Scientific meeting abstracts: significance, access, and trends

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Abstracts of scientific papers and posters that are presented at annual scientific meetings of professional societies are part of the broader category of conference literature. They are an important avenue for the dissemination of current data. While timely and succinct, these abstracts present problems such as an abbreviated peer review and incomplete bibliographic access. Methods: Seventy societies of health sciences professionals were surveyed about the publication of abstracts from their annual meetings. Nineteen frequently cited journals also were contacted about their policies on the citation of meeting abstracts. Ten databases were searched for the presence of meetings abstracts. Results: Ninety percent of the seventy societies publish their abstracts, with nearly half appearing in the society's journal. Seventy-seven percent of the societies supply meeting attendees with a copy of each abstract, and 43% make their abstracts available in an electronic format. Most of the journals surveyed allow meeting abstracts to be cited. Bibliographic access to these abstracts does not appear to be widespread. Conclusions: Meeting abstracts play an important role in the dissemination of scientific knowledge. Bibliographic access to meeting abstracts is very limited. The trend toward making meeting abstracts available via the Internet has the potential to give a broader audience access to the information they contain.

INTRODUCTION

Each year, many researchers, clinicians, educators, and students in the health sciences attend the annual scientific meetings of their professional societies. At most of these meetings, a large part of the program is made up of papers and poster presentations given by members of the society, covering the latest work being done in the field. Although the information presented may be timely and of great interest to those in the field, the only written record of these papers and posters is usually the abstract that was submitted by the presenter for review. These meeting abstracts may find their way into publication in a variety of ways. They may appear

- as part of a journal sponsored by the society, either in a regular issue, in a special issue, or as a supplement;
- as a handout to those attending the meeting and perhaps others who request a copy; or
- in electronic format, either on the Internet or on a disk or CD-ROM that may be distributed at the meeting.

These brief summaries of very current work may play a much more important role in the dissemination of scientific information than librarians currently realize. Health professionals see these abstracts as either the first revelations of important new ideas or preliminary reports that may or may not hold up under full peer review [1, 2].

The goals of the project described in this article were to describe the role of these abstracts in the course of scientific publication and to identify where some of the major U.S. health care societies publish the abstracts of presentations and posters from their annual meetings. Bibliographic access to meeting abstracts will be addressed in this article. Citation policies regarding these abstracts will also be discussed, as well as how the growing electronic environment is changing the current situation.

ABSTRACTS VERSUS FULL PROCEEDINGS

Abstracts from annual scientific meetings, on which this article focuses, should be distinguished from con-

ference proceedings that contain full-length papers. The language used often is not helpful in making a distinction; the terms "conference literature" and "conference proceedings" technically may include both types of publications, although in the library and publishing worlds they usually refer to proceedings that contain full-length papers. In this paper, the term "meeting abstracts" will be used to refer to the abstracts from annual scientific meetings, and "conference proceedings" will denote publications containing full-length papers. "Conference literature" will be used as a broader term, encompassing both meeting abstracts and conference proceedings.

In addition to their length, a major difference between meeting abstracts and conference proceedings is the length of the period between their presentation and their publication. Abstracts are available either before or during the meeting, while conference proceedings often are published months or years after the fact.

Conference proceedings have received harsh treatment in the literature of both scientists and librarians. They have been criticized for being published years after the meeting, costing too much, containing nothing unique, being sponsored by commercial interests such as pharmaceutical companies, containing material that is otherwise unpublishable, having almost no bibliographic access, and even weighing too much [3–8].

Those involved in collection development may dislike the fact that conference proceedings sometimes appear as a large separate issue or supplement to a journal, automatically adding to the price of the journal and giving selectors no choice about whether to purchase them [9]. Health professionals who write book reviews have urged librarians to stop buying conference proceedings, and publishers to stop producing them [10, 11].

