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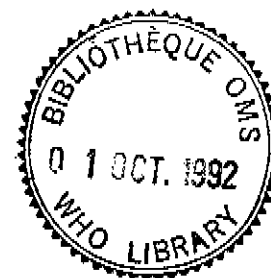
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PROGRAMME FOR THE CONTROL OF  
ACUTE RESPIRATORY INFECTIONS

Report of the  
seventh meeting of the  
**TECHNICAL ADVISORY GROUP**

Geneva, 9-10 March 1992

This report contains the collective views of an international group  
of experts and does not necessarily represent the decisions  
or the stated policy of the World Health Organization



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## 1. INTRODUCTION

The seventh meeting of the Technical Advisory Group (TAG) of the WHO Programme for the Control of Acute Respiratory Infections (ARI) was held in Geneva on 9-10 March 1992. Dr J. Tulloch, Director, opened the meeting and explained that following the recommendation of the ninth Meeting of Interested Parties (MIP) in June 1989, three members of the TAG - not the entire group - meet in even years to review the annual report, follow up on recommendations made at the previous meeting, and advise on specific matters, including the budget. The 1990-1991 biennium was a period during which the Programme received strong political support for global implementation. In May 1991, the Forty-fourth World Health Assembly urged Member States to initiate or intensify activities for the control of acute respiratory infections as an essential part of primary health care; the World Summit for Children, held in New York in September 1990, set a target of a one-third reduction over 1990 levels in deaths due to ARI in children under 5 years of age by the year 2000. A close collaboration has developed between WHO, UNICEF, UNDP, the World Bank and agencies for bilateral cooperation to further the objectives of the Programme. At a joint WHO/UNICEF/UNDP International Consultation on the Control of Acute Respiratory Infections (ICCARI), held in Washington in December 1991, a high level of consensus was reached among more than 400 participants from 93 countries regarding ARI control strategies.

Dr A.S. Muller chaired the meeting.

## 2. STATUS OF THE PROGRAMME

The TAG reviewed the progress made by the Programme in 1991, as described in the Fifth Programme Report, 1990-1991.

The Programme completed the revision of its technical guidelines on case management on the basis of new research information and field experience gained during the previous biennium. A document containing the technical bases for these guidelines was published. A meeting of the ARI and Malaria Control Programmes reviewed recent data on the overlap in the clinical presentation of pneumonia and malaria, and on the efficacy of cotrimoxazole against Plasmodium falciparum malaria, and made policy recommendations for the management of malaria and pneumonia in young children. The development of an electronic respiratory-rate timer meeting WHO/UNICEF specifications for use in ARI programmes in developing countries was completed, and UNICEF started to negotiate procurement details with the manufacturer. Two oxygen concentrators tested in an independent laboratory selected by the Programme were found to be suitable for the conditions of developing countries, and field-testing will be organized in 1992. Information on equipment to control and monitor oxygen flow to the child was prepared.

By the end of 1991, 63 countries had begun to implement ARI programmes in at least one province or region; 44 of these countries are on the Programme's list of main target countries, i.e., those with an infant mortality rate greater than 40 per 1000 live births, and seven have reported national coverage with training, supervision and logistics activities. The field-testing of the four-day clinical course "Outpatient Management of Young Children with ARI" was completed, and the course was issued in English at the beginning of 1992. The development of the course on inpatient management was continued. A pre-field-testing of the materials for training community health workers was carried out. To date, more than 20 000 doctors and 170 000 other health workers, including 132 000 village doctors in China, have received clinical training using the original or adapted WHO module on case management. Support was given to 60 ARI training units (ATUs) in 23 countries.

The most important part of communication is to advise on the signs that indicate when mothers need to seek care from a trained health care provider for a child with an ARI. The Programme prepared a prototype home-care card to remind health workers of the important points to make when communicating with mothers. Of the 14 priority indicators of the Programme, four were chosen by WHO and UNICEF to monitor global ARI efforts: (1) access to standard case management; (2) maternal knowledge on when to seek care; (3) adequate pneumonia treatment at health facilities; and (4) careseeking for acute respiratory infections needing assessment. The developmental work in evaluation guides include a health facility survey, a combined ARI/CDD household case management survey, and a guide for assessing the use and cost of drugs. The field-testing of the "Manual for the National Surveillance of Antimicrobial Resistance of S. pneumoniae and H. influenzae"<sup>1</sup> was initiated in two countries and scheduled to commence in two other countries in 1992.

