CHAPTER III
PROPOSAL

3.1 INTRODUCTION

Acute respiratory infections (ARIs) in children comprise a complex group of illness of different etiology, clinical presentation and severity. The multiplicity of presenting syndromes together with problems in both clinical and etiological diagnosis, as well as the unreliability of official statistics in many developing countries delayed the recognition of childhood ARI as a major problem until recently.

In 1982, WHO established a special programme for the control of ARI. The importance of the programme was reaffirmed in the Eighth General Programme of work for the Period 1990 - 1995.

(WHO 1991) indicates that 12.9 million children under 5 years of age died in 1990 in developing countries. According to WHO estimates, 33 % of these deaths (4.3 million) - were due to acute respiratory infections, mainly Pneumonia; with 0.8 million among neonates and 3.5 million in older children. These estimates place ARI as the first cause of death in developing countries, to some extent as a result of the success achieved in the control of diarrhoeal and other childhood diseases over the last decade.

In the last few years there has been significant progress in our understanding of the problem of ARI and children's susceptibility to intervention in developing countries. Anatomical and etiological classifications are of no practical value as most of ARI deaths occur in rural areas where physicians are not available. Akbar (1986), the stress now is more on the degree of severity of illness, which calls for different courses of action. Early diagnosis by mothers and antimicrobial treatment by Primary Health Care worker, particularly in rural areas, can reduce the morbidity and mortality of ARIs. (WHO 1981). For these purposes, simple and specific clinical criteria have been set up by WHO - case management. Standard case management is a proven strategy for reducing the number Pneumonia deaths among children in developing countries WHO (1991). By the end of 1990, 47 developing countries had operational ARI control programmes and had introduced standard case management in at least some areas. WHO/UNICEF (1991)

According to the 1991 Census, BBS (1991) 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 estimated at 98 per thousand live births and life expectancy at birth is about 55 years.

A joint UNICEF - WHO statement (WHO 1985) has highlighted two control measures which might produce an immediate impact on mortality . These are the modification of health care structure and encouraging health education activities to promote appropriate child care practices related to ARI

at the family and community levels. Community health education is of utmost importance to effective case management since it has a potential to establish productive contact between the Health Service System and the community to increase the capability of families to recognize danger signs of ARI in children and to encourage appropriate and early care seeking behaviour.

ARI prevails as a significant problem in Bangladesh. Ignorance or inadequate knowledge of the people, particularly of the mothers, is mainly responsible for its excessive incidence. Owing to ignorance, inadequate knowledge or resources the mothers cannot properly take care of their children. In the management of children during their illness, it is very important for the mothers to have some knowledge about the ARI, as the state of well being of the children mostly depends upon the knowledge of the mothers. So it is very essential to impart knowledge to the mothers about ARI.

Knowledge of the mothers can reduce the mortality and morbidity of the children from ARI. To upgrade the knowledge, training programmes for ARI control strategy are indispensable. Assessment of the existing level of knowledge and practice acts as a guideline to the extent of training which should be imparted to mothers. With this view in mind, the study will be conducted on mothers of children below 5 years with ARI in an urban community at Dhaka to assess mother's level of knowledge and practice about ARI in children.

3.2 BACKGROUND

3.2.1 Extent of the problem of ARI

Acute Respiratory Infections have been recognized as a major public health problem, accounting for about one third of all child deaths of the world. In 1990, 12.9 million children under the age of five died and 4.3 million which is 33.1 % of all child deaths were due to acute respiratory infections, mainly Pneumonia. (WHO, 1992)

ARI is also 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 admissions of children. (WHO, 1993)

The average child in a developing country has a cough, cold or other acute respiratory tract 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 / UNICEF, 1991)

As ARIs are extremely common, they place an economic burden on developing countries. On average, during the first five years of life, a child living in an urban area suffers 5 to 8 episodes of ARI each year, in rural areas the number of episodes of ARI is somewhat lower. (WHO, 1984) According to the ARI symposium (BOSTID Grant, 1988), in Thailand the morbidity of ARI is 7.7 - 10.1 episodes per child per year.

