Using an Internet grant and scholarship notification service as a research tool

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By using specific key words, clinicians can use an Internet database service to identify federally funded grant and scholarship opportunities—opportunities more frequently sought by basic scientists. The authors hypothesized that such an Internet service could be used as a research tool to examine and compare the clinical research preferences of potential medical and bioscience investigators. The authors selected 577 key words from an online key word thesaurus used by both the federal government and ScienceWise.com. These key words formed a survey instrument to measure the research interests of 40 family medicine academic faculty members of a college of osteopathic medicine. The findings were compared to a survey by ScienceWise.com of its 102,578 subscribers and to previous surveys of nonacademic clinicians. Results indicate an efficient means of determining research interests as well as a method of alerting academic clinicians/nonclinicians and basic scientists to current funding opportunities.

(Key words: original contribution, Internet, research, key word)

To promote participation in clinical research among family medicine academic faculty, it seemed necessary first to identify the researchers’ interests.1 The next logical steps were recording those interests on an easily accessed database, then developing a method to match the research interests to available research opportunities.

This study, approved by the university’s institutional review board, involved 40 faculty members of a college of osteopathic medicine–based practice (within the Department of Family Medicine, University of North Texas Health Science Center at Fort Worth–Texas College of Osteopathic Medicine). Not all faculty members were clinicians, but all were expected eventually to perform research related to clinical outcomes or healthcare management. Traditionally, academic faculty physicians have conducted research at nearly three times the rate of community-based physicians.2

We hypothesized that the study group interests could be identified and used with the help of an online database and that the clinicians among the faculty would share some of the research interests typical of biomedical scientists. The primary purpose of this study was to identify faculty interests and to develop an easy means of communicating research opportunities to faculty members.

This study used a unique approach to the use of a Web-based opportunity advisory system3 for clinical research use and implemented a new survey instrument based on an online key word thesaurus. The reviewed literature agreed that clinical research was necessary and important, particularly for academic physicians. Such articles emphasize that, from the educational perspective, the medical profession and institutions of higher learning depend on research to maintain quality in performance and scholastics, while from the clinical perspective, clinical research completes the circle of research begun by basic scientists by bringing basic research discoveries into practice.4,5

A wide spectrum of perceived barriers or constraints to performing research—especially clinical trials—have been documented, although not well quantified. These include the following:

- Conflict of interest arising from the dual role of physician-researcher6;
- Conflict of interest arising from lucrative payments to the investigator by the pharmaceutical company/study sponsor (arrangement generally unknown to participating human subject/patient)7;
- Difficulty translating a narrow research topic into general medical practice in real-world settings8;
- Managed care pressures (lower earnings equals more patients required to generate income)9;
- Time conflicts: patient care, teaching requirements, scheduling inflexibility10-12;
- Increased workload for staff, support personnel13;
- Lack of integration between clinical research promotion/teaching and medical schools/teaching hospitals5;
- and
- Underdeveloped use of nonphysician professionals (physician assistants, nurses) on research teams.14

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With permission of ScienceWise.com, the authors copied a list used by nonprofit organizations for their own purposes. The authors copied a list from Grants Keyword Thesaurus (Rodman & Associates, Gaithersburg, Md) and pasted the list into a new Microsoft Access database file. (Grants Keyword Thesaurus contains the same key words used by the US government to identify federal grants and clinical trials and can be used by nonprofit organizations for their own purposes.)

The key words were selected from the following groups:

- Target groups (12 key words or key word phrases). Examples: children & youth, handicapped & disabled, minorities–Asians, refugees, women.
- Medical/biomedical fields (129 key words or key word phrases). Examples: adolescent health, bacteriology, cancer biology, molecular genetics, plant sciences, toxicology.
- Diseases/conditions (84 key words or key word phrases). Examples: accidents, cystic fibrosis, Huntington’s disease, obesity, senile dementia, tumor immunology.
- Health care management (52 key words or key word phrases). Examples: access to health care, child & maternal health, folk medicine, indigent care, rural health, technology assessment.
- Behavioral and social sciences (171 key words or key word phrases). Examples: aggression, comparative sociology, death & dying, educational psychology, rape & sexual abuse.
- Miscellaneous medical (129 key words or key word phrases). Examples: biochemical markers, collagen, gene expression, medical & diagnostic imaging, prostaglandins, transgenic animals.

