

EVIDENCE-BASED PRACTICE:

Tools and Techniques

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Evidence-based practice (EBP) requires the conscious, conscientious and explicit application of the best available research evidence, together with professional expertise and patient/customer choice, to work practices. From its origins in clinical medicine, through a broader application to the health services industry, an evidence-based approach to work practices is becoming increasingly influential in all human services. Implementing evidence-based practice is related to the organisational management concepts of Continuous Quality Improvement (CQI), Knowledge Management and the Learning Organisation. For human services professionals finding, critically appraising and applying best evidence requires enhanced information and knowledge management skills. Central to these skills is an understanding of the information ecology, particularly for the multi-disciplinary AOD field.

This paper introduces the data-information-knowledge continuum, levels of evidence and the tools and techniques of finding and critically appraising evidence. Examples relevant to the AOD field are provided.

While the terms evidence-based medicine and evidence-based health care were coined by staff of the Health Information Research Unit at McMaster University in Ontario, Canada, the concepts have a much longer history. The most influential figure in the development of these concepts was the British clinical epidemiologist Professor Archie Cochrane. His challenge to the medical profession led to the establishment in the 1980s of an international collaboration to develop the Oxford Database of Perinatal Trials, which in turn evolved into the international Cochrane Collaboration.

Evidence-based medicine is described as:

... the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external, clinical evidence from systematic research.

(Sackett et al, 1996)

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Evidence-based medicine (EBM) is an approach to health care that promotes the collection, interpretation, and integration of valid, important and applicable patient-reported, clinician-observed and research-derived evidence. The best available evidence, moderated by patient circumstances and preferences, is applied to improve the quality of clinical judgements.
(McKibbin et al, 1995)

Evidence-based health care:

... takes account of evidence at a population level as well as encompassing interventions concerned with the organisation and delivery of health care.
(Silagy and Haines, 1998)

Evidence-based practice is the extension of the concepts used in more diverse work practices than clinical decision making and in organisational structures other than health care. Evidence-based practice is about creating a work environment that enables the job to be done effectively by consciously and explicitly integrating:

- professional expertise
- informed patient/customer/population choice
- the best available evidence.

The concept of evidence-based practice is applicable to a wide range of human service, public safety and public health service providers as well as to all health and human service workers. This includes those working in crime prevention, corrections, education, social care and human resource-management (see for example Trinder, 2000; and Briner, 2000).

There are a number of other definitions of evidence-based medicine/healthcare/practice. Some of those that are cited most commonly are reproduced on the School of Health and Related Research (SchHARR), University of Sheffield website, together with their source, where identifiable.

The diversity of disciplines with an interest in an evidence-based approach is illustrated by the following list of organisations taken from the SchHARR website under its Organisations Listing:

- Cochrane Collaboration
- Centre for Clinical Effectiveness
- Centre for Evidence-Based Child Health
- Centre for Evidence-Based Dentistry
- Centre for Evidence-Based Medicine
- Centre for Evidence-Based Mental Health
- Centres for Evidence-Based Nursing (the Seven)
- Centre for Evidence-Based Pharmacotherapy
- Centre for Evidence-Based Social Services
- Centre for Evidence-Based Physiotherapy
- Centre for Reviews and Dissemination
- Evidence-Based Education
- Evidence-Based Practice Centres
- Evidence-Based Psychiatry Centre
- Evidence-Based Purchasing
- Unit for Evidence-Based Practice and Policy (UEBPP).

The Processes of Evidence-Based Practice

An organisation embracing evidence-based practice develops support systems to facilitate the decision making of staff and implements policy mandating such an approach to service delivery. The processes of an evidence-based approach to work practice involves the following sets of actions:

- ask
- find
- appraise
- act
- evaluate



Figure 1: Process of Evidence-based Practice

The above model is taken from the Critical Appraisal Skills Program (CASP), a part of the UK NHS Public Health Resource Unit, Institute of Health Sciences, Oxford. The aim of CASP is to help health service decision makers and those who seek to influence decision makers, develop skills in the critical appraisal of evidence about effectiveness, in order to promote the delivery of evidence-based health care. The CASP and FEW programs are among the most influential in promoting skill development in evidence-based practice internationally.

