CHAPTER 20

PLANNING ACTIVITIES FOR CONTROL OF ARI IN THE CONTEXT OF INTEGRATED CARE FOR CHILDREN

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I. INTRODUCTION

An analysis of the issue of acute respiratory infections (ARIs) encompasses the same four major areas that are the focus of the planning of control activities: mortality, morbidity, the quality of care, and the prevalence of risk factors.

a) Mortality

Among the many diseases grouped together as ARI, pneumonia is responsible for 85% of all deaths from these diseases. It is therefore the focus of most information available on ARI-related mortality. Just the same, diagnoses of other ARIs (influenza, bronchitis, and bronchiolitis) must also be considered in focusing on mortality among children in developing countries, in part because specific causes of death are often mislabeled.

These classification problems, which are particularly severe in records of deaths in children under 5 years of age, are only one of the detrimental factors affecting the quality of general mortality statistics in the developing countries of the Americas.

The estimates of the Pan American Health Organization (PAHO) indicate that ARI-related mortality in children under 5 ranges from a low of 16 per 100,000 live births in the case of Canada to 3,072 in the case of Haiti, where ARI-related mortality accounts for 20-25% of all deaths; in children under 5, one of every four.

Even though the level of ARI-related mortality in most countries is lower, there is still a marked contrast between the situation in the more economically developed countries in the Region (such as Canada and the United States) and in the developing countries. But among the latter considerable differences exist, particularly in mortality from pneumonia and influenza in children under 1 year. Just the same, Costa Rica and Cuba, which boast some of the lowest rates in the developing countries of the Region, still have rates seven times higher than Canada.

These estimates are quite different than the official statistics in most countries. Belize and Peru are extreme cases in that the estimates are eight and three times higher, respectively, than the official figures. Whereas in most countries of the Region the estimates of mortality are around double, simply because the data recorded systematically to describe pneumonia and influenza are so limited that the estimates present a more realistic picture.

In a great number of developing countries with high numbers of cases of mortality from pneumonia and influenza, there has not been a decline in these cases in recent years. Comparing the estimates for 1985 with the results for 1994, one can observe that in various countries the estimated cases in 1994 are higher than those in 1985, and in others the difference between the two does not reach 20%, which represents an annual diminution of less than 3%.

The gap existing between mortality rates from pneumonia and influenza in the developing countries compared with the developed countries is wider and wider, taking into account that in Canada and the United States the number of cases decreased 20% or more in the period between 1985 and 1994 (20% and 26.3%, respectively).

The reasons for these differences are complex and include considerations of matters extrinsic to health as well. Nevertheless, the major factors susceptible to control are the following:

- Limitations in access to service are responsible for many domestic deaths of children who failed to receive personal care.
- A lack of adequate antibiotics for treatment in the early phase is another common factor in these deaths.
- Poor quality care in many health centers that fail to use standardized criteria for the early detection of warning signs of pneumonia on the part of health personnel and the community at large.

b) Morbidity

Many studies conducted on the incidence of ARI in children under 5 conclude that annual incidence is similar in developing countries and developed countries. All of the studies found that an average child under 5 residing in an urban area will suffer six to eight bouts of ARI annually, including cough, cold, rhinorrhea, bronchitis, bronchiolitis, and pneumonia, whereas the same child in a rural area will suffer from three to five such episodes. The different incidence is attributed to the presence in rural areas of fewer environmental contaminants that irritate respiratory mucosa.

Moreover, the incidence of pneumonia is notably higher in developing countries, where between 150 and 200 cases of pneumonia for every 1,000 children take place. Furthermore, the etiology of these is mainly bacterial in developing countries as compared to the mainly viral origin of the cases in more economically developed countries.

There is scarce information available on morbidity for the countries of the Region, and the quality of this information is undercut by the absence of a record-keeping and analytical system for morbidity data in the countries and health regions in contrast to mortality records, which do exist.

The available data profiles are based on special studies and reflect a high incidence of ARI in children, which is the basis of 40-60% of pediatric doctor's visits at health centers. However, the portion of visits due to pneumonia (under 10% in most studies) is low, which leads to the conclusion that their number is small because they are not carried out in a timely fashion.

Hospital records, however, indicate pneumonia is one of the principal ARI-related causes of pediatric hospitalization, along with manifestations of severe bronchial obstruction. ARI represents 20-40% of all pediatric hospitalizations in developing countries. These are mainly for pneumonia and to a lesser degree bronchitis, bronchiolitis, and bronchial obstruction syndrome (*1*).

c) Prevalence of risk factors

The high incidence of pneumonia in children, in conjunction with their other risk factors (malnutrition, overcrowding, poor care in the home) contribute to the higher incidence of complications and mortality in the pneumonia cases in developing countries. Certain risk factors stand out in particular—low birth weight, scarce or absent breastfeeding, vitamin A deficiency, incomplete vaccinations, poor air quality in the home, and exposure to chills.

d) The quality of case care

The quality of care that children under 5 receive at health centers is a factor of the high mortality rates and is associated with an important problem in ARI control, which is the use of drugs in treatment.

ARI is the major reason for antibiotic prescription in children under 5. Most studies indicate that in at least half of the ARI cases treated at health centers antibiotics were prescribed, although in most cases they were not required.

Moreover, other medications are often used to treat ARI in children, including cough syrups and cold remedies that may often have harmful effects due to their suppression of the child's natural defense mechanisms.

In short, the principal factors that characterize the problem of ARI in children in the Region of the Americas are its importance as the cause of mortality, hospitalizations, sequelae, visits, and inappropriate use of antibiotics and other drugs for coughs and the common cold.

II. The objectives and strategy of ARI control

The main goal of ARI control activities is to reduce mortality from pneumonia in children under 5 years of age. Three other objectives are also sought:

- Reduce the inappropriate use of antibiotics and other drugs used to treat ARI.
- Reduce severity and avoid other complications in the upper airways (deafness secondary to otitis media, rheumatic fever, and heart problems secondary to streptococcal pharyngitis).
- Reduce ARI complications in the lower airways (pneumonia and bronchiolitis) through early diagnosis and effective case management.

Standard case management (SCM) is the main focus of the strategy being used to accomplish the objectives of ARI control. However, other efforts can also contribute significantly to accomplishing the objectives, including vaccinations against measles and whooping cough and the prevention of other risk factors (*2*).

a) Standard case management

SCM stresses the reduction of mortality from pneumonia in children and the reduction of the inappropriate use of antibiotics in treatment. It uses a decision tree to systematize the three stages of case management: evaluation, classification, and treatment. The strategy proposes a set of signs and symptoms that offer a high predictive value and allows for the classification of children with ARI according to the probability of their contracting pneumonia. It also includes a series of recommendations for standardized treatments of proven effectiveness to be administered to the children in accordance with their classification.

The following are components of SCM:

1. Treatment in hospitals for cases of very severe disease and pneumonia in infants under 2 months of age.
2. Treatment in hospitals for cases of very severe disease and pneumonia in children from 2 months to 4 years of age.
3. Treatment of pneumonia cases in children from 2 months to 4 years of age.
4. Treatment of non-pneumonia cases presenting cough or colds.
5. Treatment of cases of children with wheezing.
6. Treatment of cases of ear infections.
7. Treatment of cases of sore throat.
8. Education for mothers (or other responsible caretakers) on warning signs and treatment techniques in the home.

