Draft 10

December 5, 2009

Adventures in the Evidence-Based Management Trade

Anthony R. Kovner, Ph.D.

The purpose of this paper is to review my experiences in attempting to influence managers and those who study management to use an evidence-based process in considering interventions to improve organizational performance.[1] This includes teaching a capstone course in a graduate school, writing a text on evidence-based management in health care, decision-making as a board member of a large urban community hospital, and my attempts to launch evidence-based management research with practitioners.

Getting Involved

My interest in evidence-based management (EBMgmt) began in 1999, 40 years after starting work as a health care manager.[2] It was occasioned by reading about evidence-based medicine, and resulted in my writing an article with John Billings and Jeff Elton on

---

[1] This chapter is an example of colloquial research, which includes tacit knowledge, personal experiences, experiences of others in similar situations, expert opinion, case studies and other relevant knowledge. I am arguing that my experiences count as evidence.

[2] My careers in health care management, teaching and research were not planned out step by step in advance. Each choice opened and closed options for me. I pursued a Ph.D. because with my father's death the family hospital business was no longer an option, and my academic advisors urged me to pursue doctoral studies at government expense. One of the faculty supervising my doctoral thesis subsequently became CEO of a hospital in New York City and I went to work for him as a manager. His successor fired me and I then was hired as a manager of a faculty group practice at another university where I was also involved in starting a master's program in health care management. When their choice to head the program accepted an important position in Washington DC, I was selected as program director. I withdrew from seeking tenure after five years when I was told that I wouldn't be approved. I then applied for a job as senior health consultant for a large industrial union. I next sought a position as rural hospital CEO, was fired, and sought a job as program director and faculty member in health care administration in my home city, where I have worked for the last 30 years. Because of my work as a rural hospital administrator, I was chosen, while a professor, by a large foundation to be part-time national director of a large hospital demonstration program, and then to head another demonstration. Then I was chosen by a second foundation to run a demonstration management training program for clinicians.

"Transforming Health Management: An Evidence-Based Approach."[3] A summary of this article follows:

> "Healthcare providers are having to make quicker, riskier decisions in a competitive and regulated environment. Leaders often make these decisions with the advice of management consultants; however, top management generally lack adequate internal support to rigorously evaluate strategic interventions or consultant recommendations and to learn from industry-wide best practices. In fact, health care providers generally underinvest in management support, both in evaluating best practices within the organization and in learning from past strategic interventions."[4]

Barriers to improving the quality of management decisions included:

- Little evidence on best practices
- Evidence that was available was not widely shared
- Health care organizations (HCOs) lacked sufficient size and critical mass to conduct and assess applied research
- HCO managers focused on operating margins and past budgets rather than on research questions that could be answered
- Managers lacked training and experience in application and incentives to learn EBMgmt
- Non-profit organizations lacked accountability for performance.

I find that not a great deal has changed over the past 10 years.

We suggested forming EBMgmt cooperatives (EBMCs) which would bring together managers, consultants and researchers to improve management, data bases and organizational performance. EBMCs would enhance managerial skills and capacity, improve information to support better-informed interventions, and lead to better

[3] Kovner, AR, JJ Elton and J Billings "Transforming Health Management: An Evidence-Based Approach," Frontiers of Health Services management, 16: 4, Summer 2000, 3-24.
[4] Kovner AR, JJ Elton, and J Billings, "Transforming Health Management: An Evidence-Based Approach," Frontiers of Health Services Management, 16:4, Summer 2000, 3-24.

understanding of factors affecting implementation and financing. Resources were required to fund staff and to specific research and demonstration projects. In start-up phase, we estimated that an EBMC would require $4-5 million over a four-year period to launch the initiative and provide core support. I spent years, with others, unsuccessfully trying to secure funds to launch such initiatives, We were told by health care managers that funding of management research was a government or foundation responsibility, and by government and foundation officials that they had other higher priorities. After numerous failed grant proposals, I split our plan into two parts: education and research.

Teaching Evidence-Based Management

NYU/Wagner is a graduate school of public service, one of the smallest of 13 schools at New York University, the nation's largest private university. The school is similar to a school of public administration or public affairs. I am a member of the school's management and health services management groups. Most students and faculty are in the public-and non-profit management and policy group.

