EVIDENCE AND DECISION-MAKING

A Resource Guide for
Health Authority Board Members

EVIDENCE AND DECISION-MAKING

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Introduction

This Resource Guide is intended as a starting point to raise awareness and increase the knowledge of the most senior level of decision-makers in health authorities (members of the board) about the role of evidence in health care decision-making. The Guide can be used by health authority operational staff as a resource for board education events and to help structure communications to the board.

The suggestion for the development of an Evidence and Decision-Making Resource Guide for Health Authority board members arose during work on the *From Evidence* to Action research study. *From Evidence* to Action was a project of the Manitoba Centre for Health Policy's Need to Know Team from 2006 to 2009. The study was funded by the Canadian Institutes of Health Research to:

- Identify barriers & other issues related to Evidence Informed Decision-Making (EIDM) faced by RHAs;
- Develop collaboratively created tools/strategies to support Evidence Informed Decision-Making;
- Apply tools/strategies in all Manitoba RHAs;
- Evaluate effectiveness of tools/strategies

Participants in the study identified that there were no education resources related to Evidence Informed Decision-Making that were specifically designed to address the needs of board Members. They felt that this gap was important to address because as the most senior level of decision-makers in the RHA, it was important for board members to have current knowledge and understanding of the issues involving the use of evidence in healthcare decision-making.

An opportunity arose when a student in the Western Regional Training Centre for Health Services proposed a field placement that centred on learning about the education needs of Health Authority board members regarding evidence informed decision-making. The field placement was jointly supervised by Lorraine Dacombe Dewar, Manitoba Government Accountability Support Branch, and Pat Martens, Manitoba Centre for Health Policy.

Twenty-four 60 to 90 minute interviews were conducted with Manitoba RHA board Chairs and members and CEO's, in the fall of 2008. Keeping in mind that the product was to be a tool for board education, the interview questions were designed to gather:

- Opinions about
  - how evidence is currently used for board decision-making and how that process can be improved
  - what board members wanted to know about evidence in RHA decision-making
  - the role of the board in facilitating the use of evidence in decision-making more broadly
- Knowledge about how evidence is used for more general, regional decision-making and the impact of initiatives such as From Evidence to Action on this activity
- Background/experience with different formats for receiving board education
- Feelings and opinions about current board education and how it can be improved

Board members felt positively about the use of evidence in their work and had a realistic appreciation for the barriers in doing so. They supported the development of a resource guide that could gather all the information on the topic in one place, be made available in a variety of formats and could include some experiential component.

Building on the results of interviews, the Resource Guide provides information, references for further reading and suggested learning activities that can be done individually or in groups to help stimulate application of the information to the relevant contexts and setting.

How to use this resource

The Resource Guide is organized around questions that were prioritized by interview participants. It is not meant to be read from start to finish. The sections do not build on one another. Readers are encouraged to start reading anywhere they find a question that matches one of their own interests.

Board Members:

Hopefully this guide will provide you with a better understanding of the terminology and issues surrounding the use of evidence in healthcare decision-making and some ideas for further reading to learn more about topics that are especially interesting to you. The learning activities are intended to help you apply the material in each section to real life decision-making within your own setting. Do these activities to help reinforce what you learned in the section and to apply the learning to understanding and problem-solving in your own situation. These activities can be done alone or with other board members or decision-makers.

Health Authority Staff:

Health Authority staff looking for ideas or resources for a board education session may use this resource guide by copying relevant sections of the Resource Guide into their material or modifying it to suit the learning situation. Portions may be suitable for designing learning experiences for other Health Authority staff and decision-makers.

The learning activities can be adapted to examine local issues as a whole group involving the board and senior management. For example, the checklists related to classifying and rating information to the board (pp. 32-34) may be used to structure a group discussion that could provide feedback regarding board preferences for receiving information.

What this section can provide: More insight into why evidence is such a popular topic in health care, knowledge of the terminology

Why all the interest in evidence and decision-making in health care?

The evidence-based medicine movement is relatively new. It started gaining momentum in the 1990's. It was first developed as an attempt to close the gap between available research and the clinical practice of medicine. The knowledge that this gap existed was obtained by studying critical incidents in health care. It was observed that in many cases, the application of previously existing, published information (evidence) could have led to better outcomes in patient safety and quality of care…in other words, many of the **critical incidents were preventable** and would not have occurred if those involved knew and applied the findings of recent studies.

Evidence-based medicine is not just aimed at decision-making. It also includes an expectation that health practitioners improve and keep their information management and analysis skills up-to-date and make the time to use them. There are five steps involved[1]:

1. Asking a specific clinical question (refining the question to get it into an answerable form takes skill and experience)

2. Finding the best evidence to answer the question (also requires a special set of skills, knowledge and access to technological resources)

3. Critically appraising the evidence for its validity and usefulness (clinicians need to be able to analyze each source of information to separate weak and strong sources of evidence and be able to sort out whether the evidence is transferable to their clinical question or problem)

4. Transferring the evidence to the clinical situation, connecting it with their own clinical expertise and with patient values – clinicians need to use their judgement to decide if they have the skills to carry out any new interventions described in the literature and whether what the evidence points to is in the best interests of the patient

5. Evaluating the outcomes. This step is the most often overlooked in a busy clinical practice. Clinicians need to structure their practice so that they can collect the information necessary to do this evaluation and make time to do a considered review of the impacts of applying new evidence.

Evidence-based medicine is a movement because it goes beyond continuing education. It requires clinicians to critically examine their decision-making process in detail and to reflect on the results. Doing this **takes time**. It means changing practice to build in routines necessary to carry out the five steps on a regular basis. It also **takes skill**….clinicians that finished their training more than 10 years ago may not be comfortable with how to access and use the many resources that have been developed to maintain an evidence-based practice. It **takes commitment**. Setting priorities for a busy clinician's time is difficult in any setting. The barriers are large and not easily overcome without support.

The evidence-based movement is not unique to medicine. It is extending to involve all other direct care providers such as nursing, rehabilitation, pharmacy etc. The reasons are the same as they are in medicine: to support structures and processes that produce an improvement in patient safety and ultimately increase the quality of care.

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[1] MacDermid, J.C., Walton, D.M., Law, M. (2009). Critical appraisal of research evidence for its validity and usefulness.

Are there different kinds of evidence-based decisions?

While the clinical decision-making level is the one that most often comes to mind in health care, there are other important levels of decision-making: health care management decision-making and health care policy decision-making.

In terms of the numbers of people affected, health care decisions can be viewed as a pyramid with clinical decisions (those that usually affect one person) at the small end and policy decisions (those that affect an entire population, region or province) at the larger end.

Evidence-based medicine/health care decisions are those in the clinical level. These decisions are made by health professionals who are direct care staff and they most often only affect one person or patient.

Decisions made at the organizational level affect all or a large number of those people involved with the organization (patients and staff) and are included in the evidence-based management group. Evidence-based management usually refers to operational decisions that direct how health care service is delivered.

Those decisions that affect an entire population and direct the intended outcomes of health care services are policy decisions. These are made by governors in the health authorities and in municipal, provincial and national government. Figure 1 shows the "levels" of decision-making by numbers affected.

Figure 1: Levels of health care decisions
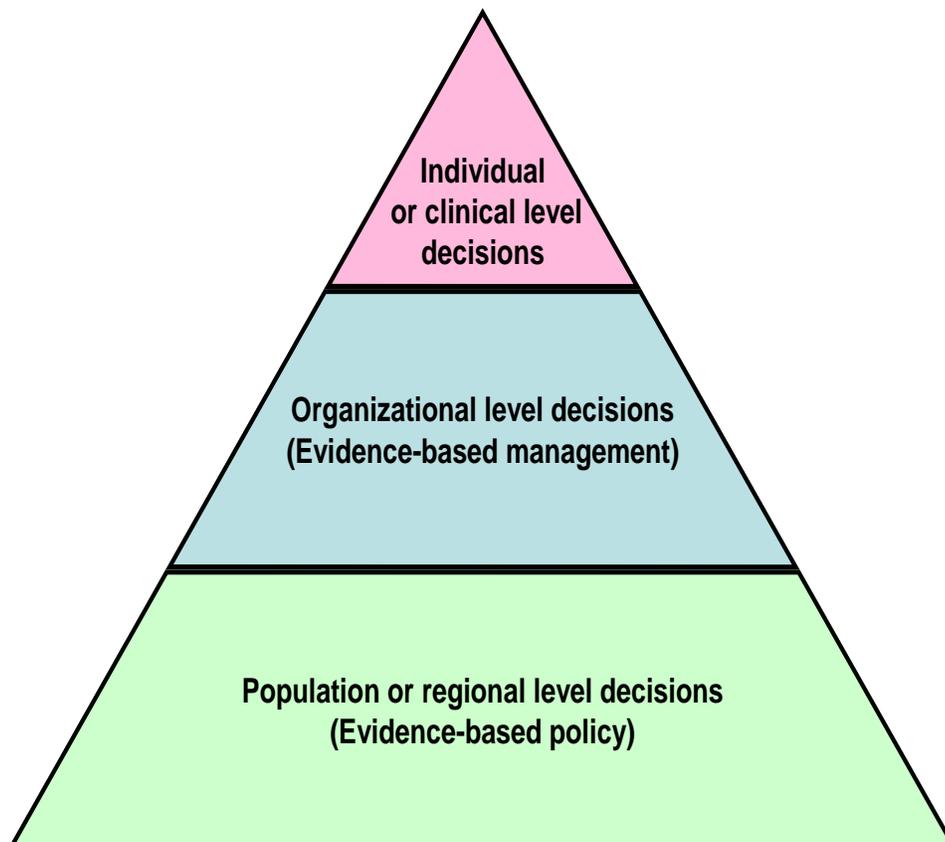
The evidence-based movement is spreading to these other levels of decision-making in health care and there are increasing expectations for health care managers and policy makers (such as board members) to apply the same 5-step process to their decision-making for the same

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reasons as for clinical decision-makers: to improve patient safety and increase the quality of care.