In contrast, meeting abstracts are often published before the fact, are not high in cost, and many times contain the first written report of findings. Pharmaceutical companies may contribute to the meeting, but seldom completely underwrite the publication of the abstracts. Bibliographic control remains a problem, and while some abstracts appear as a regular part of a journal, they take up a much smaller number of the pages than a conference proceedings.

MEETINGS AND THE PUBLICATION CYCLE

The importance of meeting abstracts to the scientific researcher has been established by those who have studied the publication cycle as well as investigators in a number of subspecialties who have documented the process in which an initial presentation or poster evolves into a journal article.

Several studies have helped to identify the place where meeting presentations and posters fall in the publication cycle in the sciences. Bates graphs out the cycle, noting that authors often present material locally and regionally, gathering feedback and modifying the methods before taking it to a large national or international meeting [12]. Seaton et al. note that "the national convention represents a major communication channel in any discipline" [13]. According to Garvey et al., presenting a paper at a scientific meeting usually represents the last time the work is discussed in an informal setting, where colleagues may ask questions, suggest revisions, or challenge a conclusion [14]. After a presentation, information about the work generally is not available until the author writes a journal article. Publication of these subsequent articles often occurs months or years after the presentation. Those who attended the meeting or read the abstract are aware of the work long before those who depend on the journal literature to keep up-to-date. The article in this week's journal is often old news to researchers who closely follow a topic. Walker notes that information disseminated at scientific meetings is more useful to other researchers than the same information from a subsequent journal article, simply because of its timeliness [15].

The literature resulting from meetings holds a different place in the publication realm of different professions. For biomedical researchers, meeting presentations and posters often cover ongoing research projects, and any subsequent journal articles usually reflect much more work than the meeting abstract. This may be in contrast to the practice of librarians, for whom giving presentations and posters at their national meetings is an end in itself, and whose topics are often focused on practice rather than research. Subsequent journal articles based on the meeting abstracts may contain little new information. For example, Snelson and Talar found that for those conducting research in library science, the Association of College and Research Libraries meeting was not where they chose to present their work [16].

How many scientists follow up their meeting presentations with a more complete journal article? Several investigators in a variety of disciplines have used MEDLINE searches, surveys, and telephone interviews to determine whether individual presentations lead to journal articles [17–27]. In a meta-analysis of eleven studies, Scherer et al. found that 51% of the 2,391 abstracts studied later appeared as a full article [28].

Several reasons are offered to explain why the work presented at meetings does not eventually appear in a journal article. Procrastination, job shifts, and changing career goals are mentioned, but most authors writing on this topic address an underlying assumption of some scientists: that the quality of the work represented by these abstracts has not been thoroughly ascertained by the abstract review process.

PEER REVIEW AND MEETING ABSTRACTS

As a rule, the review process for meeting abstracts is less stringent than the process for an article in a peer-reviewed journal. In a typical case, the abstract is read by a small number of committee members who assign a rating. Some abstracts may immediately be slated for acceptance or rejection. Decisions may be based on discussion, or in some cases, made by using an average of a numerical rating [29, 30].

Several authors either state or imply that one reason many abstracts are not published as full journal articles is that the original studies were flawed [31–34]. They note the difficulties reviewers have in making a good decision based on the small amount of information contained in an abstract. Those who review journal articles have much more information about the hypothesis, methodology, and evaluation methods of the study, and manuscripts may be sent back to authors for revisions. Researchers have suggested that evaluators could be aided in their task by either requiring structured abstracts, which specifically spell out the methods, results, and conclusions, or expanding the length of the abstracts [35, 36].

Some of the studies on the fate of meeting abstracts were undertaken at least in part to draw attention to problems with the review process and to offer solutions that would help to raise the quality of the abstracts. While focusing on the problems, these authors do not deny that presentations at national meetings are a timely means of reporting important, although perhaps preliminary, work.

