



WHO

REGIONAL OFFICE FOR EUROPE

EUR/ICP/INFO 02 01 08(A)
ENGLISH ONLY
UNEDITED

**INTRODUCTORY
MEETING OF THE
EUROPEAN
PUBLIC HEALTH
INFORMATION
NETWORK FOR
EASTERN EUROPE
(EUPHIN-EAST)**

Report on a WHO meeting

Bratislava, Slovakia
10-12 April 1997

SCHERFIGSVEJ 8
DK-2100 COPENHAGEN Ø
DENMARK
TEL.: +45 39 17 17 17
TELEFAX: +45 39 17 18 18
TELEX: 12000
E-MAIL: POSTMASTER@WHO.DK
WEB SITE: [HTTP://WWW.WHO.DK](http://WWW.WHO.DK)

1998

EUR/HFA target 35

TARGET 35

HEALTH INFORMATION SUPPORT

By the year 2000, health information systems in all Member States should actively support the formulation, implementation, monitoring and evaluation of health for all policies.

ABSTRACT

The European Commission (DGXIII - Telematics and Health Unit) and the WHO Regional Office for Europe have started a two-year project (1997-1998) to develop a public health information network for eastern Europe. The project is a concerted action by 23 countries of central and eastern Europe and the newly independent states of the former USSR. Its purpose is to investigate the feasibility and applicability of a European Public Health Information Network for Eastern Europe (EUPHIN-EAST) that would be able to interlink national health databases and make their data easily accessible to national and international users. An Introductory Meeting was held to discuss and assess the conditions in each country for the implementation of the main goals of the project. The specific objectives were:

- to inform partners about telematics developments in the European Union;
- to present the EUPHIN-EAST project;
- to agree on a two-year work plan;
- to present, discuss and agree on the proposed Network design and architecture;
- to initiate the study on the telematics infrastructures and user requirements, using a questionnaire;
- to initiate development of national health indicator databases (with software); and
- to initiate the database specifications for the national servers.