The tables on case management included in Appendix 1 of this chapter cover diagnosis, classification, and treatment.

Adapting SCM to local characteristics may necessitate choosing between several options that are generally contained in the national rules and policies for ARI control. These decisions include the following areas:

- Antibiotics provided for standard treatment of pneumonia. Four antibiotics are recommended in particular: cotrimoxazole, amoxicillin, ampicillin, and procaine penicillin. Selection will depend on the local situation, cost, frequency of doses, and the need for disposable elements in the case of injectable antibiotics.
- Health personnel other than physicians who are authorized to use antibiotics to treat pneumonia and bronchodilators to treat wheezing.

When part of the population lacks access or has only restricted access to professional medical care, pneumonia cases run the risk of becoming severe and leading to death unless antibiotic treatment can be received. In these situations, it may be appropriate to train personnel who are not physicians to detect and manage cases classified as pneumonia under the standard care criteria. Such personnel require strict supervision to ensure against the excessive or unnecessary use of antibiotics, which is also an objective of ARI control.

Cases of wheezing can be managed in a similar fashion, if a trained nonprofessional can offer bronchodilator treatment at the primary care level and obviate the need to obtain care at a health center.

- Home remedies recommended to mothers for treating symptoms of cough and cold. Because the contents of many cough medicines and cold remedies may be potentially harmful to children, it is important to decide at the local level which medicines mothers may give their children without risk. Similarly, there are several concoctions prepared at home that are often used to treat cough and colds. These need to be examined at the local level to determine which ones are harmful, to discourage their use, and to promote the use of remedies that are not harmful for the child.

The course offered by PAHO on the organization of ARI control activities includes a module on national policies that examines these issues in greater detail.

b) Immunization against measles and whooping cough

Immunization against measles and whooping cough is an important part of the preventive strategy now recommended to avoid certain cases of pneumonia. Pneumonia is a common complication of measles and whooping cough, and it is estimated that 15% of the pneumonia deaths in children under 5 are the result of complications from these diseases. Clearly, vaccinations against these diseases will also reduce many pneumonia cases and related deaths.

Specific details on the planning and implementation of programs for measles and whooping cough vaccination are found in Chapter 8, "Production of vaccines for the prevention of ARI: A regional outlook."

c) Reduction of risk factors

Reducing the prevalence of risk factors that contribute to pneumonia (and other diseases) is an important component in the strategy to bring down the incidence and severity of pneumonia cases and related mortality. These factors include low birth weight, bottle feeding at birth, poor weaning practices, poor air quality inside the home, and exposure to drafts and colds.

Some of these factors are addressed elsewhere in this and other PAHO publications (*3*).

III. Stages in the implementation of control activities

Four stages are proposed here for a more efficient implementation of ARI control. They are geared toward greater effectiveness in health centers prior to receiving patient visits. It is hoped that these measures will head off difficulties that may arise when a greater number of children are being checked for ARI before the health personnel have become effectively trained to implement the recommended strategic activities (*1, 4*).

The four stages and their corresponding activities are detailed below:

a) Stage 1

Providing SCM for severe pneumonia and other ARI at the primary level and in public and private hospitals.

Activities:

- Increase access to SCM for ARI through efforts to train personnel at health centers and supply appropriate drugs and equipment. SCM includes efforts to teach mothers who seek health services how to care for ARI cases in the home.
- Increase access to SCM for severe pneumonia and very severe disease by training hospital personnel and supplying appropriate drugs and equipment.

b) Stage 2

Provide SCM for ARI through community health workers.

Activities:

- Increase access to SCM for ARI by training community health workers and providing them with supplies and supervision.

c) Stage 3

Encourage proper care in the home for children with ARI, including early recognition of pneumonia signs by mothers and other caretakers to ensure that they are brought to the health worker as soon as is needed.

Activities:

- Educate the family about care for ARI in the home, detection of pneumonia signs in children, and when to seek assistance outside the home. Promote the use of health services.

d) Stage 4

Provide specialized treatment for ARI cases that fail to respond to SCM or that otherwise would benefit from specialized care.

Activities:

- Increase access to specialized case management in referral hospitals at the secondary and tertiary levels.

These stages are not intended to be performed in strict sequence. Some stages may take place simultaneously depending on the local characteristics, but regardless of the circumstances in the site that the stages are applied, the proposed sequence facilitates a focus on those areas where greatest control and responsibility is possible. Commencement of implementation with provision of SCM in primary level health centers will lead to reductions in ARI mortality, improvements in early recognition of pneumonia and other severe diseases by health personnel, and more timely and appropriate treatment.

IV. Steps to follow in implementation

The following steps are among those required for implementation of ARI control strategy at the local level:

a) Description of the geographic area of implementation

The first step in the implementation of the strategy is to clearly define the geographic area where ARI control activities will be implemented. This will facilitate calculations of the demographic demand for health care, in particular the size of the under-5 population and the distribution of more specific age cohorts (under 2 months, 2-11 months, 1-4 years). This information is useful in figuring the requirements for drug supplies, as is described below.

The map of the implementation area should include the major concentrations of population, transportation and communication routes, and geographic features that may impede access. It should also include the different available health centers, as specified in section IV. c below (5).

b) Up-to-date description of ARI situation in the area of implementation

Prior to undertaking any planning, it is important to understand the magnitude of the ARI problem in the corresponding area, particularly the aspects that will be targets of control; i.e., mortality, morbidity, and the quality of care. Information will need to be gathered on the following:

- Mortality from pneumonia in infants under 1 and in children 1-4 years old in the last year for which information is available. When mortality data are unavailable or the diagnostic quality of information on cause of death is in doubt, estimates can be based on the total number of deaths in the age cohort and the knowledge that in most developing countries pneumonia is responsible for 10-30% of all deaths of children under 5. It is also useful to learn the place of death (whether at home or at a health center), the care received prior to death, nutritional status, and birth weight of the deceased, all of which can help to strengthen the strategy and implementation of ARI control. Information on at-home deaths can be sought through records of health centers and posts in the area of implementation or through household visits.
- The number of hospital admissions for pneumonia involving children under 5 during the last year for which information is available. As a complement to this information, it is also useful to learn further aspects of hospitalizations, such as average length of hospital stays, whether patients were referred by peripheral services or taken to the hospital directly by parents, lethality rate of the establishment, and nature of treatment provided.
- The number of doctors' visits by children under 5 for pneumonia and other ARIs at area health services (including both peripheral health posts, outpatient clinics, and emergency room arrivals) and the proportion of visits that resulted in antibiotic treatment.

This last information will be more useful if it can be correlated to diagnosis, given the importance of reducing the unnecessary use of antibiotics in non-pneumonia cases (cough, common cold, bronchitis) or pharyngitis.

