

The computerized information system of the Expanded Programme on Immunization

Dale J. Hu, Carole Torel, & Robert Kim-Farley

An outline is given of the use made by the Expanded Programme on Immunization of informatics in the gathering and compiling of data, analysis, evaluation, communication and information exchange.

The computerized information system of the Expanded Programme on Immunization collects and analyses data with a view to monitoring, evaluation and decision-making.

Gathering and compiling information

In order to monitor and evaluate immunization programmes, data are collected from the system's core modules relating to demographics, coverage, disease surveillance, vaccine sources and quality, costs, reviews, training courses and other matters.

At present, surveillance data are sent from countries to Regional Offices and then to headquarters. It is intended that, eventually, computerization will permit faster data transmission from district to national and thence to regional levels. Computer-based systems are being used for disease reporting in developed countries, and this could lead to similar applications in developing countries (1, 2). Clearly, rapid reporting and analysis of data are immensely important if effective responses are to be made to epidemics.

Following their collection, data have to be compiled and presented in a useful manner, to the extent of facilitating collaboration and coordination with other disease control programmes.

Analysis and evaluation

Analysis and evaluation are essential for programme managers. Thus, for example, one of the software packages used by the Expanded Programme on Immunization is a collection of computer programmes for the analysis of data collected in coverage surveys. Data are entered through a user-friendly interface resembling an individual immunization record.

As coverage improves it becomes increasingly important to process and analyse data quickly and efficiently. This is particularly true in programmes looking beyond average coverage and seeking to focus sharply on disease control.

A spreadsheet programme designed to provide managers with rapid financial analyses has already been used in several reviews. It can be used by people who have only a minimal knowledge of economics, and thus has an advantage over traditional methods of analysis, which are often complicated and very time-consuming. By identifying major cost elements, producing cost data, tracking costs and identifying sources of funding, this

Dr Hu is a former Consultant with the Expanded Programme on Immunization and Mrs Torel is a Technical Officer with the Global Programme for Vaccines, World Health Organization, 1211 Geneva 27, Switzerland. At the time of writing this article Dr Kim-Farley was Director of the Expanded Programme on Immunization; he is now WHO Representative in Indonesia.

programme can assist in financial decision-making. The package is being expanded to include other costing aspects of primary health care.

Software has also been developed to store and analyse information recorded during vaccine cold chain monitor reviews. It provides facilities for entering, modifying, checking and analysing data so that the quality and effectiveness of cold chains can be assessed.

Communication and information exchange

The synthesis of data is most useful when information can be rapidly disseminated in order to improve the effectiveness of programmes. Timeliness, completeness and accuracy of reporting are especially important in the communication of information relating to disease control.

Electronic mail now provides a means of sending messages between computers through telephone lines and has become a cost-effective way of overcoming problems associated with traditional means of communication. Within institutions, local area networks allow efficient information exchange.

In 1990 the Expanded Programme on Immunization developed a global electronic bulletin board, on which current information can be posted and updated. It provides a full bibliography of available materials, tables giving data on the incidence and coverage of diseases of childhood, a calendar of forthcoming conferences and other events, and details of other activities. The network can be accessed through modems, and it is an easy matter to read and download information. The bulletin board allows staff to update information directly into menus, and provides an expanding information service. A part of the bulletin board was set up for the exchange of information on logistical and technical problems

among members of staff; it includes modules on management and training, injection and sterilization, transport, and energy sources.

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Each module has both informational and interactive capabilities.

A bulletin board should channel useful information, allow ideas to be exchanged, and be used regularly by those it is intended to serve. Usage can, of course, be increased by improving access and lowering costs.

Computer-based telecommunication has become sufficiently advanced globally to facilitate in a major way the development and maintenance of research connected with the Expanded Programme on Immunization, for instance in improving the coordination of multicentre studies and vaccine trials (3).

Looking to the future, it can be envisaged that informatics will have a role in decision support, mathematical modelling, integrated databases, map-based databases, the analysis of funding, expert systems for decision analysis, and many other areas. ■

References

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