Evidence-Based Management:

*Trust the Evidence, Not Your Instincts*

Course Syllabus
Spring 2016

Course teacher: Eric Barends, Ph.D.
COURSE CONTEXT

Practitioners across many fields such as medicine, criminology, education, policy-making and management are asking important questions about the extent to which decisions are based on evidence. In all these fields the answer typically is “yes”, decisions are based on evidence. But, in many cases this is true only to a very limited extent.

The idea of evidence-based decision-making has evolved in response to this problem, and is now being applied in several disciplines, with the goal of improving the effectiveness of practice. While this sounds sensible and straightforward, gathering, critically evaluating and using evidence are challenging in many ways and require a set of specific skills. While there are very many courses aimed at developing such skills in medicine and related fields, there are relatively few aimed at students or practitioners in schools of public policy and administration.

COURSE DESIGN

This course uses a blended learning approach that integrates traditional classroom sessions that can be attended in person and e-learning modules that can be completed online. In addition this course takes a problem-based approach: starting point are the practical issues (problems/opportunities) typically encountered by practitioners rather than the body of knowledge produced by academics.

COURSE INTRODUCTION

The specific skills this course aims to develop are: (1) critical thinking and reasoning; (2) identifying and gathering of the best available evidence; (3) critical appraisal of evidence; and, (4) applying evidence of different forms to decision-making. In the process of developing these skills the focus will be on evidence from scientific research. These are examples of the types of questions that will be addressed:

• What is evidence-based decision-making?
• Why do we need it?
• What are decisions in the domain of management and public policy currently based on?
• What do we mean by evidence?
• How can evidence be gathered and critically appraised?
• How can the trustworthiness of evidence be assessed?
• What does evidence-based decision-making look like in practice?
• How is this different from or similar to typical approaches in management and consultancy?
• How can leaders and policy-makers make decisions in a more evidence-based way?

By the end of the course you should be able provide considered answers to all these questions and more.
AIMS

The Course aims to:

• Introduce the concept of evidence-based decision-making
• Assess how decisions in the domain of management, leadership and public policy are currently made.
• Demonstrate how issues (problems/opportunities) can be approached from an evidence-based perspective
• Demonstrate how the trustworthiness of evidence from scientific research can be assessed.
• Give hands-on experience of what evidence-based decision-making entails
• Provide the opportunity to conduct a Critically Appraised Topic (CAT) focused on a practical issue (problem/opportunity).

LEARNING OUTCOMES

On completion of this course, students should be able to:

• Assess the strengths and weaknesses and costs and benefits of evidence-based decision-making.
• Assess the extent to which claims (made by managers, leaders or policy-makers) are supported by evidence
• Distinguish evidence from opinion, probability from certainty, and theory from dogma
• Conduct a CAT to inform decision-making

COURSE MATERIALS

There is no set course book but many articles on evidence-based decision-making and related topics will be discussed. All articles will be provided through the CEBMa website (www.cebma.org/articles) or NYU website. Other relevant materials for the lectures are described below. There are also additional books, articles and websites listed in the Resources section. Please note that you will be expected also to do your own research to identify relevant materials.

RELATION WITH OTHER COURSES

This course has some useful overlap with key concepts and principles from other courses. In particular, students will be familiar with sources of cognitive and social bias in management and policy decision-making (introduced in Managing Public Service Organizations and Microeconomics for Public Management). Similarly, they will have skills in assessing the reliability and validity of research from Statistical Methods for Public, Non-profit, and Health Management. Students also will be familiar with threats to evidence-based decision-making that stem from power and politics from other required courses (Introduction to Public Policy; Strategic Management). The proposed course will extend concepts and principles from these courses and, build students' ability to move from understanding threats to evidence-based decision-making to improving their skills to do so.
## OVERVIEW OF TEACHING SESSIONS

