CHAPTER II
Related Literature

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CHAPTER II
Review of literature

"Review of literature does for us what a map does for the traveler."

2.0 Introduction:

According to Polit and Hungler (1991), the task of review of literature involves the identification, selection, critical analysis and reporting of existing information on the topic of interest.

A literature review usually begins with a defined problem. Problems may be selected and defined as the result of a literature review alone. Literature review conducted in search of topics assist students in clarifying ideas and in formulating specific problems that can be investigated by research methods.

A review of relevant literature is important to research because the researcher need to relate the proposed study to existing theory and to previous studies and to develop sound hypotheses.

The investigator attempts to determine how the proposed study fits into the larger universe of related knowledge. Thus it can be seen that previous studies will be help to clarify the ideas and the design of the studies. The quantity of relevant literature available for review will depend on the popularity of the topic. A timely topic would include greater number of (studies) publications than relatively new topic with little popularity. The related literature reviewed is categorized into five sections:

1) ARI in under five year children
2) Factors influencing ARI
3) Mothers knowledge and practices regarding ARI in children,
4) Health education to mothers
5) Studies related to developing self-instructional material
2.1 Studies related to ARI:

2.1.1 ARI in under-five year children:

2.1.1.1 Diagnosis and treatment of ARI in India:

In 1991, the Indian medical association carried out a survey on the prescribing practices of 1,000 of its members. The questionnaire asked about diagnosis and treatment of both upper and lower respiratory tract infections, including preferred antibiotics. Nearly 900 members, most of who was in general practice replied to the questionnaire.

Although nearly three quarters of the respondents use a stethoscope for diagnosing pneumonia, using respiratory rate for is the first choice of nineteen per cent, and the second choice for nearly half the sample. Over half the respondents indicate that they would only obtain an x-ray if a stethoscope and respiratory rate cannot have helped them make a correct diagnosis.

The respondents were also asked to indicate how they treated viral respiratory tract infections i.e. colds and coughs (see table D). The results are of concern in that over half treat all cases with antibiotics, and further quarter give antibiotics to fifty percent of their patients over a third said that ampicillin was their first choice of antibiotic; and a similar proportion mentioned erythromycin. About a quarter preferred trimethoprim sulfa methoxazole (cotrimoxazole).

The IMA also asked its members if they would be interested in attending training workshops to discuss standard case management guidelines. Encouragingly ninety-four percent were interested in participating.

<table>
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<th>Treatment</th>
<th>All %</th>
<th>&gt;50%</th>
<th>Up to 20%</th>
<th>Never</th>
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<td>Antibiotics</td>
<td>54</td>
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2.1.1.2 Misuse of antibiotics to treat the common cold:

Godmoski (1993) reviews studies that show antibiotics do not prevent pneumonia from developing. Because of the pressure from families to do something, health workers often prescribe antibiotics for common colds.

Upper respiratory tract infections are a frequent childhood illness. Many children under five experience three to eight episodes of URTI a year.

Many health workers prescribe antibiotics for cough and colds in the mistaken belief that this may prevent pneumonia from developing.

A number of studies have looked at treating coughs and colds with antibiotics. Results from the best of these studies (conducted in Indonesia, Thailand and the USA) have been combined statistically. The Meta analysis showed that antibiotic treatment of URTI is neither shortened the duration of cough and colds, nor prevented them from progressing to pneumonia. In conclusion, the Parental knowledge and awareness about antibiotic indications and antibiotic resistance can be changed with educational interventions directed at parents and clinicians.

2.1.1.3 Studies related to the magnitude of the disease:

Zhu, Dai (1983) carried out a survey, in June 1987, baseline household survey was conducted in the Jianxin district of China to establish clearly the extent of problem before starting an ARI control program. The study population included 101,521 people in 106 villages where they were 7126 under five children in 1986. During 1986, 165 children died giving an IMR for the district of 65.5/1000 live births and a mortality rate in one to five year age group 4.6/1000 children. Fifty-nine out of 165 deaths were considered due to pneumonia. Thirty-seven percent of pneumonia deaths occurred in the first month and a further twenty percent between the ages of one to six months. Eleven of fifty-nine children who died of pneumonia were malnourished at the time of death.

Wadhiuzeaman (1988) from Iran; did a prospective study of ten villages with 6000 population for the period of March 1988 to March 1989. Out of total number of patients 12,942, he found ARI patients 2,474. The total number of deaths in a year was thirteen percent death due to ARI.

