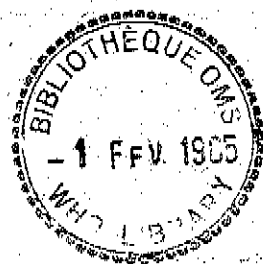


WORLD HEALTH
ORGANIZATION



ORGANISATION MONDIALE
DE LA SANTÉ

INDEXED

HPP/WARC/2.65 ✓

ORIGINAL: ENGLISH

THE WORLD HEALTH ORGANIZATION
BIOMEDICAL RESEARCH INFORMATION SERVICE

Working paper prepared by
the Office of Research Planning and
Co-ordination

Co-ordination of research on an international level poses many problems. One of these is the establishment of a mechanism for rapid and reliable exchange of scientific information. In order to prevent duplication in research, it is often desirable that certain details of experiments are circulated before the actual work has been undertaken. The results of research recently obtained, or under way, could be reported to a central co-ordinating office which would be responsible for the rapid and accurate dissemination of this information as well as for its storage with a view to further use upon request. With this primary objective in mind the World Health Organization Biomedical Research Information Service (WHOBRIS) was recently established as a part of the office of Research Planning and Co-ordination. The primary function of WHOBRIS is to have available up-to-date information on national medical research organizations, institutions, investigators and their current research in progress. This information will assist the World Health Organization in carrying out its responsibilities in the field of medical research, and especially in improving communication between institutions and investigators, which is at present sorely lacking. It is confidently hoped that when WHOBRIS is operational the information available from it will be of great assistance to governments, research institutions and investigators.

There are at least two important questions confronting every research worker starting out on a new research project; what has been done before and what is currently going on. The first question is usually dispensed with quite easily in as much as access to the reference and abstract literature is now available in most university libraries and the problem can be solved by careful review of the published literature. The second question is less easily answered and it is with

this latter question that WHOBRIS is primarily concerning itself. Reason demands an adequate literature search in order to ensure complete coverage and to prevent unnecessary duplication of research already undertaken. In the same manner reason also demands that some method be devised to keep the investigator up to date concerning research in his own field of interest. This means that there should be a method of knowing long before publication what particular research is currently in progress.

During recent years there has been a growing interest in specialized science information centres, discipline and problem orientated information services, regional science information centres, data centres etc. Indeed, it may be said that in this entire field a tremendous ferment is stirring. Throughout the world dozens of important studies on information storage and retrieval are under way. In the United States of America Documentation Incorporated, of Washington D.C. tabulates by computer and publishes thousands of reports of drug screening activities sponsored by the National Cancer Institute. The Western Reserve Centre for documentation and communication research is working in the fields of diabetes and disease vector-control literature, among others. The Institute for Science Information is engaged in a three-year study of citation indexes of the type long familiar to the legal profession, which is to culminate in the compilation and publication of such an index in the field of genetics.

One of the most important of these specialized science information centres is the Science Information Exchange (SIE) of the Smithsonian Institution. This organization is a non-profit clearinghouse of current research activities which acts as a storehouse of information on research projects "in the making", i.e., the foetal stage between conception of the research idea and the birth of the conclusions. Established in 1949, the Exchange was originally organized to help government research directors and administrators obtain quickly up-to-date information on current research activities. Since 1949, the service has grown, and at present, in addition to federally sponsored research, includes research efforts sponsored by more than 100 non-government foundations, private fund-raising agencies, universities, city and state governments that actively co-operate to furnish the Exchange with information on current research projects.

Granting agencies, institutions and foundations which co-operate with SIE ask their applicants to provide a short summary of their proposed work. This 200-word summary, together with other pertinent data (title, principal and co-investigators, location of research organization, period of operation, etc.) is included in a Notice of Research Project form and filed with the SIE. The Exchange's scientific staff, which now includes more than 40 specialists in the life and physical sciences, analyses, codes and stores this information in visible files and on magnetic tape, according to subject matter for rapid retrieval.

The indexing system of the SIE is designed to meet the needs of the two general groups of people using the Exchange: administrative personnel planning or evaluating research programmes, and individual scientists affiliated with recognized research institutions. The focus is on identification of current and projected research problems, and the requirement is for a system which can efficiently retrieve all Notices of Research Projects which deal with a given subject regardless of whether it is a detailed research subject or a broad topic. Surveys of broad areas and the pinpointing of highly specific topics must both be easily accessible. In distinct contrast to information systems which store experimental data, document numbers, literature references, or lists of keywords, with each item representing a discrete entity capable of unique definition, the SIE system deals with interrelated current research concepts, and must divorce itself from dependence upon the use of particular words or phrases in the descriptions provided by the individual investigator who writes the summary.

Subject requests, in turn, can be handled on a conceptual basis and do not require the selection or specification of certain descriptive terms or keywords. More than 20 000 hierarchially arranged terms are used to classify the more than 60 000 current research projects registered at the Exchange.

The SIE specializes in storing only current research. The Exchange has information not only on the medical and biological sciences, but also on the physical sciences from which useful and ancillary knowledge can be obtained.

Individual investigators may request information (for which there is no charge) on current relevant research by writing to the Exchange outlining the specific problem with which they are concerned. The more specific the area of interest, the more accurately the material selected for reply can be made. Individual scientists are encouraged to register their own research with the Exchange.

