The Decade Of The 1980s: Large Expenditures Produce Limited Progress In Hospital Automation

by Sheldon I. Dorenfest

Hospital expenditures for automation have quadrupled during the decade of the 1980s as dollars spent on products purchased from automation suppliers have risen from $900 million in 1979 to more than $3.7 billion at the end of 1988 (Figure 1). While automation over the past decade has begun to move into a number of patient care support areas such as clinical laboratory and pharmacy, the overwhelming proportion of automation expenditures today continue to relate to financial systems or activities within patient care functions, such as order processing, that primarily support financial activities and provide little true assistance to the care giver.

In spite of limited features and functions in software now in use, the number of hospitals using some automation in patient care and other operational support activities has risen dramatically during the decade. While about three quarters of the community hospitals (short-term, acute care, non-federal hospitals) were using computers for financial applications. By the end of 1980, very few of these hospitals were using computers outside of the financial applications. By the end of 1988, the number of hospitals using some sort of computerization in applications outside of finance has risen dramatically as computers moved into patient registration, pharmacy, nursing and laboratory.

At the end of 1980, there were 148 companies serving hospital automation needs. This number grew to 240 companies by the end of 1988. However, during the period, there was huge amount of turnover among companies, as 233 new companies entered the hospital automation industry, while 141 left the industry. In 1989, two of the "Big 5" software companies divested of their software interests, as McDonnell Douglas sold its large hospital software business to American Express and Baxter spun off its software business into a joint venture with IBM. The fact that we are finding large companies divesting of software businesses as hospital automation expenditures grow so rapidly is just one of the paradoxes we find in the hospital information systems industry as we close out the decade of the 1980s.

In 1989, hospitals are spending almost 2.5 percent of their operating budgets on automation, but it is absolutely amazing how small a portion of a hospital's manual information system is actually automated. Next time you are walking through your hospital, just go to a nursing station and look at a medical record. Almost everything in that record is still manual. Compare that record to a record from the 1960s or 1970s taken from your medical record archives and you will find the forms and documents look very similar. The primary difference is the record of the late 1980s is twice as thick as the record of the 1960s, because more care procedures exist today and doctors are more "comprehensive" in ordering care procedures in order to avoid any possibility of malpractice. Hence, manual systems that could support the patient care process of hospitals in the 1960s can no longer support patient care adequately at the end of this decade.

As a result, there is a huge opportunity to improve hospital operations through better automation in the 1990s. This opportunity can be more clearly seen by looking at how a typical medication order is processed in most hospitals today. The physician creates the order; the nurse may or may not post it to a requisition, depending upon the system in use; the nurse makes an entry in patient's medication Kardex; another entry in the patient's chart; the nurse then messengers or tubes the order to the pharmacy, where the pharmacist makes a nota-
HIS EXPENDITURES BY APPLICATION
1979 Versus 1988

<table>
<thead>
<tr>
<th>Application</th>
<th>1979 Sales</th>
<th>Share of Market</th>
<th>1988 Sales</th>
<th>Share of Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Accounting</td>
<td>$635.0</td>
<td>70.6%</td>
<td>$1,450.0</td>
<td>38.9%</td>
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<tr>
<td>Patient Care</td>
<td>147.0</td>
<td>16.5%</td>
<td>925.0</td>
<td>24.8%</td>
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<tr>
<td>Laboratory</td>
<td>55.0</td>
<td>6.1%</td>
<td>425.0</td>
<td>11.4%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>15.0</td>
<td>1.7%</td>
<td>200.0</td>
<td>5.4%</td>
</tr>
<tr>
<td>Other Applications and Consulting</td>
<td>48.0</td>
<td>5.3%</td>
<td>725.0</td>
<td>19.5%</td>
</tr>
<tr>
<td><strong>TOTAL SALES</strong></td>
<td><strong>$900.0</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>$3,725.0</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Figure 1.

In the patient’s medication profile; a notation in an inventory control record; types a label; and makes a notation on the physician’s order for eventual entry into the business office system. It is obvious that if one could enter that single order into an automated system, communicate it to all the people who need to know, and update all of the files that need to be updated, hospital operations would be improved immensely. The patient care process would be improved through greater timeliness in order processing and through reduced errors resulting from less transcriptions of the same data. Costs would be reduced due to the elimination of redundant transcriptions.

There is a tremendous need and buyer demand for more and better automation in the patient arena. But this circumstance is not new as the requirement has been obvious since the 1960s. What has been the progress? Let’s go back to the late 1970s and early 1980s and look at the situation.

Of the 11 major systems being ballyhooed at the beginning of the decade as advanced patient care systems (many of which were said to automate much of the medical record), only five are still marketed today. What was being said by these companies about their patient care systems at the turn of the decade — and what really happened? Here are two examples:

- HBO/Medpro — At the turn of the decade, HBO/Medpro was the leading supplier of systems with nursing station terminals having more than 150 installed systems. In May of 1982, in an ad in Hospitals magazine, HBO said: “How long should a hospital information system last? ... That’s why HBO & Company designed our HIS to be different. With our Medpro system as the hub, HBO ties multiple computers and databases together using a unique network concept, so a hospital’s financial, medical, patient information, departmental and remote communication needs can change and grow independently of each other. So before you decide on any hospital information system, be sure to consider the advantages of HBO’s NETWORK-HIS. It may not last as long as the pyramids, but it’s one HIS that will last as long as you expect it to.”

