A national programme for the control of acute respiratory infections

Nagwa Khallaf & Antonio Pio

In 1989 Egypt set up a programme to combat acute respiratory infections among children aged under 5 years. The present article indicates what has been achieved and the lessons that have been learnt.

Because of relatively high levels of morbidity and mortality associated with acute respiratory infections among children under 5 years of age, Egypt initiated a national control programme in 1989 using the standard case management strategy for early detection and treatment. The objectives were:

- to reduce mortality from acute respiratory infections, especially pneumonia;
- to reduce the severity of and complications associated with acute upper respiratory infections;
- to diminish the inappropriate use of antibiotics and other drugs in the treatment of acute respiratory infections;
- to reduce the incidence of acute lower respiratory infections, especially pneumonia.

Technical strategies and policies

In the 1980s it was widely agreed by paediatricians, epidemiologists and public health administrators that acute respiratory infections were the largest neglected threat to child survival in developing countries. Some scientists believed that large epidemiological, etiological and sociocultural studies should be conducted in order to arrive at control methods. Others considered that prevention by immunization was the only valid approach.

In Egypt, case management was chosen as the principal strategy, and the delivery of services therefore became the main line of action. Research was undertaken so that implementation could be improved.

Managerial activities

Technically well-oriented programmes may not achieve their objectives because of a failure to translate policy into reality. The case management strategy requires health care providers to diagnose and treat
children suffering from acute respiratory infections, particularly pneumonia. Families have to recognize early signs of pneumonia and take affected children to the providers. Case management should be widely accessible and the population should be motivated to take advantage of it.

Training, supervision and logistics were addressed to improve access, while efforts were made in communication and education to increase utilization. Monitoring was undertaken to ensure that activities were performed according to plan; evaluation measured progress in achieving targets, access and use; and surveillance indicated whether the antibiotic technology was diminishing mortality rates. Research and development led to increased problem-solving capacities in the delivery of case management and to improved approaches and managerial instruments.

It became clear that the best results in terms of strong management and harmonious programme development would be obtained if activities were improved sequentially. During the first two years, priority was given to training as many staff as possible. Attention was then focused on raising the quality of training by allocating more time to clinical practice and interpersonal communication skills. There followed a considerable logistical effort to secure essential equipment and a regular supply of antibiotics for the entire primary care infrastructure.

An information system was subsequently established so that the delivery of case management at health facilities could be monitored. Periodic surveys measured access and use indicators. A network of laboratories was upgraded so that they could conduct reliable surveillance of bacterial drug resistance. During the next few years it is intended to give special attention to undergraduate and preservice training, the orientation of private physicians, the role of nongovernmental organizations, and campaigns in the mass media.

**Decentralization of planning and implementation**

The programme began with the establishment of a central structure responsible for deciding on strategies, formulating technical policies, and planning activities. Eventually it became clear that the centralized approach was becoming unmanageable, and a process of decentralization of planning and implementation was therefore put into effect. Responsibilities were distributed as follows.

- The centre established technical guidelines, provided guidance for local planning, conducted evaluation, organized surveillance of bacterial drug resistance, promoted research and ensured overall coordination.
- The governorates and districts were responsible for detailed planning and monitoring of training courses, drug and equipment supplies, and communication activities.
The process was often slow because of weaknesses in regional and district management. The central level compensated for structural failures. On being given responsibility for planning activities, governorate and district officers were motivated to implement them. The delegation of direct control over local activities to the operational levels freed central management from overburdening duties and enabled it to perform with increased efficiency.

**Quality and quantity in training activities**

Some 6000 physicians and 1000 nurses were trained in two years. However, in 1991 a survey indicated little difference in performance between trained and untrained physicians, particularly in respect of the prescription of antibiotics for children suffering from coughs and colds. The training methodology was therefore improved by increasing the length of case management courses from three to four days and emphasizing clinical practice. A survey in 1994 demonstrated the value of these changes: on this occasion there was a significant difference between trained and untrained physicians and nurses with regard to antibiotic use and the assessment, classification and treatment of children with acute respiratory infections. It was also found that paediatricians benefited from the standard case management courses.

In-service training was the main way of upgrading the performance of physicians and nurses. When this has been achieved it becomes important to consider undergraduate and preservice training in medical and nursing schools, the cost of which is relatively low.

**Communication activities**

The aim of communication and health education activities is to produce behavioural changes in families. With regard to acute respiratory infections it is vital that families seek care from physicians as soon as children show danger signs.

In this area the programme concentrated on direct counselling by doctors and nurses for families taking children with acute respiratory infections to health facilities. All the training courses dealt with messages and methods of interpersonal communication, and placed emphasis on practice and counselling. Specific courses were organized for governorate and district health educators and for trainers.

In 1994 a household survey showed that mothers could be taught to recognize danger signs and motivated to seek care in good time: 78% of children who had experienced an episode of acute respiratory infection involving rapid breathing during the previous two weeks had been taken to a physician. Similar results were obtained in other surveys, and indeed there was evidence of rapid progress in care-seeking behaviour. This was evidently attributable to the efforts made by nurses and doctors in health facilities. Mothers

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are particularly receptive to messages when actually caring for children suffering from acute respiratory infections. However, the number of families reached
through the public health services is small in comparison with those seeking care through private physicians.

Research is needed on the impact of training courses on physicians’ and nurses’ counselling behaviour and on mothers’ understanding of home care advice delivered in counselling sessions in clinics. It is also important to explore the contribution of private physicians to behavioural change in mothers. The possibility that messages disseminated by the mass media can help to maintain behavioural change should be evaluated in view of the cost of using television for this purpose.