Keywords

PUBLIC HEALTH
INFORMATION SYSTEMS
HEALTH STATUS INDICATORS
SOFTWARE
EUROPE, EASTERN
COMMONWEALTH OF INDEPENDENT STATES

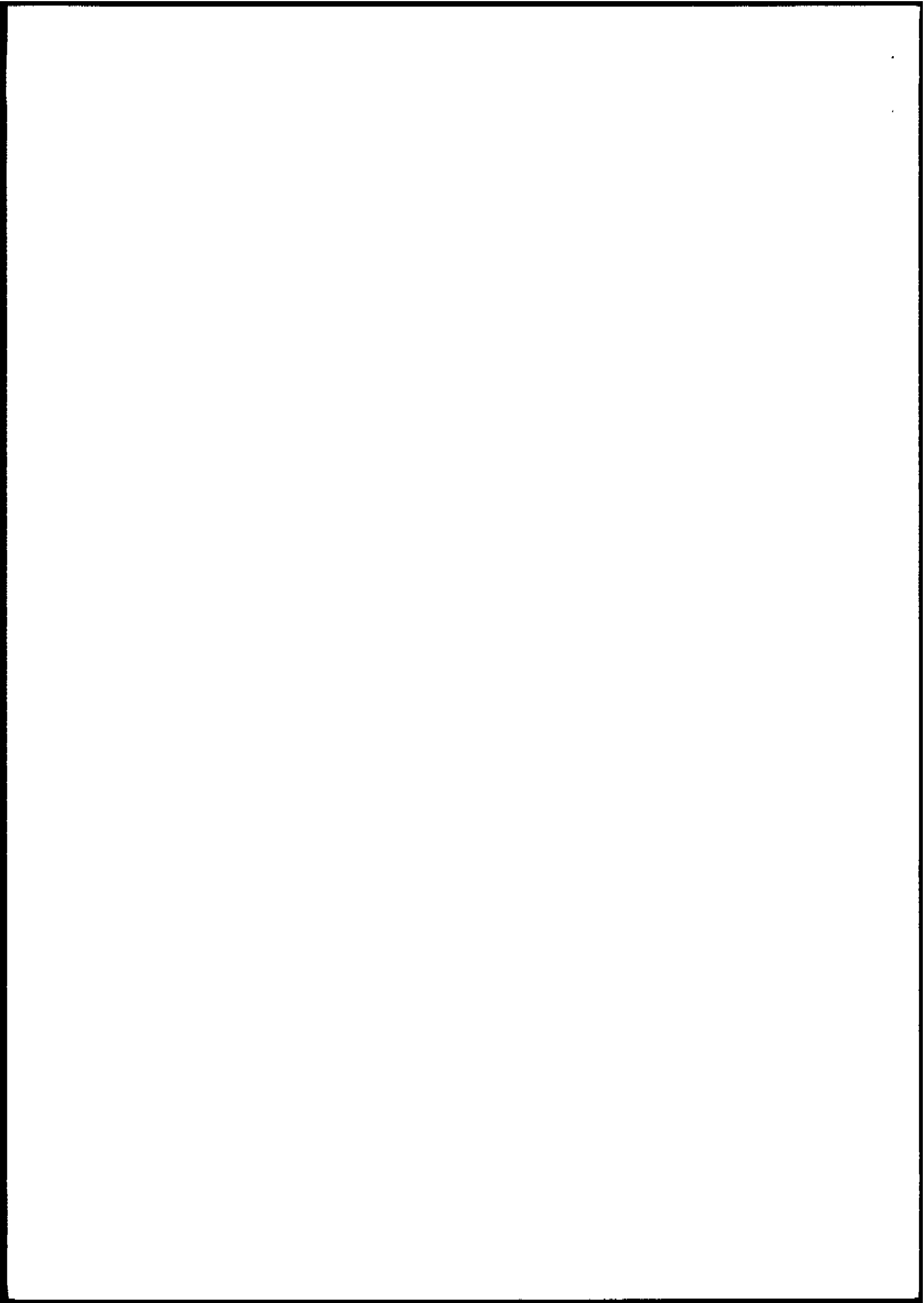
© World Health Organization

All rights in this document are reserved by the WHO Regional Office for Europe. The document may nevertheless be freely reviewed, abstracted, reproduced or translated into any other language (but not for sale or for use in conjunction with commercial purposes) provided that full acknowledgement is given to the source. For the use of the WHO emblem, permission must be sought from the WHO Regional Office. Any translation should include the words: *The translator of this document is responsible for the accuracy of the translation.* The Regional Office would appreciate receiving three copies of any translation. Any views expressed by named authors are solely the responsibility of those authors.



CONTENTS

	<i>Page</i>
1. Opening session	1
2. Scope and purpose of project.....	1
3. Significance of concerted action	2
3.1 Problems with health statistics systems	2
3.2 Way forward with health statistics systems	2
4. Expected stages within EUPHIN-EAST	3
4.1 Database development	3
4.2 Building a pilot telecommunication network.....	4
4.3 Special session for the NIS	4
5. The crucial role of telematics.....	4
6. Expected EUPHIN-EAST deliverables	5
7. European Union funding of EUPHIN-EAST	6
7.1 The fourth Framework Programme for Research and Development	6
7.2 The EU IDA programme.....	6
8. Development of the EUPHIN-EAST network.....	7
9. Technical and functional surveys.....	8
9.1 Technical survey	8
9.2 Functional survey	8
10. Telematics and related developments in selected CCEE/NIS.....	9
11. Definition of core indicators and data sets.....	9
12. Database functionality	9
13. Summary of immediate tasks.....	10
Annex 1. Participants	11



1. OPENING SESSION

Mr Arun Nanda of the WHO Regional Office for Europe (WHO/EURO) and project manager for the European Public Health Information Network for Eastern Europe (EUPHIN-EAST) welcomed the participants on behalf of Dr J.E. Asvall, WHO Regional Director for Europe, to this first international meeting of EUPHIN-EAST.

2. SCOPE AND PURPOSE OF PROJECT

Mr Nanda explained the scope and purpose of the EUPHIN-EAST project. The European Commission (DGXIII – Telematics and Health Unit) and WHO/EURO have started a two-year project (1997–1998) to develop a European public health information network for eastern Europe (EUPHIN-EAST).

This is a concerted action by 23 countries of central and eastern Europe (CCEE) and the newly independent states (NIS). It is supported by the European Union (EU) INCO-COPERNICUS (1995–1999) programme and coordinated by WHO/EURO. The purpose of this project is to investigate the feasibility and applicability of a public health information network for eastern European countries. Pilot implementation of EUPHIN-EAST will be according to the needs and potential of these countries and with a view to interlinking them in future with the EU Interchange of Data between Administrations (IDA) network that is being established in the EU. This project builds on the earlier joint projects between the European Commission and WHO/EURO, i.e. ENS Care Statistics (1992–1994) and the COPERNICUS Care Support (1995–1996).

