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# Data Management for Evidence-based Decision-making

*Report of an Intercountry Workshop  
Bangkok, Thailand, 3-7 December 2001*

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Regional Office for South-East Asia  
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## 1. BACKGROUND

For the last several years, WHO Regional Office for South-East Asia (WHO/SEARO) has undertaken many activities to strengthen health information systems and medical records in the countries of the Region and in turn contribute to improving morbidity and mortality statistics. Many intercountry training courses have been conducted on medical records/health information management (MR/HIM) and ICD-10 for medical record staff of the Member Countries.

On assessing the above activities for their relevance and applicability in the Region, it was noted that in some countries of the Region, transformation of data into information for evidence-based decision-making still needs improvement. There are a number of common constraints in many countries of the Region in terms of data collection and transmission, data presentation and analysis, and use of health information for decision-making at different levels of the health system. These are mainly due to inadequate training of staff in data presentation, analysis and its use, and lack of feedback mechanisms. To that effect, transforming the data into information for effective use is of utmost importance in the context of health systems performance assessment activities in countries of the Region.

In this context, an intercountry workshop on data management for evidence-based decision-making was held at the Century Park Hotel, Bangkok, Thailand from 3 to 7 December 2001. The main purpose of the workshop was to promote critical thinking in application of data and analytical skill in data management for evidence-based decision-making, as well as utilization of data through improved data management. This entails the following specific objectives: (i) to review the application of various public health indicators used in national annual health reports; (ii) to demonstrate and promote use of various techniques for data presentation and analysis, and (iii) to promote utilization of information for evidence-based decision-making.

Thirty-five participants from nine Member Countries of the Region, three staff members from the WHO country offices and six observers from Thailand

attended the workshop. Most of the national participants were middle or senior level officials from national health information systems (See Annex 1 for list of participants).

## **2. INAUGURAL SESSION**

Mr Richard Kalina, Acting WHO Representative to Thailand, welcomed the participants on behalf of Dr Bjorn Melgaard, WHO Representative to Thailand. He said that reliable and timely health information is a critical component of health system development. Collection of relevant data and proper analysis to provide necessary evidence for decision-making is equally important. Without proper analysis, an accurate assessment of the extent of development and quality of performance of health systems at national and sub-national levels may not be feasible, leading to improper sub-national planning. In order to properly analyse data at different levels of the health system, a continual process of capacity building activities must be conducted for health professionals working in health information systems as well as in other national health programmes (See Annex 2 for full text of the speech).

Dr Narong Kasitipradith, Assistant Permanent Secretary on Health Information, Ministry of Public Health, Thailand, inaugurated the workshop. In his inaugural speech, he said that every country faces challenges in building an accessible and affordable quality health care system for its people. WHO's role in focusing on health information systems, particularly transformation of data into information for evidence-based decision-making will enable Member Countries to share experiences in common areas of health indicators used in national health system performance assessment activities. He also mentioned that the availability of accurate and timely data is essential to monitor the process and evaluate the impact of national health development activities. Information is well accepted as an important tool for management of all levels of the health system, starting from implementers, administrators to policy-makers (See Annex 3 for full text of the speech).

## **3. TECHNICAL SESSION**

Dr Than Sein (WHO/SEARO) mentioned the importance of the health information system in contributing to the decision-making process at all levels

of the health system and also in supporting health systems performance assessment activities in the countries. He outlined the future directions and strategies of WHO in promoting and improving the performance of health information systems in the countries of the Region. He hoped that the workshop would be very useful for further enhancing the capacity of the professionals working in health information system.

Dr Myint Htwe (WHO/SEARO), in his introductory remarks, mentioned about the objectives and *modus operandi* of the workshop and topics to be covered during the workshop (See Annex 4 for working schedule). He said that all discussions would be geared towards practical utilization of data for evidence-based decision-making and issues related to data interpretation. Theoretical issues would not be emphasized. However, theoretical and technical rationality required for appropriate interpretation would be dealt with thoroughly. He also highlighted the interactive nature of the workshop and its link to the short and long-term expected outcome of the workshop, and said that similar type of national workshops would be conducted at the country level in the Region, taking into consideration the experience of this workshop. This would help in building up the critical thinking and analytical skill on data management by health professionals working in health information systems. It would definitely enhance the use of data and information for evidence-based decision-making. He also informed that each technical session would be chaired by senior participants attending this workshop, in rotation, in order to help stimulate a sense of ownership and intensified participation and also obtaining dynamic discussion (See annex 5 for chairpersons for different technical sessions).

