

White Paper

Capturing Event Knowledge: An Educational Resource (R)evolution

The need to digitally archive event knowledge	2
The value of captured event knowledge	4
The distribution of event knowledge	9
Is distribution of oral presentations considered prior publication?	10



“By digitally archiving event knowledge... associations provide a necessary and innovative educational resource to their attendees and members...”

It has been well established that a medical society’s meetings are a forum for the best and brightest education and research in a given field, and thus represents great educational value to those who are exposed to it. Until recently, this exposure was limited primarily to an association’s members, or more specifically meeting attendees; however, with the increasing advances in technology, the exposure of event knowledge and its impact can now be realized globally. This white paper examines the need for, value of, and distribution of captured event knowledge.

More recently, associations have taken to digitally capturing and archiving their event knowledge for the purpose of dissemination to their members that could not attend the event. In this way, association members, and not just event attendees, are exposed to the clinical education and research presented at such events.

By digitally archiving event knowledge - oral presentations in particular - associations provide a necessary and innovative educational resource to their attendees and members, as it would not only be physically impossible to attend every session at a given meeting, but would also be virtually impossible for an attendee to retain all the information presented. Furthermore, for association members that are unable to attend the meeting due to scheduling conflicts, travel restrictions, and cost, the knowledge presented at a meeting would still be made available to them, thus expanding the physical confines of not only the meeting but the knowledge presented at the meeting.

Beyond meeting attendees and association members, the importance of capturing event knowledge can be found by looking at the rate of abstracts presented at a given meeting that eventually go to publication. This is immensely important, as the forthcoming data will show, because not all the



The need to digitally archive event knowledge

Traditionally, meeting attendees were the only people exposed to event knowledge, thus they were the only people to reap the value of this late-breaking knowledge.

knowledge presented at an event makes it to publication, and hence, beyond the meeting itself.

As an example of the event knowledge that “falls through the cracks,” a 2003 article published in *BMC Medical Research Methodology* outlines the publishing rate and subsequent time frame to publication of 19,123 abstracts from 234 meetings held from 1957-1999. The authors concluded that “it has been estimated that about 45% of abstracts that are accepted for presentation at biomedical meetings will subsequently be published in full.”¹

In regards to the amount of time it takes for an abstract to be published, the authors used a “survival-type analysis,” which yielded estimates “that 27% were published after two, 41% after four, and 44% after six years. Of 2412 abstracts that were rejected at 24 meetings, 27% were published despite rejection.”²

The article further identified the percentage of acceptance/rejection of an abstract, as well as the subsequent publication of any abstracts, accepted and rejected.

To writ:

Of all submitted abstracts, about 46% were accepted for presentation, while 54% were rejected. Of the accepted abstracts, 44% (20% of all submissions) were subsequently published as full reports within six years. Of the rejected abstracts, 27% (15% of all submissions) were published as full reports despite rejection.

Furthermore, it is important to note that although “45% of the abstracts that are accepted for presentation at biomedical meetings” eventually go to publication, the remaining 55% of abstracts accepted for presentation do not go to publication, and thus, the knowledge contained therein is lost or “falls through the cracks.”

Although they do not make it to publication, it would be foolhardy to suggest that the science contained therein is irrelevant and useless, as it was accepted, chosen to be presented, and ultimately vetted by a given association’s committee members in charge of choosing the best and brightest cutting-edge science for their meetings.

“Of the accepted abstracts, 44% were subsequently published as full reports within six years.”

¹ More insight into the fate of biomedical meeting abstracts: a systematic review. *BMC Medical Research Methodology* 2003, 3:12.

² Study further notes that: The shape of the Kaplan-Meier curve suggested a plateau at about 45%; however, there was little data for follow-up periods longer than six years. Including data from studies with an average follow-up interval of up to two years did not change the shape of the curve. When studies with an average follow-up interval of up to four years or all studies were included, the analyses tended to yield lower publication rates until the fourth to sixth year, and higher publication rates thereafter.

“45% of the abstracts that are accepted for presentation at biomedical meetings” eventually go to publication...

Additionally, according to the aforementioned study, it could take upwards of six years for the event knowledge presented at a given meeting to be published, a lengthy period of time for research that is presented because it is considered cutting-edge and of timely meaning.