From the practical implementation point of view, three main components of the project will be implemented in collaboration with national counterparts:

- (a) establishment of national integrated health databases in each country which could be accessed via telecommunication means by national and international users; this involves, firstly, an agreement on the standard list of data items which should be kept in this database, and secondly, that each country will develop the database and load it with data on the agreed list of indicators in standard format;
- (b) development of software applications to ensure telematic data exchange between national databases, the WHO/EURO node and the individual users;
- (c) establishment of the telematic linkages between the national databases themselves and with WHO/EURO; depending on the possibilities in each country, technical implementation may vary from very simple to sophisticated.

The main purpose of the first EUPHIN-EAST Meeting was to discuss and assess the conditions in each country for the implementation of these components, to discuss the proposed design of the network, and to agree on the work plans. The specific objectives were to:

- inform partners about the telematic developments in the EU;
- present the EUPHIN-EAST project;
- agree on the work plan;
- present, discuss and agree on the proposed design and architecture of the network;

- initiate the study on the telematic infrastructures and user requirements;
- initiate development of national integrated health indicator databases and related national health service indicator (HIS) packages to provide user-friendly access to the data;
- initiate the database specifications for the national servers.

3. SIGNIFICANCE OF CONCERTED ACTION

Mr Nanda explained the historical background to the use of health-related information, and the way forward. Sound and relevant information is an essential basis for knowledge and considered action. This simple statement is especially significant in the field of health as there are no absolute standards of health outcomes against which action can be judged – even benchmarks or guidelines are best deduced through comparisons. The advantages of **comparative** information at all levels of the health service are rapidly creating an impetus for sharing relevant information to add to the pool of knowledge for improved action, whether for health policy formulation, planning, management or monitoring and evaluation. Rapid advances in telematics can now facilitate quick and ready access to comparative information.

The challenge is now to use this power to extend on a systematic basis the sharing of knowledge, action and experience at international, national and subnational levels, so that the practice-orientated exchange of experience leads to a continuous improvement in the delivery of care to patients and the health of the population – thereby contributing to the achievement of the goals of health for all.

3.1 Problems with health statistics systems

Health information systems have traditionally tended to serve central levels, mainly for control rather than organization, and for purposes such as policy-making, planning, management, accountability and the efficient administration of health services. This has been, in the past, as true for western European countries as it is true today for the CCEE/NIS. It is also common for large amounts of data on health and areas related to health to be collected by a wide spectrum of bodies (ministries and other organizations) but dispersed in different places and formats. Furthermore, even individual data are seldom used adequately or completely. Voluminous statistical yearbooks with aggregated data are the only way of presenting available information in many countries, but these are neither flexible nor user-friendly, nor do they allow end-users to tap the power of comparisons – an essential prerequisite in health.

This has also led to a lack of practice and skills for making full and proper use of available information to support policy-makers and health service managements at all levels of health services. This problem becomes particularly important when services are being decentralized – a key element of health reforms in the CCEE/NIS.

3.2 Way forward with health statistics systems

This situation has led to the belief that the required data are unavailable or not reliable. This is partially true, but the real breakthrough will not come from collecting even more data or from restricting the use of available data until their reliability and quality improve. The solution lies in making existing data more accessible and easy to use so that end-users can harness the power of comparisons. Experience has shown that greater use of existing data is a very powerful stimulus to improving reliability, quality and timeliness. This requires coordinated and user-friendly access to a wide variety of data on health and health-related areas (e.g. about health status,

hospital activity, spending, staffing, environment and lifestyles) that are relevant to improving the efficiency and effectiveness of health services and the health of the population.

For this there are four essential prerequisites:

- a national integrated health database that provides a single readily accessible source (bringing together a variety of data on indicators of health and areas related to health) for use at national and subnational levels;
- identification of core indicators and creation of national minimum basic core indicator databases (from above) that can be used for international comparisons;
- a user-friendly, menu-driven system that allows the non-expert (policy-makers, managers) to access and use both the above;
- management training in the use of such systems for improved decision-making.

