REPORT OF THE
FIRST INTERNATIONAL REVIEW MEETING
PRACTICAL APPROACH TO LUNG HEALTH
(PAL) STRATEGY

4–6 September 2002
Rabat, Morocco
Acknowledgements

The First International Review Meeting on the Practical Approach to Lung Health (PAL) Strategy was held from 4 to 6 September 2002 in Rabat, Morocco. The meeting was organized in collaboration with the Moroccan Ministry of Health, under the patronage of H.E. Mr Thami Khyari, the Minister for Health. We should like to extend our gratitude to the Moroccan authorities for their hospitality and active participation in the review meeting.

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We gratefully acknowledge the full support of Dr Robert Scherpbieier, whose contribution made the meeting successful.

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The final report of this meeting has been prepared from contributions made by all the speakers at the meeting. It has been compiled by Katharine Mann, an independent writer and editor, and reviewed and edited by Dr Salah-Eddine Ottmani, with input from Dr Giuliano Gargioni, both from the WHO Stop TB Department. Comments and suggestions were provided Dr Nadia Aït-Khaled (IUATLD), Dr Niels Chavannes (The Netherlands), Dr Ruben Gamboa (Chile), Dr Nikolai Khaltaev (WHO) and Dr Manuel Zuñiga (Chile).
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<th>Acronym</th>
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<tr>
<td>AIDS</td>
<td>acquired immunodeficiency syndrome</td>
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<td>ALHI</td>
<td>Adult Lung Health Initiative</td>
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<td>ALRI</td>
<td>acute lower respiratory infection</td>
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<td>ARI</td>
<td>acute respiratory infection</td>
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<td>AURI</td>
<td>acute upper respiratory infection</td>
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<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
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<td>CDST</td>
<td>Centre de Diagnostic Spécialisé de la Tuberculose</td>
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<td>DOT</td>
<td>directly observed treatment</td>
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<td>DOTS</td>
<td>the WHO strategy to control TB</td>
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<td>EBO</td>
<td>Enfermedades Bronquiales Obstructivas</td>
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<td>ERA</td>
<td>Enfermedade respiratorias del Adulto</td>
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<td>HIV</td>
<td>human immunodeficiency virus</td>
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<td>ICD</td>
<td>International Classification of Diseases</td>
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<td>IMCI</td>
<td>Integrated Management of Childhood Illness</td>
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<td>IUATLD</td>
<td>International Union Against Tuberculosis and Lung Disease</td>
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<td>NTP</td>
<td>national tuberculosis programme</td>
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<td>PAL</td>
<td>Practical Approach to Lung Health</td>
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<td>PALSA</td>
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<td>PHC</td>
<td>primary health care</td>
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<td>RD</td>
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Executive Summary

This publication is the report of the First International Review Meeting of the Practical Approach to Lung Health (PAL) Strategy that was held from 4 to 6 September 2002 in Rabat, Morocco.

PAL is a comprehensive integrated strategy for the management of respiratory conditions that has been developed as one of the components of the Global DOTS Expansion Plan — a cost-effective strategy developed by WHO to fight TB. The core components of PAL are standardization of management of respiratory conditions and coordination of referral between different levels of health care.

The meeting was organized to review the ongoing experiences of four “pilot” nations — Chile, Morocco, Nepal and South Africa — with the adaptation and implementation of the PAL strategy. The aim of the meeting was to draw lessons from these experiences and to discuss the future development and implementation of PAL.

This report describes the PAL strategy and its development. It looks at the protocol that has been developed for conducting PAL surveys and reviews the results of the surveys that were carried out to assess the capacity of health care facilities in various countries to manage respiratory conditions. Using the presentations made by participants in the meeting as a starting point, it explores its adaptation and implementation in the four “pilot” nations that have been involved in different PAL studies and the lessons learned from their experiences. It looks at how PAL guidelines have been successfully adapted to specific country contexts, with different epidemiological situations and varying levels of demographic and socioeconomic development.

The report goes on to examine how this strategy, which has been developed for the management of respiratory conditions within primary health care facilities, can be used to manage conditions requiring more serious attention within secondary health care facilities, and how the referral process works. It looks at the linkages between the two levels of care.

The report then describes the validation studies that have taken place or are in progress and the criteria that have been chosen to validate the PAL strategy, including cost-effectiveness and improved health care outcomes.

Finally, the report describes the conclusions that were drawn from the meeting. These include that PAL is an effective strategy for managing respiratory conditions, that it can reduce rates of misdiagnoses and significantly improve detection rates, that it can reduce dependence on expensive and sometimes inappropriate antibiotics, and lower drug costs.

The report lists the recommendations put forward by participants for the future development and implementation of the PAL Strategy, including that a Working Group on PAL should be established under the auspices of WHO to draw on field-based experiences with PAL in different settings to ensure the continued development, adaptation and implementation of PAL to improve the efficiency of health care delivery systems and contribute towards improving respiratory health within populations.
Report of PAL Review Meeting

Background

1.1 Global burden of respiratory diseases
Respiratory diseases are among the most common diseases to occur worldwide. They occur in all societies, regardless of their levels of development or affluence, and are common among all age groups and sectors of the population. Respiratory diseases are estimated to account for some 19% or 10.5 million annual deaths worldwide and for up to 30% or more of patients seeking care in primary health care (PHC) facilities, placing one of the greatest burdens on health services.

Pneumonia and other acute respiratory infections (ARIs), tuberculosis (TB), asthma, chronic obstructive pulmonary disease (COPD) and cancer are the leading respiratory causes of morbidity and mortality among adults. TB and pneumonia are important causes of morbidity and mortality in young adults in low- and middle-income countries, while pneumonia and lung cancer in the over-50s are the most important respiratory disorders in high-income countries. COPD is a frequent cause of death everywhere. Asthma affects about 150 million people worldwide and is the most prevalent chronic disease in childhood.

ARIs range from conditions such as mild influenza to severe pneumonia. Acute upper respiratory infections (AURI) are common to all populations and are more frequent than acute lower respiratory infections (ALRI). In lower-income countries, the incidence of pneumonia tends to be higher in young people; in high-income countries, it is higher among the over-60s.

1.2 Tuberculosis
Worldwide, 1 person in 3 is believed to be infected with the TB bacillus. Every year, some 8 million people develop active TB and approximately 2 million of them die from the disease, mainly in developing countries. As with other respiratory diseases, TB is more common in urban than in rural areas, particularly where overcrowding occurs. Twenty-two countries are estimated to bear 80% of the burden of the disease. Its prevalence is higher in low- and middle-income countries, particularly in those countries with a high incidence of HIV infection.

The burden of TB, both economic and social, is substantial. TB tends to be more prevalent among the economically active group of the population, with 80% of cases affecting those aged 15–50 years. The stigma attached to TB leads to exclusion from active life in some countries or regional settings.

In April 1993, WHO declared TB a global emergency and encouraged WHO Member States to implement DOTS, a well-established and cost-effective strategy to fight TB.

1.3 The DOTS strategy
The DOTS strategy has five components:
- Political commitment on the part of governments to control TB.
- Development of accessible smear microscopy for the diagnosis of TB among suspected patients.

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• Use of standardized short-course chemotherapy for the management of TB cases under proper conditions, including through direct observation of treatment, at least during the intensive phase of the treatment.
• Steady supply of essential anti-TB drugs with proven quality assurance.
• Recording and reporting system for TB surveillance and for assessing the performance of TB control activities.

1.4 Global targets of DOTS
The objectives of the DOTS strategy are:
• to detect 70% of smear-positive TB cases existing in communities; and
• to cure 85% of them by the year 2005.

To date, of the 210 WHO Member States, 155 have introduced DOTS strategy activities in their national health systems and 60% of the world’s population is covered by DOTS. Where DOTS is implemented under properly managed programme conditions, it can result in rates of cure of 80% to 90%. However, the rate of TB detection still remains low. Indeed, it is estimated that only 32% of estimated cases at the global level are detected and treated under DOTS conditions.

To overcome this deficiency and further the objectives of DOTS, WHO has developed a multifaceted approach to control TB: the Global DOTS Expansion Plan.

1.5 Global DOTS Expansion Plan
The Global Dots Expansion Plan includes the following elements:
• Accelerating DOTS population coverage through the mobilization of technical, managerial and financial resources at global, regional and national levels in order to achieve the global targets set.
• The development of a TB/HIV strategy to improve the detection and management of TB among HIV and AIDS patients in collaboration with HIV/AIDS programmes.
• The public–private mix project (PPM-DOTS), which aims to involve the private health sector in TB control activities, as defined in the DOTS strategy.
• Measures to tackle health system deficiencies. These include:
  1) Community-based DOTS, which aims to involve the community in TB control efforts, particularly in countries with poor accessibility to PHC services.
  2) PAL, which aims to ensure the appropriate management of respiratory patients within the health system.
Practical Approach to Lung Health

In 1997, WHO, in collaboration with other partner institutions, began developing a standardized and coordinated strategy for the combined management of TB and other respiratory diseases. This strategy, originally known as the Adult Lung Health Initiative (ALHI), was later re-named the Practical Approach to Lung Health (PAL).

PAL drew on the experiences of DOTS and other successful WHO strategies such as the Integrated Management of Childhood Illness (IMCI), both of which provided useful models for standardization and coordination. It aims to improve the management of respiratory care in health systems with a focus on primary care services in order to increase TB detection and improve the quality of TB diagnosis. In addition, because of the lack of standardization, it is believed that current patterns of care for respiratory diseases are both inefficient and of poor quality in many settings. Furthermore, the weak continuum of care between home care and care within health facilities as well as cross-referral between primary and secondary care settings is not clearly defined in most country settings.

2.1 What is PAL?
PAL is a syndromic approach to the management of patients who attend PHC services for respiratory symptoms. The PAL strategy is aimed at multipurpose health workers (nurses, health officers, physicians, etc.), managers in PHC settings as well as managers of TB control programmes and other respiratory disease control programmes in low- and middle-income countries.

2.2 Objectives of PAL
PAL has two primary objectives:
- to improve the quality of respiratory care management; and
- to improve the efficiency of respiratory care service delivery within health systems and optimize the cost-effectiveness of health service delivery.

2.3 Components of PAL
To achieve its objectives, PAL relies on two main components:
- standardization of health care service delivery; and
- coordination between different levels of health care, particularly for referral.

2.4 Focus on priority diseases
PAL focuses on four priority respiratory diseases in patients aged 5 years or more. These diseases are:
- TB
- ARI, with a focus on pneumonia
- Asthma
- COPD.

For such a strategy to be successful, however, it requires good TB control programme conditions, good PHC services and the development of guidelines tailored to the specific context of each country.

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4 Partners and institutions that also contributed to the development, implementation and evaluation of PAL included the International Union Against Tuberculosis and Lung Disease (IUATLD), the University of Santiago de Chile, the Ministry of Health of Morocco, the South African Medical Research Council, the Free State University, the University of Cape Town Lung Health Institute, Erasmus University Rotterdam, Johns Hopkins University, and the University of California, San Francisco.
In order to draw up practical guidelines for the implementation of this strategy, WHO undertook surveys of respiratory care in PHC settings. The surveys sought to determine which elements needed to be considered in guideline development. These surveys were carried out between 1997 and 2000 in nine countries: Argentina, Chile, Côte d'Ivoire, Guinea, Kyrgyzstan, Morocco, Nepal, Peru and Thailand.

Subsequently, PAL guidelines, study protocols, training materials and other activities were developed and implemented in some countries.

PAL guidelines for first-level health care facilities were developed in collaboration with the University of San Francisco. These guidelines are currently being tested in Chile.

PAL guidelines were also developed, in collaboration with WHO and the International Union Against Tuberculosis and Lung Disease (IUALTD), and implemented nationwide in Morocco.

