

**WHO CONSULTATION ON THE DEVELOPMENT OF
A COMPREHENSIVE APPROACH FOR THE
PREVENTION AND CONTROL OF CHRONIC
RESPIRATORY DISEASES**

11 – 13 January 2001, Geneva



World Health Organization
Management of Noncommunicable Diseases Department
Chronic Respiratory Diseases and Arthritis

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Report of the

WHO CONSULTATION ON THE DEVELOPMENT OF A
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1. EXECUTIVE SUMMARY

Chronic Respiratory Diseases (CRD) which include asthma and chronic obstructive pulmonary disease comprise a major cause of death and disability for all age groups and regions in the world. In the absence of effective interventions, risk factors such as smoking, air pollution, allergen exposure, severe childhood respiratory infection and TB are expected to cause a further rise in the magnitude of these health problems in the coming years particularly in developing countries. Evidence also indicates that in many countries people with common CRD have no access to acceptable standards of health care; health systems may also provide inappropriate care due to misdiagnosis arising from respiratory symptoms which are often common for acute and chronic illnesses. This leads to overuse of drugs (especially antibiotics), depleting vital resources in countries where such resources are already scarce.

There is a pressing need for Member States to intensify efforts for the prevention and control of CRD. The global strategy for NCD prevention and control identifies chronic respiratory conditions as one of the four major priorities for future action. To discuss the current situation and discuss strategies for action, a WHO meeting of experts was convened in January 2001. The meeting first reviewed current WHO initiatives in the area of CRD. Next, major barriers to better global respiratory health were identified including poverty, common risk factors, poor infrastructure, air pollution, lack of hard data on morbidity and mortality, lack of awareness about CRD, and inadequate access to essential drugs. Strategies for lung health were discussed and approaches for prevention, surveillance and management were debated. Essential elements of prevention include tobacco cessation, immunization, case management of infectious diseases, better nutrition, and control of indoor and outdoor air pollution.

The health care structure is a key element of the success of CRD prevention and control programme. Strategies discussed include cost-effectiveness of interventions, the role of primary health care in the management of CRD, the potential value of guidelines, and the syndromic approach to management. One of the approaches is a symptom driven algorithm for diagnosis and care of the respiratory patient at the first level of contact with the health system. However, health care should be comprehensive, including all levels of health care providers, patients, third party players and NGO's. In low and middle income countries, the capacity of health professionals who traditionally focus on acute care of communicable respiratory diseases should be expanded to address CRD. Existing management guidelines should be modified and translated into practical recommendations that can be integrated into primary health care in developing countries. Feasible approaches for improving the availability and accessibility of essential diagnostic and therapeutic requirements should be adopted.

The conclusions and recommendations of this report are the basis for a comprehensive strategy for the prevention and control of CRD which is currently being developed by the NMH Cluster in co-ordination with other WHO Clusters.

2. BACKGROUND

Respiratory diseases represent a major cause of death and disability for all age groups and races in the world. Today, almost one-fifth of all deaths are attributable to respiratory illness. Communicable respiratory diseases (tuberculosis, acute respiratory infection, pertussis, diphtheria, measles) and non communicable respiratory diseases (asthma, chronic obstructive pulmonary disease, bronchiectasis, cystic fibrosis, obliterative bronchiolitis, sarcoidosis, etc) represent about 20% of the global burden of disease measured in disability-adjusted life years (DALYS). Among developing countries surveyed in 1997-1998, health statistics showed that respiratory symptoms are the first or second most frequent complaint of those visiting out patient services. (WHO/TB/98.257)

The World Health Organization (WHO) has had success in controlling specific respiratory diseases and has a number of initiatives addressing different aspects of lung health. However, a globally coordinated approach is required to integrate these efforts and make more effective use of scarce resources. The overall objective of this consultation was to address issues specific to chronic respiratory diseases and develop a proposal for a comprehensive approach to their prevention and control. The working objectives of the consultation were the following:

1. To review WHO's activities in the area of chronic respiratory diseases.
2. To outline strategies for the prevention and control of asthma and COPD with special emphasis on the developing countries.
3. To discuss a comprehensive approach for lung health that covers the major determinants and risk factors of preventable chronic respiratory diseases.
4. To outline an action plan for WHO and identify high priority areas of work and next steps.