All the presentations in the workshop were followed by clarifications and discussions with the participants. The workshop was very interactive and dynamic and many technical papers were distributed in the workshop (See Annex 6 for list of working documents/papers).

### **3.1 Quick Review of Health Information Systems in the Region**

Dr Myint Htwe discussed the status of health information systems (HISs) in the Region, in terms of issues related to data collectors, data collection forms, data flow pattern, data analysis, information feedback and use of data and information by decision-makers and programme managers and the likely

solutions to improve the situation. He then explained in detail how to do a quick review of strengths and weaknesses of the existing HIS to improve data quality by referring to the checklist questions which cover the following domains, viz.: (i) policy and general issues; (ii) data collection; (iii) data transmission; (iv) data presentation; (v) utilization of data/information, and (vi) role of HIS programme managers. He then explained in detail the line of thought to arrive at appropriate strategies to improve HIS. He concluded the presentation by formulating exemplary strategies and activities to improve the performance of the HIS in the country. The participants also gave specific examples based on different country experiences.

### **3.2 Routine Data Collection**

Dr Virasakdi Chongsuvivatwong, WHO Temporary Adviser for the workshop, presented cost perspectives, feasibility perspectives and utility perspectives of data collection, strategies that could be used for collection of routine data, and strengths and weaknesses of data generated from routine health services. He also mentioned different data collection methods and data-related issues on registries, surveillance systems and surveys. Technical issues raised by the participants were clarified by the presenter.

He elaborated upon the relationship between data and information, database *versus* data sets, primary *versus* secondary data. He also discussed the general components of a registry system citing examples from cancer and trauma registries.

### **3.3 Interpretation of Morbidity and Mortality Data and Data Interpretation Pattern**

Dr Myint Htwe in his presentation, pointed out the factors to be considered before interpreting any morbidity and mortality data in the context of issues of importance in sources of data, delineation of catchment areas, number of institutions reporting, number of months the institutions are reporting, trend and rate of change of morbidity and mortality rates, comparative reliability of data coming from health centre or general hospital or specialist hospital, survey data *versus* routine data and data disaggregation. He also explained the factors to be considered in examining and interpreting mortality rates by citing specific examples. He further elaborated different types, as well as selection issues of denominators and also limitation of mortality data. Technical issues raised by the participants were clarified by the presenter.

The second part of the presentation dealt with data interpretation pattern in which he mentioned that the same piece of information (150 dengue patients were admitted to a hospital in district 'A' from 1 to 15 May 2001) could be interpreted from different perspectives. For example, the physician in charge of a ward in the hospital will consider data interpretation from treatment perspectives, the medical superintendent of the hospital will consider it from administrative and logistic perspectives, the epidemiologist will consider it in the context of epidemiological triad and causal determinants, the divisional director at the division or regional level will consider it from administrative and policy formulation point of views. He discussed each of these perspectives in-depth. The session was very interactive. The participants expressed the usefulness of this particular session for improving critical thinking in data interpretation.

### **3.4 Health Indicators: Generic Principles for Analysis and Interpretation**

Dr Mon Mon, WHO Temporary Adviser for the workshop, in her presentation elaborated in detail the use of indicators in planning, implementation and evaluation stages in running the health programmes. She discussed absolute and relative indicators and indices. She explained the different systems of classification of indicators and their use for different health programmes, such as immunization, malaria prevention and control, HIV/AIDS control, and prevention of malnutrition and vitamin A deficiency. She mentioned four broad categories of indicators, viz., health policy indicators, social and economic indicators related to health, indicators for provision of health care and health status indicators. She also discussed issues related to interpreting and analysing indicators from the perspective of accuracy (sensitivity, specificity, relevance), quality (reliability, validity), and use of indicators in the decision-making process. The participants also discussed and shared experiences on actual scenarios seen in their countries.

### **3.5 Analysis of Routine HIS Data and Estimation of Data Quality**

Dr Mon Mon explained the use of data in patient/client management, health unit management, and health system management at different levels of the system, i.e. primary, secondary and tertiary levels. She touched on different types of routine data collection methods by citing specific examples. She also

explained in detail how data is transformed into information for decision-making process. She gave specific examples for census and vital statistics, hospital statistics, disease registry, population-based community data, and public health disease surveillance data.

