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INFORMATION MANAGEMENT SERIES

Information Technology for Integrated Health Systems

Positioning for the Future

Edited by
Kerry Kissinger and Sandra Borchardt

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This book is dedicated to our health care clients, from whom we learn every day; to our fellow Ernst & Young health care consultants who picked up the slack while we were attending to this book; to Sandra Borchardt, who was the prime mover in getting the book completed on schedule; and to Janice Kissinger for her infinite patience.

K. K.

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S. B.

Preface

I installed my first patient accounting system in 1964. The computerized billing system utilized removable disk files to store patient demographic information, and detailed charges were entered by keying them onto punched cards. There were no terminals attached to the system, and there was no ability to inquire into account status, except through the computer console, a bouncing-ball typewriter capable of the blistering speed of 15 characters per second.

Patient bills were automatically prorated by insurance plans and were printed out in batches on the line printer. In many respects the computer, an IBM 1440 (International Business Machines), was similar to a personal computer, though quite a bit larger and significantly less powerful. The main memory was 16 kilobits and each removable disk pack held 2.4 million characters. The system had two disk drives so data could be backed up.

The installation represented a conversion from a punched-card tabulating system. Individual charges still needed to be keypunched from requisition slips that had been manually

coded by the fulfilling department and fed to the computer through a card reader. Medicare was a gleam in Lyndon Johnson's eye. The billing program had been written by programmers (systems engineers) at IBM and was distributed free to hospitals that leased or purchased the 1440.

By 1965 there were 15 to 20 hospitals in the country utilizing the system, and the data processing managers from these institutions began meeting informally to share ideas about how to best utilize the system and software. They also commiserated about how many bugs they had to cope with and how slow IBM was to fix them. This informal group of hospitals became the nucleus for ECHO, which stood for Electronic Computing–Hospital Oriented, the first health care computer users' group.

As an early member of ECHO, I saw it grow and change over the years. There were two conferences held each year; over time the group grew to attract as many as 1,200 attendees—with multiple tracks, special-interest groups, and an international contingent—at venues like the Hotel del Coronado in San Diego.

ECHO's educational programs had always been very mainframe oriented, and by the late 1980s the organization waned in popularity. Its life cycle followed that of mainframe computing, and the organization, influenced by IBM, clung to a mainframe mentality far too long. The group is now extinct.

My participation in ECHO spanned 25 years. During that time the computer industry and health care organizations' use of computers changed significantly, but not radically. The IBM 1440 was called a second-generation computer by virtue of its transistorized circuitry, as opposed to the vacuum tube computers it replaced. The next generation of computers would be capable of multiprocessing, or doing several different tasks concurrently, including providing on-line access via cathode-ray tube display terminals.

Each decade has spawned a new generation of hardware and software platforms capable of doing more things at lower unit cost than its predecessor. The tools of the trade and the technology continue to advance in terms of price, performance,

and ease of use. The current watchword is client-server comput-
ing, whereby computing is distributed between a relational data
base stored on the server and intelligent workstations on the
desktop, the client. In terms of the skill sets required to suc-
ceed with this new technology, it borders on radical change.

I have been fortunate to observe these generational
changes, but I have also been struck by how much each new
generation of users struggles with learning how to deploy the
technology. The patient accounting system I implemented in
1964 took eight months to complete. It had significant payback
for the hospital. The number of machine operators was cut in
half. Bills were produced sooner, and the ability of the system
to do insurance proration resulted in fewer clerical personnel
and improved cash flow. The new computer was far more reli-
able than the machines its replaced and significantly less costly
to maintain.

A recent patient accounting system implementation took
two years to complete and employed the skills and efforts of a
35-person project team. Everything about the project was more
complex than prior generations. The regulatory environment,
the number of interfaces to other systems, the new software and
operating system, the network requirements, the testing and
data conversion, the procedural changes and training require-
ments, and coping with a new set of vendors were all complex
and costly elements to deal with.

The risks and costs were significant and the rewards were
difficult to measure. The most compelling reason for making the
change was that the current system had become too difficult,
costly, and unstable to maintain and had to be replaced. It was
not return on investment that drove the decision, it was simply
viewed as a necessary cost of doing business. The hospital had
dug itself into a deep hole and could not get out any other way.
Unfortunately, this scenario is more the norm than the excep-
tion in health care today. Many health care organizations have
relied heavily on vendors for support and become locked into
rigid systems designed almost entirely to meet the needs of

acute-care hospitals. Executives see little value from and have much dissatisfaction with management information systems (MIS) department output. Without demonstrable value, funding shrinks. MIS staffs become weakened by tight budgetary constraints. And the hole slowly deepens.

This book is written for anyone who has a stake in the future success of information technology in health care. It was conceived to help organizations set a direction that is specific to their needs and to implement appropriate solutions successfully. It represents the collective thinking of some of the most knowledgeable people in the field today and is the culmination of over 200 years of collective experience. It describes a way of guiding the deployment of information technology assets and provides many useful tools for supporting information processes. It will give the reader a sufficient understanding of all the factors that influence a successful outcome so that he or she may proceed with confidence. Today, more than at any time in recent history, health care executives' effectiveness in dealing with this subject will determine their success or failure.

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