3. WELCOME AND INTRODUCTIONS

Dr D. Yach, Executive Director of the Noncommunicable Diseases and Mental Health Cluster, called upon the participants to focus recommendations to create maximum impact on reduction in morbidity and mortality from non communicable respiratory diseases among lower- and middle-income countries. The group was asked to consider the approach under development as a "lung health investment" bearing the following in mind:

- Where can health systems provide leadership, particularly in terms of prevention?
- Which measures would have lifelong benefit, especially for children?
- What are the commonalties in terms of risk, diagnosis, referral and treatment?
- What are the issues related to drugs and technologies for diagnosis and treatment?
- How do we promote compliance and adherence to long term treatment?

4. ELECTION OF CHAIRPERSONS

Dr. Martyn R. Partridge was elected chair of the meeting. Professor Jean Bousquet was elected vice-chair. Professors Sonia Buist and Wan-Cheng Tan were elected rapporteurs. Annex A contains a list of participants. Annex B identifies the composition of the working groups.

5. GLOBAL BURDEN OF DISEASE

Respiratory conditions impose an enormous burden on society. According to the WHO World Health Report 2000, the top five respiratory diseases account for 17.4% of all deaths and 13.3% of all Disability-Adjusted Life Years (DALYs):

	<u>Deaths</u>	<u>DALYs</u>
Respiratory Infections	7.2	6.7
COPD	4.8	2.6
Tuberculosis	3.0	2.3
Trachea/Bronchus/Lung Cancer	2.1	0.8
Asthma	0.3	0.9

So far, estimates of **COPD** have been based primarily on mortality (vital statistics and necropsy studies). Nevertheless, COPD DALYs based on incidence and prevalence rates from 1990 that are adjusted to 2000 mortality rates and applied to 2000 population data show an increase in DALYs across all regions for males and across most regions for females.

The assessment of the burden of **asthma** is also challenging. Even when using the same research protocol, reports on asthma prevalence have shown huge variations within and among countries for teenagers and children. Less variable data was shown in adults. In order to make country-specific estimates of asthma for the Global Burden of Disease and Injury 2000, comparable data is needed.

In conclusion, for both COPD and asthma, additional studies are needed throughout the world that use the same case definition. The inclusion of data on severity distribution would assist in assigning disability.

6. CURRENT TRENDS IN MAJOR RESPIRATORY DISEASES

The Global Burden of Disease project has estimated that Lower Respiratory Tract Infections (LRTI), Chronic Obstructive Pulmonary Disease (COPD), Tuberculosis (TB) and Cancer of the Lung are each among the 10 leading causes of death worldwide and that these will all be in the top seven by 2020. By that time LRTIs, COPD and TB will also be in the top seven causes of disability adjusted life years worldwide and cancer of the lung will be the fourth highest cause in the developed world.

The prediction of a deteriorating situation is based largely on the demographic changes that are taking place in the developing world, though changes in schooling, income and tobacco use have also been used in the estimates of the future situation. Studies

undertaken over the last three decades have provided growing evidence of an increase in atopic disease and of sensitization to common allergens, both of which are associated with chronic respiratory disease. Similar trends are now also being recorded in poorer countries, even in countries previously expected to be part of the “very low prevalence” group.

Some studies suggest that birth weight and serious early infections predict both lung function and death from COPD in later life. The combined effects of relatively poor maternal and infant nutrition, a high incidence of LRTIs in early life and an epidemic of smoking would be expected to produce a very poor outcome for respiratory health in the developing countries over the coming decades.

7. CURRENT WHO ACTIVITIES AND INITIATIVES FOR LUNG HEALTH

WHO is currently involved in the following activities or initiatives relevant to chronic lung disease: Further information on each activity is available upon request.