There are many examples of such efforts at national and international level in Europe today (the WHO HFA indicator database system, the OECD health database, the UK HSI system, the Danish and Swedish national indicator systems, the Finnish STAKES database, the WHO/EU COPERNICUS Care Support project for 11 CCEE, etc). A fundamental principle underlying all these systems is the power to compare relevant data between countries, regions, hospitals, doctors, specific groups of populations, etc.

Some of these efforts (e.g. the WHO/EU COPERNICUS Care Support project) have management training as a key element, although without the other prerequisites such training cannot realize its full potential.

4. EXPECTED STAGES WITHIN EUPHIN-EAST

Two main lines of development are needed for the implementation and realization of the EUPHIN-EAST network:

1. the development of a database (work package 4 and 5, supported by work package 3 of the Technical Annex);
2. building a pilot telecommunication network (work package 6, supported by work package 2) of the Technical Annex.

4.1 Database development

The development of a database requires the following activities to be implemented.

1. *The specification of a national integrated health database that brings together (physically or virtually) health-related data sets from different sectoral databases in each country.* Since this is a prerequisite, and is a national rather than project responsibility, it is inevitable that the designs, structure, database management package, etc. will differ between countries. Country-specific extraction/downloading from this database for activities 2 and 3 below will therefore need to be developed.
2. *The specification of indicators (from 1 above) for national use and user-friendly access, and their dissemination to health professionals at all levels of the health service within the country to aid improved management decisions (e.g. through DPS software adapted for individual country use).* The content will be country-specific but it is expected that choice will be made initially from the HFA indicator set which provides a starting point (work

package 4). Since the 11 CCEE had already implemented this via the COPERNICUS Care Support project (1995–1996), this step is mostly for the remaining 12 NIS of EUPHIN-EAST, for whom a special session was organized (8–9 April 1997) prior to this first Meeting (see below).

3. *The specification of an appropriate (internationally agreed) subset of 1 above that would be loaded on to each country's national EUPHIN-EAST server in a standard format with an appropriate software programme to extract/download from 1 above (work package 5).*

The content (see also section 11 of this report) of the national EUPHIN-EAST database will initially comprise data sets composed of HFA indicator (list 1), mortality and population data.

The information collected from the user questionnaire (work package 3) will help to determine the content, user requirements and administrative issues such as the location of the national server (see also section 9.2 of this report).

4.2 Building a pilot telecommunication network

Parallel to the development of the database, the pilot network will be developed and tested (work package 6). This is being done in a custom-built laboratory in the Regional Office to test and demonstrate that the pilot network will link all the countries of EUPHIN-EAST (see also sections 8 and 12 of this report). The information collected from the Technical Questionnaire (work package 2) will help to establish an inventory of the current telematics infrastructures in all countries, including the type of hardware (computers) and operating system environment available (see also sections 9 and 10 of this report).

4.3 Special session for the NIS

Since 11 CCEE have already developed national HSI systems, a special session was organized for the participants from the remaining NIS prior to the main Meeting (8–9 April 1997). During this session the following three main issues were reviewed and discussed:

- the present situation in routine data collection and processing procedures and related problems in countries;
- presentation of the results and experience in developing national HSI packages and related training which had taken place in 11 CCEE in the framework of the WHO/EU COPERNICUS Care Support project;
- proposals, discussions and agreements on how to catch up with the CCEE in developing national HSI packages.

Participants were given ready-made adaptations of the DPS software. All participants expressed willingness to develop appropriate national HSI packages as soon as feasible.

5. THE CRUCIAL ROLE OF TELEMATICS

The historical lack of greater use of existing data at international, national and local level was also due to the facts that:

- the sectoral databases were large and the contents quite naturally focused on the particular needs of their primary constituencies;
- these sectoral databases were generally located on large central mainframes;

- the telematics and computer technology was not sufficiently developed to enable ready and quick access and feedback to users to enhance comparisons.

As computer and information technology has developed and storage capacity increased, the first tendency has been to centralize more and more data. This can lead to a self-defeating overload situation, with users being so overwhelmed by the vast amounts of data that they may find it difficult to select those data most relevant to their needs. The key features for successful use of telematics in this case, therefore, lie in:

- a recognition that not all the users want all the data all the time; this points to a system of distributed databases or perhaps to a certain combination of centralized and distributed databases, hosted at the sites of the sectors concerned and the national and international institutions and agencies, which can then be telematically linked so that users can access the data they need when they need them;
- the development of user-friendly software interfaces that meet users' needs to manipulate, access, select and display information in a manner that facilitates **comparisons**;
- technical solutions that retain the concept of distributed databases but deliver reasonable performance in terms of access times (e.g. through replication via a central server);
- flexibility and choice in the telecommunication network for communicating and access;
- low operating costs (and solutions therein) to ensure that these are not a barrier to eventual continued access and use.