Priority continued to be given to research on case management topics, behavioural and communication research, and health systems research. Support was given to 32 new and nine ongoing research projects with the participation of 23 developing countries in the 1990-1991 biennium. By the end of 1991, 1150 infants under 3 months had been enrolled in the four sites participating in the multicentre study on clinical signs and etiological agents of pneumonia, sepsis and meningitis in young infants. A study on the clinical signs and etiological agents of pneumonia in severely malnourished children has completed its first year of enrolling patients. The pharmacokinetics of chloramphenicol are being investigated in young infants and in severely malnourished children. Plans were finalized for studying the pharmacokinetics of cotrimoxazole in young infants. A study comparing the effectiveness and safety of oxygen administration by nasopharyngeal catheter and nasal cannulae was initiated. A protocol was developed to determine predictors of severe pneumonia in children 2 months to 5 years of age.

A study is under way to establish the clinical meaning of laboratory resistance of H. influenzae and S. pneumoniae to cotrimoxazole.

The field-testing of the protocol "Focused Ethnographic Study of Acute Respiratory Infections"<sup>2</sup> is near completion. The ethnographic study results provide national programmes with recommendations for effective communication with mothers concerning home care and careseeking for children with ARI. Three international workshops to train social scientists in the use of the protocol were organized for 18 participants from 10 countries.

The Programme undertook a series of reviews of potential pneumonia prevention strategies (see section 6). A study supported by the Programme to determine the occurrence of invasive infection with H. influenzae type b (Hib) among hospitalized children was completed in an African country. The information collected is being used in the preparation of a trial to determine the protective efficacy of Hib vaccines against both meningitis and pneumonia.

### 3. 1992 WORKPLAN OF THE SERVICES COMPONENT

The TAG reviewed the 1992 workplan of the services component.

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<sup>1</sup> Field-test version.

<sup>2</sup> Field-test version.

Five documents dealing with technical aspects of the case management strategy will be finalized and published; work will be continued on three other review papers dealing with malnutrition and ARI, case management of ARI and diarrhoeal diseases complicating measles, and magnitude of ARI mortality. Assistance to countries for programme planning will be continued. Priority will be given to the African Region, where the majority of target countries without an operational programme are located. Three regions will organize intercountry programme managers' meetings.

Training for programme managers was planned in 11 countries, and supervisory skills courses will be conducted in 14. There will be three international courses where the new four-day clinical course "Outpatient Management of Young Children with ARI" will be used. Support will be continued for the establishment and functioning of ATUs. Training materials will be translated, adapted and printed in several countries. Development of training materials for community health workers will be completed.

Respiratory-rate timers will be available through UNIPAC in the second half of 1992. Maintenance and user manuals for the oxygen concentrators will be prepared and the experiences of countries that have already purchased them will be monitored. An appropriate combination footpump/nebulizer will be recommended for inclusion in the UNIPAC catalogue.

Information will be collected on sources and costs of cotrimoxazole and cough and cold medicines in order to assist countries in the more rational procurement, distribution and use of these drugs. A meeting will review a proposal for guidelines on the cost and use of drugs. A preliminary guide will be field-tested. The "Focused Ethnographic Study" will be translated into French; at least seven countries will conduct focused ethnographic studies. The health facility survey will undergo three field-tests in the first half of the year and a preliminary version of the manual will be prepared; more field-tests will be conducted in the second half of the year before the manual is finalized. A programme review will be undertaken in 19 countries. Information from national programmes will continue to be gathered through country programme profiles. Collaboration with UNICEF, UNDP, the World Bank and bilateral agencies will continue at global, regional and country levels. ARI News will continue to be distributed in English and Spanish, and will relaunch its French version. An evaluation of the ARI News readership will be conducted, and the mailing list updated.

#### 4. 1992 WORKPLAN OF THE RESEARCH COMPONENT

The TAG reviewed the 1992 workplan of the research component.

The multicentre study on clinical signs and etiological agents of pneumonia, sepsis and meningitis in young infants will continue to enrol patients for a second year. A community site will be added. Studies on the clinical signs and etiological agents of pneumonia in severely malnourished children, and on the clinical meaning of laboratory bacterial resistance to cotrimoxazole, will be continued. The pharmacokinetics of cotrimoxazole in young infants will be investigated in at least two sites. A study of the clinical predictors of severe pneumonia in children of 2 months to 5 years of age will be initiated. Further studies will be supported on the overlap in the clinical presentation of pneumonia and malaria in young children. A study comparing the effectiveness of oxygen administration by nasopharyngeal catheter and nasal cannulae will be expanded to include another site.