7.1 Tobacco Free Initiative

7.2 WHO/WAO Activities on the Prevention of Allergy and Asthma

7.3 Global Initiative for Asthma (GINA)

7.4 Allergic Rhinitis and its Impact on Asthma (ARIA)

7.5 WHO Activities on Paediatric Asthma

7.6 Global Initiative for Obstructive Lung Disease (GOLD)

7.7 The WHO Air Quality and Health Activities

7.8 Adult Lung Health Initiative (ALHI)

8. GOVERNMENTAL AND NON GOVERNMENTAL ORGANIZATIONS

Several organizations have been very active in addressing respiratory disease issues. Some have focused on specific research on the fundamental mechanisms of disease or disease epidemiology. Others have specialized in promoting better care through the development and adaptation of management guidelines or in training health professionals, including the development of web-based education programs. Some have provided humanitarian support for disaster relief. All those represented at the meeting expressed interest in developing international partnerships.

9. IMPLEMENTATION AND INTEGRATION OF CHRONIC RESPIRATORY DISEASE HEALTH PROGRAMMES INTO THE HEALTH CARE SYSTEM

A series of presentations from eight countries and regions highlighted common issues that need to be addressed in a comprehensive program. A more complete summary of each

presentation is available upon request. Following are the key themes covered by the presentations:

- 9.1 Iran – Criteria for integrating a chronic respiratory disease program into the primary health care system.
- 9.2 The Netherlands – Evaluating strategies for introducing asthma/COPD guidelines into primary care.
- 9.3 Africa Region: Barriers to improving respiratory health and proposals for action.
- 9.4 China: Adapting guidelines to local needs.
- 9.5 Malaysia: New emphasis on public health to reduce the burden of chronic respiratory illness
- 9.6 India: Groundwork required to advance improvements in chronic respiratory health.
- 9.7 Asia-Pacific Region: Wide variations in disease burden between countries and the need for better research, particularly on COPD.
- 9.8 U.S.: Differences in prevalence, morbidity and mortality among minority groups may be related to access, exposures, genes, or gene-exposure interactions.

10. BARRIERS TO BETTER GLOBAL RESPIRATORY HEALTH

1. **Generic barriers** to better health include poverty, poor education, lack of sanitation, and poor infrastructure.
2. **Environmental barriers** include tobacco smoking, pollution, and poor nutrition.
3. In many instances, there is a **lack of political will** due to the lack of hard data on morbidity and mortality (other illnesses take priority), potential interventions (which are then perceived as ineffective) or the outcomes (which are deemed impossible to monitor).
4. Respiratory **specialists**, required to care for a wide variety of diseases (Annex C), have **failed to promote awareness**. It was suggested that a symptom-based rather than disease-based approach to education might help improve global respiratory health.
5. **Unsustainable generalisations** across cultures and health care systems may make guidelines impossible to implement. More research is needed to evaluate whether therapeutic trials conducted in high income countries, and resultant recommendations, are equally applicable to low income countries.
6. The **organisation of health care services** may have inherent barriers in terms of geography, the type of professional responding and the associated education/training systems, public vs. private care, the tendency for care to be “acute” rather than “routine”, and the availability and use of medications.

7. **Drug factors** presenting barriers include non-availability due to omission from WHO and/or national essential drug lists or poor supply and distribution infrastructure, cost, cultural attitudes towards drug delivery system (inhalers), and overuse or ineffective use.
8. **Patient barriers** include cultural taboos against those with the disease or a specific treatment, lack of information, underuse of self-management, over-reliance on acute care and the lack of support groups.
9. **Parallel medicine** (traditional healer, alternative healthcare) provision of unproven or ineffective therapies was also cited as a major barrier, particularly in developing countries.
10. The growing **HIV epidemic** and the concomitant **tuberculosis epidemic** have set back the hope for better global respiratory health.