Information can also be gathered on the proportion of visits due to cough or difficult breathing that received chest X-rays and the proportion that received cough syrups and common cold treatments. To obtain this information, it may be necessary to review available data on mortality, morbidity, medical visits, and hospital admissions. The formats proposed for operational studies that are included in the PAHO publication "Priority Operational Investigations for Evaluating the Impact of ARI Control Activities" are recommended. They include study protocols that are designed to assess the results of control strategies and that provide baseline information, which is particularly important to depict the actual situation prior to the interventions (*6*).

c) Establishment of the health network available for implementation

After the geographical area and the ARI situation have been detailed, identification should be made of the available structure for implementation of control strategies. This network consists of all the health units and personnel that are involved in ARI control, including hospitals, health

centers, health posts, and community health workers located in specific areas that lack a health post. The health structure may also include private as well as public health offices, social security offices, churches, and nongovernmental organizations, among others. Nongovernmental components may be included from the start or at a subsequent stage.

The description of the health network should proceed in the following manner:

- Inventory the existing health centers in the area, define their level of complexity according to their ARI-treatment capabilities—e.g., handling capacity for very severe cases of disease, very severe pneumonia cases, regular pneumonia cases, or only cases of cough and colds (not pneumonia). The level of complexity should also include the availability of a vehicle for cases referrals and communications infrastructure (radio, telephone, etc.).
- Locate the centers on the area map and identify them by level of complexity as specified above.
- Establish routes of referrals and counterreferrals between the different health levels and centers.

This procedure will help to show clearly what the access of the population to different health centers is, which is a key step in defining the capabilities for caring for cases of different levels of severity for different sectors of the population. It will also indicate the average time needed to complete a referral between different levels to demonstrate the access of cases to hospitals. Using this information, an informed decision can be made on aspects of SCM, such as which health professionals can prescribe antibiotics to control pneumonia and bronchodilators to control wheezing, where different hospitals will keep drugs and other supplies for severe cases that cannot be referred. These decisions will also depend on the access and case referral capabilities of different health workers.

The health network tally should also include the number and category of health personnel that will take part in the planning and supervision of strategic implementation (area chief, health center director, supervisor, statistician), as well as of the personnel responsible for care for children with ARI under 5 years of age (*7*).

d) Planning implementation of ARI control activities

The implementation of ARI-control activities in the given area should be conducted in sequence and organized to ensure that the proposed objectives are met as efficiently as possible. Thus, it is essential to plan specifically to ensure:

- Access to SCM for ARI is available to the under-5 population in the geographical area.
- Access to SCM for pneumonia is available to the under-5 population in the geographical area.

These objectives will require three activities:

- Health personnel training.
- Provision of drugs and other necessary supplies for treatment.
- Supervision of health personnel to ensure effective performance and operations.

Access to SCM is not a guarantee that cases will be treated effectively, because mothers may choose not to seek out health services or professional treatment. Thus, social communication and health education is also important.

- Social communication and health education geared to better knowledge, attitudes, and practices in the community in relation to care for children with ARI. Particular emphasis is recommended on early detection of warning signs of pneumonia, timely health center visits, and appropriate handling of children with ARI in the home.

In addition, planning should also include two other activities intended as follow-up for the process and the results thereof:

- Monitoring and surveillance of activities and results.
- Regular assessment of results of both the implementation process and the impact of activities on the health situation.

d.1) Health personnel training

Training health personnel is the first activity that should be conducted in implementing ARI control strategies and covers two main areas: the organization, planning, and supervision of activities; and ARI case management.

The personnel responsible for implementation of ARI control such as the area chief or director and the health center supervisors should receive training in organization, planning, and supervision. The training should cover situation analysis, setting priorities, calculating goals and objectives, and planning and organization for strategic implementation. Training should also cover familiarization with the aspects of strategy to be implemented, including SCM. This area is of particular importance for supervisors who need to ascertain that the health personnel conduct implement the strategy correctly.

The training of supervisory personnel should precede that of the health personnel responsible for case management to ensure that SCM is introduced in the health network institutions in a well-planned way and that that the personnel will have supervisors who can assist them in identifying and addressing problems.

Training in case management, however, is aimed at all personnel involved in pro-

viding care to children with ARI under 5 in the health centers (in the first stage) and in the community (in the second stage). These personnel include doctors and nurses at referral hospitals, health centers, health posts, and other establishments in the area, and with time, the community health workers.

In setting priorities in this process, the referral hospital personnel should receive training before or simultaneously to the personnel in the peripheral health centers. This order will help to ensure that cases referred to hospitals by peripheral services will not be sent away because of inconsistencies in the care policies of the two types of health services.

As personnel training progresses, private sector personnel can also receive training, along with personnel from social security offices and NGOs that operate on the local and intermediate levels. These inclusions will help improve access to SCM for ARI and reinforce standardization of care criteria.

The need to train personnel in SCM should prepare them to evaluate, classify, and treat children with ARI, so it is important that training emphasize praxis. Therefore, it is recommended that 50% of the training time be devoted to in-service training or praxis, and the rest of the time devoted to the study of materials that describe and analyze the SCM strategy.

To this end, ARI treatment training units have been created in centers that have a large number of visits or admissions of children with ARI under 5 years of age. These training units allow a large number of health workers to attend courses of training practice.

Appendix 2 presents a breakdown of the training materials available and the different types of courses that are suggested for implementation of the ARI control strategy.

d.2) Provision of drugs and other supplies

The ongoing availability of drugs at the health centers is an essential condition for SCM of ARI and includes antibiotics, antipyretics, and bronchodilators.

The availability of antibiotics to treat pneumonia is essential in reducing mortality in children under 5, which is one of the main objectives of ARI control.

Planning for the provision of drug supplies must cover several areas, including the calculation of the necessary quantities, distribution, and surveillance of their use. These aspects are detailed in the breakdown of the course on organizing ARI control activities and in other technical documents (see Appendix 3.)

The drugs must be available before training begins to ensure that health services are immediately available as personnel are trained and that once personnel identify pneumonia cases they can provide immediate treatment. A lack of drugs would undercut training by preventing recommended control activities from being performed. On the other hand, unless personnel to whom drugs are distributed have been properly trained, the supplies are likely to soon be used up because of inappropriate and unnecessary prescriptions.

Other necessary supplies include case management charts ("Care for the child with cough or difficult breathing" and "Care for the child with ear problems") and care records. Timers are also needed to track respiratory frequency and are particularly useful in these cases if no other equipment is available to count a minute.

Economic factors may make it difficult in certain cases to provide timely and regular antibiotics. At such times, promotion is needed of a "revolving fund" of drugs that is set up for ongoing cost recovery through community support and contributions from representative institutions (*9*).

d.3) Supervision of health personnel

The supervision of SCM for ARI is of primary importance to guarantee effective access to adequate pneumonia case management. Supervision should be conceived of as an essential complement to training and as a way to assess and evaluate, together with the personnel, possible problems that may crop up as control strategies are practiced and adapted on a daily basis. Thus, supervision should help resolve doubts and areas that were not made satisfactorily clear in training.

