CHAPTER VI

Bibliography

Akbar, M.S. (1986). Leading article on ARI : *Bangladesh Journal of Child Health*, no. 1, 10 (2) : 55-57.

He emphasize that now stress is given on the degree of severity of ARI illness, which calls for different courses of action.

Bangladesh Bureau of Statistic. (1991). Population census. Preliminary report BBS, Dhaka, Bangladesh.

According to the 1991 census, Bangladesh has a population of 110 million people which makes it one of the most densely populated countries in the world. Children under 5 years of age constitute 17 % of the total population. The infant mortality rate is 110 per thousand live births and life expectancy at birth is about 55 years.

Berman S, McIntosh K. (1985), Selective Primary health Care : Strategies for Control of disease in the developing world. XXI. Acute respiratory infections. *Review Infections Diseases.* 7 : 674-91.

Children in industrialized countries have also had a high mortality from Pneumonia. Mortality from Pneumonia during the first year of life in the U.S.A. in the 1910s was similar to that in Paraguay in the late 1970s (approximately 1500 deaths per 100000 births), and the

mortality in the U.S.A. in 1950 equaled that in Costa Rica about 30 years later.

Black, RE, Brown, K.H., Becker, S, Yunus, M. (1982). Longitudinal Studies of infectious diseases and physical growth of children in rural Bangladesh. *Am J Epidemiol* 115 : 305-14.

In rural areas of Bangladesh, a child < 5 years old experiences two to three episodes of acute lower respiratory infection (ALRI) and three to four episodes of diarrhea each year. These two diseases also represent the principal causes of hospitalization among children in both urban and rural areas.

BOSTID (1990). "The Epidemiology of Acute Respiratory Tract Infection in young children : Comparison of Findings from Several Developing Countries. *Review of Infectious Diseases*, Vol. 12, Supplement 8.

BOSTID Projects studied the epidemiology of ARI in young children included 10 countries , which after data analysis makes this synthesis. Most episodes - whether ARI or LRI - Last < 2 weeks.

Children spent on average from 21.7 % to 40.1 % of their observed weeks with signs of respiratory tract infection and from < 1% to as much as 14.4 % of observed weeks with episodes of LRI.
The case fatality ratios are higher among the youngest of children < 1 year of age.

The incidence rates of respiratory tract infection tend to be higher among younger children of younger mothers, but young maternal age is not consistently associated with higher incidence rates.

Butler, T., Islam, M., Azad, A.K., Islam, M.R., Speelman, P. (1987). Causes of death in diarrhoeal disease after rehydration therapy : an autopsy study of 140 Patients in Bangladesh. *Bull WHO* ; 65 : 317-23.

They performed a postmortem study of patients who died with diarrhea at Dhaka Hospital of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDRB), has identified Pneumonia as the underlying cause of death in one-third of children < 5 years of age.

The etiology of Pneumonia and the significance of its association with diarrhoea remain unknown, knowledge of the etiologic agents of ALRI in these patients with diarrhoea should lead to a more logical approach to prevention and treatment.

Douglas, RM. (1985). Acute respiratory infections in children: proceedings of an international workshop. Adelaide, South Australia: University of Adelaide.

Studies suggest that children under 5 years of age experience a mean of seven episodes of respiratory illness per year, three doctor visits a year, ingestion of medicine on 15 days per year, and experience 52 days of respiratory symptomatology a year.

Grant, JP. (1990). The State of the World's Children, UNICEF. Oxford: Oxford University

"Each year, more than 14 million children die, and 30 % of these deaths, or more than 4 million, are due to acute respiratory tract infection (ARI). ARI is in fact the major cause of preventable death among the children of the developing world."

Helena, P., Alfonso, M., Treme, B., Leslie E., (1987) : Women as Provider of Health Care World Health Organization. Geneva:

Mother play a major role in the Prevention and control of locally Prevalent disease and are involved in preventive treatment, early detection of signs ad symptoms, the decision to seek care, compliance with prescribed treatments and environmental activities aimed at prevention and protection. They are also the person most likely to make the decision to seek skilled help from the formal health care system.

Kapoor, S., Reddiah, VP., Murthy, GV. (1990). Knowledge, attitude and practices regarding acute respiratory infections. *Indian Journal of Paediatrics*. 57 (4) : 533-35.