Plans for a pilot site in Nepal to test the cost-effectiveness of the PAL strategy were developed within the framework of a cost-effectiveness study put together in collaboration with the Universities of Maastricht and Erasmus in the Netherlands. Finally, in South Africa, a pilot site was developed in Cape Town with the University of Cape Town Lung Institute for a PAL guideline validation study. A cost-effectiveness study is being planned in the Free State.

In order to be effective, the PAL strategy needs to adapt to the particular environment in which it is being implemented. This adaptation should take into account the epidemiological transition process, the population age structure, the level and the quality of health services, and the resources available within the health system. It must be also be driven by field experiences.

To this end, a review meeting was organized from 4 to 6 September 2002 in Rabat, Morocco. The meeting was organized to review the experiences in different countries to date, to identify the problems and obstacles that have arisen in the adaptation, development and implementation of PAL, to look at the results of PAL activities, and to discuss and come to an agreement about the next steps for the strategy.
3.1 Introduction
The first PAL review meeting took place from 4 to 6 September 2002 in Rabat, Morocco, and brought together 62 participants from 10 countries. The main objectives of the meeting were:

- To share experiences on the adaptation, development, implementation, validation and testing of respiratory care strategies and practice guidelines, the latter intended for health workers at first-level and referral facilities in middle- and low-income countries.
- To acquire evidence and/or consensus-based recommendations for the further adaptation, development, implementation and evaluation of the PAL strategy, its associated guidelines and health management information system.
- To define the roles of national TB programmes (NTPs) and PHC departments in PAL adaptation, development and implementation.
- To secure the endorsement by the participants of the PAL strategy as an essential health care delivery package.
- To establish an international advisory and working group on PAL.

3.2 Four “pilot” countries invited
Countries that attended the meeting were invited according to a variety of criteria. These included that they had successfully implemented DOTS; that their health services had already begun implementing the PAL strategy or are involved in studies being conducted in pilot sites; or simply that they had an interest in the topic.

Four “pilot” nations with a greater experience in PAL adaptation and development were singled out for particular attention and consideration. These were Chile, Morocco, Nepal and South Africa. With the exception of South Africa, all were countries in which PAL surveys had been conducted.
A multifaceted strategy: introducing PAL and its many applications

The PAL strategy is a component of the Global DOTS Expansion Plan because it is the logical extension of successful TB control programmes.

The meeting began with an overview of the PAL strategy, its components and its objectives. It reviewed the results of the nine PAL surveys that were conducted between 1997 and 2000 and drew conclusions. It reviewed the experiences of Algeria, Chile and Morocco and examined the experience of one organization in putting together an approach to managing asthma and how this could be improved through the implementation of PAL. Finally, as part of the introduction to PAL, this session heard about PAL and its role in sectoral priority-setting.

4.1 Nine PAL surveys conducted

Nine PAL surveys were undertaken between August 1997 and February 2000 in Argentina, Chile, Côte d’Ivoire, Guinea, Kyrgyzstan, Morocco, Nepal, Peru and Thailand.

Patients studied were those aged 5 years or more who attended PHC facilities for respiratory symptoms. In total, 76 health care facilities participated in the surveys. Of these, 54 (71.1%) had medical officers, while 22 (28.9%) did not. Some 29 399 patients were enrolled in the surveys.

The findings of these surveys indicated that the burden of respiratory conditions within PHC varied among the study countries. However, the overall proportion of patients with respiratory symptoms accounted for about one-fifth of the number of patients attending PHC facilities for any reason. Among all the patients with respiratory symptoms, between one-third and two-thirds were more than 5 years of age. In general, more females than males were enrolled in the study countries.

In general, more than 80% of respiratory patients were categorized as suffering from ARIs, both in settings with and without medical officers. Overall, the proportion of TB suspects accounted for less than 10% in both settings. In most of the study settings, the proportion of AURI was higher than that of ALRI. Pneumonia accounted for a tiny percentage of ARIs in all settings. Chronic respiratory diseases such as asthma or COPD were categorized as such more often in settings with medical officers than without. The number of cases of TB only accounted for a small percentage: 1.4%.

The surveys also revealed that sputum-smear examination was the most commonly requested laboratory test within PHC facilities. This may suggest that workers in primary care settings do actively attempt to detect TB cases among patients consulting for respiratory diseases. However, there was evidence that smear examinations were also requested for non-TB suspects as well, indicating a possible misuse or absence of usual criteria for identifying TB suspects in some country settings. While there did not appear to be an overall over-prescription of drugs within PHC, there was possibly an over-prescription of antibiotics, given that most respiratory conditions categorized by staff in PHC were treated as self-limiting conditions. In both settings, about two-thirds of respiratory patients received antibiotic prescriptions. In addition, when bronchodilators were prescribed, inhaled β2-agonists were not widely used, probably on account of their high cost and/or non-availability in PHC.

The strengths and weaknesses of the survey methodology were discussed. These included use of different sample sizes, variations in population age structures,
misclassification, seasonal variations and differing stages of epidemiological transition among the study countries.

The findings suggest that there is a need for standardization of the management of patients with respiratory symptoms within health systems as well as for coordination between the different levels of health care services.

4.2 Using PAL to set priorities

After the presentation of the PAL survey results, meeting participants were told of the importance of defining priorities to manage diseases and how PAL could provide the framework within which to do this.

The PAL surveys have demonstrated that there are variations in the categorization and management of respiratory diseases across countries. These variations can sometimes be explained by the status of epidemiological transition or by the burden of disease. These variations can have serious consequences, including misdiagnoses, erroneous administration of treatment and an over-prescription of antibiotics, with all their related health and financial implications.

To overcome these problems, it is important to set priorities. First, it is important to set treatment priorities according to the burden of disease, i.e. to diagnose and treat those diseases whose impact, both economic and social, is the most important. Once the most pressing diseases have been identified, standard procedures for treatment can then also be applied. Sometimes, the costs inherent to drugs act as a deterrent to treatment. This obstacle can be overcome in poor countries through standardization and the rationalization of drug prescriptions. Where possible, cheaper generic drugs, with proven efficiency, should be administered. Drugs from the WHO List of Essential Drugs should be given preference over other forms of treatment.

The question of priorities clearly points to a need for tailoring the strategy to the country context. Setting priorities will depend on different contributing factors, including level and incidence of poverty, poor nutrition, levels of education, epidemiological and demographic transition levels, quality of health system performance, etc.

The PAL strategy can cope with these different contexts. PAL provides a framework for the standardization of case management through the use of clinical practice guidelines. These guidelines are based on models drawn from IMCI and the DOTS strategy. They provide procedures for symptom-based case management, provide definitions to determine the severity of disease, define referral and counter-referral procedures between health care levels, and make proposals for cost-effective management.

4.3 Using PAL to manage specific diseases: the IUATLD asthma experience

The PAL strategy can be adapted to the management of specific diseases as well as to different income brackets, different levels of development and different stages of epidemiological transition.

Asthma is a serious, chronic condition, which cannot be definitively cured. However, with good management and the use of inhaled corticosteroids and bronchodilators, it can be managed and the suffering of patients alleviated. Use of appropriate treatment can prevent the condition from deteriorating. If properly managed, the costs of treatment can also be controlled and reduced.
The IUALTD first published guidelines for the management of asthma in low-income countries in 1996. They extrapolated from the guidelines for the management of TB. The guidelines used standard formats, simple, affordable tools, and included important instructions for follow-up of patients. They also contained instructions for monitoring activities. These guidelines have now been implemented by health workers in specialized centres in eight countries where follow-up activities have also been carried out. These studies showed the feasibility and the efficacy of the technical measures recommended by the IUATLD asthma guide. Another study, conducted in Mexico, was an intervention health study (comparison before and after implementation of the asthma IUATLD technical measures). One year later, the data analysis showed that the intervention is very cost-effective: appropriate drugs have been prescribed by physicians; asthma control and decrease in asthma severity grade have been obtained for the majority of patients. In addition, despite the higher cost of drugs used during the intervention, the cost of the total management has substantially decreased due to dramatic decrease of the number of emergency visits and hospitalizations.

Despite the success of this exercise, some obstacles have nonetheless been encountered in the use of the guidelines. These include poor availability of equipment, poor access by the population to health services, lack of health insurance and limited access to drugs. The IUALTD has concluded that some of these obstacles could be overcome by standardization and coordination.

Based on the experience with the guideline for managing asthma, the IUALTD has drawn the conclusion that if it is to be truly efficient and cost-effective, it needs to be implemented within the context of a wider health strategy such as PAL. The framework provided by PAL can help to increase the level and quality of care services. Its emphasis on training of personnel can help to strengthen the capacity of health workers to identify and manage conditions. The integrated approach can improve the management of respiratory conditions such as asthma and TB. Its emphasis on the essential list of drugs and the use of generics can ensure that patients are treated with the appropriate drugs thereby significantly reducing drug costs.

4.4 Adapting PAL to the context: lessons from Algeria
Programmes implemented for the management of TB in Algeria, Chile and Morocco have highlighted the usefulness and importance of using an integrated strategy such as PAL to manage respiratory conditions.

Since 1980, Algeria has been in a state of epidemiological transition and today it is confronted with the double burden of disease. Algeria’s TB programme is the most senior of its health programmes. The NTP was integrated into the health services as early as 1972; the TB project was integrated within the Ministry of Health in 1975. Algeria has developed and implemented a guideline to manage TB with considerable success.

The success of the NTP prompted the Algerian health authorities to develop a comprehensive programme to manage respiratory diseases as early as 1986; however, it was not until 1989 that it became an integral part of the health service run by the Ministry of Health.

Algeria’s experience with programmes to manage respiratory diseases has been very positive. Today, the incidence of TB is on the wane — as is the number of antibiotic prescriptions — which has led to major savings. The guidelines have also had a beneficial impact on the treatment of other respiratory diseases. However, despite these
encouraging signs, the incidence of respiratory diseases in Algeria has nonetheless increased.

These dual findings (a decrease in the incidence of TB coupled with an increase in the incidence of chronic respiratory diseases) have led the Algerian health authorities to the conclusion that further efforts are needed to manage respiratory conditions. Algeria’s experience with TB control and the management of other respiratory diseases has highlighted the need for a comprehensive integrated programme to tackle respiratory diseases.

4.5 The Chilean TB experience

Chile is another country where the experience with the TB programme has reinforced the need for a similar programme to deal with all respiratory diseases.

Chile is a country whose epidemiological and demographic transition is advanced. It has an ageing population. In the past few decades, levels of poverty in Chile have markedly decreased. Chile successfully implemented the DOTS strategy very early. Today, the frequency of TB has been reduced, as has TB mortality. Chile has also implemented a programme to manage chronic respiratory diseases.

Although rates of respiratory diseases generally decreased between 1961 and 1983, this trend has been reversed during the past 20 years, and the incidence of respiratory diseases has increased with the highest rates occurring among those aged over 65 years.

Apart from its epidemiological status, the main explanation that has been found for this state of affairs is that while Chile has fairly well developed TB and other respiratory programmes, there is still no comprehensive integrated programme to manage all respiratory diseases.

As with Algeria, the conclusion that has been drawn from this is that there is an urgent need for the establishment of an integrated programme to deal with all respiratory diseases, including TB. This finding has been reinforced by the fact that in the past three years, Chilean health authorities have begun to devise management plans for respiratory diseases based on models drawn from the TB programme and IMCI. A pilot project has now been implemented in Santiago. The outcomes, in terms of disease, of this pilot project have demonstrated, among others, that a global integrated approach to respiratory diseases can help to rationalize the use of severely stretched resources.

