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Transcending bibliometrics: Measuring knowledge transfer and clinical impact

Cathy C. Sarli

Susan Fowler

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Cathy Sarli, MLS - The Bernard Becker Medical Library
The Ocular Hypertension Treatment Study (OHTS) Group - The Department of Ophthalmology and Visual Sciences
Susan Fowler, MLIS - The Bernard Becker Medical Library
Washington University in St. Louis School of Medicine, St. Louis, MO

BERNARD BECKER Medical Library

Washington University in St.Louis SCHOOL OF MEDICINE

PROJECT DESCRIPTION

The main objective for the project (01 August to 31 August 2007) was to assess the research impact of a large randomized clinical trial, The Ocular Hypertension Treatment Study (OHTS). OHTS started in 1994 to study the efficiency of early treatment of Intraocular Hypertension (IOP) as a means of preventing glaucoma. Three measurement criteria were identified: intellectual impact, knowledge transfer, and clinical impact.

Assessment of intellectual impact was performed by measuring citation rates on OHTS publications. As of August 2007, OHTS generated 26 journal publications. Of the 26 journal publications, six were identified as the core publications for OHTS. Evidence for knowledge transfer focused on two questions: Did the research knowledge generated by OHTS allow for knowledge transfer by expansion of research in related areas (ancillary studies) and did it allow for research in previously unexplored areas? Clinical impact evidence focused on clinical/practice guidelines, consensus development conferences, reviews, continuing education modules, creation of codes, insurance coverage statements, measurement tools, and other clinical applications.

Current means of dissemination of research findings by OHTS were also evaluated to recommend strategies for enhancing research impact.

DISCUSSION

While bibliometric analysis was useful in demonstrating intellectual impact it did not reveal the full translational impact of OHTS research findings by demonstrating synthesis into clinical applications or the knowledge transfer that resulted in further research in ancillary or new studies. Assessment of knowledge transfer and clinical impact demonstrated a more robust and comprehensive perspective of the translational research impact of OHTS findings.

Assessment of clinical impact posed the most problems for this project due to lack of consensus as to criteria that represent clinical impact and duplication of findings among various sources. What criteria demonstrate clinical impact? Can the process of assessing clinical impact be standardized for use as an assessment tool for other research studies?

Current means of dissemination of OHTS research findings were also reviewed to determine ways to further enhance research findings in order to reach as wide of an audience as possible, including consumers, fellow researchers, healthcare providers and policy making bodies.

As a result of this project, an online guide, "Translating the Impact of Research" is under development. The guide will include a framework for assessing and locating evidence of research impact. Strategies to enhance dissemination and impact of clinical as well as basic research will also be included.

REFERENCES

Wells R, Whitworth JA. Assessing outcomes of health and medical research: Do we measure what counts or count what we can measure? *Australia and New Zealand Health Policy* [Internet]. 2007;4(1). http://www.anzhealthpolicy.com/content/pdf/1743-8462-4-14.pdf

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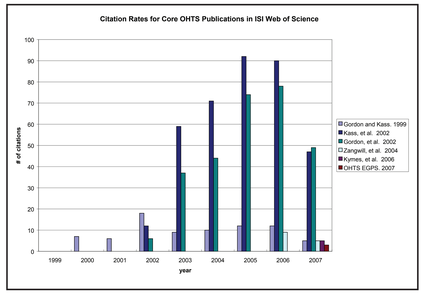
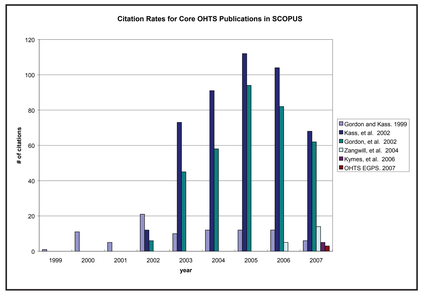
ASSESSMENT OF INTELLECTUAL IMPACT (Bibliographic Analysis)

