Assessing the Impact and Value of Health Outcomes Publications Using Citation Data from Indices of Scholarly Literature

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Key Points of the Project

- Why did we do this research?
- How did we conduct the research?
- What were the results?
- How can we use this information to maximize value and usefulness of health outcomes publications?
- Future implications and next steps?
Background

• Clinical trial data are typically published in journals with a therapeutic area focus and accessed by researchers and health care professionals (HCPs) for the purposes of sharing knowledge and improving outcomes for patients.

• Pharmacoeconomic and health outcomes (HO) data are published for the same reasons, but often are most relevant to payers and other managed care decision makers.

• Yet, there is limited knowledge of:
  • what factors make HO publications most valuable to payers and HCPs, and
  • how HO decisions are influenced by publications.
Objectives

- Our goal was to assess the impact of HO-related publications using literature citation data from 2 major web search engines that index scholarly literature.

- We envision that enhanced understanding of how HO publications are subsequently used may improve the quality of future publications and maximize usefulness to HCPs, payers, and patients.
Methods

• In order to determine which types of papers were most read or used to inform subsequent studies, we:
  – identified a sample of HO papers published within the past 5 years, and
  – used Google Scholar and Science Citation Index to collect data on the number of times these papers were cited in subsequent research papers.
Methods (continued)

• How the subset of papers to research were selected:
  – Search limited to papers published between 2005 and 2009
  – Authored by internal sample of HO scientists with longevity in their field
  – Sample spanned 5 different therapeutic areas (Neuroscience, Women’s and Men’s Health, Endocrine, Oncology, and Cardiovascular/Critical Care)
  – Selected articles focused on or relevant to HO
• Two freely accessible Web search engines that index scholarly literature were used:

  - **Science Citation Index**
    - An international, multidisciplinary index to literature in science, technology, biomedicine, and related disciplines
    - Yielded search of papers published in peer-reviewed journals
      [http://thomsonreuters.com/products_services/science/science_products/a-z/science_citation_index](http://thomsonreuters.com/products_services/science/science_products/a-z/science_citation_index)

  - **Google Scholar**
    - An index of scholarly literature across formats and disciplines including features that facilitate rankings and linked references
    - Yielded number of times selected articles were cited by subsequent published articles
Methods (continued) - Science Citation Index Expanded

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* Si Web of Knowledge factsheet
Methods – Google Scholar

health outcomes citation search

Articles (☑ include patents) ☐ Legal opinions and journals

Stand on the shoulders of giants

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Results

• Total number of citations recorded was 560 using the 61 relevantly selected publications
• Number of citations ranged from 0 – 51 per publication
• Average number of citations was 9.13 per publication
• Articles in therapeutically focused journals as well as cross-therapeutic HO-focused journals were frequently cited
Number of Times Papers Cited, by Key Topic
Number of Times Papers Cited, by Journal Type

- Health Outcomes-Focused Journal
- Therapeutic Area-Focused Journal
## Number of Times Papers Cited - Therapeutic vs. Health Outcomes Journals

<table>
<thead>
<tr>
<th>Paper Type</th>
<th>Therapeutic Area Journals (times cited)</th>
<th>Health Outcomes Journals (times cited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost/Cost-Effectiveness/Resource Use/Burden of Illness</td>
<td>50</td>
<td>129</td>
</tr>
<tr>
<td>PRO/Outcomes/QoL</td>
<td>162</td>
<td>14</td>
</tr>
<tr>
<td>Economics/Economic Modeling</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Adherence/Persistence</td>
<td>121</td>
<td>0</td>
</tr>
<tr>
<td>Clinical Management/Treatment Effectiveness/Hospital Data/Trends/Patient Characteristics</td>
<td>37</td>
<td>32</td>
</tr>
</tbody>
</table>

**Abbreviations:** PRO = patient-reported outcomes; QoL = quality of life
Results

- Most cited paper types were those related to costs and outcomes
- Articles published in therapeutic area journals were cited more than those published in HO journals
- Overall, more citations for articles published in therapeutic area journals
  - Certain topics more clearly applicable to HO audiences
    - Costs/Resource Use/Cost-Effectiveness
    - Economics/Economic Modeling
Conclusions

These findings:

- Contribute to a growing understanding of the value of HO publications for payers, healthcare decision-makers, and researchers in academia, government, and industry

- Confirm that published HO studies heavily inform the planning and publication of subsequent/future research
Conclusions, concluded

These findings:

- Provide evidence that HO research is highly valued by editors and readers of journals that are focused on therapeutic areas (in addition to those traditionally focused on health outcomes)

- Suggest that knowledge of citation history may be used to maximize sharing of specific types of HO research, by guiding submissions to journals whose readers cite similar research topics
  
  • For example, economics and costs studies are heavily read and cited by readers of HO functional journals whereas PRO and persistence studies are cited by readers of therapeutically-focused journals, etc.
Limitations

• Limited to a small subset of published scientists (nonrandomized sample)
• Study focused only on short time frame of past 5 years; some papers may be too new to have been cited in subsequent publications
• More research needed to confirm the trends we found related to key topics, journal type, and frequency of citations in subsequent publications, and to understand implications of these findings on a larger scale
Future Goals

- Increase scope and reliability of project (for example, increase sample size; use random sample of journals/publications from across the HO field)
- Explore other channels, besides traditional journals, for disseminating HO publications to customers (for example, e-channels, social media)
- Identify additional methods by which to assess the impact and value of HO publications
- Include both qualitative and quantitative information, for example:
  - Survey payers, decision makers, and HO researchers to ascertain what information and which types of venues are most valuable
  - Identify the importance of journal impact factors in HO
  - Ascertain the importance of open-access to HO publications
  - Research the importance of journal publications and poster presentations in the context of other types of communications to payers
  - Study the timeliness of published information
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Question and Answer