Using clinic exit interviews and home visits, protocols will be developed to evaluate mothers' comprehension of messages given by health workers in face-to-face communication activities. A document describing the priorities in the area of health

systems research will be finalized. The health facility survey and the combined ARI/CDD household survey will be field-tested. A meta-analysis of the results of the case management intervention studies will be undertaken. The effectiveness of first-level facility training materials with various levels of health worker will be determined. Research to study the cost by activity of ARI programmes and the availability and use of drugs will be developed. Oxygen concentrators will be field-tested.

The review of the potential preventive strategies will continue (see section 6). A study to determine the effect of indoor air pollution from domestic fuels on the incidence of pneumonia, low birth weight and other health outcomes in children will be initiated. The Programme will provide technical support and limited co-funding of a field trial of Hib-conjugate vaccines in an African country. Similar support will be provided to trials of conjugated pneumococcal vaccines, once these are available.

#### 5. ACTIONS TAKEN ON RECOMMENDATIONS OF THE SIXTH TAG MEETING

The TAG reviewed the follow-up of the 48 recommendations of its sixth meeting which called for specific action to be taken by the Programme. The review indicated that the Programme took appropriate action on 43 recommendations (90%). Action was postponed on three recommendations: (1) preparation of materials for undergraduate training (until the materials for training on inpatient management at ATUs are completed by the end of 1992); (2) preparation of guidelines on comprehensive programme reviews (requiring the completion of the new CDD guidelines on this topic, which will be available in 1992); and (3) assessment of the performance of training materials among community health workers (the materials are still under development).

Action was not taken on two recommendations: dissemination of information on case management among private practitioners, and a review of evidence that a reduction in chronic, long-term morbidity will result from the efforts of ARI programmes.

#### 6. REVIEW OF PREVENTIVE STRATEGIES

Immunization is a specific strategy to prevent ARI due to diphtheria, measles and pertussis. In addition, cases will be prevented by the introduction, when available, of safe and inexpensive vaccines, effective against the organisms that are the most common causes of pneumonia in children. Until now, the Programme has not taken action in promoting those measures to reduce risk factors of pneumonia which could be implemented on a global scale, beyond policy support for other WHO programmes such as: Maternal and Child Health and Family Planning; Nutrition; Tobacco or Health; and Environmental Health. These are concerned with the reduction of malnutrition and air pollution. Although there is some information on a number of risk factors, their relative importance and the extent to which they can be reduced through feasible and cost-effective strategies in developing countries have not yet been determined. In collaboration with the Maternal and Child Epidemiology Unit of the London School of Hygiene and Tropical Medicine, the Programme has initiated an analysis of available information on the effectiveness, feasibility and cost of interventions that seek to prevent risk factors of pneumonia in children.

In March 1992, the Programme held a meeting in Geneva to review the results of the first stage of this project. Data were presented on the relative risk and potential impact of eight risk factors for pneumonia, namely, low birth weight, protein calorie malnutrition, failure to breast-feed, vitamin A deficiency, chilling of young infants, and exposure to biomass air pollution, to outdoor air pollution and to environmental tobacco smoke. In addition, a meta-analysis of trials of antibiotic treatment of children with coughs and colds which confirmed the ineffectiveness of antibiotics in these circumstances was discussed. Based on a critical examination of

this information, decisions were reached regarding the next steps in the review process, and a limited research agenda of priority items for pneumonia prevention was drawn up. The Programme will continue to collaborate with the Maternal and Child Epidemiology Unit throughout the coming year to implement the recommendations of this meeting and to publish currently available data.

## 7. FINANCIAL MATTERS

The TAG reviewed the 1990-1991 financial report, the revised budget for 1992-1993, and the budgetary projections for the 1994-1995 biennium.

### 7.1 Financial report for the 1990-1991 biennium

During the 1990-1991 biennium the actual obligations amounted to US\$ 8.16 million, which represented 87% of estimated obligations. An important reason for this difference between estimated and actual obligations is the fact that while sufficient funds to support the entire budget were eventually received, a large portion of them were received late in the biennium. As a result, an amount of US\$ 1.6 million was carried forward to the 1992-1993 biennium. This carry-over was however essential to enable the Programme to run the operations during the first quarter of 1992.