4.6 A pilot study: further lessons from Chile

Chile is currently working on the development of a programme for the care of COPD, asthma, pneumonia and tuberculosis. It is also involved in a PAL validation study.

If the TB control programme in Chile has been fairly successful to date, the incidence of COPD and asthma nonetheless remains high. The success of the TB programme in Chile has thus prompted the health authorities to adopt a similar approach to COPD and asthma. An important feature of the Chilean health system is that 60% of patients seek treatment within the public sector, while 40% seek private health care. Any programme established to manage COPD therefore has to integrate this private–public mix.

The pilot programme for COPD, asthma and pneumonia is intended for adults. To date, it has been implemented in 14 PHC facilities in eastern Chile. The aim is eventually to replicate it in different areas of Chile.
One of the core aspects of the programme is that it aims to control asthma and COPD by, for example, educating patients about risk factors such as smoking, indoor and outdoor pollution, poor nutrition, and exposure to allergens.

Early experiences with these pilot schemes have already highlighted some of the problems facing the country’s health programmes. These include lack of access to services by patients, lack of standardized diagnostic procedures, lack of accurate information, lack of access to appropriate drugs and treatment, and poor coordination between primary and secondary health settings making referral systems inefficient. Vastly different medical cultures between the private and public sectors have also exacerbated some of these problems.

In the light of these findings, some specific strategies have been devised to manage chronic respiratory diseases. Diagnostic procedures have been developed to determine the appropriate level of treatment needed. Procedures for referral of patients between levels of the health system have also been drawn up. In that way, patients requiring minimal intervention can be treated in PHC settings, while those with a more severe health disorder can be referred to secondary health care facilities. Such referral procedures and the accompanying coordination also mean that following treatment in secondary level facilities, patients can be referred back to primary care facilities for follow-up and monitoring. This has led to considerable cost savings since management of diseases in secondary care facilities is generally more cost-intensive. Guidelines have also been developed for procedures, personnel training, follow-up, and diagnostic standards.

4.7 Using the NTP as a stepping-stone — from TB to the integrated management of respiratory diseases: the Moroccan case

The Moroccan experience with TB control was presented to reinforce how the success of the TB programme could be extrapolated to cover other respiratory diseases.

Morocco is currently undergoing both demographic and epidemiological transitions, but TB remains a major public health problem with 28 000 to 29 000 new cases every year. Out of a pool of 200 chronic TB cases nationwide, 40% to 45% were found in Casablanca. However, TB/HIV is not an issue in Morocco, with less than 1% of TB patients being HIV-positive.

Morocco adopted the DOTS strategy in 1991 and since then has implemented guidelines for the management of TB throughout the country and throughout different sectors. There is good collaboration between the public and private health sectors in the management of TB. Some 30–40% of cases of TB notified by the NTP are referred by private physicians to the public sector. Prison health services and the army are also integrated with the NTP and involved in TB control activities.

The success of the TB programme in Morocco has been impressive. There is a 90% detection rate and a 90% treatment rate. Drug resistance is fairly low. A survey carried out in Casablanca in 1998 showed a primary drug resistance prevalence of 8.6% and a primary multidrug-resistance rate of 2.2%. However, the decrease in the smear-positive incidence of TB has only been of the order of 2% to 3% per year since 1995.

Morocco’s successful experience with TB management clearly demonstrates the achievements that can be attained by using a rational and standardized programme and argues in favour of a combined strategy to manage TB and respiratory diseases to ensure a better rationalization of the management of respiratory diseases.
This combined management strategy has been implemented as part of the need to assist with the ongoing health sector reform and decentralization of the health service that are taking place in Morocco. At the heart of this strategy lies the need to sustain the successes achieved in the control of TB as well as to cope with demands for more effective management, by the health care services, of other respiratory diseases such as COPD and asthma.

It is hoped that combining the management of TB with that of other respiratory diseases will help to improve the detection of TB and the quality of TB diagnoses. It is expected that this approach will contribute to strengthening PHC services and lead to a better management of health resources. Finally, the combined strategy should serve to promote respiratory health in public health service settings.

4.8 Choosing the right intervention: sectoral priority-setting in health

Sectoral priority-setting is about choosing the essential health package and appropriate interventions. It is usually driven by the burden of disease, equity concerns, financial implications and cost-effectiveness. Cost-effectiveness is a vital element of any health programme. It often determines the choice of treatment. Health policies too are sometimes chosen on the basis of cost-effectiveness where governments choose essential packages based on cost.

There are two principal questions to be asked when determining cost-effectiveness. First, do current resources devoted to health achieve as much as they could? And second, if additional sources became available what would be the best use of them? Answering these questions requires evidence through evaluation.

In order to evaluate the cost-effectiveness of various health packages, WHO has established WHO-CHOICE (CHOosing Interventions that are Cost-Effective). This is a global database that uses a modelling approach to evaluate new and current interventions and provide comparisons between different health interventions. Information about diseases is gathered using six analytical steps. First, a disease model is constructed using a variety of data (including incidence, prevalence, etc.). Then a review is carried out of the existing literature (epidemiology, disease history). The third stage involves the construction of a null set (treatment models). Then, an estimation of effectiveness is carried out. Subsequently an estimation of cost is put together. Finally, a cost-effectiveness league table is generated. To date, WHO has entered between 100 and 200 health interventions into the CHOICE database. The resulting league tables help to determine the most cost-effective interventions and thus set priorities.

The PAL evaluation studies, with their emphasis on information gathering, can feed into the CHOICE database. By extrapolating the results of the regional surveys to the national level, they allow a national level analysis. Feeding the results of PAL into the CHOICE database allows a comparison of PAL strategies with health interventions for other disease groups. The final outcome enables sectoral priority-setting. PAL can therefore play a two-pronged role in the setting of sectoral priorities. On the one hand, the information gathered thanks to PAL can be used by WHO-CHOICE to generate league tables. On the other hand, the CHOICE league tables can enable a comparison of PAL with other types of intervention. The two can be mutually reinforcing and help to strengthen health interventions.
Developing guidelines and adapting them to primary care

The four “pilot” countries invited to attend the review meeting have all adapted the PAL guidelines to their own specific context. During the next session of the meeting, participants from these four countries explained how they had adapted the guidelines to PHC services in their own countries and what lessons they had learned.

5.1 Generic PAL: advantages and disadvantages of structured adaptation

Development of the WHO PAL guidelines began towards the end of the 1990s. They were drawn up as standardized generic guidelines that could be adapted to suit the particular contexts in individual countries. They focus on priority (sectoral priority) problems and are simplified so that they can be used within primary level facilities. They are symptom-based and require essential drugs and limited support from laboratories.

The guidelines can be used by multipurpose health workers with limited clinical training. They cover certain key interventions and have been devised to be cost-effective and suitable for application in low- or middle-income countries.

The PAL guidelines are based on the IMCI first-level facility guidelines and use many of the same tools, including severity classification tables and treatment instructions. They also share many of the same drugs, skills and protocols for post-training support. The guidelines for primary care settings cover a wide variety of issues ranging from training of personnel to diagnosis and treatment. They provide instructions for the management of a wide variety of symptoms such as chronic cough or difficult breathing. In addition, they outline clear instructions for: routine screening and laboratory procedures, treatment, prevention, advice to patients on self-care, smoking cessation, lifestyle changes, follow-up, and palliative care.

PAL guidelines have been adapted to asthma and COPD and here again, experience has shown that they have helped to improve management of these conditions. They have also helped the referral process between different levels of the health service, as practitioners have been able to use them to determine when to refer patients for further diagnosis or treatment. They have also improved counter-referral: once a patient has been seen at the secondary health level, he or she is often referred back to the first-level for follow-up and monitoring.

While the generic guidelines are expected to be very useful, in order to be truly effective and reach their targets, they need to be adapted to the context, both economic and epidemiological, in which they are to be implemented. This process is known as “structured” adaptation.

The adaptation of generic guidelines is carried out using an adaptation guide. The PAL adaptation guide has been developed along the same lines as the IMCI guide. The adaptation guide includes instructions about the adaptation process; protocols for undertaking local studies in order to identify possible adaptations; and details of training materials and how these can be changed to suit the context.

The use of an adaptation guide does carry certain risks. The materials to guide adaptation need to be developed and there is a risk that they could become rigid if staff and consultants supporting the process are not confident, or if they rely on the guidelines as they stand and do not up-date and improve them as required. Also, there could be
professional resistance to them if clinical practitioners decide to use their own individual approaches.

This indicates that the adaptation of guidelines must be a dynamic process; it must be ongoing if they are to remain relevant to the context. Adaptation requires changes in the way practitioners operate and in their clinical and prescriptive habits. It requires ongoing training and education.

In the future, therefore, PAL will require considerable financial and technical resources if it is to remain dynamic and relevant. It will also require political will from health authorities and buy-in from medical and clinical practitioners. To be truly effective, those who use it will have to feel a sense of ownership.

5.2 Strengthening primary health care in Chile
The implementation of PAL requires well functioning PHC services.

Chilean experiments with strategies for managing various respiratory diseases have clearly pointed to a need for strengthening PHC services. Pilot strategies tested towards the end of the 1990s demonstrated that health care could be made more efficient and cost-effective by treating more patients and conditions at the primary care level rather than referring them to the secondary care level, to hospitals and to specialist consultants. Indeed, as the PAL survey showed, many syndromes require simple, low-cost interventions that could be dispensed within primary care services.

In response to this, since 2000, Chilean health authorities have begun to set priorities for strengthening PHC. These include strengthening health teams working in PHC by the introduction of multidisciplinary health personnel including general practitioners, midwives, ophthalmologists, dentists, ear-nose-throat specialists, etc. Today, out of a total of 13 000 physicians, 2000 work in PHC settings; out of 5000 nurses, 1063 are in PHC settings; and 1800 out of 4000 midwives now also work in PHC. Despite these efforts, there nonetheless remains a shortfall in the number of physicians with an estimated 1500 still needed in PHC.

Emphasis has been placed on prevention activities such as nutritional programmes, education and vaccination programmes, including an influenza vaccine for the elderly and people at high risk. Today, Chile boasts 85% coverage of the influenza vaccine. The authorities have also sought to improve the equipment available in primary care settings with the introduction of testing laboratories, radiography facilities, etc. Today, 200 PCH settings boast testing laboratories. Programmes for managing respiratory diseases in both adults and children have also been introduced.

These policies have been very successful. To date, Chile has 445 PHC and 106 rural health centres and access by the country’s population is widespread. Approximately 8 million people are registered in primary health centres, which receive US$ 20 per patient registered per year. The Chilean health budget is currently about US$ 58 million per year, approximately 7% of Chile’s GDP. Of this, 7% is financed from social benefit contributions and 30% financed directly by the state. The rest is financed from health insurance contributions.

Despite some of the more obvious problems – shortage of personnel – the overall performance of primary care services in Chile has been very successful.
5.3 Implementing an adult respiratory disease programme in primary care settings

The experience with the development of programmes for managing COPD and other specific respiratory conditions in Chile has stimulated the national health authority to work towards improving respiratory care within PHC settings. In 2001, therefore, a project for adult respiratory diseases was initiated and implemented in PHC settings.

The programme was also initiated because of the increase in the incidence of chronic respiratory diseases and because of the ageing population. Moreover, routine data have shown that one-third of PHC visits are for respiratory symptoms.

PHC became the recipient for this programme. Indicators were developed to measure impact; lessons were drawn from the NTP programme; and emphasis was placed on the benefits of smoking cessation. In 2001, a pilot plan was implemented in 15 centres in Chile. Centres were reorganized to manage respiratory diseases; medical teams were coordinated and instructed in the use of defined diagnostic and treatment procedures. Epidemiological information was gathered and standard formats were used to devise scores to determine follow-up for asthma and COPD. These enabled the compilation of statistics relating to clearly distinguished syndromes and their subsequent management. Since then, sentinel centres have been established and criteria have been developed to provide standardized information. Today, this programme covers 64% of the population of Santiago and now enables the analysis of respiratory diseases by population group and by age.