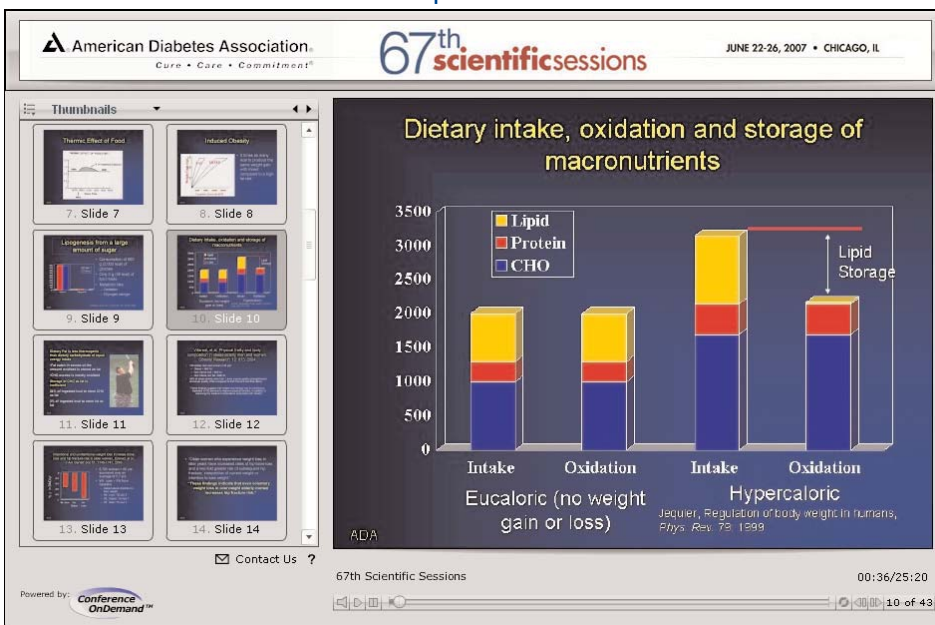
By digitally capturing the event knowledge at a meeting, an association can not only extend

The value of captured event knowledge

A growing number of medical organizations - societies and academic institutions alike- are capturing their event knowledge beyond the meeting abstract and poster levels. These presentation captures - which often include audio, text, and video elements - are used for myriad purposes by associations including membership recruitment and retention, continuing education, and pure incremental meeting revenue generation. Furthermore, these presentations are of great value to educational institutions and the medical community as they decrease lost time via research duplication, increase peer collaboration, and present a timely, all-encompassing educational resource.

An ongoing benefit of capturing event knowledge is membership recruitment and retention, as providing discounted access to this knowledge can be positioned as a benefit of membership for both current and prospective members. Furthermore, by allowing access to student members, the association presents its potential membership with a positive brand image as well as cutting-

that science to its attendees and members, but to a worldwide audience. Furthermore, what is most important in the digital capture of event knowledge is the timely delivery and preservation of the totality of research being done and presented in a given medical field.



edge science education at an impressionable time.

A major concern of associations when deciding on whether or not to undertake the digital capture of their event knowledge is the effect it may have on meeting attendance. Although some consternation has been expressed, meeting attendance figures for several organizations that utilize digital archival services have not seen a drop-off in meeting attendance. The American Heart Association, which has been digitally capturing and archiving their event knowledge since 2004, has had 17,622 and 18,817 professional attendees at their annual Scientific Sessions meeting for 2005-2006 respectively.³

Leveraging the capture and dissemination of event knowledge, in its entirety, not only aids the organization in retaining and educating members, but in fulfilling its goal to advance and attract the research and education in a given field. Researchers will have a greater affinity for an organization that has a vision for increasing the exposure, discoverability, and accessibility of its event knowledge.

Event knowledge can also be repurposed into online CME and CE courses for the continuing education of non-attending

physicians, nurses, and other health professionals. Many organizations have already turned their event knowledge into online CME courses.

