The CRISP system: an untapped resource for biomedical research project information*

By Kenneth Alan Collins, Ph.D., Chief
Research Documentation Section

Information Systems Branch
Division of Research Grants
National Institutes of Health
Westwood Building, Room 148
Bethesda, Maryland 20892

CRISP (Computer Retrieval of Information on Scientific Projects) is a large database maintained and operated by the National Institutes of Health (NIH). It contains comprehensive scientific and selected administrative data on research carried out by the U.S. Public Health Service (PHS) or supported by PHS grants and contracts. Developed originally to meet the needs of NIH, it is an excellent, largely untapped resource for health information professionals at large, revealing new trends, methods, and techniques, often before they appear in the published literature. CRISP uses its own controlled vocabulary, developed to permit indexing of new and active research areas. Queries can combine subject headings with a great variety of administrative data elements (e.g., research category or principal investigator's name). Output is available in a variety of formats and media. While information professionals cannot directly access the CRISP system, abridged CRISP records are merged into the FEDRIP (Federal Research in Progress) database, and FEDRIP is publicly accessible through DIALOG. CRISP records in toxicology are also furnished to the National Library of Medicine's TOXLINE database. This paper discusses the indexing, information retrieval, publication products, and search services of the CRISP system, and how users of medical information can benefit from it.

INTRODUCTION

The transfer of scientific and technical information from the federal government to the general community of information users is a much discussed topic at the present time. In 1985 extensive hearings on "Electronic Collection and Dissemination of Information by Federal Agencies" were held by the House Committee on Government Operations [1]. The hearings were prompted, in part, by a draft circular of the U.S. Office of Management and Budget, "Management of Federal Information Resources" [2]. At the 50th Annual Meeting of the American Society for Information Science in 1987, the topic of dissemination and availability of information created by the federal government was a recurring theme [3–5]. The U.S. Office of Technology Assessment planned to release a major report in the fall of 1988 on this issue, tentatively titled *Informing the Nation: Federal Electronic Printing, Publishing, Dissemination.*

A significant component of the scientific and technical information generated by the federal government concerns research projects supported by federal funds or carried out in federal laboratories. The role of the federal government in promoting and supporting research is, by any measure, very great. The importance of disseminating and transferring information and data resulting from this research has been recognized for some time. The National Technical Information Service (NTIS) of the U.S. Department of Commerce was established in order to make dissemination of and access to such information simpler and more convenient, especially for nonfederal organizations and individuals. However, one valuable information resource which has not been particularly exploited is research in progress, in contrast to completed research.

There are several reasons why access to information

* This paper is based on a presentation made at the 88th Annual Meeting of the Medical Library Association (May 24, 1988, Contributed Papers I, Session II).

about research in progress is extremely useful. First, research in progress usually includes investigations of the most current interest, while many trends and coverage of certain topics, approaches, and theories, often appear first in the descriptions of such activities. In many cases it may be a year or more before any discussions based on this research can be found in technical reports and scientific journals and thus can be retrieved from bibliographic databases and published indices. Not only does research in progress indicate present and future directions of potential importance, but it often involves new methodologies, techniques, instrumentation, and novel applications of instrumentation.

Second, federally supported research from major funding agencies, such as NIH and the National Science Foundation, goes through a careful peer review process to obtain approval based on scientific merit. Not all research proposals approved through the peer review mechanism are funded (primarily due to budgetary limitations), but research which is funded has been found, at a minimum, to be scientifically sound and worthy of support. Funded research frequently represents areas of key interest to the supporting agency and as such, can be significant to other research scientists.

Third, it may be very helpful to know who is doing what research where. The basis for scientific advance is communication among scientists. The ability of researchers interested in the same area to contact one another is of great significance to this advance. Besides fostering personal communication, it can assist in assembly of conference programs and workshops, formation of review committees, and marketing of special products and services. In fostering contact it becomes possible to learn that expected or predicted results were not obtained (and thus not published), and this may be quite important for other researchers in terms of determining directions to pursue.

This paper describes the CRISP (Computer Retrieval of Information about Scientific Projects) system, which exists to provide scientific information about PHS-supported biomedical research in progress. The PHS is the most prodigious supporter of biomedical research in the world. NIH and the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) account for the overwhelming portion of the PHS biomedical research commitment, but a number of other agencies are also represented in CRISP, including the Health Resources and Services Administration, the National Institute for Occupational Safety and Health, and the Food and Drug Administration. Awareness of ongoing research carried out at, and supported by, the NIH and other components of the PHS should be an important part of the service that health sciences librarians and other information specialists offer their patrons. Such information exists, and has existed for some time, but has not been well known.