Table 1 gives more detail about the three levels of decision-making, the differences between them and examples of the evidence used at each level.

Table 1: Levels of health care decisions and examples of evidence used

LEVEL OF DECISION	TYPES OF DECISION	EXAMPLE OF EVIDENCE USED	DECISION-MAKERS
Clinical	Selection and application of treatment procedures. Most often affecting individual patients	Practice Guidelines, Care Maps	Direct care clinical staff Managers
Management	Decisions affecting the operation of the organization: human resources, programs, equipment resources	Program Evaluation, Outcome Indicators	Managers
Policy	Decisions affecting the population served as a whole group	Priorities for Services, Community Health Assessment	Board and Senior Executive

The evidence-based movement is also spreading to fields outside of health care such as education, criminal justice and social care.

Why is evidence so important now?

Aside from the interest in improving quality and patient safety, the short answer is "because now it's possible".

Recent developments in information technology such as software to search and locate published articles and new techniques to compile and analyze multiple studies on the same topic (systematic reviews) have provided the tools that make it possible for professionals to realistically keep up-to-date with the research in their field (Walshe and Rundall, 2001).

Many new resources such as practice guidelines and care maps have been developed to support evidence-based decisions at the clinical level….fewer for the management and policy levels. See Section 3 of this resource guide for more discussion of the barriers to evidence-based decision-making.

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What is evidence?

An important concept in science is that evidence must be empirical, that is, dependent on confirmation or consequences that are observable by the senses. Evidence is information that can be seen, heard, felt, tasted or in some cases: smelled. The strongest or most trustworthy evidence is that which you can "sense" or inspect directly first hand. The *From Evidence* to Action project produced a one-page information sheet entitled "What is evidence in health care?" A copy is provided in Appendix A.

> ""Evidence is knowledge that is based on credible investigation, calculation, or analysis. The key is that it must have been collected in a manner that is as free as possible from personal interest, vested interest, or belief." – Participant in 2004 CHSRF workshop

How is knowledge different from evidence?

Is direct inspection of evidence always necessary? Sometimes we are sure that the person whose opinion we are relying on has the necessary knowledge of the evidence….that they have inspected it directly themselves.

Knowledge is defined by the Oxford English Dictionary as "expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject".

Figure 2: Knowledge, Truth and Beliefs
What you know can be influenced by both the truth and by what you believe.

Knowledge is important. It can go beyond evidence and take things like beliefs, truths, values and ethics into account. It is simply not possible for every person to have the same knowledge. Relying on expert opinion is necessary – however, the evidence supporting that opinion should always be taken into account.

Are there different kinds of evidence?

Scientific evidence, or research, is usually considered to be the most trustworthy evidence because it has been produced using a method that removes unfairness and increases its validity. It can be safely applied or generalized to other situations.

Studies that deliver good scientific evidence will produce the same results when the methods are used again in other research.

Before scientific evidence is accepted for publication, it is usually reviewed or inspected by other scientists who are experts in that subject. They make sure that it meets acceptable standards for quality.

Scientific evidence is the type that is most often studied and written about when discussing evidence-based health care. However, most experts agree that scientific evidence is not the only kind of information that is useful for health care decision-making.

The Canadian Health Services Research Foundation[2] (CHSRF) understands that it takes both evidence and knowledge to make good decisions for health care. The authors of a report on

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[2] CHSRF. (2005). Conceptualizing and Combining Evidence for Health System Guidance.

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using evidence for health system guidance (see footnote) feel that evidence can be considered either colloquial or scientific and that "*outside the research community the colloquial definition of evidence dominates; that is, evidence is 'anything that establishes a fact or gives reason for believing in something'.*"

Figure 3 illustrates some of the factors that can contribute to decision-making.
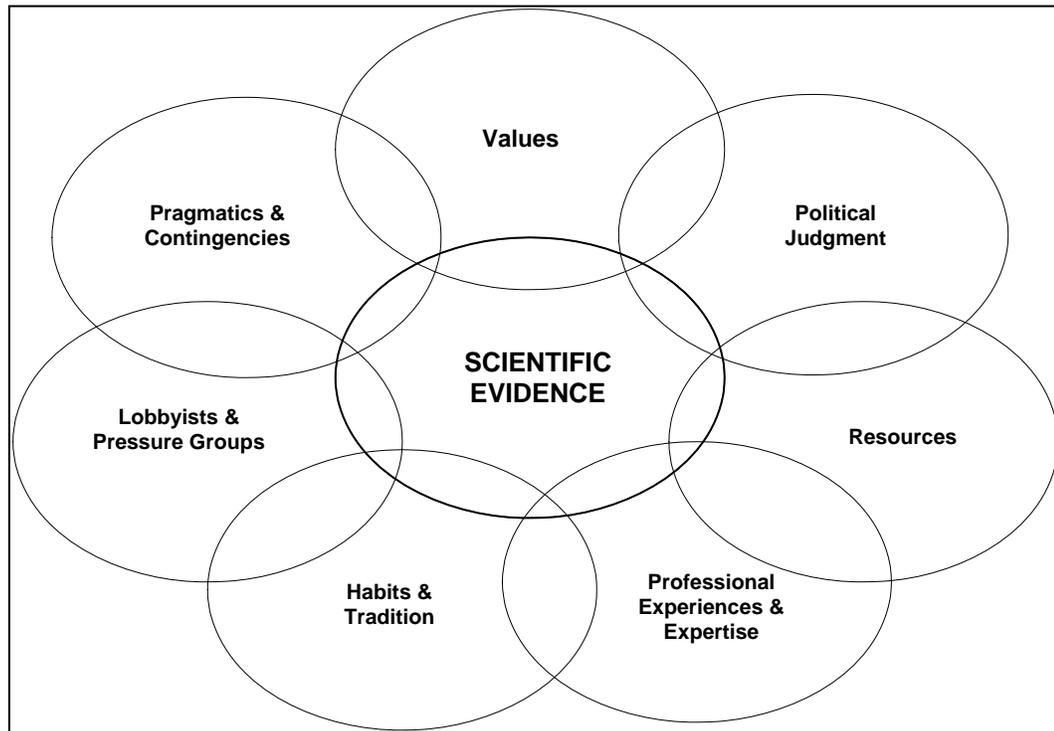
Figure 3: Sources of evidence for health care decision-making (CHSRF, 2005)

Many people believe that scientific evidence should be privileged – given the highest priority for use in health care decision-making. However, we know that there are also other factors that influence decisions– resource availability is one example. Increasing the number of health providers may be the right thing to do, but not if the budget won't support hiring additional staff. CHSRF suggests that a combination of evidence is best for decision-makers to take the whole picture into account when they decide.

Sometimes there just is not enough evidence available. With these things in mind, the term: **evidence-informed decision-making** is sometimes used to describe those decisions that are not strictly based on scientific evidence but are still made using the best available evidence and knowledge.

Because scientific evidence may not be available, or locally relevant evidence may be essential, other sources of evidence are required. These include community consultations, program evaluation, local surveys or results of quality improvement initiatives. The challenge for decision-makers is to ensure that more weight is given to sources of evidence that reflect high standards for trustworthiness and minimize the influence of other factors (e.g. habit, personal preference, lobbying).

The importance of evidence and evidence- based health care

No two health regions are exactly alike but the main problems concerning the delivery of healthcare are similar around the world. According to J.A. Muir Gray (2001) they are:

The increasing costs of healthcare
1. The lack of capacity to pay for the totality of heath services demanded by healthcare professionals and the general public
2. Significant variation in the rates of delivery of health services
3. Delayed implementation of research findings into practice

Muir Gray feels that all of these problems can be reduced with the implementation of sound evidence. He says that: "during the 21st century, the healthcare decision-maker, that is, anyone who makes decisions about groups of patients or populations, will have to adopt an evidence-based approach".

That the pressure to do so is increasing is obvious. But it's not without good reason. In the health care arena, evidence is becoming more and more important to prove that decisions are based on the current best information available and that costly mistakes (using outdated information) are being avoided. Some obvious examples of costly mistakes include purchase of expensive equipment that is only used on a very small segment of the population or investment in training to develop skills that cannot be sufficiently practiced to maintain them.

A systematic consideration of evidence in routine decision making can broaden a decision-makers perspective: introducing them to new points of view and the possibility of a larger number of options for action. Gathering and using high quality evidence can speed the process of decision making, reducing the time needed for debate and the stress associated with making choices "on the fly".

The *From Evidence* to Action Project, along with *The Need to Know* Team, compiled ten good reasons for using evidence in health care decision-making.

10 Reasons to Use Evidence in Health Care

1. Facilitate decisions
2. Avoid costly mistakes
3. Increase choices
4. Save time
5. Proven effective
6. Less stressful
7. Its Best Practice
8. Provides broader perspective
9. Helps gain consensus
10. Public expects it

Figure 4: 10 Reasons to Use Evidence in Health Care

Strengths and limitations of different types of evidence

No one type of evidence is always the right one. Each has strengths and limitations which should be taken into account.

