NCD Risk Factor Data Management, Analysis and Reporting

Report of an Intercountry Workshop
Kathmandu, Nepal, 18-22 July 2006
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Background</td>
<td>1</td>
</tr>
<tr>
<td>2. Objectives</td>
<td>2</td>
</tr>
<tr>
<td>3. Inaugural session</td>
<td>2</td>
</tr>
<tr>
<td>4. Status of NCD risk factor surveillance in countries of SEAR</td>
<td>4</td>
</tr>
<tr>
<td>5. NCD risk factor data management, analysis and reporting</td>
<td>4</td>
</tr>
<tr>
<td>5.1 Workshop resources</td>
<td>4</td>
</tr>
<tr>
<td>5.2 STEPS Instrument</td>
<td>6</td>
</tr>
<tr>
<td>5.3 Instrument mapping</td>
<td>6</td>
</tr>
<tr>
<td>5.4 Data management</td>
<td>6</td>
</tr>
<tr>
<td>5.5 Making the data nationally representative</td>
<td>7</td>
</tr>
<tr>
<td>5.6 Reporting fact sheets</td>
<td>7</td>
</tr>
<tr>
<td>5.7 Report generation and dissemination of data</td>
<td>7</td>
</tr>
<tr>
<td>6. Working group reports</td>
<td>8</td>
</tr>
<tr>
<td>6.1 Country dissemination plans</td>
<td>8</td>
</tr>
<tr>
<td>6.2 Issues in data management, analysis and reporting</td>
<td>9</td>
</tr>
<tr>
<td>7. Conclusions and recommendations</td>
<td>9</td>
</tr>
<tr>
<td>7.1 Conclusions</td>
<td>9</td>
</tr>
<tr>
<td>7.2 Recommendations</td>
<td>10</td>
</tr>
<tr>
<td>Annexes</td>
<td></td>
</tr>
<tr>
<td>1. Programme</td>
<td>11</td>
</tr>
<tr>
<td>2. List of participants</td>
<td>13</td>
</tr>
</tbody>
</table>
1. Background

Noncommunicable diseases (NCDs) such as cardiovascular disease (CVD), cancer, chronic lung diseases, and diabetes account for 54% of deaths and 44% of disease burden in the South-East Asia Region (SEAR). Half of deaths due to NCDs occur prematurely. The causes of NCDs are largely known. About 80% of premature CVD and diabetes and 40% of cancers are preventable.

Most of the NCD burden is attributed to several measurable and modifiable risk factors, namely tobacco and alcohol consumption, inappropriate diet, physical inactivity, obesity, hypertension, raised blood sugar and cholesterol levels. The mean levels of risk factors in the population are the present-day indicators of future diseases.

Information on NCDs and their risk factors is essential for advocacy, guiding policy development and evaluation of the impact of prevention programmes. Availability, validity and comparability of epidemiological data on NCDs and their risk factors are largely inadequate in SEAR countries. The Regional Strategy for NCD Surveillance adopted in SEAR in 2003 called for the collection of standardized data on NCD risk factors, using the WHO STEPS approach, in at least eight Member countries by 2005, as well as a standard reporting system.

The STEP-wise approach to NCD risk factor surveillance was developed by WHO to provide a standardized methodology for data collection, analysis and reporting. STEPS is a sequential process, starting with gathering information from the population sample on key risk factors by the use of a questionnaire (Step 1), followed by simple physical measurements (Step 2), and finally collection of blood samples for biochemical assessment (Step 3). In addition to the mandatory core information collected at each step, more information on other variables may also be collected. For surveillance to be sustainable, the STEP-wise approach advocates that a small amount of comparable, good quality data is more valuable than a large amount of poor quality data.

During 2002–2005, nine SEAR countries initiated the surveys, and data sets from eight countries are available. The results of the surveys are being used to build national commitment to scale up NCD prevention and control programmes.
In order to support Member countries on statistical issues related to NCD surveillance, the Regional Director established the Regional Statistical Support Group (RSSG) as an informal advisory body in April 2003. In June 2003, RSSG held its first meeting back-to-back with a Workshop on NCD Risk Factor Surveillance in SEAR. Broad recommendations on sampling procedures and data analysis were formulated during this workshop. At the second Workshop in November 2004, participants used the experience they had gained to suggest modifications to the global STEPS approach.

In implementing the initial STEPS surveys in countries of SEAR, many important issues were identified. Among these was the need to strengthen national capacity to manage and analyse the data, and to interpret and utilize survey results in a standardized way, to allow for regional and intercountry comparisons.