Dr Myint Htwe then explained how to estimate data quality in terms of what type of data were collected, where were the data collected, how were the data collected, why were the data collected, when were the data collected and who collected the data. He mentioned that in analysing data arising out of routine health information system, the following basic questions need to be asked about the level of performance of HIS in terms of:

- Are the data representing overall country, region, province or district?
- What is the number of reporting institutions sending reports to HIS?
- What is the frequency at which the institution is reporting to HIS?
- Who fill in the report and how the data are transferred to the data master sheet or information collecting framework or format?
- What is the age of data *versus* nature of disease?
- What are the denominators used for computing a specific indicator?
- Are there differences in reporting format, frequency of reporting, and level and capability of data collectors?
- What are the capacity building activities for data collectors, data entry staff and those who analyse it?
- Overall, to what extent the data are actually used for local health planning, regional health planning, or country health planning?
- What is the degree of involvement of data collectors and HIS people working at the peripheral level in local and regional health planning?
- What is the role of central level HIS programme managers in specific health programmes and national health planning?
- How are medical records kept in the medical record unit of the hospital?
- How and who extracted the data from the medical records?
- What is the overall framework of data transmission system and how are they linked with HIS subsystems, such as vital registration system, sentinel disease surveillance system, and specific disease control data system?

Methods of critical analysis of different types of graphs and tables, commonly shown in national annual reports, by citing several specific examples taken from annual reports from Maldives and Myanmar were discussed in detail. This was a very interactive session where several queries and clarifications were responded by the presenter. The participants were of the view that this type of session should be conducted on a regular basis in the countries in order to improve critical thinking in data interpretation.

### **3.6 Data Interpretation for Use in Planning Health Programmes**

Dr Myint Htwe presented and explained in detail three scenarios with regard to data interpretation for use in planning health programmes, on interministerial planning, hospital manpower planning and upgradation of hospitals. Scenario one was *"1,700 deaths from car accidents in New Delhi in year 2000"*. Different types of additional information to be obtained were explored by referring to questions related to agent, host, environment, time, place and person in order that the information could be used for appropriate decision making. Scenario two was *"Planning human resource development in a particular hospital based on actual situations happening in many countries of the Region"*. The different types of information that should be generated before assigning more doctors and procuring medicines to a hospital were explained. Scenario three was on *"Types of questions to be asked and information that should be obtained in hospital upgradation"*. There was active participation from the participants based on their vast experience and this topic was found to be useful in generating and stimulating critical thinking.

### **3.7 Group Exercise: Data Management in Support of Health Planning**

Dr Myint Htwe explained about the two group exercises on how to manage data in support of health planning. The first exercise was on how to assess whether a hospital is performing at an acceptable standard in terms of hospital administration, functioning of medical record unit, treatment of patients, nursing care of patients, procurement of supplies and equipment, performance of emergency departments of the hospital and laboratory services. The second exercise was related to a scenario in which a new team leader on malaria control was assigned to one region. The team leader was

informed that the number of malaria cases in the region had dramatically increased during the last three years. The group discussed the activities that needed to be carried out from the perspective of data management in order to depict the true scenario of malaria in that region.

The purpose of the group work was to stimulate critical thinking and improving analytical skills in analysing the problem and also to discuss the issues and steps to be considered in handling the problem. The group members were of varied backgrounds and experiences and thus a particular issue or problem was seen from different perspectives. This really enriched the thought process and paved a way to critical and collective thinking. When the four group works' outputs were presented, discussions were very lively and highly technical. Dr Myint Htwe and Dr Virasakdi replied to the queries and ironed out many technical issues. The participants were of the opinion that such type of analytical process and group work should be done as part of routine activities in running the health information systems in the countries. This would also create the importance of data and sense of ownership of data generated by the system.

The detailed output of the four group work (available in GPE Unit of WHO/SEARO) will be used in similar type of future workshops, which may be conducted in countries of the Region.

### **3.8 Life Table Construction and Computation of Healthy Life Expectancy**

In this session, first, Dr Virasakdi described the use of various formats of life table with examples and then Dr Nihal Singh (WHO/SEARO) introduced life table concepts and its probabilistic base for construction of national life tables. He explained symbols, functions, and formulae used in computation of each column of the table, and standard error of the estimate of life expectancy. He demonstrated how to incorporate incidence of disability by age group and by severity class and severity weight into the life table to finally compute Health Adjusted Life Expectancy (HALE). Technical clarifications by the participants were also explained by the presenter.