The main problems that have been encountered in the implementation of this programme have been limited drug availability; lack of coordination between staff in primary health centres and general practitioners in the private health sector; and the limited availability of hospital beds for those needing more advanced treatment. Finally, it has been observed that in many instances, general practitioners do not follow the guidelines.

These problems notwithstanding, it has nonetheless been possible to draw certain key conclusions from this experience. Information gathered has shown that the frequency of bronchial asthma is high; community acquired pneumonia needs to be treated early; and TB is still an important health problem. Finally, there is a need to reorient resources and carry out impact evaluations.

The Chilean experience has served to underscore the need for guidelines to strengthen PHC settings to cope with the burden of respiratory diseases.

5.4 Lessons from PAL: the Moroccan experience

Morocco has adapted the first PAL guidelines and implemented them within PHC settings in the country. This experience has yielded some very important findings that further underscore the importance of adopting a comprehensive integrated approach to manage respiratory diseases.

Morocco adapted the guidelines to its own context by using recent data about respiratory conditions. Subsequently, it adapted the procedures to the different settings and working conditions in which they were to be implemented.

Symptom-based guidelines were developed for general practitioners and nurses practising in PHC settings. They provided instructions for an integrated approach to TB and respiratory diseases rather than a disease-by-disease approach. The standardization of the management of respiratory diseases led to improved management and significant
cost-reduction. By rationalizing prescription processes, they avoided over-prescription of certain drugs, particularly antibiotics.

The guidelines helped to improve the referral system by defining who should be referred to hospitals or chest clinics and who could be treated at the PHC level. For example, the guidelines stipulated that cases of serious infectious syndromes, severe respiratory failure, and severe and localized thoracic pain should be urgently referred to hospitals for treatment. Influenza, simple acute bronchitis, chronic bronchitis and non-severe pneumonia, could be treated in primary health facilities. Finally, suspected asthma, COPD, etc. were identified as conditions that required referral for further diagnosis or treatment.

In addition, the guidelines clearly define the various components of the monitoring and evaluation system that should be used.

5.5 Adapting the guidelines, process and results: the experience of Nepal

Adaptation of the PAL guidelines in Nepal began in 1999. Eight institutions, both national and international were involved. To this end, two meetings were organized: the first in November 1999, when three groups were formed. These included an Advisory Group, a Steering Group and a Working Group. Later in October 2000, an adaptation meeting was held which resulted in the formation of a further three working groups, an asthma/COPD group, a pneumonia group and a TB working group.

Nepal's adaptation and implementation strategy has included five main elements. The first was the development of guidelines adapted to the local situation. Subsequently, training was organized for trainers and health workers in intervention clinics in the Nawalparasi district. An evaluation study was then carried out to measure the impact of training in the district.

The preliminary results of this study showed that 16 029 patients attended 10 health facilities over a three-month period. Of these, 1589 or 12% presented with respiratory symptoms. Of the patients presenting respiratory symptoms, 252 (15%) had TB. Overall, more women than men attended health facilities, however, more men than women presented respiratory symptoms or were diagnosed with TB.

Following the results of this survey, the three disease-specific working groups adapted the guidelines to suit the Nepali context. The TB group used the NTP policy, while the asthma/COPD group used the optimal treatment possibilities provided by the original PAL guidelines. The group working on pneumonia placed extra emphasis on obtaining supplies of drugs needed in primary health centres, health posts and sub-health posts. In addition, it used the list of locally available essential drugs.

During the adaptation process, a number of constraints became apparent. First, there was no standardized hospital treatment plan for COPD/asthma or pneumonia. Second, oxygen therapy and nebulizers were not available in peripheral health services, nor were inhaled medications. In addition, certain ethical issues arose. Workers in health and sub-health posts are not authorized to administer intramuscular and intravenous injections. The working groups therefore integrated some for alternative oral regimens. For example, it was suggested that for the treatment of pneumonia, benzylpenicillin and gentamicin should be replaced by procain penicillin and chloramphenicol.

Following the completion of their work, all three working groups submitted their reports to the steering groups for approval. In 2002, the NTP conducted training sessions in
Nawalparasi. Subsequently, three training modules were prepared and 36 health workers were trained.

During the training process, a number of obstacles were encountered. They were often of a technical nature and related to the training materials. They ranged from problems with computerized layouts to problems with the translation of the guidelines in Nepali. The programme suffered from an absence of audiovisual materials to illustrate symptoms and clinical signs.

Following training, an evaluation study was carried out. This study yielded the following results. The level of antibiotic prescription was considerably reduced; referrals were more appropriately handled. There was a change in the way prescriptions were issued for asthma. Finally, education and prevention activities meant that patients were made more aware of the consequences of smoking and other lifestyle factors.

The overall observations that have been made following the adaptation of PAL guidelines in Nepal include that examining patients now takes longer than before; however, health workers were happy with the new approach to diagnosis and treatment. Workers who had already benefited from the IMCI training found the PAL training easier. On the downside, workers felt that training was too intensive and clinically oriented; currently not all the tools for diagnosis and treatment exist at the health centre level.

5.6 Case study: South Africa. Respiratory diseases in South Africa before PAL: setting the scene

One of the pilot countries currently involved in testing PAL is South Africa, a middle-income country with a large “developing country” population. In epidemiological terms, South Africa’s resembles that of much of sub-Saharan Africa.

The prevalence of respiratory diseases, particularly TB and silicosis are high and are further complicated by the HIV/AIDS epidemic. The burden of respiratory diseases in South Africa is higher among certain sectors of the population and varies quite considerably according to income levels and the distribution of risk factors. For example, one of the highest burdens of respiratory diseases is found among retired miners. Many suffer from silicosis. Of these, many have also previously been treated for TB. Pneumonia is also common among retired miners. At the same time, the prevalence of pneumonia among poor women in the townships is also high. This is thought to be directly linked to indoor pollution caused by the fuel used in indoor cooking fires.

The incidence of HIV/AIDS is also an important factor as it changes the clinical picture of certain respiratory conditions.

Another problem facing South Africans lies in inequality of access to health care. Public health care covers 80% of the population. However, the public sector only accounts for 40% of the physicians and 30% of health expenditure. Conversely, 17% of the population benefits from private health care, which accounts for 60% of physicians and 70% of expenditure on health.

The response to this situation in South Africa has tended to be the development of policy guidelines to fit every condition and every eventuality. Guidelines exist for managing TB, HIV, asthma and childhood asthma, COPD, community-acquired pneumonia, allergic rhinitis, and for the administration of the influenza vaccine.
Rather than improving health outcomes, however, the presence of so many separate
guidelines has tended to result in the uncoordinated and anarchic management of health
issues resulting in tremendous obstacles to the achievement of guideline-based care.
Indeed, some guidelines are not adapted to the level of care; many have not been
validated; there are too many unrelated guidelines; they have not necessarily been
integrated into clinical settings; physicians and medical practitioners do not comply with
them. Suspicion and antagonism, a hangover from the country’s recent past, have further
compounded the problems.

However, studies have shown that guidelines could be used to influence and modify the
practices of health practitioners; PAL is the ideal strategy with which to do this.

In order for PAL to be implemented, however, it must be accepted by the clinical and
medical community who must feel a sense of ownership. South Africa has therefore
begun to tailor PAL to its own specific context through PALSA (PAL-South Africa).

To do this, the teams are working on the development of context-specific guidelines;
validation of the guideline; implementation of a randomized controlled trial to test the
impact of implementation; and finally an audit revision to adapt the strategy to the
particular situation.

5.7 Adapting guidelines to the South African context
Given the particular situation that exists in South Africa, there is an urgent need to adapt
generic guidelines to the context.

It has already been demonstrated that guidelines are not enough to improve outcomes. To
be effective, they must be properly implemented and tailored to local use. South African
health authorities have therefore begun the development of a multifaceted, evidence-
based tool for implementation in first-level facilities. This has been implemented and
tested in the Free State.

Two of the major problems faced by health care settings in South Africa are a lack of
training of personnel in PHC, and limited resources. Many PHC settings are not equipped
to carry out accurate diagnoses. The result is an over-reliance by personnel in such
settings on apparent symptoms and signs to establish a diagnosis. It is therefore of the
utmost importance to have detailed symptom-based guidelines to assist diagnosis and to
reduce the random reliance on symptom-based diagnosis. Another result of this lack of
resources is the over-prescription of drugs, particularly antibiotics. In the light of this, the
drafting of clinical practice guidelines to optimize the use of resources has been a matter
of some urgency.

In the Free State, health authorities have been working with personnel in PHC settings on
the elaboration of clinical practice guidelines. The adaptation process has taken as its
starting point the current issues surrounding TB control in South Africa, including the late
presentation of TB patients (i.e. patients with TB only consulting health services once the
symptoms were fairly advanced); a low rate of case detection; improper diagnostic
procedures; high interruption rates in treatment; and the impact of the HIV/AIDS epidemic.
Using this as its starting point, the adaptation process was subsequently broken down into
three phases.

During the planning phase, various institutions, including IUATLD, WHO and the Free
State Department of Health, organized a series of meetings with health personnel and
local TB coordinators. They began by devising an intervention package based on an
adaptation of the WHO PAL guidelines. They also developed key messages to accompany these guidelines. They then drew up training materials and training protocols for the implementation of these guidelines.

During the second phase of the adaptation process, the guidelines were implemented in a pilot clinic in the Thaba Nchu area. The district TB coordinator, the clinic TB coordinator and all professional nurses received training in the guidelines using specially adapted training materials. Immediately after training, the guidelines were implemented in the clinic. In order to assess the success of the guidelines, data was collected and analysed after one month.

During the third phase of the project, the results of the data analysis were used to modify the intervention (training package and guidelines) according to local needs. Once this was done, district TB coordinators and other key personnel were trained. Finally, a series of randomized control trials was initiated. The trials are due to continue during 2003, after which they will be applied to other areas of the Free State and to other provinces of South Africa. Preliminary results of these trials have already indicated a much higher rate of TB detection and awareness.
Developing guidelines for secondary-level facilities

The emphasis of PAL has so far been on PHC settings. One of the objectives of PAL is to facilitate coordination so that respiratory conditions requiring further diagnosis and treatment can be referred to higher-level facilities. To this end, guidelines must also be in place for secondary- and tertiary-level facilities.

6.1 Applying PAL in secondary health care settings: lessons from Morocco
Moroccan health authorities conducted a PAL survey in secondary health care settings. The aims of this survey were to assess how personnel in these settings managed respiratory diseases. The survey was carried out in TB and chest clinics in metropolitan Casablanca, Rabat Wilaya and the province of El Jadida. Chest specialists were involved and a special register of conditions was drawn up and implemented in these health facilities for survey purposes. The findings of the surveys show that 40% of patients consulting in secondary care settings did so for follow-up of a previously diagnosed respiratory condition. Some 40% of patients consulted for TB-related issues, while 60% of patients did so for other respiratory diseases. Prescription patterns showed that the costs of treatment in secondary health care settings were on average 2.5 times higher than in primary health settings. This survey will need to be conducted again once PAL has been fully implemented in these same settings.

6.2 Key guideline messages for secondary care
The main objectives of the guidelines for the management of respiratory diseases in secondary care settings, which have been developed in Morocco, are to provide standardized management as well as indicators for referral. The guidelines provide clear instructions to medical practitioners for a hierarchical management of respiratory diseases and particularly of chronic respiratory conditions and TB.