It has been estimated that about 20 % of infants born in developing countries fail to survive to their fifth birthday. (UNICEF / WHO. 1985)

On average 15 % of children die from ARI each year in Bangladesh, without proper treatment, 10-20 % of young children who get Pneumonia die. For infants under one year of age and particularly for those less than 2 months old, the fatality rates are higher. (WHO / UNICEF, 1991)

The magnitude of the problem is also well presented in Bangladesh Health Services Statistics. The National Health Service of Bangladesh reported that amongst all out - patients in a rural health center, about 18.2 % had ARI, of which 16 % were children between 0-5 years of age. (Govt. of Bangladesh, 1983) Another study in Dhaka Children Hospital shows that 12.6 % of all admissions were due to ARI. (Akbar, 1986).

ARI is also a leading cause for children having to use the health service in both developed and developing countries. It is also the illnesses most frequently associated with unnecessary use of antibiotics and other drugs. Thus, large amounts of money are spent by families and Government without benefit.

The magnitude of problem of ARI in developing countries is now generally recognized and ARI is no longer a neglected problem at the international level. The ARI situation has posed another challenge to health professionals which can only be overcome by scientifically and socially sound

techniques and a clear determination to reduce yet another cause of morbidity and mortality in our children.

3.2.2 Operational Definitions :

Acute Respiratory Tract Infections :

An episode of acute symptoms and signs resulting from infections of any part of the respiratory tract or related structures.

Classification :

Acute respiratory infections can be classified as

i) upper respiratory tract infections above the larynx and

ii) lower respiratory tract infections below the larynx

Upper respiratory tract infections include - otitis media, pharyngitis, nasopharygitis, rhinitis, sinusitis and tonsillitis.

Acute lower respiratory tract infections can be classified on the basis of   a) Anatomy b) Etiology and c) Clinical severity of illness.

A) Anatomically :

- Epiglottitis

- Acute laryngitis   Also called CROUP

- Acute Tracheitis   (conditions causing stridor)

- Acute Laryngo tracheitis

- Bronchitis

- Bronchiolitis

- Pneumonia

B) Etiologically :

Many types of organisms are involved as the causative agents of ARI. They are also varied with the site of occurrence and severity of the infection. The etiologic agents are many types of bacterial, viral and mixed infections.

Bacterial :- Principal causes bacterial ARI are :

- Streptococcus Pneumoniae.

- Haemophilus influenzae.

- Streptococcus Pyogenes. (Lancefield group A)

- Streptococcus Aureous.

- Klebsiella Pneumoniae etc.

Viral :- Principal causes of viral ARI in under five children are :-

- Respiratory syncytial virus (RSV)

- Influenza A and B viruses

- Parai-nfluenza 1, 2 and 3 viruses

- Adenovirus

- Measles

- Others

C) On clinical severity of illness.

More recently attention has tuned to developing classification related to severity of illness consequence and clinical management. It is mainly based on breathing rate and chest indrawing. Points that should be covered during the assessment :

By asking :-

- How old is the child ?

- Is the child coughing ? For how long ?

- Age less than 2 months : Has the young infant stopped feeding well ?

- Age 2 months to 5 years : Is the child able to drink ?

- Has the child had fever ? For how long ?

- Has the child had convulsion ?

Looking and listening ; (child must be calm)

- Counting the breaths in one minute

- Looking for chest indrawing

- Looking and listening for stridor

- Looking and listening for wheeze. Is it recurrent ?

- Is the child is abnormally sleepy or difficult to wake ?

