Bibliography of Clinical Research in Malaysia: Methods and Brief Results

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**SUMMARY**

This article describes the methodology of this bibliography. A search was conducted on the following: (1) bibliographic databases (PubMed, Scopus, and other databases) using search terms that maximize the retrieval of Malaysian publications; (2) Individual journal search of Malaysian health-related journals; (3) A targeted search of Google and Google Scholar; (4) Searching of Malaysian institutional repositories; (5) Searching of Ministry of Health and Clinical Research Centre website. The publication years were limited to 2000-2013. The citations were imported or manually entered into bibliographic software Refworks. After removing duplicates, and correcting data entry errors, PubMed's Medical Subject Headings (MeSH terms) were added. Clinical research is coded using the definition “patient-oriented-research or research conducted with human subjects (or on material of human origin) for which the investigator directly interacts with the human subjects at some point during the study.” A bibliography of citations [n=2056] that fit the criteria of clinical research in Malaysia in selected topics within five domains was generated: Cancers [589], Cardiovascular diseases [432], Infections [795], Injuries [142], and Mental Health [582]. This is done by retrieving citations with the appropriate MESH terms, as follow: For cancers (Breast Neoplasms; Colorectal Neoplasms; Uterine Cervical Neoplasms), for cardiovascular diseases (Coronary Disease; Hypertension; Stroke), for infections (Dengue; Enterovirus Infections, HIV Infections; Malaria; Nipah Virus; Tuberculosis), for injuries (Accidents, Occupational; Accidents, Traffic; Child Abuse; Occupational Injuries), for mental health (Depression; Depressive Disorder; Depressive Disorder, Major; Drug Users; Psychotic Disorders; Suicide; Suicide, Attempted; Suicidal Ideation; Substance-Related Disorders).

[246 words]

**INTRODUCTION**

Research and publications in Malaysia up to the year 2000 has been documented in various bibliographic works1-5. A search of the PubMed using the text words “Malaya” and “Malaysia” retrieved 8850 items for the period 1950-1999. However, for the period 2000-2013, the number of items retrieved has increased dramatically to 17909 items [search date 22 August 2013]. PubMed is clearly a great place to look for Malaysian health sciences publications but it contains only a fraction of what is available. A search of the Scopus [all subject areas] using the text words “Malaya” and “Malaysia” retrieved 10425 items for the period 1960-1999. However, for the period 2000-2013, the number of items retrieved has increased dramatically to 30196 items [search date 22 August 2013]. Do note that, Scopus is a general database containing citations of all disciplines, so many articles in there are not health-related.

Searching for Malaysian research has improved with the electronic access of databases. However, comprehensive search of Malaysian health sciences literature continue to pose difficulty for a few reasons:

- There are at least 50 Malaysian journals containing health sciences literature; only a few of them are indexed in major databases (six in PubMed, three Web of Science and 11 in Scopus)6,7.
- Inaccuracy of indexing of Malaysian works in the databases6,7.
- Grey literatures (e.g. books, book chapters, reports, and monograph) are not indexed by databases.

This article describe search methods for “Bibliography of Clinical Research in Malaysia”, a project funded by the Clinical Research Centre, Kuala Lumpur.

**METHODS**

A team of searchers (consisting of librarians, medical students and a clinician) conducted simultaneous search and import citations into a web-based bibliographic manager (Refworks, http://www.refworks.com). The type of citations retrieved consisted of the following:

1. Journal articles
2. Conference proceedings
3. Books and book chapters
4. Guidelines and reports
5. Theses and dissertations

Journal articles are searched at these databases and websites
2. Scopus (http://www.scopus.com)
4. UKM Journal Repository (http://journalarticle.ukm.my/)
5. Publisher/journal websites

**PubMed**

PubMed is the free online database of life sciences journal articles offered by the National Library of Medicine, National Institutes of Health, United States. It currently host over 6000 journals containing over 23 millions citations from 1950s. At the moment, six Malaysian journals are indexed in this database.

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Table I: List of Malaysian biomedical journals.

9. FMS Malaysia [hand search]
15. International Medical Research Journal (IMR) [hand search]
18. Journal of the University of Malaya Medical Centre (JUMMEC). http://jummec.um.edu.my
20. Journal of the University of Malaya Medical Centre (JUMMEC). http://jummec.um.edu.my
45. NCD Malaysia [hand search]
BRIEF RESULTS
A total of 2056 publications fall within the above inclusion criteria. See Tables II and III for distribution of publications by year and topics. Of the 2056 publications, 1212 (58.9%) were retrieved from PubMed. Free full text is available for 1293 (62.9%) publications.