Asking answerable questions

Evidence-based practice questions may concern:

- aetiology/cause
- diagnosis/assessment
- prognosis/outcome
- economics/costs
- treatment/intervention methods
- preventative interventions
- mode of delivery/organisation.

There are four components to evidence-based practice questions. These are:

- the patient or the problem
- the intervention
- contrasting or comparative action
- an outcome which can be evaluated.

Focusing the question is an important prerequisite of the search for evidence. A number of sites describe how this should be done. Links to these are listed on the Library and Information Resources page of the ScHARR website.

The elements of a good question include:

- patient, population or problem - how would I describe a group of patients similar to mine?
- intervention, prognostic factor or exposure - which main intervention, exposure, prognostic factor am I considering?
- comparison (if appropriate) - what is the main alternative to compare with the intervention?
- outcome - what can I hope to accomplish, measure, improve, or affect?
- type of question - how would I categorise this question?

- type of study - what would be the best study design in order to answer the question?
(Richardson et al, 1995)

WHAT IS EVIDENCE ?

Important issues in finding evidence include:

- levels of evidence
- information ecology
- information skills.

Levels of Evidence

The seven levels of evidence are:

- I-1 A quality systematic review of two or more randomised control trials (RCTs)
- I-2 One RCT
- II-1 A cohort study
- II-2 A case-control study
- II-3 A dramatic uncontrolled experiment
- III Respected authorities, expert committees, etc
- IV "...someone once told me...."

These levels were taken from CASP Training Workshop. For the official levels of evidence used in Australia see A Guide To The Development, Implementation and Evaluation of Clinical Practice Guidelines (NHMRC, 1999), part of the NHMRC Handbook Series on Preparing Clinical Guidelines (which can be found on their website).

Evidence can be further differentiated by:

- levels - the degree to which bias is eliminated by study design
- quality - minimised bias through high standards in research methodologies
- relevance - of the research question to the patient, problem, population and setting
- strength - magnitude, precision and reproducibility of the intervention effect, including effect size, confidence interval and P value.

Types of study design include:

- systematic reviews
- experimental studies (RCTs and other controlled trials)
- comparative (non-randomised) and observational studies, such as:
 - cohort
 - case control
 - prospective
 - interrupted time series
- other observational studies
 - case series
 - post-test and pre-test/post-test.

Information Ecology

Finding and critically appraising the evidence requires the acquisition and maintenance of information literacy skills. The first of these is understanding the information ecology of the field in which you work. This includes:

- the data-information-knowledge continuum
- research evidence and its dissemination:
 - papers at conferences etc
 - articles in journals
 - monographs
 - databases
 - websites and search engines.

Information ecology processes involve:

- guessing cause and effect, ie hypothesis generation
- data collection, aggregation, analysis and hypothesis testing, ie information creation
- synthesis of conclusions, replication, repetition and contextualisation, ie knowledge creation
- documenting research evidence:
 - unpublished and published papers
 - presentations at conferences, seminars and workshops, technical reports, discussion papers, (often the “grey literature”)
 - journal articles (unreviewed, editor reviewed, peer reviewed)
 - edited monograph of discrete chapters, monographs, in series
 - reference texts
- citation databases which index (in multiple fields), abstract or provide full text for some of the above
- using the electronic information revolution - issues to be considered include:
 - rapid dissemination or loss of quality control
 - new formats for traditional material
 - new technologies for dissemination and communication
- search engines, gateway/portal sites, list servers, chat rooms and streaming.

The second part of the information ecology includes knowing how to find information. Resources include:

- databases which index and abstract research by discipline
 - Health sciences (Medline, CINAHL, PsychInfo, EMBASE, HealthStar)
 - Education
 - Criminal Justice
 - Management
 - Social Sciences
- multi-discipline AOD databases
- databases which summarise research evidence.

It is important to be aware of the “tyranny” of the subject specialist databases in a multidisciplinary field. Citation databases can index (in multiple fields), abstract or provide full text and more, hypertext links add value. Sources, mainly databases, of information by discipline are listed in Appendix 1.

