4. Dissemination, receipt, utilization, and impact of information

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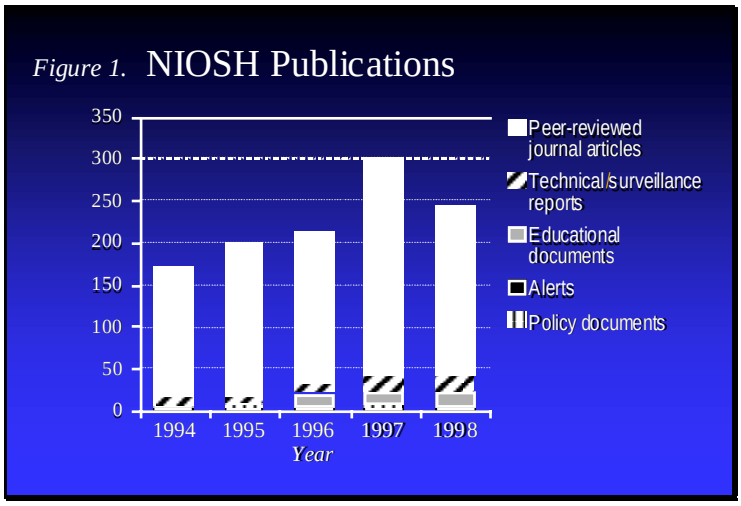
Today I will describe the dissemination efforts at the National Institute for Occupational Safety and Health (NIOSH). NIOSH is both a research institution and a public health institution. We conduct a wide range of programs–from etiologic and intervention research to dissemination of our materials. These activities are summarized in our vision: "Delivering on the nation's promise: safety and health at work for all people through research and prevention."

NIOSH publishes more than 200 journal articles and documents each year.



Most of these occur in peer-reviewed scientific journals. However, some are technical reports, educational documents, various kinds of health and hazard alerts, and policy documents. Our materials are directly disseminated through peer-reviewed journals, patents, research partnerships, and databases. NIOSH policy, technical, and educational documents are disseminated in paper and electronic versions. They are also mounted on the NIOSH Web site and are available for downloading. NIOSH has a number of databases that we share with the public through the NIOSH Web site and other sources. These include NIOSHTIC and the Registry of Toxic Effects of Chemical Substances (which is the largest toxicologic database in the world) and various surveillance databases that pertain to a wide range of topics such as traumatic fatalities, injuries, blood lead levels, and sentinel health events.

Direct dissemination:

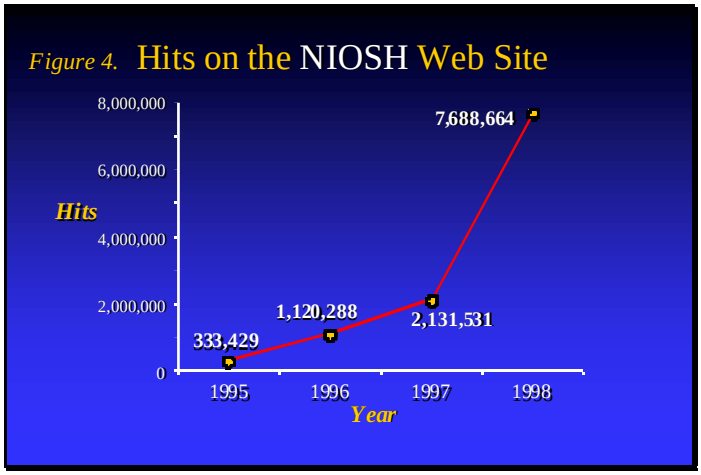
- ♦ Scientific journals
- ♦ Hazard evaluation reports
- ♦ Patents
- ♦ Research partnerships
- ♦ Databases;
  - • NIOSHTIC
  - • RTECS
  - • NTOF, ABLEs, NEISS, SENSOR

The effort to address a broader understanding of our materials (known in this meeting as “vulgarisation”) includes the use of a telephone helpline, the Internet, NIOSH Alerts, brochures, worker notification, our exhibit program, and curricula for workers, employers, and occupational safety and health specialists.