The broad lines of WHOERIS's activities follow essentially three categories of information from which specific data will eventually be retrieved. These categories are:

- (1) information concerning research facilities and institutions - Form B;
- (2) information relative to departments comprising these institutions and the current research projects being carried out by the said department - Form C;
- (3) biographical information concerning the scientist himself and his field of activity - Form D.

With regard to institutions, information is being obtained concerning the name of the scientific director, address of institution, its primary source of funds, primary function (i.e. whether service, research or teaching), university affiliation, total annual expenditure for research, post-graduate training facilities, scientific staff, and history.

With regard to the second category, information concerning research projects is obtained by utilization of Form C on which information is obtained concerning post-doctoral research training facilities available within the particular department and current research projects under way. This data is furnished in a brief, concise title of from 10 to 20 words in which the current research is described, along with the name of the principal investigator responsible for the work being carried out.

For the individual scientist, a Form D is utilized on which biographical information concerning the scientist is obtained. Information relating to his date of birth, sex, birthplace, nationality, country of residence, educational background, honorary degrees, prizes and awards and present position are requested. In addition the scientist's field of specialization and area of disease research orientation are

obtained, along with his linguistic ability, past consultantships, honorary fellowships, main subject of publication, past positions and membership in scientific societies. This data is then coded using a comprehensive coding system and is then transferred to punch cards.

At the present time a pilot project is now being carried out in the following 10 countries: Belgium, Czechoslovakia, Hungary, Israel, Japan, Netherlands, New Zealand, Poland, Yugoslavia and East Africa (Kenya, Tanzania, Uganda), in an effort to establish a complete file concerning on-going biomedical research. Concurrently a world-wide survey of on-going cancer research is also under way in an effort to obtain information concerning institutions and scientists active in this field. At the present time this survey includes only those institutions whose primary interest is cancer research oriented. With the further improvement of WHOBRIS's coding and retrieval system it is hoped that this survey will be extended to all institutions carrying out research in this field.

WHOBRIS was established early in 1964, following a series of minor studies on the possibility of collecting information. It is essentially a feasibility study, and some preliminary results can already be pointed out.

The most important factor in the success of such an enterprise is the readiness of the individual scientist to supply the information required in a form that can be amenable to analysis and within a reasonable period of time.

During the first year of its existence, WHOBRIS was able to elicit a response rate of about 60 per cent. to its questionnaires. It should be remembered that the questionnaires were sent to the scientists by mail and no other approaches were made. However, it is hoped that the response rate can be improved through the use of other mechanisms available to WHO. In a special study in Switzerland, a response of 80 per cent. was elicited.

The information on questionnaires B and D was, on the whole, satisfactory, and the problems of indexing, coding and retrieving this information present no special difficulties.

Questionnaire C, which asks for a description of research projects, presents a different problem altogether. Some scientists provide a fair description of the project in 10 to 20 words - while others confine themselves to a short title giving only the general field under study. It was hoped that this questionnaire would enable us to index the projects so that they could be retrieved with a certain degree of specificity. The response of the scientists, however, is such, that only a gross classification by wide fields can be accomplished. We believe that the usefulness of this is limited. Actually, the only thing that can be accomplished is a print out of project titles (similar to Index Medicus) which may be supplied to interested scientists who could then contact the investigators concerned for more information.

A small trial consisting in asking the scientists to provide a 200 to 300 words description of the project (on the lines of the SIE questionnaire) was conducted. The results were not at all encouraging, and the attempt was given up.

A possibility exists of asking scientists to provide WHOBRIS with the extracts of their papers at the pre-publication stage. It is conceivable that such a system could be eventually worked out, in agreement with the publishers of medical journals. Even then, this would be only a partial solution to the problem. In this respect, WHOBRIS is at a disadvantage compared to SIE, since the latter deals only with projects receiving financial support, and the scientists have to complete the SIE questionnaire as a part of their grant application.

Dissemination of information by WHOBRIS

The most important WHOBRIS activity relates to its "output". The purpose of a clearing house is not to acquire and organize information for its own sake, but rather to make available all pertinent materials to its potential users in the most suitable form with the least distortion of subject content and in the shortest time.

WHOBRIS has a variety of objectives - the most important of which are the following:

- (a) to keep scientists and research organizations in general informed of current work, not only in their particular speciality but in all connected specialities in which they may have an interest;

- (b) to help draw attention to problems requiring urgent solutions and concretize opinions as to how these problems can be solved, possibly by collaboration between different organizations in various countries;
- (c) to facilitate integration of related branches of sciences that too often go their divergent ways as they are attracted by increasing specialization;
- (d) to provide from time to time assessments of developments in particular aspects of the various research fields; and
- (e) to disseminate information as yet unpublished, whether such publication is being considered by the author or not, even if it relates to negative results.

A publication programme of the following is contemplated:

- (1) The compilation of special country directories of professional associations, scientific and learned societies, foundations, university institutes and bureaux, and other organizations carrying out research.
- (2) Special biographical directories relating to individual scientists and their specific fields of research.
- (3) The compilation of trend reports and/or bibliographies in given problem areas.
- (4) A regularly published newsletter containing an information section reporting on new developments, announcements of relevant new governmental policies and programmes, details on research progress, news of foundation grants, listing of future meetings and events, and a bibliographical section (news of new books, articles, conference proceedings, technical reports etc.).

Besides the above, WHOBRIS will be in a position to supply specific information upon request from research organizations, foundations, institutes and individuals about research facilities, individual scientists and ongoing research projects.