- Feeling of fever or low body temperature

- Looking for severe malnutrition

Fast breathing depends on the age of the child :

Age	Breathing rate
Age less than 2 months	60 breaths/minute or more
Age 2 months upto 12 months	50 breaths/minute or more
Age 12 months upto 5 years	40 breaths/minute or more

Classification :

The young infant (age less than 2 months)

a) No Pneumonia : cough and cold :

    Signs :
- No severe chest indrawing
- No fast breathing

b) Severe Pneumonia :

    Signs :
- Severe chest indrawing
- Fast breathing

c) Very severe disease :

    Signs :
- Stopped feeding well
- Convulsions
- Abnormally sleepy or difficult to wake
- Stridor in calm child
- Wheezing
- Fever or low body temperature

The child age 2 months upto 5 years :

a) No Pneumonia : cough and cold :

    Signs :
- No chest indrawing and
- No fast breathing

b) Pneumonia :

    Signs :
- Fast breathing
- No chest indrawing

c) Severe Pneumonia :

    Signs :
- Chest indrawing
- Fast breathing may or may not be present

d) Very severe disease :

signs :   ●   Not able to drink.

●   Convulsions.

●   Abnormally sleepy or difficult to wake.

●   Stridor in calm child.

●   Severe malnutrition.

Knowledge

It is a state of fact. Knowledge or understanding of correct answer regarding of ARI

3.3 Maternal Knowledge about ARI :

The knowledge of the mothers about transmission, infection, signs and symptoms of ARI, severity, appropriate case management and measures to prevent ARI.

3.3.1 Maternal Health Care Practice :

Activities mothers undertake, with the intention of enhancing bettering health, preventing disease, limiting illness and restoring health.

Mothers home care practice (WHO Recommendation)

●   Immunization for DPT, Polio, Measles

●   Identification of mild, moderate and severe cases

●   Supportive treatment for mild cases

●   Hospitalization for severe cases

●   Continuation of breast feeding

- Quantity of food and drink should be increased during illness and recovery phase

- Clearing of blocked nose

- Providing warmth for cold weather

- Loosing the cloth for possible interference

- Increase moisture in the air to soothe the upper respiratory tract

3.4 CONTROL OF ARI

Available control methods that can be implemented now at the community and first referral health care level of developing countries are

- Immunization

- Standardized case management

- Health education

3.4.1 Immunization :

Against diptheria, pertussis, measles and childhood tuberculosis should get high priority since these conditions contribute heavily to childhood mortality and morbidity. Universal acceptance of EPI will play an important role in the overall strategy of ARI.

3.4.2 Standardized case management :

Standardized case management given by World Health Organization is a proven strategy for reducing the number of morbidity and mortality of

Pneumonia among children in developing countries like Bangladesh. It is based on

* Early recognition of Pneumonia by watching for signs like fast breathing and chest indrawing
* Prompt treatment of non-sever cases at home with standard antiobiotics and good supportive care
* Quick identification of severe cases and referral to hospital

3.4.3 Health Education :

Effectiveness of case management depends on getting the community informed and involved through health education aimed at :

1) Increasing the capability of families to differentiate moderate and serious respiratory illness from mild disease and to decide when to seek help
2) Educating the community regarding simple supportive therapy
3) Promoting timely immunization against diptheria, pertussis, measles and tuberculosis
4) Promoting breast feeding
5) Reducing parental smoking and other domestic air pollution.

3.5 Home care advice to mothers

Feed the child

● Feeding the child during illness

● Increased feeding after illness

- Clearing the nose if it interferes with feeding

Increase fluids :

- offering the child extra fluids to drink

- Increased breast feeding

Soothe the throat and relieve the cough with a safe remedy

Most important :

Mothers should watch for the following signs and return quickly if they occur :

- Breathing becomes difficult

- Breathing becomes fast   The child may have Pneumonia

- Child is not able to drink

- Child becomes sicker

Mothers play a major role in the prevention and control of locally prevalent disease and are involved in preventive treatment, early detection of signs and 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.

3.6 Communication

To gain information on all forms of communication that are or might be utilized to provide information about ARI.