CITING MEETING ABSTRACTS

There is some controversy about whether meeting abstracts should be cited in bibliographies. The International Committee of Medical Journal Editors suggests that authors "try to avoid using abstracts as references," although editorial policies for individual journals vary widely [37]. In a 1993 editorial in *Ophthalmology,* the editor states that the publication has chosen to exclude meeting abstracts from its bibliographies because it does not find the review process that is used to select them to be stringent enough [38].

In a study of gray literature, which may include meeting abstracts, conference proceedings, technical reports, and other nonconventional documents, Alberani et al. noted that during a two-year period, in six journals, 15.5% of the citations to gray literature were "conference proceedings," which may include both meeting abstracts and conference proceedings [39]. Goldman and Loscalzo, studying three cardiology meetings, found that the 276 abstracts were cited an average of 1.6 times each during the three years following the meetings [40]. Evered et al., assessing the impact of meetings sponsored by the Ciba Foundation, uses citation analysis to show the importance of these meetings to the scientific community [41].

BIBLIOGRAPHIC ACCESS

Librarians long have lamented the difficulties in accessing the conference literature [42–51]. While most studies on this topic focus on proceedings containing full-length papers, the same points apply to meeting abstracts. They include:

- Formats. The publications may appear as monographs or as a variety of sections of serials.
- Names. They may be called conferences, congresses, symposia, transactions, proceedings, or meetings.
- Growth in popularity. More and more meetings are being held each year, making selection more difficult.
- Acquisition. Many conference proceedings are published in-house or by small organizations, and obtaining copies may be difficult.
- Cataloging. Practices vary, and the original cataloging that they may require is expensive.
- Interlibrary loan. Citations may be incomplete, verification may be difficult, and many items are not widely held.
- Indexing. Few meetings are covered in the common indexes, and turning to expensive or narrowly focused alternatives often does not yield many more.

MEDLINE, the most widely available of the health sciences databases, does not cover individual meeting papers or abstracts, with the exception of the 1976–1981 period, when selected "congress papers that had been published in the form of non-serial monographs" were indexed [52]. Currently, if abstracts from a meeting are published in a journal that is indexed in MEDLINE, a summary reference, including the title or sponsor of the meeting, location, date, and page numbers, may appear in the database. Most are assigned the publication types "meeting report" and "overall." In contrast, the two most widely used databases in science and technology, Compendex and Inspec, both contain references to individual meeting papers.

Other health sciences databases cover some conference literature, but their emphasis is not on meeting abstracts [53, 54]. CINAHL, Embase and NTIS cover some conference literature but meeting abstracts are not currently included. BIOSIS, CAB Health, Life Sciences Collection, and SciSearch do include some abstracts, but conference literature is not the focus of any of these databases, and they also are less likely to be used routinely by either health sciences librarians or practitioners. Several more narrowly focused databases, such as AIDSLine, CancerLit, HealthSTAR, and International Pharmaceutical Abstracts, include meeting abstracts, but the same caveats apply.

While coverage of meeting abstracts in the mainstream health sciences databases is not extensive, at

least three expensive specialty databases, all targeting the pharmaceutical industry, aggressively pursue information from meeting abstracts. NME Express: New Molecular Entities contains information about new pharmacological compounds retrieved from the meeting literature as well as journal articles and company communications. Both Pharmaprojects and Conference Fast-Track glean information from meeting abstracts, and also send representatives to meetings to gather information. In each case, fast turn-around time is promised.

Databases such as Conference Papers Index and Inside Conferences focus on the meeting literature, but use of these databases is far from ubiquitous. Index to Scientific and Technical Proceedings covers only full-length papers.

METHODS

Survey of societies

To determine where meeting abstracts are published, seventy large societies of health care professionals were surveyed about the publication of their meeting abstracts. The societies were chosen by contacting a faculty member in each division of the six schools (dentistry, medicine, nursing, pharmacy, public health, and veterinary medicine) of the Academic Health Center at the University of Minnesota, Twin Cities campus, and asking them to identify the most important annual society-sponsored scientific meeting in their discipline. Although faculty members were not asked to limit their responses to organizations based in the United States, nearly all the societies fell into that group. Thirty-six societies, or slightly more than half, are in the category of medicine, with the remaining thirty-four are distributed among the other disciplines.