Since most medical meetings offer attendees CME credit for attendance at specific sessions, the repurposing of such sessions into CME and/or CE courses is a natural and linear progression. It only stands to reason that a session presented live, which provides CME credit hours to attendees, would be a prime vehicle for the creation and distribution of CME and/or CE courses based on the verbatim delivery of that respective session. Since there is no difference in the content of the session, only the medium by which it is received, the further distribution of the event knowledge to CME and/or CE courses is of great educational benefit to an organization and the medical discipline in which it serves.

Additionally, the repurposing and distribution of event-knowledge CME courses lends itself to the changing demographics of physicians, medicine, and educational delivery. According to reports published by the American Association of Medical Colleges (AAMC), the number of female medical students has been on the rise for several years and recently repre-

“Researchers will have a greater affinity for an organization that has a vision for increasing the exposure, discoverability, and accessibility of its event knowledge.”

³ “Scientific Sessions Demographics.” American Heart Association. 12 Jun 2007
<<http://scientificsessions.americanheart.org/includes/pdfs/ss07WhoAttendsPrinter.pdf>>.

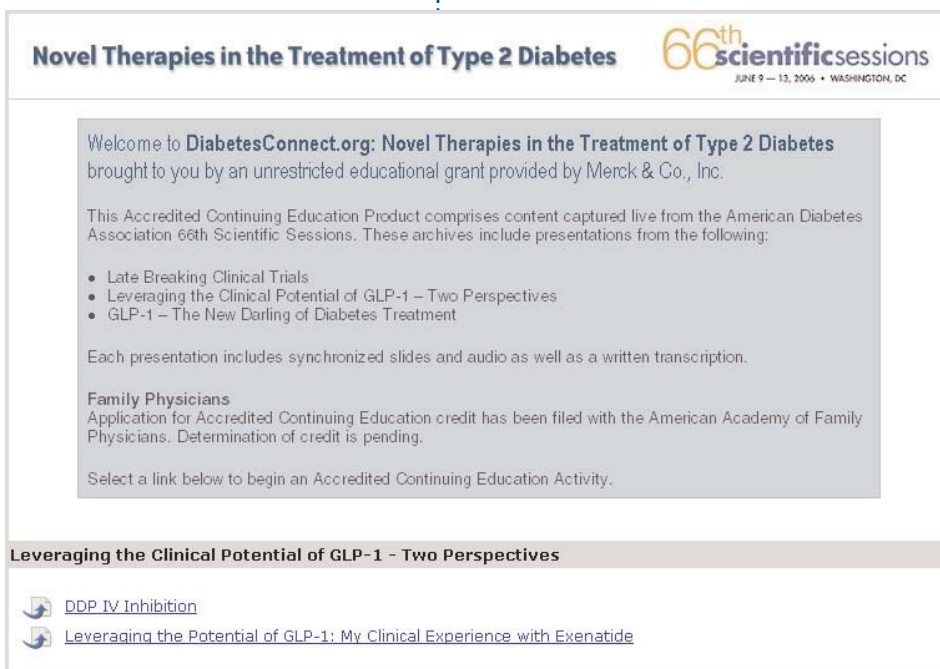
“A recent study... found that “most [first-year medical] students (63.8%) preferred multiple modes [2 modes (24.5%), 3 modes (32.1%), or 4 modes (43.4%)] of information presentation.”

sented over half of all incoming medical students, jumping from 46.7% in 2004 to 50.1% in 2006.⁴ Furthermore, in 2006 82.9% of all graduating medical students were between the ages of 24-29, which places them within the “Millennial” generation.⁵ The Millennial generation represents roughly 18% of the current physician workforce in the U.S.; however, this figure will only increase with the retirement of many “Baby Boomers” that currently make up the physician workforce.

These shifting physician demographics are important to note

as they also represent a profound shift in the learning methods and styles of current medical students and future physicians. For instance, the Millennial’s are a generation (and demographic) that tends to have traits such as being “tech-savvy;” having a need for “communication through multiple mediums;” and are “open and receptive to change.” Each of these traits is incredibly important when looking at the online delivery of event knowledge, as well as the development of such science into CME programs.