CRISP SYSTEM COVERAGE AND ORGANIZATION

CRISP is managed by the Research Documentation Section (RDS) in the Division of Research Grants at the NIH. Though CRISP was created originally to serve NIH as a central (i.e., trans-NIH) mechanism reporting about research programs, the Division of Research Grants has traditionally interpreted its service role very broadly so as to also include the international scientific community. CRISP's focus, reflecting the PHS' thrust in general, is on extramural programs—grants, research contracts, and cooperative agreements. In addition, CRISP contains data on intramural research carried out in the laboratories and facilities of two PHS components, NIH and ADAMHA. It is important to note that a number of support mechanisms are *not* included in CRISP, namely, fellowships, training awards, construction awards, and interagency agreements, since these are not considered research programs.

CRISP is organized as a series of fiscal year files. A single fiscal year file contains all research projects active during that year. Each file contains two major categories of projects: new (first-time) awards made during that fiscal year, and continuing awards, i.e., projects in at least their second year of funding. Some projects may be in progress for ten or more years. Renewal can be on a noncompetitive or competitive basis, depending on the continuation year and length of the grant or contract. Continuing projects constitute approximately three-quarters of the total number of project records in any one file. Each of the most recent year's files contains well over 30,000 "parent" project records. In addition, large program project grants, core grants, and research center programs may contain many major subprojects, each of which is treated as a separate record in the system. There are approximately 15,000 subproject records in each year's file.

Computerized CRISP files go back to 1972. The capability of searching "historically" is very useful in identifying research trends and areas receiving support (for example, developing drugs for disease prevention).

Extramural research project records in CRISP are initially created from a large, internal NIH database called IMPAC (Information for Management, Planning, Analysis, and Coordination) which tracks, in a very detailed manner, the administrative and fiscal aspects of NIH and ADAMHA extramural programs. When an extramural research project is funded, regardless of whether the project is new or continuing, basic administrative data (e.g., title, name of principal

investigator, supporting agency, performing organization) are extracted from IMPAC and used to create a skeletal record in the current year's CRISP file. NIH and ADAMHA intramural research project reports as well as ADAMHA research contract award data are received directly by the Research Documentation Section for input to CRISP.

SCIENTIFIC INDEXING OF CRISP RECORDS

At the time that a skeletal CRISP record is created, a worksheet is also generated, which initiates the value-added activities of RDS. A technical information specialist (typically with educational and laboratory experience in one or more of the biomedical or physical sciences) assigns subject headings appropriate to the research project, using a unique, controlled vocabulary, the *CRISP Thesaurus.*

Critical aspects of a research project for which indexing terms (i.e., subject headings) are assigned include:

(1) specific aims and objectives
(2) broad research area/discipline
(3) biological systems
(4) diseases and disorders
(5) disease agents (infectious, parasitic)
(6) biochemical/metabolic processes
(7) research subjects and their characteristics
(8) materials/resources
(9) clinical methods/regimens
(10) laboratory techniques/procedures
(11) research approaches/designs

The *CRISP Thesaurus* is a comprehensive biomedical subject authority list created by RDS, with a full cross-reference structure, which is maintained and developed specifically to capture and subsequently retrieve research project data. It was originally assembled before the National Library of Medicine (NLM) developed MEDLARS (using MeSH as its controlled vocabulary for online searching). The *Thesaurus* was specifically designed to be highly responsive to the sudden emergence of important new research areas, theories, investigational drugs, etc. While it is basically a "dictionary," it contains (through its corresponding eight-digit, indexing term numbers) a first-level hierarchy, based on the initial four digits. Each indexing term is set up to include the entire structure in an inverted format, for example:

1130 1983 FATTY ACIDS, UNSATURATED, OMEGA-3 FATTY ACIDS

RDS is exploring ways of coordinating its vocabulary development and indexing more closely with the MeSH vocabulary of the National Library of Medicine. Possible approaches are automated mapping between vocabularies (some experimental work is going on at the present time), involvement in NLM's Unified Medical Language System (UMLS) project, and regular contacts between the indexing and vocabulary staffs of RDS and NLM. The essential requirement is that the indexing for CRISP reflects new and hard-to-locate research information.

