What to Do Until the (EDP) Doctor Comes!

James V. Quinn

In spite of all the troubles EDP has caused so many businesses, the trials have been even worse for some hospitals. Here's the story of two midwestern institutions—

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by James V. Quinn

Alexander Grant & Company

IN THE attempt to automate their financial systems, many hospitals have contracted what appears to them to be a terminal disease. The diagnosis in many of the cases is that they have handled their computer applications like an emergency outpatient when they should have been treated as an intensive care patient.

A large part of the trouble seems to have been—as is often the case in EDP situations—a total breakdown of understanding, and hence confidence, among the various groups involved in the implementation. This is true for in-house installations as well as for the latest approach, shared systems. Often the data processing personnel do not understand (or condone) the somewhat loosely controlled financial data flow in the hospital environment, where patient care takes precedence over non-medical data flow. Non-data processing hospital personnel seldom appreciate the precise requirements for computer input. In a profit-conscious business environment this factor is fairly easily overcome when operating line management and EDP personnel sit down and discuss the ground rules, but in a hospital installation a whole host of different groups are involved, each with its own prejudices, interest, and training. The problems encountered in involving a meaningful system mushroom.

Doctors and nurses who must furnish part of the input to the system regard it as insignificant business detail, secondary to their real job—patient care; clerical workers trained over the years in their one area of responsibility—patient admission or medical records or whatever—are often intolerant of the needs of others when requested to submit special information which they consider unnecessary; and the administrator, who must accept final responsibility for a successful implementation, sometimes has a tendency to think that all that is required is to "push a button."

Though this may sound like a post mortem on hospital financial computer systems, it is really a lead in to my prognosis for a successful hospital data processing installation.

To ensure success whether for an in-house, service bureau, or shared system installation, there must be a

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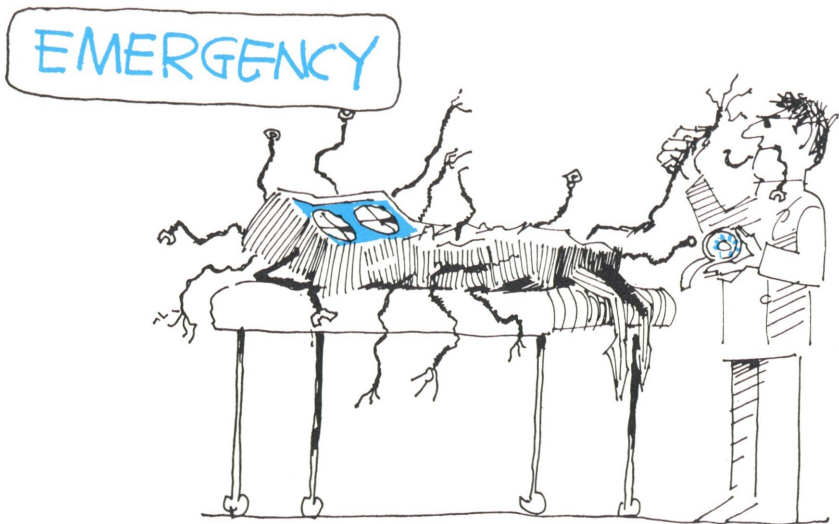
Every hospital involved in data processing should have one officer responsible solely for liaison between EDP and hospital.

catalyst in the person of a hospital information systems coordinator, knowledgeable in both the data processing and hospital functions, who can monitor the system from both viewpoints. This individual is required before, during, and after the installation. Depending on the particular situation he (or she) may be a hospital employee, if one is available during the feasibility study and implementation, or an outside consultant preferably not connected with a particular vendor or service bureau. In most cases an ideal selection would come from the management advisory services staff of the hospital's audit firm since additional detailed knowledge of the hospital's accounting system would be available. Regardless of the initial selectee, the hospital should provide for such a staff position after installation to monitor successful ongoing production and future upgrading of the system.

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To back up my contention, I would like to outline two varying situations my firm faced recently, pointing out the extent of our participation and indicating areas where an outside consultant can be of value and an in-house coordinator is the long-term answer.

Patient A

In this case we were called in by the administrator of a midwestern hospital to evaluate the hospital's data processing operation and attempt to bring order out of seeming chaos. The hospital had its own data center but it was not in-house. It was an autonomous installation operated by its own data processing staff. The center had recently upgraded to a large scale computer and was in the process of installing a rather sophisticated hospital financial package. While the hospital personnel had some data processing experience on a rather small scale in the past, the new system was collapsing under the weight of its error reports. The exploratory operation had been a success but the patient was failing. He definitely required intensive care in the recovery room.