These guidelines list four possible courses of action that should be followed by physicians depending on the severity of the symptoms presented by the patients. These include immediately referring on patients whose symptoms cannot be treated at the secondary care level or whose symptoms do not improve following treatment on the spot. Treating those patients for whom a diagnosis has been established, such as TB or COPD. When a diagnosis has not been established, the guidelines foresee the referral of patients to the next level of health care for further specialized investigations and treatment. Finally, the guidelines also provide instructions for the regular follow-up of patients after treatment.

The guidelines contain instructions about the courses of action to be taken once a patient has been referred to hospital. These include instructions for evaluating symptoms and, subsequently, their appropriate management. They also contain clear procedures about equipment required for this same management.

6.3 Guidelines for referral in the Chilean Enfermedade Respiratorias del Adulto Programme
Chilean health authorities have developed precise guidelines for referral procedures within the Enfermedade Respiratorias del Adulto (ERA) Programme.

Because of epidemiological transition and the socioeconomic changes that have taken place in Chile, there has been a need to reform the traditional model of health care. Training procedures for medical personnel, devising rules and regulations, the establishment of a common clinical database and formal supervision of procedures. Referral criteria have been developed for each respiratory condition. For example, TB patients are referred from primary to secondary settings in the event of a serious adverse
reaction to the drugs used, if the disease is well-advanced or is further complicated by HIV, or if treatment has failed.

This approach to referral has yielded some successes, such as increasing access to chest specialists, strengthening capacity within both primary and secondary health care settings, improving the supply of medical equipment and drugs, and better management of chronic respiratory diseases within PHC settings.

The implementation of these guidelines has also revealed some of the weaknesses in the management of respiratory diseases, such as partial adherence by physicians to the guidelines or poor involvement of the private health sector. No cost-effectiveness study has as yet been carried out.

The conclusions that can be drawn from the Chilean experience are that there is a concerted need for advocacy to convince medical practitioners of the value of using the guidelines. There is a need on the part of the health authorities for commitment to reform the health system. There is a need to integrate primary and secondary levels of care and to create linkages between them in order to manage respiratory cases appropriately.
Linking primary to secondary health care settings

7.1 Taking the holistic approach: epidemiological surveillance in Chile
The Chilean experience with the ERA programme has clearly demonstrated the need for strengthening the system for referral between primary and secondary care settings. This requires the provision of detailed instructions about which conditions should be treated at the different levels of health care and the development of a system to monitor the care provided at the different levels.

Chile has had a system in place to deal with childhood respiratory diseases since the early 1990s, based on the IMCI approach. In addition, Chile has also recognized that any approach to lung health requires a holistic approach and has therefore tried to link respiratory disease with risk factors. To this end, the authorities in Chile have established a system to collect data on illnesses and risk factors. The aim is to find potential correlations between them.

For this, in “sentinel” PHC centres, data are collected on the frequency of respiratory diseases on a routine basis. In addition, information about individual respiratory diseases such as asthma or pneumonia is collected from emergency rooms in hospitals. Daily statistics are gathered and a weekly analysis is carried out. Seasonal variations in disease frequency are also analysed.

Concomitantly, a system for monitoring risk factors impacting on respiratory conditions has also been established. In Santiago, mechanisms have been established to gather details of air quality, levels of atmospheric pollution and climactic conditions. These are then correlated to the health statistics. A number of important conclusions have been drawn from these monitoring activities, such as certain respiratory diseases are seasonal and are more frequent in the spring and autumn; incidence of certain respiratory conditions is related to levels of air pollution.

Taking such a holistic approach has enabled the Chilean health authorities to develop indicators for respiratory diseases. It has also enabled the health authorities to develop a series of indicators to link primary health to secondary health care and to develop detailed guidelines for referral. Finally, by linking respiratory diseases to environmental factors, the health authorities are able to lobby the political authorities and sensitize them to the impact of air pollution on respiratory health.

7.2 Case management at different levels of the health system: lessons from Morocco
Using a PAL model, the Moroccan health authorities have developed tools and guidelines to manage respiratory diseases at different health care levels. These involve the standardized management of respiratory diseases as well as the establishment of a health management information system. The aim of these tools is to standardize the management of respiratory diseases, to define levels of care depending on the syndrome and the symptoms, and to put together a list of essential medicines as part of an essential health care package.

The guidelines for the management of respiratory disease have been applied to PHC centres. They contain a module for training general practitioners and nursing staff in a variety of issues including the equipment necessary to manage patients with respiratory symptoms. They also include a list of essential medicines; indicators for referring patients to hospitals for emergency treatment; information about cases that can be treated in
primary care settings, including provision of first aid and standardized treatment; and
details of cases to be referred to chest clinics for further diagnosis and treatment.

Very specific directives have been issued about the treatment of patients suffering from
chronic respiratory conditions such as TB, asthma and COPD on the one hand, and those
suffering from upper or lower respiratory symptoms on the other hand. The guidelines also
contain details of those respiratory conditions that should be treated at the primary care
level, including the medication they should receive and which should be referred to the
next level.

The Moroccan health authorities have also developed guidelines for secondary health
care settings. Secondary care settings include specialized centres for the treatment of
respiratory diseases, emergency departments of hospitals, and hospital wards. The
personnel concerned by these guidelines include specialist chest physicians, physicians
from emergency rooms, and nursing staff. The secondary level guidelines contain
disease-specific instructions.

An information system has also been developed. This system includes registers,
standardized forms for recording information on diseases by age and gender, as well as
standard forms for follow-up. Guidelines have been developed for supervision of
respiratory case management and for evaluating patient follow-up.

The use of these tools along with the integrated management of TB with other respiratory
illnesses in primary and secondary health facilities in Morocco has been successful.

7.3 Conditions for implementing PAL and the role of the NTP
Survey data from Morocco show that of patients who consult PHC centres, 31.4% present
with respiratory symptoms. Of these, 85% suffer from acute respiratory infections while
about 15% suffer from chronic conditions such as asthma or COPD. TB accounts for
about 1% of respiratory consultations. The Moroccan TB programme is well established. It
is standardized, and each level of health facility has well-defined procedures for the
management of TB cases.

The objectives of PAL are to improve the management of respiratory conditions; to reduce
the levels of mortality and disability due to respiratory diseases; to improve health service
delivery; to rationalize drug prescriptions; and to improve planning and management of
health resources. The strategy adopted by PAL is to combine and integrate the
management of TB with that of other respiratory diseases using a standardized syndromic
approach; establish an information system; and to define clear levels of intervention for all
categories of respiratory conditions.

Using the NTP as a starting point, the Moroccan health authorities have begun the
implementation of PAL. The preparatory phases included evaluating the extent of
respiratory illnesses and the quality of the treatment provided to them in general health
care. PAL guidelines were adapted and developed for first level facilities and for
specialized health centres. Plans were drawn up for training personnel. The strategy was
presented to the national authorities in February 2001 and training began in October

The implementation of PAL has been relatively successful. Large numbers of staff have
received training — both practical and theoretical — in a certain number of provinces and
prefectures.
The experience with PAL has also served to highlight some of the constraints to its implementation, including a lack of financial resources for training and implementation; absence of personnel; lack of general nursing staff; and the prohibitive costs of drugs.

Despite these constraints, however, the experience with the implementation of PAL in Morocco has, on the whole, been a positive one. The personnel that have been trained are very motivated and committed. PAL implementation in the provinces is still ongoing and is expected to be nationwide by December 2003. This implementation involves the training of health workers and the establishment of a monitoring, supervision and evaluation system.

7.4 The PAL contribution to general health services
PAL has not only served to improve the management of respiratory diseases in Morocco, it has also made a very important contribution to general health care services. Because of its emphasis on PHC and training of primary care personnel, PAL has served to rehabilitate and strengthen primary health facilities. It contributes to improving the competencies of regional health care workers to establish more accurate diagnoses. This has resulted in a better utilization of health care delivery services for the population. It has opened up considerable opportunities for health service development and research.

7.5 The impact of PAL on the bronchial obstructive disease programme in Chile
The Enfermedades Bronquiales Obstructivas (EBO) programme, which began in 1992, was established to manage obstructive chronic bronchitis. Since its establishment, there has been a marked increase in the number of patients consulting for bronchial disorders, particularly asthma and COPD.

Using PAL, the Chilean health authorities have been able to devise a COPD score based on observed and examined diagnoses. This COPD score has assisted them to devise referral and treatment procedures. A separate score has been devised for asthma. The result of this is that more patients have been seen at PHC settings. Only severe cases have been referred on to specialist physicians. This has led to savings, both in terms of treatment provided and drugs prescribed, it has reduced the number of emergency visits made to hospitals as well as the number of hospitalizations. Although the initial stages of the EBO programme were expensive to implement, it is estimated that its benefits have outweighed the relative costs. These benefits are directly attributed to the integration of PAL within the programme.

7.6 PAL in Nepal
PAL has been implemented in Nawalparasi, a pilot district of Nepal. Nepal has also been involved in a validation study of the PAL strategy.

Before it was implemented, in 1999, a health facility survey was undertaken. The point of this survey was to determine what facilities were available, how many people they served, what staff were on hand and their level of training, and which drugs were available.

This survey yielded the following results. The Nawalparasi district counts approximately 550 000 people. There is 1 district hospital, 3 primary health centres, 10 health posts, 79 sub-health posts and 711 family community health volunteers. On average, clinics were open for three hours a day, from 10:00 to 13:00; the average health worker’s salary was about US$ 46 per month. The clinics had standard equipment and furniture.

On average, 180 000 people, or 33% of the population of the region, attended a health facility in a year, including those who attended more than once. Each facility saw an
average of 2300 patients per year. Of these, approximately 88 were respiratory patients with less than one suffering from TB, 18 presenting for asthma, 41 for COPD and 29 for pneumonia. Using these figures, the survey teams were able to estimate the average cost of treatment and based on this, design a study to evaluate the PAL experience in Nawalparasi.

The evaluation study has used three primary guiding questions: what are the effects of PAL versus usual care? What are the costs of PAL relative to usual care? And, what is the cost-effectiveness of PAL?

The primary end-points that have been chosen as indicators are as follows. For TB the indicators are treatment delays, the number of TB cases diagnosed among TB suspects, and completion rate for treatment. For asthma, the indicator is a reduction in the number of asthma attacks. For COPD, the indicators are reduced exacerbations and the cessation of smoking (or a stated intention to do so). Finally, the sought outcome is an overall improvement in prescription patterns for respiratory conditions. A series of tools has been developed to assess these primary end-points. To evaluate the effects of PAL, facility assessment forms, patient assessment forms and patient questionnaires have been developed and implemented. Facility assessment forms, patient assessment forms and costing tools have also been used to evaluate cost effectiveness.

The potential benefits of implementing PAL in Nepal have been identified as follows. Some 12% of the case-load of health centres in Nepal is for respiratory diseases. Of this, 15% concerns TB. With the exception of TB, there are no specific guidelines for the management of respiratory diseases among adults in Nepal. Thus, one of the potential benefits of implementing PAL is the improved management of respiratory diseases, including TB. Another potential benefit is a reduction in the level of antibiotic prescriptions. Finally, cost savings have been identified as another possible benefit.

During the evaluation, a number of constraints to the implementation of PAL were identified, including time available to already severely stretched medical practitioners to undertake training, funding (the minimum cost of training alone has been estimated at US$ 827 000 if all 12 000 health workers and 400 physicians are trained), and funding for the development of training materials.

The cost and affordability of drugs as well as their availability is another obstacle that was identified. In Nepal, there are estimated to be 10–20 asthma patients for every TB patient. Based on the cost of inhalers, the cost of treating asthma is twice that of TB. This has strengthened the case for making asthma inhalers available more cheaply. In addition, there is a sore lack of equipment at the local level and few resources available to ensure adequate supervision.