The 577 key words and key word phrases, under their respective headings, were placed on a seven-page survey form that was distributed to all 40 faculty members. The faculty members were asked to complete the survey by placing a check mark beside any topic of potential research interest. Instructions clearly stated that the form would collect data reflecting research interests of the faculty as a group and individually, and that if requested on the form by the faculty member, updated notices of research opportunities would be advanced to the respondent. Additionally, it was stated on the survey form that completion of the survey would not constitute agreement to perform any particular research activity.

Added to the topic checklist was an area asking the respondents for their general research interests as follows:

- Independent research only (nonfunded, self-directed);
- Funded (National Institutes of Health, etc) grants (but not clinical drug trial);
- Any funded (federal grant/clinical drug trial);
- Any nonclinical drug trial research (funded grant or independent);
- Any research, and
- None (not interested).

Finally, respondents were asked to check which drawbacks to performing research applied to them. The list included time constraints, ethical concerns, preference for teaching, preference for clinic duties, and other (allowing write-in response here).

In addition to survey topics, respondents were asked on the survey forms to indicate when and in what manner they would prefer to be contacted with research opportunity information.

### Results

The results of the respondents’ surveys were placed into the new database, and a list of the 146 key words/key word phrases obtained from the respondents’ answers was entered onto the authors’ online subscription key word listing with ScienceWise.com. It was expected that the 146-key word listing would match clinical trial and research grant opportunities of potential interest to the survey respondents from whose answers the key words were taken.

Of 40 faculty members, 32 responded to the survey. Of the 40 faculty members, 27 were physicians, 6 were physician assistants, and the remainder were nonclinicians. Of the nonclinician respondents, two had PhD degrees while the others had master’s degrees. Academic titles ranged from instructor to professor. Of the 27 physicians, 24 were osteopathic physicians and 3 were allopathic physicians. Two of the 3 allopathic physicians responded to the survey, while 17 of the 24 osteopathic physicians responded. Ages ranged from 33 years to 73 years old. Twenty-six of the 40 faculty members were male; 5 of the nonrespondents were male and 3 were female.

The top five research topics chosen from all key words were behavior & health, diabetes, medicine–family practice, access to health care, and disadvantaged economically (Table 1). The top

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**Table 1**

<table>
<thead>
<tr>
<th>Key word/key word phrase</th>
<th>Respondents, No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior &amp; health</td>
<td>14</td>
</tr>
<tr>
<td>Diabetes</td>
<td>14</td>
</tr>
<tr>
<td>Medicine–family practice</td>
<td>14</td>
</tr>
<tr>
<td>Access to health care</td>
<td>12</td>
</tr>
<tr>
<td>Disadvantaged economically</td>
<td>11</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>10</td>
</tr>
<tr>
<td>Community &amp; outreach programs</td>
<td>10</td>
</tr>
<tr>
<td>Cross-cultural studies</td>
<td>10</td>
</tr>
<tr>
<td>Hypertension</td>
<td>10</td>
</tr>
<tr>
<td>International health</td>
<td>10</td>
</tr>
<tr>
<td>Obesity</td>
<td>8</td>
</tr>
<tr>
<td>Women</td>
<td>8</td>
</tr>
</tbody>
</table>

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clarke and coleridge • original contribution
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The top ten used key words or key word phrases were women (14.1%), children & youth (12.9%), disadvantaged economically (12.6%), handicapped & disabled (7.9%), minorities—blacks (6.8%), minorities–Hispanics (4.8%), computer-aided instruction (4.7%), behavioral studies & social problems (4.1%), veterans (3.9%), and biology–molecular (3.8%). (See Table 2.)

