Title: Computerizing Large Integrated Health Networks: The VA Success Editor: Robert M. Kolodner

With the Assistance of Judith V. Douglas

by T. Bain Henderson and Lloyd Milligan

In his foreword to this edited volume, Dr. Robert Kolodner writes, "We sometimes tried to do 'impossible' tasks, . . . And we often succeeded." In an era of failed attempts to implement large-scale community health information networks and similar lack of success in developing and deploying computerized patient records, it is refreshing to find a book which reports a bona fide health information system success story. The M-based Decentralized Hospital Computer Program (DHCP), developed by the Department of Veterans Affairs (VA), is clearly a story worth telling.

In the age of hypertext we may be losing our ability to order things. Certainly it is a challenge to find the logical beginning of any computer book. Since an edited volume is by nature a collection of more-or-less disparate things, the problem of order is exacerbated. So, here are a few suggestions for the reader. This volume has a foreword and three prefaces. These should be read first as they provide a capsule history of the early days of DHCP and give the reader some insight into this remarkable effort, conceived and developed by government employees without official support—indeed in the face of considerable opposition—that became DHCP. After the prefaces we recommend skipping to Section 2—System Design.

The six chapters which comprise Section 2 (along with four additional chapters in Section 5) supply the primary value of this volume. Indeed, Kolodner's enumeration of seven principles that enabled the evolution of DHCP provides an excellent blueprint for efforts to emulate the VA's success. These two sections furnish much useful information to those primarily interested in the technical and human underpinnings of DHCP. At this juncture the reader may want to continue with Section 3.

Section 3 consists of 6 chapters devoted to the clinical aspects of information technology. Chapter 10 (*Integrating a Clinical System*) relates the VA's award-winning efforts to develop a computerized patient record system (CPRS). The VA's CPRS builds on the strength of the DHCP legacy model, and in particular retains DHCP's user-centered focus. Chapter 12 (Mobley) describes a fundamental shift from DHCP's standards- based model to a technology-oriented proprietary model. This approach is being used for the deployment of the VA's graphical user interface (which wraps around the DHCP legacy system). It remains to be seen whether this approach, embracing multiple proprietary technologies (Delphi, WIN95, NT), will have the same enduring success as DHCP's traditional open standards approach. On completing Chapters 11 and 12 the reader may wish to consult the index and select topics of specific interest among the remaining chapters.

Section 1 includes three chapters which are not so much related to the book's subtitle (The VA Success Story) as they are to a contemplated future based on the VA's recent reorganization into Veterans Integrated Service Networks (VISN) and the VA's plans to address that future. DHCP, in the VISN model, becomes the Veterans Health Information Systems and Technology Architecture or VISTA. This section should be of greatest interest to those who are involved in health care management activities (i.e., CEO's or physician and nurse managers).

Patient care delivery consumes more than 80% of all health care dollars spent in the United States. The benefits of managing health care delivery costs are self-evident. Consideration of the arithmetic involved reveals that a 5% reduction in the cost of care delivery is greater in absolute terms than a 20% reduction in administrative costs. That the VA developers of DHCP recognized the productivity value of

a clinical focus (in contrast to the private sector's patient accounting and financial focus) is made clear at the book's onset. DHCP is characterized by the editor as "rich with clinical information" as contrasted to "systems that started out being primarily financial in nature." The VA, during 1978-1981, had no need for the standard hospital financial applications associated with patient billing and accounts receivable. The VA was, and largely remains, a capitated system. Some observers would regard the early absence of these financial components as a weakness or deficit in DHCP. In Kolodner's view, "a clinical system can be extended to generate management and financial information far more easily and effectively than a financial system can be extended to become a clinical one." One need only examine the clinical products from private sector HIS vendors to confirm the correctness of this view.

Recently Thomas K. Landauer, in a well-researched volume titled *The Trouble With Computers*, concluded that solutions to the paradoxical puzzle of a lack of positive relationships between computer applications and productivity ". . . all hinge on methods for evaluative feedback. By name, the proposed solutions are UCD, UCD, and UCD, standing for user-centered design, user-centered development, and user-centered deployment."[1]

Users of clinical information systems, in this case VA doctors, nurses, other health care professionals and support personnel, do not in general know or care about computer software design. What matters to them is that the computer (application) does what they need it to do; improves the quality, reliability, and timeliness of data; and—not the least—makes their jobs easier. It is in its responsiveness to users that DHCP most excelled. From the beginning, DHCP programmers knew their constituency and required full user participation in the applications design. The excellent chapter by Swatzell and Price further elaborates this point.