2. **Objectives**

The overall objective of the workshop was to strengthen national capacity to manage, analyse and report data of NCD risk factor surveys implemented in the countries of SEAR. The specific objectives were:

(1) to review the status of implementation of NCD risk factor surveys;

(2) to identify and address issues related to the management, analysis, interpretation and reporting of data;

(3) to analyse/reanalyse available national data in a standardized way; and

(4) to discuss the development of standard national reports on NCD risk factors.

3. **Inaugural session**

The workshop was inaugurated by Mr Amik Sherchan, Deputy Prime Minister and Minister of Health and Population, Government of Nepal, who welcomed participants to Kathmandu. The inaugural speech on behalf of Dr Samlee Plianbangchang, Regional Director, WHO SEARO was read by Dr Kan Tun, WHO Representative to Nepal.
Dr Samlee remarked that the dominant feature of NCDs in the South-East Asia Region was the increasing number of young and middle-aged adults being affected. WHO estimates that at least 1.5 million people die annually in countries of SEAR from high blood pressure, and another 2.2 million because of tobacco use or high cholesterol levels. He noted that these risk factors could be significantly modified through simple health promotion and preventive measures.

Dr Samlee was pleased that the endorsement of the Regional Framework for Prevention and Control of Noncommunicable Diseases would facilitate the further development of national policies, strategies and programmes for integrated prevention and control of NCDs. The first and critical step is to assess the epidemiological situation on NCDs and their risk factors. He also encouraged the broad adoption of the WHO STEPwise approach as a major way to strengthen national capacity for the standardized collection of information.

Finally, Dr Samlee congratulated Nepal for the good progress made towards implementation of national NCD surveillance approaches based on WHO STEPS, and acknowledged the excellent support of the Ministry of Health and the WHO Country Office in organizing this important activity. He was confident that with such a strong collaborative approach, the objectives of the workshop would be fully achieved, and wished participants every success.

The workshop was attended by participants from ten countries of SEAR, as well as resource persons from the Region, and staff from WHO Headquarters and the Nepal Country Office. The list of participants and programme of the workshop are given in Annexes 1 and 2 respectively.

The national launch of the global report “Preventing Chronic Diseases: A Vital investment”, by the Deputy Prime Minister, Government of Nepal, was held on 18 July 2006 to coincide with the first day of the workshop. The function was attended by officials from the Ministry of Health and other ministries, representatives of UN organizations, NGOs, participants of the workshop and the media. Preliminary data from the three recently conducted district NCD risk factor surveys were presented by Dr N.M. Shreshta, Chief Specialist, Ministry of Health, Nepal to highlight the current levels of NCD risk factors in Nepal and emphasize the need for action in this regard.
4. **Status of NCD risk factor surveillance in countries of SEAR**

Several initiatives related to NCD surveillance have been initiated in SEAR. These include: a Regional NCD Surveillance Network; a Regional Strategy for NCD Surveillance, standard NCD risk factor surveys; Regional NCD Risk Factor Info Base; and a Regional NCD Risk Factor Profile. The present focus of NCD surveillance programme is on risk factors, policy development, capacity building and development of sustainable systems.

Participants attending the workshop gave a brief presentation on their NCD risk factor surveys using the STEPS methodology. Table 1 shows that countries are at different stages of implementation. While Thailand and Indonesia have completed national surveys, India and Sri Lanka are still at the planning stage. Nepal has recently conducted surveys in three districts (one each from different regions of the country). Bangladesh, after the completion of the initial STEPS survey, is now conducting a large-scale survey in three districts. Maldives and Myanmar had completed initial STEPS surveys and were at the stage of data reporting and dissemination. DPR Korea has completed data collection and is in the process of data entry. Bhutan has only just initiated the survey and finalized the instrument and training process.