<table>
<thead>
<tr>
<th>Date</th>
<th>Session</th>
<th>Form</th>
<th>Duration</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>-</td>
<td>1</td>
<td>E-learning</td>
<td>100 min</td>
<td>Evidence-based decision-making, the basic principles</td>
</tr>
<tr>
<td>Feb 5&lt;sup&gt;th&lt;/sup&gt; (Friday) 09:00 – 17:00</td>
<td>2</td>
<td>Workshop</td>
<td>100 min</td>
<td>Evidence-based decision-making: the basic principles</td>
</tr>
<tr>
<td></td>
<td>3 &amp; 4</td>
<td>Lecture &amp; Workshop</td>
<td>100 min</td>
<td>Asking questions</td>
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<td></td>
<td>5</td>
<td>Practical</td>
<td>150 min</td>
<td>Literature review / searching for studies</td>
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<td></td>
<td>6</td>
<td>Lecture</td>
<td>100 min</td>
<td>Professional experience and judgment</td>
</tr>
<tr>
<td>Feb 10&lt;sup&gt;th&lt;/sup&gt; &amp; 11&lt;sup&gt;th&lt;/sup&gt; (Wednesday &amp; Thursday) 19:00 – 21:00</td>
<td>-</td>
<td>Walk-in hours: individual coaching and support</td>
<td></td>
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<tr>
<td>Feb 12&lt;sup&gt;th&lt;/sup&gt; (Friday) 09:00 – 12:00</td>
<td>7</td>
<td>Lecture</td>
<td>100 min</td>
<td>The ‘best available’ evidence</td>
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<td></td>
<td>8</td>
<td>Lecture</td>
<td>50 min</td>
<td>Aspects of scientific research</td>
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<tr>
<td>-</td>
<td>9 &amp; 10</td>
<td>E-learning</td>
<td>250 min</td>
<td>Methodological appropriateness and quality - Evaluating scientific studies</td>
</tr>
<tr>
<td>Feb 26&lt;sup&gt;th&lt;/sup&gt; (Friday) 13:00 – 17:00</td>
<td>11</td>
<td>Lecture</td>
<td>50 min</td>
<td>CATs, REAs and systematic reviews</td>
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<td></td>
<td>12</td>
<td>Workshop</td>
<td>50 min</td>
<td>Conducting CATs</td>
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<td></td>
<td>-</td>
<td>Self study: Individual research on your CAT</td>
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<tr>
<td>Mar 2&lt;sup&gt;nd&lt;/sup&gt; &amp; 3&lt;sup&gt;rd&lt;/sup&gt; (Wednesday &amp; Thursday) 19:00 – 21:00</td>
<td>-</td>
<td>Walk-in hours: individual coaching and support</td>
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</tr>
<tr>
<td>Mar 4&lt;sup&gt;th&lt;/sup&gt; (Friday) 09:00 – 14:00</td>
<td>14</td>
<td>Presentation</td>
<td>200 min</td>
<td>Presentation of your CAT</td>
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<td></td>
<td>15</td>
<td>Evaluation</td>
<td>50 min</td>
<td>Integrating the outcome of a CAT into the decision-making process, evaluation of the course.</td>
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### Session 1

**E-Learning: Evidence-based decision-making, the basic principles**

**Description**

What is evidence-based decision-making? What counts as evidence? Why do we need evidence-based practice? What sources of evidence should be taken into account? Why focus on ‘the best available’ evidence? Common misconceptions of evidence-based decision-making? What is the evidence for evidence-based practice?

**Instruction 1**

Before you start the online module, please think about your answers to the following questions:

- Think about the last time you made a decision as a consumer (e.g., buying a new laptop, choosing a restaurant, purchasing a new TV). How did your decision making process look like? What evidence did you use?
- Think about a management, business or policy decision you have been involved in making (or have observed closely). How did the decision making process look like? What evidence was available?

**Instruction 2**

Go to the Open Learning Initiative (OLI) website: https://oli.cmu.edu/

In the upper right hand corner of the site, click “Sign Up” and fill out the form. You will receive further instructions via email.

**Required pre-session reading**

None

**Assignment 1**

After completing the module, take the quiz

### Session 2 - Feb 5th

**Workshop: Evidence-based decision-making, the basic principles**

**Description**

How do we make decisions? How do managers, leaders and policy makers typically make decisions? Where did evidence-based decision-making come from? What are the limitations of evidence-based practice?