Vulgarisation:

- Telephone helpline (800#)
- Internet
- Alerts, brochures
- Worker notification
- Curricula for workers, employers, OSH specialists
- Exhibits

We receive more than 130,000 telephone calls annually on our telephone helpline, and increasingly we are receiving inquiries through the Internet. The number of hits on the NIOSH Web site has grown almost exponentially in the last few years, and we expect that this number will continue to grow. The Internet is becoming a primary way of accessing NIOSH information. We have no systematic appraisal of who does and who does not use the Internet. However, during this transitional period of technology, it is important not to assume that everyone will be turning to the Internet at the same rate. We also need to determine where there are pockets of workers or employers who are less likely to access our materials and to whom other channels of communications are very important. Hits for the NIOSH Internet site have been doubling each year, with 7 million hits in 1998 (Figure 4).



We are now evaluating our Web site to determine how to improve it. We believe that the Web site is actively used by those who serve as mediators between research information institutes such as ourselves and the workers.

In the NIOSH dissemination pathway, "valorisation" is the development of materials available to enhance decision making and prevention activities for safety and health.

Valorisation:

- Criteria Documents
- Hazard Reviews
- Current Intelligence Bulletins
- Best Practices Conferences
- Curricula developments
- Skills standards
- Policy development
- Technology transfer

These materials are aimed at specialists or more technically prepared individuals. Valorisation is accomplished through the development of criteria documents, hazard reviews, Current Intelligence Bulletins, best practices conferences, curricula, skill standards, policy development, and technology transfer. We have found that in both the vulgarisation and the valorisation efforts, it is often difficult to get research scientists to participate. Their focus is usually on a research, and the translation and dissemination of their information is often not a primary area of interest. NIOSH has made great strides in finding ways to support cross-divisional, cross disciplinary, and cross organizational interactions for the production of these information materials. Developing documents that translate our materials for all levels of the population is an important priority. But it is still difficult to build positive internal incentives for conducting such activities. This challenge is faced by all organizations such as ours. Nonetheless, as the statistics

show, we have increased the number of various documents that we develop over the years.

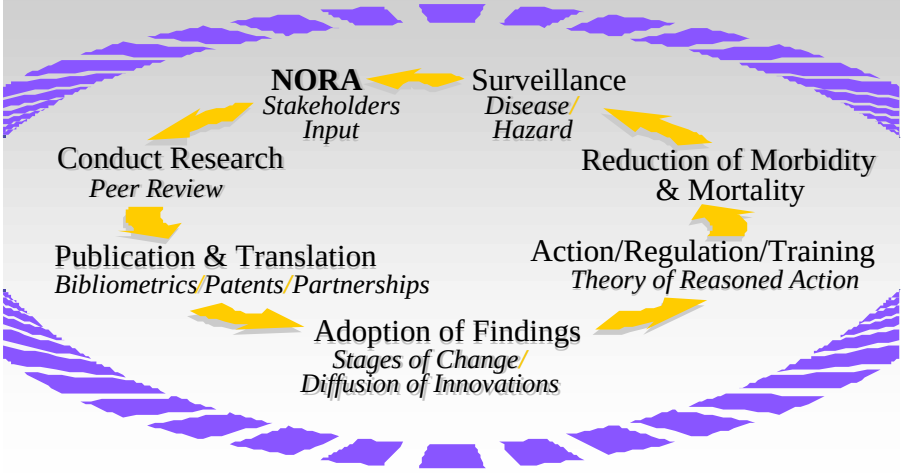
Critical in the dissemination of information (and ultimately in the receipt and use of information) is the adoption of approaches that involve both the sender and the receiver.