In telephone conversations with staff members at each society during February 1997, questions were asked about where the abstracts were published, who received copies of them, and whether they were available in electronic form (see the appendix).

Citation policies of frequently cited journals

To get an indication of whether health sciences journals allow authors to use meeting abstracts in their bibliographies, the editorial staffs of the nineteen health-related journals included in the Institute for Scientific Information's list of the twenty-five most frequently cited journals for 1995 [55] were polled via the telephone. They were asked whether meeting abstracts were accepted as references, and whether there were any stipulations, such as the length of time since the meeting.

Bibliographic access

To gauge whether the meeting abstracts included in the survey were covered in health-related bibliographic databases, fourteen, or 20% of the seventy meetings in the survey, were selected randomly from the sixty-three that indicated that their meeting abstracts were published. Searches were conducted in February 1997, covering the years 1994 and 1995. Material from 1996 was not included because some of the databases are updated only quarterly, and the items from that year may not have been complete. The following databases, which include meeting abstracts, were searched:

Via DIALOG

- CAB Health
- Conference Papers Index
- Inside Conferences
- Life Sciences Collection
- SciSearch

Via Ovid

- BIOSIS Previews

In addition, the following four more narrowly focused health databases, which include meeting abstracts, were searched. Again the searches were limited to the years 1994 and 1995. Each database was matched with the two or three societies whose subject areas were close to those covered by the database, and searches were conducted to locate meeting abstracts from those societies.

Via DIALOG

- *AIDSLine*:
  * American Society for Microbiology
  * Interscience Conference on Antimicrobial Agents and Chemotherapy

Via Ovid

- *CancerLit*:
  * American Society for Clinical Oncology
  * Oncology Nursing Society
- *HealthStar*:
  * Association for Health Services Research
  * Society for Epidemiologic Research
- *International Pharmaceutical Abstracts*:
  * American Pharmaceutical Association
  * American Society for Health-System Pharmacists
  * American Society for Pharmacology and Experimental Therapeutics

RESULTS

Survey of societies

Ninety percent, or sixty-three of the seventy societies in the study published the abstracts of the papers and posters presented at their annual scientific meetings

Table 1
Publication of abstracts presented at annual professional meetings in the health sciences

	Number	Percentage of total*
I. Print vs. electronic publication (*n*=70)		
Publication in any format	63	90
Publication in print	62	89
Publication in print only	33	47
Electronic publication	30	43
Electronic publication only	1	1
II. Specific publication formats (*n*=70)		
A. Print formats		
Part of regular journal issue	6	9
Journal supplement	27	39
Hand-out for meeting attendees	54	77
Mailed to society members	11	16
Journal and hand-out	28	40
B. Electronic formats		
Computer disk	13	19
CD-ROM	10	14
Internet	13	19
Multiple electronic formats	5	7

* Percentages have been rounded.

(Table 1). Those that did not publish abstracts cited either costs or the nature of the annual meeting. Three meetings were identified as less focused on science than on either political activities or policy questions. All but one of the sixty-three societies that published their abstracts did so in a print format, and thirty of those, or 46% of the total, also made them available in at least one electronic format, including disk, CD-ROM, and Internet documents. One group currently publishes its abstracts only electronically, on the World Wide Web.

The most common print formats for meeting abstracts are attendee hand-outs, which were provided by fifty-four, or 77%, of the seventy organizations, and special journal supplements, which were published by twenty-seven, or 39% of the societies. Twenty-eight of the sixty-three groups that made their abstracts available did so by publishing them both as part of a journal and as a hand-out given to those attending the meeting.