11. GAPS, RELEVANCE AND INTEGRATING DIFFERENT GUIDELINES (Working Group)

11.1 *Gaps in guidelines*

The working group identified the following gaps:

1. Lack of patient oriented guidelines.
2. Lack of cost effectiveness studies relevant to local settings included in the resource documents on which practice guidelines are then based.
3. Lack of dissemination strategies.
4. Integration of different but related global guidelines is needed.
5. Methodology Gaps:
 - Multidisciplinary development groups (scientists, general practitioners, nurses, economists, specialists, etc.),
 - Literature search and evidence base for guidelines,
 - Integration of presently existing guidelines,
 - Pilot testing of guidelines,
 - Clearly identify target audience of guidelines,
 - Clearly identify the outcome to be achieved by the guidelines,
 - Assess outcomes following implementation, and
 - Provide for revision and update of guidelines.

11.2 *Relevance of guidelines in developing countries*

The practicalities of implementing “best practice” standards of care at the local setting, particularly in developing countries, highlight difficulties:

1. The disease burden is often poorly known; studies should be undertaken to assess the magnitude of the problem.
2. The disease burden and health priorities differ from one locality to another.

3. Accessibility to and availability of all the components called for in implementing best practice differ.
4. The use of single disease guidelines becomes impractical when confronted with a heavy daily workload.
5. Health care system design differs from one locality to another:
 - Health care financing may be out-of-pocket or prepaid, and may be managed by public sector, private for-profit or private non-profit institutions.
 - Health worker education and follow-up training, and subsequently the care they are capable of providing, varies substantially.

11.3 *What are the prospects of merging all respiratory guidelines into one document?*

It is not necessarily desirable to merge all guidelines, as they are extremely comprehensive and serve as reference documents. However, it is feasible and indeed, necessary to merge key elements of each guidelines document into an algorithm for use at the first point of a respiratory patient's contact with health services. WHO's role in guideline development/revision, integration into a usable algorithm, and ensuring better global care includes the following functions:

1. Co-ordination of standardisation – bringing global partners together to determine “best practice” for a particular disease entity and producing a resource document.
2. Integration of master documents into practice guidelines by bringing together multidisciplinary groups.
3. Proposal and co-ordination of research studies for cost effectiveness analysis, guidelines, outcome evaluation, etc.
4. Proposing processes to adapt guidelines to country specific contexts.
5. Updating of guidelines.
6. Coordination of the development, validation, and dissemination of an algorithm to ensure proper differential diagnosis, directing health services providers to the appropriate practice guideline.
7. Assessment and surveillance of disease burdens.
8. Putting a disease on the political agenda.
9. Increasing affordability, availability and accessibility to essential drugs and diagnostic tools for health problems of global importance.

12. PREVENTION, OUTCOMES AND HEALTH CARE MODELS (Working Group)

12.1 *What preventive strategies can be used for chronic respiratory disease at the primary health care level?*

Direct relevance and delivery: Care providers can implement preventive measures directly through contact with patients and other healthcare providers. Useful measures include: Tobacco cessation, immunisation – the expanded programme on immunisations (EPI) and others, and case management of infectious diseases – especially acute lower respiratory infection in children and tuberculosis which are risk factors for later chronic respiratory disease.

Indoor biomass combustion, a form of air pollution, has been associated with chronic lung disease. Alternative cooking/heating technologies and ventilation systems exist. Promotion of these measures needs to be reviewed, tested and documented.

Advocacy: It is the responsibility of the healthcare community to influence areas normally outside of the realm of primary healthcare through advocacy. Health professionals are generally respected in communities, and by bringing attention to certain problem areas, they may be able to bring about other preventive measures in the areas of: tobacco control, indoor air pollution, outdoor air pollution, occupational pollution, and nutrition.

12.2 *What outcomes can be evaluated?*

Outcomes identify disease incidence or prevalence. Over time, they can determine trends influenced by environment, behaviour, or treatment. Those that can be evaluated include:

- Cause-specific **death rates** based on certificates will vary in accuracy but provide a relatively cheap method of monitoring trends in serious diseases. In some areas, only broad categories of disease can be monitored.
- Surveys can be used to assess **risk factor prevalence**, the **burden of disease** and **quality of care**. These might be a gold standard for monitoring health and health care, but they are expensive and will require financial and technical support in many parts of the world.
- Audits of **hospital activity** may be used to obtain partial information much more cheaply.