Therefore, trained personnel should receive a supervisory visit within the first two months of having completed training, so that potential problems can be reviewed. This visit will be of key importance and will ensure personnel that they can count on the necessary assistance to address problems and implement activities effectively.

Supervision should always be on a regular basis and address the following points:

- The quality of care for children with ARI under 5, to detect possible problems in implementing the control strategy. The supervisory visitor can observe how health personnel handle a child with ARI, ask the health worker questions, review records of the latest cases treated, and question mothers who bring their children to the health service.

- Proper availability and storage of drugs and other necessary supplies for treatment. This area can be ascertained through observations and consultations with health workers on recent requests and prescriptions of drugs. Records on the inventory and use of drugs should also be reviewed.

- Current situation and the trends in indicators of ARI control. The health workers can be consulted on deaths, particularly from pneumonia, in children under 5 in the area of service, the referral of severe cases to hospitals, and control activities performed.

To ensure that all essential aspects are covered, a supervisory doctors' visit guide is recommended to have at hand the main questions to be asked and activities performed at the health service in relation to the above recommendations. Sample questions are included in the reference document in Appendix 4.

d.4) Social communication and health education

Social communication and health education are intended to teach mothers early recognition of pneumonia warning signs in a child with ARI, so that a health worker will be immediately consulted. In addition, health education is intended to teach mothers and other caretakers about appropriate home management of a child with ARI and thereby encourage correct practices and discourage harmful or potentially harmful ones that may exist in the home.

Given the importance of the early consultation with the health worker, it is essential that the health personnel be well versed in SCM and receive regular supervision and the drugs that are required.

Communication may be either specifically targeted or mass communication. In starting control activities, communication should target population groups that already have access to health workers who can provide SCM. This will ensure that demand for care is not created in sites where personnel lack training, drugs for treatment, and supervision. At this stage emphasis is placed on providing education to mothers or caretakers at the time of medical visits, either during the actual consultation or in the waiting rooms of the hospitals and health centers or posts where standardized care is provided. Education may also be offered in schools in the local area corresponding to the health services.

Mass communication, however, should be limited to situations in which SCM has mass coverage, so that people are not encouraged to seek out nonexistent services.

If communication and educational efforts are carried out in this way, they will constitute a proper response to situations of high domestic mortality resulting from the inability of mothers and families to consult health services in a timely manner. In these cases, activities must focus on raising mothers' awareness of warning signs and ensuring their access to health services capable of offering SCM.

Therefore, these activities must adapt materials and methodologies to local cultural characteristics and develop local materials that convey the main educational points contained in the SCM strategy.

In some regions or areas it may be necessary to tailor messages according to different languages, cultures, or ethnographic features of specific local groups of population. Guides have been prepared to help execute the studies that will orient the required adaptations.

d.5) Monitoring activities and results

Ongoing verification is important to guarantee the success of planned activities. Since the activities are geared to achieving the objectives of ARI control, proper performance can be ensured only by updating activities as advancements are made in relation to the problem.

The purpose of the surveillance or monitoring is to ensure prompt detection of any

problem that may arise, whether in terms of performance or meeting objectives, to avoid any delay in designing the best solutions to the problems identified. In this way, monitoring can prevent resources and efforts from being devoted to activities that do not achieve results.

Monitoring should be done on a regular basis (monthly or bimonthly) because of the need for prompt detection of problems. At the same time, monitoring should take account of the indicators that need to be measured, activities that are geared to increasing access to control activities, and application of the strategy among the population; that is, it must focus on health personnel training, supplies, supervision, and communication. It must also focus on the impact that the activities have on the problem.

Several basic indicators need to be tracked when monitoring ARI control activities and their results. These indicators, which are normally made available by health services in developed countries, are listed in Appendix 5, along with information on how to calculate them and where to obtain them.

d.6) Assessment of results

The assessment is a process to review activities and results and is intended to establish the degree to which the activities being performed and the original objectives have been accomplished. Although there is much overlap in the focus of assessment and monitoring, monitoring involves more continuous attention to specific indicators and more follow-up of the activities and the objectives to be accomplished.

The assessment takes a more thorough and comprehensive view of the activities, allowing a more effective and efficient analysis that can identify different options and strategies for treating the problems.

Assessment, like monitoring, involves the measuring of indicators that will reflect changes in the status of the problem and the objectives of ARI control, as summarized in Appendix 5.

V. Proposed goals and objectives for ARI control

In view of the effectiveness of the control strategies and the capabilities of countries throughout the Americas to proceed with their implementation, goals and objectives have been proposed within the framework of international commitments to improve maternal and child health. These country-level goals are to be adapted according to the actual situations in each country, and they should help to orient national authorities responsible for ARI control in the gradual implementation of control strategies (*10*).

The national goals and objectives are valuable and applicable domestically at the national, inter-

mediate, and local levels. The following are the goals and objectives proposed for the year 2000:

1. Training

- Train 100% of national officials and ARI coordinators and their administrative departments (national, provincial, departmental) in organization, programming, and supervision of ARI control activities.
- Provide training to at least 80% of health personnel responsible for treating children at primary-level health services in effective ARI case management.
- Ensure that at least one training unit for ARI treatment is in proper operation in each state, province, or department.

2. Access to and use of SCM for ARI

- Provide at least 80% of the population with access to health services that offer SCM for ARI (including trained personnel with adequate supplies and supervision).
- Provide standardized treatment for at least 80% of the pneumonia cases in children under 5 years of age (including outpatient antibiotic treatment and hospital referrals and treatment for cases that require them).
- Provide education on home care for children with ARI to 100% of the mothers that bring children to the health services.

3. Program impact (Goals of the World Summit on Children)

- Reduce the level of pneumonia mortality in children under 5 that existed in 1990 by 30% by the year 2000.

VI. Operational plans

To implement the ARI control strategy, it is suggested that detailed national operational plans be developed that would take into account the points covered in Section IV above. The plans would also specify goals and objectives appropriate for the actual situation in the corresponding country and would include a schedule of activities that could be monitored and assessed by national authorities. These operational plans are of considerable value for guiding the implementation of activities, organizing the ARI control responsibilities of responsible officials, and as a baseline for following up on results.

In addition to their usefulness at the national level, operational plans are valuable at inter-

mediate and local geographic level. Appendix 6 presents a local-level operational plan.

VII. References

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VII. Appendices

Appendix 1. Tables on Standard ARI Case Management

Care for Children with Cough or Respiratory Difficulty

ASK:

- What is child's age?
- Is child coughing? Since when?
- For 2-month to 4-year-old: Can he or she drink?
- Under 2 months: Has he or she stopped eating?
- Does child have fever? Since when?
- Does child have convulsions?

OBSERVE and LISTEN:

(child should be still)

- Count breaths per minute.
- Observe whether child is indrawing or has retractions.
- Observe and listen for stridor.
- Observe and listen for wheezing. Is it recurrent?
- Check to see if child is normally sleepy or hard to awaken.
- Check for low-grade fever with hand or thermometer.
- Check to see whether child suffers from severe malnutrition.