Finally, unlike TB, where routine indicators for management and impact have been developed, no similar indicators have as yet been developed for PAL.

In the light of this, the following elements have been identified as requirements for the implementation of PAL in Nepal: (i) the development of a national policy, including guidelines for physicians, (ii) official recognition of the need for and a commitment to use drugs at the primary/peripheral level, and (iii) the development of training, monitoring and reporting mechanisms.

The evaluation study has made some recommendations with a view to facilitating the implementation of PAL in Nepal. These include incorporating PAL training into the
programmes and syllabi of medical schools; the development of monitoring tools and guidelines for referral; resources for the acquisition of training material and drugs. In addition, it has been concluded that evidence of cost-effectiveness is needed, particularly given the estimated cost of training practitioners in PAL. Finally, a global commitment to reduce the cost of respiratory drugs has also been identified.

Some of these constraints could be overcome by integrating PAL within the already established TB programme. Indeed, the TB programme already has provisions for training, for the use of drugs, as well as detailed guidelines. Integrating PAL with the NTP is one possibility for overcoming some of the constraints identified.

However, a political commitment and financial investment too are needed.
Validating PAL

The four pilot countries invited to attend the review meeting all have experience of using PAL. They have also been involved in validation studies. Validation studies are a vital part of any health strategy as they help to identify the strengths and weaknesses of the strategy as well as the effectiveness.

8.1 PAL survey protocol
The objectives of the PAL surveys were to identify the most frequent respiratory symptoms, to quantify the burden of respiratory diseases and to describe their distribution by age and gender. In addition, the PAL surveys sought to assess the quality of the diagnosis of TB in patients presenting respiratory symptoms, assess the frequency of TB cases and identify drug prescription patterns.

In order for the results of these surveys to be comparable, they had to be undertaken in a standardized manner. A survey protocol has thus been developed to guide the PAL surveys and assist with information gathering.

The observation units chosen for the protocol are patients enrolled in first- and/or second-level health facilities. These facilities should have a high patient turnover and be easy to monitor and supervise. The patients to be enrolled in the surveys are those aged 5 years or more presenting with respiratory symptoms. The protocol also categorizes respiratory conditions depending on the presence within the setting of a medical officer. In settings with medical officers, the ICD-10 is used to classify respiratory conditions. In settings without medical officers, they are categorized into AURI, ALRI, suspected TB and chronic respiratory disease.

Standard registers and forms have been developed for data collection in the survey health facilities. Staff should be trained in data collection using these registers and forms. These surveys are quick to carry out and relatively cheap to accomplish. It is possible to analyse large samples and so get a “snapshot” of the situation. This survey can be used before and after the implementation of PAL in order to demonstrate the impact of PAL on the quality of the management of respiratory conditions.

The weaknesses of the surveys have also been highlighted. These include selection bias, misclassification, and the influence of external factors on results, such as seasons, air pollution, or the population age structure.

8.2 Does PAL lower medical costs?
One of the feasibility studies carried out has been to determine whether PAL actually does lower medical costs. In order to assess this, two criteria have been used. First, the cost of treating a patient under PAL conditions has been compared with the cost of dispensing usual treatment. Second, antibiotic usage rates have been compared. The study has relied on observational data and administrative records. Finally, cohort studies have been conducted in two sites before the implementation of PAL and in one site after its implementation. Although the study has been rudimentary — and the question certainly requires further research — preliminary results indicate that PAL does appear to lower the cost of drugs. In particular, it appears to lower the rate of antibiotic prescription. The greatest savings have been observed in the treatment of asthma, bronchitis and suspected TB.
8.3 Designing a cost-effectiveness evaluation
One of the biggest dilemmas currently facing PAL is how to evaluate its cost-effectiveness and which indicators to use. To date, two primary indicators have been selected. The first is a comparison of costs pre- and post-PAL. The second is to assess outcomes pre- and post-PAL to see whether using PAL really does make a difference to health outcomes and the quality of life of the patients. It was suggested that perhaps the best way to evaluate this is through large-scale randomized control trials. Participants in the meeting suggested that a model needs to be developed to investigate this and that indicators need to be discussed and defined.

8.4 Evaluating the cost of PAL: lessons from Morocco
The notion that proper indicators are needed to evaluate the cost of PAL was reinforced in the presentation by Mr El Idrissi. PAL is still in the early stages of development. To date, evaluations of the cost of PAL have centred on the cost of drug prescriptions. However, to get a true evaluation it is necessary to cost out other factors. These include the cost to medical centres of using PAL, both in terms of investment in new infrastructure and training. Other economic costs that need to be evaluated are the costs of loss of working days, both to the economy and to the individual, as a result of respiratory diseases. Improved health outcomes can reduce the number of working days lost. The economic value of this, however, is difficult to evaluate so it is important for the future of PAL that valid indicators be defined and models for cost-evaluation be devised.

The messages to emerge from the presentation of the experiences with validation studies in Morocco included that cost-evaluation indicators need to be properly defined and that an evaluation model needs to be developed. These should be developed in such a way that it will subsequently be possible to truly evaluate the cost of drugs and the savings made using PAL; the costs of training; and the socioeconomic benefits to be derived from PAL also need to be evaluated. Indicators need to be developed to assess quality of life to see if PAL improves the lot of the patient.

8.5 The Chilean validation study
Chile has used a protocol developed by WHO to carry out a validation study. To carry out this study, two outpatient settings in Santiago were used. Participating staff in the study included two chest physicians, a university-trained nurse and a general practitioner, and two supervisors. The original protocol was analysed and adapted to the specific needs of the setting in which it was to be used. Local participants were trained in its use. Finally, patients were selected. The preliminary results of the validation study have shown that by using the protocol, staff have been able to make far more accurate diagnoses rates and to reduce the number of hospitalizations for respiratory conditions.

8.6 Validating PAL in South Africa
An indication that PAL can be applied to a variety of very different contexts and settings has been borne out by the validation studies of PALSA undertaken in South Africa. South Africa has adapted the PAL guidelines to its own context and is testing them in a pilot district. The South Africa validation study is therefore concerned with assessing the validity of the PALSA guidelines.

To test the validity of these guidelines, simple comparative techniques are used. Using a sample, comparisons will be made between the diagnoses rendered by nurses in a PHC settings using PAL with those given by specialists. As a next step, comparisons will be made between the diagnoses and treatment provided by PALSA-trained physicians with
those given by specialist physicians. The aim is to test the guidelines, not the physicians and nurses.

The data gathered will then be compiled and the final diagnoses will be evaluated by a specialist to test their accuracy and success at predicting and treating respiratory diseases and symptoms.

8.7 Using randomized control trials in South Africa
It was pointed out that one of the advantages of a strategy such as PAL, which is being implemented on a step-by-step basis rather than by using a “blanket” approach, is that it allows the use of randomized controlled trials. South Africa is using randomized control trials to test the effectiveness of PAL in South Africa. Comparisons are being made using two distinct samples: those where PAL has been implemented and those where it has yet to be implemented. These samples provide an ideal testing ground and the ideal basis for making comparisons.

In using these tests, South Africa will try to answer a number of pressing and important questions. PAL will require the adoption of new policies, it will require medical practitioners to change their practice habits, and it will require a commitment of resources to strengthen existing facilities. South Africa is trying to evaluate whether PAL will work and whether it will improve outcomes for patients. It is also trying to evaluate whether South Africa can afford to commit resources to PAL implementation. Again, the South African health authorities are trying to define indicators to evaluate the answers to all these questions.

8.8 Designing a validation study in Nepal and implementing a baseline survey
The Nepalese validation study has taken two primary questions as its starting point: what are the effects of PAL in terms of health outcomes versus usual care?; and what are the relative costs of PAL versus usual care? Based on the answers to these questions, the overriding question to policy-makers will be whether it is worth implementing PAL rather than other health interventions.

The Nepal validation study is ongoing and a series of tools has been developed for implementation in primary and secondary care settings to assess the answers to these questions.

The survey is concentrating on two main aspects. First, it aims to demonstrate to policy-makers the costs of starting up PAL. Second, it is evaluating the effects of PAL on TB delay.

Even though the survey is in its early stages, some preliminary results have begun to emerge.

First, an evaluation of costs has led to the conclusion that it will not be expensive to implement PAL in Nepal. Indeed, some of the start-up costs have already been taken care of. The PAL strategy and the adaptation guidelines already exist and have been developed by WHO. PAL training materials also exist in English. Therefore, the start-up costs that remain for PAL to be implemented in Nepal are the costs of adapting the guidelines to the Nepalese context, the costs of devising the training manual for the Nepalese context and, finally, the costs of the actual training. Based on a series of interviews and consultations with health practitioners working in Nepal, the study has concluded that the total cost of adapting the guidelines to the Nepalese context would be
US$ 21 200; the costs of training would be US$ 66.67 per trainee. At fist glance, the costs of beginning PAL implementation in Nepal would therefore not be expensive.

However, it is not enough to look at absolute figures. To evaluate the costs, it is necessary to take a look at the outcomes achieved relative to the costs. The Nepalese baseline study has taken the “TB delay” as its criteria for assessing these. The TB delay is defined as the time lapsed between the onset of the first symptoms and the patient’s first consultation. The physical treatment delay is the time from the first consultation to the onset of treatment. The results showed that of 76 patients studied, 47% were seen in government facilities, mostly in primary health centres. Of those patients, 85% reported delays of less than two days. This showed that the PAL strategy had had the desired effect within those facilities where it had been implemented and that delays were considerably shortened. Delays in the private sector, where PAL has not been tested, tended to be longer.

8.9 Practical approach to lung health in Brazil

A Brazilian study has been designed in collaboration with the School of Public Health in Ceará (Escola Saúde Pública do Ceará), WHO, and a group of sixth-year students from the Department of General Practice at the University of Maastricht in the Netherlands. The study was split into two phases. First, a survey was conducted using spirometry to assess the presence of symptoms in a sample of patients. The second phase involved a controlled trial of PAL guidelines versus usual care as well as spirometry in a sample of patients.

The aim of the study was to assess the level of service delivery among patients within the Family Health Programme; to validate respiratory diagnoses with spirometric measurements; and to assess the room for improvement of the diagnosis of COPD. The aims of the second phase were to assess the costs of PAL versus usual care on service delivery and to measure the cost of PAL in relation to usual care using spirometric diagnoses.

Patients selected as part of the sample were those aged 15 or more with respiratory complaints attending primary health facilities. Thirty-two primary care physicians were involved from two rural and two urban areas. The study was conducted between June and September 2002.

Spirometric tests were carried out by trained medical students in primary care facilities. The survey of patients gathered information about a variety of factors including personal details, medical history, risk-factors including occupation, smoking habits, use of medication, hospitalization history, etc. Data were collected from both rural and urban health settings.

Preliminary results have shown that despite the discrepancies between data obtained from rural and urban areas these studies have been beneficial. Data collected was of a high quality due to supervision; the controlled design enabled an accurate evaluation of the effect of using PAL. The results suggest that diagnosis in primary care respiratory patients was strongly physician-dependent. Furthermore, COPD was underdiagnosed while prevalent, especially in the rural areas, as confirmed by spirometry; the use of spirometric tests has enabled an accurate diagnosis of symptoms. Overall, case finding was increased.
The validation study provided a valuable framework for the management of COPD and respiratory diseases generally.
Conclusions

The First International Review Meeting of the PAL Strategy demonstrated conclusively that PAL, one of the components of the Global DOTS Expansion Plan, is both a valid and valuable integrated approach for strengthening TB control and improving respiratory care management.