Information skills

Important skills for finding and managing evidence are as follows:

- knowing your information ecology
- the ability to efficiently access, search, retrieve and store electronic information

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- learning the scope and functionality of relevant databases, web search engines and meta-sites such as thesauri, limits, filters and Boolean operators
- personal bibliographical software, such as:
 - EndNote - the most popular and easy-to-use package
 - Reference Manager - which offers network features with simultaneous read/write access to databases
 - ProCite - which provides flexibility to group references and create subject bibliographies.

The ISI Research Soft website provides further information on these three bibliographic software packages. Other knowledge and management tools and techniques include:

- online data sources
- evidence filters for citation databases
- electronic Table of Content services for key journals
- autoAlert email services for new research by topic, author or source
- list servers, conference information, e-directories of people and organisations, free e-libraries of reference texts, journals and conference proceedings.

Critical Appraisal techniques are as simple as asking these questions:

- are the results of the trial valid?
- what are the results?
- will the results help locally?

The CASP program provides critical appraisal checklists of 10 questions to help you make sense of:

- systematic reviews
- randomised controlled trials
- economic evaluations
- diagnostic test studies
- qualitative research.

An effective evidence-based practice workforce development strategy may be revitalising your organisation's journal club as an EBP workforce development strategy with Critical Appraisal Skill training.

Cochrane Systematic Reviews

The following are steps in the process of developing a Cochrane Systematic review:

- protocol
- collection of all RCTs
- meta-analysis of quality RCTs
- review group criticism
- publication and maintenance.

Such reviews are examples of major efforts in critical appraisal to produce a database of best evidence summaries. The Protocol Workshop run by the Australasian Cochrane Centre is essential for anyone choosing this lifelong learning process. Useful websites for further information include those of the Cochrane Collaboration, The Cochrane Consumer Network and the Cochrane Library.

Useful tools for evidence-based practice include:

- Cochrane Library (CDSR, DARE, CCTR, CRMD, Cochrane Handbook)
- Best Evidence (ACP Journal Club, EB journals)
- BMJ Clinical Evidence
- CATs, POEMs, SumSearch, TRIPs
- Netting the Evidence.

These are expanded on in Appendix 2.

The relevant Cochrane groups for AOD professionals are listed below:

- Drugs and Alcohol Review Group
 - Abstracts of Cochrane Reviews from the Cochrane Library Issue 2, 2001
<http://www.cochrane.org/cochrane/revabstr/g360index.htm>
 - Synopses of Cochrane Reviews
<http://www.cochraneconsumer.com/index.asp?SHOW=Search>
 - Website <http://www.areas.it>
- Tobacco Addiction Review Group
 - Abstracts of Cochrane Reviews from the Cochrane Library Issue 2, 2001
<http://www.cochrane.org/cochrane/ravabstr/g160index.htm>
 - Synopses of Cochrane Reviews <http://www.cochraneconsumer.com/index.asp?SHOW=Search>
 - Website http://www.dphpc.ox.ac.uk/cochrane_tobacco/index.html
- Multi-discipline AOD web databases eg DRUG, ETOH, Toxibase
- Guidelines for treatment, education, prevention and harm reduction. Center for Substance Abuse Treatment <http://www.treatment.org>
- Drug and Alcohol Findings a quarterly bulletin which assimilates the latest research in the drugs field, some of it unpublished, on effective working in all sectors of the drugs field, treatment, education and prevention and enforcement. £60 for four issues (£48 for members of SCODA or Alcohol Concern) <http://www.drugscope.org.uk/shopfront/product.asp?ProdID=182>
- National Institute on Drug Abuse (NIDA) <http://www.nida.nih.gov>
 - Principles of Drug Addiction Treatment A Research-Based Guide
 - Treatment Improvement Protocols (TIPs)
 - Technical Assistance Publications (TAPs).

Campbell Collaboration

Created in February 2000, the Campbell Collaboration is an international organisation that aims to prepare, maintain, and disseminate high-quality, systematic reviews of studies of effectiveness of social and educational policies and practices. By supporting the production of these reviews and by disseminating results in a readily accessible fashion, the Campbell Collaboration intends to contribute to decisions in practice, policy and to public understanding. A pilot Systematic Review has been prepared to guide potential reviewers entitled "Scared Straight" and Other Juvenile Awareness Programs.