Being familiar with the operating details of the system, and the rather elaborate checks and balances in the controls, the obvious starting point was to analyze the error reports for an indication of the source of trouble. After analyzing two or three days of error reports it became apparent that the hospital personnel did not appreciate, nor really understand, the extent of precision required for controlled computer processing. Imprecision that could be tolerated and corrected in a manual system would cause error conditions that, due to the unfamiliarity of the hospital personnel, were not caught and corrected, starting a chain reaction that spread quickly to incorrect census, patient statistics, and even billing.

For want of a nail . . .

An example of the chain effect of one simple error is in the discharge of a patient. The precision of the computer program required that the time of discharge be entered so that the system would not attempt to place a new admission in a bed which was already occupied—the same is true of patient transfers. This condition is not normally critical in a manual system since the admitting office personnel are usually fully aware of the patient moves. But in the case of the computer system when the discharge notice stated the time of discharge as 1400 hours rather than as 1000 hours(or perhaps a transfer was not entered), when a patient was admitted to the new empty bed as of 1200 hours the computer reported an error and would not admit the patient. Meanwhile, before the error was corrected, the initial laboratory or X-ray charges for the new patient might be entered into the system. These, in turn, would be rejected because no such patient was found on the patient master file. This condition, in turn, caused incorrect patient statistics, daily revenue reporting, and, eventually, incorrect patient billing until such errors could be reversed.

This example is naturally one of the simple type of chain error reactions but it will serve to point up the chaotic situation. The result of
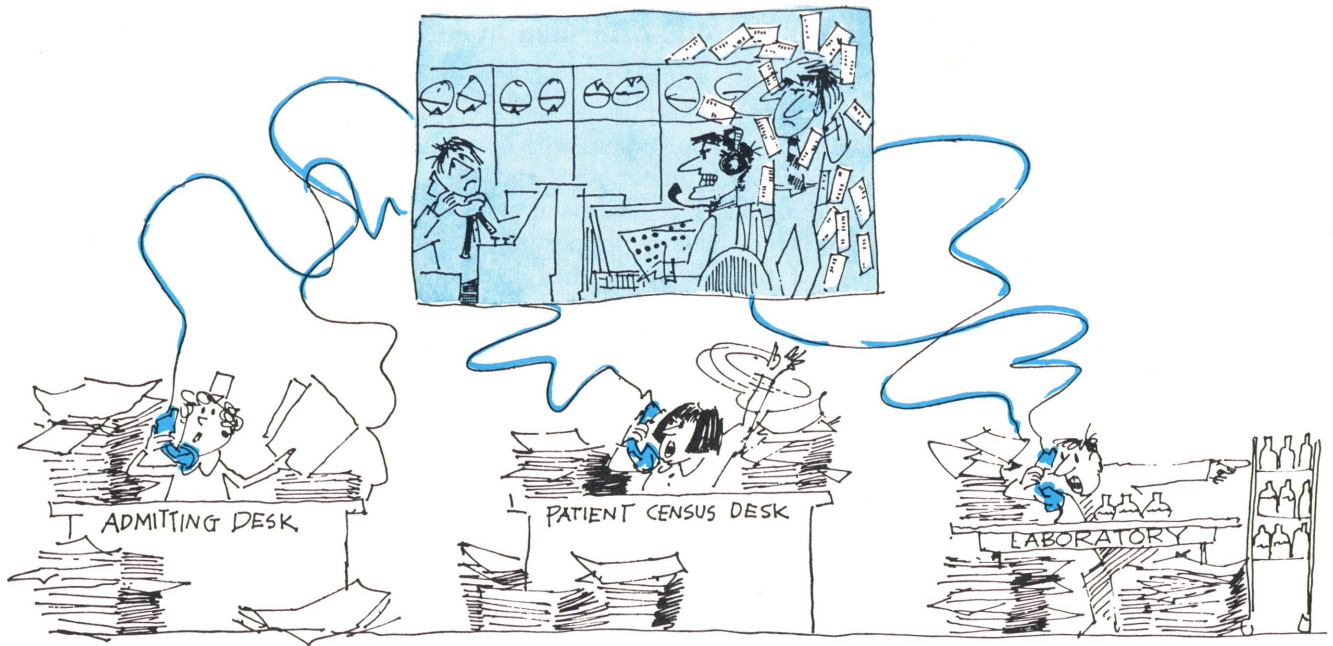
A simple time error in listing a patient discharge can grow into a major source of confusion between remote data center and hospital.

the erroneous reports was that each clerical department maintained its own records manually, swore by them, and paid little or no attention to the computer-produced reports originating at the data center.

The other side of the coin was the reaction at the data center. The data processing personnel were so used to incorrect or late input from the hospital that they rejected some situations as errors instead of querying them and finding that, while unusual, they had been reported correctly. An example which comes to mind is when the computer kept rejecting a patient who was admitted to the obstetrics service. The patient was there all right, but because of her age—15 years—the computer program insisted the service should be pediatrics. A simple program change corrected this erroneous conclusion, and pointed out to the data processing personnel what was so well known to the hospital personnel, that there are teen-age mothers.

