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## HEALTH INFORMATION SYSTEMS AND HEALTH INFORMATICS<sup>1</sup>

In June and July 1988 the Sub-Committee of the Regional Committee on Programmes and Technical Cooperation visited American Samoa, Japan and Samoa to review and analyse the impact of WHO's cooperation with Member States in the fields of health information systems and health informatics.

At the thirty-ninth session of the Regional Committee in September 1988 the Report of the Sub-Committee was accepted, the findings were noted and the recommendations were endorsed. The Regional Director was requested to place the subject on the agenda of the Regional Committee again and report on progress in implementing the Sub-Committee's recommendations.

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<sup>1</sup> This document has been revised to provide a more inclusive picture of how the use of informatics is developing in the Region.

At the thirty-ninth session of the Regional Committee in September 1988 the recommendations of the Sub-Committee on Programmes and Technical Cooperation were endorsed, with particular reference to the following:

- (1) the need for Member States to develop a comprehensive national plan for health information system development;
- (2) the need for assuring the availability of reliable and accurate health statistics prior to the introduction of health informatics technology; and
- (3) the need to strengthen health information systems and health informatics in Member States through technology transfer and support for appropriate training.

The Regional Committee requested the Regional Director to take the Sub-Committee's findings and recommendations into consideration in developing future plans of cooperation in these fields.

A good deal of progress has been made by Member States in developing comprehensive national plans for health information system development. In the Philippines, a "master plan" was developed in cooperation with the Department of Health for redesigning the Government's health management information system. This plan provides a framework for the technical development and implementation of the system. It also provides a means of budgeting local resources and assessing needs for support from external agencies. The Government of Papua New Guinea has embarked on an ambitious long-range national plan to redirect and decentralize its informatics support activities in line with structural changes in its health system. The plan emphasizes the provincial level of the health system for decision-making and resource allocation. WHO is collaborating with other Member States on similar planning work.

In China a major undertaking directed at the development of an overall conceptual framework for a National Health Information System has been initiated with WHO cooperation. A "road-map" for future system development has been formulated, building on experience of health information support activities at the county and province levels in the Maternal and Child Health Hospitals, the Anti-Epidemic stations and the service reporting systems at the village, township and city levels. This is a long-term effort which will take several years to complete. In the interim, however, many collateral activities are being supported in China towards constructing a comprehensive national system. The WHO Collaborating Centre in Suihua County, is developing a set of basic data items for service programmes including revised recording forms, data collection schedules and analytic plans for the County. This activity has been initiated in two "health information districts" of the county, using up-to-date portable microcomputer technology. A WHO-supported contract arrangement with Heilongjiang University has helped to provide the expertise needed for computer system design, programming and data base management to support the Centre's activities. In addition, the University will provide hands-on microcomputer training for health staff in the County.

A major effort has been mounted in Samoa, largely in response to the visiting Sub-Committee's concerns. Good progress has been made in building a plan of action for improving the information base available to support management decisions. WHO-assigned statistical staff have worked closely with national counterparts on designing a series of

computer-supported improvements in the data collection and processing procedures currently in use. Training courses have been held for those involved, including top level managers, to shape the system and provide for policy development and guidance. Microcomputer technology has been introduced and new and revised schedules for data recording, abstracting and reporting have been finalized. Significant progress has been made in reducing the reporting burden on local health staff while achieving improvement in the quality and relevance of the data collected. Staff in the Ministry have been trained in the use of the most appropriate commercial software for data collection, processing and analysis.

Similarly, Tonga has made a major effort to review its national information system policy, in order particularly to obtain more accurate and timely data and convert them by microcomputer technology into useful information for planning and management. A national information system policy document is planned for early next year.

With regard to the concerns expressed by the Sub-Committee about the need to assure that health data are accurate and reliable before the introduction of informatics technology, there are still some problems. With the increased availability of lower-cost health informatics technology, particularly microcomputers, more and more Member States are obtaining such equipment. In many instances automation does have a beneficial effect on the quality of the data, simply as a result of the attention given to systems and software development. This is not always the case, however, and in many cases unreliable data on population, health services, and vital events are being computerized with the new equipment. WHO collaboration has often involved contending with this problem.