- Inter personal communication (IPC)

- Mass media (MM)

3.6.1 IPC Questions : will be asked of mothers to find out their usual communications regarding the health of their children. Did you ever talk to anybody about your child's health problem ? Or did anybody ever talk to you about ARI problem of children ? Whom did you talk to ? (Parents, parents - in - law, friend, relatives etc.) What did you talk about ? What did you learn from your own mother ? The family network is an important channel for spreading information. Also to get information how mothers view health workers as health practitioners. Health workers supposed to visit every household every two months. Have you (mother) been visited by a health worker in the last two months ? Whether or not they discussed about ARI in children ?

3.6.2 Mass media : To know the role of mass media on improving mothers knowledge and practice. What specific messages on ARI you have seen as heard in the last month ? What media communicate these messages ? Can you recall the content of the message ? How often you utilize the mass media ? Do you have radio or television in your house ? If no, do you have access to television or radio ? At what time did you listen ?

To get an idea what health intervention about ARI recently been promoted through mass media in national campaign.

7. Literature Review

The Public Health importance of acute respiratory infections (ARIs) has been increasingly recognized in the past decade, and many developing countries have set up specific ARI Control Programmes as a result of this. These programmes have primarily been aimed at prevention and early treatment of life threatening acute respiratory infections. (WHO, 1992)

According to the ARI Prevention and Control Programme, (WHO 1992) mothers must have knowledge about ARI and its management in order to decrease morbidity and mortality of ARI in children.

The guidelines suggest :
3.7.1 Preventive measures of ARI :

By giving health education to mothers and other people in the community and encouraging them in the following aspects.

1.1 Promotion of personal health and hygiene by

- avoiding crowded area.
- stopping smoking in the family
- improving housing condition by no smoke exposure in the house
- keeping the body warm by wearing suitable clothes especially during cold season
- taking good quality and balanced food

1.2 Distribution of knowledge on transmission of ARI : ARI can be transmitted by droplet infection such as nasal discharge, saliva etc. Thus people should avoid contamination from coughing, sneezing.

1.3 Encouragement of immunization through health education and provision of immunization for diseases like measles, diptheria, pertussis and poliomyelitits etc.

3.7.2 Control measures of ARI :

In order to prevent mild cases progressing to a serious one, these recommendations should be strictly followed :-

2.1 Proper care of early signs and symptoms. For example tepid sponge for high fever and giving antipyretic preparations and encouraging oral fluid intake.

2.2 Living in well ventilated area.

2.3 If the disease seems to be more serious mother should consult physician.

2.4 Timely referral to hospital.

3.7.3 Present global situation of ARI in children under five years of age :

Acute respiratory infection is one of the major causes of morbidity and mortality in under five children throughout the world, particularly in developing countries. Although the morbidity pattern from these diseases are

similar in different countries of the world, the high mortality in children in developing countries is due to severe respiratory infections.

The incidence of ARI is between 3 to 9 episodes per child every year in all parts of the world. There is some difference between urban and rural incidence in developing countries - children under five living in urban areas have a higher number of ARI episodes , between 5 and 9 a year, than those in rural areas who average between 3 to 5 episoces. There is often a seasonal pattern with more infection during cold or rainy seasons. (ICC, 1991)

The frequency of acute respiratory infections in children under five years of age on the basis of community studies in different countries are given in table - 1.

Study Site	No. of children surveyed	No. of episodes of ARI/yr		
		0 - 1 yr.	1 - 2 yrs.	2 - 5 yrs.
Urban Area				
Sanjose (Costa - Rica)	137	5.9	7.2	4.2
New Delhi (India)	7,493	5.6	5.3	4.8
Tecumesh (U.S.A.)	707	6.1	5.7	4.7
Seattle (U.S.A.)	390	4.5	5.0	4.8
Ibadan (Nigeria)	-	7.5	7.1	6.3
Rural Area				
Matlab (Bangladesh)	197	2.3	2.5	2.3
Maya village (Guatemala)	2,877	1.2	0.9	0.5
Dabat (Ethiopia)	202	2.8	3.1	-

Table :- shows that ARI episodes varies from different ages and among different countries of the world.