THE YOUNG INFANT (AGE LESS THAN 2 MONTHS)

SIGNS:	• Stopped feeding well, • Convulsions, • Abnormally sleepy or difficult to wake, • Stridor in calm child, • Wheezing, or • Fever or low body temperature.	
CLASSIFY AS:	**VERY SERIOUS DISEASE**	
TREATMENT:	▶ Refer URGENTLY to hospital. ▶ Keep young infant warm. ▶ Give first dose of an antibiotic.	
SIGNS:	• Severe chest indrawing, or • Fast breathing (60 per minute or MORE)	• No severe chest indrawing, or • No fast breathing (less than 60 per minute).
CLASSIFY AS:	**SEVERE PNEUMONIA**	**NO PNEUMONIA: COUGH OR COLD**
TREATMENT:	▶ Refer URGENTLY to hospital. ▶ Keep young infant warm. ▶ Give first dose of an antibiotic. (If referral is not feasible, treat with an antibiotic and follow closely)	▶ Advise mother to give the following home care: ▶ Keep young infant warm. ▶ Breastfeed frequently. ▶ Clear nose if it interferes with feeding. ▶ Return quickly if: ▶ Breathing becomes difficult. ▶ Breathing becomes fast. ▶ Feeding becomes a problem. ▶ The infant becomes sicker.

THE CHILD AGE 2 MONTHS TO 4 YEARS

SIGNS:

- Not able to drink,
- Convulsions,
- Abnormally sleepy or difficult to wake,
- Stridor in calm child, or
- Severe malnutrition

CLASSIFY AS: **VERY SEVERE DISEASE**

TREATMENT:

- ▶ Refer URGENTLY to hospital.
- ▶ Give first dose of an antibiotic.
- ▶ Treat fever, if present.
- ▶ Treat wheezing, if present.
- ▶ If cerebral malaria is possible, give an antimalarial.

SIGNS:	• Chest indrawing (If also recurrent wheezing, go directly to: ▶ ***Treat Wheezing***	• No chest indrawing, and • Fast breathing (50 per minute or more if child 2 months up to 12 months; 40 per minute or more if child 12 months up to 5 years).	• No chest indrawing, or • No fast breathing (Less than 50 per minute if child 2 months up to 12 months; less than 40 per minute if child 12 months up to 5 years).
CLASSIFY AS:	**SEVERE PNEUMONIA**	**PNEUMONIA**	**NO PNEUMONIA: COUGH OR COLD**
TREATMENT:	▶ Refer URGENTLY to hospital. ▶ Give first dose of an antibiotic. ▶ Treat fever if present. ▶ Treat wheezing, if present. (If referral is not feasible, treat with an antibiotic and follow closely).	▶ Advise mother to give home care. ▶ Give an antibiotic. ▶ Treat fever, if present. ▶ Treat wheezing, if present. ▶ Advise mother to return with child in 2 days for reassessment, or earlier if the child is getting worse.	▶ If coughing more than 30 days, refer for assessment. ▶ Assess and treat ear problem or sore throat, if present (see chart). ▶ Assess and treat other problems. ▶ Advise mother to give home care. ▶ Treat fever, if present. ▶ Treat wheezing, if present.

	Reassess in 2 days a child who is taking an antibiotic for pneumonia:		
SIGNS:	**WORSE** • Not able to drink. • Has chest indrawing. • Has other signs of danger	**THE SAME**	**IMPROVING** • Breathing slower. • Less fever. • Eating better.
TREATMENT:	▶ Refer URGENTLY to hospital.	▶ Change antibiotic or refer.	▶ Finish 5 days of antibiotic.

INSTRUCTIONS FOR TREATMENT

► *Give an antibiotic*

- Give first dose of antibiotic in clinic.
- Instruct mother on how to give the antibiotic for five days at home (or to return to clinic for daily procaine penicillin injection).

AGE or WEIGHT	COTRIMOXAZOLE trimethoprim + sulfamethoxazole ► Two times daily for 5 days			AMOXICILLIN ► Three times daily for 5 days		AMPICILLIN ► Four times daily for 5 days		PROCAINE PENICILLIN ► Once daily for 5 days
	Pediatric tablet (20mg trimethoprim + 100 mg sulfamethoxazole)	Syrup (40 mg trimethoprim +200 mg sulfamethoxazole per 5 ml)	Adult tablet single strength (80mg trimethoprim + 400 mg sulfamethoxazole)	Tablet 250 mg	Syrup 125 mg in 5 ml	Tablet 250 mg	Syrup 250 mg in 5 ml	Intramuscular injection
Less than 2 months (<5kg)♦	1*	2.5 ml*	1/4*	1/4*	2.5 ml	1/2	2.5 ml	200,000 units
2 months up to 12 months(6-9kg)	2	5 ml	1/2	1/2	5 ml	1	5 ml	400,000 units
12 months up to 5 years (10-19 kg)	3	7.5 ml	1	1	10 ml	1	5 ml	800,000 units

♦ Give oral antibiotic for 5 days at home only if referral is not feasible.

* If the child is less than 1 month old, give 1/2 pediatric tablet or 1.25 ml syrup twice daily.
Avoid cotrimoxazole in infants less than one month of age who are premature or jaundiced.

► *Advise mother to give home care* *(For the child age 2 months up to 5 years)**

► Feed the child.
- ► Feed the child during illness.
- ► Increase feeding after illness.
- ► Clear the nose if it interferes with feeding.

► Increase fluids.
- ► Offer the child extra to drink.
- ► Increase breastfeeding.

► Soothe the throat and relieve the cough with a safe remedy.

► Most important: In the child classified as having No Pneumonia: Cough or Cold, watch for the following signs and return quickly if they occur:
- ► Breathing becomes difficult.
- ► Breathing becomes fast.
- ► Child is not able to drink.
- ► Child becomes sicker.

→ This child may have pneumonia.

* *See section on young infant for home care instructions for that age group.*

► *Treat fever*

• Fever is high (≥ 39°C).	• Fever is not high (38-39°C).	In a falciparum malarious area: • Any fever, or • History of fever.	• Fever for more than five days.
► Give paracetamol.	► Advise mother to give more fluids.	► Give an antimalarial (or treat according to your malaria program recommendations).	► Refer for assessment.

PARACETAMOL doses:
→ Every six hours

Age or weight	100 mg tablet	500 mg tablet
2 months up to 12 months 6-9 kg	1	1/4
12 months up to 3 years 10-14 kg	1	1/4
3 years up to 5 years 15-19 kg	1 1/2	1/2

FEVER ALONE IS NOT A REASON TO GIVE AN ANTIBIOTIC EXCEPT IN A YOUNG INFANT (AGE LESS THAN 2 MONTHS).
GIVE FIRST DOSE OF AN ANTIBIOTIC AND REFER URGENTLY TO HOSPITAL.

► *Treat wheezing*

Children with first episode of wheezing

If in respiratory distress → Give a rapid-acting bronchodilator and refer.
If not in respiratory distress → Give oral salbutamol.