Most societies that publish meeting abstracts in their journals do so in the same issue every year, which is helpful in locating them. A Web page on meeting abstracts (http://www.biomed.lib.umn.edu/abstracts) has been established by the author. It lists the societies from this study that published meeting abstracts in their journals, organized by journal, society, and topic. Links are also available to those societies that maintain their meeting abstracts on the Internet.

Thirty, or 40%, of the societies that published their abstracts made them available in one or more electronic formats. The twenty societies that provided either disks or CD-ROMs distributed them at the meeting. All but one of the thirteen that have their meeting abstracts on the Internet posted them prior to the meeting. Twenty-four of the fifty societies that currently do not have their meeting abstracts in an electronic format plan to do so in the future.

Commercial sponsorship for the publication of the abstracts was noted by twenty-three of the seventy societies. This was either through advertisements in the abstract book or supplement, or overall sponsorship of the meeting. All of the societies that made abstracts available in disk or CD-ROM format noted corporate underwriting for that activity.

Only three of the seventy societies also published a proceedings that contains full-length papers. Another society allowed abstracts to be up to three pages in length. Ten of the societies noted that some annual meeting presentations were earmarked for publication as full articles in their journals. Examples of these are award-winning papers, those that were especially timely, and presentations that were part of a special symposium.

Citation policies of frequently cited journals

Of the nineteen journals surveyed, only three did not allow meeting abstracts to be cited in bibliographies. One editor noted that meeting abstracts are considered "ephemeral references," and may be mentioned only in footnotes. Another journal that allowed abstracts to be cited required that authors state that the material cited was an abstract. None of the sixteen journals that allowed meeting abstracts to be cited noted restrictions on how recently the meeting was held.

Bibliographic access

The results of the searches in each of the ten databases are presented in Table 2. While all four of the more narrowly focused databases contained references to at least one of the large annual meetings in this study, results were less encouraging in the databases with a broader focus. In the two health-related databases that contain material from the fourteen meetings in question, each covers only one or two of the meetings. The same results hold true for the one meeting-focused database that yielded positive results. The number of presentations and posters covered for a given meeting ranged from 102 to 1,834.

Six of the societies published their meeting abstracts in the society's journal, and the remaining eight provided it as a hand-out to meeting registrants and possibly others. While at least one of the ten databases, SciSearch, covered only material published as part of a journal, the method of publication and distribution of the abstracts did not seem to be related to whether the abstracts were covered in the bibliographic databases.

Although MEDLINE does not include references to individual meeting abstracts, the citations to the complete proceedings that appear in journals may be use-

Table 2
Search results: abstracts from annual meetings in the health sciences

Database	1994	1995
I. Meetings covered in general health-related databases (*n*=14)		
BIOSIS	2	1
CAB Health	0	0
Life Sciences Collection	0	0
SciSearch	2	2
II. Meetings covered in meeting-oriented databases (*n*=14)		
Conference Papers Index	1	2
Inside Conferences	0	0
III. Meetings covered in specialized health sciences databases		
AIDSLine	2/2	0/2
CancerLit	1/2	2/2
HealthSTAR	1/2	1/2
International Pharmaceutical Abstracts	2/3	2/3

ful in locating an abstract. Of the six aforementioned meetings that are published as part of a journal, three are covered in MEDLINE.

DISCUSSION

The seventy meetings covered in this study are among the hundreds of biomedical meetings that are held each year. Many have a much narrower focus than the ones identified in this study. The topics of the annual meetings covered in this paper are quite broad, such as nephrology, diagnostic radiology, and physical therapy. Hundreds of papers and posters may be presented at these large meetings, and thousands of scientists may be in attendance. In contrast, at a more narrowly focused meeting, only a handful of papers may be presented, and the number of attendees may be very small.

