

DEVELOPMENT OF ARI CASE MANAGEMENT AT PRIMARY AND SECONDARY LEVEL IN SOUTHERN VIETNAM

Nguyen Thi Ngoc Anh¹, Tran Tan Tram¹, Le Tri¹,
Tran Ngoc Huu², F Karup Pedersen³, Karin Mogensen⁴ and Else Andersen⁵

¹Pediatric Hospital No 1, Su Van Hanh, Ho Chi Minh City, Vietnam; ²Department of Preventive Medicine, Long An Province; Vietnam; ³Pediatric Department, Rigshospitalet, 2100 Copenhagen, Denmark; ⁴Department of Urology, Frederiksberg Hospital, 2000 Frederiksberg, Denmark; ⁵Pediatric Department, Hillerød Hospital, 3400 Hillerød, Denmark

Abstract. In southern Vietnam it is not uncommon that children under 5 years of age die from pneumonia. Reduction of severity and mortality has to rely on proper case management by mothers and health workers on both grass root level and referral level. The responsibility of training of clinical skills of ARI case management in the southern provinces of Vietnam has been delegated to Pediatric Hospital N1 (PHN1) Ho Chi Minh City (HCMC) by Ministry of Health. A pilot project was carried out by the Danish-Vietnamese Study Group. The immediate objects were: to provide basic epidemiological information about ARI in southern Vietnam, to develop training modules and case management intervention modules at primary and secondary level in order to enable mothers, village workers, health post staff and district hospital emergency department staff to treat moderate and severe pneumonia and acute bronchitis in accordance with the WHO management guide for ARI and to evaluate the effect of those modules after implementation in a limited number of communes. The modules were developed at PHN1. Ten commune health stations were carefully selected. The purpose of the project and the conditions for taking part had been explained to the health workers. The doctors and other commune health workers from the 10 commune health stations and doctors from the connected district hospitals attended the training courses at PHN1, HCMC and also at the belonging provincial hospitals. Essential equipment was provided and a pharmacy with essential drugs established. The registered health statistics was collected yearly during on site visits. The local doctors and commune health workers gave seminars for mothers in the villages of the 10 project communes. The mothers' knowledge, attitude and practice (KAP) was tested in interviews before and two months after the seminars had taken place. The spread of KAP was measured by random interviews of mothers six month later. In the interviews information on social conditions was obtained. The mothers' KAP had risen by 25% two months after attending the seminars. A further increase of KAP by 5-10% within the untrained group appeared in a survey 4-6 months later. It was not possible to obtain reliable statistics on morbidity or mortality of ARI in the project area.

INTRODUCTION

Children below 5 years of age in southern Vietnam have repeated episodes of ARI, some of which are pneumonia. A number of these children die. Reduction of severity and mortality has to rely on proper case management by mothers and health workers on both grass root level and referral level.

At primary level each commune has a commune health station, serving approximately 10,000 people. The commune health station is expected to provide health education and advice on safe water and sanitation as well as mother and child health services, immunizations, supply and sale of drugs, treatment of simple diseases and referral when needed, prevention and management of communicable diseases, and consolidation of basic health network. Usually an assistant doctor is in

charge of the health station, which on average is staffed by 5-6 health workers out of which there is a nurse, a midwife and an assistant pharmacist.

The district hospital is at the secondary level, each one serving a population of 150,000-200,000. The district health bureau coordinates the work of the district hospital, which has advisory functions towards the health stations. At the tertiary level the provincial hospital is intended as a referral hospital for the population of the province (1 million), usually with 4-500 beds, comprising department of internal medicine, obstetrics and gynecology, surgery, pediatrics, infectious diseases, emergency, and traditional medicine. At the regional level Pediatric Hospital N1 (PHN1) with 700 pediatric beds serves as local pediatric hospital for approximately half of Ho Chi Minh City (HCMC) (popu-

l a t i o n
7-8 million) as well as referral hospital for 21 southern provinces of Vietnam (26 million). In Vietnam private practice is common. It is unknown how many children are treated privately and therefore do not appear in the statistics of the commune health station. Antibiotics can be bought without a doctor's prescription. The national ARI program follows the standard WHO guidelines. In the southern provinces it is being coordinated by a regional ARI director, based at the referral TB hospital in HCMC. The coordination and training of clinical skills of ARI case management has been delegated to PHN1.

The objectives of the study were

1. To provide basic epidemiological information about ARI in southern Vietnam.
2. To develop training modules and case management intervention modules on primary and secondary level in order to enable mothers, village workers, health post staff and district hospital emergency department staff to treat moderate and severe pneumonia and acute bronchitis in accordance with the WHO management guide for ARI.
3. To evaluate the effect of implementing those modules in a limited number of communes.