Current rapid advances in informatics mean that all these features can exist and meet the overall objective of providing a seamless system from the point of delivery of data to their eventual use for public health policy, management and decision support.

6. EXPECTED EUPHIN-EAST DELIVERABLES

EUPHIN-EAST is expected to deliver something between the minimum and maximum features listed below:

The minimum deliverables are:

- a feasibility report on the telematics infrastructure in the CCEE/NIS;
- a report on user requirements for databases;
- a national health indicator database with software in the form of national HSI packages for all 12 NIS;
- agreed core indicators and data sets (building on the health for all indicators and the mortality data already regularly reported to WHO);
- application software for pilot telenetworking;
- a follow-up plan for the realization of a telematic network (EUPHIN-EAST) that interconnects all 23 CCEE/NIS and interlinks them to the EU IDA Health Information Exchange and Monitoring System (HIEMS) network.

The maximum deliverables are:

- all the above; plus:
- six countries having distributed databases connected to the telenetwork;
- core data sets available from all countries.

7. EUROPEAN UNION FUNDING OF EUPHIN-EAST

The European Commission was represented by Dr Ilias Iakovidis of DGXIII (Telecommunications, Information Market and Exploitation of Research), the project officer of EUPHIN-EAST, and Ms Sandra Callagan from DGIII (Industry), responsible for the development of the EU IDA programme. Ms Callagan was also representing DGV (Public Health) which, together with DGIII, was responsible for the EU IDA/HIEMS. They explained the role and functions of the Commission as these relate to the EUPHIN-EAST project and the procedure and opportunities for countries and participants to apply for projects for research and development funding from the EC.

7.1 The fourth Framework Programme for Research and Development

The EC fourth Framework Programme for Research and Development was described in some detail. Within this, and in the context of scientific and technological cooperation with the CCCE and the NIS, the European Commission was inviting proposals for joint projects and concerted action which would enhance, integrate and validate new or existing telematics applications and value-added services that aimed to capture, process and exchange patient and health care data for monitoring and for assessing cost-effectiveness and quality of health care delivery. These data would then be available to relevant regional and national bodies in the CCEE and NIS and to international organizations for improving the planning and operation of health care delivery, for purposes of performance comparison, and for promotion of standardized European activities.

EUPHIN-EAST is funded by this programme. There is great competition for these funds: for instance, the 1996 COPERNICUS project was one of 261 projects selected from among 653 proposals. A successful project therefore needs to be well specified, with good project management and clearly defined stages and deliverables to ensure continued funding. An overview of the projects currently being funded (in so far as they relate to EUPHIN-EAST) was provided to enable participants to make contact as appropriate.

7.2 The EU IDA programme

The EU IDA programme aims at the implementation of efficient solutions for the interchange of data among the member states, the Commission and the institutions of the European Union via trans-European electronic data transmission networks, in support of the Single Market. The IDA programme (European Commission, DGIII) is intended for the representatives of all public interest sectors: agriculture, customs and indirect taxation, statistics, fishing, domestic market, employment, social affairs, public health, environment, competition, etc.

Implementation of the IDA (public health system) started from March 1996. The network will initially be set up to provide an early warning system (for the exchange of information related to communicable diseases) and a health monitoring and information system (for the exchange of health and disease-related information). These systems will require the refinement of existing user requirements and provision of telematics services for messaging, file transfer, database access and directory for the 15 EU member states, the European Commission and relevant international organizations. Security services offering confidentiality, integrity, authentication mechanisms, necessary training and documentation, support and maintenance will also be provided.

The objectives of the Health Surveillance System for Communicable Diseases (HSSCD) are to enable exchange of information for:

- early warning of communicable disease outbreaks;
- coordination of responses to such outbreaks where appropriate;
- identification of sources of outbreaks by post-hoc analysis of case reports from different authorities;
- monitoring of epidemics by regular reporting from each authority to a nominated coordinator who broadcasts aggregated data to all participants; and
- policy-making and administrative tasks.