Children with recurrent wheezing (asthma)

- Give a rapid-acting bronchodilator
- Assess the child's condition 30 minutes later:

IF:	THEN:
Respiratory distress or any danger sign	→ Treat for SEVERE PNEUMONIA or VERY SEVERE DISEASE (Refer).
No respiratory distress and:	
Fast breathing	→ Treat for PNEUMONIA. Give oral salbutamol.
No fast breathing	→ Treat for NO PNEUMONIA: COUGH OR COLD. Give oral salbutamol.

RAPID-ACTING BRONCHODILATOR	
Nebulized Salbutamol (5 mg/ml)	0.5 ml Salbutamol plus 20 ml sterile water
Subcutaneous Epinephrine (adrenaline) (1:1000 = 0.1%)	0.01 ml per kg body weight

ORAL SALBUTAMOL
*Three times daily for five days

Age or weight	2 mg tablet	4 mg tablet	Syrup 2 mg in 5 ml
2 months up to 12 months (<10 kg)	1/2	1/4	2.5 ml
12 months up to 5 years (10-19 kg)	1	1/2	5 ml

SORE THROAT

Assess

ASK:

- Is the child able to drink?

LOOK, FEEL:

- Feel the front of the neck for nodes.
- Look for exudate on the throat.

CLASSIFY THE DISEASE

SIGNS:	• Not able to drink.	• Tender, enlarged lymph node on neck and • White exudate on throat.	• Nasal secretion or obstruction. • Throat red. • Pain or burning of throat.
CLASSIFY AS:	**THROAT ABCESS**	**STREPTOCOCCAL SORE THROAT**	**VIRAL PHARYNGITIS**
TRATAMIENTO:	▶ Refer to hospital. ▶ Give benzathine penicillin (as for streptococcal sore throat). ▶ Treat fever, if present. ▶ Give paracetamol for pain.	▶ Give an antibiotic for streptococcal throat. ▶ Give safe, soothing remedy for sore throat. ▶ Treat fever, if present. ▶ Give paracetamol for pain.	▶ Indications for home care. ▶ Give soothing harmless remedy for throat pain. ▶ Treat the fever or pain. ▶ Instruct mother to return if child's condition worsens. ▶ Offer child additional liquids.

▶ *Treat fever*

• High fever (≥ 39° C)	• Fever is not high (38-39° C)	In a falciparum malarious area: • Any fever, or, • History of fever	• Fever for more than five days
▶ Give paracetamol	▶ Advise mother to give more fluids.	▶ Give an antimalarial (or treat according to your malaria program recomendations	▶ Refer for assessment

PARACETAMOL doses

→ Every six hours

AGE or WEIGHT	100 mg tablet	500 mg tablet
2 to 12 months 6-9 kg	1	1/4
12 months up to 3 years 10-14 kg	1	1/4
3 to 5 years 15-19 kg	1 1/2	1/2

FEVER ALONE IS NOT A REASON TO GIVE AN ANTIBIOTIC EXCEPT IN A YOUNG INFANT (AGE LESS THAN 2 MONTHS).
GIVE FIRST DOSE OF AN ANTIBIOTIC AND REFER URGENTLY TO HOSPITAL.

▶ *Give an antibiotic for streptococcal sore throat*

▶ ***Give benzathine penicillin***

BENZATHINE PENICILLIN IM
A single injection

< 5 years	600,000 units
≥ 5 years	1,200,000 units

OR

▶ ***Give amoxicillin, ampicillin, or penicillin V for ten days.***

▶ ***Soothe the throat with a safe remedy.***

▶ ***Give paracetamol for pain or high fever.***

EAR PROBLEM

Assess

ASK:

- Does the child have ear pain?
- Does the child have pus draining from the ear? For how long?

LOOK, FEEL:

- Look for pus draining from the ear or red, immobile ear drum (by otoscopy)
- Feel for tender swelling behind the ear.

CLASSIFY THE DISEASE

SIGNS:	• Tender swelling behind the ear.	• Pus draining from the ear LESS than two weeks, or, • Ear pain,or, • Red, immobile ear drum (by otoscopy).	• Pus draining draining from the ear two weeks or MORE.
CLASSIFY AS:	**MASTOIDITIS**	**ACUTE EAR INFECTION**	**CHRONIC EAR INFECTION**
TREATMENT:	▶ Refer URGENTLY to hospital. ▶ Give first dose of an antibiotic. ▶ Treat fever, if present. ▶ Give paracetamol for pain.	▶ Give an oral antibiotic. ▶ Dry the ear by wicking. ▶ Reassess in five days. ▶ Treat fever, if present. ▶ Give paracetamol for pain.	▶ Dry the ear by wicking. ▶ Treat fever, if present. ▶ Give paracetamol for pain.

TREATMENT INSTRUCTIONS

▶ Give an oral antibiotic for an ear infection

▶ Give the first dose of antibiotic in clinic.

▶ Instruct mother on how to give the antibiotic for five days at home.

AGE or WEIGHT	COTRIMOXAZOLE Trimethoprim + sulfamethoxazole ▶ Two times daily for 5 days			AMOXICILLIN ▶ Three times daily for 5 days		AMPICILLIN ▶ Four times daily for 5 days	
	Pediatric tablet (20mg trimethoprim + 100 mg sulfamethoxazole)	Syrup (40mg trimethoprim + 200 mg sulfamethoxazole per 5 ml)	Adult tablet single strength (80mg trimethoprim + 400 mg sulfamethoxazole)	Tablet 250 mg	Suspension 125 mg in 5 ml	Tablet 250 mg	Suspension 250 mg in 5 ml
Less than 2 months (<5kg)♦	1*	2.5 ml*	1/4*	1/4	2.5 ml	1/2	2.5 ml
2 up to 12 months (6-9kg)	2	5 ml	1/2	1/2	5 ml	1	5 ml
12 months to 5 years (10-19kg)	3	7.5 ml	1	1	10 ml	1	5 ml

♦ Give oral antibiotic for 5 days at home only if referral is not feasible.

* If the child is less than 1 month old, give 1/2 pediatric tablet or 1.25 ml syrup twice daily. Avoid cotrimoxazole in infants less than one month of age who are premature or jaundiced.

▶ Dry the ear by wicking

▶ Dry the ear at least 3 times a day:

- ▶ Roll clean, absorbent cloth into a wick.
- ▶ Place the wick in the child's ear.
- ▶ Remove the wick when wet.
- ▶ Replace the wick with a clean one until the ear is dry.