It was obvious that an exhaustive education job had to be done for both data processing and hospital groups to show them how they could improve their functioning to the point where they would work together rather than at odds with each other. It is quite an undertaking to educate non-data processing personnel in the unrelenting detail and accuracy required for a computer system but, once they are aware of the requirements, their hospital experience really becomes a prime asset in keeping the system on track.

I don't mean to oversimplify the education process. Besides exhaustive training sessions, detailed procedure manuals were created and used as training manuals. These are especially useful for reference after the consultant has left and many of the details become hazy. In addition, certain organizational revisions were made in the patient billing, accounts receivable, and credit departments structured about the reporting system implemented and, perhaps most important of all, a control section was created and made responsible for assuring that all data generated in the hospital entered the data processing system, entered it correctly, and entered it on time. Form revision and redesign was implemented to make input processing more efficient and more exact.

All in all, the chaotic situation at the hospital was reversed and today the system is performing as originally intended and is accepted to the degree that additional systems are constantly explored and implemented. Of course, problems arose in various segments of the system but they could be discussed and overcome because of the confidence instilled by mutual understanding between the data processing and hospital personnel.

Installation of a computer system for hospital financial management need not be a disaster if there is a coordinated effort by all involved and the extent of its demands are properly understood and appreciated. This is the role of the hospital information coordinator who should be aware of problem areas and act as a buffer between conflicting groups and as an educator when his services are required.

Unlike a child, a computer system cannot be delivered by a midwife; but, like any patient who has survived an operation, post-operative care is a must. This is equally true of hospital information systems.

Patient B

The validity of the need for the services of an in-house hospital information coordinator was confirmed during a second hospital as-

signment. In this case the hospital had an in-house computer installation but was dissatisfied with what it was getting in the way of financial reporting. The hospital had been approached by several shared systems vendors and it asked us to evaluate the situation and tell the administration what it should do. We agreed to conduct a study of the present installation, evaluate the proposals received, and recommend what we thought would be the answer to the hospital's dissatisfaction.

First opinion confirmed

The study of the hospital's data processing operation verified our initial reaction to the cause of the dissatisfaction. First, despite the installation of a magnetic tape-oriented computer system, most systems had been designed and developed around the original unit record (punch card) applications. As a result of this design philosophy, there was a distinct failure to take full advantage of the computer's potential capacity and efficiency. Secondly, the design of individual applications around "stand alone" card-oriented programs frustrated any attempt to fully integrate the present applications into a coordinated hospital financial system. In reviewing the current computer-based applications with members of the business office and accounting staffs, it became apparent that, while clearly supporting the use of the computer, they had a limited understanding of the overall processing. While each supervisor understood the input/output characteristics of his particular application, very few were familiar with actual processing detail or control within the EDP department. They did not fully realize the potential of an integrated information system. Requests for new data processing applications had developed on an individual need basis (a new set of labels, a new listing with information presented in a different sequence) rather than on the basis of overall need throughout the hospital. Due to the competitive, rather than coordinated, nature of the requests, there were frequent and lengthy discussions between a user department head and the EDP department with a minimum of tangible results. Achievement of the full potential of a sophisticated, integrated, hospital information system on a large scale computer requires some mechanism for justification and coordination of information requests. It also requires that the hospital have the internal capability to assess the relative value and operational impact that integrated systems present.

With our study of the present hospital data processing operations completed (the malignancy was confirmed), we proceeded to our evaluation of the shared services which were being offered. It is not the intent of this article to detail the specifics of the evaluation. Suffice to say our report to the hospital contained a comparative analysis of the systems offered and a comparative cost analysis. It included our conclusions from the interviews with hospital personnel; their opinions of the existing system; their opinions of what a system should be able to provide; the scope and variety of data processing applications that each of the proposed systems could provide; what they couldn't provide; and the probable cost of installing and operating each of the systems for an initial period of 24 months. We detailed our findings from visits to the competing service centers: our evaluation of their personnel; their current level of usage of services to other hospitals; and their plans for future expansion of systems.