Indexing decisions rely on both precoordination, provided by the *CRISP Thesaurus,* and postcoordinated selection of terms by the searcher to assure coverage of a concept. Particularly important to the indexing of research projects that are on the "leading edge" is the close interaction of indexers (who are also searchers) with those staff members responsible for maintaining the timeliness, accuracy, and usefulness of the *CRISP Thesaurus.* Indexers routinely enter an item that is not contained in the *Thesaurus* on a "Proposed New Terms List," along with the project identification and the valid "in lieu of" indexing term(s) chosen jointly or in place of the desired "proposed" term. The *Thesaurus* is updated regularly with those proposed terms judged particularly valuable. At the same time, frequency counts of valid terms are periodically prepared, and terms that have a "zero count" in the latest three annual files are deleted. In short, the *CRISP Thesaurus* pragmatically reflects the state of research at any moment in time. It is not, and has never tried to be, a classification system for biomedicine and health.

Another important feature of the indexing process is the assignment of an "emphasis level" to every indexing term selected for each research project. Three levels are used: primary (P), secondary (S), and tertiary (T). The "P" emphasis code indicates that the indexing term describes a central aspect of the research project. An "S" emphasis code indicates that the term relates to an aspect of the research project that is not one of its main objectives or areas of investigation. The "T" emphasis code is generally reserved for certain terms describing very specific facets of the project: research subject, standard instrumentation and techniques, methods, and materials. The emphasis codes provide a mechanism for developing precise search strategies and assist in limiting retrieval.

In addition to indexing research projects, RDS is responsible for including a descriptive abstract in CRISP. The specific source depends on the kind of project: for grants, the abstract used is a required part of the grant application; for research contracts, the abstract is prepared by the awarding agency's project officer; for intramural research, the abstract is included in the annual report each scientist is required to prepare at the end of every fiscal year. In all cases, RDS performs, at most, minor editing before incorporating the abstract as submitted.

Figure 1
Research awards index (Subject Access)
Shown is a portion of a page from the "Subject Access" section of the *Research Awards Index* (fiscal year 1986 edition). This section provides listings of all projects and subprojects assigned a particular indexing term (i.e., a subject heading) if the indexing term was assigned at the primary emphasis level.

** R01HL-30069-05 Analysis of variant streptococci from endocarditis (rabbits, mice, human)

BACTERIA, STREPTOCOCCACEAE, STREPTOCOCCUS MUTANS*
** P50DE-02670-20 0018 Institute of dental research - Immune response to Streptococcus mutans
** P50DE-02670-20 0037 Institute of dental research - IgA responses to S mutans--Induction and regulation
** P50DE-02670-20 0040 Institute of dental research - Streptococcus mutans strains common to mother and child (mammals)
** R37DE-03258-15 Molecular genetic analysis of S. mutans cariogenicity
** R01DE-03487-15 Inhibition of human cariogenic streptococci
** R37DE-04224-12 Studies on the genetics of oral microflora (rabbits)
** R01DE-04321-12 Cell adherence of dental plaque forming streptococci (rabbits)
** R01DE-04614-10 Adherence of oral streptococci to hydroxyapatite
** R01DE-05180-08 Regulation of surface synthesis in Streptococcus mutans
** R01DE-05696-06 Streptococcus mutans interaction with animal tissue (human, rabbits)
** R01DE-05966-05 Mechanisms of sugar transport in streptococcus mutans
** R01DE-06071-03 Calcium metabolism in Streptococcus mutans
** R01DE-06082-04 Genetic analysis of streptococcus mutans cariogenicity
** R01DE-06127-04 Acid-base physiology of oral streptococci
** R01DE-06153-05 Antibody to glucosyltransferase in adults and children
** P50DE-07003-03 0001 Rochester caries research center - Implantable ammonia-producing Streptococci (rats)
** R01DE-07228-01 Cell wall-associated proteins of Streptococcus sanguis
** M01RR-01224-08 0034 General clinical research center - Molecular basis of biology of oral streptococci

