

Special Article

EuroCODE: a New Approach to Collaborative Research in Clinical Oncology

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CANCER THERAPY is a fast evolving field, but often the results of research are not translated into changes in clinical practice. Key features to improve this situation are the dissemination of information about new treatment approaches, and the confirmation of apparent treatment benefits in large collaborative trials. These two imperatives of research in clinical oncology (information and confirmation) can now be successfully achieved through the use of computer technology. In this article, we briefly describe a system which provides clinical oncologists with the most up-to-date and reliable information on cancer treatment, and which facilitates patient entry into collaborative clinical trials.

EuroCODE

In 1986, the European Organization for Research and Treatment of Cancer (EORTC) launched a project named EuroCODE (European Computerized Oncology Data Exchange) under the auspices of the European Economic Community (EEC). Technically, this project consists of a network of computers connected to each other via public telephone lines [1]. Clinicians can easily access the network and 'log in' on one of the EuroCODE computers. Once they are 'logged in', the clinicians make use of a variety of services: they can consult databases of information, enter patients in clinical trials, or exchange electronic mail with

colleagues. EuroCODE is designed for the non-computer specialist, it is entirely menu-driven and attempts to be as 'user-friendly' as possible.

INFORMATION DATABASES

EuroCODE gives access to information databases that are directly relevant to clinical practice, such as lists of on-going clinical trials and dates of oncology related meetings. It also gives access to the Physician Data Query (PDQ) database which is described in the companion article. The main advantage of these computerized databases over the traditional sources of information such as journals or periodicals is that they allow quick and easy access to up-to-date information. They provide clinical oncologists with an overview of the activity of the major cooperative groups. They also constitute a first attempt at an international registry of on-going clinical trials; the relevance of such a registry when evaluating the worth of alternative investigational therapies has been recognized for several years [2]. It is expected that the number of databases will increase to include all clinical trials in cancer, whether on-going or closed, from national and regional groups, and from individual institutions. It is not the purpose of EuroCODE to give access to well established and more general databases, such as MEDLINE (a database of bibliographic references) since these are readily available by other systems. However, the investigators who already access these databases can use the same equipment without any additional cost to access EuroCODE.

ON-LINE RANDOMIZATION

One of the most attractive and original features of EuroCODE is its on-line patient registration

Accepted 2 August 1989.

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system. This system checks the patient eligibility to enter a given protocol by asking the investigator a series of questions relating to the patient. If all answers are satisfactory, the patient is entered in the trial and a confirmation sheet is automatically printed at the relevant Data Center. In the case of randomized trials, the computer can assign the treatment on the basis of 'minimization' algorithms, which not only ensure that treatment assignments are unpredictable, but maintain good balance between all treatment groups with respect to the most important prognostic features [3].

There are numerous advantages to an on-line registration system. It allows a tighter control of eligibility criteria and prognostic information, it offers a 24-h service every day of the year and is very inexpensive. Spelling mistakes and language difficulties which are commonly encountered with telephone registration are greatly reduced. These features are particularly helpful in phase II trials where a lot of 'on-study' information must be requested and checked before the patient is entered on the trial. The principal advantage for phase III trials is that patients can be randomized at any time without telephoning a remote Data Center. On-line randomization systems encourage a wide participation in clinical trials. They can thus contribute to improve the often insufficient accrual rate of patients into clinical trials [4, 5]. They pave the way towards large-scale, simple collaborative trials which have been advocated to reliably test adjuvant therapies of common malignancies [6-8]. For example, an on-going EORTC trial on adjuvant chemotherapy of colorectal cancer extends to Japan where two institutions randomize patients through EuroCODE. Future developments of EuroCODE will allow Data Centers to exchange data through the network, and in the longer term clinical investigators will be able to enter all their data directly on-line, rather than transmit the information by post on paper forms.

ELECTRONIC MAIL

An additional benefit of the computer network is that oncologists can exchange electronic mail with other investigators and with the Data Centers that

coordinate collaborative trials. This inexpensive method of communication can help reduce the administrative burdens of both the Data Centers and the clinicians. It may also guarantee that important news about on-going protocols, for example unexpected toxicities and treatment adjustments, get communicated to all investigators simultaneously, expeditiously and accurately.

EuroCODE greatly facilitates collaboration between research organizations. For instance, several clinical trials for the treatment of rare tumours are now being launched jointly by the EORTC, the Medical Research Council of Great Britain, and the Clinical Trials Group of the National Cancer Institute of Canada.

CURRENT STATUS

Over 100 oncologists are already using EuroCODE on a daily basis. A dedicated EuroCODE computer has been operational for 2 years in Belgium, and at the time of writing four others are being installed in France, Great Britain, Italy and the Netherlands.

FURTHER INFORMATION

Apart from telecommunication costs, access to EuroCODE is free of charge. Telecommunication costs are extremely low as compared to equivalent long-distance telephone calls. Any computer equipment can be used so long as it is equipped with a modulator/demodulator ('modem'). The equipment can range from a simple terminal, a 'Minitel' station which is readily available in France, any microcomputer to any large computer. Once the equipment is installed, operating the system does not require any computer skill beyond typing on a standard keyboard. A detailed brochure with all technical details of EuroCODE, is available upon request from the EORTC Data Center.

Acknowledgements—EuroCODE is a project of the EORTC, Brussels, Belgium. Funding for the EuroCODE project is provided by the EEC through the Fourth Medical and Health Research Program. The PDQ database is a project of the U.S. National Cancer Institute, Department of Health and Human Services, Bethesda, Maryland. The PDQ retrieval software (Searchlite) is a registered trademark of the I.S. Grupe, Inc., Lombard, Illinois.

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