### **3.9 DALY and its Computation (Burden of Disease)**

Dr Virasakdi explained the step by step calculation of the Disability-Adjusted Life Years (DALYs) lost by a patient who died at a certain age with

asymptomatic HIV for five years and full-blown AIDS for two more years, followed by discussions.

Dr Nihal Singh, after briefly describing the history of development of DALYs concept and practice, explained how this single measure of population health captured both mortality and morbidity which until recently had been separately reported through multiple indicators. He described the mathematical basis for the formulae used for computation of DALYs and a quick run down on the derivation to arrive at the final form of the formulae used. He demonstrated the application of the formulae in EXCEL worksheets and computation of DALYs by examples.

### **3.10 Graphical Presentation**

Dr Virasakdi explained different types of graphical presentations, including area graph and radar graph, giving specific practical examples. Dr Mon Mon explained the construction and use of stem-and-leaf-plot and box-and-whisker plot. Dr Myint Htwe explained the underlying principles and characteristics of logarithmic scales, construction, application and interpretation of logarithmic scales. He cited specific examples for explaining the use of logarithmic scale by depicting various health scenarios from the countries.

### **3.11 Computation and Interpretation of Seasonal Indices**

Dr Myint Htwe discussed the basic principles used in analysis of time series and classification of time series movement, in the context of data commonly generated by the routine health information system. He mentioned different methods to measure secular trend. He explained in detail the computation and interpretation of seasonal indices using actual examples from malaria control programme. He also discussed on the measurement of seasonal variation by using simple average method, ratio to trend method, ratio to moving average method and link relative method. He cited specific examples while discussing these methods. The participants appreciated its use in depicting the situation of seasonal diseases.

### **3.12 Direct and Indirect Methods of Standardization of Rates**

In this session, Dr Virasakdi explained the computation, interpretation and use of direct and indirect method of standardization of rates by citing specific examples.

### **3.13 Searching for Evidence-Based Information**

Dr Myint Htwe explained in detail the following methods related to searching evidence-based information (i) hierarchy of evidence; (ii) systematic reviews; (iii) critiquing a meta-analysis; (iv) determining truth from interviews; (v) decision analysis; (vi) matrices; (vii) cause and effect diagram; (viii) control charts; (ix) Pareto diagram, and (x) work flow diagram. He explained in detail the definition, rationale for using the particular method, basic structure of the method, methodological issues including advantages and disadvantages of using these methods in searching and verifying data for use in health planning and programme evaluation. He said that these methods are very useful for cross-referencing different types of data available and also to explore new data and information to assess the performance of various health system activities. He mentioned that it would be an advantage if every hospital administrator or hospital director familiar with these methods which are simple, yet very useful in getting additional information for appropriate evidence based decision-making. He cited the use of these methods by referring to specific practical examples commonly encountered in running the health care programmes.

### **3.14 Hospital Statistical Indicators and its Use in Planning and Management of Hospitals**

Dr Myint Htwe discussed the use of hospital statistics in hospital management and planning with practical examples on comparison of the present and past performance of the hospital, guidance for further planning and development of a hospital, using specific indicators commonly available at the medical record department of the hospital, appraisal of the work performed by hospital staff and hospital accreditation and eliciting various types of general administrative information for a hospital administrator. He also discussed the interpretation of hospital utilization indicators.

### **3.15 Ecological Fallacies in Data Interpretation**

Dr Myint Htwe discussed various practical issues related to ecological analysis and ecological fallacy. He said that ecological fallacy is an important issue to be considered when making interpretation on group data. He mentioned that ecological correlation is a correlation in which units correlated are populations rather than individuals. Correlations found in this manner may not hold true for the individual members of these populations. He then made the graphical explanation on the principle of ecological fallacy. Dr Virasakdi also supplemented the presentation and caveats in ecological fallacy and its interpretation.

### **3.16 Biases in Data Management**

Dr Myint Htwe briefly explained the catalogue of biases in reading the literature; specifying and selecting the study sample; executing the experimental manoeuvre; analysing and interpreting the data, and in publishing the results. He said that these biases should be taken into consideration, as appropriate, when interpreting data for evidence-based decision-making.

### **3.17 Issues Related to Reliability, Internal and External Validity and Guidelines to Increase the Validity of Survey Instruments**

Dr Myint Htwe briefly discussed the issues related to reliability, internal and external validity and methods to increase the validity of survey instruments. He mentioned that validity and reliability issues are very important for any health information system. HIS programme managers should try to improve this aspect to the extent possible. He also mentioned the strategies for controlling measurement errors and factors jeopardizing internal and external validity.