My ambition was to integrate evidence-based management into the required curriculum. Previously, I had urged faculty to measure the skills and experience of students after admission and again prior to graduation to learn what difference their education made in relation to its cost (and then to improve the educational process if we were not satisfied with the results). EBMgmt did not gain school priority either. I recruited a few faculty converts. One told me "I am completely dedicated to EBMgmt and use it as a basis for teaching managing public service organizations…I don't know what the rest of the management faculty think about it—my hunch is that they don't use it and may not even know what it is." A second faculty member agreed, "I believe EBMgmt offers a clear set of steps for practitioners to access and utilize research…it

could be a boon to researchers as well, because it can act as a mechanisms to have their work actually inform practice."[5]

I decided to demonstrate the benefit of the EBMgmt approach by using it in my capstone course. Capstone is one of the required courses at NYU/Wagner, and faculty currently teach 44 sections. I had started a new M.S. program in 2008 for nursing leaders, in which the capstone was required. The differences in my revised capstone for 1999-2000 were: (1) more focus was placed on the contract between sponsor and team focusing on answerable research questions rather than management challenges (for example, focusing on the causes of emergency department waiting rather than on interventions to reduce waiting), (2) carrying out on their projects all six steps of the evidence-based management process, and (3) more emphasis on best practice and the literature in answering research questions rather than on recommendations and their justification. The main similarity to the previous year's capstone was continuing to spend sufficient time on documenting problems in current processes and their causes.

My capstone has had three goals for students: (1) using an evidence-based approach in designing and carrying out management interventions, (2) managing relationships with an external client and various stakeholders, and (3) functioning as members of a client-faced team. Students learn the following competencies:

- Identifying and carrying out data collection and analytical methods appropriate for a specific project,
- Situating findings in the broad related literature
- Drawing conclusions as warranted by the data and local organizational culture and readiness,

[5] Personal communication, October 2009.

- Communicating their work effectively orally and in writing, and
- Working cooperatively with team members on a client-facing project. [6]

Students follow an evidence-based process which includes: framing the research question(s), finding sources of information, assessing the accuracy, applicability and actionability of the evidence; and, determining the extent to which management has adequate evidence to implement the intervention.

One of the elective (now required) courses created for the nursing students was "Locating Evidence," developed by NYU librarians, Susan Jacobs and Gretchen Gano. In this course, students frame answerable research questions, select specialized data bases, develop effective search strategies, and critically appraise the literature about a management topic.[7]

NYU/Wagner's partner in developing the M.S. (now executive MPA) program for nurse leaders was New York Presbyterian Hospital and Health System (NY/P), one of the largest health systems in the United States. NY/Ps chief nursing officer, Wilhelmina Manzano, and her administrator for special projects, Rosemary Sullivan, assisted in teaching and syllabus preparation. They were available to orient and help involve senior managers at NY/P who sponsored capstones, facilitated development of these projects, and facilitated access and support for the student teams with the NY/P sponsors.[8]

[6] 2008-9 Capstone projects included: improving acuity-based nurse staffing, improving the supply procurement process, improving the medication administration process, increasing nurse volunteering at a local school, and development of system-wide metrics for patient falls/restraints.
[7] See Jacobs, SK, G Gano and AR Kovner (2009) "Evidence-based Health Services Management for Nurse Leaders: An intercampus partnership and curriculum. In: Positioning the Profession: The Tenth International Congress on Medical Librarianship, Brisbane Australia (1-14), Aug 31-Sept 4, 2009. http://espace.library.uq.edu.au'view/UQ:179758.
[8] Student feedback for the course was highly favorable. The course received 5.0 out of a possible 5.0 as to whether students recommended the course, and 4.9 out of 5.0 as to whether students recommended the instructor. Student evaluations, NYU/Wagner, 2008-9.

Capstone sponsors were very satisfied with the students' work and most proposed new capstone projects for the next year as well. Sponsors praised the focusing of research questions, gathering and assessment of evidence, and the quality of the recommendations informed by high quality evidence.

Developing the Text

My co-authors were two distinguished practitioners, Richard D'Aquila, Chief Operating Officer at Yale New Haven Hospital and David J Fine, Chief Executive Office of St Luke's Episcopal Health System in Houston Texas. Originally, the idea behind the textbook[9] was to serve both student and practitioner audiences. The decision was abandoned at the publisher's suggestion as their primary market for the book was graduate students in health care management.

We succeeded in producing a workable text for the capstone course, with these sections: Transformation to EBMgmt, Theories and Definitions, Case Studies (most of the text) and Lessons Learned. We provided a guide to the EBMgmt literature and a chapter on search on a particular management topic. (We also provided instructors with a guide to teaching the course.)