ARI is also a leading cause for people having to use the health service in both developed and developing countries. They account for 20 - 40% of the children attending out patient clinics and 12 - 35% of the admission of children to hospital. (WHO, 1984) In 1983, some 57,000 British children under 5 years of age were admitted in hospital with respiratory disease, mostly acute respiratory infections and over 700 died which accounts for nearly 1 in 10 of all deaths in this age group. (Lancet, 1985)

15 million children under 5 years of age die in the world each year, that is one child 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, 1986)

3.7.4 Present situation of ARI in Bangladesh :

In Bangladesh ARI in under five children is the leading reason of the use of health services and one of the most important causes of death in children. Hospital records indicate that 66 % of urban Paediatric consultation and 30 % of rural consultations are due to ARI. Pneumonia is the most serious form of ARI and accounts for 80 % of ARI deaths (Govt. Bangladesh 1989). Among infant deaths 18 % are caused by ARI, with the majority of these deaths due to pneumonia. (UNICEF, 1990)

Data from the Health Information Unit of the National Health Services of Bangladesh showed that ARI amongst all out-patients in a rural health complex was 18.2 % of which 16 % were children between 0 - 5 years of age. One year hospital records in a Paediatric Unit of Dhaka Medical College Hospital in 1984 show that 27 % as ARI patients 12.6 % of all admission in Dhaka Children Hospital in 1985 were due to ARI. (Akbar, 1986)

3.7.5 Present situation in Thailand :-

In Thailand, acute respiratory infection in children is one of the high priority problems, which affected 35 - 39 % of annual number of out-patients, 17 - 26 % of children admitted to hospital and causing 10 - 20 % of deaths among children less than five years (Prasong T. 1985)

According to National Health Statistics of Thailand, mortality data revealed that ARI accounted for about 25 % of all deaths of children under 5 years of age.

A survey of illness among general population seeking medical care conducted in 1990, both in urban and rural areas, likewise revealed that 30 - 35 % of cases were ARI.

3.7.6 Educational level of mother and incidence of ARI.

Many studies during the past three decades have established that infant and child mortality are almost invariably associated with the level of female education.

A leading authority in this field, Professor John Couldwell of the Australian National University has summarized the result of his studies that the proportion of child mortality was almost twice as high for mothers with no education in comparison with mothers of elementary education and over four times higher for mothers with elementary education than for mothers with secondary education.

3.7.7 ARI and demographic factors:

A large number of studies have shown that the incidence of viral respiratory illness prevails in infancy and early childhood and steadily reduces with age.

Although infants are at greater risk from Pneumonia that older children, mortality rates are highest in the elderly. Data reported to WHO from Costa-Rica and Cuba showed an excess burden on mortality in infants and young children from Pneumonia.

Incidence rates of ARI also vary by sex. Report from different studies carried out in the U.S.A. show higher rates of ARI in male children

under the age of nine years and the reverse pattern over that age, no difference was seen in older age group. On the other hand, a recent study of viral chest infection in infants found no difference in incidence by sex.

3.7.8 ARI and Maternal Knowledge :

As the mother is the key care giver in the family, her knowledge about ARI and care-seeking for her child is essential. Promotion of health, early detection of disease and to know where and when to look for treatment are the basic essentials, a mother should be informed with.

The mother must be seen as an important member of the "health team". She will be more concerned about her own baby than anyone else and will watch the baby more carefully. But she needs education that is consistent with the education given to health workers, so that she knows what signs and symptoms are regarded by health workers as important and what is the basis for seeking diagnosis and treatment.(Riley, 1985)

The growth of population on one side and limited resources on the other makes fulfillment of health service demand difficult, Health Service in developing countries can never meet the demand without maternal knowledge and practice.

Maternal knowledge results in increased capabilities and skills of the mother to act in an effective way in favour of health. They will also become great and powerful resources in selection of health care.