The Methods Groups within the Campbell Collaboration strive to constantly improve the methodology of research synthesis and to disseminate state-of-the-art reviewing methods. The Campbell Collaboration's Crime and Justice Review Group, hosted by the Australian Institute of

Criminology is an international network of individuals that will prepare, update and rapidly disseminate systematic reviews of high-quality research conducted worldwide on effective methods to reduce crime and delinquency or improve justice. Appendix 3 contains a list of Protocols for Campbell Systematic Reviews and a list of topics under consideration for Campbell Protocols, both current as at June 2001.

CHANGING PRACTICE

To change practice, the following must be considered:

- issues in the application of evidence-based practice to individuals
- personal circumstance and choice, NNT
- efficacy and effectiveness in “real world” organisations
- barriers to finding and appraising evidence:
 - poor information skills
 - no time, no evidence
 - limited Internet access in many settings
 - low priority given to “secondary research”
 - professional attitudes and organisational culture.

Criticisms of evidence-based practice include:

- perceived managerial tool for rationing
- limits professional autonomy
- over reliance on RCTs
- limited use of qualitative research
- limited inclusion of consumer choice
- lack of multi-disciplinary research agenda on work practice change
- limited experimental research in Industrial and Organisational Psychology
- PACE experience - 16 projects showed implementing evidence-based practice is:
 - a messy business
 - not a linear task
 - time consuming
 - expensive.

Some good examples of research on changing professional practice include Bero et al (1998), Davis et al (1995), PACE, FACTS.

What Works?

The evidence for effective professional and organisational change strategies is limited. EPOC Systematic Reviews have identified some success with the use of clinical audit, academic detailing and guidelines. The National Centre for Education and Training on Addiction (NCETA) and the Queensland Alcohol and Drug Research and Education Centre (QADREC) are currently undertaking a Professional Practice Change Project which is scoping the experimental research literature in the social sciences on professional and organisational change across diverse industries. Results to date indicate a lack of high level evidence and poor structures for effectively undertaking systematic reviews in this field. The Campbell Collaboration may offer opportunities to address these shortcomings. There are substantial quantities of descriptive and anecdotal papers on organisational change strategies such as organisational and lifelong learning, knowledge management, quality improvement, best practice, benchmarking, audit and appraisal systems. There is, however, very little experimental research on these topics.

The NHS Centre for Reviews and Dissemination at York in the UK have published a summary of the early findings of the Cochrane EPOC Group, *Effective Health Care: Bulletin On The Effectiveness Of Health Service Interventions For Decision Makers*. For further details of the work of EPOC see Cochrane Effective Practice and Organisation of Care (EPOC) Group.

The EPOC Database is a downloadable Idealist database that documents experimental studies looking at the effectiveness of mechanisms for changing behaviour. Because of the complexity of questions addressed by the EPOC Group they accept a wider range of study designs than the randomised controlled trial criteria applied elsewhere in the Cochrane Collaboration.

The Unit for Evidence-Based Practice and Policy (UEBPP) is a “virtual” subunit of the Joint Department of Primary Care and Population Sciences (PCPS) of the merged medical schools of University College London and the Royal Free Hospital. Dr Trisha Greenhalgh, UEBPP Director has written a series of useful brief overviews of organisational change models in the *British Journal of General Practice*. UEBPP also runs regular training workshops and seminars of effective change strategies in the UK National Health Service.



REFERENCES

Bero, L.A., Grilli, R., Grimshaw, J.M., Harvey, E., Oxman, A.D., Thomson, M.A. (1998). Closing the gap between research and practice: an overview of systematic reviews of interventions to promote the implementation of research findings. *British Medical Journal*, 317, 465-468.
<http://www.bmj.com/cgi/content/full/317/7156/465>

Briner, R. (2000). Evidence-based human resource management, in L. Trinder and S. Reynolds. (Eds) *Evidence-Based Practice: a critical appraisal*. Oxford: Blackwell Science.
<http://www.blackwell-science.com/~cgilib/bookpage.bin?File=4950>

Davis, D.A, Thomson, M.A, Oxman, A.D, et al. (1995). Changing physician performance: A systematic review of the effect of continuing medical education strategies. *Journal of the American Medical Association*, 274, 700-705.