The Transformation section reviews our experience in organizations where EBMgmt was or was not practiced, and the results of a research study on managers in health systems in several cities who were interviewed by Tom Rundall and his colleagues as to why managers do not use an evidence-based process in decision-making.[10]

[9] Kovner, AR, DJ Fine, and R. D'Aquila, Evidence-based Management in Health Care, Health Administration Press, 2009.
[10] Rundall, TG and others "Using Research Evidence When Making Decisions: Views of Health Services Managers and Policymakers," in Kovner, Fine and D'Aquila, op. cit., 53-78.

In Theories and Definitions, we reprinted the article by John Hsu and his colleagues on the six steps managers should consider when making a well-informed decision.[11] For each step, the authors reviewed background, key points, guides and checklists.

Some of the authors of the 10 Case Studies explicitly followed each step of the EBMgmt process, while others followed only some of the steps, or failed to report all steps. All the cases illustrated how to apply the EBMgmt process to a set of management challenges. For example, in one case study, an external consulting firm deemed a hospital's palliative care unit unprofitable and strongly recommended that it be closed.[12] Their conclusion that the costs of caring for palliative patients significantly exceeded reimbursement was found to have been based on a faulty assumption. Because the palliative care program was the last to "touch" these patients, the consultants had assigned the costs of the patients' entire admission to the palliative unit. From the hospital data, White and Cassell revealed that about half of the palliative care patients had received care on other inpatient units, where the vast majority of costs were incurred. In fact, they found the palliative care unit was actually running at a profit, and its closure was forestalled.

In Lessons Learned, I concluded that EBMgmt was not more widely used because the business case for return on investment has not yet been reliably made, widespread use of EBMgmt would shift power away from senior managers toward better skilled junior

[11] Hsu, J., L Arroyo, I Graetz, E. Neuwirth, J Schmittdiel, TG Rundall and M Gibson. 2006 *Methods for Developing Actionable Evidence for Consumers of health Services Research (Match Study); A Report form Organizational Decision-Maker Discussion Groups & A Toolbox for Making Informed Decisions.* Publication No. 290-00-0015. Rockville ND: U.S. Agency for Healthcare Research and Quality.
[12] White JR and Cassell JB, "The Business Case for a Hospital Palliative Care Unit: Justifying its Continued Existence," in Kovner, AR, D Fine and R D'Aquila, op. cit, 171-189.

managers, and the lack of regular critical review of the process of organizational decision-making by boards and managers.[13]

Hospital Board Decision-making

In 1971, when I started as an academic, my chair advised me to select a small topic and know more about it than anyone. The topic I chose was not-for-profit governance. (I hoped to be a hospital administrator some day, which subsequently happened). Several years later, I began 26 years as a member of the board of trustees of Lutheran Medical Center, a $2.0 billion health system in southwest Brooklyn, N.Y. Soon I was a board member of Augustana (Lutheran's nursing home) and Health Plus (Lutheran's health maintenance organization). I then served as chair of the hospital quality committee and vice-chair of the HMO board.

While a board member (and a professor at NYU) I carried out a research study of four non-profit hospitals in New York City. This was published in 2001 as "Better Information for the Board."[14] I examined the information that boards regularly get to carry out their functions. Principal findings were that boards get too little comparative data on performance of similar benchmarked hospitals and that they get too much operational data, the same data that management gets. Other key recommendations included: (1) board must take greater responsibility for identifying the information that they get and how they wish to get it, (2) managers must ensure that measureable objectives are developed against which organizational performance can be evaluated, (3) boards must get information that is targeted and shaped to better fit board functions, (4) managers must develop information sets for main service lines, such as heart and cancer,

---

[13] Kovner, AR, "Summing Up and Lessons Learned: Interviews with Richard D'Aquila and David J Fine—with commentary by AR Kovner, in Kovner, Fine and D'Aquila, op.cit, 249-258

[14] Kovner, AR, "Better Information for the Board," Journal of Health Care Management, 46:1 Jan-Feb 2001, 53-66.

(5) boards must get information on the expectation and satisfaction levels of key stakeholders. The study results were shared with Lutheran's CEO and board chair. The only recommendation that was implemented (nor did any of the study hospitals implement any of the recommendations, to my knowledge) was providing the board with less hospital operating data.