**Instruction**

Bring a popular management book (or buy one at the bookstore), and answer the following questions

- What types of sources are cited?
- Approximately what proportion of sources appears to be
  - personal or anecdotal
  - based on so-called “best-practices” of other companies
  - based on other business books or publications
  - scientific evidence? (check 3 citations in Google Scholar)
- What is known about the author? (check Google and Google Scholar)
- What is known about the proposed model / principles? (ditto)
- Is the model/principle generalizable to all types of organizations?
- Does the book appear useful (explain why)?
### Required pre-session reading

### Recommended supplementary readings
- *Oxford Handbook of EBMgt*:  
  - Chapter 1: Envisioning Evidence-based Management  
  - Chapter 2: Learning from Other Evidence-based Practices  

### Session 3 & 4: - Feb 5th Lecture and workshop: Asking Questions

#### Description

#### Instruction 1
Think about a management, business or policy decision you have been involved in making (or have observed closely). This decision should be one which:
- Was reasonably important  
- Involved spending significant resources  
- Involved several or more people  
- Was made over a period of time (ie. weeks or months)

Ask yourself these questions and write down the responses – make them as detailed as possible:
- What exactly was the problem (or opportunity)?  
- How many alternative decision options were considered?  
- How much evidence was used, and from which sources (scientific, organizational, experience, crystal ball?)  
- Was any attempt made to explicitly evaluate its quality or trustworthiness?
**Instruction 2**

- Bring along a policy paper, project proposal, strategy document or change plan from an organization
- Read the paper and underline all assumptions.
- Determine the three most questionable or critical assumptions.
- Make a suggestion on how these assumptions could be substantiated.

If you don’t have (or are not able to acquire) a policy paper, project proposal, strategy document or change plan the course leader will provide you one.

**Required pre-session reading**

None

**Recommended supplementary readings**


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**Session 5: - Feb 5th**

**Practical: Doing a literature review - searching for scientific studies**

**Description**

Literature reviews. Peer reviewed journals. Types of research databases. Search strategies: shotgun, snowball and building blocks. Managing the scientific evidence found. Let the evidence find you!

**Instruction**

Please go to ProQuest ABI/Inform Global through the NYU library website and create a ‘My research’ account.

**Required pre-session reading**

- Please go to the ProQuest Platform Training on Youtube ([http://www.youtube.com/playlist?list=PL943D4F9759615B70](http://www.youtube.com/playlist?list=PL943D4F9759615B70)) and watch:
  - Basic search (1:24 min)
  - Advanced search (1:49 min)
  - My research (1:06)

**Recommended supplementary readings**

Assignment 2 (group)

Conduct a CAT (on a topic provided during the session) and make a maximum five minute presentation (strictly timed) covering the following topics:

- What search strategy was used and why?
- What types of study were considered relevant and why?
- What are the findings?

The CAT’s will be presented during session 7

Session 6: - Feb 5th

Lecture: Professional experience and judgment

<table>
<thead>
<tr>
<th>Description</th>
<th>Why are the insights and expertise of experienced professionals is an important source of knowledge? What are the boundaries of human rationality? What are cognitive biases? What are the most common biases? How can you use experiential evidence with due regard for the role played by cognitive biases?</th>
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</thead>
</table>
| Required pre-session reading | Please go to Youtube and watch ‘Being Decisive’ by Dan Heath  
**Walk-in hours: Feb 10th & 11th**

| Description | This is an opportunity for you to receive individual coaching and support on how to write a literature review, how to search for scientific studies in research databases, asking critical questions, avoiding common biases, etc. |

**Session 7: Feb 12th**  
**Lecture: Best available evidence**

| Description | What is pseudoscience? What is methodological appropriateness? What is internal validity? What’s the difference between correlation and causality? What is bias? What is confounding? What are the levels of internal validity? What is external validity? |
| Instructions | Think about the last time you were involved in a change-intervention And consider your answers to the following questions:  
• Did the intervention have an effect?  
• How do you know?  
How can you be certain that intervention A leads to outcome B? |