Appendix 2. Training Materials Available for Training Health Personnel in ARI Control Activities at the Local Level

TYPE OF COURSE	PERSONNEL TO BE TRAINED	MATERIALS AVAILABLE
ARI program management training course	Coordinators or personnel responsible for ARI control at the national, regional, state, provincial, departmental levels	Modules: Introduction, Management of the Young Child with an Acute Respiratory Infection, National Policies, National Goals, Planning and Monitoring Activities, Evaluation, Course Director's Guide, and Facilitator's Guide
Supervisory skills course	Local, area, and regional supervisors with supervisory and monitoring functions	Modules: Introduction, Management of the Young Child with an Acute Respiratory Infection, Goals, Planning and Monitoring Activities, Training, Community Involvement, Course Facilitator's Guide
Outpatient management of ARI in children	Physicians, nurses, nursing auxiliaries, and other personnel from outpatient health services (health centers and posts, outpatient clinics, and hospital emergency services)	Modules: Participant's Manual, Management of the Young Child with an Acute Respiratory Infection, Instructor's Guide Audiovisual support material
Course on the management of children with ARI	Personnel from health services at the local and regional levels	Modules: Management of the Young Child with an Acute Respiratory Infection, Course Director's Guide, Facilitator's Guide, Clinical Course Instructor's Guide
Course on the management of children with ARI in the community	Personnel responsible for instructing community health agents	Modules: Guide for the Coordinator of ARI Control Activities, Course Director's Guide, Instructor's Guide, Learning Materials
Course for community health agents	Community health agents (health promoters, health visitors, and other community health workers)	Modules: Monitor's Guide, Training Module for Health Workers Audiovisual support material

Note: Information on the training materials is included in the list of technical documents on ARI. Reference publication OPS/HMP/IRA/94.08 (Annex 6)

Appendix 3. Model for Estimating Drug Amounts Needed for the Treatment of ARI in Children (*)

Introduction

Calculation of drug needs for treatment of ARI cases is an important activity which must be undertaken in all health services in order to ensure the availability of sufficient materials to cover the needs of the service. In making this calculation, the estimated amounts should be adjusted as much as possible to real needs. The aims are to ensure that drugs will available continuously, to avoid stockpiling excessive amounts of drugs, and to avoid increasing the cost of care unnecessarily.

Drug needs in a particular health service can be calculated on the basis of past consumption, on the basis of an adjustment to real needs to cover treatment requirements, or on the basis of an estimate of the annual incidence of diseases that will require the use of each drug. The latter method is recommended for calculating the drug needs for the treatment of ARI in children under the age of 5 years.

Steps for calculating drug needs

Calculating drug needs based on estimated morbidity requires the following steps:

1. Estimate the number of cases that occur in the population in a year.
2. Estimate the number of cases that will be treated.
3. Estimate the number of units of drug (ampoules, tablets, bottles of syrup) that will be required for each treatment.
4. Estimate the amount of drug required.
5. Estimate the cost of the drug.

The following model summarizes the 5 steps for calculating drug needs for the treatment of pneumonia and wheezing in children under the age of 5. To calculate antibiotic needs for the treatment of otitis and pharyngitis, the same model as for pneumonia can be used, modifying the variables as necessary.

(*) Additional considerations relating to the use of this estimation model at the local level are included in reference document OPS/HMP/IRA/94.09, which may be obtained from the Pan American Health Organization.

CALCULATION SHEET
Drug needs for treatment of ARI

DISTRICT/AREA:_____ YEAR_____

	ESTIMATED PERCENTAGE	FORMULA (No. x %)	TOTALS
Number of pneumonia cases that occur in the population in a year			**Example:**
1. Total population	-	-	100,000
2. Population aged under 5 years	15.0%	1 x 0.15	15,000
3. Estimated number of pneumonia cases	15.0%	2 x 0.15	2,250
Number of pneumonia cases that will be treated			
4. Pneumonia cases that will have access to standard case management (access)	60.0%	3 x 0.60	1,350
5. Pneumonia cases with access that will actually receive standard case management (use)	50.0%	4 x 0.50	675
Number of units of drug (ampoules, tablets, bottles of syrup) that will be required for treatment			
6. Cases of severe and very severe pneumonia in children under the age of 2 months	10.0%	5 x 0.10	68
6.1. Cases that will receive inpatient treatment	90.0%	6 x 0.90	61
6.2. Cases that will receive outpatient treatment	10.0%	6 x 0.10	7
7. Cases of pneumonia (total) in children aged 2 months to 4 years	90.0%	5 x 0.90	608
7.1. Cases of very severe pneumonia	3.0%	7 x 0.03	18
7.1.1. Cases that will receive inpatient treatment	90.0%	7.1 x 0.90	16
7.1.2. Cases that will receive outpatient treatment	10.0%	7.1 x 0.10	2
7.2. Cases of severe pneumonia	12.0%	7 x 0.12	73
7.2.1. Cases that will receive inpatient treatment	90.0%	7.2 x 0.90	66
7.2.2. Cases that will receive outpatient treatment	10.0%	7.2 x 0.10	7
7.3. Cases of pneumonia	85.0%	7 x 0.85	517

CALCULATION SHEET
Drug needs for treatment of ARI

DISTRICT/AREA: _____ YEAR_____

	ESTIMATED PERCENTAGE	FORMULA (No. x %)	TOTALS
Number of cases of wheezing that occur in the population in a year			**Example:**
1. Total population	-	-	100,000
2. Population aged under 5 years	15.0%	1 x 0.15	15,000
3. Estimated number of wheezing cases	15.0%	2 x 0.10	1,500
Number of cases of wheezing that will be treated			
4. Wheezing cases that will have access to standard case management (access)	60.0%	3 x 0.60	900
5. Wheezing cases with access that will actually receive standard case management (use)	50.0%	4 x 0.50	450
Number of units of drug (ampoules, tablets, bottles of syrup) that will be required for treatment			
6. Cases of severe and very severe wheezing	10.0%	5 x 0.10	45
6.1. Cases that will receive inpatient treatment	90.0%	6 x 0.90	41
6.2. Cases that will receive outpatient treatment	10.0%	6 x 0.10	4
7. Cases of wheezing (not severe)	90.0%	5 x 0.90	405

Calculation of Drug Needs and Estimated Cost

DRUG TO BE USED	TYPE OF CASE TO BE TREATED	NO. OF CASES	AMOUNT PER CASE	TOTAL AMOUNT	PLUS 20% TO COVER LOSSES	UNIT COST	TOTAL COST
Cotrimoxazole suspension	Cases of pneumonia (not severe) in children aged 2 months to 4 years	517	1 bottle	517	620	0.67	415.00
Crystalline penicillin	Very severe and severe cases of pneumonia in children under 2 months of age Severe cases of pneumonia in children aged 2 months to 4 years	68 73	5 ampoules	705	846	0.123	104.00
Chloramphenicol	Very severe cases of pneumonia in children aged 2 months to 4 years	18	5 ampoules	90	108	0.3585	38.72
Nebulized salbutamol	Very severe and severe cases of wheezing	45	1 bottle	45	54	3.30	178.20
Oral salbutamol	Cases of wheezing (not severe)	405	1 bottle	405	486	0.50	243.00

Appendix 4. Guide for Supervision of ARI Case Management

Region: _____ Date: ___/___/___

District: _____ Type of health worker: _____

Health Service:_____ Trained in ARI: Yes [ ] No [ ]

1. Observe the health worker as he/she cares for children under the age of 5 years with ARI, and answer the following questions:

	CHILD 1		CHILD 2		CHILD 3	
	YES	NO	YES	NO	YES	NO
Did the health worker correctly assess: - danger signs? - chest indrawing? - respiratory frequency?						
Was the child correctly classified based on the health worker's assessment?						
Was the child's illness classified as very severe disease or severe pneumonia?						
Were antibiotics given if the child's illness was classified as pneumonia, acute ear infection, or streptococcal sore throat?						
Were antibiotics given if the child's illness was classified as not pneumonia?						
Were any potentially harmful cold or cough remedies recommended?						
Was the child's immunization status checked?						
Was the mother instructed about: - how to use an antibiotic? - how to care for the child at home? - when to bring the child back to the health service?						
Were the diagnosis and treatment recorded in a case log or file?						