Table 2: Comparison of Types of Evidence

COMPARISON OF TYPES OF EVIDENCE		
Type of evidence	Strengths	**Weakness**
Systematic reviews	Best quality of evidence: done by experts using a scientifically rigorous process, reviewed by other experts, published in reputable journals and websites.	Not always available on needed topics, can be hard to locate.
Clinical guidelines	Consensus of opinion of several experts, compiled in a way that leads directly to recommended actions.	Disagreement among experts, not always implemented due to criticism about ideal as opposed to "real world" conditions.

COMPARISON OF TYPES OF EVIDENCE		
Type of evidence	Strengths	**Weakness**
Expert opinion	Relatively easy to obtain, often based on several years of learning from practice/experience, shared accountability for results based on opinion.	May be affected by bias[3], may not be methodologically sound.
Qualitative research article/s	Sound method and process: peer reviewed. Gives depth of information about meanings and insight to understand an issue but cannot explain cause or effect.	Cannot be generalized and not usually applicable in other situations.
Quantitative research article/s	Sound method and process: peer reviewed. Can give answers to questions about cause and effect relationships.	May not be directly applicable or repeatable in other contexts. Does not always include steps or recommendations for action.
Synthesis of research articles	Time-saving, takes more than one perspective/conclusion into account.	Quality depends on the skill of the person doing the synthesis.
Ethical analysis	Takes ethical concerns into account. Focus on the best versus the right answer.	Difficult to do in an objective manner: can lack rigour.
Program evaluation results	Gives objective information about local services.	Depends on the skill of the evaluator, may be subject to bias.
Indicator and or prevalence information	Gives objective information about local service and outcomes.	Indicators may not be validated and conclusions faulty.
Stakeholder satisfaction information	First hand information about how service users rate the service they get.	Often not valid because of many biases: e.g. research shows that most responders exaggerate positive feedback and downplay constructive criticism.
Stories of personal experiences	First hand, real life experience can give superior insight and understanding and understanding about a particular problem or raise awareness of the need for more investigation.	Not generalizable….conclusions about solutions not necessarily valid due to incomplete knowledge base and emotional biases.
Adapted from Bowen, S. and Struthers, A. (2008). WRHA Priority Setting Criteria User's Guide.		

Keeping in mind that scientific evidence for health care management and policy levels of decision-making is even more difficult to obtain that that used for clinical decisions, it has been proposed that decision-makers at these levels should aim at **evidence-informed** as opposed to evidence-based decision-making.

By complementing knowledge based on information gained from experience (professional, patient and organizational), values, political judgement, traditions and practical realities, scientific evidence can help increase the understanding of the problem, create avenues for communication, help generate creative solutions and help to estimate the most likely results for each of the options for problem resolution.

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[3] See section 4 of this resource guide for more information about cognitive error and bias.

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Section 1: What is Evidence? Learning Activities

1. What counts as evidence in your setting? List the types of evidence you have used in decision-making, give examples if possible. In the right hand column, estimate the amount of each type used in a typical period (year?) of decision-making: make the total add up to 100%.

Table 3: Worksheet 1.1 Types of evidence

WORKSHEET 1.1: TYPES OF EVIDENCE USED IN DECISION-MAKING		
Type of evidence	Example	Estimated % used
Systematic reviews		
Clinical guidelines		
Expert opinion		
Qualitative research article/s		
Quantitative research article/s		
Synthesis of research articles		
Program evaluation results		
Ethical analysis		
Indicator and or prevalence information		
Stakeholder satisfaction information		
Stories of personal experiences		
Other:		
	TOTAL USE	**100%**

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Section 2: How can evidence be evaluated and measured?

What this section can provide: Information to enable board members to consider and use methods to evaluate the quality of evidence.

What is critical appraisal?

Critical appraisal is the process of carefully and systematically examining research to judge its trustworthiness, and its value and relevance in a particular context.

Both the quality of the evidence and its applicability to a specific situation must be considered.
Three important questions to use in this process are:
1. Is it relevant to the purpose?
2. Is it credible or trustworthy?
3. Is it sufficient to draw conclusions or to act on?

Much of the information and evidence that members of the public have about health care comes from regular media outlets such as newspapers, magazines and radio and television shows.

Dr. John Frank, the Scientific Director of the Canadian Institutes of Health Research: Institute of Population and Public Health (IPPH) offered the following tips (Table 4) as a starting point when assessing the evidence contained in media reports on health matters.

Table 4: Tips for Assessing Evidence

1. How was this information produced?	The evidence that smoking, for example, causes lung cancer is beyond any scientific doubt. If the media report today that a new study challenges that conclusion, I would immediately want to know who funded the study. Was it funded by a publicly funded and reputable organization like the Canadian Institutes of Health Research or by the tobacco industry? Too often, media reports do not mention who the funder is. Unfortunately, it matters!
2. What is the actual subject of the study?	It pays to ask what's being studied. Sometimes researchers present their work as if they have shown a link to actual disease risk when they have not. For example, the media recently reported links between night-time exposure to light, and altered levels of melatonin (a body hormone related to our "biological clock" and sleep) which in turn were shown to promote cancer cells growing on a Petri dish. The reports suggested, therefore, a link between night-time exposure to light and cancer in real, live human beings. In fact, the study said absolutely nothing about this. Finding the smoking gun takes much more time and effort.
3. How does the current information compare with previous research on the same subject?	Single studies on a given question, especially in the field of environmental or occupational health, almost never exist. And, because epidemiological science is complex and not always precise, such studies can disagree. So a new study, consistent with what other high-quality investigations have shown, is much more convincing than a single study that disagrees with the bulk of previous science addressing the same question. Generally, reputable scientific journals will not publish studies that fail to discuss how they fit with previous studies in the same area or why they disagree with previous findings. Likewise, media reports should address this issue.

4. Is the author well known, representing a reputable institution?	The vast majority of scientific studies that have changed our views on how and why diseases develop come from researchers based in university-affiliated or independent, non-profit research institutes, including government-based investigators. This is not accidental. These institutions appoint scientists on the basis of the quality of their research training and accomplishments.
5. Is a balanced view presented?	There's more than one side to a story. Scientific advances in knowledge emerge from the gradual resolution of disagreements between experts in any field, by the accumulation of reliable evidence over time, supporting one view over another. Thus reports on controversial topics, where the scientists do not all agree, should always be accompanied by quotes from those who hold a different view from the study author(s).
Source: A Beginner's Guide to Judging Research Studies available at http://www.cihr-irsc.gc.ca/e/34192.html	

Building on Dr. Frank's list, here are some questions for board members to consider when they are presented with evidence supporting a decision that they need to make:

Table 5: Questions for boards to assess evidence

Questions	Details
1. Is there any possibility of conflict of interest?	Who produced the evidence and options for decision-making? Is it objective and unbiased?
2. How broadly can the information be applied to other places and issues?	Is the evidence specific to particular issue or jurisdiction? Is there enough reason to believe that applying the same solutions will work in this case?
3. Is this information a brand new discovery that is unique and not comparable?	Does it feel complete? Are you convinced that enough work was done to compare this evidence to other studies and situations?
4. Can the author's qualifications be verified?	Is this a known expert? What do you know about their "track record"?
5. How objective is the case that the evidence is making?	Does the case described by the evidence consider the "other side of the story"? Does it help you recognize risks as well as benefits?

Are some kinds of evidence better than others?

One of the main criticisms of evidence-based medicine is that it ranks sources of evidence in a way that it is not very practical. EBM gives the most weight to evidence that has been obtained from random-control trials (RCTs) or studies in which all possibility of the outcomes being affected by chance or interference from human preferences have been controlled for and removed.

Evidence obtained from random-control trials is not available for all clinical decisions and almost never obtainable for management or policy decisions. Because research is often incomplete and sometimes contradictory or unavailable, other kinds of knowledge and information, such as professional judgment, experience, values and stakeholder opinions are necessary supplements to or stand-ins for scientific evidence.

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Evidence is sometimes described as strong or weak according to how it compares to scientific evidence (e.g. its trustworthiness). How "good" it is really depends on the purpose and how useful it is for making the decision.

The *From Evidence* to Action study produced a list of evidence comparing stronger and weaker types of evidence shown in Table 6 below.

Table 6: Stronger and Weaker Evidence

COMPARISON OF SOURCES OF EVIDENCE	
STRONG SOURCES OF EVIDENCE	WEAKER SOURCES OF EVIDENCE
▪ Systematic reviews of evidence on a topic (e.g. Cochrane Reviews). These are scientific examinations that compile and compare the findings of multiple studies of the same topic	▪ One single article on a topic
▪ Consensus of expert opinion (e.g. clinical guidelines)	▪ One expert's opinion
▪ Findings from well-designed qualitative studies	▪ Anecdotes: stories about what happened, especially if not verifiable
▪ Comparison of validated indicators over time	▪ Use of indicators that have not been validated, are not comparable over time or location, or can be "gamed"
▪ Results of well-designed, objective program evaluations	▪ Results of poorly designed evaluations, or those conducted by someone too close to one side of an issue
▪ Strategies for systematic input from all stakeholders (e.g. values and experience of people affected)	▪ Opinions of a few non-representative individuals

Source: *From Evidence* To Action 2005-2008

A HUMOROUS LOOK AT RATING EVIDENCE

Class 0: Things I believe
Class 0a: Things I believe despite the available data
Class 1: Randomized controlled clinical trials that agree with what I believe
Class 2: Other prospectively collected data
Class 3: Expert opinion
Class 4: Randomized controlled clinical trials that don't agree with what I believe
Class 5: What you believe that I don't

Levels of Belief: From Shaughnessy & Slawson, 2004

Figure 5: A humorous look at rating evidence

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Section 2: Evaluating Evidence Learning Activities

Consider a decision where you were presented with evidence that you found very compelling. What were the elements of that evidence that most persuaded you? Check those that were important

Table 7: Worksheet 2.1 – Evaluating evidence from personal decisions

• Information was objective, unbiased. No conflict of interest.	
• Information was clear and unvarnished: no attempts to exaggerate the findings.	
• Information was complete. Good idea of how it fit with other knowledge on this topic.	
• Author/source was impeccable. Well known and respected.	
• Information was balanced. Both risks and benefits were clearly outlined.	
• More than one source with the same conclusion was provided.	
• Process used to gather the information included everyone who had something to contribute. Good consensus of opinion.	
• Information agreed with previous evidence that you have considered.	
• Information agreed with values that are important to you.	