Mothers knowledge and practice will differ in different cultures, societies and levels of education of the mother. In India it was found that most mothers recognized Pneumonia by noticing fast

respiratory rate and difficulty in breathing. As regards to mild ARI episodes more than half of the mothers Preferred not to give ant treatment or use only home remedies. In Pneumonia majority of mothers Preferred to consult with qualified doctcrs.

Khan, AJ., Akbar, M., Addis, D.G. (1990). Acute respiratory infection in children : a case management intervention in Abbotabad district, Pakistan. *Bulletin of World Health Organization*. 68 (5) 585-88.

Appropriate intervention can significantly change mothers knowledge and practice. In this study in Pakistan it was found that after intervention (1987), 78 % of mothers contact community health workers (CHW) and go to basic health until if their child had difficulty in breathing, compared to 34 % before intervention (1985). Again, proportion of mothers who consider difficulty in breathing as a symptom of ARI increased from 3 % to 25 % over the period.

Khan, J.A., D.G. Addiss, and Rizwan - Ullah. (1990). "Pneumonia and Community Health Workers." *Lancet* 336 (8720) : 939.

Their studies in Pakistan have suggested that if ARI cases receive general supportive care, including fluids, continued feeding, treatment for fever and cleaning of nasal discharge, may actually reduce the likelihood of progression of uncomplicated coughs and colds to life - threatening Pneumonia's.

Leowski J, (1986) . Mortality from acute respiratory infections in children under 5 years of age : global estimates. World Health Statement Quarterly; 39 : 138-44.

Globally ARI causes annually as estimated four million deaths in children. In under five's Pneumonia causes approximately one - quarter of deaths, of which more than 90 percent occur in developing countries, but at least half of all deaths fall in this age group and ARI causes one - third of the deaths.

Lucero, MG., Tupasi, TE., Gomez, MLO., Beltran, GL., Crisostomo, AU., Romano, VV., Rivera, LM. (1990). Respiratory rate greater than 50 per minute as a clinical indicator of Pneumonia in Filipino children with cough. *Rev. Infect Dis*; 12 (suppl 8) : S1081-3

The classification of ARI severity determined by the field workers for patients, who were seen by the physician in the clinic corresponded well with the diagnosis of the physician. Such correspondence indicates the applicability of the World Health Organization (WHO) proposed algorithm for ARI classification and its usefulness in developing countries where physician are not readily available. The sensitivity of respiration rate > 50 breaths/minute as an indication of Pneumonia has been reported to be 63 %, with a specificity of 87 % when compared with radiological diagnosis of Pneumonia.

McIntosh, K. (1990). Acute Respiratory Infections : an overview. *Reviews of Infectious Diseases*. Vol. 12, supplement 8. by the University of Chicago.

He described the elusive nature of ARI which had been confirmed by Bostid studies. "The difference among the studies are intriguing. In some places (e.g., Bangladesh), bronchiolitis, as opposed to Pneumonia, did not seem to be a cause for hospitalization. In others (e.g. Philippines), female gender was a risk factor for high mortality. At some centres (e.g. Pakistan) Haemophilus was found to be as common as the Pneumococcus, while at others (e.g. Bangladesh) Haemophilus rarely appeared as a cause of bacteremia. The incidence of respiratory syncytial virus (RSV) Peaked in some areas during the dry season and in others during the rainy season.

Napaporn, J. (1992). Maternal Perception and socio-economic factors associated with severity of acute respiratory infections in children aged under 5 years : A thesis submitted in partial fulfillment of the requirements of the MSC (medical epidemiology).

In this study it was found that almost all the mothers initially treated their children at home. Home remedies that the mothers often use in the care of the children before seeing the doctor were, cooling the body with a wet towel, providing anti-histamine, giving commercial product (anti-pyretic, cough-syrup), not allowing the

child to take a bath. Home remedies were mostly used prior to care-seeking.

Narain , J.P., and T.D. Sharma. 1987. "Acute Respiratory Infectious in Kangra District : Magnitude and Current Treatment Practices." *Indian Jurnal of Pediatrics* 54 (3) : 441-44.

They have presented evidence that over 90 percent of physicians do not agree that non-physician health workers should be provided with antibiotics to treat children suffering from Pneumonia.

