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# Epidemiology and its Application in Programme Development and Management:

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A Concept Note

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# Epidemiology and its Application in Programme Development and Management: A Concept Note

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## Preface

The promotion and application of epidemiological thinking in programme development and management of public health programmes is the need of the day. This concept note analyses the present level of epidemiological support and practice at the Regional Office for South-East Asia level and in the Member countries. The note elaborates on the benefits to be expected when the epidemiological deficiencies are adequately addressed and details how the recently-created Epidemiological Task Force can contribute to promote epidemiology at the Regional Office and also at the central and district levels in Member countries.

The Task Force's vision, goal and objectives are clearly stated and the guiding principles enumerated. Concrete actions are being planned; some of which can be fully realized in 2008–2009 while others need a longer time frame. Concrete actions at the Regional Office level will begin immediately, focusing on a situation analysis, the organization of an international epidemiological conference, capacity building and networking of academic institutions, and promoting operational research. The Task Force will stimulate each Member country to carry out a situation analysis, promote operational research, build capacity and match programme needs with the evidence produced through increased application of epidemiological tools, methods and approaches.

I hope that the regular meetings of the Task Force will strengthen the coordination of the available epidemiological expertise and reinforce its think-tank function. The Task Force working as a think tank is expected to be the catalyst of the planned actions at the district and central levels in Member countries, based on a more in-depth epidemiological analysis of disease trends and programme responses. As this epidemiological strengthening approach may be considered a natural experiment, it is imperative that its progress and outcomes are monitored through appropriate indicators.



Samlee Plianbangchang, M.D., Dr.P.H.  
Regional Director



# 1. Introduction

Epidemiology is not only concerned with the study of the distribution and determinants of individual endemic and epidemic diseases and health problems in Member countries but also with the disease trends and the programme performance patterns in a rapidly changing social, economic and cultural environment. The application of epidemiological concepts or thinking seems extremely relevant today considering that the South-East Asia Region carries a heavy burden of communicable diseases while chronic or noncommunicable diseases are emerging as leading causes of death, pitted against a weak and overstretched health infrastructure. As an essential tool for evidence-based programme management, epidemiology and its application is considered crucial for national health programme development and management.

The formulation and implementation of a national policy and strategy is contingent upon the generation of an evidence-base for advocacy, programme planning, implementation and evaluation at all levels of health care including, most importantly, the district level. At present, this capacity is lacking in Member countries and requires strengthening urgently, so that data can be generated at district and field levels and used for public health action at the local level. Instilling such an analytical approach at the district level and linkage with the next levels of health care is among the top-most priorities. In practical terms, public health action will depend on how the data that is generated at the peripheral level is properly compiled, processed, analysed, interpreted or evaluated. Transforming data into information that could lead to effective, efficient, timely and equitable decision-making, programme implementation and supportive supervision is very important.

Although there is a considerable need in the South-East Asia Region for promoting analytical approach and a stronger evidence base for programme management, there is no explicit focus on epidemiology yet within WHO, including the Regional Office. Therefore, a task force comprising staff with an epidemiology background and/or bent of mind

working in various departments was formed to discuss/channelize the efforts of the Regional Office to strengthen policy framework and capacity building in the practise of epidemiology in the Region. Although there is epidemiological expertise in nearly all technical units and departments of the Regional Office, a forum is required for exchange of epidemiological expertise, ideation of innovative concepts and approaches, peer review of plans and initiatives, and cross-fertilization of epidemiological initiatives through critical inputs from other units/departments. The epidemiology task force is considered such a forum for the collective promotion of the epidemiological basis of development and management of the various control programmes, and for support to policy-making.

The principles guiding this initiative include task force members functioning as a “think tank” or ideas group while implementation of ideas or activities would be carried out by various departments or units in the Regional Office. This concept paper includes also a vision statement and guiding principles and a somewhat bose workplan for 2008-09. Although the subject matter of epidemiology covers different domains, each with specific contextual and methodological requirements, the basic epidemiological tools and approaches are common to all units and departments and the real challenge lies in the adaptation to specific requirements of each unit and department in the Regional Office.

## **2. SEARO Task Force on Epidemiology: Vision, goal, and objectives**

The vision of the WHO Regional Office for South-East Asia (SEARO) is to have a Region free from disease and ill-health, while that of the Task Force on Epidemiology is to ensure that epidemiological concepts are applied in national health programme planning, implementation and evaluation.

*The expectation is that the burden of disease in the Region will decrease through a more rational management of disease prevention and control programmes that is evidence-based. The health of the people in the Region will improve through better understanding of the causal factors and through prioritization of the activities with the highest return (i.e. addressing the highest attributable fraction). The public health outcomes of the disease control and prevention programmes will improve through optimizing the*

*interface between the disease control programme, which will be more evidence-based and health system management which will be strengthened through being able to rely on better information.*

The goal of this Task Force is:

- to strengthen epidemiological capacity in the Region;
- to have a stronger evidence base of the planning and management of the vertical and integrated programmes;
- to take all major decisions in programme management only after a profound epidemiological thinking process.