The objective of the Health Information Exchange and Monitoring System (HIEMS) is to connect EU ministries of health, the EC and international organizations through a common telematics service. When fully operational in 1999, it will enable the:

- epidemiological analysis of information from disease surveillance and other health sources;
- monitoring of developments in health status throughout the Community;
- planning, monitoring and evaluation of Community programmes and actions; and
- provision of comparative indicators to member states to monitor and develop their national policies.

HIEMS had direct relevance to EUPHIN-EAST, and since WHO is represented on its Project Steering Committee, any problems with inter-operability and eventual interconnection (a goal of both HIEMS and EUPHIN-EAST) should be minimized. The next phase of the IDA programme is expected to be the gradual extension of IDA networks by opening them up to the participation of CCEE.

To date, lessons learnt in the implementation of HIEMS and IDA generally emphasize that:

- critical issues are not technical but legal (privacy, security, confidentiality), cultural and organizational;
- coordination between organizations is critical;
- user acceptance drives change (awareness of the benefits of new ways of working, with top management support).

8. DEVELOPMENT OF THE EUPHIN-EAST NETWORK

Mr Jens Hummelose and Mr Ole Mogensen, who had been specifically recruited by WHO to develop and implement the telematics solution for the EUPHIN-EAST network, described the design and main stages of the network.

The network will be designed to support any level of communication from entry level (with off-line validation of data and disc exchange) to complex level (with on-line data validation, live updates, and live queries). The complex level will require powerful server hardware: minimum Pentium PC with 32 megabytes of memory.

The development phase will be in a test laboratory in Copenhagen. However, the test laboratory will contain a physical network that will link six separate nodes and different software databases. The network will ensure live tests to be made and real performance judged as some of the nodes will be linked via Denmark and France Internet hosts.

The network will draw heavily on the technical and functional questionnaires distributed at the Meeting, together with the views expressed by participants. This will allow the network to support the existing IT infrastructure and hardware.

9. TECHNICAL AND FUNCTIONAL SURVEYS

The technical and functional surveys had been designed and the questionnaires distributed prior to the Meeting. Nearly half the countries had replied to both questionnaires; representatives of those that had not replied completed the questionnaires during the Meeting. The technical survey addressed issues surrounding telematics. The functional survey addressed issues surrounding the collection and contents of the statistical data and user requirements in making use of the data.

9.1 Technical survey

Mr André Vandenberghe of Cap Gemini described the reasoning behind the technical survey. The questions in it and surrounding issues were discussed in depth.

Each country had been asked about issues related to telematics, such as:

- feasibility of networking
- specification of servers
- modem and internet connections
- services used (e.g. e-mail, web-sites).

Mr Vandenberghe presented the preliminary results from those countries that had replied to the questionnaire. This technical survey of computers, IT communications, local area networks and software would be used to help develop a compatible network and database for EUPHIN-EAST.

Participants discussed how best to keep countries in touch with progress on the technical aspects of EUPHIN-EAST and whether the internet could help. They agreed with a proposal to draw up a directory of e-mail addresses.

9.2 Functional survey

Mr Martin Lund of the Danish Ministry of Health described the reasoning behind the functional survey. The survey had been conducted by questionnaire and covered the following areas:

administrative issues

- location
- difficulty in obtaining data
- potential difficulties in starting and maintaining the database (trained staff, software, finance, etc.)

contents

- annually reported to WHO (List 1 data of health for all indicators and mortality data)
- difficulty of disaggregating data (regional)
- possible frequency of updated data
- when yearly data are available
- coding standards
- how far back into the past the data are available

institutional questions

- which institutions should have access

user requirements

- what functions are required (e.g. graphics).

Mr Lund presented the preliminary results from those countries that had replied to the questionnaire and this was followed by a discussion and clarification of questions. Participants from all those countries that had not completed their questionnaires either did so following that session or promised to send their replies on return to their countries.

10. TELEMATICS AND RELATED DEVELOPMENTS IN SELECTED CCEE/NIS

Representatives of Armenia, the Czech Republic, Kyrgyzstan, the Russian Federation, Slovakia, Slovenia and Ukraine, gave presentations detailing the types of data transferred, the institutions involved, IT Communications, servers and software used. These presentations demonstrated, through practical applications, the substantial developments in telematics that were already taking place in the CCEE/NIS and showed that there was considerable potential for extending the pilot network from the six countries initially envisaged in the project. A full assessment would be made once the questionnaires had been analysed.