Old Model	New Model
• One-way	• Social marketing/Audience segmentation
• Broad reach	• Electronic medium
• Paper medium	• Interactive, *"just-in-time"*
	• Focus on small business
	• Easy to read
	• Target decision makers

Under the traditional model, most of our communications were one way – from us to workers, employers, and professionals in the occupational safety and health community. They were broad in their reach, targeted to reach many different audiences at once, and they essentially used the paper medium. We now have a newer model, which we have been working on over the last few years. This model involves adoption of the principles of marketing, as they are applied to public and occupational health. Known as "social marketing", this model uses techniques such as "audience segmentation", which involves assessing an audience for differences within it, and looking for subgroups with common interests and needs, and targeting communications to these subgroups to achieve a better response. In addition, we are increasingly switching from paper to electronic media, and we are moving toward media that allow interaction and provide information when a person needs it. Such information is known as "just-in-time information." In addition, we hope to focus more on small businesses – an area that has never been a direct target of the occupational safety and health community and appears, in fact, to be in critical need. We also want to focus more on making our material user-friendly—that is, we want to produce documents that are easy to read, easy to access, and easy to use. Finally, we need to think holistically about dissemination and about the ways in which new information can be adopted and used. This approach requires, in part, the use of theories about organizational and social change, the stages of change, and the implementation of innovations that have been well known to social scientists and communicators and can be applied to the occupational environment as well (Tinker et al., 1998; Geisler, 1996).

Consider a circular model, with the direction from the conduct of research moving toward the reduction of morbidity and mortality (Figure 3).

Figure 3. Holistic Model of Research, Dissemination, Utilization & Surveillance



Downstream from the conduct of research are the publications – translation of materials – as one major area. The publications are followed by the adoption of findings and the promulgation of actions, regulations, and training – all leading to the reduction of morbidity and mortality. This reduction is determined through various kinds of surveillance programs. However, it may often be impossible to link a particular piece of research directly with a particular rate reduction. Hence, surveillance for the health outcome may not be the best way to evaluate the impact of research. It might be better to have surveillance for a particular hazard or for some intermediate state. To set priorities for the conduct of future research, the surveillance data must be fed forward and intermingled with other stakeholder input such as the National Occupational Research Agenda (NORA) (NIOSH, 1996). Which brings us back to the beginning of the cycle.

As we look at the dissemination pathway, we can identify a number of types of research that could be conducted. With regard to scientific and other publications, bibliometric analysis (citation analysis) is one approach that we are using to access the use and impact of NIOSH research publications (Cozzens, 1997). In addition, we are conducting a variety of intervention research studies to assess the effectiveness and efficacy of various types of interventions, including communi-cations.

The type of research that involves the adoption of new information should be theory driven. Two theories that may be helpful involve the *diffusion of innovations theory* and *stages of change theory*. With regard to the adoption of new findings, we clearly are interested in the adoption of recommendations at the group level. But within that level we are interested in the adoption of NIOSH recommendations by decision makers and the groups they represent.

Finally in moving from adoption to action, there is a need for research that could be conducted on enabling factors. This need includes research that identifies barriers to taking actions, research that identifies problems people face (including

safety and health considerations in conjunction with economics restraints) and research on compliance with recommendations. What fosters compliance? This type of research could be quite profitable in the occupational safety and health field. Although new occupational safety and health problems continually occur, many are due to long-known problems, and even to long-known solutions that have not been appropriately applied. In the model that I have been discussing, all the research on dissemination is expensive and needs to be thought of as bonafide and important. Such research should be given a high priority and the appropriate financial and staffing resources. In my opinion, the greatest problem in the occupational safety and health community has been the lack of appropriate emphasis on the research involved in dissemination, adoption, and utilization of information. This workshop is a step in addressing that problem.

References

Cozzens SE. The knowledge pool: measurement challenges in evaluating fundamental research programs. *Evaluation and Program Planning* 1997;20:77-89.

Geisler E. Integrated figure of merit of public sector research evaluation. *Scientometrics* 1996;36:379-395

U.S. National Institute for Occupational Safety and Health. *National Occupational Research Agenda.* U.S. Department of Health and Human Services, DHHS (NIOSH) Publication No. 96-115, 1996.

Tinker TL, Pavlova MT, Gotsch AR, Arkin EB, (eds). *Communicating risk in a changing world. Ramazzini* Institute/OEM Press. Beverly Farms, MA, 1998.

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