Mothers' knowledge and practice will differ in different cultures, societies and with the level 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 mild ARI episodes, more than half of the mothers preferred not to give any treatment or use only home remedies. In Pneumonia the majority of mothers preferred to consult with qualified doctors. (Kapoor 1990)

In Peninsular, Malaysia it was found that 70 % of Malays worried when their child had a mild ARI and 85 % would seek treatment as soon as possible. 57 % of the Chinese worried when their child had a mild ARI and 70 % would seek treatment as soon as possible. (Vasanthamala, 1989)

In a recent study in Thailand it was found that almost all of the mothers initially treated their children at home. Home remedies that the mothers often used in the care of the children before seeing the doctor were cooling the body with a wet towel. Providing anti-histamine, giving commercial products (antipyretic, cough syrup), not allowing the child to take a bath. Home remedies were mostly used prior to care seeking. (Napaporn, 1992)

Appropriate educational intervention can significantly change mothers knowledge and practice. In a study in Pakistan it is found that after intervention (1987), 78 % of mothers contact community health workers (CHW) and go to basic health unit or civil dispensary if their child had difficulty in breathing, compared to 34 % before intervention (1985). Again, the proportion

of mothers who consider difficulty in breathing as a symptom of ARI increased from 3 % to 25 % over the period of the study. (Khan, 1990)

3.8 Justification of the study in Bangladesh

Child mortality is still the world's largest public health problem in numbers of individuals dying and years of life lost. ARI is the leading cause of child mortality and morbidity in the developing world.

Bangladesh is characterized by high birth rate, high mortality and morbidity rates and high rate is 2.2 percent, estimated crude birth rate of about 36 and crude death rate of about 14 per 1,000 for 1989 reflect the scenario. Other demographic indices include high infant mortality rate 98 per 1,000 live birth, under five mortality rate is 188 per 1,000 live birth. About 3.7 million babies are born in Bangladesh every year in Bangladesh (almost one per minute). From the above discussion it is clear that family planning will not be successful in poorer section of the country , if the child survival rate cannot be raised.

ARI is also the leading contributor to the disability adjusted life years (DALY) in under five children. They account for 30 - 50 % of visits by children to health facilities and 20 - 40 % of hospital admissions of children. On an average a child in an urban environment suffer 5 - 8 episodes of ARI each year. So this ARI is a big public health problem and a priority goal of the health services in developing countries.

In Bangladesh the research on ARI was limited to investigate their etiology and risk factors but so far studies on knowledge and practice of mothers regarding ARI in children are still very limited.

ARI control programme of Bangladesh has given importance to research in the area of KAP of mothers with special attention in delayed seeking care and failure to recognize the important sign of ARI. Both of these two are postulated to be a major reason of increase mortality in under five children due to ARI.