A follow-up survey by ScienceWise.com of 2000 subscribers furnished the following demographic data: 12% were members of the American Society for the Advancement of Science, 5% were members of the Institute of Electrical and Electronics Engineers and the American Chemical Society, and 70% belonged to other associations including the American Psychological Association and the American Public Health Association.

Clinical topics of interest among both osteopathic and allopathic physicians in the faculty surveyed by the author were similar to those noted in previous studies of clinicians, with hypertension and diabetes high on the lists, but five clinical (disease- or condition-related) key words were diabetes, cardiovascular disease, hypertension, and a six-way tie between allergy, asthma, behavioral medicine, depression, liver disorders, and obesity (Figure 1).

Two of the faculty preferred no research endeavors, while 12 would consider “any research.” Seven respondents were interested in only research that was from a funded source, while 4 preferred independent, nonfunded research (Figure 2).

The most commonly perceived constraint or barrier to performing research was lack of time (26 respondents). The next highest barrier was a preference for teaching (Figure 3).

The 146 key words entered into the online database, ScienceWise.com, resulted in an ongoing, weekly average of 10 research opportunity “alerts” (notifications of grant or clinical trial opportunities) containing the matching key words.

ScienceWise.com provided a report of the key word preferences of its 102,578 subscribers (Keyes M, unpublished data, 1998). The top ten used key words or key word phrases were women (14.1%), children & youth (12.9%), disadvantaged economically (12.6%), handicapped & disabled (7.9%), minorities—blacks (6.8%), minorities–Hispanics (4.8%), computer-aided instruction (4.7%), behavioral studies & social problems (4.1%), veterans (3.9%), and biology–molecular (3.8%). (See Table 2.)

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**Figure 1.** Top ten clinical study preferences chosen by the faculty study group (n = 32 respondents).
Figure 2. General research interests of the faculty study group (n = 32 respondents). CDT indicates clinical drug trial.

Figure 3. Constraints to performing research as perceived by the faculty study group (n = 32 respondents).
interests differed significantly from most of the ScienceWise.com subscribers. However, a high degree of interest in behavioral and social sciences research topics was seen in both groups. Time constraint was a universal concern among family practitioners asked to perform research, especially in view of increasing demands on university and academic researchers to produce revenue in the clinical arena.

Conclusion
Using an Internet resource like ScienceWise.com for gathering and disseminating information seems to be an efficient method for scientists and medical professionals to keep abreast of upcoming funded studies and clinical trials. An e-mail system of notification and dialogue appears to be efficient and unobtrusive, though the authors found that support services may struggle to keep pace with increased demand (by interested faculty members) to help evaluate and prepare research proposals.

Acknowledgments
The authors thank Marilyn Keyes, vice president of marketing at ScienceWise.com; Shelly Pettyjohn, grant and contract specialist, Research and Biotechnology Department, University of North Texas Health Science Center at Fort Worth–Texas College of Osteopathic Medicine for valuable data; and Carol Pruett, senior administrative assistant, Division of Education and Research, University of North Texas Health Science Center at Fort Worth–College of Osteopathic Medicine for clerical support.

Table 2

<table>
<thead>
<tr>
<th>Key word/key word phrase</th>
<th>Respondents, No.</th>
</tr>
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<tbody>
<tr>
<td>Women</td>
<td>14,429</td>
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<tr>
<td>Children &amp; youth</td>
<td>13,281</td>
</tr>
<tr>
<td>Disadvantaged economically</td>
<td>12,972</td>
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<tr>
<td>Handicapped &amp; disabled</td>
<td>8080</td>
</tr>
<tr>
<td>Minorities–blacks</td>
<td>6978</td>
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<tr>
<td>Minorities–Hispanics</td>
<td>4963</td>
</tr>
<tr>
<td>Computer-aided instruction</td>
<td>4780</td>
</tr>
<tr>
<td>Behavioral studies &amp; social problems</td>
<td>4198</td>
</tr>
<tr>
<td>Veterans</td>
<td>4014</td>
</tr>
<tr>
<td>Biology–molecular</td>
<td>3848</td>
</tr>
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</table>


References