### **3.18 Critical Analysis of the Township Health Profile**

Dr Myint Htwe made a presentation on how to make a critical analysis of a township health profile in terms of uniformity and clarify of the format;

consistency of data shown; definition of parameters; denominator issues; administrative and logistic issues; units applied, and how to transform data into information so that it could be utilized by decision-makers at the township level either for planning or modification of the existing health programme activities. The participants were of the opinion that this session was extremely useful for critical appraisal of any health profile in any area.

#### **4. CLOSING SESSION**

During the closing session, many participants appreciated the interactive nature of the training workshop which made it very educational and gave new insight into the performance, activities and future directions of HIS. Participants also felt the workshop had broadened their thinking horizon, and such type of workshops should be conducted at the national level in the context of the individual requirements of the respective country. They thanked the WHO/SEARO team and temporary advisers for the organization and excellent presentations in the workshop. They also said that the handouts, distributed during the workshop will serve as good resource materials for the conduct of national or sub-national level training workshops on data management for evidence-based decision-making.

On behalf of the Ministry of Public Health, Thailand, Dr Preeda Taarak thanked WHO/SEARO for conducting this intercountry workshop in Thailand. He also emphasized the need for networks and sharing of experiences in improving the performance of health information systems in the countries.

Dr Myint Htwe thanked the participants for sharing their views and ideas in many of the technical topics presented and discussed in the workshop. He also thanked the two temporary advisers for their technical contribution to the workshop. He then appreciated the active participation of the participants in all the sessions and hoped that the workshop would improve the critical thinking and analytical skills for data management so that the data generated by the health information system would become very useful for planning health programmes in the country.

## Annex 1

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## **Annex 2**

### **ADDRESS BY MR RICHARD KALINA Ag. WHO REPRESENTATIVE TO THAILAND**

On behalf of Dr Bjorn Melgaard, WHO Representative to Thailand, who is unable to be with us today, I would like to extend a warm welcome to you all at the inauguration of this important Intercountry Workshop on Data Management for Evidence-Based Decision-Making.

Reliable and timely health information is a critical component in health system development. Collection of relevant data and proper analysis to provide necessary evidence for decision-making is equally important. Without proper analysis, assessment of the extent of development of national health system and its performance at national and sub-national levels may not be available. This can lead to improper sub-national planning

In order to do proper analyse data at different levels of the health care system, a continual process of capacity building activities must be conducted for health professional working in health information systems as well as in other national health programmes.

On assessing the overall performance of health information systems in the Member Countries of the WHO South-East Asia Region, it was noted that in some countries, transformation of data into information for evidence-based decision-making still needs improvement. There are a number of constraints common in many countries of the Region in terms of data collection and transmission, data presentation and analysis, and use of health information for decision making at different levels of the health system. These are mainly due to inadequate training of staff in data presentation, analysis and its use, and lack of feedback mechanisms.

To that extent, providing timely feedback and transforming data into information for action has been a challenging task but is of utmost importance in the context of health systems performance assessment activities in countries of the Region. This can be achieved only if we develop or inculcate information culture in our ministries of health. This is similar to developing a

research culture, where we have to build slowly, depending on the requirement of the country concerned.

Health planners and policy makers are, increasingly seeing health intelligence, and not merely health data/information as such, as the lifeblood of any health system. It is with this in mind that WHO Regional Office for South-East Asia sought to organize this workshop to discuss best available tools and methods to collect and analyse data. A variety of methodologies, tools, approaches and processes will be discussed and practised over the next 5 days.

The extent of the use of output of the national health information system depends on how the data generated by the system is analysed and used for decision-making. Such analysis need not be done using sophisticated techniques instead it can be done by using simpler techniques which are easily understandable by everyone. This can facilitate a lot in the decision-making process of health policy makers.

It is equally important that we need to strengthen the health information system as well as to make that health information system compact and responsive to the needs of the country. The reason being that it is very expensive to generate data by conducting health surveys. It is feasible to conduct such surveys only for those issues or information which cannot be generated by the health information system.

I am confident that the experience and technical knowledge you gain from this workshop will be useful for future workshops that will be conducted to streamline and improve the data management and critical thinking of health professionals in the national health information systems in each of your countries. I hope that you will be involved as facilitators in your own countries for conducting similar types of workshops to increase the capacity and capability of your national health staff.