Citation rates for Gordon, et al. 2002 and Kass, et al. 2002, exceed average citation rates for papers and are among the top 10% of cited papers published in 2002 in Clinical Medicine. [Source: Essential Science Indicators]

Of the four core papers identified as "Research Fronts" for glaucoma, three were from OHTS. Kass, et al. 2002, Gordon, et al. 2002, and Brandt, et al. 2001. [Source: Essential Science Indicators]

Of the 16 "Most Highly Cited Papers" (over the past ten years) identified for glaucoma, two were from OHTS. Kass, et al. 2002, ranked number two with 339 citations; and Gordon, et al. 2002 ranked number four with 267 citations. [Source: Essential Science Indicators]





SOURCES:
* Web of Science
* SCOPUS

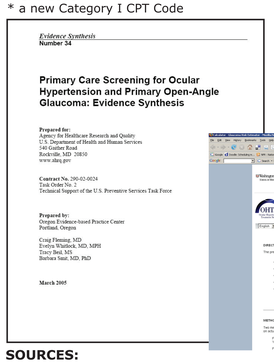
"It is no longer enough to measure what we can – we need to measure what matters."
Wells and Whitworth.

ASSESSMENT OF CLINICAL IMPACT

Evidence of clinical impact evidence focused on clinical/practice guidelines, consensus development conferences, reviews, continuing education modules, creation of codes, insurance coverage statements, measurement tools, and other clinical applications.

OHTS findings were noted in:
* clinical or practice guidelines by national health organizations
* clinical or practice guidelines by organizations specific to ophthalmology
* reviews
* consensus developments
* curriculum materials
* continuing education materials
* Local Coverage Determinations (LCD)
* private insurance benefit plan documents/coverage positions
* "special articles" devoted to highlights of discoveries/advancements in ophthalmology

OHTS findings resulted in:
* a "standard of care" for a disease, disorder or condition
* development of risk assessment factors for a disease, disorder or condition
* a procedure that is widely performed with demonstrated clinical efficacy
* a cost-effective means for treatment of a disease
* the implementation of new diagnostic criteria for a disease, disorder or condition
* a "new and emerging technology" and incorporated as a Category III CPT Code
* a new Category I CPT Code


Evidence Synthesis
Number 34

Primary Care Screening for Ocular Hypertension and Primary Open-Angle Glaucoma: Evidence Synthesis

Prepared for:
Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
www.ahrq.gov

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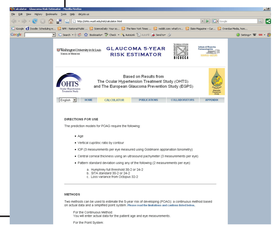
Technical Support of the U.S. Preventive Services Task Force

Prepared by:
Oregon Evidence-based Practice Center
Portland, Oregon

Craig Fleming, MD
Evelyn Whitlock, MD, MPH
Tracy Beil, MS
Barbara Nasr, MD, PhD

March 2005



SOURCES:
* UptoDate
* Cochrane
* EMBASE
* SCOPUS
* ACP
* BMJ Clinical Evidence
* PubMed
* MD Consult
* CPT Codes
* CINAHL
* National Guidelines Clearinghouse
* Agency for Healthcare Research and Quality
* US Preventative Services Task Force
* American Medical Association Clinical Practices Guidelines Directory
* US Department of Veteran's Affairs VA/DoD Clinical Practice Guidelines
* Medicare Guidelines
* Journals (peer-reviewed)
* Trade Publications (non peer-reviewed)
* Google

OTHER CRITERIA FOR ASSESSING CLINICAL IMPACT?

* New application of genomic medicine
* Patent
* New medical equipment
* New drug
* National Coverage Determination (NCD)
* OTHERS??

"Traditional academic metrics of research output through peer-reviewed publications and citations are insufficient to satisfy society's expectation that public investment in research results in real benefit to the society."
Wells and Whitworth.