Two other decisions come to mind regarding the lack of an evidence-based management approach at Lutheran. The first concerned the potential sale of the hospital-owned HMO in 2003. Lutheran needed money. The HMO (for Medicaid patients) had been contributing up to $10 million per year to the hospital's bottom line, although this amount had been decreasing sharply in recent years for several of reasons, primarily as result of the state's raising insurance reserve requirements. Hospital operating losses had resulted from poor operating decisions by the board and previous administration. Contributing heavily to financial problems were rising malpractice premiums (the hospital was self-insured) and inadequate pension fund contributions.

Lutheran's top management recommended selling the HMO because, at that time, investor-owned companies were purchasing Medicaid HMOs in other locations for relatively large sums. The board agreed to put the HMO on the market at a price of $300 million and would have accepted considerably less. Three years later, after hundreds of hours of board discussions with various sets of consultant, bankers and lawyers, the HMO failed to sell. So, the hospital had been continually losing money because of questionable management decisions and an unfavorable environment while the HMO was making money because of better management decisions and a favorable external environment. The HMO was prevented from growing because a large share of its profits were siphoned off by the hospital. The hospital was buffered from facing its operating

problems by the subsidies it was getting from the HMO. This situation was never acknowledged by the board in making these decisions. Nor was the matter ever discussed in terms of improving the health of the people of southwest Brooklyn, which was the mission of the hospital. The board and top management did no long range planning during a period of ten or fifteen years, although the main facility was obsolete and needed replacement. The CEO framed the management challenge as “how can we balance the budget?” rather than “how can we increase revenues in HMO operations?”, or “how can we decrease hospital expenditures so that the board can either finance a new hospital or get out of the hospital business?”

A second example concerns presentation of the 2009 hospital budget to the board by the Chief Financial Officer, and its approval, as customary, with little discussion. I made some comments and raised some questions at the meeting and in a subsequent e-mail, as follows:

- “You made no report on last year’s results as related to what you had forecast.
- There was neither summary nor explanation of variance in the financials presented.
- What are the assumptions on which next year’s budget is based?
- How can we increase revene4ues?
- What are we doing to decrease re-hospitalizations?
- You don’t seem to be getting much help from the board on these matters. Is there a problem with the leadership of the Finance Committee?

- Where is the discussion of how Lutheran will meet its future capital needs?"[15]

Two days later I received an e-mail reply from the CFO indicating: (1) the hospital was in the process of refinancing its housing complex and exploring moving funds from the HMO to the hospital, (2) assurance that the finance staff works very closely with management to figure out new ways to fund productive, high-quality programs, and concluding that "I will continue to work with the Finance Committee and the board to make our financial presentations more meaningful."

Here again the management challenge was framed by the CFO as "how can we balance the budget?" The CFO did not examine performance in terms of benchmarked similar hospitals. He did not break the budget down into main lines of business. He did not suggest alternative budgetary approaches, nor did he examine the budget in terms of benefits, costs and risks of alternative budgets based on evidence gleaned from the literature, best practice, and self-initiated research.

EB and Related Management Research

In 2005, I completed a study designed to identify and explore factors associated with knowledge transfer between researchers and managers in five large health systems.[16] I studied four topic areas: (1) indicators used to identify successful implementation of diabetes management programs, (2) the relationship between budgeting procedures and strategic priorities, (3) the design of managerial dashboards, and (4) the implementation of compensation systems to improve physician performance. Any of these managerial challenges can be translated into a set of research questions (e.g. what triggers changes

---

[15] Kovner, AR, "Financial Reporting to the Board," in Kovner, AR, AS McAlearney and D Neuhauser, *Health Services Management: Cases, Readings and Commentary,* Health Administration Press, 2009, 142-5.

[16] Kovner, AR, "Factors Associated with Use of Management Research by Health Systems," for the Center for Health Management Research, 2004-5, Seattle, WA.

made in managerial dashboards?), but this was not the purpose of the study. The study methodology included telephone interviews with 64 managers of health systems, 52 of whom were senior and middle managers of five large health systems, which sponsored the research. Another 12 interviews were conducted with senior and middle managers of non-sponsoring health systems.

Findings were as follows. Managers said their health systems placed a high value on evidence-based decision-making. They did not mention any financial constraints to obtaining knowledge from external sources. They said that searching for evidence was difficult. Search was limited by time pressures, competing priorities, lack of relevant evidence, and difficulties in translating journal findings so that they could be easily used and adapted. Few managers had received formal training in seeking and using evidence for decision-making. External organizations were increasingly providing benchmarks and setting performance targets for health systems, with mixed results, as managers said that "pay for performance" as implemented by payers generally lacked a sufficiently scientific underpinning.