Processes that can be assessed, in conjunction with other information, to monitor implementation of policies include:

- **Steroid use** – (or use of recommended alternatives) as a marker of appropriate treatment of asthma.
- **Antibiotic use** – (particularly the use of new antibiotics) as a marker of inappropriate medication.

Elements of **health care structure** can also be monitored to evaluate the potential for good care:

- **Drug** availability, cost, and quality.
- Existence of local **guidelines** and policies.
- Level of **training**.
- Clarity of **responsibilities**.
- **Budgets**.

12.3 *What is the optimal model of health care?*

At present, the response to this question remains unknown. If success were to be determined by the structure of the health service, the project of improving lung health might never start. However, a number of general points for successful integration of a program into existing models were made:

- Any programme must be comprehensive, involving public and private health care systems.
- All the key stakeholders must be involved, including all levels of health care providers, patients, third-party payers, and non-governmental organisations.
- Local universities are key players as opinion leaders, advocates and through their role as the providers of health care education.
- All programmes need to have built into them a rigorous method of evaluation and audit to ensure implementation and to test local effectiveness.

13. CHANGING BEHAVIOUR AND DRUG AVAILABILITY (Working Group)

13.1 *How do we translate guideline documents into modified health care professional behaviour?*

Policy makers who control resources need to understand that patients with chronic respiratory diseases are already entering the health care system. With proper diagnostic equipment and appropriate control medications, tuberculosis and acute respiratory infection can be ruled out, eliminating useless spending on expensive courses of antibiotics.

Adaptation of global work at the local level will be essential given the differences in disease epidemiology and health care system structures. All stakeholders must be identified and involved in the adaptation process so that ownership is established. To ensure success, a champion for each stakeholder group must be actively involved. WHO could break down the sets of guidelines into simple disease-specific messages and could provide a sample symptom-based diagnostic algorithm, to be adapted locally for use by the points of entry into the health care system.

An effective starting point for adapting the implementation of a programme to any health system would be the delineation and distribution of tasks among different levels of the health care system, depending on required skills, equipment, and medications.

Optimal training methods will depend on a country's infrastructure and professionals' habits. To be effective, training will normally take place at the work site and will include prompting during patient consultations, supervision, and mentoring. Seminars are not very effective unless the trainers are highly skilled and there is a feedback mechanism enabling participants to measure their habits. Audit questions, which prompt the practitioner to enquire about major risk factors and symptoms of morbidity, and which could be included in each patient's file, could serve as such a feedback mechanism. As computer technology expands to developing countries, computer-assisted learning, as well as email buddy schemes may become possible.

Consumer education, whether by traditional mass media campaigns or by consumer Internet research, promotes change in health care professional behaviour. Patient

education may be standardized by centralizing the function, thus controlling the quality of the information, avoiding duplication of effort, and ensuring consistent messages.

Annex D summarizes these recommendations in a diagram.

13.2 *How do we improve availability, accessibility and affordability of medicine in low income countries?*

The following recommendations were made by the group or raised during the ensuing discussion:

1. All drugs recommended in future WHO guidelines should be included in the WHO Essential Drugs list.
2. All such recommended drugs should be available at a target consumer price that represents a reasonable percentage of the country's per capita GNP.
3. The WHO Model List is not intended to guide approval and to restrict entry of drugs into the private sector. Countries can establish appropriate mechanisms to meet the needs of patients requiring drugs not included on their national essential drugs list.
4. Drug quality control mechanisms need to be established in countries that lack a quality control laboratory.
5. WHO should encourage the production of inexpensive, good quality spirometers.
6. Countries with prescribing practices that differ from internationally accepted guidelines should be encouraged by the World Health Organization to conduct trials to provide evidence of efficacy and cost-efficacy of proposed alternatives.