Were there other elements that influenced you?

Is there any one element that affects you more than others?

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What this section can provide: A framework for understanding knowledge management processes and the circumstances that interfere with the application of evidence in health care decision-making.

What does knowledge management have to do with evidence-based decisions?

Knowledge management is a term used to describe the processes necessary to identify, gather, organize, store, search, retrieve and share knowledge in a person's daily activities. This is becoming more of an issue because the knowledge associated with health care delivery is growing at an ever-increasing pace sometimes referred to as a "knowledge explosion".

New health evidence is being produced every day and the entry-to-practice knowledge that health professionals started out with is becoming obsolete much more rapidly.

With advances in communication and information technology, the problem is not just the identification of useful knowledge and evidence, but the mass production of it. It has been estimated that current clinical knowledge bases double every five years. Over 1000 new biomedical articles are indexed per day. This would require a health professional to read several hundred articles daily just to keep up with current knowledge in their field.

Lack of resources and skill in managing the evidence available in all this knowledge affects how up-to-date professionals are and how well they can use current best evidence to support their decision-making.

In Section 1 of this resource guide the discussion of "**Why is evidence so important now?**" addresses the new possibilities that are available in the form of computer software, systematic reviews and web resources such as synthesized information. However, health professionals and other decision-makers also need support to access these resources and the skills they need to use them...especially in the form of support for changing work routines to allocate time needed to do this necessary study and participate in activities to maintain skills and competence.

What are the barriers to implementing evidence?
Barriers exist at all levels of decision-making: at the individual (clinical or practitioner level) at the program management level and at the board and senior executive level.

Common ones include:
- Insufficient time to allocate to reviewing evidence
- Lack of access to resources for evidence-based decision-making (e.g. computer access, library access, specialized software)
- Insufficient skills to locate and evaluate evidence
- Lack of relevant evidence

Is there evidence for an evidence-practice gap?

In spite of a growing awareness and general commitment to evidence-based practice and decision-making, a mismatch between evidence and actual practice occurs at all levels of health care including decisions made by patients, health care professionals, managers and policy-makers. (Straus, Tetroe and Graham 2009). This is known as the evidence-practice gap.

To illustrate this, two researchers (Rachel Vreeman and Aaron Carroll) selected commonly held beliefs that they often heard quoted by members of the public and by their medical colleagues and searched for evidence to prove or disprove them.

In spite of the popularity of the beliefs, they found that either little evidence to prove the belief was true or significant evidence to the contrary existed.

They concluded that more efforts are needed to routinely obtain research information and evidence and apply it to practice. "Speaking from a position of authority, as physicians do, requires constant evaluation of the validity of our knowledge."

Read the case they made for debunking the myths

(including the evidence they found and did not find) at
http://www.bmj.com/cgi/content/full/335/7633/1288

Commonly held health beliefs that are not based on evidence
• People should drink at least eight glasses of water a day
• We use only 10% of our brains
• Hair and fingernails continue to grow after death
• Shaving hair causes it to grow back faster, darker, or coarser
• Reading in dim light ruins your eyesight
• Eating turkey makes people especially drowsy
• Mobile phones create considerable electromagnetic interference in hospitals

Figure 6: Health beliefs not based on evidence (Vreeman and Carroll, 2007)

What are the skills necessary for knowledge management and evidence-based practice?

One way of overcoming the barriers to implementing evidence is to improve knowledge management skills.

Muir Gray (2001) recommends that health care decision-makers have the skills necessary to:
- Define and identify the sources of information
- Construct simple search strategies for searching electronic databases
- Carry out a search of PUBMED (or other health database) without the help of a librarian and find at least 60% of the reviews or research studies that would have been found by a librarian
- Download the end-products of a search into reference management software.

While these suggestions apply more directly to clinical level of evidence-based decision-making, skill development is also called for at the management and policy level.

However, there are additional barriers to evidence-based (or evidence-informed) decision-making at the management and policy levels that have to be taken into account. Some of these are contained in Table 8.

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Table 8: Comparison of clinical and management decision-making

COMPARISON OF CLINICAL AND MANAGEMENT DECISION-MAKING BY SOURCE AND TYPE OF EVIDENCE AND THE APPLICATION OF EVIDENCE-BASED PRINCIPLES	
Clinical decision-making	**Management decision-making**
Most clinicians (medicine, nursing, rehabilitation) were trained in an environment that was familiar with and made use	Managers, especially senior managers, and policy makers tend to be from social and business science backgrounds. They have less experience with research and scientific evidence
Many clinical decisions are basically similar: it's the context (patient and their circumstances) that differ	Management and policy decisions tend to be more unique and "one-of-a kind". There are fewer opportunities to make a similar decision.
Clinical decisions usually affect individuals	Management and policy decisions are fewer in number but have larger consequences that impact many more lives
Many resources and tools are available to support evidence-based decision-making at the clinical level such as systematic reviews, clinical guidelines and care maps	Few supports and tools and scarcity of published literature: most information found in "grey literature" (reports from other jurisdictions and settings). These are not always catalogued and are much harder to learn about and obtain.
Clinicians often make decisions on their own	Management /policy decisions are usually a team effort and require consensus of opinion. They take longer to make and the process is often not predictable.
Results of decisions made at the clinical level are usually obvious: the patient improves or not….this makes it easier to evaluate the decision.	Results not always obvious: other intervening factors play a role in the eventual outcome making it much more difficult to evaluate the decisions made
Source: Adapted from Walshe and Rundall (2001)	

The Canadian Health Services Research Foundation has several resources aimed at implementing research knowledge at the organizational level. These resources may help inspire strategies that can be applied to your own individual and organizational knowledge management situation.

A good starting point is at the web page titled "Tools to help organizations create, share and use research" located at http://www.chsrf.ca/knowledge_transfer/tools_e.php

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Section 3: Barriers to Using Evidence Learning Activities

What are your own processes for managing the knowledge that is necessary to do your board job?

Table 9: Worksheet 3.1 Reflecting on personal information managment processes

Consider how you:	Notes
• Receive or gather information	
• Read or review information	
• Organize information	
• Store information	
• Identify needed information	
• Search and retrieve information that you have gathered	
• Share information	

Is there any area that you find more difficult than others?

What resources do you have to make any changes that you feel are necessary?

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What this section can provide: Increased conscious awareness of the process for decision making and a guide to identify (and prevent?) faulty logic and cognitive errors.

Is good evidence all that is needed to make a good decision?

Most authors would say that evidence is necessary but not sufficient for good decision-making. Decision-makers also have to consider the context and ethics, weigh the values and predict the consequences of actions resulting from the decision. They also have to be sure that their decisions are based on an objective and balanced examination of all of these factors.

You'll never have all the information you need to make a decision. If you did, it would be a foregone conclusion, not a decision.

-David Mahoney Jr.
(Mahoney was a founder and Chairman of the American Health Foundation until his death in 2000 and the Chairman of Norton Simon Inc. from 1970 to 1983. In 1978, he was the highest paid executive in the US.)

Aside from a crystal ball, probably the most useful thing that a body of decision-makers can have, in addition to good evidence, is an awareness of how they make decisions and how to prevent making common errors.

In her blog, titled "26 Reasons What You Think is Right is Wrong" (http://www.blisstree.com/healthbolt/26-reasons-what-you-think-is-right-is-wrong/), Liz Lewis describes the cognitive biases that distort decision-making reality and convince people that they are viewing the evidence correctly, when they aren't. No one is immune to cognitive bias. One of the benefits of group decision-making is that we are each less prone to some traps and can recognize when others are falling into theirs. If the trust level among board members is adequate, "reality-testing" will be a routine part of the decision-making process.

Two types of decisions

Decisions usually fall into one of two types: emotional/intuitive and objective/calculated.

Sometimes intuitive decision-making is a more rational alternative than using a calculation-based or objective method. When the decision is "chocolate or vanilla", it just makes good sense to "trust your gut". For one thing, speed is a definite advantage. Also, keep in mind that your emotional response is a good indicator of what is right and important for you. Decisions that are based on emotional intuition are more likely to lead directly and more quickly to action: "Chocolate, please".

Some reasons why intuitive decision making is a problem:

1. Failure to consider other available options
2. May be based on inaccurate or irrelevant information (this is very hard to determine retrospectively)
3. Can be problematic in group situations: if others disagree, whose intuition is "better"?

A closer look at the process of decision-making

Decision-making is the result of mental processes that produce the selection of an output or choice from among several alternatives. Outputs of decision-making are most often a planned action or an opinion (policy).

