

Transforming Healthcare Organizations Looking Back to See the **Future**



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The preceding papers in this issue of *Healthcare Quarterly* provide a “how-to” guide to mounting a complex, across-the-organization change, and also reveal the unique perspectives of the different professional groups involved in the change. In addition, the paper “Executive Perspective: The Business Case for Patient Safety” (see p. 20 in this issue) reveals how the University Health Network’s (UHN) Executive Team came to the decision to pursue the specific Medication Order Entry/Medication Administration Record (MOE/MAR) initiative. Each paper in this issue of *HQ* ended with “Lessons Learned” unique to each UHN leader’s perspective. In contrast, this paper looks back on the five-year initiative, from all perspectives, in order to provide a final set of observations for organizations considering the implementation of a MOE/MAR-type project. More generally, this paper speaks to healthcare leaders who are contemplating significant changes in their organizations.

Lessons Learned for the Future

As of Fall 2006, UHN’s MOE/MAR Steering Committee determined that the organization was ready to implement MOE/MAR at the two remaining clusters (Transplant and Medical-Surgical

ICU). At the same time, there are plans to implement MOE/MAR at several of UHN’s strategic partners in the Toronto area. Both decisions reflect the Steering Committee’s view that its implementation methodology has now been fine-tuned.

With a strong sense that MOE/MAR and its implementation have been a resounding success, and now having had the opportunity to reflect as we produced the series of papers for this issue of *HQ*, we take this opportunity to offer 10 additional insights that have either not yet been discussed or are worthy of emphasis here.

1. **Flexible, systematic change strategies are essential:** Heading into a change as profound as MOE/MAR, UHN leaders found it helpful to have a clear sense of how the change process should unfold. While not the only way to think about the change process, the four-stage framework presented in the paper “Transforming Healthcare Organizations” (see p. 10 in this issue) provides a systematic way of ordering the various change activities while not hamstringing change leaders when faced with unexpected events. Although this framework was not explicitly discussed as UHN initiated the MOE/MAR project, the four stages

– (1) determining the desired end state, (2) assessing readiness for change, (3) broadening support and organizational redesign, (4) reinforcing and sustaining change – nicely map on to the MOE/MAR experience.

2. **Wholesale transformation requires support from the Board of Directors:** Five years later, it is difficult to say whether the idea for MOE/MAR came from the Board or was brought to the Board by innovative leaders at UHN. What is clear is that the time was right for MOE/MAR: UHN's Board Chair had frequently expressed frustration with the archaic information systems in the hospital industry. In addition, the Board was aware of the increasing attention to medical errors resulting from system (not individual) failure. With the stage set, the Board was prepared to make patient safety, and MOE/MAR as a means to achieve it, a fundamental goal – worthy of substantial financial resources – for the next half-decade.

For MOE/MAR to have been successful, it was critical that all people involved in MOE/MAR – not only the Steering Committee and clinical leaders, but the Project Team charged with implementing MOE/MAR on time and on budget – be brought together to provide a clear picture of the elephant called MOE/MAR.

3. **Expect to provide special resources to bring together clinical champions from affected disciplines:** In many ways, the experience of assembling the papers for this issue reminded us of the Indian tale of the Six Blind Men and the Elephant. In this well-known tale, each of the blind men had heard about and then touched different parts of the elephant, and naturally had come to very different understandings of what an elephant must be like.

Without being (intentionally) unkind, the professionals involved in the implementation of MOE/MAR, as well as those contributing to this issue, are like these six blind men. For MOE/MAR to have been successful, it was critical that all people involved in MOE/MAR – not only the Steering Committee and clinical leaders, but the Project Team charged with implementing MOE/MAR on time and on budget – be brought together to provide a clear picture of the elephant called MOE/MAR. The Steering Committee recognized that for the Project Management Team to get genuine support from clinical leaders (e.g., Informatics Specialists in Nursing, Medicine and Pharmacy), additional resources had to be provided. No one had sufficient excess

capacity to devote to MOE/MAR, so capacity had to be created. For example, UHN bought the time of internal clinical informatics experts. No one believes these experts were “bought” in the sense of doing something against their better judgment; rather, the purchasing of their time freed them up to work on an initiative they already supported.