11. DEFINITION OF CORE INDICATORS AND DATA SETS

Dr Remis Prokhorskas led the discussion on the selection and definition of core indicators and data sets required for the EUPHIN-EAST network. The WHO List 1 has already been completed and returned by countries to WHO and consists of 131 indicators. The health for all strategy used the List 1 with mortality and population statistics to create 624 indicators. The COPERNICUS project combines health for all statistics with further health service indicators not included in List 1 to bring together 677 indicators.

Dr Prokhorskas explained the coding structure required for compatible data. In the pilot phase of the EUPHIN-EAST network, data will be checked both in the originating country and by WHO. The long-term aim is for data validation to be done locally.

12. DATABASE FUNCTIONALITY

Mr Mogensen and Mr Hummelmoose explained the functionality required for the database linked to the EUPHIN-EAST network.

The database would be made as accessible as possible by using the most common telecom methods available and international open database interface and data representation standards. Access must be user-friendly, for example, the database should contain both data and data descriptions, which will mean supporting multiple languages. Firewall technology can help to improve security between the national servers on the EUPHIN-EAST network and the integrated (national) databases.

13. SUMMARY OF IMMEDIATE TASKS

The following recommendations were finalized by Mr Nanda and Dr Prokhorskas and agreed by participants. Each participant should:

- include the establishment of a national health database (NHDB) in the official workplan of his/her institute;
- secure agreement within his/her institute on the initial national core set of data for the NHDB;
- contact other sectors and get agreement on the regular supply of defined data sets for inclusion in the NHDB;
- select technical options for implementation of the NHDB with the potential for further upgrading;
- start setting up the NHDB;
- review data preparation procedures for loading onto the NHDB and ensure exchange files are in strictly standard form;
- develop data checking procedures for mortality and List 1 data to ensure that data provided to the national servers/WHO server for international exchange are free of errors;
- create a data dictionary with national definitions for at least the core set of mortality and List 1; this is a major job and it was therefore suggested that a start should be made with those data sets that would present the fewest difficulties (e.g. demography);
- test the above procedures in preparing 1997 data for WHO, so that procedures are error-free in 1998 when they will be implemented for EUPHIN-EAST;
- ensure the connection to Internet;
- develop and distribute the national HSI package and organize appropriate training for health managers (this recommendation is only applicable to countries where HSI packages have not yet been produced, i.e. in general, to the 12 countries that did not participate in the COPERNICUS Care Support project).

Annex 1

PARTICIPANTS

Armenia

Dr Laura Danelyan
Deputy Director, Chief, Department of Medical-Sanitary Information, National Health Information Centre, Ministry of Health, Yerevan

Dr Pertsh Gatrdjyan
Deputy Director, Chief, Department of Computer Technologies and Communication, National Health Information Analysis Centre, Ministry of Health, Yerevan

Azerbaijan

Dr Fariza Akhundova
Senior expert, Department of Medical Statistics, Ministry of Health, Baku

Dr Azer Magerramov
Leading specialist for information system, Ministry of Health, Baku

Belarus

Dr Oleg Levshukov
Belarus Centre for New Medical Technologies, Minsk

Professor Nikolai Piliptsevich
Director, Belarus Centre for New Medical Technologies, Minsk

Bulgaria

Dr P.D. Amudjev
National Centre of Health Information, Sofia

Dr Ivan Charankov
Bulgarian Telecommunication Company, c/o Dr P.D. Amudjev, National Centre of Health Information, Sofia

Czech Republic

Dr Jiri Holub
Institute of Health Information and Statistics of the Czech Republic, Prague

Dr Zuzana Kamberska
Institute of Health Information and Statistics of the Czech Republic, Prague

Ms Dana Masatova
Institute of Health Information and Statistics of the Czech Republic, Prague

Estonia

Mr Marko Aid
Informatics Department, Ministry of Social Affairs, Tallinn

Dr Reet Malbe
Director, Medical Statistics Bureau, Tallinn

Georgia

Ms Mzia Arevadze
Centre of Medical Statistics and Information, Ministry of Health, Tbilisi

Ms Olga Idzikovskaya

Deputy Manager, Centre of Medical Statistics and Information, Ministry of Health, Tbilisi