I wish you every success in your deliberations and in achieving the objectives of this workshop, as well as a very pleasant stay in Bangkok. Again welcome, and please contact us at the local WHO Office if you require any assistance during your stay in Thailand.

Thank you.

### **Annex 3**

#### **INAUGURAL ADDRESS BY DR NARONG KASITIPRADITH ASSISTANT PERMANENT SECRETARY ON HEALTH INFORMATION MINISTRY OF PUBLIC HEALTH, THAILAND**

On behalf of the Ministry of Public Health of Thailand, it is my privilege and pleasure to welcome all of you to the inaugural session of the Inter-country Workshop on Data Management for Evidence-Based Decision-Making for the countries of WHO South-East Asia Region. It is indeed a pleasure for Thailand to host this important workshop.

Every country faces many challenges in building an accessible and affordable quality healthcare system for their people. We also face different problems and priorities. WHO's role in focusing on health information systems, particularly transformation of data into information for evidence-based decision-making, will enable member countries to share experiences in common areas of health indicators used in national health system performance assessment activities.

The availability of accurate and timely data is essential to monitor the process and evaluate the impact of every nation's health development. At present, it is well accepted that information is an important tool for management of all levels, starting from implementers, administrators and policy makers. It is good to know that the distinguished participants attending this workshop are all involved in health information activities of WHO/SEAR member countries. Your contributions in this workshop would be very useful both for the workshop outcome and also for implementation in your own countries in the near future.

The Government of Thailand is now implementing a "30 Baht Universal Health Care Coverage" scheme with the objective to raise the coverage of health care to all Thai citizens. Therefore, evidence based information and data of Thai people regarding health practices will be a very important tool for

monitoring and evaluating this policy. For Thailand, this area needs to be strengthened at all levels. We hope that this workshop would provide benefit to all the health officers concerned. You should learn various techniques for data analysis and presentation and how to promote the utilization of information for evidence-based decision-making.

Regarding our responsibilities during the workshop, there is no doubt that all of us here realize the challenging tasks ahead of us, and certainly, we are well prepared to exert our utmost efforts in deliberations on every issue of concern to us in the agenda of this workshop. Despite the major problems of the economic downturn, I still have absolute trust in our joint endeavor and determination to move ahead for the improvement of health and quality of life of the people in our respective countries.

This workshop will serve as an excellent forum where health officers and health information experts can impart and exchange their experiences, concepts and views which will significantly contribute to the development of health information systems, including health indicators and methods of transforming data into information.

I am sure that after the conclusion of this Inter-country workshop, all participants will definitely gain much knowledge that would be very useful for their work at home and will also develop proper tools and indicators for active implementation and evaluation. These will be taken by the national health agencies concerned for the improvement and development of overall health to ensure health security for the people of the whole region.

On behalf of the Ministry of Public Health, I would like to express my sincere thanks and appreciation to the organizers for their collaborative efforts in conducting this workshop.

With great pleasure, I now declare open the Inter-country Workshop on Date Management for Evidence-based Decision-making. May I also wish all of you every success in your deliberations.

Thank you.

**Annex 4**

**WORKING SCHEDULE**

Date	Morning Session (0830–1230 hrs)		Afternoon Session (1400-1700 hrs)
Monday, 3 Dec 2001	<p>Registration</p> <p><b>Opening Session</b></p> <ul style="list-style-type: none"> <li>• Address by Ag. WHO Representative to Thailand</li> <li>• Address by Assistant Permanent Secretary, MoPH, Thailand</li> </ul> <p><b>Introductory Session</b></p> <ul style="list-style-type: none"> <li>• Address by Dr Than Sein (WHO/SEARO)</li> <li>• Introductory remarks by Dr Myint Htwe (WHO/SEARO)</li> <li>• Introduction of participants</li> </ul> <p><b>Technical Session</b></p> <ol style="list-style-type: none"> <li>1. Quick review of HIS in the Region in the context of improving data quality for EBDM. (Dr Myint Htwe)</li> </ol> <p>Plenary discussion on formulation of strategies to make HIS responsive to the needs of the countries</p> <ol style="list-style-type: none"> <li>2. Routine data collection &amp; type and sources of data in developing countries (Dr Virasakdi)</li> </ol>	Lunch Interval (1230 –1400 hours)	<ol style="list-style-type: none"> <li>3. Issues to be considered in interpreting morbidity and mortality data &amp; data interpretation pattern (Dr Myint Htwe)</li> <li>4. Health indicators: Generic principles for analysis and interpretation (Dr Mon Mon)</li> </ol>