### 7.2 Revised budget for the 1992-1993 biennium

A revised 1992-1993 programme budget, totalling US\$ 11.5 million, was prepared; this is 4.8% greater than the original budget. The only revisions in this budget are adjustments in the amounts for different categories in the regions, increases to account for actual salary costs in programme management and support, and the addition of one professional and one general services staff in the research component.

### 7.3 Budgetary projections for the 1994-1995 biennium

Projections for the financial period 1994-1995 total US\$ 13.4 million. This amount represents a 16% increase over the revised 1992-1993 budget, mainly to allow for inflation, and is apportioned equally over all the budget components. The only increases significantly greater than inflation are in the regional budgets for planning, training and evaluation activities in country programmes; there is a modest real increase in the amount for research studies.

## 8. CONCLUSIONS AND RECOMMENDATIONS

The following are the conclusions and recommendations of the Technical Advisory Group based on its review of the draft Fifth Programme Report and the 1992 Workplan of the Programme, the follow-up review of the recommendations made at its sixth meeting, and the report of the meeting on the review of preventive strategies. As this was not a meeting of the entire TAG a full and detailed review was not possible. Many of the recommendations made at the 1991 meeting by the full TAG are still relevant and are not all reiterated here. The TAG expresses its appreciation for the high quality of the documentation provided for the meeting.

### 8.1 General

8.1.1 In the view of the TAG, the 1990-1991 biennium represented an important period of consolidation, during which the importance of ARI mortality in children in developing countries was recognized by the World Summit for Children, held in New York in September 1990, and by the Forty-fourth World Health Assembly in Geneva in May 1991. The control of acute respiratory infections in children was underscored by

these high-level bodies as a priority programme for achieving the targets of child survival rates for the year 2000.

8.1.2 The TAG notes with satisfaction the major effort made by WHO in association with UNICEF and UNDP in advocating the purposes of the Programme through the International Consultation on the Control of Acute Respiratory Infections held in Washington, D.C., in December 1991. The Consultation was preceded and followed by major media coverage which highlighted the facts that ARI has become the leading cause of death among children in developing countries and that the case management strategy was a feasible and effective means for reducing this problem. The TAG recommends the strengthening of publicity activities to secure and maintain political, professional and public endorsement for ARI activities.

8.1.3 The TAG reaffirms that reduction of childhood deaths from pneumonia is the overriding objective of the Programme. The global target of reducing this mortality by one-third by the year 2000 is achievable if governments are committed to implementing the national programmes, and are backed by appropriate technical and financial assistance from external sources. WHO, UNICEF, UNDP and the World Bank should continue to coordinate their support to the national control programmes and to the promotion of research which leads to the development of new or improved control methods. All agencies for bilateral cooperation and non-governmental organizations working in developing countries should lend their support to the national efforts for the control of ARI.

8.1.4 The TAG commends the Programme for the remarkable progress made in the services and research components by a small, highly committed staff. It is pleased with the development of programme guidelines and tools such as the courses for clinical training, appropriate technology, the "Focused Ethnographic Study", materials for face-to-face communication activities, and evaluation guides, all of which make a substantial contribution to the establishment of sustainable national control programmes. It also stresses that the programme research activities have made possible the development of these materials.

8.1.5 The TAG recognizes that the political events in Eastern Europe in recent years have led to the emergence of new States that may require international assistance to control health problems: total childhood mortality, and, in particular, mortality from pneumonia may call for immediate action. The Programme should, through the appropriate channels, establish contacts with the European Community and offer technical collaboration as part of its plans for assisting the health systems of the new States in Eastern Europe and Central Asia. The TAG expects that cooperation with these States will be accomplished with the help of new sources of funds, and that there will be no need to divert the financial resources budgeted by the Programme for developing countries.

8.1.6 The TAG appreciates the operational benefits reported by some national programmes immediately after the beginning of the implementation of the control activities, such as the reduction in the inappropriate use of antibiotics for coughs and colds, and the savings from restricting the indications for chest X-rays in hospitalized children. It believes that such data can have an important influence on estimates of the cost-effectiveness of ARI programmes, and recommends that these achievements be publicized.