The objectives of this Task Force are:

- to assess on an ongoing basis the current situation in the South-East Asia Region with regard to epidemiological thinking from the policy, practice and capacity perspectives.
- to identify key issues and follow-up actions that need to be taken for improving epidemiology as a basic/fundamental public health science, and that consider WHO's specific role in this endeavour.
- to promote applying epidemiology in programme development and management.
- to monitor periodically the progress being made to promote epidemiological thinking in the Region.

### **3. The modus operandi of the Task Force**

The Task Force meets on a regular basis. The meeting is chaired by Director, CDS department. Prior to each meeting, the agenda is distributed to all members. The group also provides service and support functions to all programmes in the Regional Office and in the Member countries. The effectiveness of this task force is enhanced through the preparation and distribution of documents and notes sufficiently in advance of each meeting so that all members can attend the meeting fully prepared or can e-mail their comments, suggestions and propositions in case they cannot attend. Given the limited human resources available and the heavy routine

workload of all staff, the practical implementation of the concrete actions will have to rely, to a certain extent, on APW contracts and networking with external collaborators.

The membership of the task force constitutes of two categories:

- core members, belonging to SEARO's technical units and departments
- invitees from within SEARO or outside.

The members are listed in the Annex. The list will be updated on a regular basis.

## 4. Guiding principles

- **Think tank:** Functioning as a permanent "**think tank**", focussing on the epidemiological evidence emerging from disease surveillance, monitoring and evaluation and research initiatives, in order to optimize the use of resources and the achievement of programme objectives.
- **Networking:** The first step is to create and update an inventory of the epidemiological expertise in the Region, and to detail the specific domains of the expertise. The second step will be to attract potential partners and interest them in networking<sup>a</sup> with SEARO's efforts in the epidemiological domain of common interest. The next step would be to distribute the fruits of the think tank's reflections to partners outside SEARO<sup>b</sup>.

Evidence-based management of programmes:

- Promoting the use of a solid *evidence base in managing disease control programmes* in Member countries by supporting them in the analysis and interpretation of the data obtained through surveillance and surveys, M&E and operational research.
- Action: Aiming to ensure that any research result leads to policy change and also to concrete *actions*, because "a research task is

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<sup>a</sup> One among the many possible approaches is to create WHO Collaborating Centres in selected Member countries.

<sup>b</sup> The creation of an informal e-based instrument has to be considered.

not complete until an intervention has been implemented to improve the health of the people”.

- Policy impact: *Policy impact* of the routine surveillance, research and monitoring and evaluation activities should be kept in focus.
- Health system strengthening: *Health systems strengthening* in general and of PHC in particular should also be kept in focus.

## **5. Expected outcomes**

### **5.1 At the Regional Office level**

A series of practical achievements and benefits may be expected, such as:

- The needs of Member countries will be better understood, i.e. more profound situation analyses, more reliable disease trends, and monitoring and surveillance data, performance assessment results, and more reliable estimates of the impact of disease control programmes on the incidence.
- The epidemiological content of the programmes in the Member countries will improve.
- Disease control programmes and any other health programme will be more evidence-based, leading to greater effectiveness, efficiency and equity. Data-based evidence is of utmost importance for control programme development and management, as programme interventions have to be implemented against the background of resource limitations, significant mobility among some population strata, environmental changes, growing inequity in the populations and the increasing role of the private sector in healthcare delivery.
- Interaction between epidemiologists in the Regional Office and those working in the Member countries will result in a higher level of effectiveness than would be possible if the various units/departments continued to work in isolation.

- Operational research will become more effective, efficient and equitable through optimizing the design and focusing on action that will help to address the problem being studied.
- National officials responsible for efforts in disease control will be encouraged to widen their thinking horizon from an epidemiological perspective.
- The use of the population attributable fraction of the main causal factors of the health problems will be advocated as a rational basis for decision-making in planning technical activities, allocating resources and in assessing programme impact.
- The interface between programme performance and implementation will be strengthened. Process indicators will be developed to monitor the programme implementation; and the determinants of the outcome of a particular control programme will be put in an overall framework of direct and indirect causes, effect modifiers and confounders.
- The impact will not only be felt at the level of the control programmes themselves, but will also have policy implications at the regional level that will translate into policy recommendations and subsequent changes at the level of the Member countries. Evidence-based health policy formulation requires regular updates of the available information at regional, national and even sub-national level. This requires that an environment is created where an objective analysis of health problems can be fostered; widespread participation of epidemiologists and public health experts from all the Member countries; can be promoted there is sufficient support to the analysis and interpretation of the health profiles and trends; and close links with the research community are maintained. The Task Force will create a supportive environment for the strengthening of evidence-based health policy formulation.
- The initiatives taken in the Regional Office will encourage a stronger evidence base for programme management at all levels in the Member countries, through networking of all important epidemiological actors, belonging to SEARO, the ministries, the academic institutions, concerned NGOs and international organizations.