The current methods of disseminating the abstracts of meeting presentations and posters, chiefly as journal supplements or hand-outs for attendees, ensure access to meeting attendees and other members of the society. Publication of the abstracts as a journal supplement allows them to reside in many libraries, but poor bibliographic access makes this a moot point. Many societies noted that while they were willing to give or sell copies of the hand-outs or journal issues to nonattendees after the meeting, supplies were often short, and most seemed to treat this activity as a sidelight. A few expressed surprise that anyone outside their membership would want a copy after the presentation.

Producing a disk or CD-ROM of the abstracts seems as though it would help to enlarge the number of potential users of the information, but the practice of giving copies only to meeting attendees who request them (and already have a paper copy) limits the effect. In light of the fact that production and distribution of the CD-ROMs is underwritten by pharmaceutical companies, this appears to be more of a marketing strategy than an attempt to pass timely information to a broader audience.

The currency of the information contained in meeting abstracts is a main reason to be concerned about their existence. Biomedical scientists attend their annual meetings expecting to learn about the latest breakthroughs, and the abstracts are the record of what they heard. If meeting abstracts were accessible to a broader audience, the useful knowledge that at least some of them contain would be available to the scientific community about a year earlier, according to those who have tracked the progress of the work represented in certain abstracts. Although librarians may not currently focus much attention on meeting abstracts, researchers view them as an important information source, often keeping their abstract books close at hand, and referring to them throughout the year. Databases such as Pharmaprojects and Conference Fast-Track, which market to the pharmaceutical industry, put a high value on the information contained in meeting abstracts, getting it into their databases in a matter of weeks after the meeting.

A legitimate concern about meeting abstracts is the process used to review them. One society in this study tries to solve the problem of having an abbreviated review process by asking the authors to submit full manuscripts, although only the abstract is published in the meeting proceedings. Another society, however, prints all abstracts that are submitted, including those that are not accepted for presentation at the meeting.

Although most of the small sample of frequently cited biomedical journals in this study will accept citations to meeting abstracts, several editors commented that they have rarely encountered them. One editorial staff member referred to it as a quality issue, as does Lichter [56]. Attitudes and practices of both editors and scientists regarding this issue should be investigated further.

From a library point of view, the abstracts from broadly focused meetings sponsored by large, highly respected professional societies present the best possible scenario: these societies are more likely than others to have the resources to distribute the abstracts be-

yond those who attend the meeting, and they may publish a journal that serves as the obvious source in which to print them. The meetings occur regularly, so libraries may have a subscription or a standing order for the abstract books.

Even though this study focuses on large, well-attended meetings that faculty members noted as the most important in their fields, coverage in the databases that include broad subject areas in the health sciences is very limited. The situation is better in the more narrowly focused health-related databases. The level of inclusion is disappointing in the two databases that focus on meeting literature, but the sample size in this study is small, and making generalizations based on these data would be premature.

Electronic trends

Many of the studies of the publication cycle of scientists were done long before personal computers were commonplace, much less access to the Internet. Although abstracts have long been published in journals and sometimes disseminated before meetings, the only groups that were able to gain access to the information contained in them easily were meeting attendees and other members of the society.

The growth of the Internet is enlarging the potential audience for meeting abstracts. The information presented at annual scientific meetings, whether in summaries or through the original abstracts, has begun appearing on the Internet in several forms, including

- abstracts from individual societies, which are available through their home pages;
- summaries or highlights of meetings, which are often on commercial Web sites;
- collections of meeting abstracts organized by subject; and
- presentations at virtual meetings, where participants "attend" via the Internet.

Of the seventy societies studied, thirteen currently make the abstracts from their annual meetings available via the Internet, and twenty-four more have plans to move to an electronic format in the near future. Most of the meeting abstracts on the Internet have search features, which are an enhancement over the print version.

Making the meeting abstracts available via the Internet may help reach readers outside the current circle. Whether the societies make a commitment to keep the abstracts available on the Internet for any length of time remains to be seen. If the abstracts are only mounted for a short time before and after the meeting, as some of them seem to be, they will be of limited use. As with electronic journals, archiving of electronic meeting abstracts is an important issue.