Another interesting factor in regards to first-year medical students (and hence the Millennial generation) is a high preference for multiple modes of “information presentation.” A recent study by DiCarlo et al, found that “most students (63.8%) preferred multiple modes [2 modes (24.5%), 3 modes (32.1%), or 4 modes (43.4%)] of information presentation.”⁶ This information, when looking at text-based content versus rich media event knowledge content, is of immense importance because it shows a major shift in the learning preferences of first-year medical students, and hence their respective generation, from years ago



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⁴ “2006 AAMC GQ.” American Association of Medical Colleges. 20 Jun 2007 <<http://www.aamc.org/data/gq/allschoolsreports/2006.pdf>>.

⁵ Moody, Jennifer. “Communicating with the New Generations - Reaching Generation X and Millennial Physicians.” 7th Annual Forum on Continuing Medical Education (CME). Park Hyatt Philadelphia, Philadelphia, PA. 18 June 2007.

⁶ DiCarlo, S.E., and Lujan, H.L. “First-year medical students prefer multiple learning styles.” *Advances in Physiology Education*, 30.1(2006): 13-6.

(journals and text-based resources) to today (multiple forms of information presentation).

Furthermore, as noted by Jennifer Moody, Principal, AmeriMed Consulting, the Millennial generation represents the greatest chance for change in medicine.

This group will be the best opportunity since the Boomers for significant change to be instituted in the workforce - this could mean a dramatic alteration of how groups integrate the generations as this subgroup is poised to take on technological change and the “new” workplace.

Due to their aforementioned traits, the development of rich media CME courses derived from event knowledge would be of tremendous use to those in the Millennial generation, both men and women alike. Thus, the value of event knowledge extends into CME course development, as well as the future educational practices, methods, and means of physicians.

In addition to CME courses, the capture and dissemination of event knowledge also helps associations meet Maintenance of Certification (MOC). Overall, the MOC, as established by the American Board of Medical Specialties, is focused on “six

general competencies which have been deemed necessary for physician specialists,” among them are: Patient care, Medical knowledge, Practice-based learning and improvement, Interpersonal and communications skills, Professionalism, and Systems-based practice.⁷ It is worth noting that each of the aforementioned competencies are addressed in part, or in whole, at a given medical association meeting, and thus, the capture and dissemination of event knowledge meets each of six ABMS MOC competencies.



As an example of event knowledge being used for MOC credit, the American Board of Internal Medicine (ABIM) notes that “Society meeting attendees may earn credit toward Maintenance of Certification by participating

“...the value of event knowledge extends into CME course development, as well as the future educational practices, methods, and means of physicians.”

⁷ “Improving the Quality of Healthcare.” Welcome to ABMS: Improving healthcare quality through board certification. 11 Jun 2007
<http://www.abms.org/Who_We_Help/Physicians/improving_quality.aspx#trans>.

“...without exposure to the non-published event knowledge, researchers would be unable to add insight, correct method pitfalls, or further the science because they would be unaware that such studies have been done.”

in Self-Evaluation Process Learning Sessions (“Learning Sessions”).⁸ Participation in these learning sessions is not relegated to “society meeting attendees” only, as is evident in the upcoming Endocrine Society pre-conference workshops wherein physicians are given the option of purchasing the same “module,” or Learning Session, online if they are unable to attend.⁹

Aside from the educational value of event knowledge, it can also reap sizeable monetary rewards for organizations that capture and distribute their content not only to their attendees and members, but to the worldwide medical community. This will be outlined further in the following section.

Moving on, outside of an organization’s members, educational institutions and the medical community would greatly benefit from access to captured event knowledge for several reasons. As described earlier, it is projected that only 45% of abstracts presented at biomedical meet-

ings eventually go to publication, and this is of paramount importance when considering the amount of time it takes to conduct research and/or trials.

Since over half of the research presented at a respective meeting does not make it to publication, the scientific community may be unaware that a particular study was conducted and thus, may duplicate the work and lose valuable time and money. Additionally, without exposure to the non-published event knowledge, researchers would be unable to add insight, correct method pitfalls, or further the science because they would be unaware that such studies have been done.

Furthermore, the dissemination of event knowledge could be used to increase peer collaboration, both within and outside of a given discipline¹⁰ - a recurring theme as associations try to proactively plan for the forthcoming physician shortage and increased demand.^{11 12}

Lastly, the captured event

⁸ “Self-Evaluation Process Learning Sessions.” American Board of Internal Medicine - Home. 12 Jun 2007 <<http://www.abim.org/moc/sepeventbak.shtml>>.