EBMgmt was not generally "hard-wired" in management behavior, as guidelines were not generally available regarding appropriate processes for searching for evidence, nor for deliberative processes after obtaining evidence. Managers got most of their evidence from Web sites, trade journals, consultants, peer groups, professional meetings, and networking with colleagues, particularly in their own systems, rather than from researchers or research journals. Health systems did not regularly review deliberative processes for making strategic decisions before or after the fact. No manager in any of the participating sites was designated as being responsible and accountable for knowledge

transfer or management research, nor were metrics used to assess the benefits of obtaining better evidence for management decision-making.

Managers did conduct their own studies, focus groups, and market assessments. But health systems lacked management specialists in knowledge transfer. In my final report, I recommended the following evidence-based management and related strategies for managers in large health systems:

- Fund evidence-based management increasingly out of the capital rather than the operating budget.
- Align incentives, such as performance appraisals, to reward evidence-based management.
- Assign responsibility for knowledge transfer.
- Develop metrics to assess the benefits of obtaining better evidence for management decision-making.
- Fix responsibility for review of deliberative processes as part of the regular process of strategic decision-making.
- Examine ways to increase the benefit/cost of current investments in and partnerships for management research.
- Consider new partnership options and funding opportunities for evidence-based management research.
- Develop a priority list of management research opportunities and consider how these may be funded.
- Invest in management research.

Since then, I have been unsuccessful in attempting to launch an evidence-based management research collaboration with a local large health system. The project would

consist in: (1) selecting a management challenge that can be translated into a set of research questions, (2) learning what is known and not known in the literature and in best practice on these questions, (3) designing local research studies, as needed, to obtain needed evidence, and then (4) deliberating and choosing among alternative management interventions.

Conclusions

During the last ten years arguments that I have read or listened to against using an EBMgmt approach have largely focused on excessive time requirements for top managers to collaborate. My limited experience has been that local health systems are not hastening to fund evidence-based studies, not even accepting my services at no charge to collaborate with them.

I have had some success in launching a variety of evidence-based executive education programs in local health systems. This has included the capstone courses for nurse leaders with New York Presbyterian Hospital and Health Systems, and executive education courses for managers at Montefiore and for nurse leaders at Memorial Sloan Kettering Cancer Center. I have also been heartened to see the launching of an executive doctoral program at the University of Alabama in Birmingham, where the faculty use "Evidence-Based Management in Healthcare" as a text, and where senior managers who are students in the program are already translating management challenges into research questions.

Semantic questions abound regarding evidence-based management. For example, what is the difference between "evidence-based" and "good" management? Aren't effective managers already using an evidence-based approach although they don't refer to it as such? My experience is limited but I have observed that most managers do not

routinely practice an evidence-based approach, particularly as this involves searching the literature and for best practice, initiating their own research and deliberatively including key stakeholders in decision-making.

A second set of questions involves whether methods for developing actionable evidence should be included within academic definitions of "research." The evidence-based management process is surely not one of developing and testing hypotheses and staging randomized clinical trials. The EBMgmt process is one of systematically collecting and analyzing data in ways that reveal trends, patterns and causal effects. EBMgmt uses explicit procedures in a systematic way that enables the findings to be replicated. As Don Berwick[17] points out management interventions are about "leadership and emotion and changing environments and details of implementation and history. It is messy. Complex interventions experience inevitable, complex variation in the detail of its own mechanisms in local settings, that themselves are textured, varying and unstable."[18] As Berwick puts it, "evaluation should retain and share information on both mechanisms (i.e. the ways in which specific social programs actually produce social changes, and contexts (i.e. local conditions that could have influenced the outcomes of interest.)" It is possible to rely on methods other than hypothesis testing without sacrificing rigor. Berwick suggests that widespread use of randomized clinical trials for management interventions are largely infeasible for cost and other reasons:

> "But the harm is equal if we treat a very complex world
> as if it were simple, if we treat each other as less than
> whole people and complex systems as simple and separate
> from us, and thereby reduce our capacity to learn, to converse,
> to grow."[19]

---

[17] Don Berwick is founder of the Institute for Healthcare Improvement, a leading organization world-wide for improving the quality of care in hospitals.
[18] Berwick, D., "The Science of Improvement," Journal of the American Medical Association, 2008, Vol 299, No 10, 1182-4.
[19] Ibid.