**Session 8: Feb 8th**  
**Lecture: Aspects of scientific research**

| Description | What is a research design? What types of research designs are there? What are the basic elements of a research design? What is randomization? What is a control group? What are effect sizes? What is a confidence interval and why do we need it? How to determine the research design? How to determine a study’s methodological quality? What are standard appraisal questions? |
### Session 9
**E-learning: Appraisal of scientific evidence**

<table>
<thead>
<tr>
<th>Description</th>
<th>Putting it all together: Methodological appropriateness; Methodological quality; Grading the level of trustworthiness; How to read an academic article.</th>
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<tbody>
<tr>
<td>Instructions</td>
<td>You will receive instructions via email.</td>
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<tr>
<td>Required pre-session reading</td>
<td>None</td>
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</tbody>
</table>

### Session 10
**E-learning: Evaluating scientific studies**

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<thead>
<tr>
<th>Description</th>
<th>Evaluating scientific studies: research appropriateness, research quality, overall trustworthiness</th>
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<tr>
<td>Instructions</td>
<td>You will receive instructions via email.</td>
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<tr>
<th>Assignment 3</th>
<th>Critically appraise the four LBD-1 studies</th>
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<tbody>
<tr>
<td>Assignment 4</td>
<td>Critically appraise the three LBD-2 studies</td>
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<td>Assignment 5</td>
<td>Critically appraise the two DIGT studies</td>
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<tr>
<td>Required pre-session reading</td>
<td>None</td>
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<tr>
<td>Recommended supplementary readings</td>
<td>None</td>
</tr>
<tr>
<td>Exam</td>
<td>After completing the module, take the online exam (quiz).</td>
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Session 11: Feb 26th  
Lecture: CATs, REAs and systematic reviews

<table>
<thead>
<tr>
<th>Description</th>
<th>What are CATs, REAs and systematic reviews? Where did they originate? What are the differences between CAT’s, REA’s and systematic reviews? What is their added value for managers, leaders or policy makers? What are the main steps involved in doing a REA and systematic review?</th>
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</table>
| Recommended supplementary readings | • *Oxford Handbook of EBMgt*, chapter 7: Systematic Review and Evidence Synthesis as a Practice and Scholarship Tool  
• Gough, David, Sandy Oliver, and James Thomas, eds. An introduction to systematic reviews. Sage, 2012.  
Session 12: Feb 26th  Workshop: Conducting CAT’s

Description
How do you conduct CATs? What are the key stages? How to identify a review question? What are appropriate search strategies? What information should be extracted for each study? What are some of the ways findings can be synthesized? How should the findings be reported?

Instructions
• Start to think about the CAT questions you are interested in addressing.
• Write down these questions.
• For each, describe why this question is important in practical terms.
• Can you refine the questions to make them more specific and more answerable?
  What are the blocks or barriers (if any) to developing your CAT question(s).

Required pre-session reading
• Look through the UK Civil Service Rapid Evidence Assessment Toolkit: http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance

Recommended supplementary readings
• Try to skim read some relevant CATs, REAs and systematic reviews.

CAT Report
Conduct a CAT on a topic relevant to management practice and present your findings in a report. More detailed instructions will be provided in class along with examples of CATs. You will be required to submit your CAT question and an outline of your report for formative assessment some weeks before the final deadline. See also ‘CAT Report’ below.

Self-study: Feb 26th  Individual research on your CAT (support and advice available)

Description
This is an opportunity for you to work on your CAT. Please bring your laptop so you can do searches online and also bring any questions and queries you have about how you can progress your review. The course leader will be present throughout to help.

Walk-in hours: March 2nd & 3rd

Description
This is an opportunity for you to receive individual support on your CAT.
Session 14: March 4th  Presentation of your CAT

Description

Each student will be required to give presentation covering the following topics:

• Background to the CAT question. How was it chosen? Why?
• What is the question?
• What types of study were considered relevant and why?
• What search strategy was used and why?
• What are the results?