Oyejide, G.O. , Osinusi, K. (1990). Acute Respiratory Tract Infection in Children in Idikan Community, Ibadan, Nigeria. *Review of Infections disease*. vol. 12 ; supplement 8 .

A decreased incidence of LRI was observed among children who had been vaccinated against measles.

Prasong, T. (1985). Acute Respiratory Infections in childhood; International workshop in Thailand. page 1 - 217.

In Thailand, ARI in children is one of the high priority problem, which affected 35 - 39% of annual number of out-patients, 17 - 26% children admitted in hospital and causing 10 - 20% of deaths among children less than five years of age.

Pio A, Leowski J, Ten, Dam HG. (1983) Prepared for the Technical Advisory Group on Acute Respiratory Infections. Geneva : World Health Organization.

They said that overall incidence of ARI among children in developing countries does not appear to be higher than that among children in developed countries, but an important difference appears to lie in the relative frequency and severity of lower respiratory tract infection (LRI) and Pneumonia in particular.

Sazawal, S., Black, R. (1992). Meta-analysis of intervention trials on case - management of Pneumonia in community setting. *Lancet* 340 : 528-33.

About the impact of case-management, the WHO sponsored seven studies during 1980, through the PHC (Primary Health Care) system, including community health workers. All these studies reviewed recently and the results showed that overall, the ARI control programme reduced mortality in infants by 20 percent and in under-five's by 25 percent.

Selwyn BJ., for the Bostid group (1990). The epidemiology of acute respiratory infection in young children : comparison of findings from several developing countries. *Reviews of Infectious Diseases.* Vol. 12 ; supplement 8 : S 870 - 88.

Studies from six different developing countries reported that younger children consistently have a higher incidence of Pneumonia. Children below 1 year of age have a 1.5 - 2.5 fold, sometimes as much as five-fold higher incidence than children between the ages of 2 to 5 years in the same populations.

Shann F. (1986). Etiology of severe Pneumonia in children in developing countries. *Ped. Int. dis*: 247-252

15 million children under 5 years of age die in the world each year, that is one child in every 2 seconds. 97 % of these deaths occur in developing countries. WHO has estimated that 20 - 30 % of death in children or 4-5 million child deaths per year, are caused by acute respiratory infections. Similarly UNICEF has estimated that over 3 million children die from Pneumonia each year.

Shan, F., Gratten, M., and Gramar, S. (1989). Etiology of pneumonia in children in Goroka Hospital, Papua New Guinea: *Lancet* 2: S 37-41.

They focused that some 57,ooo British children under 5 tears of age were admitted in hospital with respiratory diseases , mostly acute respiratory infections and over 700 died, which accounts for nearly 1 in 10 of all deaths in this age group.

Shann, F. (1985). Pneumonia in children: a neglected cause of death. World Health Forum; 6; 143-5.

Data from Paraguay, Mexico and Egypt have shown that the number of deaths due to ARI in these countries is about 30 times higher than that reported in Canada and the United States. This disparity in ARI related mortality in developing and developed countries can be attributed to the greater severity of the disease in the developing nations.

Tupasi, TE., Mangubat, NV., Sunico, MES., Magdangal, DM., Navarro, EE., Leonor, Z., Lucero, MG. (1990) : Malnutrition and acute respiratory tract infections in Filipino children. *Rev Infect Dis* ; 12 (suppl 8) : S1047-54.

Studies in Philippines have shown that the risk of death of malnourished children with severe pneumonia is two to three times higher than that of healthy children.

Tupasi, TE., Velmonte, MA., Sanvictores, MEG. (1988). Determinants of morbidity and mortality due to acute respiratory infections : implications for interventions. *J. Infect Dis;* 157 : 615-23.

They confirmed that socio-eonomic status within developing countries are strongly predicts risk of acute respiratory infections.

They said poverty and lower social status are associated with large family size, crowded living conditions, poorer access to medical care, higher smoking rates, potential for nutritional deficit, exposure to environmental pollutants and stressful living environments. These factors

contribute individually or perhaps interact to increase susceptibility to respiratory infections in these groups.

Vathanophas, K., Sangchai, R., Raktham S., Pariyanonda A., Thangsuvan, J, Bunyaratabhandu, P., et al, (1990). A Community - Based Study of Acute Respiratory Infection in Thai Children. *Reviews of Infectious Disease*. Vol. 12, supplement 8. S957 - 65.