Framework for Appropriate Care Throughout Sheffield (FACTS). Project is a city wide project based in Sheffield aimed at implementing change in primary care. Initial efforts have been aimed at getting aspirin to heart disease patients in Sheffield. The full text of a report, Lessons from FACTS, detailing the methods of the project together with broader implications for evidence-based change management is available from their website.

<http://www.shef.ac.uk/uni/projects/facts>

McKibbin, K.A. et al. (1995). *The medical literature as a resource for evidence-based care*. Working Paper from the Health Information Research Unit, McMaster University, Ontario, Canada.
<http://hiru.mcmaster.ca/hiru/Medline/asis-pap.htm>

Muir Gray, J.A. (1997). *Evidence-Based Health Care: how to make health policy and management decisions*. Oxford, Churchill Livingstone.
<http://www.harcourt-international.com/catalogue/title.cfm?ISBN=0443057214>

Petrosino, A.J. Joseph, A. (1999). *A Social, Psychological, Educational and Criminological Trials Register (SPECTR) to facilitate the preparation and maintenance of systematic reviews of social and educational interventions*. Evidence-based Policy and Indicators Conference, University of Durham, UK, 10-14 July 1999.
<http://campbell.gse.upenn.edu/papers/petrosino.doc>

Promoting Action on Clinical Effectiveness (PACE). This initiative, building on the lessons from the FACTS and GRIPP projects and run from the King's Fund in London, works through a network and sixteen demonstration projects to achieve clinical change for effective healthcare. A progress report is available from their site.
<http://www.kingsfund.org.uk/pace/evidence.htm>

Richardson, W.S., Wilson, M.C., Nishikawa, J., Hayward, R.A. (1995). The well-built clinical question: a key to evidence-based decisions [EBM Trends] *ACP Journal Club*. 123, 12.

Sackett, D.L., Rosenberg, W.M.C., Muir Gray, J.A., Haynes, R.B., Richardson, W.S. (1996). Evidence-Based Medicine: what it is and what it isn't. *British Medical Journal*, 312, 71-72
<http://cebm.jr2.ox.ac.uk/ebmisisnt.html>

Sherman, L.W. et al. (1996). *Preventing Crime: what works, what doesn't, what's promising*. A report to the United States Congress. Prepared for the National Institute of Justice.
<http://www.ncjrs.org/works/>

Silagy, C., Haines, A. (Eds). (1998). *Evidence-Based Practice in Primary Care*. London, BMJ Books.
<http://www.bmj.com>

Trinder, L. (2000). Evidence-based practice in social work and probation, in L. Trinder and S. Reynolds (Eds) *Evidence-Based Practice: a critical appraisal*. Oxford, Blackwell Science.
<http://www.blackwell-science.com/~cgilib/bookpage.bin?File=4950>

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Web References

Health Information Research Unit, McMaster University in Ontario Canada
<http://hiru.mcmaster.ca/>

International Cochrane Collaboration

<http://www.cochrane.org>

Cochrane Consumer Network

<http://www.cochraneconsumer.com>

Cochrane Library

<http://www.update-software.com/cochrane/cochrane-frame.html>

ScHARR website

Definitions

<http://www.shef.ac.uk/~scharr/ir/def.html>

Organisations listing

www.nettingtheevidence.org.uk

Library and Information Resources - focusing the question

<http://www.shef.ac.uk/~scharr/ir/focussing.html>

Appendix 5 - Implementing Evidence

<http://www.shef.ac.uk/~scharr/ebhc/Appendix5.htm>

Critical Appraisal Skills Program (CASP), Public Health Resource Unit, UK NHS

Critical Appraisal Checklist

<http://www.casp.org.uk/>

NHMRC Website - Publications

<http://www.health.gov.au/nhmrc/publications/cphom.htm>

ISI Research Soft Website

<http://www.isiresearchsoft.com/rscompare.html>

Campbell Collaboration

<http://campbell.gse.upenn.edu>

The Campbell Crime and Justice Coordinating Group

<http://www.aic.gov.au/campbellcj/reviews>

Crime and Justice Review Group

<http://www.aic.gov.au/campbellcj>

Methods Group

<http://web.missouri.edu/~c2method>

Effective Health Care: Bulletin on the Effectiveness of Health Service Interventions for Decision Makers, Feb 1999 5(1)