Decision making processes usually involve considering the following questions:
- What are the action/policy choices?
- What are the pros and cons of each possible choice?
- What are the consequences of each choice?
- What is the probability of each consequence?
- What is the relative importance of each possibility?

Can understanding how one health profession makes errors in reasoning help the rest of us avoid those errors?

How doctors think: a case study of one profession's clinical reasoning

Although many discussions of health care are criticized as being "too medical", in this case, it is worth using doctors as a case study for the concept of cognitive errors in health care decision-making. Many of the insights provided by Jerome Groopman in his book "How Doctors Think" can be applied to understand the decision-making and reasoning processes of other professionals including management and policy level decision-makers. In this case study, Dr. Groopman examines the errors in logic and thinking that interfere with doctors' decision-making processes.

According to Dr. Groopman, inadequate medical knowledge is the reason for errors in decision-making in only a very small number of cases. He says most errors are caused by errors in logic and problem solving, sometimes known as cognitive traps – where a failure to collect and interpret evidence correctly leads to a faulty conclusion.

Although Dr. Groopman's book focuses on decisions that doctors make, cognitive traps apply to all decision-makers. It is suggested that understanding the errors that Dr. Groopman describes can help one "avoid snap judgments, embrace uncertainty, communicate effectively, and deploy other skills that can have a profound impact on our health".

Understanding Groopman's Cognitive errors

The cognitive errors that Groopman describes can be placed into four main categories: Confirmation biases, Attribution errors, Commission biases and Investigation errors[4] . The descriptions have been adapted slightly for a non-medical audience but many of the medical examples remain relevant:

1. **Confirmation Biases**

   Confirmation biases cause you to look for proof of your preferred solution while ignoring factors that might disagree with it. They are the result of errors in cognition combined with the fast paced decision-making required in many Health Authority decision-making circumstances. These errors are frequently based on:

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[4] The University of Saskatchewan Medical Education Blog. Deirdre Bonneycastle obtained from http://blogs.usask.ca/medical_education/archive/2007/05/

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- Availability/routine: The tendency to judge the likelihood of an event by the ease with which relevant examples come to mind. When you see a lot of one type of problem or have studied a particular issue recently, you tend to be looking for it. For example: You have seen 6 cases of flu this week and here's another one. You only see the symptoms of flu you are looking for and ignore the symptoms of food poisoning.

- Diagnosis Momentum: When a problem has been diagnosed or interpreted to result from "A" previously, the assumption is that "A" was a correct diagnosis and that new problems are probably related to the previous diagnosis. This is more likely to occur when the initial diagnosis came from an authority figure, but has also occurred when a patient self diagnoses (I have a migraine).

- Lack of Experience: Lack of experience may cause a person who does not understand the variability of health care problems to depend on textbook knowledge or medical studies that are incomplete. On the other hand, the person may have used the same solution successfully in another situation and was hoping for the same results.

- Search Satisfaction: The person may stop searching when one solution that seems reasonable is proposed and not look further.

- Overconfidence: The person is so invested in proving themselves right that the public and health service recipients may be at risk. This is linked to the tendency to believe that one's previous decision-making was better than it was. **Hindsight bias**, the assumed ability to see how errors were made in the past can contribute to overconfidence.

2. Attribution Errors

When stereotypes about a race, gender, religion, age, addictions etc. result in misdiagnoses, the underlying assumption is frequently that this person is judged unworthy of full attention because of the stereotype. A recent case involving the death of a patient in a hospital emergency room is believed to have been such an error. The patient, a well-known frequent visitor, was widely thought to be presumed to be a lower priority for attention because of his frequent use of the emergency room.

A subsection of attribution errors is the reverse: in medical situations it involves liking the patient too much and not wanting to cause them pain or embarrassment, so you don't ask them questions about their sexual history, don't examine them for prostrate cancer, don't ask about sleeping pill use etc. In other health care decision-making it may be the result of great admiration or respect for a person that makes the decision-maker reluctant to inconvenience them by asking too many questions.

3. Commission Biases

Commission bias is the result of overwhelming internal or external pressure to do something NOW rather than wait. Doctors want to help patients and their fearful families. Antibiotics, painkillers and sleep aids have all been over administered because of commission bias. Aggregate bias or the ordering of tests and x-rays when the guidelines don't recommend them is a form of commission bias.

Omission bias is the other side of this coin and results in the person doing very little in the hope of avoiding errors. Groopman points out, that in cases where insufficient data

or evidence exists, inaction may be the best course of action. However, it is important to consider whether the decision not to act is resulting from omission bias rather than a genuine lack of evidence.

4. Investigation Errors

Investigation errors short-circuit a search for evidence or lead a plan for the collection of evidence off in the wrong direction. They are primarily the result of asking the wrong questions because of the following factors:

> *There are four chief obstacles in grasping truth ... namely, submission to faulty and unworthy authority, influence of custom, popular prejudice, and the concealment of our own ignorance accompanied by an ostentatious display of our knowledge. - Roger Bacon (c.1220-1292) English philosopher and scientist*

- Anchoring: The tendency to rely too heavily, or "anchor," on one issue or piece of information when making decisions. This tendency can lead to search satisfaction and other confirmation biases.

- Base Rate Neglect: Under or over estimating how common a disease (or problem, or belief) is in a community, gender, ethnic group etc.

- Framing Effect: The way a problem or issue is described influences the problem-solving process. Some people may be unable to pick up key words and nonverbal cues from persons familiar with the problem to make judgments about severity, frequency and urgency because of fatigue, coming from a different culture or inexperience. Others may rely too heavily on the frame and fail to look at the bigger picture. Using a medical example: when a patient is labelled as having fever, shortness of breath and cough, some may jump to a diagnosis of pneumonia in a patient with pulmonary embolism.

- Fear: Fear of death, fear of failure, fear of uncertainty can lead to avoiding problems with possible unpleasant outcomes. Some people become overly rational/clinical to cover the irrational fear. Others become overly dependant on guidelines/evidence because their fear of failure is pushing them to the safety of outside expertise/authority.

- The Last Bad Experience: If a person makes a serious error, they can run away, cover up, bluff it out, avoid or they can fight, be overly vigilant, obsess.

Can others help to overcome a professional's cognitive errors?

Dr. Groopman believes that patients can help their doctors to improve their decision-making by focussing them on some specific questions that might help them see past a bias or error in thinking. These are:

Table 10: Questions for patients to ask their doctors

GROOPMAN'S QUESTIONS FOR PATIENTS	
Question	Potential Purpose
1. *What else could it be?*	Discourage **satisfaction of search bias** and help the doctor to consider a broader range of possibilities
2. *Is there anything that does not seem to fit into the picture?*	Discourage **confirmation bias**…encourage broader thinking

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3. *Is it possible that I have more than one problem?*	Discourage **anchoring**
4. *Is the treatment you recommended standard, or are there other approaches?*	Discourage **availability/routine**
5. *What is the worst thing my diagnosis could be?*	Discourage **confirmation biases** like **satisfaction of search, availability/routine and diagnosis momentum**. May also help discourage **attribution errors**.

Extra Credit:
Read up on over 26 types of cognitive biases, social biases and memory errors at Wikipedia:
http://en.wikipedia.org/wiki/List_of_cognitive_biases

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Section 4: Evidence and Decision-making Learning Activities

1. Did you recall any examples of your own that fit with the four categories of Groopman's Cognitive Errors (Confirmation biases, Attribution errors, Commission biases and Investigation errors) while you were reading them? Describe the circumstances and outline what the error was and your understanding of why it occurred.

2. Can Groopman's questions for patients (Table 10) be revised to apply to board members? For example, if board members routinely asked, "Are there any other possible solutions?" would it help avoid **satisfaction of search bias**?

Rewrite the questions to be more relevant to board decision-making in a way that can help board members discourage bias and avoid cognitive traps.

Table 11: Worksheet 4.2

WORKSHEET 4.2 QUESTIONS FOR BOARD MEMBERS TO ASK TO AVOID BIAS	
GROOPMAN'S QUESTION	RE-PHRASED FOR BOARD MEMBERS TO ASK
What else could it be?	
Is there anything that does not seem to fit into the picture?	
Is it possible that I have more than one problem?	
Is the treatment you recommended standard, or are there other approaches?	
What is the worst thing my diagnosis could be?	

3. Consider and improve this checklist of questions to prevent cognitive traps by modifying it to suit your organization:

Table 12: Worksheet 4.3

Yes/No	WORKSHEET 4.3 CHECKLIST FOR COGNITIVE/DECISION-MAKING TRAPS Apply these questions to one specific decision	
	Could there have been a "leap" to a conclusion or solution as the result of some confirmation bias?	
		Availability/routine: Is this issue so commonplace and routine that it was "pigeonholed" without complete investigation?
		Diagnosis momentum: Is the proposed solution based on a previous (and possibly untested) understanding of the problem?
		Search satisfaction: Is the proposed solution the best or does the pressure to find one make it "good enough"?
		Lack of experience: is the proposed solution the result of a thorough understanding of the variability and context of the issue?
		Overconfidence: Is someone so over invested that they believe their credibility/career rests on the selection of a particular solution?
	Could stereotyping or personal relationships have resulted in faulty assumptions that either decreased the value/worthiness of the subject/s of the decision or "softened" the approach necessary to get to the heart of the matter?	
	Was the solution prematurely arrived at because of the need to act quickly? Has a decision been delayed because of the fear of inevitable negative consequences associated with it?	
	Has all available evidence been considered?	
		Has the search for evidence been stuck or anchored on one issue?
		Is there a clear idea of how common the issue/problem is in our own and other jurisdictions?
		Has the way the problem was described lead to a shortened list of possible solutions?
		Is fear of failure/unpleasant outcomes influencing the analysis of the problem or decision that needs to be made?
		Is the decision bringing up bad memories: too similar to another one that "went wrong"?