They conducted a longitudinal study on ARI among the population of a socio-economically depressed urban community in Bangkok, Thailand. The result shows overall incidence of ARI was 11.2 episodes/child/year. Mild ARI was 9.0 episodes/child/year and moderate and LRI were 2.15 and 0.07 episodes. It was estimated that urban children < 5 years of age suffer five to eight episodes of respiratory disease annually. Also a higher incidence found among the boys than girls. It has been also found that children who lived in houses where family members smoked had more than twice the risk of developing LRI.

World Health Organization (1993). Interim Programme Report ; Programme for control of acute respiratory infections. WHO/ARI/93.25

ARI is a major cause of childhood sickness, the leading contributor to the loss of disability adjusted life years (DALYS) in under five children. ARI account for 30 - 50 % of visits by children to health facilities and 20 - 40 % of hospital admission of children.

WHO (1990). "Programme for the control (of Acute Respiratory Infections : Case Management research Priorities." Publication 90-1. Geneva:

In view of the variation of normal respiratory rates with age, WHO guidelines recommend a threshold rate of sixty or more per minute in young infants (under two months), fifty or more for older infants (two months through eleven months) and forty or more for children (one through four years of age). Chest indrawing (retraction of the lower part of the chest wall on inspiration) detected in children two months to four years of age indicates the presence of severe Pneumonia requiring hospitalization.

WHO, UNICEF, UNDP (1991). Fact sheet. International consultation on control of acute respiratory infections : Washington D.C. December 11-13.

The average child in a developing country has a cough, cold or other acute respiratory infections 4-8 times a year. Most of these episodes are mild and short lived but one in every 30-50 turns into life threatening Pneumonia.

WHO/ARI (World Health Organization/ Programme for Control of Acute Respiratory Infections). 1988. "Case management of Acute Respiratory Infection in children : Intervention Studies." Publication 88-2. Geneva:

It has been estimated that up to 2,596 of ARI mortality may be preventable if current EPI vaccines are used. Mortality among under five children due to measles - associated ARI accounted for approximately 20 percent of all ARI mortality (1.8 per 1,000 out of 9.1 per 1,000) in seventeen study areas during case management trials for WHO. It is therefore assumed that 20 to 25 percent of ARI mortality would be addressed through use of current EPI vaccines. An expected ARI-specific mortality reduction 8.8 to 20 percent (most likely 14.6 percent) may be calculated from these figures.

World Health Organization, (1986). "Basic Principles for Control of acute respiratory infections in children in developing countries" : Geneva , Switzerland :

Health education is a basic component of ARI control programmes. Effective treatment is dependent on mothers and other child careers recognizing the critical signs of Pneumonia and acting immediately to seek help.

Health education should increase the capability of families to recognize a child with Pneumonia as separate from those without Pneumonia (only cough and cold) and to decide when to seek help ; educate the community in simple supportive therapy of ARI.

World Health Organization, (1991). "Technical bases for the WHO recommendation on the management of Pneumonia in children at first-level health facilities." Geneva, Switzerland : WHO, (WHO/ARI/91.20)

"Many studies have shown that fast breathing is a better predictor of Pneumonia in children that other clinical signs such as chest indrawing, wheeze etc."

WHO/ARI (World Health Organization/Programme for Control Acute Respiratory Infections) (1988). "Case Management of Acute Respiratory Infections in children ; Intervention Studies." publication 88-2. Geneva.
They suggested that peripheral health workers with limited training could identify and treat cases appropriately. Several intervention studies were conducted to test the algorithm for case management in an operational setting in several countries. The studies reviewed, although each of the studies suffered from design flaws or confounding as a result of simultaneous introduction of others interventions, taken as a whole they present strong evidence of the effectiveness of case management by Peripheral health care workers. It was found that ARI specific mortality declined by an average 41.6 percent (range 18-65 percent), whereas overall mortality was reduced in the same five study areas by an average of 22.2 percent (range 11.5 to 40 percent)

World Health Organization. (1994). Notes and News, World Health Forum; s 15: 207.

It is mentioned that great majority of ARI cases require no treatment, other than general care at home including extra fluids and making sure that the child eat well, but upto 70% of these children are treated with antibiotics and other medicines when they taken to a health facility in Africa.