5. **NCD risk factor data management, analysis and reporting**

5.1 **Workshop resources**

Prior to the workshop, participants received instructions on mapping instruments and transforming datasets. During the workshop, they were each allocated a desktop computer, as well as:

- WHO STEPS Surveillance Manual
- STEPS CD ROM that contained Epi Info and Epi Data software, the generic data entry templates, the analysis syntax and STEPS database, electronic copies of the manual, the Epi Info training exercises, Mapped Instrument and Dataset Structure Template, and the sampling tools.
### Table 1. Basic information on STEPS surveys conducted in the countries of SEAR

<table>
<thead>
<tr>
<th>Country</th>
<th>Scope of Survey</th>
<th>Implementation Status</th>
<th>Data Entry Status</th>
<th>Data Analysis Status</th>
<th>Reporting Status</th>
<th>Requirement of technical support</th>
</tr>
</thead>
</table>
| Bangladesh    | Subnational: 5 different centres                        | Currently conducting  | Currently conducting |                      |                  | • The generic data entry tool to be modified to match the site specific Instrument  
• Support needed during analysis and reporting stage |
| Bhutan        | Subnational: urban population of Thimphu                | • Finalizing sample frame  
• Instrument finalized |                   |                      |                  | • Assistance needed to finalize the sample design  
• Generic data entry tool to be modified to match the site-specific Instrument |
| DPR Korea     | Subnational: 2 districts in Pyongyang (Chonsungdong and Puksaedong) | Completed             | Currently building tool |                      |                  | • Country will use generic analysis tools and request support if required  
• Assistance needed to finalize the sample design  
• Generic data entry tool to be modified to match the site-specific Instrument |
| India         | Subnational: 6 different centres                        | Completed             | Completed          | Completed and tables of results available | Draft Fact Sheet | • Country will re-analyse physical activity data using the GPAQ Analysis Guide  
• Assistance needed on weighting the available data |
| Indonesia     | Subnational: Depok                                      | Completed             | Completed          | Completed            | Draft Site Report |                                                                                                                                   |
| Maldives      | Subnational: Male                                       | Completed             | Completed          | Completed            | Draft Fact Sheet  |                                                                                                                                   |
| Myanmar       | Subnational: 15 townships of Yangon Division            | Completed             | Completed          | Completed            | Final Report and Draft Fact Sheet |                                                                                                                                   |
| Nepal         | Subnational: 3 districts (Ilam, Lalitpur and Tanahu)    | Completed             | Completed          | Completed            | Draft Report      |                                                                                                                                   |
| Sri Lanka     | National                                                | Currently conducting  |                   |                      |                  | • Assistance will be provided on sampling and Instrument design  
• The generic data entry tool to be modified to match the site-specific Instrument |
| Thailand      | National                                                | Completed             | Completed          | Completed            | Final Report (in Thai) | • Country will provide a Fact Sheet in English |


5.2 STEPS Instrument

This session reviewed changes made to the generic STEPS Instrument. The latest version 2.0 reflected modifications to version 1.4 based on extensive feedback from sites implementing the surveys. Specific improvements included the reformatting of the response column to allow the text to be combined with its numeric response and related boxes in one field. A coding column had also been added to standardize all the instruments used across the sites. In this way, all sites will be able to use the generic tools for data entry and analysis. Additional changes to questions related to alcohol use (a new question to collect information on alcohol intake over the previous 30 days) and physical activity questions (to reflect changes suggested in the reliability and validity study) were discussed.

5.3 Instrument mapping

This session showed the importance of mapping instruments, how to use them, and the tools available to assist with mapping. The participants were shown how to complete the mapped instrument template and use the template to transform datasets.

5.4 Data management

Data management was defined as the process of controlling and facilitating access to the data from the completed instruments to the creation of a final data set to be used for data analysis. Stages in the data management process were outlined, and tools to support the data management process discussed. These included Epi Data software templates which could be adapted to match the instrument used for data collection; relevant sections of the STEPS manual; and excel spreadsheets to help systematically track instruments through the data management process. These tools are available on the STEPS CD Rom and downloadable from the WHO website (www.who.int/chp/steps).

The Epi Info software and its basic functions were presented. This covered an introduction, variables, basic statistics, advanced statistics, and conditional statements. The training session provided participants with the necessary skills to use the generic STEPS analysis tools.
5.5 Making the data nationally representative

The session explained the purpose and method of assigning weights. As data only represents the people sampled, weighting the dataset is needed to make it representative of the general population. The three types of weights used by STEPS were: (i) the individual weight, which accounts for the individual’s probability of inclusion in the sample, (ii) the nonresponse weight, and (iii) the population weight or post-stratification weight. Each weight was explained, the calculation shown, and an example given.

The discussion focused on the information needed to calculate weights, how the weights should be attached to the dataset, and the options available to countries if they lacked the necessary information. In addition, the participants were advised on how to run weighted tables in Epi Info. The differences between weighted and non-weighted tables were shown. The examples for the weighted tables described the correct way to interpret and display the results.