Date	Morning Session (0830–1230 hrs)		Afternoon Session (1400-1700 hrs)	
Tuesday, 4 Dec 2001	<p>5. How to analyze data arising out of routine HIS and estimation of data quality (Drs Myint Htwe &amp; Mon Mon)</p> <p>Plenary discussion on critical analysis of data from Maldives and Myanmar annual reports</p> <p>6. Data interpretation for use in planning health programmes: Interactive session for three scenarios:</p> <ul style="list-style-type: none"> <li>(i) inter-ministerial planning</li> <li>(ii) hospital manpower planning</li> <li>(iii) upgrading of hospital (Dr Myint Htwe)</li> </ul>	Lunch Interval (1230 –1400 hours)	<p>7. <b>Group Exercise</b></p> <p>Data management in support of health planning</p> <p>8. Part I of searching for evidence-based information:</p> <ul style="list-style-type: none"> <li>(i) hierarchy of evidence</li> <li>(ii) systematic reviews</li> <li>(iii) critiquing a meta-analysis</li> <li>(iv) determining truth from interviews (Dr Myint Htwe)</li> </ul>	
Wednesday 5 Dec 2001	<p>9. Life table construction and computation of healthy life expectancy (DALE/HALE) (Drs Virasakdi &amp; Nihal Singh)</p> <p>10. DALY and its computation (Burden of disease) (Drs Virasakdi &amp; Nihal Singh)</p>			<p><b>Various types of summarizing and presenting data</b></p> <p>11. Graphical presentation (Drs Myint Htwe, Virasakdi &amp; Mon Mon)</p> <p>12. Computation and interpretation of seasonal indices (Dr Myint Htwe)</p> <p>13. Direct and indirect methods of standardization of rates (Drs Virasakdi &amp; Nihal Singh)</p>
Thursday 6 Dec 2001	<p>14. Hospital statistical indicators and its use in planning and management of hospitals (Dr Myint Htwe)</p> <p>Interactive discussion on further use of hospital indicators for planning and management of hospitals</p>			<p>16. Practice session for life tables, DALE, DALY &amp; others (Drs Virasakdi &amp; Nihal Singh)</p>

Date	Morning Session (0830-1230 hrs)		Afternoon Session (1400-1700 hrs)
Thursday 6 Dec 2001	15. Part II of searching for evidence-based information: (v) decision analysis (vi) matrices (vii) cause and effect diagram (viii) control charts (ix) Pareto diagram (x) work flow diagram (Dr Myint Htwe)	Lunch Interval (1230 –1400 hours)	19. Issues related to reliability, internal and external validity and guidelines to increase the validity of survey instruments (Dr Myint Htwe)  <b>Closing Session</b>
Friday, 7 Dec 2001	17. Ecological fallacies in data interpretation (Dr Myint Htwe)  18. Biases in data management (Dr Myint Htwe)		

- Tea/coffee breaks will be at 1000 hours in the morning and 1530 hours in the afternoon for 15 minutes each.
- All sessions are interactive.
- After each session, participants will be asked to discuss and give their views and share their experience on certain aspects of the presentations.
- After each presentation, there will be 15-20 minute-discussion session.

## Annex 5

### CHAIRPERSONS FOR DIFFERENT TECHNICAL SESSIONS

Session No	Topic/Presenter	Chairperson
1.	Quick review of HIS in the Region in the context of improving data quality for EBDM. (Dr Myint Htwe)	Mr Bambang Hartono
2.	Routine data collection & type and sources of data in developing countries (Dr Virasakdi)	Dr Titasak Boonthai
3.	Issues to be considered in interpreting morbidity and mortality data & data interpretation pattern (Dr Myint Htwe)	Mr D. Gautam
4.	Health indicators: generic principles to interpret and analyse it (Dr Mon Mon)	Dr Muh Nadhirin
5.	How to analyse data arising out of routine HIS and estimation of data quality (Drs Myint Htwe & Mon Mon)  Plenary discussion on critical analysis of data from Maldives and Myanmar annual reports	Ms Shehenaz Fahmy
6.	Data interpretation for use in planning health programmes: Interactive session for three scenarios: (i) inter-ministerial planning (ii) hospital manpower planning (iii) upgrading of hospital (Dr Myint Htwe)	Dr Preeda Taearak
7.	Group Exercise  Data management in support of health planning	
8.	Part I of searching for evidence-based information: (i) hierarchy of evidence (ii) systematic reviews (iii) critiquing a meta-analysis (iv) determining truth from interviews (Dr Myint Htwe)	Dr Baliar Singh
9.	Life table construction and computation of healthy life expectancy (DALE/HALE) (Drs Virasakdi & Nihal Singh)	Dr Yawarat Porapakham