8.1.7 The TAG commends the Programme for having taken appropriate action in the follow-up of 43 of the 48 specific recommendations of the report of the sixth meeting of the TAG<sup>3</sup>. It agrees with the reasons given by the Programme to postpone the action required in the follow-up of recommendations 8.4.3.6, 8.4.6.2 and 8.5.2.3. It takes note that no action has been taken in the follow-up of recommendations 8.4.4.5 and 8.5.2.11. As regards recommendation 8.4.4.5, the TAG recommends that the Programme examine the CDD experience on methods of spreading knowledge on the correct case management among private practitioners, including doctors, pharmacists and other categories of health workers. The TAG expects that recommendation 8.5.2.11 on the long-term effects of ARI programmes in reducing chronic respiratory morbidity will be pursued by a literature review.

## 8.2 Technical Policies

8.2.1 The TAG endorses the recommendations of the meeting on the overlap in the clinical presentation and treatment of pneumonia and malaria in children, held in Geneva on 8 April 1991. It recognized the need to respond adequately to data which indicated a substantial overlap in the clinical presentation and treatment of pneumonia and malaria. It emphasized the importance of providing health workers with guidelines to ensure adequate treatment of both pneumonia and malaria in areas where P. falciparum transmission occurs. Part of the management protocol for children presenting with fever should be to check for cough or difficult breathing: if this is present, these children should be assessed for possible pneumonia (by counting the respiratory rate and observing the child for chest indrawing).

8.2.2 The TAG encourages the Programme to pursue further work which will help coordinate technical guidelines relevant to the major causes of morbidity and mortality in young children. These efforts should lead towards a comprehensive and manageable approach to the sick child for health workers and families. The close contact with the Diarrhoeal Disease Control Programme, the collaboration with the Malaria Control Programme in analysing the overlap in clinical presentation and treatment of pneumonia and malaria, and the collaboration with the Expanded Programme on Immunization on the review of the diarrhoeal and acute respiratory complications of measles, should continue.

8.2.3 The TAG notes with satisfaction the progress made in the review of nine interventions to prevent morbidity and mortality from pneumonia in young children carried out with the collaboration of UNICEF, the United Kingdom Overseas Development Agency and the London School of Hygiene and Tropical Medicine. It endorses the recommendations concerning the next steps in the review process and encourages the Programme to publish the results presented at the meeting and to initiate reviews of the remaining 10 interventions.

8.2.4 The TAG welcomes the Programme's prioritization of important research issues to facilitate the better understanding of the interaction between certain of the risk factors and pneumonia incidence and mortality. In particular, it recognizes the important contribution which the Programme could make by: (1) developing and coordinating a trial to explore further the association between exposure to biomass pollution and pneumonia in children and to estimate the likely impact of interventions; (2) undertaking a meta-analysis of existing data to study the association between ARI mortality and vitamin A deficiency in infants, and arranging a re-examination of the effects of interventions to reduce vitamin A deficiency in the first 12 months of life; (3) performing further analysis of existing community-based study datasets to explore the interrelationships among low birth weight,

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<sup>3</sup> Document WHO/ARI/91.18.

protein-calorie malnutrition, breast-feeding practices and vitamin A status with respect to pneumonia incidence in young children; and (4) gathering data on the prevalence and effects of chilling in the post-neonatal period.

8.2.5 The TAG encourages the Programme to publish and disseminate as widely as possible a review of published data confirming the inefficacy of antibiotic treatment in children with coughs and colds. It notes the widespread over-use (and misuse) of antibiotics for this purpose and urges the Programme to evaluate ways of changing treatment practices.

8.2.6 The TAG notes that whilst the review has identified a number of areas in which successful intervention would be expected to yield significant reductions in pneumonia morbidity and mortality, substantial further work would be required before feasible and cost-effective interventions could be implemented. It reaffirms its view that in order to meet the mortality targets for the year 2000 established at the World Summit for Children in New York in 1990, standard case management is and should remain the principal strategy of the ARI Programme.

### 8.3 Health services component

8.3.1 The TAG welcomes the start made to preparing combined ARI/CDD materials such as the household survey on case management and the supervisory skills course, and encourages the Programme to explore the combination of other materials related to programme planning, evaluation and surveillance which could facilitate the integration of activities at country level. Possible examples of new undertakings in this approach might be the "Manual for the National Surveillance of Antimicrobial Resistance" and the "Focused Ethnographic Study".