What this section can provide: A framework to begin examining current board Information Management practices and inform the development of guidelines related to "need" to know versus "nice" to know.

Using evidence in decision-making helps boards fulfill their responsibility. It is fundamental to their fiduciary duty. The Accountability Support Branch of the Administration, Finance and Accountability Department has outlined 21 expectations related to effective governance in their _Board Governance and Accountability_ policy (see Appendix B). One of those expectations (#14) involves Information for Decision-making and states "_Ensures information is accurate, timely, relevant and understandable._"

What types of decisions do boards make?

The type of decisions that Health Authority boards make largely depends on the model of governance in use for that organization. In most regions Setting Strategic Direction is a high priority category for board decision-making: e.g. setting priorities that in turn help shape the distribution of Health Authority resources. These decisions are made by

1. Development and revision of Health Authority policies for
    a. Executive limitations: e.g. the parameters which the CEO must operate within
    b. Board processes: e.g. how board meetings should work, what types of board development is needed, orientation of new board members
    c. Ownership linkages: e.g. understanding who the owners are and what their priorities and expectations look like

2. Monitoring organization and CEO performance: e.g. accepting monitoring reports, CEO performance appraisal, termination or recruitment of CEO

What is the board's role with regard to organizational knowledge and decision- making?

It is said that "_the primary function of any organization is to create the conditions under which individuals can integrate specialist knowledge to produce goods or services of increasingly higher value_"[5]. If this is so, then the specialist knowledge in a health authority is all of that contained in the professional expertise of its health providers and the goods or services are health for residents of the health authority.

> _Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skilful execution; it represents the wise choice of many alternatives._
> - Willa A. Foster

Boards, then, can help turn evidence into wisdom by pointing out the strategic directions that help create the conditions for individuals to turn knowledge into wisdom. Figure 4 shows the knowledge hierarchy in which data (numbers, isolated facts) are acted upon to change first into information (data with relevance and purpose), then to knowledge – both the kind that we can describe and explain (explicit) and the kind that is more unconscious and has to be observed (tacit). Knowledge is formed when information is reorganized and expanded through insights, experience, judgement and values. Wisdom is the best use of knowledge (Leggat, 2003)

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[5] Leggat, S. (2003). Turning evidence into wisdom. Healthcare Papers: 44-48

There are specific organizational initiatives that must be performed in order to accomplish the transformation. They include

- collecting and compiling (aggregating) the data
- processing the aggregated data to emphasize its relevance and purpose and produce information
- interpreting the information through the application of experience, values and judgement by discussing with knowledge users and creators
- thinking about the knowledge to gain more insight and understand connections
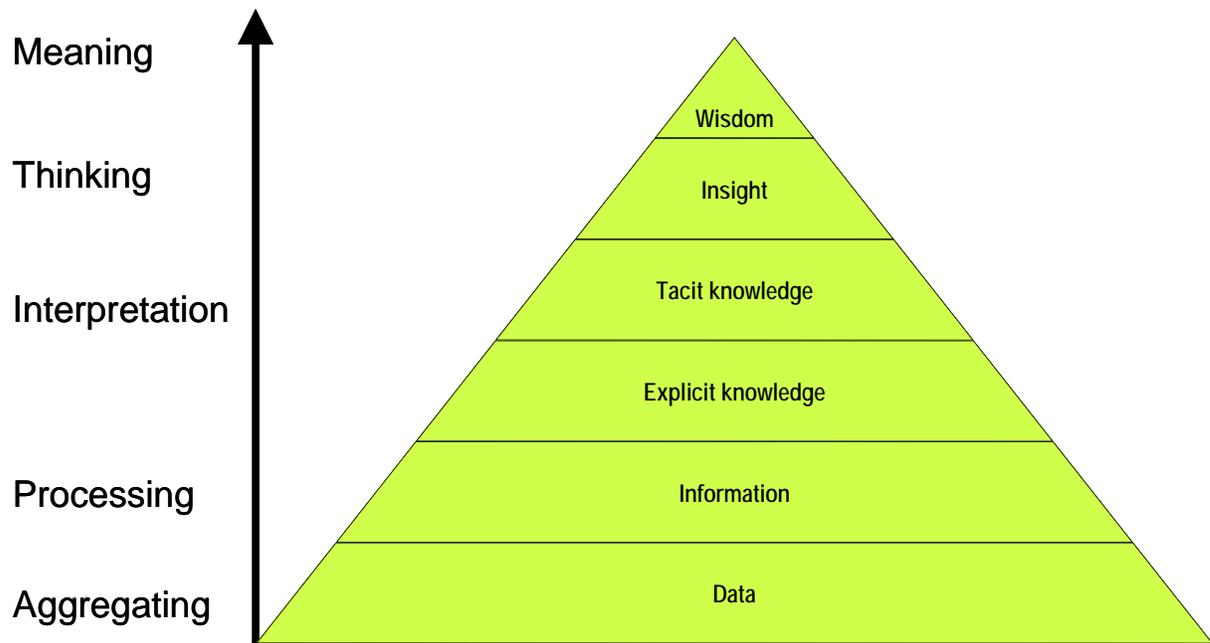- and finally, creating new meaning from the insights: wisdom

Figure 7: Processes involved in turning data into wisdom. (Leggat 2003)

These initiatives can be viewed as steps in organizational knowledge management. Both management and governance expertise will be needed to complete all of the steps.

The conditions required to create wisdom are similar to those necessary to manage and act upon the large amounts of data available to health care professionals making clinical decisions. The board can help set the priorities that create a culture that values and supports individuals to manage knowledge…this becomes a policy focus. From the perspective of board processes: how much of the board resources are going into knowledge (and information) management? Can this activity be more efficient and effective?

> *"Knowledge is telling the past.*
> *Wisdom is predicting the future."*
> *- Tim Garvey*

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How can boards assess their own knowledge and information management?

The first step is aggregating or collecting data to determine patterns, relevance and purpose.

One way is to start by thinking of board responsibilities and expectations as a job description and using these to create a checklist for reviewing Information to the board and evidence for board functioning:

Sample Board Job Description[6]

The board will:

1. Set strategic direction: mission, priorities and goals
2. Maintain contact with and represent stakeholders/owners
3. Monitor organization/CEO performance
   a. Provide financial stewardship
   b. Provide human resource stewardship
   c. Maintain effective board/CEO relationship
4. Monitor and evaluate its own performance
   a. Participate in education for board development
   b. Evaluate board performance

For each piece of Information to the board, complete the following:

Table 13: Sample board information checklist

SAMPLE BOARD INFORMATION CHECKLIST		
Date: Title of Document/report: Number of pages:		
What is this information is mainly intended to do:		Is this information related to a board decision on the current agenda? (Y/N, if Y: specify the agenda item)
Help the board set strategic direction		

Link with stakeholders
      Public/receivers of health services
      Health Professionals
      Government		

Monitor organizational/CEO performance
      Financial
      Human resources
      Risk Management
      Board/CEO relationship		

Monitor/evaluate board performance
      Provide board development education
      Evaluate board performance		

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[6] This is a simplified example for discussion purposes only. Existing board job descriptions should be applied in the learning activities.

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Adopting a method to categorize Information coming before the board according to board functions and decision-making may help board members decide what is "need to know" and what is "nice to know". These records can also be used in scheduled board evaluation activities to review the types of activities and decisions the board has participated in and the information it used to carry these out.

What kinds of strategic directions could lead to increasing evidence-based health care?

Any that would impact or result in:

1. Increasing knowledge management capacity (supporting the development of skills and resources for individual knowledge management)

2. Identifying and addressing organizational barriers to evidence-based and evidence informed decision-making

Another resource:

If taking a closer look at organizational barriers is of interest, the *From Evidence* to Action project developed a tool for Health Authorities to use in understanding, evaluating and creating a plan to act on these barriers.

This tool, called the Evidence Informed Decision Making Barriers Matrix Tool can be used to guide generative discussion. It can be obtained from the Manitoba Centre for Health Policy *The Need to Know* Team website at
http://www.rha.cpe.umanitoba.ca/E2A/Tools/Evidence%20Informed%20Decision%20Making%20Barriers%20Matrix%20Tool.pdf

Section 5: Evidence and Governance Learning Activities

1. Do you think a checklist for Information to the board would be useful in your region?
   a. Why or why not?

   b. Rate the following according to how important you would consider them to be on such a checklist from high importance (1) to lower importance (3):

Table 14: Worksheet 4.1 Rating items for board information

WORKSHEET 4.1: RATING ITEMS FOR INFO TO BOARD INFORMATION	
CHECKLIST ITEM	IMPORTANCE
Relevance of information to board function/job description	
Relevance of information to current board agenda	
Date produced/distributed	
Number of pages	
Author	
Title	

2. Review the board job description for your Health Authority and decide if it can be organized into a checklist as in the sample provided in this section of the guide (Table 13).

3. Are you satisfied with the amount of information you currently receive regarding the expectations for effective governance? Use the following table to brainstorm examples of information you can recall and rate your satisfaction with the amount.