<http://www.york.ac.uk/inst/crd/ehcb.htm>

Unit for Evidence-Based Practice and Policy

Primary Care and Population Sciences, Royal Free and University Medical School, University College London

<http://www.ucl.ac.uk/primcare-popsci/uebpp/uebpp.htm#Managing>

SOURCES OF INFORMATION BY DISCIPLINE

Health Sciences

- Medline, the same database with 15+ interfaces <http://omni.ac.uk/Medline>
- CINAHL, an under utilised resource <http://www.cinahl.com>
- Psychology is a broad field that often overlaps with many other disciplines. PsycINFO is the major interdisciplinary database of psychological literature <http://www.apa.org/psycinfo>
- EMBASE provides access to biomedical and pharmacological information with a strong European coverage. EMBASE.com contains the entire EMBASE database plus unique MEDLINE records back to 1966 <http://www.embase.com>
- The HealthSTAR database indexes the published literature of health services technology, administration, and research <http://www.nlm.nih.gov/pubs/factsheets/healthstar.html>
- It is one 14 free web databases being integrated with PubMed <http://igm.nlm.nih.gov/>

Education

- The Educational Resources Information Center (ERIC) Clearinghouse on Assessment and Evaluation provides information concerning educational assessment, evaluation and research methodology <http://ericae.net/>
- Health Education Unit, The University of Sydney <http://www.edfac.usyd.edu.au/centres/healthed/INDEX.HTM>

Criminal Justice

- CINCH - The Australian Criminology Database. <http://www.aic.gov.au/library/cinch/index.html>
- NCJRS Abstracts Database summaries of more than 160,000 criminal justice publications and more than 1,500 full text publications on the NCJRS and partner agency websites. <http://www.ncjrs.org/search.html>
- Criminal Justice Abstracts produced by Criminal Justice Press, Inc, in cooperation with the Criminal Justice Collection of Rutgers University Library contains comprehensive coverage of international journals, books, reports, dissertations, and unpublished papers on criminology and related disciplines. Coverage includes trends, crime prevention and deterrence, juvenile delinquency, juvenile justice, police, courts, punishment and sentencing. <http://www.silverplatter.com/catalog/cjab.htm>

Management and Social Sciences

- ABI/INFORM (Business Index)
- APAIS Social Sciences Citation Index (Web of Science)
- Sociological Abstracts (formerly SocioFile)
- Social Work Abstracts

For the increasing array of Evidence Summary databases and other tools - see ScHaRR site <http://www.shef.ac.uk/~scharr/ir/netting/> and the CASPFew Sources of Evidence at <http://www.ihs.ox.ac.uk/caspfew/sources.html>. Particularly useful is *Seeking the Evidence : a protocol* developed by Andrew Booth at SchARR, outlines the stages by which evidence can be accumulated for Evidence Based digests such as those found in *Journal of Clinical Excellence* <http://www.shef.ac.uk/~scharr/ir/proto.html>

APPENDIX 2

TOOLS FOR EVIDENCE-BASED PRACTICE
The Cochrane Library

The library consists of four main databases:

- The Cochrane Database of Systematic Reviews (CDSR)
- The Database of Abstracts of Reviews of Effectiveness (DARE)
- The Cochrane Controlled Trials Register (CCTR)
- The Cochrane Review Methodology Database (CRMD).

<http://www.cochrane.org/cochrane/cdsr.htm>

Cochrane Library training is available online at: <http://www.york.ac.uk/inst/crd/cochlib.htm>

DARE is a database of high quality systematic research reviews of the effectiveness of health care interventions produced by the NHS Centre for Reviews and Dissemination at the University of York. <http://agatha.york.ac.uk/darehp.htm> . It is free to web.