5.6 Reporting fact sheets

The use of Fact Sheets to present key data from surveys in a short, summarized form was discussed. The template for the Fact Sheets was presented, which included information on where and when the survey was carried out; which steps were included; details on the sample (size, coverage, age groups, etc); response rates; basic data on each risk factor; and where to go for more information about the survey. In addition to the key results related to each individual risk factor, inclusion of a summary on combined risk factors was also suggested. The Fact Sheet template notes five risk factors: (i) current daily smokers, (ii) less than 5 servings of fruit and vegetables per day, (iii) low levels of physical activity, (iv) overweight and obese, and (v) raised blood pressure. Results show the lowest risk (none of these risk factors), and the highest risk (at least 3 risk factors) distributed by age and sex groupings. Instructions on how to produce the Fact Sheets were given.

5.7 Report generation and dissemination of data

The purpose of a survey report is to provide information on its overall rationale, scope, sampling design, methods of data collection, detailed results, and implications for future health planning. A suggested outline for the report, available in the STEPS manual, includes: cover and content.
issues related to interpretation of the data and displaying data using graphs, tables and charts were discussed. The STEPS Fact Sheet and reports use percentages and means. Confidence intervals were discussed as a measure of precision of data, and as a method to test for subgroup differences. Practical examples and formulas for calculating standard error and confidence intervals were shown.

The process of preparing written and oral presentations, including journal articles, to disseminate the results was reviewed. The need to tailor materials to the specific audience and the importance of leading the audience to take some action based on the material being presented was discussed. Participants drafted data dissemination plans and a presentation and discussion of each of these plans followed.

6. Working group reports

6.1 Country dissemination plans

Thailand and Indonesia have integrated NCD risk factor data collection into existing national systems that manage other health data. The intended audiences for dissemination of this data include policy-makers, NCD programme managers, health sector staff (academic and non-academic), non-health stakeholders (notably finance, food and agriculture, urban transport), local and provincial governments, the general population and finally WHO and other international and national agencies.

In order to target such diverse audiences, the results need to be packaged with different levels of complexity. The package could therefore be a detailed report, a scientific article, the web site of the ministry of health, a fact sheet, a media campaign, part of the school curriculum, the WHO website or InfoBase. Countries have not yet fully utilized all the results and are yet to package them accordingly. The budget for dissemination activities may come from the national budget, WHO country budget or through international agencies and donors. Most countries have an existing NCD committee or cell within the Ministry of Health to organize these dissemination activities.
6.2 Issues in data management, analysis and reporting

The working groups discussed in detail issues related to management, analysis, interpretation and reporting of data. Participants appreciated the tools developed by WHO and noted that they needed more practice and experience to be able to use and evaluate them appropriately. Countries in the early stage of data collection could fully utilize them. Maldives, which restricted itself entirely to the STEPS approach, also found it easy to use the tools. However, countries like India, which used expanded items (e.g. on oral tobacco use), found that these needed to be analysed separately. Specific changes in the data analysis programmes were suggested to improve their utility. The participants pointed out that countries using an earlier version of the STEPS Instrument had experienced problems as the current tools are appropriate only for version 2.0. Moreover, the current tools are in Epi Info whereas most countries were using other statistical softwares. Errors in the labelling of tables, inconsistent names in fact sheets, and measurement issues related to diet and physical activity, were also identified for further attention.

7. Conclusions and recommendations

7.1 Conclusions

The participants of the workshop:

1. Emphasized the importance of NCD risk factor surveillance as an integral component of national NCD prevention and control programmes;

2. Acknowledged that this surveillance strengthened national capacity to collect, manage, analyse and use NCD risk factor data;

3. Recognized that Member countries of SEAR were in different stages of implementation of NCD risk factor surveillance;

4. Reiterated that NCD risk factor surveys that apply WHO STEP-wise approach provide valid and useful information for policy development, and programme planning and implementation;

5. Noted that based on experience gained and capacity built, Member countries were moving steadily towards setting up national NCD risk factor surveillance mechanisms;
(6) Appreciated the standardized data management and analysis tools developed and technical support in their implementation provided by WHO;

(7) Analysed/reanalysed available dataset from countries using a standardized approach and format, and

(8) Identified and addressed issues related to data collection, management and analysis including those related to sampling design and weighting of datasets.