**Availability of services**

Programmes for dealing with acute respiratory infections aim to promote case management that depends on care-seeking outside the home for assessment and antibiotic treatment. Messages on home care are only palliative. Consequently, trained and supervised personnel, and supplies of antibiotics, should be available in health facilities before their services are announced to the public. Promoting services that are not fully available damages the credibility of health messages and causes frustration in the community. Messages in the mass media which encourage families to seek care for children with signs and symptoms of pneumonia are bound to fail in the absence of effective case management.

From the outset, no such messages were disseminated before health facilities were able to provide standard case management and were regularly supplied with essential antibiotics, in particular amoxycillin for the free treatment of pneumonia. Communication was coordinated with the overall timetable of the programme. In 1994, when access of 85% of the population to standard case management had been achieved, it was felt that the mass media could be used to support the educational work conducted in health facilities. In 1995 messages were prepared for dissemination on radio and television.

**Maintenance and repair of equipment**

Difficulties of transportation were often encountered in supplying oxygen cylinders to small hospitals away from large towns. Small oxygen concentrators, giving an oxygen flow of at least 95% pure oxygen from the air, were therefore introduced for use in facilities where electricity was available. Training courses were organized for hospital staff on the use and maintenance of the concentrators and for hospital equipment technicians at governorate level on repairing the equipment. The use of oxygen concentrators proved less costly than that of oxygen cylinders.

**Monitoring delivery of case management**

Monitoring the delivery of case management requires regular information from the field. A one-year sentinel surveillance was completed in a representative sample of health facilities in order to determine the profile or relative frequency of cases in outpatient services. This was used as a standard for monitoring the work of health facilities. A permanent system of registration and monthly reporting
of cases, deaths and drug stocks to the
governorate and central levels was set up,
achieving full operational coverage in
1994. Data-processing has been computer-
ized, and the procedures have been inte-
grated into the Ministry of Health’s
information system. More than two-thirds
of health facilities are now submitting
monthly reports.

The monthly analysis of data helps to
detect problems in the management of
cases by health facilities, as well as giving
information on supervision, the acquisi-
tion of knowledge and skills, and drug
supplies. The experience gained makes it
possible to develop a conceptual fram-
ework and guidelines for the monitoring
process to be used by governorate and
district health offices, which need continu-
ous support from the central level in order
to fulfill their monitoring functions. A full
reporting system provides a strong base
for strengthening the monitoring process
and maintaining adequate drug stocks in
health facilities.

Selective surveillance and research

Many aspects of the recommended
approach to control were undefined or
insufficiently supported by scientific
studies. Research was undertaken in
accordance with the needs of the pro-
gramme so as to ensure its sustainability
and development. The results were applied
in policy-making, the improvement of
technical guidelines, the preparation
of training materials, the development of
messages for mothers, and the adoption of
evaluation methods. The research prior-
ities included aspects of case management,
behaviour of people in their homes, and
operational matters.

Knowledge was gained on the relation-
ships between the signs and symptoms of
acute respiratory infections reported by
mothers, the clinical findings of paediatri-
cians, the results of chest X-rays, and
oxygen saturation as measured by pulse
oxymetry. The main steps of the standard
protocol for the diagnosis of pneumonia
in children were thus validated and con-
ferred. Clinical and therapeutic informa-
tion of high quality was obtained on
wheeze in infants and on pharyngitis.

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development.

In an ethnographic study, and through
other methodologies, the most sensitive
terms used by mothers to describe signs
of pneumonia were noted. These terms
were then used in messages on care-
seeking.

Tests were applied to training curricula,
the WHO manual for surveillance of
bacterial drug resistance, and the method-
ology for health facility surveys, and
maternal recall of signs and symptoms
was validated. Information was obtained
on the compliance of mothers with anti-
biotic prescriptions for children with
pneumonia.

Involvement of leading professionals

Since health professionals are so influential
in the national health care system, their
endorsement of the programme was
sought at the outset. In 1989 a national
seminar on the technical policies and
guidelines of the programme was attended
by professors of paediatrics and community medicine and by officers of related professional associations. During this meeting it was pointed out that the proposed standard treatment guidelines had been properly validated and were more efficient and effective than individualized management in primary care. The seminar led to the creation of a steering committee to assist in the formulation of policies and the development and evaluation of annual plans of action. The early involvement of leading health professionals led to nationwide recognition of the problem, helped to avert counterproductive arguments, and heightened the programme’s viability.

Medical schools gradually became associated with the work of training and research. Several training centres were established in paediatric departments of university hospitals, once these had adopted the national guidelines on case management for outpatient services. Much research was conducted with the collaboration of academic institutions. The ARI Newsletter and the ARI Bulletin helped to keep the medical profession informed about national policies and the achievements of the programme. Research papers and reports of programme activities were presented in national meetings on pediatrics and public health. An international conference on acute respiratory infections, held in Cairo in 1994, reviewed the situation and made recommendations for the future of the programme.

The principal lessons learnt from the programme are as follows.

- It is vital to make sound technical and managerial decisions in connection with the selection of strategies and the formulation of policies.
- It is essential to define managerial activities for the realization of strategies and policies on case management.
- The decentralization of planning and implementation increases the efficiency of management.
- Both quality and quantity are important in the planning and implementation of training activities.
- Activities relating to communication with families are valid if they lead to changes in behaviour and practices in people’s homes.
- Action to raise awareness and increase care-seeking behaviour is counterproductive if the delivery of standard care management is not possible and a regular supply of antibiotics is not available.
- The delivery of case management can be monitored successfully if there is a regular flow of field data.
- Funds are wasted if equipment is provided without the back-up of maintenance and repair services.
- Selective surveillance and research provide information permitting technical effectiveness.
- The involvement of leading professionals in the fields of public health, pediatrics and related disciplines facilitates the introduction and development of activities.

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