8.3.2 The TAG notes with satisfaction the progress made to increase the number of target countries with operational programmes in all regions, but recommends that particular priority be given to sound planning and immediate implementation of ARI activities in the African Region, where the countries with the highest infant mortality rate are concentrated. The TAG welcomes the resolution on ARI approved by the forty-first session of the African Regional Committee in September 1991 and recommends that adequate budgetary and extrabudgetary resources be allocated for the implementation of ARI control activities in the countries of the Region.

8.3.3 Training is probably the activity which consumes the most time and resources in national programmes. Supervision, quality control and periodic evaluation are essential to ensure that health workers manage children with ARI according to the standard protocol they were taught. Effective training programmes can however be jeopardized if there are changes in technical guidelines or a rapid staff turnover. The TAG considers that technical guidelines on case management for staff at health facilities are not likely to change in the next few years; these now have a strong scientific base which should ensure their validity for a number of years. Staff turnover is, however, a real problem in many countries.

8.3.4 The TAG emphasizes the importance of ensuring better availability of first-line antibiotics at health facilities by reducing their cost and improving their distribution in coordination with the Essential Drugs Programme. At the same time it urges the Programme to take action to promote the rational use of drugs for ARI, in particular by discouraging the widespread practices of prescribing antibiotics for children with coughs and colds.

8.3.5 The TAG recognizes the widespread misuse and improper use of oxygen and supports programme efforts to rationalize and improve current treatment practices in the context of training in inpatient case management at ATUs. It endorses the

recommendations with respect to the use of oxygen therapy in existing programme materials and recommends that the Programme not change these until substantial relevant data are available to allow further consideration of this issue. The TAG notes that although the efficacy of oxygen in the treatment of severe pneumonia is well established through clinical experience, the magnitude of its impact on pneumonia mortality has not been adequately quantified.

8.3.6 The TAG notes the efforts that the Programme is making to improve the quality and reliability of data that national programmes gather through country programme profiles based on routine records. It welcomes the collaboration with UNICEF in the selection of four essential indicators to monitor progress towards the global target for the reduction in childhood mortality from pneumonia by the year 2000.

8.3.7 The TAG recommends that the Programme document the resources required to implement the standard case management strategy at health facilities and that it estimate potential savings which may be realized by the introduction of standard case management, as a means of promoting the initiation and expansion of programme activities in other countries.

8.3.8 The TAG notes with satisfaction the Programme's efforts in working with the Appropriate Health Resources and Technologies Action Group (AHRTAG) in London, United Kingdom, to relaunch successfully the French edition of ARI News in 1992 without any reduction in the number of English or Spanish copies distributed. It further notes the Programme action on its earlier recommendation to conduct a survey of the readership of ARI News and looks forward to reviewing the results of this study at its next meeting.

#### 8.4 Appropriate technology

8.4.1 The TAG welcomes the production of a sounding timer which has successfully completed field and laboratory tests and considers that this technology will make an important contribution to the delivery of standard ARI case management by peripheral health workers.

8.4.2 The TAG notes the progress made in the identification of oxygen concentrators with technical specifications appropriate for developing country settings. However, it urges the Programme to field-test carefully these models in selected developing countries before recommending them to national ARI programmes. It recommends that these field-tests include a cost-benefit study comparing the supply of oxygen by pressurized cylinders compared to oxygen concentrators. It urges the Programme to continue to interact with UNICEF and national ARI programmes to ensure that these issues are adequately addressed and that interest in this technology does not divert Programme resources and efforts away from higher priority Programme activities.

8.4.3 The TAG notes the increasing awareness of the importance of wheezing disorders in young children in developing countries. It encourages the Programme to continue the development of appropriate technology for use in first-level health facilities for the management of young children with wheeze.

#### 8.5 Research component

##### 8.5.1 Introduction

The TAG recommends that continued priority be given to addressing the important questions remaining regarding the case management strategy. While maintaining efforts within the areas of case management and behavioural research, work should expand in health systems research and, as staff and funding permit, in research aimed

at identifying new preventive strategies. The TAG welcomes the recruitment of an additional professional staff member (a social scientist) for research activities.