MATERIALS AND METHODS

Selection of project communes

The project was carried out in 1994-1997. Ten commune health stations, attached to four district hospitals in 4 provinces were selected after on-site visits by the authors, the criteria of selection being capability and willingness of the staff to take part. The project and its implication had previously been carefully explained to the staff of the health stations. The hospitals and the health stations involved were:

1. In Dong Thap Province, Cao Lanh District Hospital, Binh Trung and My Long Commune Health Stations.
2. In Long An Province, Can Giuoc District Hospital, Long Hau and Long Phung Commune Health Stations.
3. In Tra Vinh Province, Cang Long District Hospital, Tan An and Phuong Thanh Commune Health Stations.
4. In Cu Chi, HCMC District, Cu Chi District

Hospital; Tan Thong Hoi, Thai My, Phu My Hung, and Trung Lap Thuong Commune Health Stations.

Every three months the Vietnamese doctors visited the district hospitals and health stations involved in the project. Every 6 or 12 months they were accompanied by Danish doctors.

Health statistics

At the health stations the personnel are expected to keep records on total population, children < 5, those < 5 referred with ARI, with severe pneumonia or very severe pneumonia and deaths from ARI in children < 5, percentage of malnourished children, deliveries at the commune health station and immunization rate. This information was collected at the visits.

Training modules and case management intervention modules

These were developed at PHN1 by the directors and doctors responsible for the ARI Department and Intensive Care Unit. They contained details in order to enable the mothers to differentiate between less severe and severe signs of ARI. The program for control of ARI developed by WHO served as a model.

Training courses

Health workers from the 10 project communes and the four district hospitals took part in a 6-days training course on education of mothers at PHN1. The training was evaluated by pre- and post-training tests. The training contained theoretical education as well as practical conduct drills on clinical management and conduct exercises in talking to mothers. The participants received feedback from the rest of the group and from the teacher.

During the course the participants were encouraged to generate their own teaching material to be used when teaching the mothers in the villages. In the communes the teaching aids, eg charts were produced by the health workers and partly provided from PHN1, where a pamphlet was produced on how to administrate salbutomal by airochamber in children with wheezing bronchitis. Also the charts from the national ARI program were distributed to the commune health stations.

Shorter courses on ARI case management were held at each of the provincial hospitals for health workers from the commune health stations

and district hospitals. The outcome of these courses was also evaluated by pre- and post- training tests. Teaching sessions for the village health workers were held at the health stations.

Seminars for mothers

At commune level, 254 seminars for about 3,500 mothers were held, in Dong Thap Province 56, in Tra Vinh 62, in Long An 29 and in Cu Chi 107 seminars in the hamlets and at the health stations.

Provision of teaching aids, vehicles for transport, apparatus for treatment and drugs

The health stations in the project were equipped with loudspeakers for advertising mothers' seminars, bicycles or a boat to enable the health workers to get around in the commune, airochambers for salbutamol inhalation in children with wheezing bronchitis, a suction machine and a motor bicycle with trailer for transportation of children who needed referral. A small pharmacy, mainly for essential drugs was set up at each commune health center. The maintenance was supervised from the district hospital, which had also been provided with a pharmacy.

Interview of mothers as a means to evaluate the effect of the seminars

In order to evaluate the mothers' knowledge, attitude and practice, KAP, concerning ARI a survey was made in 1995 in a multiquestionnaire interview covering approximately 40% of the mothers with children < 5 in the population.

The interview included questions on length of mother's schooling, whether mass media was available in the home and of the most expensive

means of transportation of the family.

Shortly before the seminars took place during 1996 another short open question interview regarding management of signs and symptoms of ARI was taken from the women taking part in the seminar. The mothers' KAP was evaluated again 2 months later, when the mothers were asked the same questions once again. The pre- and post-intervention interview was carried out by students from the University of HCMC in cooperation with the District Health Center.

Finally a survey was made 5 months later in 1996-1997. The same questions, used in the first survey were applied and the same short open question interview was taken. In order to evaluate the possible spread of knowledge of ARI in the population, the mothers were asked, whether they had previously attended a seminar on ARI.

RESULTS

From the health records routinely collected it appeared that the number of the total population covered by the ten health posts was approximately 116,000. The number of children < 5 was about 17,000. The number of children with severe and very severe pneumonia was 64-73/year, of which 44-43/year were referred. Two deaths per year from pneumonia in children <5 years of age were registered from 10 commune health stations. The immunization rate in children was 90%. The percentage of children seen at the health stations with malnutrition was registered as 31-23%.

The KAP of the mothers of signs of pneumonia gradually improved during the project period.

Table 1

Mothers' KAP in population surveys in 10 communes in 1995 and 1997, A and D+E Mothers' KAP in a repeated short open questionnaire before and 2 months after seminars on ARI in 1996, B and C.

	A	B	C	D -teaching	E +teaching
Number of interviewed mothers	4,860	890	890	898	3,516
Average percentage of correct answers concerning:					
Difficulties breathing	28	45	74	56	76
Fast breathing	14	25	52	31	55
Severe cough	65	45	48	76	79
Poor feeding	2	17	33	23	35

(Table 1). There are 14% correct answers concerning fast breathing in the first survey and 55% after 2 years if they had attended mothers' seminars, 31% if not. Twenty-eight percent answer correctly concerning difficulties breathing in the first survey and 76% give a correct answer two years later if they have attended mothers' seminars, while 56% answer correctly among the non-attenders.