Several organizations, mainly commercial ones, provide summaries of the information presented at selected annual meetings. They are posted on the Web or delivered via e-mail, and many are made available within twenty-four hours after the presentations. The meetings covered are mainly those sponsored by large, highly respected societies such as the ones covered in this study, and distribution of the summaries seems to be independent of the society. Only a few of the hundreds of papers or posters are highlighted, and coverage ranges from a paragraph to several pages. These summaries seem to be treated more as news than as the record of scientific investigation, and many are available only for a short time after the meeting. CD-ROM versions of meetings highlights are sometimes available, and may offer continuing medical education credit as an option.

A few groups are creating Web resources that cover multiple meetings on a specific topic. Notable examples include the Veterinary Conference Proceedings Database [57], maintained by Jean-Paul Jette at the University of Montreal [58], and PosterNet [59], part of PharmInfoNet, which contains both abstracts and visual material from recent poster presentations of interest to pharmacists. The Web resources that list upcoming scientific meetings sometimes provide links to society home pages, which in turn may include abstracts of the presentations.

Virtual meetings, which may or may not be held in conjunction with a traditional meeting, allow participants to attend electronically, usually through a Web-based forum where material is posted and comments and reactions are invited. Commercial exhibitors may be present, with links to electronic versions of their product information. The Chromosome X Virtual Meeting [60] also features graphics, and participants may enter a discussion group by clicking on the appropriate section of an illustration of a chromosome. Some virtual meetings, such as the pioneering CHEMCONF, are held via e-mail, with each paper being discussed during a set time period [61].

CONCLUSIONS

Abstracts of papers and posters that are presented at annual scientific meetings in the health sciences play a timely role in the dissemination of scientific knowledge. Researchers have found that about half of the studies covered in meeting abstracts are reported in subsequent journal articles, yet access, both physical and bibliographic, is very limited. While the review process used to select topics for presentation at annual scientific meetings is less stringent than the one journals use, that is not an adequate reason to dismiss all meeting abstracts, since many contain preliminary data from studies that are later deemed important enough to publish.

Most of the seventy large societies in the study de-

scribed here distribute print copies of abstracts to meeting attendees and members of the society. Electronic versions also have limited distribution, with disks and CD-ROMs going mainly to meeting attendees. Meeting abstracts on the Internet have the potential to reach a much wider audience, but only a small number of societies are making them available, and there is little evidence of an effort to archive electronic copies in any form. Subject groupings of abstracts on the Internet may improve access, but at least some of the current efforts in this area are ephemeral in nature.

From the time the paper or poster is presented until the year or so later when it may be published in a journal, there is a knowledge gap between those who attended the meeting and those who did not, and current bibliographic tools are little help in bridging it. Meeting abstracts are excluded from MEDLINE, and the more narrowly focused health-related databases have the best coverage. It is probably unrealistic to imagine that inclusion policies of major databases will change to cover more meeting abstracts. Improvements in access could come from a heightened awareness of the publication of meeting abstracts as a regular feature in the journals of many societies, and through the maintenance of abstracts on organized and archived Internet sites.

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APPENDIX

Questionnaire: professional societies and abstracts from their annual meetings

Do you publish the abstracts of the presentations at your annual meeting?
All of them, or a selection?
In what format are they published?
  In a regular issue of a journal?
  As a supplement to a journal?
  As a hand-out to meeting attendees?
  As a mailing to society members?
  In electronic format? _Disk _CD-ROM _on the Internet
Do you have plans to make the abstracts available via the Internet?
Are the abstracts available before the meeting?
Are the abstracts available after the meeting?
Do any commercial groups subsidize publication of the abstracts?
Are any presentations earmarked for publication in full in the society's journal? Which ones?
Is a proceedings with full-length papers published?