⁹ “ENDO Pre-Conference Workshops.” The Endocrine Society : Home. 12 Jun 2007 <<http://www.endo-society.org/endo/events/preconference.cfm>>.

¹⁰ Davidson, Michael J. “Training for the Future: Reduced to Practice.” 87th Annual Meeting of the American Association of Thoracic Surgeons. Washington Convention Center, Washington, D.C. 5 May 2007.

¹¹ Decker, Georgia. “NCI Cancer Bulletin for May 1, 2007 (HTML) - National Cancer Institute.” Comprehensive Cancer Information - National Cancer Institute. 1 May 2007. 7 Jun 2007 <http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_050107/page10>.

¹² Bolman, R. Morton. “Training for the Future: A Program Director’s Perspective.” 87th Annual Meeting of the American Association of Thoracic Surgeons. Washington Convention Center, Washington, D.C. 5 May 2007.

knowledge would prove to be a rich media, timely, all-encompassing educational resource. The captured content would be published in under 60 days as opposed to several years.

The distribution of event knowledge

The distribution of event knowledge, aside from the actual live delivery of the science, is of the utmost importance since information is not of much use if nobody is exposed to or knows about it. While there is no fault in only allowing attendees and association members to access an event's knowledge, the exposure of such knowledge to a global audience would be of great benefit to the organization, the medical discipline it serves, and the world community as a whole.

By utilizing new distribution channels, an association can increase the exposure and recognition of their event knowledge, thus yielding increased revenue, brand exposure, and "industry-leader" recognition for the association. Similar to the journal publishing model, the sale of event content to institutions is one area that would yield tremendous

rewards for an association.

Moving on, through the sale of access to event knowledge to institutions, both educational and otherwise, an association would realize a significant revenue influx. More importantly, the disseminated knowledge would be accessed by those directly in need of such information - in hospitals and medical schools - at a global level. This is incredibly important as the cost of medical errors continues to rise, and physician shortages increase at a rapid rate.^{13 14}

By disseminating event knowledge beyond an association's boundaries, the world community becomes the main beneficiary of that knowledge, as hospitals and medical schools will be better able to provide timely, all-encompassing science research and education to their constituents. This is important because medical students represent the future physicians of a given field and are at an impressionable age, while hospitals would benefit by giving their physicians and nurses science that can be applied at the point of care, all of which result in better health care and lower health care costs.

“...captured content would be published in under 60 days as opposed to several years.”

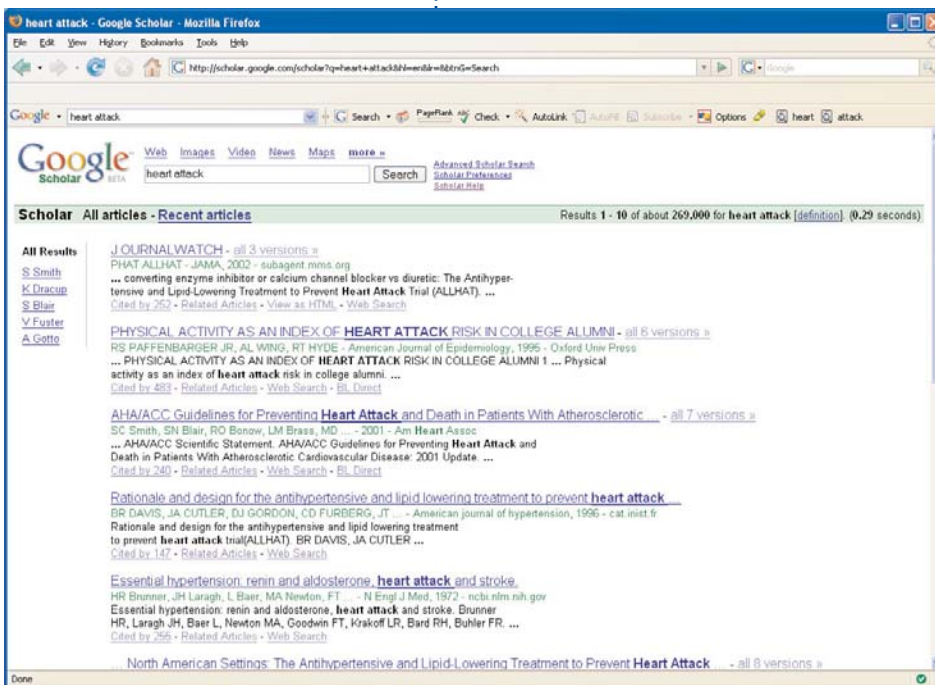
¹³ Preidt, Robert. "MedlinePlus: U.S. Hospital Errors Continue to Rise." National Library of Medicine - National Institutes of Health. 2 Apr 2007. 7 Jun 2007 <http://www.nlm.nih.gov/medlineplus/news/fullstory_47383.html>.