The level of education of the mothers registered at the first survey in 1995 showed that on average 53% of the mothers had received primary education, which means up to 4 years of schooling, while 2-9% depending on the area were illiterate. Twenty-one - 61% had received more than 4 years of schooling. The highest percentages were found in the communes situated near HCMC. On average 33% of the households had a television and 20% a motor bicycle.

DISCUSSION

In this study it has not been possible to figure out the morbidity from pneumonia, because only children with pneumonia treated by the commune health staff are included. In Vietnam private practice is common and to get the full picture of the morbidity the children treated by private doctors and healers should be included. The mortality from pneumonia could not be calculated either, as some children may die at home or in hospital without the death being registered at the health post. A study conducted in Malaysia including health education of mothers on childhood pneumonia and training of health staff on case management showed reduction of severe ARI (Lye *et al*, 1996).

The courses held at PHN1, HCMC for the commune health staff contained clinical training on how to guide mothers and on production of teaching material. The commune health workers remarked that the new way of training, in which they had to be active and involved in the practical drills was effective and interesting. During the seminars they tried to apply this method of activating the mothers rather than lecturing to them. It was obvious that the health workers had done a good job producing their own material for the teaching of mothers.

The positive result was seen in the improvement of mothers' KAP of severe signs of ARI by 25-30% from the pre- to the post-intervention test (columns B and C in Table 1) and also in improve-

ment of mothers' KAP from the first to the second survey (columns A, D and E). The mothers' KAP remained at the same level 5-6 months after the last seminar (columns C, E). A spread of KAP seemed to take place, and this was to hope for (columns B, D). One might wonder, why in column A the question "severe cough" had a high score and "poor feeding" a low score. This could be explained by the fact that the 1st survey only contained closed questions, and that severe cough came high on the list of questions while poor feeding came late on the list. During the project period we noticed an increasing involvement of the health staff in their work and in the project. They expressed satisfaction with their work in spite of a heavier work load including teaching, interviewing, book keeping and attending courses. They remarked that the mothers had become more capable of judging the symptoms of their children and hence they did not often turn up unnecessarily at the health center. The staff of the commune health stations felt that the health station had become more popular after the strengthening of their capacity also by pharmacies, where now essential drugs was always available (Tram *et al*, 1998). Some studies report on caretakers' perception of signs of severe ARI as reasonable (Amofah *et al*, 1998; Saenz de Tejada, 1997). A general problem seems to be that the caretakers rarely seek care at an early stage of illness (Saenz de Tejada, 1997; Reyes *et al*, 1997). In a project like this it is important to select the commune health stations with care, making sure that the staff is capable and really want to be involved, to create and maintain good relations with the staff of the commune health stations, district hospitals and provincial hospitals and to pay repeated and regular visits to the health station to secure the cooperation, to encourage and follow up the progress.

CONCLUSION

It is only possible to obtain correct health statistics if all persons treating patients have to report to a central register. It has not been possible to obtain reliable statistics on morbidity or mortality of ARI in the project area. The reason is that children are treated at other places than the commune health centers, *eg* at private doctors, at healers or not at all. Some children may die at home without the death being registered.

The commune health stations have become

more popular and have attracted more mothers and children after strengthening of their capacity. Training modules and case management intervention modules have been developed and tried out at primary level and at mothers' seminars. The KAP of the mothers improved by 25-30% after the seminars.

The final survey of mothers' KAP in the 10 communes showed that there had been a dissemination of knowledge to mothers who did not take part in the seminars by an improvement of 5-10% in KAP, and the mothers, who had taken part in the seminars had retained their knowledge. In conclusion in the main strategy to reduce infant mortality and morbidity due to ARI should be to encourage training of primary care physicians, including private practitioners and other health workers in providing effective case management, emphasizing education of mothers and improving verbal communication between health care providers and mothers.

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REFERENCES

- Amofah GK, Essegbey IT, Opoku SA, Oduro J. Perception of caretakers of pre-school children on acute respiratory infection (ARI) in a rural district in Ghana. *West Afr J Med* 1998; 17: 64-9.
- Lye MS, Nair RC, Choo KE, Kaur H, Lai KP. Acute respiratory tract infection: a community-based intervention study in Malaysia. *J Trop Pediatr* 1996; 42: 138-43.
- Reyes H Perez-Cuevas R, Salmeron J, Tome P, Guiscafie H, Gutierrez G. Infant mortality due to acute respiratory infections: the influence of primary care processes. *Health Policy Plan* 1997; 12: 214-23.
- Saenz de Tejada S. Management of acute respiratory infections in a Kaqchiquel community in Guatemala. *Rev Panam Alud Publica* 1997; 1: 259-65.
- Tram TT, Anh NTN, Tri L, Hoa TC, Mogensen K, Andersen E. Establishment of drug chests at commune health stations in Vietnam, Bamako initiative. *Southeast Asian J Trop Med Public Health* 1998; 29: 628-35.