Instruction

Please look at the three Critically Appraised Topic presentations on the CEBMa site: [http://www.cebma.org/presentations/](http://www.cebma.org/presentations/)

Assignment 6

Prepare a ten-minute presentation (strictly timed) addressing the above topics. Email your presentation to xxx before 12:00 midday on xxx

Session 15: March 4th  Evaluation

Description

Evaluation of the outcome of the CATs. Integrating its outcome into the decision-making process. Evaluation of the course.

Assignment 7

Please consider your answers to the following questions:

• What results came out of your CAT?
• Are you surprised or is it what you expected?
• How could you use these results to (help) make a decision?
• How could this course be improved?
• What did you like? What didn’t you like?
• What was missing?

Email your answers to xxx before 12:00 midday on xxx

COURSE ASSESSMENT

The course is assessed in four ways:
1. Class participation (including the two e-learning modules) > 15%
2. Completion of the 7 assignments > 15%
3. Online exam > 30%
4. CAT report (assignment 4 and 5) > 40%

CAT REPORT

The course is partly assessed largely through a report of the results of a Critically Appraised Topic (CAT) you will conduct. Although this is an individual piece of work you are strongly advised to discuss each other’s CATs as you plan and conduct them in order to check that your approach and
method make sense to other people (because you will learn a lot about the doing CATs through trying to provide advice to others).

More detailed instructions will be provided in class along with examples of CATs. You will be required to submit your CAT question and an outline of your review for formative assessment some weeks before the final deadline.

The basic structure of the report should broadly be as follows:

**Background**
- Background and context
- Rationale for the CAT

**Objectives**
- Statement of the CAT’s primary objective
- Statement of main question to be answered

**Criteria for considering studies for this CAT**
- Type of population
- Type of intervention
- Type of outcome(s)
- Type of context
- Type of studies

**Search strategy for identification of studies**
- What databases and sources were searched?
- What time period?
- What search terms and key words were used?
- What search strategy was used?

**Inclusion criteria**
- What are inclusion/exclusion criteria for studies?

**Assessment of methodological quality**
- What instrument or scale or criteria was used to determine the level of trustworthiness?

**Results and conclusion**
- Based on the evidence reviewed, what is the answer to the review question?
- How much confidence can we have in the answer?
- What do we know in relation to the review question?
- What do we not know?
- Based on the evidence found, what would be your recommendation?
The assessment criteria for the CAT report

<table>
<thead>
<tr>
<th>Indicative marking</th>
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<tbody>
<tr>
<td>Fail / Margin / Good / V Good / Dist</td>
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<tr>
<td>Extremely unclear, unfocused and in principle unanswerable review question(s) and review objective(s).</td>
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<tr>
<td>No framework such as PICOC used to focus the review question</td>
</tr>
<tr>
<td>No explicit search strategy described and an explanation of how it is appropriate to the review question not provided.</td>
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<tr>
<td>No clear and explicit criteria appropriate to the review question used to systematically include and exclude studies.</td>
</tr>
<tr>
<td>No clear and explicit criteria appropriate to the review question used to systematically assess study quality.</td>
</tr>
<tr>
<td>Insufficient details presented for each of the studies included.</td>
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<tr>
<td>Conclusions do not accurately reflect what is known and not known in relation to the review question.</td>
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RESOURCES

Please note that all the resources listed below are mostly just starting points. You will also need to do your own searches for relevant material. The resources and papers listed below appear in sections under various headings. These headings are for guidance only as many of the papers could appear under more than one heading and chapters from The Oxford Handbook of Evidence-Based Management could be added to almost every section. These are the headings:

- General evidence-based management books
- Some papers describing the principles of evidence-based management
- Relationships between academic and practitioner knowledge and action
- Teaching and training in evidence-based management
- Some critiques of evidence-based management
- Rapid Evidence Assessments, systematic reviews and research syntheses
- Evidence-based practice, REAs and systematic reviews in other fields
- Examples of systematic reviews and REAs relevant to HRM
- How to read research articles
- Website materials relevant to conducting REAs and systematic reviews
- Websites relevant to evidence-based management
- Websites relevant to evidence-based practice and RAES and systematic reviews in other fields
General evidence-based management books

