Tracy Johnson, Craig Holm, Alan Zuckerman and Hugo Finarelli

**HEALTH STRATEGIES  
& SOLUTIONS, INC.**

8 Penn Center  
1628 John F. Kennedy Boulevard  
Suite 200  
Philadelphia, PA 19103  
(215) 636-3500  
[www.hss-inc.com](http://www.hss-inc.com)

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8 Penn Center  
1628 John F. Kennedy Boulevard  
Suite 200  
Philadelphia, PA 19103