Best Evidence

Best Evidence summarises articles from the major medical journals, together with expert commentaries, is the CD-ROM equivalent of the combined ACP Journal Club and Evidence-Based Medicine output. Details of subscriptions are found at the BMJ site. http://www.bmj.com/template.cfm?name=specjou_be#best_evidence

Clinical Evidence

Clinical Evidence is a database of clinical questions designed to help clinicians make evidence-based medicine part of their everyday practice. It is produced by the BMJ Publishing Group (British Medical Journal), employing premier medical resources including the Cochrane Library, MEDLINE, EMBASE, ACP Journal Club. <http://www.ovid.com/products/clinical/clinicalevidence.cfm>

Critically Appraised Topics (CATS)

Critically appraised topics (CATs) are short, typically one page, digests that summarise the evidence for clinicians. There are a number of sites experimenting with the CAT format. <http://cebmr2.ox.ac.uk/docs/catmaker.html>

Patient Oriented Evidence That Matters (POEMS)

Searchable database of POEMS (Patient Oriented Evidence that Matters) from the Journal of Family Practice. POEMS are summaries similar to ACP Journal Club articles in methodology and format, targeted at family practitioners. http://www.infopoems.com/POEMS/POEMs_Home.htm

SUMSearch

SUMSearch is a single gateway that attempts to provide references to answer clinical questions around diagnosis, aetiology, prognosis and therapy by searching only high-quality sources. SUMSearch always searches: 1. Merck Manual. 2. MEDLINE for review articles and editorials that have full texts available. 3. National Guideline Clearinghouse from the Agency for Health Care Policy and Research (AHCPR) 4. Database of Abstract of Reviews of Effectiveness (DARE) 5. MEDLINE for original research. <http://SUMSearch.UTHSCSA.edu/cgi-bin/SUMSearch.exe>

Turning Research Into Practice (TRIP)

Turning Research into Practice, the TRIP Database, hosted by the Centre for Research Support in Wales, aims to support those working in primary care. The database has 8,000 links covering resources at 28 different centres and allows both Boolean searching (AND, OR, NOT) and truncation. <http://www.tripdatabase.com>

Web Gateways

- Netting the Evidence <http://www.shef.ac.uk/~scharr/ir/netting>
- OMNI at the BIOME site <http://biome.ac.uk/biome.html>
- Hardin Meta Directory of Internet Health Sources <http://www.lib.uiowa.edu/hardin/md/>

APPENDIX 3

PROTOCOLS FOR CAMPBELL SYSTEMATIC REVIEWS**(current as of June 2001)**

The following list of Campbell Systematic Review Protocols is current as of June 2001:

- Restorative justice (Lawrence Sherman, University of Pennsylvania and Heather Strang, Australian National University)
- Closed circuit television (Brandon Welsh, University of Massachusetts and David Farrington, Cambridge University)
- Street lighting (Brandon Welsh, University of Massachusetts and David Farrington, Cambridge University)
- Juvenile curfews (Ken Adams, Indiana University)
- Electronic monitoring (Marc Renzema, Kutztown University)
- Parent support and training during early childhood (Odette Bernazzani, Catherine Cote, and Richard Tremblay, University of Montreal)
- Child skills training (Friedrich Lösel and Andreas Beelmann, University of Erlangen-Nuremberg, Germany)
- Cognitive-behavioral programs for offenders (Mark Lipsey, Gabrielle Chapman and Nana Landenberger, Vanderbilt University)
- Faith-based religious programs for offenders (Byron Johnson)
- Boot camps for delinquents and offenders (Doris Layton MacKenzie, David Wilson and Suzanne Kider, University of Maryland)
- Hot spots policing (Anthony Braga, Harvard University)
- Neighborhood watch (Lou Jou-Lee, National Police Academy, Taiwan)
- Community service orders for offenders (Chris Lewis, Home Office, UK)
- Length of imprisonment (Don Andrews, Carleton University, Canada)
- Non-pharmacological treatment for personality disorder (Carole Wilson, University of Liverpool, UK)

The following list of topics is under consideration for Campbell Protocols and is current as of June 2001:

- Repeat victimisation programs (Graham Farrell, Police Foundation)
- Interventions for domestic violence (Lynette Feder, University of Memphis, Doris Layton MacKenzie and David Wilson, University of Maryland)
- Aftercare treatment for juvenile offenders
- Treatment for sex offenders (Friedrich Lösel, University of Erlangen-Nuremberg)
- Interventions for violent juvenile and/or adult offenders
- Prison-based drug treatment programs (Paul Williams, Australian Institute of Criminology)
- Interventions for gun violence
- Programs for reentry into workforce for offenders
- Sport and recreation-based crime prevention programs (Stanton Wheeler, Yale Uni.)
- Drug courts

For further details see Petrosino and Joseph (1999) and Lawrence et al (1996)