BACTERIAL ANTIBODIES
SEE IMMUNOLOGY, ANTIBODIES BACTERIAL

BACTERIAL ANTIGENS
SEE IMMUNOLOGY, ANTIGENS BACTERIAL

BACTERIAL ANTITOXINS
SEE IMMUNOLOGY, ANTITOXINS

BACTERIAL CAPSULE
** R01AI-06966-21 Capsule synthesis, division, and radiation sensitivity (bacteria)
** P01AI-15036-09 0002 North Carolina program on sexually transmitted disease - Phagocytic defense against N gonorrhoeae at the mucosal surface (human)
** R01AI-17217-06 Antibody to H. influenzae capsular polysaccharide
** R01AI-17962-05 Genetic control of antibody responses to polysaccharides
** R23AI-18654-03 Encapsulation of staphylococci in disease (human)
** R01AI-19647-02 Molecular studies on S typhimurium adhesin (mice, rabbits)
** R01AI-20900-03 Determinants of infection in nocardiosis (human, mice)
** R01AI-21236-03 Peptide analyses of protein 1 of Neisseria gonorrhoeae (mice, rabbits)
** R01AI-22148-03 Physiology & metabolism of Neisseria gonorrhoeae III (human, guinea pig, rabbit)
** R01AI-24782-01 Mechanisms of resistance to bacterial infection (human, mice)
** R01AR-33311-03 Pathogenesis of reactive arthritis (mice, human) [1A]
** R01DE-03917-11 Fluoride and the metabolism of plaque bacteria
** R01DE-07128-03 Microbiology of ligature-induced periodontitis (monkeys)
** R01DK-33262-03 Inflammatory bowel disease--Host response and infection [5A-]
** R01EY-05794-01 Comparative treatment of bacterial endophthalmitis (rabbits)
** R01GM-24028-09 Pathogenesis of pseudomonas in thermal injury (human, mice, rabbits)
** R01GM-35939-01 Biomaterial substrates--s epidermidis and pathogenicity (rabbits)
** P50HD-12629-08 0002 Studies in reproductive medicine - Infection in male infertility (human)
** R01HD-18701-03 Phagocytic cell function in newborn and developing infant (human, rat)
** R01HL-33622-06 Bronchopulmonary infections--The role of mucin (rabbits, human)
** R01HL-36078-02 Alveolar macrophage response to chronic stimulation (cats)
** M01RR-00036-26 0588 General clinical research center - Genetic control of antibody responses to polysaccharides (human)
** M01RR-00084-24 0194 General clinical research center - Ampicillin and rifampin against H influenzae type B (human)
** M01RR-00188-22 0131 General clinical research center for children - Longitudinal study of congenital viral or bacterial infection (human)
** M01RR-00240-22 0207 General clinical research center for children - Aztreonam in the treatment of gram-negative

SYSTEM PUBLICATIONS

The CRISP database is the source from which three major annual publications are generated: the *Research Awards Index*, the *Intramural Research Index*, and the *CRISP Thesaurus*.

The two-volume *Research Awards Index* is a guide to PHS-supported extramural research. The first volume contains research project data listed by indexing terms bearing a primary emphasis level. The second volume contains a detailed project number listing plus a cross-reference to the project number by the principal investigator's name. The Division of Research Grants furnishes a set, gratis, to major medical libraries in the United States to facilitate access by the health information and medical communities [6]. (Figure 1.)

The one-volume *Intramural Research Index to NIH, NIMH, and NIAAA Projects* contains indices organized in an identical manner to that of the *Research Awards Index*. As the name implies, it covers intramural research of the NIH and two ADAMHA components: the National Institute of Mental Health and the National Institute on Alcohol Abuse and Alcoholism [7].

The third publication is the previously mentioned *CRISP Thesaurus* [8]. Use of the *Thesaurus* is strongly recommended to those wishing to search CRISP successfully on their own. (Figure 2.)

INFORMATION RETRIEVAL AND SEARCH SERVICES

RDS is responsible not only for the input side of the CRISP system, but also functions as a search service for the NIH and other agencies of the federal government. At present, the CRISP database is maintained on disk and tape at the NIH Computer Center. It is directly accessible only to those having a valid NIH Computer Center account (mainly those in the federal government and those under contract to it). Searches are executed in batch mode, though with a rapid turnaround time. A great number of retrieval options are available by using Boolean logic to link indexing terms with each other as well as with a variety of administrative data elements included as qualifying or limiting conditions. Thus, in addition to formulating complex search strategies based on subject, users can restrict retrieval to any combination of PHS agency or NIH institute, emphasis code, type of project, awardee institution, principal investigator, city, state, etc. Records can be displayed in a number of standard formats or may be modified to meet special reporting needs. (See Figure 3.) Output is available in hardcopy or on tape, microfiche, disk, online file, or microcomputer diskette. Up to five levels of sorting are possible, and there are several printing options. Various summary tables may be specified.