## **5.2 At the Member country level**

The programme managers working at the central level in countries of the Region will have access to more accurate surveillance data; recognize better patterns in programme outcomes; be able to list and differentiate the main causal factors and determine the fraction of the disease attributable to them; propose adequate recommendations; take effective actions and determine their impact on the disease burden.

The programme managers at the district level will have a better understanding and appreciation of how to analyse, interpret and use quantitative information for solving problems. Programme managers at the district and central level will develop a sense of the reality and limitations of the context in which the data have been gathered and of their potential usefulness. They will acquire an increased capacity to adjust the programme implementation to the operational challenges, the epidemiological characteristics of the concerned health problem and the dynamics of the covered population. They will also feel more involved in programme management, as they will have a greater capacity to recognize eventual problem areas and their potential solutions so they may take appropriate actions and judge their feasibility. The improved interface between supervisors and staff being supervised at the operational level will strengthen the decision-making capacity of the programme managers and improve the effectiveness, efficiency and equity of the programme as a whole. In addition, the effective communication of problems and solutions will help to increase technical and financial support for the disease control programme(s).

## **6. Key activities (2008–2009)**

### **6.1 In the Regional Office for South-East Asia**

- Situation assessment
  - mapping of epidemiological institutions and personnel in the Region<sup>c</sup>.
  - inventory of the available software, and if necessary, updating.
  - epidemiological surveillance assessment.

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<sup>c</sup> This work has been initiated already; it shows a plethora of training institutions in the Region

- Organizing a South-East Asia conference on a topic of immediate interest for SEARO and Member countries. Such a conference will create a forum to promote the visibility of activities undertaken by the Task Force. It will also be a platform for advocacy in the domain of marketing for the planned actions of the Task Force, for evidence-based policy-making, and for resource mobilization, and will advance the epidemiological undercurrent of the management of the various control programmes. This unique opportunity will allow the promotion of networking through involving all potential partners.
- Capacity building of the national epidemiologists in Member countries of the Region, key staff from SEARO and from the country offices, besides members of the academic and other institutions that actively participate in the network, and the national control programmes.

This will be obtained through the organization of a *crash course in field epidemiology*, and through *linking of other initiatives* taken by members of the Task Force and of the broader network.

This crash course could be based on the recent Managing Information for Action (MIFA) training experience in TB control setting. One of the aims is to demonstrate how the use of epidemiology can be promoted to improve decision making in disease control (and also health system management in a broader sense) in the Region. It should focus on increasing knowledge and skills of routine data analysis and interpretation of the findings and on changing the attitude of programme managers towards evidence-based programme management through concentrating discussions on the field reality of the various major health problems in the countries.

- Networking of epidemiological training and research institutes in the South-East Asia Region:
  - Review of the medical college curriculum for epidemiological content and teaching methodology.
  - bringing the major training institutions together and involve them right from the start in the planning and setting up of the network.
  - short-listing of medical colleges and public health institutions to become *WHO collaborating centres*.
- Focusing on policy formulation based on the results of routine surveillance, monitoring and evaluation, and operational research. This will be through provision of direction and leadership on the

above-mentioned action domains. This will not involve extra activities as such, but all other actions undertaken by the Task Force should contribute to policy formulation strengthening.

## 6.2 At the Member country level

The following initiatives will be undertaken:

- Mapping of the available resources and networking of the national institutions.
- Matching programme needs with evidence produced by use of epidemiological tools, methods and approaches.
- Promoting operational research in priority areas, improving research designs and stimulating follow-up action based on the research results.
- Improvement of epidemiological surveillance, with better supportive supervision and effective feedback
- Building capacity for use of routine data for programme improvement and providing *data management training* aimed at strengthening the evidence base of disease control programmes in the states, divisions and districts. This concern is presently being addressed in the TB control context by organizing MIFA courses. This short course for TB control officers aims at strengthening the management of the TB control programme.<sup>d</sup>

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<sup>d</sup> The course provides the district TB control officers with the necessary skills and insight to transform their routine surveillance data into information that is relevant for evidence-based decision taking. As their problem recognition and action taking capacity is increased, the link between data management and programme management becomes clearer. The sustainability of this training is strengthened through actively involving the supervisors who act as regular coaches of the district staff.

