## Editorial Comments

JAMIA

# People and Organizational Issues in Health Informatics

Just as patient acceptance is the final factor in successful health intervention, so is acceptance of an information system by its intended users the final stage in successful information systems implementation. Health care providers who struggle with the problems of attitudes and behaviors regarding medication or self-directed care are no different than information systems designers who struggle with similar attitudes towards the systems that they develop and implement. They both need to understand that, in the final analysis—people count.

The brief history of medical informatics is littered with horror stories of systems that were not completed, that were orders of magnitude over budget, or that were not used by the primary population for which they were designed. But despite the all too frequent reoccurrence of these failures, there has been little interest in looking for the reasons for them or in research into organizational impacts of change. Yes, there have been major evaluation studies of systems and social scientists have been studying the effect of implementing information systems for years, but the majority of the medical informatics community seems to be either unaware of this phenomenon or uninterested in it. Given the magnitude of change represented by even the simplest information system, this lack of interest is perplexing. Perhaps it is because the area of study is neither hardware nor software, neither system design nor algorithm, but is instead the study of organizational factors and attitudes of people in the work place. These latter areas of study have their origins in the social or behavioral sciences and, to some extent, have migrated to the business or management side of the academic house.

The organizations in medical informatics only recently began to recognize the importance of these issues. In March 1993, IMIA sponsored a Working Group Conference on the Organizational Impact of Informatics in Cincinnati, Ohio. Organized by Nancy Lorenzi and others, this conference was the beginning of a movement that would rapidly grow. In September 1993, IMIA created a new working group—Organizational Impact of Medical Informatics. In 1994, arguably the first book devoted to this topic was published.[1] And in 1996 AMIA created The Organizational Aspects of Medical Informatics Working Group which will show up on the AMIA membership form for the first time in 1997.

It is interesting to examine the areas of interest identified by the AMIA Working Group on Organizational Aspects of Medical Informatics.

- To effectively describe the benefits and impacts of information technology in organizations before paradigm shifts fully occur.
- To develop strategies to more effectively incorporate organizational change management into information technology and management efforts.
- To discuss human roles in organizations as linked to information systems to effect outcomes of technology factors critical to the success of systems.
- To develop and share what measurements and methods organizations can use for more success with information systems.
- To promote education and research and better implementation strategies.

These are laudable objectives, albeit they have both a scope and a mass that would cause most of us to doubt their realization. In this present time of re-engineering, downsizing, and other management approaches to redefining the organization, is it reasonable to assume that these issues can be addressed and resolved? But is not information technology also being touted as a means to increased productivity and the learning organization?[2] If so, we must begin to investigate, in a more rigorous fashion, the effects on people caused by an information technology implementation and the concomitant effect on the organization.

If all this is true, then why have people and organizational issues not received the level of interest they deserve? There are probably numerous reasons but Lorenzi and Riley provide a number of readily identifiable ones.

- Visibility. Hardware is physically visible whereas, organizational and people issues do not have this characteristic.

- Measurability. There is a higher degree of measurability with hardware and software than with organizational variables.

- Predictability. Organizational variables are considerably more difficult to predict and they vary based on the complex reactions of individuals and groups.

- Accountability. Operational managers often have little experience managing organizational or change issues and thus have difficulty being accountable.

- Respectability. Organizational issues appear fuzzy to technical and scientific staff, and the staff who deal with these issues do not achieve the level of respectability as that of other more traditional academics.

- Timeliness. The time required to effectively plan for organizational change is often viewed as time wasted and a delay in accomplishing the real work. This time factor accounts for significant resistance to organizational planning.

It is certainly not possible to respond to all of these issues at once, but this issue of JAMIA contains four articles that provide a solid beginning. We begin by attempting to make more visible the issues surrounding implementation of information technology. The paper by Lorenzi[3] reviews the literature from the various disciplines with significant potential to improve the implementation of information systems. It is not a comprehensive review of this literature, but rather a sampler intended to make medical informaticians more aware of what these other disciplines may have to contribute to the development of more successful systems.

Measurability, at least in the form of concepts for measuring successful implementation, is addressed by Kaplan.[4] Here we see one approach to developing measures that can be used for evaluation of information systems implementation and how these measures are applied in a live case.

Predictability comes from research. When a sufficient body of research in a field is available, it becomes possible to predict outcomes based on prior experiences. Research into people and organizational issues surrounding implementation of information systems is equally scattered throughout the literature of different disciplines. And the amount of research is still relatively small. The study by Ash[5] adds to this growing body of research.

Accountability, perhaps the most dreaded word in the health care environment today, is one that information systems developers have been able to avoid for many years. Systems have been developed and implemented but there has been little accountability compared to other institutional investments of equal magnitude. It is almost as if systems were considered magical and lack of success was due more to the CIM (chief information magician) rather than to institutional processes. Southon's paper[6] offers a detailed analysis of one aspect of a failure in implementing information systems using a specific conceptual framework in an attempt to understand what went wrong and where the accountability lay.

This special section of JAMIA offers to the medical informatics community the beginnings of a formal dialogue on the people and organizational issues that surround the implementation of information systems. These four papers by an international group of authors begin to address the issues of visibility, measurability, predictability, and accountability mentioned above. We leave for future research and publication in these pages, the issues of respectability and timeliness. Building upon this foundation, we expect that it will not be long before we have addressed all these concerns and that people and organizational issues of medical informatics will have gained equal footing with the technical aspects of our specialty.

ROBERT M. BRAUDE, PhD

*References* ■

1. Lorenzi NM. Organizational Aspects of Health Informatics: Managing Technological Change. New York: Springer–Verlag, 1995.
2. Zuboff S. In the Age of the Smart Machine: The Future of Work and Power. New York: Basic Books, 1988.
3. Lorenzi NM et al. Antecedents of the people and organizational aspects of medical informatics: review of the literature. J Am Med Infor Assoc. 4:79–93, 1997.
4. Kaplan B. Incorporating organizational issues into the evaluation of medical systems. J Am Med Inform Assoc. 4:94–101, 1997.
5. Ash, J. Organizational factors that influence information technology diffusion in academic health science centers. J Am Med Inform Assoc. 4:102–111, 1997.
6. Southon FCG. Information technology in complex health services: organizational impediments to successful technology transfer and diffusion. J Am Med Inform Assoc. 4:112–124, 1997.

Correspondence and reprint requests to: Robert M. Braude, PhD, Assistant Dean, Information Resources, Cornell Medical Library, Cornell University Medical College, 1300 York Avenue, New York, NY 10021.