4. **Demonstrate credible commitments:** This lesson is related to lessons one and two in this paper, and related to a key concept in competitive strategy. Strategists have long been concerned with how to signal to their competitors that they are so serious about entering a market that their potential competitors need not even consider opposing them. For example, in its early days, Wal-Mart would build stores too large for their markets and take unusually long-term leases. The message to potential competitors was clear: “We have committed such significant resources that we cannot consider turning back.” That is, Wal-Mart had made a “credible commitment” to an initiative.

At UHN, the Board's support, the Steering Committee's financing of dedicated resources and the very public announcements throughout UHN made it virtually impossible for potential opponents or sceptics of MOE/MAR within the organization to believe that it might fade away. UHN's very credible commitment to MOE/MAR suggested that this system would unequivocally change the way medications were ordered and administered at UHN. The only outstanding question was, “Who would sign on earlier rather than later?”

5. **MOE/MAR is scalable and can be leveraged:** Given the size and resource base of UHN, leaders at other healthcare organizations might wonder about the extent to which the experiences documented in this issue are relevant to them. We are quite optimistic. While certainly there are some basic fixed costs to MOE/MAR, UHN started relatively small and only rolled it out to additional clinical service areas (or “clusters”) as each successive cluster was deemed a success. Now that MOE/MAR is firmly entrenched, and given UHN's experiences in MOE/MAR design and implementation, there are plans to implement MOE/MAR at several of UHN's smaller, non-acute care partner organizations. The ability to spread the fixed costs of development and maintenance of systems, such as MOE/MAR, provides tremendous opportunities to smaller organizations. And, at a time when geography-based cooperation among providers is increasingly required, this technology is available at the right time and provides a tangible way to demonstrate partnering. The future may also hold opportunities to spread MOE/MAR technology ever further into the community, for example, by connecting healthcare organizations and commercial pharmacies, further reducing opportunities for medication errors.

6. Implement incrementally: One of the most debated questions in the early days of MOE/MAR was whether to implement MOE/MAR incrementally or with a “big bang.” Some at UHN argued for building MOE/MAR and implementing it in all clusters at once. Others argued for incremental implementation. While sensible arguments emerged on both sides of the issue (see “Transforming Healthcare Organizations” on p. 10 of this issue), UHN decided to roll out MOE/MAR incrementally. Today, leaders at UHN are even more convinced of the wisdom of that decision. Specifically, in the early days of this project, we could not have imagined all the technical and social complexity that would come to characterize MOE/MAR.

While it would be an overstatement to suggest that UHN leaders were walking with their eyes closed – in which case it would have been very wise to take small steps – in fact, there was little in the healthcare management literature at the time to guide UHN’s MOE/MAR implementation. Thus, UHN made the explicit decision to proceed through a cycle of *plan, implement, review and learn* (to be repeated). While UHN leaders hope others will benefit from these experiences, both positive and negative, we would still maintain that complex change needs to be rolled out incrementally. This not only allows for technical problems to be worked out before infecting an entire organization, but it also builds the organization’s confidence and appetite for change.

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7. Develop and support business continuity capabilities: Although MOE/MAR was intended to reduce risks to patients, it is now clear that substantial system changes, such as MOE/MAR, could, in theory, temporarily increase risks. One need only imagine a world not too far in the future (we hope) when physicians, nurses and pharmacists in training have never worked in a non-MOE/MAR environment. The risk in such a scenario exists when a technical system failure requires clinicians to turn to alternative, paper-based medication ordering. Any organization that relies on technology to the extent that UHN does must ensure that backup processes exist and that clinicians turn quickly and naturally to them when required. And, as UHN learned

during its less-than-fully-successful pilot, procedures must be put in place – and resourced (e.g., with additional staff) – to enter paper orders when computer-based systems come back on-line. In general, project managers and system designers must be astute scenario planners, asking a series of creative “what if” questions (e.g., “How will paper orders get entered into the system?”) in order to protect the organization from an overdependence on technical systems.

8. No computer-based system fully replicates human judgment or is foolproof: One of the challenges for designers of computer-based decision support is that the knowledge upon which it is based has to be codifiable. That is, it must be possible to transmit this knowledge to others through manuals, specifications, regulations, rules and procedures. In the case of MOE/MAR, clinician knowledge had to be codifiable in order for system designers to build that knowledge into the system (e.g., which medications are needed for order sets.) Tacit knowledge, in contrast, is semi-conscious or subconscious and is held in people’s heads (Leonard and Sensiper 1998). To the extent that not all clinical judgment and knowledge can be built into MOE/MAR (e.g., a range of narcotic dosages is often provided in post-operative orders to allow nurses discretion in determining appropriate levels of analgesia), or at least not from the start, clinicians must remain vigilant about decision-making. A culture of questioning the system when it does not “feel right” must be developed and supported.