In our recommendations we stated that the first and foremost need was the creation of a staff position of hospital information services coordinator within the hospital administration. The person filling this position should report to the administrator and be recognized on an organizational level with department heads. He should possess considerable working knowledge of hospitals and their total information (both financial and clinical) requirements, and should either have a background in the use of computers or have had experience in working with computer-based information systems. In our judgment this position should be created and filled before any attempt is made to convert to a more sophisticated hospital in-

In one instance when a discharge was not recorded on time, the computer refused admission to a seriously ill patient because the bed was "occupied."
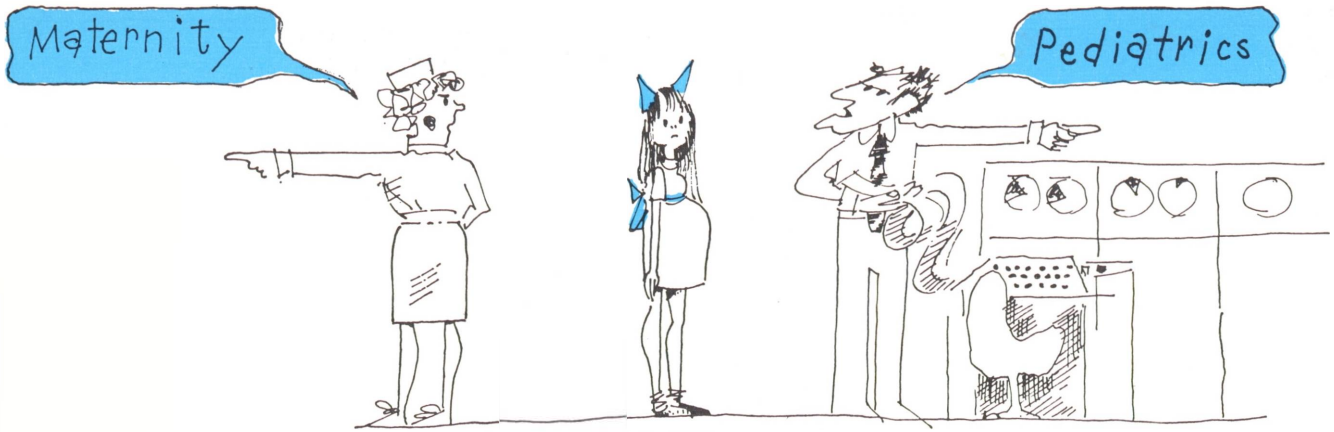
In another situation, data processing and hospital had a Donnybrook over admitting a 15-year-old patient who was pregnant; the computer, recording her age, assigned her to pediatrics; the hospital, seeing her condition, to maternity.

formation system, either internal or shared. Having made this point, we stated that in light of its past experience with an internal EDP function and upon consideration of the time that would be required to upgrade this function to a level of proficiency that would satisfy its data processing and information needs and make it the equivalent of the shared services being offered, we recommended eventual conversion to the shared system selected.

Up to this point the diagnosis was proceeding in an orderly controlled manner. Recommendations were studied and restudied; questions were asked and answered. The decision was eventually made. It would be nice to say that everyone lived happily ever after. But if that were so, this installation wouldn't be an example for this article. When the shared system was eventually installed, the installation of a hospital information systems coordinator was not yet finalized.

Final results aren't in yet but there have been a series of problems. Whether this patient survives or not depends on the hospital's reaction to its need for a coordinator to analyze the error conditions present and install an educational program to implement corrective procedures. This is a full-time job and the responsibility can not be abdicated.

The step up to a fully integrated

hospital financial management system usually requires considerable revision of the data collection and preparation procedures used within the hospital. It usually requires the development of an expanded service coding structure to properly utilize the detail reporting features of the various applications. This, in turn, could cause wholesale forms revision; some changes to admitting procedures or outpatient registration might evolve and a much greater degree of clerical discipline would be required. These areas are best controlled by responsible in-house personnel with the proper knowledge and authority to implement the necessary procedures and control. Once again, post-operative care is a must.

Conclusions

Integrated hospital information computer systems appear to be the direction of the future. To assure a painless transition requires that the hospital be ready to accept the challenge. While it is only the sensible thing to utilize a consultant in the feasibility study and, perhaps, initial implementation, the prerequisite for success beyond this opening step is the establishment of the internal hospital information systems coordinator. As this article is being written, I note the following want-ads in a local paper as an indication that my contention has

been seriously considered elsewhere.

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HOSPITAL DATA PROCESSING SPECIALIST
✿ ✿ ✿

Have immediate requirement for two senior representatives to implement financial management systems in hospital. Hospital experience preferred. To assume lead role in implementation team. Must be able to communicate with hospital administration as well as interface with central programing group. Degree required with knowledge of accounting, business office and general EDP.

✿ ✿ ✿

COORDINATOR EDP
✿ ✿ ✿

Hospital has excellent career growth opportunity in Systems-EDP Shared Services Applications. Individual needed to develop, coordinate, and supervise EDP systems required to implement the hospital program applications. Will act as "in-house" liaison between hospital and outside EDP service. Must be able to interface with all levels of management.

This is the trend of the future and will eventually create a cure for the potentially terminal disease.