<b>Session No</b>	<b>Topic/Presenter</b>	<b>Chairperson</b>
10.	DALY and its computation (Burden of disease) (Drs Virasakdi & Nihal Singh)	Dr Nural Anowar
11.	Various types of summarizing and presenting data Graphical presentation (Drs Myint Htwe, Virasakdi & Mon Mon)	Dr Chenchon Dorjee
12.	Computation and interpretation of seasonal indices (Dr Myint Htwe)	U George Paw Tun
13.	Direct and indirect methods of standardization of rates (Drs Virasakdi & Nihal Singh)	Dr Tofayel Ahmed
14.	Hospital statistical indicators and its use in planning and management of hospitals (Dr Myint Htwe)  Interactive discussion on further use of hospital indicators for planning and management of hospitals	Dr Suartini Bambang
15.	Part II of searching for evidence-based information: (v) decision analysis (vi) matrices (vii) cause and effect diagram (viii) control charts (ix) Pareto diagram (x) work flow diagram (Dr Myint Htwe)	Prof. Paibul Suriyawongpaisal
16.	Practice session for life tables, DALE, DALY & others (Drs Virasakdi & Nihal Singh)	
17.	Ecological fallacies in data interpretation (Dr Myint Htwe)	Mr Shiva Kumar
18.	Biases in data management (Dr Myint Htwe)	Mr R. Regmi
19.	Issues related to reliability, internal and external validity and guidelines to increase the validity of survey instruments (Dr Myint Htwe)	Dr A.W. Rajapakse

## Annex 6

### LIST OF WORKING DOCUMENTS/PAPERS

S.No.	Working Document/Paper
1.	Quick review of HIS in the Region in the context of improving data quality for evidence-based decision-making (EBDM) and strategies to make HIS responsive to the needs of the countries (SEA/DMED/Meet/4.1)
2.	Routine data collection & type and sources of data in developing countries (SEA/DMED/Meet/4.2)
3.	Issues to be considered in interpreting morbidity and mortality data & data interpretation pattern (SEA/DMED/Meet/4.3)
4.	Health indicators: generic principles to interpret and analyse it (SEA/DMED/Meet/4.4)
5.	How to analyse data arising out of routine HIS and estimating data quality & critical analysis of data from Maldives and Myanmar annual reports (SEA/DMED/Meet/4.5)
6.	Data interpretation for use in planning health programmes: Scenarios for (i) inter-ministerial planning, (ii) hospital manpower planning, (iii) upgrading of hospital (SEA/DMED/Meet/4.6)
7.	Group Exercise: Data management in support of health planning (SEA/DMED/Meet/4.7)
8.	Searching for evidence-based information: (i) Hierarchy of evidence (ii) Systematic review (iii) Critiquing a meta-analysis (iv) Determining truth from interviews (SEA/DMED/Meet/4.8)
9.	Life table construction and computation of health life expectancy (DALE/HALE) (SEA/DMED/Meet/4.9)
10.	DALY and its computation (Burden of disease) (SEA/DMED/Meet/4.10)
11.	Graphical presentation (SEA/DMED/Meet/4.11)
12.	Computation and interpretation of seasonal indices (SEA/DMED/Meet/4.12)

<b>S.No.</b>	<b>Working Document/Paper</b>
13.	Direct and indirect methods of standardization of rates (SEA/DMED/Meet/4.13)
14.	Hospital statistical indicators and its use in planning and management of hospitals (SEA/DMED/Meet/4.14)
15.	Part II of searching for evidence-based information: (v) Decision analysis (vi) matrices (vii) Cause and effect diagram (viii) Control chart (ix) Pareto diagram (x) Work flow diagram (SEA/DMED/Meet/4.15)
16.	Practice session for life tables, DALE, DALY & others (SEA/DMED/Meet/4.16)
17.	Ecological fallacies in data interpretation (SEA/DMED/Meet/4.17)
18.	Biases in data management (SEA/DMED/Meet/4.18)
19.	Issues related to reliability, internal and external validity and guidelines to increase the validity of survey instruments (SEA/DMED/Meet/4.19)