9.1 PAL can be tailored to different contexts
The experiences reported by participants from different countries showed that PAL can be tailored to the epidemiological, demographic and socioeconomic context of the setting in which it is being implemented (Table 1). It is as relevant to middle-income countries as it is to low-income settings. PAL has been tested with positive results in Chile and Nepal, two countries with very different socioeconomic conditions. PAL can also be tailored to settings at different stages of epidemiological transition. Again, the experiences of Chile — where chronic diseases are increasing among the population — and Nepal — where infectious diseases and malnutrition still dominate the epidemiological spectrum — provide clear evidence of this.

Table 1. PAL implementation models

<table>
<thead>
<tr>
<th>Disease Morbidity:</th>
<th>Chile</th>
<th>Morocco</th>
<th>Nepal</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>– TB</td>
<td>Declining</td>
<td>Still frequent</td>
<td>High prevalence</td>
<td>High prevalence</td>
</tr>
<tr>
<td>– CRD</td>
<td>Increasing Old age</td>
<td>Increasing Young and old age Low prevalence</td>
<td>Undetected Young age Low prevalence</td>
<td>Increasing Young age High prevalence</td>
</tr>
<tr>
<td>– ARI</td>
<td>Low prevalence</td>
<td>Low prevalence</td>
<td>Low prevalence</td>
<td>Low prevalence</td>
</tr>
<tr>
<td>– HIV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory case management</th>
<th>ARI, SS+PTB</th>
<th>ARI, SS+PTB</th>
<th>ARI, SS+PTB</th>
<th>ARI, SS+PTB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CRD</td>
<td>CRD</td>
<td>CRD</td>
<td>HIV</td>
</tr>
</tbody>
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<tr>
<th>NTP scope</th>
<th>TB and respiratory case management</th>
<th>TB and respiratory case management</th>
<th>TB control</th>
<th>TB/HIV control approach</th>
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<table>
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<tr>
<th>PAL implementation</th>
<th>Country-wide</th>
<th>Country-wide</th>
<th>Operational research</th>
<th>Operational research</th>
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</thead>
</table>


9.2 An integrated strategy for managing all respiratory conditions
As an integrated approach, PAL is first and foremost a syndrome-based strategy. It particularly deals with the major respiratory conditions. Although it relies on the existence of a strong TB programme, and gives priority to TB case management, it is not confined to the management of TB. There are fears that an integrated strategy to deal with respiratory conditions could result in a shift in emphasis away from TB to the management of other respiratory conditions. For example, there are concerns that TB will be overshadowed by asthma and COPD. Unlike TB, both these respiratory conditions attract commercial interest (drug companies, etc). However, because of its emphasis on standardization and
coordination, PAL actually ensures that no one condition is favoured to the detriment of others. On the contrary, the experience of South Africa has demonstrated that the risk of emphasizing one condition to the detriment of another is far greater when there are many guidelines in existence. The experience with testing PAL in South Africa has clearly shown the need for integrating the various guidelines to better tackle respiratory diseases, including TB.

9.3 PAL in primary health care settings
PAL has been developed primarily for implementation in PHC settings. The initial ports of call for people seeking medical care are PHC facilities, which are assumed to be the most accessible to the majority of the population, particularly the most vulnerable groups. Furthermore, most patients attending PHC settings for respiratory symptoms seek health care for self-limiting conditions that can be successfully managed at this level of the health system. If it is to be fully operational within PHC settings, PAL requires political commitment on the part of a country's health authorities to strengthen PHC services. The PAL strategy can actually serve as a mechanism to strengthen primary care.

9.4 PAL provides guidelines for referral to other levels of care
PAL clearly defines the procedures for referral between different levels of care within the health care system. This contributes to the rationalization of the resources available within the health system.

9.5 PAL is relevant to secondary health care settings
Although the main focus of PAL is PHC settings, it nonetheless has implications for secondary health care settings. Indeed, one of the central components of PAL is that it provides very precise procedures governing the referral of patients to the next level of health care. One of its main objectives is to improve coordination between primary and secondary health care settings. PAL therefore needs to articulate precise guidelines for each level of health care.

9.6 PAL can reduce prescription costs and reliance on antibiotics
The PAL surveys reported an overprescription of antibiotics. The PAL strategy relies on the WHO List of Essential Drugs and provides instructions for their use. It advocates the use of cheaper generic drugs when brand names are either too costly or not available. This helps to ensure access to appropriate drugs and to reduce the unnecessary prescription of antibiotics. Making drugs available requires a commitment by the health authorities. It also requires the cooperation of the large drug companies in making drugs available more cheaply.

9.7 PAL requires medical practitioners to change their practices
While the training component of PAL can help to strengthen the capacity of medical practitioners to appropriately manage respiratory patients, it is not sufficient to simply train staff within primary and secondary health care settings. Although ongoing training of staff within health care facilities is very important, it would be more cost-effective and timely to train medical staff at the outset of their medical training. PAL therefore needs to be integrated within the programmes taught in universities, and medical and nursing schools.

9.8 Validating PAL
Work on validating the PAL strategy is currently ongoing, notably in Nepal and South Africa, and certain validation indicators have already been defined and tested using randomized controlled tests. In Nepal, the indicators chosen to validate PAL include the TB Delay — the time lapsed between the onset of symptoms and a patient's first consultation within a health care facility. Another indicator is the Physical Treatment Delay
— the time lapsed between the first consultation and the commencement of treatment. Other indicators that have been identified include cost-effectiveness and improvements in health outcomes. Both of these still need to be clearly defined, as do the criteria for measuring them. Work on validation needs to be further explored and strengthened for the future.

9.9 A holistic approach
Respiratory conditions are associated with various external risk factors such as poverty, air pollution or smoking. The Chilean experience with PAL showed that it is possible to use the strategy to monitor the correlation between air pollution and the frequency of respiratory disease on a routine basis. This will help to devise strategies to overcome, prevent and palliate for some of the risk factors that either cause or have an impact upon respiratory conditions.

9.10 Encouraging a sense of local ownership
In order for a strategy to be adopted and truly successful, those who are responsible for implementing it must feel a sense of ownership. It is therefore very important to involve the end-user, medical practitioners and other health workers in the adaptation and implementation processes. Medical practitioners are far more likely to accept and adopt a strategy if they feel that they have some part of responsibility for designing it.

9.11 Maintaining the quality of health care during the integration process
One of the main concerns raised by participants in the meeting was how to maintain the quality of TB programmes and PAL during the integration process. Participants agreed that this required supervision to ensure that training was maintained to a consistent high quality; monitoring tools are needed; funding is required for supervision.

9.12 The PAL strategy can be used as a building block to develop other strategies
The PAL strategy is an integrated approach for the management of respiratory conditions. It consists of a series of guidelines, including diagnostic procedures, treatment procedures, referral procedures, and prescription procedures. Indicators have been developed to validate it. The concept of PAL is such that it could be used as a building block to develop similar integrated strategies to manage other groups of conditions.

The overriding conclusion to be drawn from the First International Review Meeting is that PAL is a very valuable strategy that, if implemented correctly and in optimum conditions, can make a significant contribution to improving respiratory health and treatment outcomes in a wide variety of settings. With this in mind, participants in the review meeting made a number of important recommendations.
Recommendations

10.1 PAL is a *strategy* and not a programme
Participants in the First International Review Meeting endorsed PAL. However, they proposed that PAL should become a *strategy* rather a programme. It is a component of the Global DOTS Expansion Plan. The contribution of DOTS to the PAL strategy was fully recognized and acknowledged. PAL requires the presence of a good TB control programme.

10.2 PAL must be tailored to the context
PAL, and its accompanying adaptation guidelines, needs to be tailored to the specific context where they are being implemented. It needs to be adapted to the level of health care service in countries at different levels of economic development. It must be tailored to the epidemiological status of the country as well as to the demographic situation and to the age structure of the population.

10.3 PAL must be endorsed by the end-user
In order to be effectively implemented, PAL must be accepted and endorsed by the users, namely medical practitioners and other health workers. For them to endorse such a strategy and change their medical practices, they must feel a sense of ownership. This can only be achieved if it is tailored to their particular context and if they are involved in the adaptation process.

10.4 PAL requires political commitment
The review meeting highlighted that PAL requires a political commitment on the part of the authorities — local, national and regional — if it is to be effectively implemented and achieve the desired outcomes. The authorities should endorse the strategy and make the necessary financial investments to improve the accessibility by the population to health care services. Securing political commitment could be achieved through a public information campaign that highlights the experiences of various countries in its implementation and the successes achieved using the PAL strategy.

10.5 Develop indicators
In order to validate PAL, a series of consistent indicators must be devised. These indicators can include treatment outcomes; health outcomes; measures of the improved quality of life. Very importantly, measures of cost-effectiveness need to be developed too.

10.6 Drugs must be cheaper and more affordable
One of the biggest impediments to the successful implementation of PAL is lack of access to and availability of cheap, affordable drugs. Mobilization is required to lobby pharmaceutical companies to make quality-assured drugs both available and affordable. Meeting participants particularly highlighted the case of bronchodilators for treating asthmatics. Participants urged that inhaled β2-agonists and inhaled glucocorticosteroids be included in an essential package of health care delivery. Bronchodilators, while singled out for special attention, were by no means unique and participants urged that drug companies be lobbied and encouraged to become stakeholders in the PAL strategy.

10.7 The private sector must endorse PAL
Participants in the meeting stressed also that the private health sector must be encouraged to adopt the PAL strategy. A private–public sector mix should therefore be
encouraged, particularly in countries and regions where the private health sector is a major health care provider.

10.8 **PAL must be dynamic and evolve**

Finally, for any strategy to be truly effective and achieve its targets, it must be dynamic. It has to adapt to evolving situations. The PAL strategy must adapt to socioeconomic, demographic and epidemiological conditions, to situations complicated by a high burden of HIV, and to environments with low resources.

10.9 **Establish an International Working Group on PAL**

In response to all these conclusions and recommendations, meeting participants agreed that the way forward for PAL would be in the establishment of an International Working Group on PAL under the auspices of WHO. All the participants in the review meeting were invited to become members of the working group, which will be international in its membership and composition. The working group will assist WHO to formulate policy guidelines for countries and international partners to assist them with developing the PAL strategy in the context of the DOTS strategy. These guidelines will be based on evidence gathered from field-based projects and experiences in different countries.

The working group will provide guidance on the development of global, regional, country-specific and local strategies for combining PAL with DOTS. The group will further assist in the development and implementation of a research agenda for PAL in settings with both a high and low prevalence of HIV. It will review the progress of PAL and make recommendations for its continued development and adaptation. Very importantly, it will identify sources of support for PAL-related research and projects. Finally, it will assist in the global coordination of PAL.
Annex 1 – List of Participants

An asterisk (*) by the participant’s name indicates that they made a presentation.