This ad was appearing in major magazines approximately one year before HBO announced its Medpro replacement called Medstar, and at a time when Medpro sales were beginning to fall off dramatically. It promoted, in 1982, networking and connectivity concepts between systems as if they actually existed. In 1989, these concepts are still a dream, rather than a reality, for the hospital industry. The number of hospitals using the Medpro system today has declined dramatically, and the product has not been marketed for a number of years.

- IBM Patient Care System — IBM licensed the Duke Patient Care System in 1977 and began marketing it as the IBM Patient Care System that year. It sold a large number of these systems in the later 1970s and early 1980s. The following quote was taken from an ad in Hospitals magazine in August 1982: “The IBM Patient Care System eliminates paperwork by making vital information accessible instantly. Doctors, nurses, pharmacists, radiologists, and laboratory technicians need only press a few keys to see the data they require ... The Patient Care System improves the scheduling of staffs, cuts down on errors, and makes people more productive ... A thoroughly proven design, it is currently in service in many hospitals in the United States.”

In reality, The Duke application software packages did not transfer very well. Among the hospitals that bought these applications, very
few made them operate without substantial development and change. IBM stopped selling the Patient Care System when it renamed its product IBM PCS/ADS and sold the development tools without the applications. In the late 1980s, IBM introduced Orders, which is its present version of a patient care system.

One system, Technicon MIS, was first installed in the early 1970s, and stood out at the beginning of the 1980s as the system with the most patient care functionality available to users, with some of its users automating almost all of their medical record. As we enter the decade of the 1990s, this system, while almost 20 years old, still has the most advanced user function at the nursing station. Many systems were sold over the years as being better than this system. For example, McDonnell Douglas PCS and SMS Action 2000 (Independence) were marketed as "Technicon-plus" systems in the early 1980s, a reality which neither has achieved now.

Why dwell on this history? Because as we enter the decade of the 1990s, the hospital industry is getting ready to repeat automation mistakes it made in the 1970s and 1980s. There are many products as well as concepts of integration and connectivity being sold now that are being supported with claims that are not realities. These products may have great value for your hospital, but if you buy them under false pretenses with expectations and promises that are never realized, you will be very unhappy.

We predicted at the beginning of the decade of the 1980s that by the late 1980s, systems with the following features would be available:
- Automated medical record;
- Single entry of data;
- Integration of updating of redundant files throughout the hospital;
- Billing and cost accounting as a by-product;
- Recurring inpatient/outpatient visits handled in an integrated fashion;
- Information in all databases available to users;
- Large, inexpensive, easily managed terminal networks;
- Downloading and uploading of information from and to essential databases in other systems;
- Ease of use of information off line;
- Modular growth of systems, feature and function.

As we enter the decade of the 1990s, none of the systems on the market offers these capabilities in the form the industry wants and needs them. Many of the vendors are supporting multiple patient care system products each of which is far short of industry needs. These vendors are investing large Research and Development budgets in maintaining and modestly expanding these products and do not have funds available to invest in the product that is really needed in the decade of the 1990s.

So where will the system of the 1990s (formerly the system of the 1980s) come from? It will take a huge investment by far-sighted investors who will not expect too much too soon. It will be created by developers who understand what worked and did not work in the past and, therefore, will not repeat the mistakes of the past. Meanwhile to be successful in the near term, hospitals must clearly understand what is available in the marketplace and understand exactly what these systems do and don't do in order to be successful in new product purchases and in having these new products meet their expectations.

In addition, sometimes buying a new system does not produce the result one expects because the problems are really in the manual systems which interface with the automated systems, and the new system produces problems similar to those associated with the old system. For some hospitals, in the next two-year planning horizon, it will be better to get more out of current systems and wait for truly significant new functionality than to buy new automated systems that do not substantially enhance their current automation or really improve the patient care process.

The environment is complicated right now, and some of the vendors in the industry have taken to using the selling strategies of the late 1970s and early 1980s, "selling with mirrors" and "using smoke to cloud reality." Consultants are frequently so interested in the implementation contract that they do not counsel their clients in an unbiased fashion. It is a confusing industry that promises to become clearer in a couple of years. For those of you buying new systems in 1989 and 1990, be careful and good luck!

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THE DORENFEST DIFFERENCE

As we enter the decade of the '90s, it is increasingly complex and difficult for hospitals to make the right automation decisions. Currently there is a gap between hospital needs and the reality of the products that are available. Many hospitals are looking for automated solutions that do not exist. To make this situation even more difficult, many times even when a hospital uses a right process in regards to its automation effort, it does not achieve right results, and ends up with products that do not work well. The instability of today's vendor market compounds these problems making no product safe to purchase, and requiring hospitals to take a defensive strategy in case the company supplying a product disappears as a result of a merger, acquisition or divestiture.

In today's competitive healthcare market, however, hospitals must begin to achieve better results from their automation efforts. Dorenfest & Associates, through a series of consulting services, seminars and publications, can help your organization get more from its automation efforts. By using our knowledge, we help our healthcare clients avoid the mistakes of the past, and to create and implement better automation programs. The result is successful short- and long-term strategies, and better buying decisions. In addition, we can help you receive more economic benefits in the form of cost savings and cash increases, and more quality of care benefits in the form of fewer errors and more timely processing. Please feel free to contact us if you have any questions about Dorenfest & Associates, or how we can help your organization reach the real bottom line: BETTER RESULTS FROM AUTOMATION.

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