#### 8.5.2 Case management research

8.5.2.1 The TAG recommends that the Programme undertake further studies in collaboration with the Malaria Control Programme and the Special Programme for Research and Training in Tropical Diseases to explore the overlap in clinical presentation and treatment between pneumonia and malaria, and to examine approaches to the sick child in areas in which P. falciparum malaria is endemic, as identified in the report of the meeting on the overlap in the clinical presentation and treatment of pneumonia and malaria in children, held in Geneva on 8 April 1991.

8.5.2.2 The TAG endorses the proposal for a meta-analysis of the results of the intervention studies which demonstrated the effectiveness of the case management strategy to reduce mortality from pneumonia in children.

#### 8.5.3 Behavioural and communications research

8.5.3.1 The TAG encourages the development of studies to examine the best approaches to improving communications between health workers and mothers.

8.5.3.2 The TAG recommends the development of studies to examine ways to modify careseeking so that prompt medical care can be given to children who may have pneumonia but are regarded by mothers as having a cultural illness for which care is currently only sought from traditional practitioners.

8.5.3.3 The TAG recommends the development of studies to demonstrate the effectiveness of communication with mothers using culturally adapted home care instructions.

8.5.3.4 The TAG is concerned that mothers may be receiving multiple and possibly confusing messages, and, therefore, it encourages the Programme to explore ways to coordinate health messages dealing with acute illness in young children between the various disease control programmes.

8.5.3.5 The TAG stresses the importance of using the results of the focused ethnographic studies in the local adaptation of WHO generic advice on home care, and welcomes the proposed meeting of social scientists and programme managers to review the application of the results of the "Focused Ethnographic Study" in national programmes.

#### 8.5.4 Health systems research

8.5.4.1 The TAG endorses the efforts to combine the ARI household survey with the CDD household case management survey. Although the resulting survey may be more lengthy, combined evaluation instruments are economical. Further benefit may be gained from computer entry and analysis.

8.5.4.2 The TAG encourages the Programme to initiate studies on the cost of implementing various elements of the case management strategy, such as training, communication, supervision and drug supply, with estimates of the cost both to families and health services; where possible, costs should be related to estimates of effect.

8.5.4.3 The TAG recommends the Programme to give priority to studying the effect of training materials on the performance of health workers, including the health workers' ability after training to detect and correctly classify children with pneumonia and severe pneumonia, and to measuring the resulting treatment and referral rates.

#### 8.5.5 Prevention research

8.5.5.1 The TAG endorses the Programme's efforts to ensure the implementation of a well-designed randomized trial to determine the impact of interventions to reduce indoor air pollution on childhood pneumonia, low birth weight and other health outcomes. Although the studies will require funding from other sources, the Programme should provide technical and some financial resources to develop the methodologies needed for rigorous studies and to ensure the adequate measurement of pneumonia incidence and other ARI outcomes.

8.5.5.2 The TAG supports the Programme's involvement in the field trials of the Haemophilus influenzae type b vaccines, in order to ensure that efficacy against pneumonia is adequately determined in these trials.

#### 8.6 Budgetary matters

8.6.1 Having reviewed the resources received and the obligations incurred during the 1990-1991 biennium, the TAG notes that 87% of the budget had been committed, giving the Programme a carry-over of US\$ 1.6 million at the end of 1991 to enable it to support implementation in the first quarter of 1992.

8.6.2 The TAG approves the revised budget of US\$ 11.6 million for 1992-1993, which it understands reflects a realistic projection of future extrabudgetary resources. This will, however, require additional contributors and/or increases from current contributors.

8.6.3 The TAG notes proposed extrabudgetary increases for the African Region, and urges the Programme to continue its efforts to ensure that adequate Regular Budget support is also provided.

8.6.4 The TAG agrees in principle with the preliminary budget of US\$ 13.4 million for the 1994-1995 biennium. It hopes that the additional resources required will be available, and looks forward to reviewing the official budget for this period at its next meeting.

8.6.5 The TAG values the support provided by bilateral cooperation agencies through staff assigned to the Programme as Associate Professional Officers. It encourages the Programme to stress the benefits of such cooperation in its discussion with bilateral agencies and to secure further support from them in this area.

### 9. EIGHTH MEETING OF THE TECHNICAL ADVISORY GROUP

The TAG decided to hold the next meeting on 15-19 March 1993 at WHO headquarters in Geneva. The TAG requests the Programme to plan an agenda for the eighth TAG meeting, in consultation with the Chairman, by the end of October 1992. It suggests that the second phase of the revision of the preventive strategies be included in the agenda.