Tonga has made major progress in developing new minimum basic data sets for its public health programmes and is preparing to introduce a new record system at the service delivery sites. These modifications are designed to improve both the accuracy and timeliness of the data. Workshops have been held for programme managers and other personnel on the definition of data items and the design of records and reports. It is felt strongly that improvements in training and in production of manuals of procedures are significant ways to improve the quality of data prior to their input to automated systems. The Federated States of Micronesia, Marshall Islands and Vanuatu have made similar progress in dealing with data quality concerns by means of improved records, reports, processing procedures and attention to the training and retraining of field staff.

Fiji has embarked on a broad programme of improvements in its information base for management. Several months of consultant work have been spent on assessing the data needs for various management tasks and in redesigning or strengthening the systems of records and reports that should produce such data. Serious attention has been directed to the improvement of the hospital records system. This includes the initial recording of data on patients, admissions, billing and other administrative steps, as well as the manner in which records are stored and then retrieved for further use.

Lao People's Democratic Republic, Malaysia and Viet Nam have all turned their attention to improving the use of newly designed health and medical records systems for epidemiological surveillance and management purposes. WHO-supported workshops have focused on the operation and maintenance of these records systems and the dissemination of the resulting data to users at the different levels of the system. In Lao People's Democratic Republic alone there has been a series of six workshops supported by WHO bringing together over 250 local health staff to work at improving the quality of data available at the province level and below. Two more such workshops will be held in 1990.

In almost all of these activities aimed at the quality of data, some informatics technology has been introduced. For the most part, this has been only for the purpose of processing data at the national level. There are, however, several examples of informatics application at the local or intermediate level. A very successful instance of this is seen in the Republic of Korea. Here, a unique patient-based computerized record system has been established at the Ri (village), Myon (town) and Gun (county) level of the health system. Linkages have been or are being established between the local health sub-centre, the health centre and the hospital, permitting physicians at the sub-centre level to have immediate access, during treatment, to their patients' records at the health centre and the hospital.

Not all informatics technology transfer supported by WHO has taken place in the health information system area. In Brunei Darussalam, collaboration took place over a period of three years in the development of a computerized hospital. The medical records department of the largest hospital in Brunei Darussalam is now completely computerized, using a mini-computer, with patient admissions, indexing, billing, accounts receivable, procurement and supply, laboratory and many outpatient departments sharing access through terminals and microcomputers.

A mini-computer and several micros and peripherals were provided to the Shanghai Medical Information Centre, to support the automation of the operation and management of the medical library. This also facilitates links with other libraries in a network of institutions sharing the automated Chinese national literature data base. Similar applications, although not on such a large scale, are being supported in Malaysia, Papua New Guinea, Samoa and Singapore, whereby these countries can now access international health data bases from resident microcomputers in their medical library facilities.

Progress is being made in increasing opportunities for training in health information systems development, health informatics and related technology transfer. Three participants from the Region (from American Samoa, Kiribati and the Philippines) attended the Sixth International Seminar on Microcomputer Application in Health Services Management held in Rome, conducted by WHO.

Training was supported through fellowships for personnel from Brunei Darussalam, China, Fiji, Malaysia, Papua New Guinea, the Philippines and Viet Nam for studies associated with a range of activities encompassing health and medical records management, information systems development and computer applications in health. A series of training manuals on the use of data from a computerized provincial health information system in Papua New Guinea have been produced and made available widely within the Region and to other Regions.

A Regional Workshop will be held in November in Manila with objectives based directly on the concerns expressed by the Sub-Committee on Programmes and Technical Cooperation last year. These are the need for national policy and plans for integrated health information and health informatics development; the need for focal point agencies or institutions for developing a network of centres of excellence for the exchange of information and experience; and the need for guidelines for national health information systems development utilizing the latest and most appropriate informatics technology.

The information system and informatics activities of the Member States have been taking on increased importance in conjunction with the strengthening of management capacities at the intermediate levels of the health system. Some innovative approaches to

improving the use of new informatics technology are being developed in a number of health systems research and primary health care projects. The results of this experimental work should make it possible to provide increasingly valuable technical support to the countries and areas of the Region in the coming years.