¹⁴ "AMA (Comm) AMA announces physician shortage." AMA - American Medical Association Home Page. 21 Jun 2005. 7 Jun 2007 <<http://www.ama-assn.org/ama/pub/category/15241.html>>.

“...the disseminated knowledge would be accessed by those directly in need of such information - in hospitals and medical schools - at a global level.”

Another avenue for event knowledge discovery and distribution is the indexing of such content by search engines such as Google Scholar, as this will enable consumers and physicians access to the science when and where they need it. Since search engines represent the bulk of medical information searches on the internet,¹⁵ exposing the event knowledge to search would yield the greatest discoverability, while also driv-

the exposure and distribution of such knowledge, thus allowing consumers to take greater control of their healthcare. While consumers do not aim to be or replace physicians, it can be assumed by the increasing number of consumer-directed health information sites and portals that consumers are beginning to take greater control of their healthcare in order to make the best, most well-informed health choices they can in consult with their physician(s).



Lastly, through the distribution of event knowledge to medical professional sites or an association's educational resources page, the event knowledge will gain further exposure and distribution, as physicians both within and outside of a given discipline or association will be exposed to the research and science they would directly benefit from.

Is distribution of oral presentations considered prior publication?

A question that is being increasingly asked of digitally captured event knowledge is whether or not the capture, production, and distribution of such knowledge is considered prior publication. Since the capture of conference content is a relatively new practice, many associations and

ing usage and demand through new distribution channels.

Additionally, through the distribution of select event knowledge sessions to consumer-based medical information sites, associations will be able to expand

¹⁵ Fox, Susannah. "Pew Internet: Online Health Search 2006." Pew Internet & American Life Project. 29 Oct 2006. 25 Jun 2007
<http://www.pewinternet.org/PPF/r/190/report_display.asp>.

journals have not established a policy in regards to the publication status of captured conference content; however, a few organizations and journals have established a policy, which will be detailed further herein.

According to the *New England Journal of Medicine*,

*Posting an audio recording of an oral presentation at a medical meeting on the Internet, with selected slides from the presentation, will not be considered prior publication. This will allow students and physicians who are unable to attend the meeting to hear the presentation and view the slides.*¹⁶

Phone inquiries placed to several medical societies with journals discovered either adherence to the above *NEJM* policy or no policy at all.

In regards to organizations that had no policy, it was intimated that this occurred because a given organization had never encountered such a question, and hence denoted a position, due to the relatively recent practice of digital archiving. However, nearly all organizations that did not have a 'prior publication' policy in place, in regards to the capture of event knowledge, deferred to the *NEJM* policy, as *NEJM* is recog-

nized as having one of, if not the, most stringent policies in regards to publication.

In conclusion, by disseminating event knowledge beyond an association's membership and meeting attendee base, associations help both themselves and the global medical community. By making event knowledge more discoverable and accessible, associations position themselves as leaders in creating a digital "marketplace of ideas," wherein accelerated access to cutting-edge science and best clinical practice is discussed by researchers and clinicians from multiple disciplines, leading to faster advances in clinical care and biomedical research.

"...an oral presentation at a medical meeting...with selected slides from the presentation, will not be considered prior publication."

¹⁶ Kassirer, Jerome P.. "NEJM -- Posting Presentations at Medical Meetings on the Internet." *The New England Journal of Medicine: Research & Review Articles on Diseases*. 11 Mar 1999. 11 Jun 2007
<<http://content.nejm.org/cgi/content/full/340/10/803>>.



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