Hungary

Mr Jozsef Berta

National Information Centre for Health Care, Ministry of Welfare, Szekszard

Dr Gyula Kincses

National Information Centre for Health Care, Department of Health Policy, Ministry of Welfare,
Budapest

Kazakhstan

Mr T.K. Nugumanov

Director, AO Medinform, Ministry of Health, Almaty

Dr G.S. Sabyrov

Head, Department of Medical Statistics, Ministry of Health, Almaty

Kyrgyzstan

Dr L.K. Murzakarimova

Director, Health Information Centre, Ministry of Health, Bishkek

Dr Ludmila Torgasheva

Head, Demography Statistics and Population Inventory, National Statistical Committee, Bishkek

Latvia

Mrs Velta Erna Lace

Health Statistics, Information and Medical Technology Centre, Medical Statistics Bureau, Riga

Dr R. Psavke

Latvian Centre of Statistics and Medical Equipment, Riga

Lithuania

Dr Aldona Gaizauskiene

Director, Lithuanian Health Information Centre, Vilnius

Mr Algirdas Vyshniauskas

Lithuanian Health Information Centre, Vilnius

Poland

Mr K. Chlopek

Office of Systematic Transformation of the Health System, Ministry of Health and Social Welfare,
Warsaw

Dr Pawel Gorynski

Head, Department of Medical Statistics, National Institute of Hygiene, Warsaw

Republic of Moldova

Dr Vorfolomei Calmic

Vice-Director, National Centre of Hygiene and Epidemiology, Chisinau

Dr G.S. Rusu

Director, Centre of Medical Statistics and Documentation, Ministry of Health, Chisinau

Romania

Dr Liviu Botezat

Chief, National Health Database Department, National Centre for Health Statistics, Ministry of
Health, Bucharest

Dr Dan Ursuleanu
Deputy Director, National Centre for Health Statistics, Ministry of Health, Bucharest

Russian Federation

Dr V.P. Burmistrov
Director, Main Computing Centre, Ministry of Health, Moscow

Dr E.I. Pogorelova
Head, Statistical Department, Ministry of Health, Moscow

Slovakia

Dr Miroslav Bronis
Director, National Centre for Health Promotion, Bratislava

Mr Jan Ondrejka
Institute of Health Information and Statistics, Bratislava

Dr Mikulás Popper
National Centre for Health Promotion, Bratislava

Dr Imrich Steliar
Institute of Health Information and Statistics, Bratislava

Dr Milan Tatara
Institute of Preventive and Clinical Medicine, Bratislava

Slovenia

Mr Marko Ambroz
Government Centre for Informatics, Ljubljana

Mr Jure Misjak
Institute of Public Health of the Republic of Slovenia, Ljubljana

Tajikistan

Ms O.Y. Blagoveshenskaja
Centre of Medical Statistics and Information, Ministry of Health, Dushanbe

Dr S.R. Saifuddinov
Director, Centre of Medical Statistics and Information, Ministry of Health, Dushanbe

Ukraine

Dr I. Barilyak
Director, Ukrainian Scientific Centre of Hygiene, Ministry of Health, Kiev

Mr Yuri Bosykh
LAN administrator, Information Resources Centre, Ukrainian Scientific Centre of Hygiene, Ministry of Health, Kiev

Uzbekistan

Ms Reiganat Makhmudova
Deputy Director, GVC GosKom Prognoz Stat, Taskhkent

Ms R.G. Mukhamediarova
Ministry of Health, Tashkent

Other Participants

European Commission

Ms Sandra Callagan
DG III, Brussels, Belgium

Dr Ilias Iakovidis
DG XIII, Brussels, Belgium

Project Management Team and other participants

Mr Roy Hart
NHS Executive, Economic and Operational Research Division, Leeds, United Kingdom

Mr Jens Hummelose
GLANT Resources, Frederiksberg, Denmark

Mr Martin Lund
Economics and Statistics Division, Ministry of Health, Copenhagen, Denmark

Mr Ole Bech Mogensen
Hyldekær 23, DK-2765 Smørum, Denmark

Mr André Vandenberghe
CAP GEMINI, Diegem, Belgium

WHO Regional Office for Europe

Mr Arun Nanda
Regional Adviser, Epidemiology, Statistics and Health Information

Dr R. Prokhorskas
Statistician, Epidemiology, Statistics and Health Information