ASSESSMENT OF KNOWLEDGE TRANSFER

Evidence of knowledge transfer as used for this project focused on two questions:

Did the OHTS findings allow for expansion of research in related areas (ancillary studies)?

Did the OHTS findings allow for research in previously unexplored areas?

OHTS findings allowed for seven research projects in related areas (ancillary studies)

1. Follow-up Intraocular Pressure and the Risk of Developing Primary Open-Angle Glaucoma.
2. OHTS and EGPS: Glaucoma Detection Using Confocal Scanning Laser Ophthalmoscopy.
3. Genetic Markers for Glaucoma Treatment Outcomes.
4. Is Asymmetry Between Eyes Predictive of Increased Risk of Developing Primary Open-Angle Glaucoma?
5. Estimation of the 20-year Incidence of Glaucoma Among People With Intraocular Pressure Greater Than 24 mm Hg.
6. Study Diagnostic Innovations in Glaucoma Study: Visual Function (DIGS)
7. Risk Calculator for the Development of Primary Open-Angle Glaucoma (http://www.discoveriesinsight.org).

OHTS findings allowed for one research project in previously unexplored areas:

1. Ocular Hypertension Treatment Study (OHTS): Ancillary Genetic Testing.

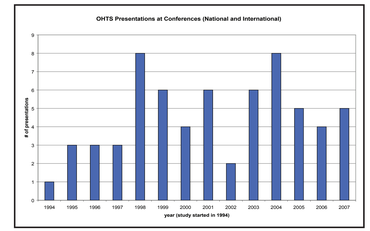
SOURCES:
* CRISP
* Personal knowledge of OHTS Group

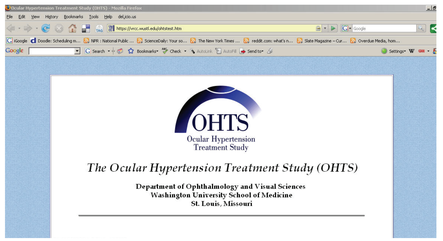
WHY DOES IT MATTER?

* Tenure
* Promotion dossiers
* Progress reports
* Quantify return on research funding
* Justification for future requests for funding
* Demonstration that research results in clinical implementation

MEANS OF DISSEMINATION USED BY OHTS

* Presentations/posters at national and international conferences
* OHTS web site
* OHTS Risk Assessment Calculator
* Manuscript publications
* Outreach visits by OHTS PIs to other campuses





SOME STRATEGIES FOR ENHANCING RESEARCH IMPACT

1. Add the name of study in publication title (use same wording consistently)
2. Add the name of study as an author name (use same wording consistently)
3. Deposit in PubMed Central http://www.pubmedcentral.nih.gov/
4. Deposit in an institutional repository
5. Post on a laboratory website
6. Create a website devoted to the research study
7. Publish in an open access journal
8. Assign MeSH terms
9. Assign author keyword terms
10. Use the classification scheme and terminology appropriate to the field of study, ie, Ocular Trauma Terminology or Cancer Classification scheme
11. Retain full or partial copyright to publications
12. Publish negative as well as positive research findings
13. Deposit data in an appropriate repository such as NCBI
14. Follow up preliminary research (Abstracts) presented at a conference with a published manuscript
15. Issue press releases for significant findings
16. Partner with a non peer-reviewed trade publication to submit updates on research
17. Create a podcast describing the research study and submit to YouTube or BioMed Central
18. Start a blog devoted to the research study, http://researchblogging.org/
19. Partner with a public health organization devoted to the disease/condition related to the research
20. Tailor research findings for consumers--the Pew Internet & American Life Project,"Online Health Search," 2006, reported that eight in ten Americans use the Internet for health information [Source: http://www.pewinternet.org/pdfs/PIP_Online_Health_2006.pdf]