Table II: Number of citations by year

<table>
<thead>
<tr>
<th>Year</th>
<th>All citations</th>
<th>Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>932</td>
<td>58</td>
</tr>
<tr>
<td>2001</td>
<td>980</td>
<td>63</td>
</tr>
<tr>
<td>2002</td>
<td>948</td>
<td>71</td>
</tr>
<tr>
<td>2003</td>
<td>1102</td>
<td>74</td>
</tr>
<tr>
<td>2004</td>
<td>1275</td>
<td>111</td>
</tr>
<tr>
<td>2005</td>
<td>1595</td>
<td>103</td>
</tr>
<tr>
<td>2006</td>
<td>1708</td>
<td>118</td>
</tr>
<tr>
<td>2007</td>
<td>1681</td>
<td>145</td>
</tr>
<tr>
<td>2008</td>
<td>2153</td>
<td>179</td>
</tr>
<tr>
<td>2009</td>
<td>1911</td>
<td>147</td>
</tr>
<tr>
<td>2010</td>
<td>2213</td>
<td>199</td>
</tr>
<tr>
<td>2011</td>
<td>3039</td>
<td>275</td>
</tr>
<tr>
<td>2012</td>
<td>3415</td>
<td>237</td>
</tr>
<tr>
<td>2013</td>
<td>4308</td>
<td>272</td>
</tr>
<tr>
<td>All years</td>
<td>27260</td>
<td>2056</td>
</tr>
</tbody>
</table>

Table III: Number (in bracket) of included citations by domains and subtopics

<table>
<thead>
<tr>
<th>Domain</th>
<th>Subtopic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancers (589)</td>
<td>Breast cancer (389)</td>
</tr>
<tr>
<td></td>
<td>Cervical cancer (112)</td>
</tr>
<tr>
<td></td>
<td>Colorectal cancer (97)</td>
</tr>
<tr>
<td>Infections (795)</td>
<td>Dengue (182)</td>
</tr>
<tr>
<td></td>
<td>Enterovirus infection (50)</td>
</tr>
<tr>
<td></td>
<td>HIV infection (294)</td>
</tr>
<tr>
<td></td>
<td>Malaria (108)</td>
</tr>
<tr>
<td></td>
<td>Tuberculosis (193)</td>
</tr>
<tr>
<td>Injuries (142)</td>
<td>Child abuse (41)</td>
</tr>
<tr>
<td></td>
<td>Road traffic accidents (101)</td>
</tr>
<tr>
<td>Mental Health (582)</td>
<td>Depression (265)</td>
</tr>
<tr>
<td></td>
<td>Drug abuse (157)</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia (164)</td>
</tr>
</tbody>
</table>

Note: The content of some citations cover more than one subtopic

The full lists of citations for all 13 subtopics are available in http://www.crc.gov.my/published-articles-on-malaysian-data/.


[note: AD, TA, and MH are PubMed field tags that refer to address, journal title abbreviation and Medical Subject Headings, respectively]

The above search string retrieved 21291 citations

Scopus
Scopus is a subscription-based bibliographic database owned by Elsevier. It contains over 50 millions records from around 21000 journals. A search for “Malaysia” for the period 2000-2013 in the subject area of “Health Sciences” retrieved 9720 citations.

Other journal searches
Medical and health sciences journal listed in MyJurnal (a portal of 347 Malaysian journals, 38 are listed under “Medicine & Health Sciences”) and UKM Journal Repository (a portal of 42 journals published by Universiti Kebangsaan Malaysia) are comprehensively searched. All together we conducted hand search and electronic search of 52 Malaysian journals published in the period 2000-2013 (see Table I).

Search for non-journal citations
For non-journal citations (e.g. theses and dissertations), we performed search using Google (http://google.com.my) and Google Scholar (http://scholar.google.com.my/). We queried the following databases and institutional repository, both local and international, for scholarly works containing health and medical information on Malaysia:

1. Open Access Theses and Dissertations. www.oatd.org
3. Institute for Medical Research Library. www.imr.gov.my
11. Universiti Malaysia Sarawak Institutional Repository.  
   http://ir.unimas.my/
   http://psasir.upm.edu.my/
   http://eprints.usm.my
   http://eprints.uitm.edu.my/
15. Universiti Utara Malaysia Repository.  
   http://repo.uum.edu.my/
16. University of Malaya Theses and Dissertations.  
   http://www.diglib.um.edu.my/umtheses/#sthash.2gD1j0rp.dpbs

**Data cleaning and coding**

After removing duplicated items and non-Malaysian references, the keywords based on National Library of Medicine’s Medical Subject Headings (MESH terms) were coded for each citation.

The inclusion criteria for the present “Bibliography of Clinical Research” has a limited scope (as requested by the funder):
1. Citations must be clinical research. The definition of clinical research by Glasser is adopted, i.e. patient-oriented-research or research conducted with human subjects (or on material of human origin) for which the investigator directly interacts with the human subjects at some point during the study8.
2. Citations that fall within four domains and 13 subtopics (breast cancer, cervical cancer, child abuse, colorectal cancer, depression, drug abuse, enterovirus infection, HIV infection, malaria, road traffic accident, schizophrenia, tuberculosis and dengue).
3. Citations that were published between 2000-2013.

**RESULTS**

A total of 1853 citations fall within the above inclusion criteria (see Tables II and III)

**REFERENCES**

3. 100 Years of the Institute for Medical Research 1900-2000. Kuala Lumpur: Institute for Medical Research, 2000