The elephant in the room, as I have mentioned previously, is the difficulty of measuring return on investment.[20] I have not been able to make the business case for an investment say of $100,000 in an evidence-based process, in terms of predictable return on investment, certainly not within one year. I believe that benefits from most evidence-based management studies should be included within the capital rather than operating budgets as benefits may be unlikely to show up in 1-2 years time even as the costs are expended in the first year. Conducting an evidence-based process is certainly not cheap, other than in contrast to hiring large consulting firms.

Rundall suggests additional criteria need to be used to evaluate modes of decision-making. These would include comprehensiveness of alternative actions reviewed, extent of confidence among decision-makers that their decision will produce intended results, extent of awareness of possible unintended consequences, acceptable results from most decisions, extent of understanding of why some decisions failed to produce expected results, and sense of accountability among the management team for decisions. Rundall believes that on all of these criteria EBMgmt outperforms other decision-making modes.[21]

Working primarily with larger hospitals, I understand that changing fundamental aspects of manager behavior is difficult, but so much really needs to change.[22]

[20] Tom Rundall takes exception to this notion, asking why should ROI be the standard used to evaluate the value of EBMgmt? He goes on to say "what is the ROI for other types of decision-making used in hospitals? Is there a known positive ROI for hierarchical, top-down decision-making? For decision-making by reliance on anecdote and gut reactions?" Rundall, personal communication, November 2009

[21] Rundall, op cit.

[22] Others have made similar observations. For example, according to Toussaint, "in our traditional healthcare management world, managers are rewarded for telling their superiors that dysfunctional systems are really fine." Toussaint, J. "Why are We Still Underperforming?" Frontiers of Health Services Management, Vol 26, No 1, Fall 2009, p.28.

I've learned that managers typically do not research management issues nor use research evidence in decision-making.[23] Managers do not generally voice a need for management research in improving hospital and health system performance.

I have recommended the six step approach of Hsu and his colleagues[24] for EB management: (1) formulating the research question, (2) acquiring the relevant research findings and other types of evidence, (3) assessing the validity, quality and applicability for the evidence, (4) presenting the evidence in a way that will make its use likely in the decision process, (5) applying the evidence in decision-making, and (6) then subsequently evaluating the results.

Although this model appears to move neatly from step to step, this isn't necessarily so. The steps provide a framework for analyzing a proposed management intervention or designing an evaluation. The steps overlap in practice, as managers may have to return to earlier steps or work on several steps simultaneously as the question-answering work unfolds. Flexibility is important. Information gathering occurs in all steps, from framing the question to recommending an intervention. New information may force a manager to reframe the question.. Proposed recommendations may prove to be unworkable, requiring decision-makers to identify new ones. The EBMgmt process is usually not linear. Under certain circumstances, some steps may be combined or abbreviated. EBMgmt leaves plenty of room for managerial judgment and intuition during and after the process.

[23] Hospital and health systems managers, particularly in academic environments, should be more receptive to evidence-based management than their business counterparts who organizations lack an academic mission. On the other hand, as contrasted with large business organizations, particularly in high-tech industries, academic medical centers have never invested much in management development nor in management research,

[24] Hsu et al, op cit.

Managers need to reflect upon the biases they bring to the table in seeking and weighing evidence. Groopman (2007) suggests that physicians can easily be led astray by seeing a set of circumstances from only one perspective. He lists the following types of bias:

- "Attribution error—discrediting data from a "tainted" source.
- Availability error—basing a decision on the most recent experience.
- Search satisfaction error—stopping the search for an answer as soon as a satisfactory solution is found.
- Confirmation bias—selecting only the parts of the information that confirm an initial judgment
- Diagnostic momentum—being unable to change one's mind about a diagnosis despite considerable uncertainty.
- Commission bias—"doing something" rather than nothing, even if the evidence says sit tight."[25]

Managers are subject to the same biases.

A manager reviewing our work said "I like what you wrote, and I like the idea of EBMgmt," but then asked "how much of this should I implement, in what ways, in my organization?"[26] We did not and I can not precisely answer this question other than to suggest that managers should spend more time reflecting on the strategic decision-making processes in their organization, developing structures that establish transparent accountability for these processes, building a questioning culture, and improving the training of the managerial work force.

---

[25] Groopman, J, *How Doctors Think,* Houghton Mifflin, 2007.
[26] Rundall, TR and AR Kovner, "Evidence-Based Management Reconsidered: 18 Months Later", in Kovner, AR, DJ Fine and R D Aquila, *Evidence-based Management in Healthcare,* Health Administration Press, 2009, 79-82.