**International**
- Dr Nadia Aït Khaled – IUATLD, Paris, France*
- Dr Rob Baltussen – WHO, Geneva, Switzerland*
- Dr David Bishai – Johns Hopkins University, Baltimore, USA*
- Dr Pierre Chaulet – Algiers, Algeria*
- Dr Niels Chavannes – University of Maastricht, Maastricht, The Netherlands*
- Dr Sandy Gove – WHO, Geneva, Switzerland*
- Dr Nikolai Khaltaev – WHO, Geneva, Switzerland*
- Dr Lindsay Martinez – WHO, Geneva, Switzerland
- Dr Markku Nieminen, Finish Lung Health Association – Helsinki, Finland
- Dr Louis Niessen – Erasmus University, Rotterdam, The Netherlands*
- Dr Ines Nya – University of Modena, Modena, Italy
- Dr Antonio Pio – Mar del Plata, Argentina
- Dr Luca Richeldi – University of Modena, Modena, Italy

**Countries attending**

**Morocco**
- Prof Raouf Benamar – WHO, Rabat
- Dr Naïma Bencheikh – Rabat*
- Dr Mohammed Bertal - Casablanca
- Dr Mohammed Boumedienne – Rabat*
- Dr Zoubida Bouayad – Casablanca
- Dr Mohamed Chentoufi – Hay Mohammadi Ain Sebaa*
- Dr Nada Derkaoui – Rabat*
- Dr Fatima Ezzerkali – Temara*
- Mr Driss Zine Eddine Idrissi – Rabat*
- Prof Ghali Iraqi – Rabat
- Dr Salida Jroundi-Choujaâ – Rabat
- Dr Bouchra Lotfi - Settat
- Dr Jaouad Mahjour – Rabat*

**Chile**
- Dr Ruben Gamboa - Santiago de Chile*
- Dr Carlos Pena - Santiago de Chile*
- Dr Ricardo Sepulveda - Santiago de Chile*
- Dr Liliana Vicherat - Santiago de Chile*
- Dr Manuel Zuñiga – Santiago de Chile*

**Nepal**
- Dr Chaudhari – Kathmandu
- Dr Christian Gunneberg - Kathmandu
- Dr Pushpa Malla – Kathmandu*
- Dr Ugra Narayan Pathak, Kathmandu
- Dr Poudyel – Butwal
- Prof Bimila Shresta, Kathmandu
**Report of PAL Review Meeting**

**South Africa**
- Dr Max Bachmann – Bloemfontein*
- Prof Eric Bateman, Cape Town*
- Dr Rene English – Cape Town*
- Dr Lara Farrell, Cape Town*
- Dr Refiloe Matji, Cape Town
- Dr Bosielo Majara, Cape Town*
- Dr Annetjie Peters – Bloemfontein*

**Peru**
- Dr César Bonilla – Lima

**Kyrgyzstan**
- Prof Avtandil Alisherov - Bishkek
- Prof Nurlan Brimkulov – Bishkek

**Guinea**
- Dr Oumou Bah-Sow – Conakry

**Algeria**
- Prof Rachid Benali – Annaba
- Prof Leila Baough – Algiers
- Prof Djildi Larbaoui – Algiers

**Brazil**
- Dr Julio Penaforte – Fortaleza, Ceara, Brazil*

**Jordan**
- Dr Khaled Abu-Rumman – Amman

**WHO secretariat**
- Dr Léopold Blanc – WHO, Geneva, Switzerland
- Ms Rhona O’Halloran – WHO, Geneva, Switzerland
- Dr Salah-Eddine Ottmani – WHO, Geneva, Switzerland*
- Dr Mario Raviglione – WHO, Geneva, Switzerland*
- Dr Robert Scherpier – WHO, Geneva, Switzerland*
Annex 2 – Agenda

Communicable Diseases
Stop TB
TB Strategy & Operations

First International Review Meeting
Practical Approach to Lung Health (PAL) Strategy

4–6 September 2002, Rabat, Morocco

TENTATIVE AGENDA

Wednesday 4 September 2002

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<tr>
<th>Time</th>
<th>Activity</th>
<th>Chair/Presenter</th>
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<tbody>
<tr>
<td>08:00–08:30</td>
<td>Registration</td>
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<tr>
<td>08:30–09:00</td>
<td>Opening &amp; Introduction of participants</td>
<td>Dr M. Raviglione</td>
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<tr>
<td>09:00–09:15</td>
<td>Overview of Meeting</td>
<td>Dr S. Ottmani</td>
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<tr>
<td></td>
<td><strong>Strategy Session</strong></td>
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<tr>
<td>09:15–09:25</td>
<td>PAL and sectoral priority-setting in health care</td>
<td>Dr R. Baltussen</td>
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<tr>
<td>09:25–09:55</td>
<td>Respiratory case management survey results</td>
<td>Dr S. Ottmani Dr R. Scherpbier</td>
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<td>09:55–10:05</td>
<td>NCD Strategy for chronic respiratory diseases</td>
<td>Dr N. Khaltaev</td>
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<td>10:05–10:20</td>
<td>From TB control to integrated respiratory disease control</td>
<td>Dr J. Mahjour</td>
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<td>10:20–10:35</td>
<td>From TB control to chronic respiratory disease control in Chile</td>
<td>Dr M. Zuñiga</td>
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<tr>
<td>10:35–10:50</td>
<td>Discussion</td>
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<td>10:50–11:10</td>
<td><strong>Coffee Break</strong></td>
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<tr>
<td>11:10–11:30</td>
<td>Algeria experience and plans for integrated respiratory guideline development &amp; implementation</td>
<td>Dr P. Chaulet</td>
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<td>11:30–11:50</td>
<td>IUATLD Asthma Programme &amp; Information system</td>
<td>Dr N. Ait Khaled</td>
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<td>11:50–12:05</td>
<td>Enfermedades Bronquiales Obstructivas (EBO) Programme development &amp; results</td>
<td>Dr R. Sepulveda</td>
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<tr>
<td>12:05–12:20</td>
<td>EBO Programme requirements, training strategy</td>
<td>Dr R. Gamboa</td>
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</tbody>
</table>
12:20–12:50 Discussion
12:50–13:50 Lunch

**Primary care session – Guideline Development Adaptation**

Chair: Prof Chaulet
Rapporteur: Dr Scherbier

**MOROCCO**

13:50–14:10 Health system classification, guideline adaptation process, key guideline messages, experience with utilization of the first level facility PAL guidelines
Dr M. Boumedienne

**CHILE**

14:10–14:30 Key guideline messages for primary care
Dr R. Gamboa

14:30–14:50 Discussion

**GENERIC PAL**

14:50–15:05 Generic PAL guideline, structured adaptation, advantages and disadvantages
Dr S. Gove

15:05–15:20 Guideline adaptation process and results
Dr P. Malla

15:20–15:40 Coffee Break

**SOUTH AFRICA**

15:40–15:55 Respiratory health care and guidelines in South Africa before PAL – setting the scene
Prof E. Bateman

15:55–16:15 Guideline adaptation and development
Dr R. English

16:15–16:25 Discussion

16:25–16:50 Video of academic detailing intervention in the Free State
Ms A. Peters

16:50–17:05 Implementation plan for PALSA in the Free State relationship to the TB programme

17:05–17:25 Discussion

19:00–Late Welcome Drink
Thursday 5 September 2002

Secondary care session – Guideline development & adaptation

Chair: Dr G. Iraqi
Rapporteur: Dr Ottmani

MOROCCO
08:30–09:50 CDST survey methods and results
Dr F. Ezzerkali

09:50–10:00 Discussion

10:00–10:10 Key guideline messages for secondary care
Dr M. Chentoufi

CHILE
10:10–10:20 Key guideline messages for secondary care.
Dr M. Zuñiga

10:20–10:30 Discussion

Primary and Secondary care linkages – health management information system, evaluation and supervision.

Chair: Dr N. Aït-Khaled
Rapporteur: Dr Ottmani

CHILE
10:30–10:50 Overview of case management decisions per level of care, HMIS, routine evaluation and supervision strategy
Dr R. Gamboa

10:50–11:10 Coffee Break

MOROCCO
11:10 –11:30 Overview of case management decisions per level of care, HMIS, routine evaluation and supervision strategy
Dr N. Bencheikh

11:30–11:50 Workshop and discussion on registers, patient cards and patient files
Facilitator
Dr B. Lotfi

WORKSHOP
11:50–12:10 Workshop and discussion on evaluation and supervision strategies
Facilitator
Dr P. Chaulet

12:10–13:10 Lunch Break

Implementation Session

Chair: Dr Blanc
Rapporteur: Dr Scherpbier

MOROCCO
13:10–13:25 Implementation requirements and plan for PAL, successes and constraints, and role of NTP in implementation
Dr N. Bencheikh

13:25–13:40 PAL and its contribution to development of general health services, and role of PHC department in its implementation
Dr N. Darkaoui

13:40–13:50 Discussion
### CHILE

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>13:50–14:05</td>
<td>Implementation requirements and plan for EBO/PAL, successes and constraints, and its contribution to development of general health services</td>
<td>Dr R. Gamboa</td>
</tr>
<tr>
<td>14:05–14:20</td>
<td>Role of NTP in implementation of EBO/PAL</td>
<td>Dr M. Zuñiga</td>
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<td>14:20–14:30</td>
<td>Discussion</td>
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### NEPAL

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<thead>
<tr>
<th>Time</th>
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<th>Speaker</th>
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<tbody>
<tr>
<td>14:30–14:40</td>
<td>Results facility survey: availability of equipment and drugs and use of registers</td>
<td>Dr L. Niessen</td>
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<tr>
<td>14:40–15:05</td>
<td>Implementation requirements, possibilities and constraints training plan and relationship NTP and PAL</td>
<td>Dr P. Malla /</td>
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<td>Dr C. Gunneberg</td>
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<td>15:05–15:25</td>
<td><strong>Coffee Break</strong></td>
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### WORKSHOP

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<tr>
<th>Time</th>
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<th>Facilitator</th>
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<tbody>
<tr>
<td>15:25–16:20</td>
<td>Discussion on strategies to mobilize required resources, roles of NTP/PHC departments in PAL implementation</td>
<td>Dr M. Raviglione</td>
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### FRIDAY 6 SEPTEMBER 2002

#### Evaluation and Research session

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Chair: Prof M. Bertal</th>
<th>Rapporteur: Prof Aït-Khaled</th>
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<tbody>
<tr>
<td>08:30–08:45</td>
<td>PAL survey protocol, methods, and implementation requirements</td>
<td>Dr S. Ottmani</td>
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<td>08:45–08:55</td>
<td>Results costing study</td>
<td>Dr D. Bishai</td>
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<td>08:55–09:10</td>
<td>Design of cost and effectiveness evaluation</td>
<td>Dr M. Bachmann</td>
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<td>09:10–09:25</td>
<td>ISRA Cost Evaluation</td>
<td>Dr El Idrissi</td>
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<tr>
<td>09:25–09:40</td>
<td>Discussion</td>
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<tr>
<td>09:40–09:55</td>
<td>Validation study protocol, and preliminary results</td>
<td>Dr R. Sepulveda</td>
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<td>09:55–10:15</td>
<td><strong>Coffee Break</strong></td>
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#### SOUTH AFRICA

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<thead>
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<tbody>
<tr>
<td>10:15–10:35</td>
<td>Validation study protocol</td>
<td>Dr R. English</td>
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<td>10:35–11:00</td>
<td>Randomised control trial of the effectiveness of the PALSA intervention</td>
<td>Mr M. Bosielo /</td>
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<td>Dr L. Fairall</td>
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</table>
11:00–11:20 Discussion

**NEPAL**

11:20–11:35 Study design and tools overview
   Dr L. Niessen

11:35–11:50 Preliminary baseline results
   Dr D. Bishai

**BRAZIL**

11:50–12:00 Validation study design
   Dr N. Chavannes

12:00–12:15 Guideline Adaptation
   Dr J. Penaforte

**WORKSHOP**

12:15–13:00 *Discussion on use of research tools and results in routine implementation or preparation for that, identification research needs*
   **Facilitator:** Dr R. Scherpbier

13:00–15:00 **Lunch**

15:00–16:00 Summary of PAL review meeting conclusions and discussion on future steps
   **Facilitator** Dr A. Pio

16:00–16:10 Discussion
   **Establishment of advisory and working group**
   **Rapporteur:** Prof Chaulet

16:10–16:30 Proposed modalities and operation
   Dr M. Raviglione

**WORKSHOP**

16:30–17:30 Discussion and conclusion on modalities and operation
   **Facilitator** Dr M. Raviglione

*Meeting Finished*