Related to the previous point, it must always be recognized that no computer-based system is foolproof, entirely mechanical, nor can it be fully divorced from (bad) human judgment and human error. Again, it is critical that MOE/MAR training ensure against mindlessness – the human tendency to operate on “autopilot” (Langer 1989). Even the best systems provide non-sensible recommendations – which should be challenged by clinicians – but some physical clinician-patient interactions may still provide opportunities for medical error. Thus, while MOE/MAR promises to reduce risks to patients, it can only best do so when it is part of a complete system of proper technology design and clinician/user *mindfulness*.

9. Project Management should be a broad-based corporate capability: The Project Management function at UHN, prior to MOE/MAR, was viewed too narrowly. As the papers in this issue of *HQ* make clear, strong project management capabilities were critically important for bringing disparate divisions and clinical areas together, and for MOE/MAR coming in on-time and on-budget. The enormity of this feat should not be discounted given that MOE/MAR represented uncharted terrain for UHN. An unanticipated benefit of UHN’s experience is the recognition of how critical, and broadly applicable, project management capabilities are to

healthcare organizations. As a consequence of this realization, project management is now seen as a valuable corporate resource that all UHN leaders are encouraged to rely on when leading change initiatives.

10. **Changed systems change culture:** As the lead paper in this issue of *HQ* suggests (see “Transforming Healthcare Organizations” on p. 10 of this issue), an organization’s culture develops slowly, and can be influenced by changes to core systems. This was unquestionably the case at UHN. Specifically, the initial commitment and investment in MOE/MAR signalled to all staff that UHN was serious about patient-centred care and patient safety. Like virtually all hospital leaders, UHN’s leaders have mouthed those words – and indeed, had taken various steps to live by them. Today, however, with the ubiquity of MOE/MAR, clinicians now work with a system that supports a patient safety agenda. This fits hand-in-glove with the long-standing values and objectives of healthcare professionals, but is now substantially enabled by MOE/MAR.

Conclusion

The primary objective of this issue of *HQ* was to fill a gap in healthcare management writing that UHN’s leaders identified as they contemplated the introduction of MOE/MAR at UHN. Specifically, while there was much written about the promise of Computerized Physician Order Entry (CPOE) to reduce adverse drug events – a generic name for UHN’s MOE/MAR – there was a dearth of published advice about how to make the business case for CPOE and how to best implement it (for an exception, see Leonard 2004). What was available was so high-level, or provided such generic aphorisms about managing change (e.g., “get physician buy-in”), that it was of little practical use. Further limiting the utility of published work was that it typically recounted change from a single perspective (e.g., the Information Technology group of a hospital). To address this limitation of prior work, we explicitly acknowledged that different professional and administrative groups would have different perspectives on the design and implementation of CPOE. We urge change leaders to view healthcare organizations as prisms; where you stand influences what you see, and thus, the information upon which your support for, or opposition to, change is based.

Finally, this series of papers serves a very (but not exclusively) selfish objective at UHN, namely, the opportunity to learn and the opportunity to learn about learning. Harvard psychologists Argyris and Schön (1978), commenting on organizational errors, refer to these opportunities as “single-loop” and “double-loop” learning, respectively.

When the error detected and corrected permits the organization to carry on its present policies or achieve its present objectives, then that error-and-correction process is *single-loop* learning. Single-loop learning is like a thermostat that learns when it is too hot or too cold and turns the heat on or off. The thermostat can perform this task because it can receive information (the temperature of the room) and take corrective action. *Double-loop* learning occurs when error is detected and corrected in ways that involve the modification of an organization’s underlying norms, policies and objectives. (pp. 2–3)

For years, parts of UHN operated as most organizations do, engaged in single-loop learning, correcting the varied organizational errors that occur in all organizations. However, MOE/MAR represents the clearest manifestation of double-loop learning that we can think of – the modification of norms, policies and objectives – such that UHN is better able to ensure patient safety and further develop its capabilities to that end. We hope the experiences and analyses conveyed in this issue of *HQ* assist healthcare leaders in doing the same for their organizations.

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