The MIFA training consists of four elements: a pre-course assignment, the theoretical and hands-on training itself, the supervised post-course implementation, and regular review of the achievement. The concept of this MIFA course starts from the field reality, as perceived by the TB control officers during the preparation of their pre-course assignment, and gradually moves towards theoretical deepening. This approach is very pragmatic, and has shown to be operational and to result in a major change of attitude of the participants, leading to improved data processing, increased use of routine data in TB control programme implementation and increased responsibility taking for programme management and programme performance improvement.

The assessment of the post-course programme performance in various States in India has shown: a long-lasting change in attitude of the TB control officers, leading to better data processing and increased use of routine data to strengthen TB control programme performance; an improved involvement of the supervisors; and also improved case finding and case holding indicators, especially of those that are vulnerable to direct programme interventions, such as increase of TB suspects' examination rate and decrease in defaulting.

This MIFA initiative could be taken as a model for other communicable and noncommunicable diseases control programmes and health service delivery as well. Here, a generic version of the MIFA course should be developed. The Task Force members could act as a think tank in the generation of ideas, adaptation of the concept and the approach of the course to other diseases. A training of trainers course has to be developed and master trainers in the various countries identified and trained. The support of the Task Force members in the follow-up of this initiative in the various Member countries is considered essential.

## **7. Assessment of performance**

The strengthening of this epidemiological focus on programme development and management can be considered as a natural experiment. Consequently, the outcome of this initiative needs to be assessed. The question has to be raised on what the performance of the various control programmes would have been without the new focus and the corresponding interventions. The development of the assessment tools and the practical operationalization of the follow-up constitute a real challenge that needs to be addressed by the Epidemiology Task Force. In practice, a few measurable indicators have to be agreed upon to track progress in implementation, such as: plan of action prepared, number of trainings organized, number of people trained, etc.

## **8. Challenges**

The major challenges of the Task Force are:

- To maintain a high level of involvement of the Regional Office staff who are otherwise very busy.
- To develop and maintain a sustainable network that involves epidemiologists and programme managers in partnership.
- To sustain the effectiveness of actions as well as their visibility, by ensuring regular outputs and documenting the benefits of epidemiologically informed public health planning, etc.
- To identify active and motivated counterparts in the Member countries.

## **9. Conclusions**

The planned activities will certainly contribute to: improve the epidemiological thinking skills in the Member countries; promote evidence-based policy-making at the regional and country level; strengthen programme development and management at the district and central level; and improve the quality, analysis and interpretation of the routine surveillance data.

In order to maintain the momentum, a series of activities will be launched immediately. In order to achieve the aims and objectives, and in line with the vision statement of the Task Force, a major effort of networking is necessary to involve all major actors in this endeavour and to multiply the efforts undertaken.

This is a novel approach with a broad potential impact. It is now for the Task Force to prove that it can work.

**Annex**  
**List of members**

<b>Name</b>	<b>Department/unit</b>	<b>EPID group</b>
Dr Jai P Narain	CDS	Chair
Dr Abdul Sattar Yoosuf	SDE	Member
Dr Dini Latief	FCH	Member
Dr Palitha Abeykoon	Ag. NMH	Member
Dr Kumara Rai	Ag. HSD	Member
Dr William L. Aldis	HPR	Member
Dr Sangay Thinley	HTM	Member
Dr Nani Nair	TUB	Member
Dr Khanchit Limpakarnjanarat	CSR	Member
Dr Suzanne Westman	CSR unit	Member
Dr Renu Garg	SEP	Member
Dr Deoraj Caussy	SLB	Member
Dr Sunil Senanayake	EHI	Member
Dr Lalit Nath	TIP-HPR unit	Member
Dr Ayana Yeneabat	CSR unit	Member
Dr Rajesh Kumar	TIP-HSD unit	Member
Dr Padmini Srikantiah	HIV unit	Member
Dr Aime De Muyneck	TB unit	Member

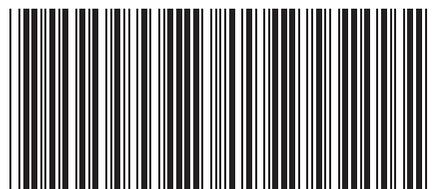
Epidemiology is a fundamental science, essential for the study of disease occurrence, distribution and determinants, and the application of this study in disease prevention and control. Given the disease burden in the South-East Asia Region, strengthening of epidemiological services and promotion of epidemiological thinking as an integral part of programme development and management is particularly important. This concept note articulates the relevance of and the need for this approach in the Region, identifies a few key initial steps to be taken in this context and outlines certain expected outcomes



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Organization**

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World Health House  
Indraprastha Estate,  
Mahatma Gandhi Marg,  
New Delhi-110002, India



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