In Bangladesh where the treatment facilities are limited, ARI have turned into an extensive medical problem. To provide adequate care for children suffering from ARI, mothers need to know about the S/S and management of ARI. Ignorance, inadequacy of knowledge, prejudice, poverty traditional practice of mothers and weak medical facilities contribute to develop large number of ARI. Lack of knowledge results in lack of care or improper care of their children and thereby different types of ARI are commonly seen among their children.
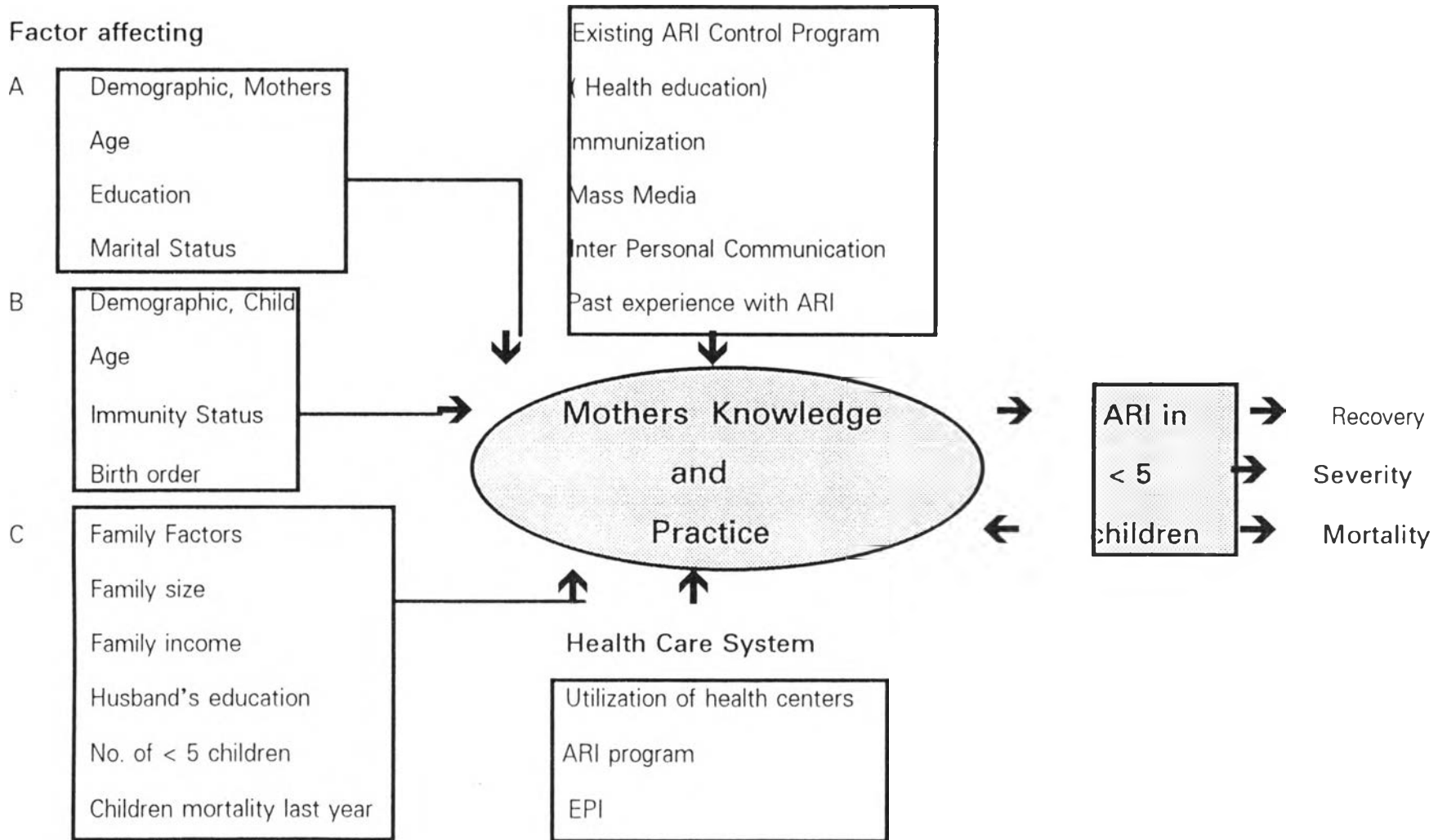
If ARI is not prevented or diagnosed early and treated in time, ultimate out-come will be sufferings from complications, severe sufferings and death. By virtue of this it causes great burden and economic loss to the society as well to the family. This study will be carried out with the objective to find out the existing level of knowledge and practice of mothers of under five ARI children with ARI.

The assessment of existing level of knowledge and practice of mothers in their under five children will give a guideline to the extent of education to be given to mothers.

The findings and information from this study may provide a share understanding among the health care providers and be able to communicate effectively with mothers. The study may be helpful to the National ARI Control Programme to improve the programmes on the preventive aspects of ARI and organize according for providing more knowledge to the mothers to maintain health of their children.