Some papers describing the principles of evidence-based management

Relationships between academic and practitioner knowledge and action

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Teaching and training in evidence-based management

Some critiques of evidence-based management
Tourish, D. (2012). ‘Evidence Based Management’, or ‘Evidence Oriented Organizing’? A critical realist perspective. Organization,
Rapid Evidence Assessments, systematic reviews and research syntheses


http://xa.yimg.com/kq/groups/18751725/462617161/name/manalysis.pdf


Evidence-based practice, REAs and systematic reviews in other fields


Examples of systematic reviews and REAs relevant to HRM


How to read research articles
Some examples from other disciplines of general advice about reading articles
• http://blizzard.cs.uwaterloo.ca/keshav/home/Papers/data/07/paper-reading.pdf
• http://www.eecs.harvard.edu/~michaelm/CS222/ReadPaper.pdf
• http://www.informatics.buu.ac.th/~krisana/presentation/HowToRead/How%20to%20Read%20a%20Scientific%20Research%20Article.html
• http://www.human.cornell.edu/pam/outreach/parenting/research/upload/How-to-Read-a-Research-Article.pdf

Some examples from psychology
• http://arts.uwaterloo.ca/~sspencer/psych253/readart.html
• http://www.uic.edu/classes/psych/psych242/Article.html
• http://www.writingcenter.uconn.edu/pdf/How_to_read_a_reserach_article.pdf

Website materials relevant to conducting Rapid Evidence Assessments and systematic reviews
Examples of Critically Appraised Topics from a UBC Master of Rehabilitation Science programme: http://www.mrsc.ubc.ca/site_page.asp?pageid=98


http://xa.yimg.com/kq/groups/18751725/462617161/name/manalysis.pdf

Library pages for a course on Evidence-Based Management at Carnegie Mellon University
http://guides.library.cmu.edu/content.php?id=149531&sid=1270070

An overview of what systematic reviews are in medicine, healthcare and health economics
http://www.medicine.ox.ac.uk/bandolier/painres/download/whatis/syst-review.pdf

A five-step guide to conducting systematic reviews in medicine
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC539417/

A presentation about SRs in medicine

EPPI-Centre Methods for Conducting Systematic Review
http://eppi.ioe.ac.uk/cms/LinkClick.aspx?fileticket=hQBu8y4uVwl%3d&tabid=184&mid=6164

**Websites relevant to evidence-based management**

The Center for Evidence-Based Management which is aimed at practitioners and managers
http://www.cebma.org/

Pfeffer & Sutton’s site set up after their Hard Facts book
http://evidence-basedmanagement.com/

Article directed to managers about using research evidence with some useful links
http://www.mbsportal.bl.uk/taster/subjareas/mgmt/bl/managersevidence.aspx

**Websites relevant to evidence-based practice and RAES and systematic reviews in other fields**

The Cochrane Collaboration - database of systematic reviews relevant to health care and resources for conducting systematic reviews
http://www.cochrane.org/

JAMA evidence “helps decision makers identify the best available evidence by providing guides to the systematic consideration of the validity, importance, and applicability of claims about the assessment of health problems and the outcomes of health care.”
http://www.jamaevidence.com/

The Campbell Collaboration - library of systematic reviews related to education, crime and justice, and social welfare plus some guidance for conducting reviews
http://www.campbellcollaboration.org/

Evidence for Policy and Practice Information and Co-ordinating Centre part of the Social Science Research Unit at the Institute of Education, University of London – a library of systematic reviews relevant to education and social policy. Also has guidance about conducting reviews and systematic review software.
http://eppi.ioe.ac.uk/cms/

The Coalition for Evidence-Based Policy is a “nonprofit, nonpartisan organization, the Coalition seeks to increase government effectiveness through the use of rigorous evidence about what works.”
http://coalition4evidence.org/wordpress/
Systematic reviews funded by the UK Government’s Department for International Development relevant to evidence-based policy
http://www.dfid.gov.uk/r4d/systematicreviews.aspx

Online videos and presentations about evidence-based management

Most are collected here:
http://www.cebma.org/presentations/

Rob Briner discussing evidence-based management (2009)