### 7.2 Recommendations

Member countries should:

(1) Implement NCD risk factor surveillance using the standardized approach promoted by WHO;

(2) Move from sub-national to sustainable national NCD risk factor surveillance integrated into the national health information system;

(3) Fully utilize existing NCD risk factor surveillance data for policy development, programme implementation and its monitoring and evaluation.

WHO should:

(1) Support Member countries in conducting NCD risk factor surveillance programmes and activities using the standard WHO STEP-wise methodology;

(2) Provide technical assistance to Member countries in capacity strengthening for planning and implementation of NCD risk factor surveillance;

(3) Strengthen the Regional Statistical Support Group and utilize other appropriate mechanisms to provide continuous support on statistical and implementation/methodological issues related to NCD surveillance; and

(4) Facilitate the sharing of information related to NCD risk factor surveillance globally, regionally and among Member countries, through appropriate mechanisms such as the South-East Asia Network for Prevention and Control of NCDs (SEANET-NCD).
Annex 1

Programme

Tuesday, 18 July

09:00 – 9:30 Opening Session
  • Address by RD SEARO
  • Opening remarks by HQ staff
  • Address by the Minister of Health, Nepal

10:00 – 10:30
  • Objectives of the workshop
  • Introduction of participants
  • NCD surveillance in SEAR – Dr B. Shah/Dr K. Anand

10:30 – 12:30 Country presentations on STEPS survey implementation and data management issues

14:00 – 14:30 Data management including available STEPS tools – Ms L. Riley

14:30 – 15:30 Reviewing the STEPS Instrument; mapping the country instruments used and issues related to instrument design – Ms L. Riley/Ms J. Lippe

16:00 – 17:30 Intro to Epi Info and practical exercises – Dr K. Anand/Ms J. Lippe

Wednesday, 19 July

08:30 – 10:30 Participants use Epi Info to do basic exploration of their datasets – Ms J. Lippe
  • Loading datasets
  • Running frequencies
  • Checking status of data (is data properly cleaned)

11:00 – 12:00 Making the data nationally representative – Dr N.M. Shrestha/Dr B. Shah/Ms J. Lippe

12:00 – 12:30 Sample framework and weighting issues - open forum – moderated by Dr R.M. Pandey

14:00– 14:30 Data books – Ms J. Lippe

14:30 – 15:30 Introduction to reporting data – STEPS Fact Sheets and Analysis Guide – Ms L. Riley

16:00 – 17:30 Participants identify what to include in fact sheet based on their instrument – Ms J. Lippe
Thursday, 20 July

08:30 – 10:30 Running data for fact sheets - participants
11:00 – 12:30 Working group discussion to identify problems
14:00 – 15:00 Reports of working groups
15:30 – 17:30 Completing fact sheet with data and writing introductory paragraph – participants

Friday, 21 July

08:30 – 9:30 Introduction to report generation – Ms L. Riley
9:30 – 12:30 Creating data book and survey reports – participants
14:00 – 15:30 Key issues in interpreting data, presenting results; using text, tables and graphs – Dr K. Anand/Ms L. Riley
16:00 – 17:30 Participants continue with data book (running data and formatting) and report preparation

Saturday, 22 July

08:30 – 10:30 Dissemination of results – presentation and discussion – Dr N.M. Shrestha/Ms L. Riley
11:00 – 11:30 Developing a dissemination plan – participants
11:30 – 12:30 Moving from surveys to surveillance – data management, analysis and reporting issues – Ms L. Riley
14:00 – 15:30 Conclusions, recommendations and closing – Dr R.M. Pandey/ Dr K. Anand
Annex 2

List of participants

Bangladesh
Dr Md Habibullah Talukder
Associate Professor, (Cancer Epidemiology)
National Institute of Cancer Research
& Hospital
Mohakhali, Dhaka
Tel: 882656-5 ext 307; 9880078, 01711
591907. Fax: 880 2 9143228
Email: rusk1963@yahoo.com

Bhutan
Mr Nyima Yoezer
Epidemiologist
Research & Epidemiology Unit
Ministry of Health
Thimphu
Tel: 975 2 323737; Fax: 975 2 322941
Email: nyoezer@health.gov.bt

Dr B.R. Giri
Senior Medical Specialist
Jigme Dorji Wangchuk National Referral Hospital
Thimphu

DPR Korea
Dr Choe Tong Chol
Vice Director
Department of Treatment & Prevention
Ministry of Public Health
Pyongyang