CONCEPTUAL FRAMEWORK

Factor affecting

A

| Demographic, Mothers |
| Age |
| Education |
| Marital Status |

B

| Demographic, Child |
| Age |
| Immunity Status |
| Birth order |

C

| Family Factors |
| Family size |
| Family income |
| Husband's education |
| No. of < 5 children |
| Children mortality last year |

| Existing ARI Control Program |
| (Health education) |
| Immunization |
| Mass Media |
| Inter Personal Communication |
| Past experience with ARI |

Mothers Knowledge

and

Practice

| ARI in |
| < 5 |
| children |

Recovery

Severity

Mortality

Health Care System

| Utilization of health centers |
| ARI program |
| EPI |

3.9 Objectives:

General objective :

- To assess the existing level of knowledge and care seeking pattern of mothers of under five children with ARI.

Specific Objectives :-

- To assess the existing level of knowledge of mothers of under five children regarding sign / symptoms of ARI.
- To determine the ability of mothers to identify (recognize) important signs of severe ARI and their care seeking pattern.
- To determine the home care practices of mothers of children with ARI.

3.10 Research Question :

- What is the knowledge and practice of mothers in case of ARI in their own under five children in a urban community in Bangladesh.

- What are the patterns of signs and symptoms presenting in under five children with ARI (as perceived by their mothers) in an urban community of Bangladesh.

3.11 Research Methodology

3.11.1 Research design :- The study will be a community based cross sectional descriptive study of maternal knowledge and practice in their under five children with ARI. This study will use information from mothers of under five children with ARI.

3.11.2 Study site :- The study will be carried out at urban communities of Dhaka city, the capital of Bangladesh. These urban communities are very large and crowded communities inhabited by mainly middle and lower income people ; who are the true and major representatives of Bangladeshi population.

3.11.3 Study Population :- The target population of this survey is comprised of mothers of urban communities of Dhaka city, who have under five children with ARI.

3.11.4 Sample Size :- To ensure the reasonable limits of precision i.e. 95% confidence), target sample will be approximately 750 urban mothers of Dhaka city who have under five children with ARI.

$$n = \frac{Z^2 \times p \, q}{d^2}$$

Z = Standard normal deviate

P = Prevalence of ARI in Bangladesh

d = Allowable error

q = (1 - p)

Therefore,   n = $\frac{1.96 \times 0.4 \times (1\text{-}0.4)}{0.035}$ = 750

3.11.5 Sampling Procedure :-. Dhaka is the capital city of Bangladesh with about 7 million people and the city is divided into 60 wards. These wards are inequal in size and in population. About 16.7% population of Bangladesh belongs to under five children. Under five children population will be estimated for every ward.

Among these 60 wards, very few are affluent, rest are non-affluent. One affluent ward and five non-affluent wards, in total 6 wards will be taken randomly. Proportionate sample will be taken from each ward to get the required sample size i.e. 750 mothers of under five children with ARI.

From existing EPI launched in Dhaka city, data about under five children will be available, and proportionate sample from each ward will be taken on simple random basis.

The household will be designed as the unit of sampling. At each household, mothers will be asked if they have children under 5 years of age and if so, whether or not any of these children had had ARI during the last one month.

3.11.6 Data Collection Procedure :

Data will be collected by Face - to - Face Interview of the mothers and observation by Interviewer. Data will be collected through structured questionnaire administrated by Professional Interviewer.

3.11.6.1 Questionnaire comprised of three parts.

Questionnaire 1.1

Will be comprised of general information which will include Maternal Information, child information and family information : Maternal Information : (age, education, occupation, marital status and number of under five children) Child Information : (age, sex, rank of child, immunization status and birth wt) Family Information : (size, monthly income, husband education, mortality of child within last one year)

Questionnaire 1.2
Comprises of maternal knowledge on ARI

Questionnaire 1.3
Comprises of treatment Practices by mothers

3.11.7 Data processing and analysis :-

Data will be edited, coded and entered into computer using Epi-Info. Variation will be made if necessary. For the descriptive study the results of analysis will be in frequency distribution. Additional software will be used for the management and analysis including statistics package for social sciences software (spss/pc)