14. EVALUATION (Working Group)

Where there was already a literature on the cost-effectiveness of a protocol, a local study might be required either because the conditions of the original studies might not hold locally, or for reasons of advocacy, where local demonstration was thought important to change local perceptions of the guidelines. Cost effectiveness of a programme could be altered by a number of local differences:

- Efficacy and toxicity of the principle agents might differ either because of common genetic polymorphisms or because of common local pathology.
- Where efficacy was uniform, effectiveness might be very different because of differences in the distribution of the treatment. This might for instance be much reduced by poor compliance with a therapy that was well received elsewhere (e.g. inhaled medication)
- Where effectiveness was the same, the distribution of both direct and indirect costs might be very different in a different environment.

Standardised surveys of adult lung health would be the ideal method for evaluating future progress in improving global lung health. Precedents, such as the European Community Respiratory Health Survey, exist. Studies would have to be adapted to take account of common pathology in countries where substantial scarring from old tuberculosis was still common. Such studies could also monitor risk factors. Different methods would be

required for studying less common conditions such as cystic fibrosis and carcinoma of the lung.

Auditing health service activity, for instance in emergency rooms, wards and outpatient departments, could provide useful provisional information on community diagnosis and local management practices. Although imperfect, such information could be collected relatively quickly and cheaply. Tools for such activity have been developed but would require adaptation.

15. CONCLUSIONS

1. Emerging threats to better global respiratory health are the growing consumption of tobacco and unchecked increase in HIV infection.
2. The five leading respiratory diseases account for 17.4% of all deaths and 13.3% of all Disability Adjusted Life Years (DALYs). COPD is the fifth leading cause of death worldwide. The lifetime incidence and recent dramatic increase in prevalence of asthma indicate a growing burden. The global burden of respiratory diseases, including chronic diseases, should be considered when establishing priorities in healthcare.
3. Knowledge related to primary prevention is rapidly evolving, with the results of several major studies due within the next 2-3 years. Meanwhile, tobacco use is a major risk factor. Primary and secondary prevention of tobacco dependence is paramount in reducing the morbidity and mortality of chronic respiratory disease.
4. There is a continued need for evidence based guidelines for asthma, COPD and other chronic respiratory diseases (e.g. post tuberculous disease, bronchiectasis). Such guidelines should, however, take into account public health considerations like cost-effectiveness and feasibility, particularly in developing countries.
5. It is important to break down global guidelines into simpler disease specific guidelines for the health care professional, with integration based upon a symptoms approach. Algorithms with differing levels of complexity may be required depending on the health care system's structure.
6. There should be a major emphasis on health care systems introducing audit and feedback as well as primary and continuing education for the prevention and management of chronic respiratory disease. Training should enhance a culture of health promotion, focus on the patient as an individual, and encourage good communication with the patient.
7. New studies are needed of relative effectiveness, and where possible, cost effectiveness of therapeutic strategies, in different countries.
8. There is an urgent need for good prevalence data for COPD for all countries. To achieve this goal, standardized methods for population-based prevalence studies of COPD need to be developed, to include standardized respiratory symptom

questionnaires, simple pulmonary function tests, and sampling methodology that is feasible for countries at all income levels.

9. Global action is necessary to enhance the availability of essential drugs. Therapies regarded as optimal in future WHO Guidelines should be included on the WHO Essential Drugs List. All essential drugs should be available in every low income country at a maximum consumer price of "x" per cent of that country's per capita GNP.

16. THE NEXT STEPS TO AN ACTION PLAN

It is suggested that a very small working group review the action plan framework outlined below that includes elements suggested from issues identified during the meeting. The review would include prioritization, identification of key stakeholders and collaborators, and the assignment of technical and resource mobilization responsibilities.

16.1 *Guidelines and Algorithms*

- Identify gaps, including methodology gaps, in existing guidelines and in those still in development; address the gaps. Break the guidelines down into clear and precise recommendations. (See also Drugs and Devices)
- Develop and test an algorithm for respiratory diseases for adults and children established for point of entry into the health care system.