India
Dr Geetha Menon
Research Officer
ICMR
New Delhi
Tel: 91 11 26589544; Fax: 91 11 26588381
Email: drgmenon@yahoo.co.in,
grmenon_2000@yahoo.com,
menong@icmr.org.in

Indonesia
Dr Ekowati Rahajeng
Principal Investigator
Depok STEPS Survey
National Institute of Health Research and Development
Jakarta

Maldives
Ms Aminath Shenalin
Assistant Director
Ministry of Health
Male
Tel: 00 960 3318790, Mobile: 960 7772414;
Fax: 00 960 3330699
Email: shenalin@health.gov.mv

Ms Aishath Eenaz
Assistant Research Officer
Ministry of Health, Male
Tel: 00 960 3328425, Mobile: 960 7759595;
Fax: 00 960 3330699
Email: e_nax@hotmail.com

Myanmar
Prof Tint Swe Latt
Associate Professor
Department of Medicine
University of Medicine (II)
Ministry of Health
Yangon

Nepal
Dr Babu Ram Marasini
Member Secretary
NCD Prevention and Control Committee
Ministry of Health and Population
Government of Nepal
Kathmandu
Sri Lanka
Dr Harindra Jayasekera
Medical Officer
Ministry of Healthcare & Nutrition
Colombo 10
Telefax: 00 94 11 2669599
Email: hdmhjayasekara@yahoo.com

Thailand
Dr Gun Chernrungroj
Senior Medical Officer
Head of Noncommunicable Disease Information Centre
Bureau of Noncommunicable Diseases
Department of Disease Control
Ministry of Public Health
Nonthaburi 11000
Bangkok
Tel: 66 2590 3965; Fax: 66 2590 3964
Email: gunroj@health.moph.go.th

Temporary Advisers
Dr R.M. Pandey
Prof & Head
Department of Biostatistics
All India Institute of Medical Sciences (AIIMS)
Ansari Nagar
New Delhi, India
Tel: 91-11-26864851 extn 3395 (Work)
91-11-26173039 (Home),
Mobile: 9811912117; Fax: 91-11-26862663
Email: rmpandey@yahoo.com

Dr K. Anand
Additional Professor
Department of Community Medicine
All India Institute of Medical Sciences
Ansari Nagar, New Delhi 110 029, India
Tel: 011-26594253; Fax: 011-26588522
E-mail: kanandiyer@yahoo.com

Dr Bela Shah
Sr Deputy Director General
Indian Council of Medical Research (ICMR)
Ansari Nagar
New Delhi, India
Tel: 91-11-26588381; Fax: 91-11-26588662
Email: belashah@yahoo.com

Dr Nirakar Man Shrestha
Chief Specialist
Ministry of Health & Population
Government of Nepal
Ramshahpath
Kathmandu, Nepal
Tel: 977 1 426 2489; Fax: 977 1 426 2896
E-mail: nirakar963@hotmail.com

WHO Secretariat
Ms Leanne Riley
Team Leader, Surveillance
Department of Chronic Diseases and Health Promotion
World Health Organization
1211 Geneva, Switzerland
Tel: +41 22 7914319
Email: rileyl@who.int

Ms Jaclynn Lippe
STEPS Team
Department of Chronic Diseases and Health Promotion
World Health Organization
1211 Geneva, Switzerland
Tel: +41 22 7911288. Email: lippej@who.int

Dr Kan Tun
WHO Representative to Nepal
Kathmandu, Nepal
Tel: 977 1 5523993; Fax: 977 1 5527756
Email: kantun@who.org.np

Dr Ilsa Sri Larawati Nelwan
NPO-NMH
WHO Country Office
Kathmandu, Nepal
Tel: 977 1 5523993; Fax: 977 1 5527756
Email: NelwanI@who.org.np

Dr Ri Il Yong
NPO
Office of WHO Representative
Democratic People's Republic of Korea
Pyongyang
Tel: 850 2 3817913-14; Fax: 850 2 3817916
Email: llyongr@whodprk.org
Observers
Dr Khem Bahadur Karki  
Executive Director  
Society for Local Integrated Development  
Nepal  
Telephone: 00977-1-5548455; Fax: 00977-1-5549814, Mobile: 98510-54190  
E-mail Address: kkarki@ntc.net.np, solidnepal@wlink.com.np

Dr Pradeep Kumar Shrestha  
Program Director  
Asha, Nepal  
Telephone: 00977-1-4415179;  
Fax: 00977-1-4443411  
E-mail Address: drpkshrestha@homtail.com, asthanep@ccsl.com.np