Figure 2
CRISP *thesaurus*
Shown is a portion of a page from the fiscal year 1988 edition of the *CRISP Thesaurus*, illustrating both main indexing terms and associated cross-references, using standard cross-reference codes.

CYCL **CRISP Thesaurus, FY 1988**

SA FLUORENES
SA NAPHTHALENES
SA PHENANTHRENES
SA STEROIDS
SA TERPENES, PENTACYCLIC TRITERPENES
X CARBOPOLYCYCLICS
X POLYCYCLIC HYDROCARBONS
XX HYDROCARBONS

0779 5362 CYCLICS, CARBOPOLYCYCLICS, BENZANTHRACENES
X BENZANTHRACENES
X DIBENZANTHRENES
X DIMETHYLBENZANTHRACENES
XX ANTHRACENES

0779 5835 CYCLICS, CARBOPOLYCYCLICS, BENZOPYRENES
X BENZOPYRENES

0779 6054 CYCLICS, CARBOPOLYCYCLICS, CHRYSENE
X CHRYSENE
UU 1,2-BENZOPHENANTHRENE

0779 6308 CYCLICS, CARBOPOLYCYCLICS, METHYLCHOLANTHRENE
X METHYLCHOLANTHRENE

0779 6464 CYCLICS, CARBOPOLYCYCLICS, PYRENES
X PYRENES
UU BENZO(DEF)PHENANTHRENE

0779 6611 CYCLICS, CARBOPOLYCYCLICS, SURAMIN
X ANTRYPOL
X NAPHURIDE
X SURAMIN

0779 6871 CYCLICS, HETEROCYCLICS
SA CYCLICS, POLYCYCLIC HETEROCYCLICS (SEE ALSO SPECIFICS)
SA NITROARYLS
SA OXOARYLS
SA PHOSPHOARYLS
SA SULFOARYLS
X HETEROCYCLICS
XX CYCLICS, CARBOPOLYCYCLICS
XX CYCLOPARAFFINS, CYCLOPENTANES
XX DYES

0780 7203 CYCLOHEPTANES, CYPROHEPTADINE
X CYPROHEPTADINE
XX BENZOPYRROLES, SEROTONIN INHIBITORS
XX PIPERIDINES
UU PERIACTIN

0780 7274 CYCLOHEPTANES, NORTRYPTYLINE
X NORTRYPTYLINE

0780 7357 CYCLOHEPTANES, PROTRIPTYLINE
X PROTRIPTYLINE

0780 7434 CYCLOHEPTANES, TROPOLONES
SA ALKALOIDS, COLCHICINE
X TROPOLONES
XX CYCLIC KETONES (SEE ALSO SPECIFICS)

0780 7511 CYCLOHEPTANES, VETIVONE
X VETIVONE
XX CYCLOHEPTANES, AZULENE

1,4-CYCLOHEXADIENEDIONE
2532 2960 USE QUINONES

CYCLOHEXADIENES
0784 0379 SEE CYCLOOLEFINS, CYCLOHEXADIENES

CYCLOHEXADIENONES
0778 8208 SEE CYCLIC KETONES, CYCLOHEXADIENONES

CYCLOHEXANE CARBOXYLIC ACID
0781 7167 USE CYCLOHEXANE(ENE) CARBOXYLIC ACIDS

0781 7167 CYCLOHEXANE(ENE) CARBOXYLIC ACIDS
SA PHENYLCARBOXYLATES, BENZOATES
X CARBESTROL
XX ACIDS-BASES, ACIDS ORGANIC (GENERAL)
XX CARBOXYLIC ACIDS
UU CYCLOHEXANE CARBOXYLIC ACID
UU CYCLOHEXENE CARBOXYLIC ACIDS

The NIH, in particular, relies heavily on CRISP for authoritative information to respond to requests (from Congress, for example), to assess and review research programs, and, to a more limited degree, to carry out budgeting and planning functions.

When RDS accepts a search request, a staff member develops the search strategy after careful consultation with the requester. The results are reviewed and, if necessary, further discussion with the requester may take place. In especially difficult cases, relevant records are specifically identified by the searcher. NIH staff and others having access to the NIH Computer Center also have the option of executing their own searches, but even in these instances RDS often provides search advice and assistance, particularly on the proper use of indexing terms.