Just as the published proof of a math theorem recasts and idealizes the process of its discovery, so does this volume present a view of the VA's DHCP which is more systematic and coherent than was the evolution of DHCP itself. Different authors present a variety of takes on the principles underlying DHCP (e.g., Pfeil, Schlehuber, Swatzell and Price, Munnecke. . .). One can discern from these summaries the essential guiding ideas that account for DHCP's ultimate success. Although, with the exception of insistence on portability across platforms and the consequent link to M[UMPS], and reliance on a data dictionary (FileMan), some of the principles may not have been fully or explicitly understood at the time of their original application. Nonetheless there was a commitment to an "open systems" approach and integration of applications from the inception, and this commitment is conveyed clearly in the current volume.

Like any edited volume, this one is not without shortcomings. The many contributors (44 in all) played diverse roles in DHCP's coming of age. Some were present at the outset and observed first-hand the dynamics of the endeavor. Others joined in the effort at various points and helped mold DHCP to the changing needs and requirements of the Veterans Health Administration. However, several individuals who conceived, gave birth to and nurtured DHCP in its infancy are no longer associated with the VA. Sadly, some have died. It would have been more satisfying to have had a broader account of the origins, including the reflections of key people who are missing from the list of contributors. (A more detailed and colorful account of DHCP's origins and early history, written by George Timson, may be found at: http://www.hardhats.org/history/hardhats.html.)

DHCP takes justifiable pride in its success, not only in the VA Medical Centers but in the Department of Defense, the Indian Health Service and elsewhere. Elsewhere includes a number of international implementations (See Chapter 27 by Ball and Douglas for a partial listing). DHCP has been less successful to date in the domestic private sector. However, this is likely to change with the evolving structure of health care financing in the United States and the trends toward more open architectures and interchangeability of data. As organizations take note of DHCP and its potential usefulness they will be well-served by this account of its guiding principles and their implementation. It is much more than a story that had to be told. It is a design pattern or template for the most remarkably useful health care information system yet constructed. **M**

Computerizing Large Integrated Health Networks The VA Success Story edited by Robert M. Kolodner Springer-Verlag, New York, NY, 1997. 515 pp., illus. $59.00 (ISBN: 0-387-94837-6).

Endnotes

1. Landauer, T. K. 1995. *The Trouble with Computers: Usefulness, Usability, and Productivity*. Cambridge: MIT Press. (See page 8)

T. Bain Henderson has been using M and VA software for more years than he cares to admit. Bain is currently the CIO of a community-based hospital where DHCP is being used to good effect. His email address is tbainh@mindspring.com.

Lloyd Milligan is an M consultant specializing in VA DHCP-based applications. His email address is: wlloyd@ix.netcom.com.

MDC AUDIT APPROVED

Just In . . .

In a letter to the MDC Secretariat received September 18, 1997, Jay Moskowitz, Manager of the Standards Audit Program of the American National Standards Institute (ANSI) states, "I am pleased to inform you that the Executive Standards Council has reviewed and approved your audit."

This voluntary audit of the MUMPS Development Committee by ANSI "involved a review of the operations of the MDC as they relate to standards development and associated activities, including continuity of administrative oversight and support of the standards activities. Since MDC has five American National Standards, the scope calls for all five standards to be selected by the auditor for review."

Congratulations to the MDC and the MDC Secretariat for a job well done. Special thanks are due to:
- Ed de Moel, past Chairman of the MDC
- Kate Schell, past Vice-Chair of the MDC
- Don Piccone, Secretary of the MDC

and to new officers
- Art Smith, current Chairman of the MDC
- Rick Marshall, current Vice-Chairman of the MDC

and to past officers including
- Thomas Salander
- John Lewkowitz and
- Bob Shear

to name a few.

Read the next issue of *M Computing* for a more complete report on the audit.