16.2 *Drugs and Devices*

- Establish internal WHO agreement on processes required for guidelines development (as well as procedures for updating internationally accepted guidelines which currently fail to meet those requirements) such that the resulting document serves as the rational basis for inclusion of drugs in the Essential Drugs List.
- Agree on approaches to improve accessibility to essential drugs for the management of chronic respiratory diseases in low income countries.
- Design and implement comprehensive study of chronic respiratory disease drug and device availability and pricing in lower and middle income countries.
- Identify and prioritize the alternative strategies to be researched, (e.g. oral steroid regimens, alternative drug delivery systems, traditional medicine and alternative therapeutic approaches).

16.3 *Epidemiology*

- Review, propose and validate methodologies used to provide best estimates of burden for chronic respiratory diseases: establish definitions; set minimum standards and tools for surveillance; establish diagnostic tests and criteria; determine pulmonary function tests and sampling feasible for all income levels. Develop a standardized questionnaire for respiratory symptoms.

- Promote prevalence studies in regions and age groups not well represented by current data.

16.4 *Health Systems*

- Review literature for methodology for development, introduction and evaluation of algorithms and for guidelines; focus attention on experiences in lower and middle income countries. Establish standard protocols.
- Review issues of accessibility to health care in relation to chronic respiratory disease. Identify potential pilot countries (lower and middle income, all regions represented) for projects to integrate prevention and management of chronic respiratory diseases into primary health care; focus in particular on countries recognizing the “double burden of disease” and adjusting their primary health care structure to address one or more chronic diseases.

16.5 *Tobacco Control*

- Determine status of smoking policies in countries where collaborators for chronic respiratory diseases programme have local affiliates; provide affiliates with TFI materials to initiate and support policy changes.
- Ensure that all primary health care facilities, respiratory health clinics and hospitals are smoke-free.
- Implement evidence-based brief smoking cessation interventions in all settings where the respiratory patient comes into contact with a health professional.

16.6 *Environment*

- Review cooking and heating technologies to identify those that could reduce exposure to household air pollution.
- Identify and evaluate from a global respiratory health focus, key occupational hazards to respiratory health of public health interest and the proposed corrective measures.
- Review and monitor scientific evidence of health effects associated with air pollution, with a special focus on household air pollution. Develop strategy and protocol to implement data collection on health effects related to air pollution; establish regional and national databases.



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Annex B: Small Working Groups

GAPS, RELEVANCE AND INTEGRATING DIFFERENT GUIDELINES

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Archie Turnbull
Nan-Shan Zhong

PREVENTION, OUTCOMES AND HEALTH CARE MODELS

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Raphael Bengoa
John Dodge
William Martin
Bruce Pflieger
Neil White

CHANGING BEHAVIOUR AND DRUG AVAILABILITY

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EVALUATION

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Annex C: The Challenge for Respiratory Specialists