PUBLIC ACCESS TO CRISP DATA

The CRISP database is publicly available, albeit with several constraints. Abridged records from CRISP are supplied to NTIS to be merged into the FEDRIP database. FEDRIP is a compilation of ongoing research from ten federal agencies, accessible through DIALOG Information Services. Retrieval from FEDRIP can be limited to only the CRISP file. DIALOG has excellent search software, which can overcome some of the limitations of searching CRISP without having access to the *CRISP Thesaurus*.

A number of important improvements were made in 1988 so that CRISP in FEDRIP can better meet the needs of the information and scientific communities. First, update frequency, formerly semiannual, was increased to monthly. Second, the two latest fiscal year files now comprise the CRISP component of FEDRIP, whereas before 1988 only the latest fiscal year file was furnished. Third, the subprojects of large multiproject awards are now included, which is a major enhancement because RDS indexes each subproject as a separate entry; for the largest grants, there may be upwards of one hundred subprojects. With increasing frequency, separate subproject abstracts are being provided as part of the grant application package. When this occurs, the subproject record contains

Figure 3
CRISP printout (Detailed Format)
Shown is a portion of a CRISP project record in the most detailed available format. (Not shown, but included in this format, are the indexing terms selected.)

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QUERY S001   PRIMARY/MAIN              87-2197  MOLECULAR CLONING AND MONOCLONAL ANTIBODIES  R01 ONLY

-PROJECT NUMBER.....5 R01 AI19347-05                    PI ADDRESS
                                          FY  87        HANDMAN, EMANUELA
IRG/INTRAMURAL UNIT..TMP                                WALTER AND ELIZA HALL INST
AWARD AMOUNT.....    $63,087                            C/ P O ROYAL MELBOURNE HOSP
                                                        VICTORIA 3050, AUSTRALIA
GRANTEE INSTITUTION..ROYAL MELBOURNE HOSPITAL
TITLE   Characterization and cloning of Leishmania antigens (mice)

    The overall objectives of this proposal are twofold: (1) to identify and
    characterize carbohydrate and protein antigens of Leishmania major involved
    in induction of host-protective immune responses or which are key molecules
    obligatory for initiating infection of the host macrophage; (2) to clone,
    characterize and express genes for the protein antigens in order to allow
    production of these molecules for vaccination studies in our mouse-L.major
    model system. Specifically, the glycolipid molecule on the surface of the
    amastigote which is the receptor for the host macrophage will be
    biochemically characterized in terms of its composition, synthesis
    transport to the macrophage surface and association with host MHC
    molecules. The role of this glycolipid in determining tissue tropism and
    as a potential vaccine molecule will be studied. These studies will
    provide new information on a key parasite molecule which is critical for
    the host-parasite interaction and will assess this molecule as a vaccine.
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its own unique abstract in CRISP. CRISP records currently account for approximately 75% of those in the FEDRIP database. Active negotiations are also in progress with another major vendor to make CRISP available as a "stand alone" database with data elements designed to optimize the value of the information for "nonfederal" users.

A subset of records from the most current years' CRISP files (generally the latest two to three years) covering toxicology constitutes one of the subfiles of the TOXLINE database in NLM's MEDLARS. These records can be retrieved using MEDLARS software, including textword searching of project abstracts. However, the present annual update schedule is too infrequent, and there are further limitations due to TOXLINE's current file regeneration schedule of once every two to three years. RDS and NLM have discussed making needed improvements.

To a limited degree within the constraints of its modest resources, RDS will accept CRISP search requests from outside the federal government, if they cannot be fulfilled through the publicly available sources of CRISP data. Because of its primary commitment to providing service to NIH and other PHS components, RDS finds it increasingly necessary to direct "non-federal" search requests to the publicly available sources of CRISP data. However, RDS is very strongly committed to providing detailed advice about and assistance with the contents and the capabilities of the CRISP system. CRISP records in both FEDRIP and TOXLINE contain basic project identification information, CRISP indexing terms, and the abstract, but not the many highly specific administrative data elements required by NIH and ADAMHA staffs for management reporting. Therefore, directing nongovernment users to FEDRIP, etc. should not cause any serious diminution in accessing the useful information available from CRISP. Typically, requests for searches and search advice are received from research scientists, public interest groups, the media, legal and commercial firms, as well as individuals; librarians and other information professionals do not contact RDS often.

CONCLUSION

Medical librarians and information specialists should consider reports of biomedical research in progress a major information resource. While the published literature will continue to be foremost for the typical researcher, it is not the only information resource. In the area of biomedicine, the CRISP system can serve as a significant and unique repository of timely and critical information that deserves to be more widely utilized.

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Received March 1988; accepted July 1988