2. Ask the health worker the following questions:

2.1. How do you assess a child under the age of 5 years with cough or difficult breathing?

2.2. When do you refer a child with ARI to a hospital?

2.3. When do you prescribe antibiotics for a child with cough or difficult breathing?

2.4. What signs and symptoms do you take into account in order to classify a child with cough or difficult breathing as pneumonia?

2.5. How do you treat a child with pneumonia?

2.6. What instructions or recommendations do you give to mothers or those responsible for caring for children with pneumonia?

3. Analyze with the health worker any problems detected in the health service at the time of the visit in relation to ARI control.

4. Interview some mothers or caregivers of children with cough or difficult breathing who have been treated by the health worker (do not interview mothers of children who were referred to a hospital or were hospitalized).

4.1. Were you advised to give any kind of drug treatment at home? Yes [ ] No [ ]

If yes, ask whether an antibiotic was prescribed.

4.2. If an antibiotic was prescribed, ask the mother the following questions:

How much antibiotic will you give the child?

_____

How many times a day? _____

For how many days? _____

4.3. Did the health worker tell you when to bring the child back? Yes [ ] No [ ]

If yes, ask the mother when she will return with the child.

4.4. Did the health worker tell you how to care for the child at home? Yes [ ] No [ ]

If yes, ask the mother how she will care for the child at home.

DRUG	AVAILABILITY	AMOUNT	MATERIAL IN THE LAST 12 MONTHS		HOW LONG?	
Cotrimoxazole	Yes [ ] No [ ]		Yes [ ]	No [ ]	m___	w__
Amoxicillin	Yes [ ] No [ ]		Yes [ ]	No [ ]	m___	w___
Ampicillin	Yes [ ] No [ ]		Yes [ ]	No [ ]	m___	w__
Procaine penicillin	Yes [ ] No [ ]		Yes [ ]	No [ ]	m___	w__
Benzathine penicillin	Yes [ ] No [ ]		Yes [ ]	No [ ]	m___	w__
Paracetamol	Yes [ ] No [ ]		Yes [ ]	No [ ]	m___	w__
Salbutamol	Yes [ ] No [ ]		Yes [ ]	No [ ]	m___	w__
Others:	Yes [ ] No [ ]		Yes [ ]	No [ ]	m___	w___

5. Check to see that the health services has adequate supplies of the materials needed for standard case management.

5.1. Drugs

5.2. Are the ARI case management charts prominently displayed in the place in which ARI cases are assessed, classified, and treated?

Yes [ ] No [ ]

5.3. Are there enough forms and records to log the ARI cases treated during the next 2 months?

daily case record:

Yes [ ] No [ ]

case referral form:

Yes [ ] No [ ]

education pamphlets for mothers:

Yes [ ] No [ ]

6. Review the records of ARI cases treated in the health service.

Summarize the findings of a review of 20 or more cases of ARI in children under 5 years of age using the calculation sheet on the next page. Check the records for the following:

- Was the following data recorded: age of the child, classification/diagnosis, and treatment?

- Were cases of severe pneumonia and very severe disease referred (these cases may be recorded as sepsis, pneumonia, meningitis)?

- Were antibiotics administered to pneumonia cases that were not referred?

- Were antibiotics used unnecessarily to treat non-pneumonia cases (cough, common cold, bronchitis, non-streptococcal pharyngitis)?

Appendix 5. Proposed Monitoring and Evaluation Indicators for Control of Acute Respiratory Infections

INDICATOR	FORMULA FOR CALCULATION	SOURCE OF INFORMATION
Mortality from pneumonia among children under the age of 1 year	Number of deaths of children under the age of 1 year due to pneumonia in a given place and period / Total number of live births in the same place and period x 1000	Deaths: Vital statistics registry or another agency; Births: Vital statistics registry, Department of Statistics, or another agency responsible for recording births
Mortality from pneumonia among children aged 1-4 years	Number of deaths of children aged 1-4 years due to pneumonia in a given place and period / Total number of children aged 1-4 in the same place and period x 1000	Deaths: Vital statistics registry or another agency responsible for registering deaths Population aged 1-4: Department of Statistics, Census Bureau, or another agency responsible for population statistics
Hospital mortality from pneumonia	Number of deaths from pneumonia in children under the age of 5 years occurring in a hospital in a given place and period / Total number of deaths from pneumonia in the same place and period x 100	Hospital deaths: Hospital statistics registry Total deaths: Vital statistics registry or another agency responsible for registering deaths
Hospital case fatality rate from pneumonia	Number of deaths from pneumonia in children under the age of 5 years occurring in a hospital in a given place and period / Number of cases of pneumonia in children under the age of 5 hospitalized in the same place and period x 100	Hospital statistics registry
Use of antibiotics to treat cases	Number of ARI cases in children under the age of 5 years classified as not pneumonia and treated with antibiotics in a given place and period / Total number of ARI cases in under-5 children classified as not pneumonia in the same place and period x 100	Daily record of cases treated in health services

Appendix 5 (continued)

INDICATOR	FORMULA FOR CALCULATION	SOURCE OF INFORMATION
Access to standard case management in health services	Number of children under the age of 5 years who have access to standard case management by health personnel in a given place and time / Total number of children under 5 living in the same place and time x 100	Children with access: Health services survey Population: Department of Statistics, Census Bureau, or another agency responsible for population statistics
Maternal knowledge about when to seek assistance	Number of mothers of children under the age of 5 years who know the signs that indicate that a child with ARI should be taken to a health service / Total number of mothers of children under the age of 5 years x 100	Community survey
Appropriate treatment of pneumonia in health services	Number of pneumonia cases in children under the age of 5 years seen in health services who received standard case management / Total number of pneumonia cases in children under 5 seen in health services x 100	Health services survey
Rate at which assistance from a health worker was sought when needed for a child with ARI	Number of children under the age of 5 years with ARI who needed to be assessed by a health worker and for whom assistance was in fact sought by the mother or caregiver / Total number of children under the age of 5 with ARI who should have been assessed x 100	Community survey

Appendix 6

Operational plan for conducting ARI control activities at local level

A. INTRODUCTION

1. General characteristics of area
2. Current status of problem
3. Health care infrastructure available

B. ASSESSMENT OF CURRENT SITUATION

C. OBJECTIVES

D. STRATEGY OF STANDARD CASE MANAGEMENT (SCM)

E. GOALS AND OBJECTIVES

F. IMPLEMENTATION ACTIVITIES

1. Training plans
2. Drugs and equipment required
3. Supervision plans
4. Communication plans
5. Monitoring plans
6. Assessment

G. ACTIVITIES SCHEDULE

H. BUDGET