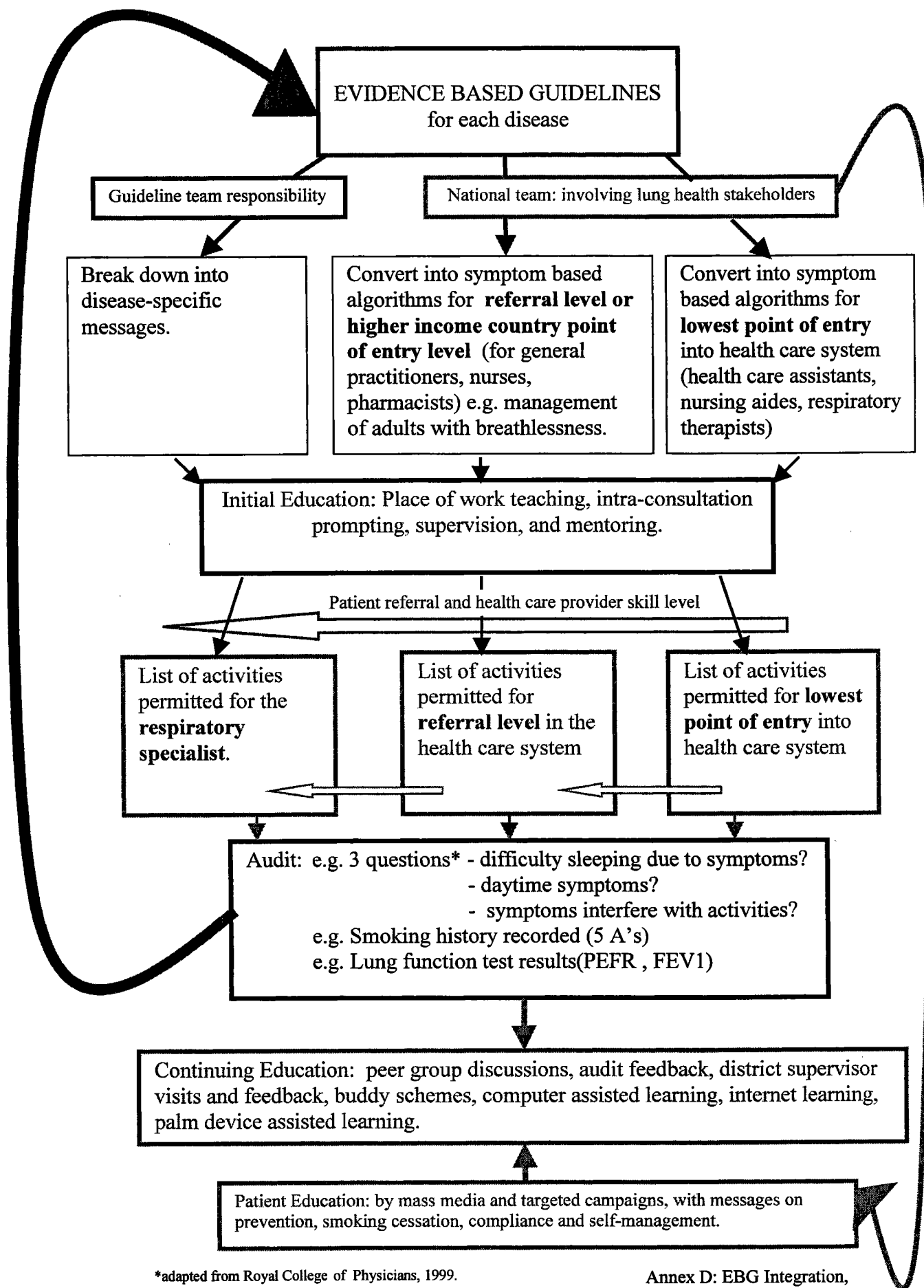
The Wide Variety of Diseases Causing Respiratory Symptoms

Airway Diseases	Restrictive disorders	Other Disorders
<u>Localised</u>	<u>Lung Diseases</u>	•Pulmonary vascular disorders
•Vocal cord paresis	•Sarcoidosis	•Sleep apnoea
•Laryngeal carcinoma	•Asbestosis	Infections
•Thyroid enlargement	•Extrinsic allergic alveolitis	•Tuberculosis
•Vocal cord dysfunction	•Fibrosing alveolitis	•Infective Bronchitis
•Relapsing polychondritis	•Eosinophilic pneumonia	•Pneumonia
•Tumours	<u>Pleural Diseases</u>	•Empyema
•Post tracheostomy stenosis	•Effusions	
•Foreign bodies	•Pneumothorax	
•Bronchopulmonary dysplasia	<u>Chest Wall/Muscle Disease</u>	
<u>Generalised</u>	•Scoliosis	
•Asthma	•Respiratory muscle weakness	
•COPD	<u>Other</u>	
•Bronchiectasis	•Obesity	
•Cystic Fibrosis		
•Obliterative Bronchiolitis		

Annex C: The Challenge for Respiratory Specialists (cont.)

Assessing the Breathless Patient

- Cardio-respiratory diseases in their early stages
- Otherwise occult pulmonary emboli
- Systemic diseases (anaemia, hyperthyroidism)
- Respiratory muscle weakness
- Upper airway obstruction and central airway tumours with normal chest X-ray
- Intermittent disorders, e.g. asthma
- Obesity
- Hyperventilation
- Psychogenic dyspnoea



*adapted from Royal College of Physicians, 1999.

Annex D: EBG Integration,
Training, and Evaluation