Table 15: Worksheet 4.3 Satisfaction with Amount of Information

WORKSHEET 4.3: SATISFACTION WITH AMOUNT OF INFORMATION RECEIVED		
EXPECTATION OF EFFECTIVE GOVERNANCE	EXAMPLES OF INFORMATION RECEIVED	SATISFIED WITH AMOUNT? Y/N
1. Develops and reviews vision, mission and values		
2. Carries out strategic planning		
3. Resource allocation tied to strategic priorities/goals		
4. Develops and reviews policies on ethics-related issues		
5. Guides the organization to achieve goals and improve performance		
6. Share key information with external stakeholders		
7. Defines and documents its scope of authority, roles and responsibilities		
8. Defines and documents delegation of authority		
9. Demonstrates accountability to its stakeholders		

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10. Regularly monitors and evaluates the organization's performance		
11. Has an effective system of financial planning and control		
12. Regularly and consistently communicates with external stakeholders and the community to build the organization's credibility, inspire commitment, and create support for the organization		
13. Work together as a group and as individuals with commitment to the organizations goals and processes		
14. Ensures information is accurate, timely, relevant and understandable		
15. Has processes in place to successfully carry out its roles and responsibilities		
16. Successfully manages a broad network of external stakeholders		
17. Work toward clarity in relationship with government		
18. Shares key information throughout the organization		
19. Recruits, selects and monitors the CEO		
20. Works effectively with the CEO, senior management and clinical leadership		
21. Regularly evaluates its own performance		

Summarize those expectations for which you would like more information:

4. Classify the following examples of information to the board as Nice or Need to Know and add in examples from your own experience:

Table 16: Worksheet 4.4 Classifying types of information

WORKSHEET 4.4 CLASSIFYING TYPES OF INFORMATION TO BOARD		
Type of information distributed in board packages	Need to Know	Nice to Know
Briefing notes related to current Health Authority issues		
Critical Incident reports		
Finance reports		
Minutes of board committee meetings		
Monitoring reports on Executive Limitations		
Reports of Health Authority Program activities and utilization statistics		
Retirements, promotions and farewells		

Health Authority newsletters		
Schedule of Monitoring reports to be distributed in upcoming meetings		
Stakeholder/ customer satisfaction reports		
Other:		
Other:		
Other:		
Other:		

Glossary

From Evidence **To Action**	The From Evidence to Action project was a three-year CIHR funded research study (2006-2009). The study was a collaboration between researchers at the Manitoba Centre for Health Policy and RHA and Manitoba Health planners who were members of the Need to Know Team. It was developed in response to the identification of organizational barriers that hinder evidence-informed planning and decision making at the RHA-level. More information can be found at the Manitoba Centre for Health Policy website at http://www.rha.cpe.umanitoba.ca/E2A/index.html
CHSRF	The Canadian Health Services Research Foundation is an independent, not-for-profit organization with a mandate to promote the use of evidence to strengthen the delivery of health services in Canada. More information about the organization is available from the website at http://www.chsrf.ca/
CIHR	The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency responsible for funding health research in Canada. More information about the agency is available from the website at http://www.cihr-irsc.gc.ca/
Cochrane Collaboration	The Cochrane Collaboration is an a group of over 27,000 scientist volunteers in more than 90 countries who study the effects of health care interventions using a process for systematically reviewing scientific literature and making it available for inclusion in the Cochrane Database of Systematic Reviews. For more information about the Cochrane Library and systematic reviews check the Wikipedia at http://en.wikipedia.org/wiki/Cochrane_Database_Systematic_Reviews
Evidence-based health care	The application of evidence-based medicine principles to all professions and settings associated with health care.
Evidence-based management	The application of evidence-based medicine principles to health care management and health care organizational issues.
Evidence-based medicine	A method or approach (sometimes called a philosophy, movement or ideology) intended to produce the conscientious application of the best scientific evidence to medical decision-making in clinical settings.
Evidence-informed decision-making	A term used by CHSRF to recognize and acknowledge that it is not always possible for decisions in healthcare to be based on scientific evidence. See the full report available at http://www.chsrf.ca/kte_docs/Conceptualizing%20and%20combining%20evidence.pdf

Need to Know **Team**	Collaborative Research by the Manitoba Centre for Health Policy, Rural and Northern Regional Health Authorities and Manitoba Health. It was originally funded by the CIHR through the Community Alliances for Health Research (2001-2006) and a CIHR Knowledge Translation Award (2005). It is presently funded through Dr. Patricia Martens' CIHR/PHAC Applied Public Health Chair. The Need to Know Team is made up of designated staff from each Manitoba Regional Health Authorities, from Manitoba Health and from the Manitoba Centre for Health Policy. More information about the team is available at http://www.rha.cpe.umanitoba.ca/
Random-control trials	A method of removing bias in clinical experiments by randomly assigning patients to groups that either receive the experimental intervention or drug (treatment group) or receive a placebo or no treatment (control group). Studies that use this method are believed to produce higher quality evidence for clinical decision-making.
Systematic reviews	A highly specialized process that involves gathering and analyzing published scientific literature related to a specific (usually clinical) question. The process results in a determination of whether the evidence supports an answer to the question and the strength of that evidence. Systematic reviews are considered the highest quality evidence in evidence-based medicine, especially those from the Cochrane Collaboration.
Western Regional Training Centre for Health Services Research	*The Western Regional Training Centre for Health Services Research (WRTC) is an innovative and collaborative initiative that supports the training of applied health services researchers across disciplines, sectors, and institutions, equipping them to address the research needs of a wide range of health care policy and decision-makers.* The University of Manitoba is one of the six sites for this initiative and participating students are often involved in *The Need to Know* Team events such as Rural and Northern Health Day. See the website for more information http://wrtc-hsr.ca/

References

Books:
1. Gray, J.A. Muir. (2001). Evidence-based Healthcare: How to make health policy and management decisions. Second Edition. Churchill Livingstone: China.

2. Lemieux-Charles, L. and Champagne, F. (2004). Using knowledge and evidence in health care: Multidisciplinary perspectives. University of Toronto Press: Toronto.

3. Nutley, S.M., Walter, I. and Davies, H.T.O. (2007). Using evidence: How research can inform public services. The Policy Press: Bristol.

Knowledge Translation and Critical Appraisal;
1. Davis, D., Evans, M., Jadad, A., Perrier, L., Rath, D., Ryan, D., Sibbald, G., Straus, S., Rappolt, S., Wowk, M., Zwarenstein, M. (2003). The case for knowledge translation: shortening the journey from evidence to effect. British Medical Journal. 327 (July 5): 33-35.

2. MacDermid, J.C., Walton, D.M., Law, M. (2009). Critical appraisal of research evidence for its validity and usefulness. Hand Clinics 25: 29-42

3. Straus, S.E., Tetroe, M.A. and Graham, I. (2009). Defining knowledge translation. Canadian Medical Association Journal. 181 (3-4):165-168.

Evidence-based Medicine and Health Care:
1. Lavis, J., Ross, S., McLeod, C., Gildiner, A. (2003). Measuring the impact of health research. Journal of Health Services and Policy Research 8 (3): 165-170.

2. Kulier R, Gee H, Khan K. (2008). Five steps from evidence to effect: exercising clinical freedom to implement research findings. BJOG 2008;115:1197–1202.

Evidence-based Management and Policy Making:
1. Bowen, S. (2009). More than "using research": the real challenges in promoting evidence-informed decision-making. Healthcare Policy. 4 (3): 87-102.

2. Broman, Snider and Ellis (2003). Negotiating for change. The healthcare manager as a catalyst for evidence-based practice: Changing the healthcare environment and sharing experience. Healthcare Papers: 10-22.

3. Canadian Health Services Research Foundation (2004). What Counts? Interpreting Evidence-based Decision Making for Management and Policy. Obtained from http://www.chsrf.ca/knowledge_transfer/pdf/2004_workshop_report_e.pdf

4. Canadian Health Services Research Foundation. (2005). Conceptualizing and Combining Evidence for Health System Guidance. Obtained from http://www.chsrf.ca/kte_docs/Conceptualizing%20and%20combining%20evidence.pdf

5. Davies, H.T.O., Nutley, S.M. and Walter, I. (2008). The rise and rise of evidence in health care. Public Money and Management 19 (1): 9-16.

6. Leggat, S. (2003). Turning evidence into wisdom. Healthcare Papers: 44-48.

Evidence and Decision-making Board Resource Guide: From Evidence to Action Project 2010

7. Rosenheck, R.A. (2001). Organizational process: A missing link between research and practice. Psychiatric Services 52(12): 1607-1612.

8. Walshe, K. and Rundall, T.G. (2001). Evidence-based management: From theory to practice in health care. The Millbank Quarterly, 70 (3): 429-457.

Decision-making in Health Care:
1. Agency for Healthcare Research and Quality. (2008). Will It Work Here? A Decisionmaker's Guide to Adopting Innovations. Obtained from http://www.innovations.ahrq.gov/resources/InnovationAdoptionGuide.pdf

2. Clancy, C.M. and Cronin, K. (2005). Evidence-Based Decision Making: Global Evidence, Local Decisions. Health Affairs 24 91): 151-162.

3. CHSRF. Promising Practices in Research Knowledge Summary Series. Obtained from http://www.chsrf.ca/promising/index_e.php

4. CHSRF. (2007). Received Wisdoms: How health systems are using evidence to inform decision-making. Obtained from http://www.chsrf.ca/pdf/received_wisdoms_e.pdf

What is evidence?

