

# **Rx for Integration: Lessons Learned in Health Care EAI**

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## **EXECUTIVE SUMMARY**

Managed care, Medicare reform and skyrocketing costs have forced health care providers to take a closer look IT and how it can help in providing a competitive advantage. Prior to the 1990s, most computer systems designed for health care were mission-specific. By the early to mid 1990s, many hospitals had begun to search the market for tools to integrate their aging transactional systems, since an integrated environment could provide more business-oriented functions such as decision support. However, for many medical centers achieving a seamless integration proved to be a daunting task.

Enterprise Application Integration (EAI) was a response to decades of organizations creating distributed stand-alone applications resulting in an overabundance of platforms and development approaches. Enterprise Application Integration (EAI) techniques provided the interface layer to allow the systems to act as one “seamless” whole. This case provides an overview of EAI and examines the technical and organizational challenges faced by a major medical center in North Carolina attempting to integrate its enterprise applications and discusses how the project team responded to those challenges. An appendix featuring a complete list of products covered in this case, as well as a brief glossary of healthcare IT terms, follows the case.

## BACKGROUND

Rowan Regional Medical Center (RRMC) ([www.rowan.org](http://www.rowan.org)) was founded in 1936 as Rowan Memorial Hospital (RMH), an independent, not-for-profit medical center located in Salisbury, North Carolina. From its beginnings as an 80-bed facility, RRMC has grown to its present status as a regional acute care center and Level III trauma center serving a four-county area of central North Carolina, currently licensed for 308 beds.

Rowan County, the center of RRMC's service area, is one of the most populated counties in North Carolina and, in terms of industry, hosts the headquarters of a number of manufacturing and retail companies. RRMC is the fifth largest employer in Rowan. As the population of Rowan County has grown significantly since 1936 (at a rate of 17.8% between 1900 and 2000), RRMC has grown, as well, in terms of services provided and capacity. In 1996, the Board of Directors for Rowan Health Services, the parent company of RHS, elected to change the name of the facility to Rowan Regional Medical Center to reflect the hospital's status as a regional healthcare provider.

Being a privately held organization, precise financial statistics are not publicly available. Nevertheless, RRMC's operating margin (revenues vs. expenditures) of 2.7% for FY 2001 are a matter of public record (DeLoache, 2000). This figure is consistent with other hospitals based on 1999 figures provided by the Medicare Payment Advisory Commission. RRMC has consistently sought methods to reduce healthcare costs for its patients and the organization. For several years during the 1990s, RRMC offered some of the lowest room charge rates of any similar facility in the region (Smith, 1997).

Rowan Regional Medical Center is part of Rowan Health Services, an umbrella enterprise which is comprised of four organizations: Rowan Medical Facilities, a for-profit arm which provides in-home medical equipment and services; Rowan Medical Alliance, a for-profit organization comprised of physicians and health-care plans; Rowan Medical Practices, a for-profit division made up of physician's practices owned by RHS; and the Rowan Regional Medical Center Foundation, a not-for-profit group charged with fund raising programs which benefit the medical center.

Beginning with the installation of a computerized patient accounting system in 1970, RRMC was an early adopter of IT solutions to bring efficiencies to functions that, directly and indirectly, affected patient care. However, this legacy installation in some ways hampered adoption of more standards-based systems that premiered during the 1990s.

## SETTING THE STAGE

### Healthcare Information Systems (HIS)

As an industry, healthcare has been behind most other business sectors in adopting Information Technology as a competitive tool. Generally speaking, until the advent of managed care in the late 1980s, the need to distinguish one provider from another was not necessary. Typically, each city or county had a "general hospital" that provided services for the local population. Very rarely did these local providers seek to gain market share from their competition in surrounding communities. Partly as a result of this non-competitive environment, as well as, prevailing economic trends, increases in health care costs began outpacing inflation rates. Employers, who foot the bill for the majority of health care costs through insurance premiums, began to take notice. Pressure on insurance carriers to keep premiums low gave rise to Health Maintenance Organizations (HMOs), which ostensibly focused on illness prevention or "wellness."

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