Evidence is information that comes closest to the facts of a matter. Because research is often incomplete and sometimes contradictory or unavailable, other kinds of information, such as professional judgment and experience, values and stakeholder opinions are necessary supplements to or stand-ins for research. (Adapted from CHSRF)

> ### 10 Reasons to Use Evidence in Health Care
>
> 11. Facilitate decisions
> 12. Avoid costly mistakes
> 13. Increase choices
> 14. Save time
> 15. Proven effective
> 16. Less stressful
> 17. Its Best Practice
> 18. Provides broader perspective
> 19. Helps gain consensus
> 20. Public expects it

Evidence is more than research:

Because research may not be available, or locally relevant evidence may be needed, other information is often required. Other good sources of evidence include community consultations, program evaluation, local surveys or results of quality improvement initiatives. The challenge for decision-makers is to ensure that more weight is given to sources of evidence that reflect research rigour, and minimize the influence of other factors (e.g. habit, individual preference, lobbying).

Evidence is more than just "numbers":

There is a difference between *data driven* and *evidence informed* decision-making. If only quantitative data is used to make decisions, this eliminates many other good sources of data and places decision-making about currently under-resourced areas at a disadvantage. Good qualitative research and evaluation is often an excellent source of evidence.

> ### As Albert Einstein noted:
> *"Not everything that counts can be counted and not everything that can be counted counts."*

Is evidence-based planning really possible?

The concept of "evidence-based" comes from clinical medicine and implies that the best answer lies in research findings. There are a number of concerns that this is not an appropriate approach for planning and decision making with the result that an *evidence-informed* approach has been proposed as an alternative.

An *evidence-informed* approach recognizes that:

- Research may be lacking for the questions facing decision-makers,
- Research findings may not be available in a timely way,
- There is often a need for locally relevant information, and the results from health services research may not always be applicable in other settings

Evidence-informed approaches also recognize that there are other factors affecting decision-making. These include values, resource availability, political judgment and professional experience.

Not all information is good evidence:

Both the quality of the evidence and its applicability to a specific situation must be considered.

Three important questions to use in this process are:

1. Is it relevant to the purpose?
2. Is it credible or trustworthy?
3. Is it sufficient to draw conclusions or to act on?

What is the best source of evidence for evidence-informed decision-making?

Findings of high quality, methodologically appropriate research are the strongest and most accurate evidence. There are many different sources of scientific evidence.

STRONG SOURCES OF EVIDENCE	WEAKER SOURCES OF EVIDENCE
- Systematic reviews of evidence on a topic (e.g. Cochrane Reviews)	- One single article on a topic
- Consensus of expert opinion (e.g. clinical guidelines)	- One expert's opinion
- Findings from well-designed qualitative studies	- Anecdotes: stories about what happened, especially if not verifiable
- Comparison of validated indicators over time	- Use of indicators that have not been validated, are not comparable over time or location, or can be "gamed"
- Results of well-designed, objective program evaluations	- Results of poorly designed evaluations, or those conducted by someone too close to one side of an issue
- Strategies for systematic input from all stakeholders (e.g. values and experience of people affected)	- Opinions of a few non-representative individuals

Program evaluation and Quality Improvement initiatives can combine research rigour and the need for locally relevant evidence:

Well designed evaluations can bridge the gap between academic research (that may not be relevant to the local situation) and decisions made on anecdotes or opinions. Program evaluation uses research methodology to answer local questions. Well-designed quality improvement strategies can also provide important local evidence.

Appendix B: Expectations of Effective Governance

Manitoba Health and Healthy Living, Accountability Support Branch/Administration, Finance and Accountability Policy HSC 200.1: BOARD GOVERNANCE AND ACCOUNTABILITY   **6.0**   EXPECTATIONS OF EFFECTIVE GOVERNANCE
Boards will be expected to implement practices consistent with current governance expectations as listed below. Also, as per the Purpose statement (Section 3.0), boards will be expected to make whatever improvements to their governance structures, processes and activities they deem necessary to achieve good governance as per these expectations.

<u>Expectations of Effective Governance</u> [1]

Purpose & Accountability

1. Develops and reviews vision, mission and values
2. Carries out strategic planning
3. Resource allocation tied to strategic priorities/goals
4. Develops and reviews policies on ethics-related issues
5. Guides the organization to achieve goals and improve performance

Rationale & Link to Community

6. Share key information with external stakeholders

Roles, Responsibilities & Functions

a)   Overall authority

7. Defines and documents its scope of authority, roles and responsibilities
8. Defines and documents delegation of authority
9. Demonstrates accountability to its stakeholders

b)   Constructive critic

10. Regularly monitors and evaluates the organization's performance
11. Has an effective system of financial planning and control

c)   Advocate

12. Regularly and consistently communicates with external stakeholders and the community to build the organization's credibility, inspire commitment, and create support for the organization

Level of Board Member Commitment

13. Work together as a group and as individuals with commitment to the organizations goals and processes

Information For Decision-Making

14. Ensures information is accurate, timely, relevant and understandable

Board Organization

15. Has processes in place to successfully carry out its roles and responsibilities

External Board Relations

16. Successfully manages a broad network of external stakeholders
17. Work toward clarity in relationship with government

Internal Relations

18. Shares key information throughout the organization
19. Recruits, selects and monitors the CEO
20. Works effectively with the CEO, senior management and clinical leadership

Board Effectiveness & Impact

21. Regularly evaluates its own performance

[1.] *adapted from the Office of the Auditor General Manitoba (2003) and the Canadian Council on Health Services Accreditation (in draft, 2007)*

**Appendix C: Suggested Reading from the Popular Press**
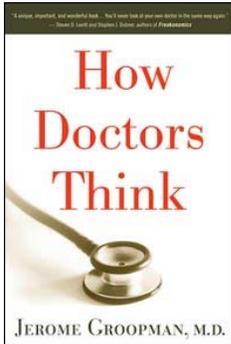
How Doctors Think by Jerome Groopman
Publisher: Houghton Mifflin
Publication date: 2007

An insider's view of doctors' decision-making processes that helps shed light on how we all think. Described as "like TV's House, but without the sarcasm."

Why We Make Mistakes: How We Look Without Seeing, Forget Things in Seconds, and Are All Pretty Sure We Are Way Above Average by Joseph T. Hallinan
Publisher: Broadway Books
Publication date: 2009

*The title explains it all: Gives suggestions for how to make fewer mistakes.*
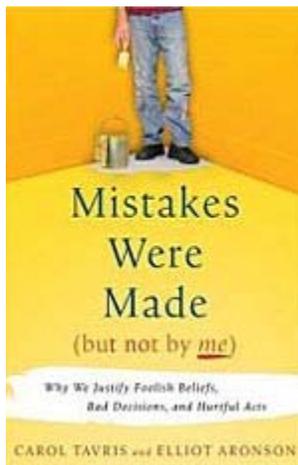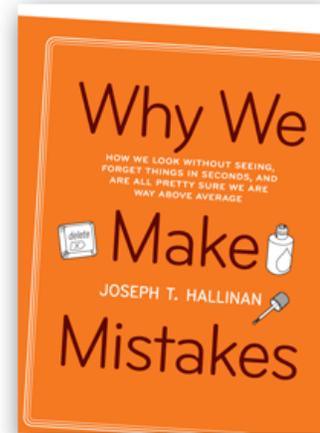
Mistakes Were Made (But Not by Me): Why We Justify Foolish Beliefs, Bad Decisions, and Hurtful Acts by Carole Tavris and Elliot Aronson
Publisher: Harcourt
Publication date: 2007

An exploration of the reasons that people have difficulty admitting that they made a mistake.

How We Decide by Jonah Lehrer
Publisher: Houghton Mifflin
Publication date: 2009

Easy-to-understand explanation of the brain processes involved in decision-making for both rational and intuitive types of decisions.

Evidence and Decision-making Board Resource Guide: From Evidence to Action Project 2010
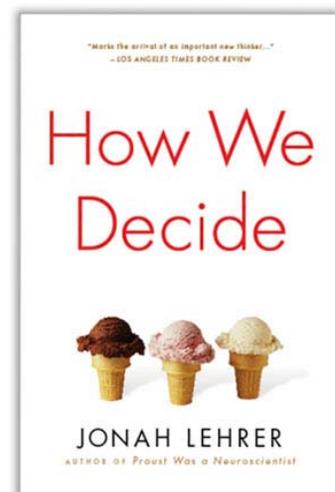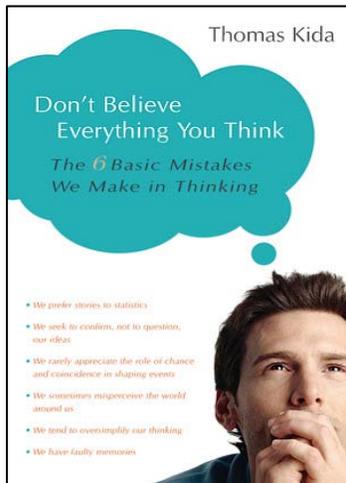
Don't Believe Everything You Think by Thomas Kida
Publisher: Prometheus Books
Publication date: 2006

An interesting look at 6 common mistakes people make:

Mistake #1: We prefer stories to statistics.

Mistake #2: We seek to confirm, not to question, our ideas.

Mistake #3: We rarely appreciate the role of chance and coincidence in shaping events.

Mistake #4: We sometimes misperceive the world around us.

Mistake #5: We tend to oversimplify our thinking.

Mistake #6: Our memories are often inaccurate. (To be fair, this isn't a mistake because we can't help the fact that our memories are unreliable. The real mistake is in not realizing this, not understanding the ways in which our memories can go wrong, and then failing to do what we can to make up for this fact.)