The combined survey on ARI, Diarrhea (DGHS, NICD) 1988, the Epidemiological Division of NICD (Delhi) has done two community based studies to find
out the morbidity and mortality due to ARI as a multicentric involving six branches of NICD at Alvar, Coimbatore, East Godavari, Patna, Calicut, Varanasi and Delhi. The study revealed that:

1. The incidence of ARI among under-five children was two to 5.4 episodes/ child/year
2. In urban areas the incidence was more than rural areas
3. The mortality per 1000 live birth was 7.04 in infants and 1.29/1000 in one to four years of children. Total M.R. 2.53/1000

A study was undertaken in Najatgarh, Delhi by Chawla U. (NICD). To find out the ARI morbidity in relation to some predetermined variables. The findings were:

- There is no sex difference was observed with regard to the incidence of ARI among male and female children.
- Incidence of ARI was found significantly higher in poor households.
- ARI (Episode and attack rates) was found less in children whose mothers were found to literate.

WHO, (1999), Health situation in the South-east Asia Region 1994-1997, Regional office for SEAR, New Delhi. According to WHO estimates, respiratory infections caused about 987000 deaths in India of which 969000 were due to acute lower respiratory infections (ALRI), 10,000 due to acute upper respiratory infections (AURI) and about 9000 due to otitis media.

Narain and Sharma did a review of medical records of health centers in Kangra district, Himachal Pradesh during Oct 1984 to Sept 1985 revealed that of 3,72,000 attendances eighteen per cent were for acute respiratory infections (ARI) and twelve per cent for diarrhoeal diseases. The annual incidence of visits for ARI among children below five was higher than that of general population (8.2/1000 vs. 6.7/1000). ARI was more common during the post-monsoon period and among people living in mountains areas. The case fatality rate in hospitalized ARI patients was 10.5%. Interview of health center physicians regarding ARI management practices indicated that chest in-drawing (considered by WHO as pathognomonic of sever ARI) was not recognized as an important sign by majority of physicians. Ninety one percent of physicians disagreed
(69% in strong terms) with the idea of providing health workers with antimicrobials for management of ARI at community level.

2.1.1.4 Management of ARI:

Standard questioners were distributed on a random sample of health center physicians to elicit infection on current treatment practices for ARI. ARI guideline in Pakistan reduced child pneumonia deaths by fifty per cent.

In Pakistan the government has introduced WHO’s guidelines for acute respiratory infections nationwide after training doctors and the community health workers. The WHO’s standardized case management guideline of ARI were introduced in the out patients and emergency departments of children hospitals. Acute respiratory infections kill more children under five than any other infection disease, accounting for almost two million deaths a year among this group. Among those most vulnerable to infection are children with low birth weight whose immune systems have been weakened by malnutrition or other causes. Without early treatment for ARI, children can die very rapidly.

The children suffering from sever pneumonia were admitted, mild pneumonia were given oral antibiotics and sent home. Children with upper respiratory infections mainly cough and cold were sent home with medication, and advice on home care (including the use of fluids, feeding care of the nose, and soothing the throat).

The study found that eighty per cent ARI cases were acute upper respiratory infections, majority of these were viral which did not need antibiotics. Only a small proportion needed treatment with antibiotics. The study shows the cost of antibiotic use can be reduced by using WHO guidelines and effective use of ARI treatment guideline have a rapid impact in reducing pneumonia deaths among children.

Carvalho, N. (2002), “Association of Crackles and or wheezing with Tachypnea or chest in-drawing in children with pneumonia.” The WHO recommends that in developing countries primary health care workers should use the respiratory rate (tachypnea) for diagnosis of pneumonia and chest in-drawing for defining sever pneumonia in children aged less than five years. These signs can be reliably detected by paramedical staff as well as doctors. In several countries bronchial observation with or without respiratory infection is a common cause of rapid breathing. Chest in drawing
occurs because of the contraction of the thoracic accessory muscles. Pneumonia (reduce
lung compliance) asthma (increase tissue/airway resistance) causes chest in drawing. A
two years prospective study enrolled 1416 children with pneumonia in two hospitals of
Salvador, Northeast Brazil. Tachypnea, chest in drawing, crackles and wheezing were
reported respectively, in sixty-five per cent, 45.4 per cent, 67.9 per cent, and 46.5 per cent
of the cases. Analysis by using chi-square, showed the presence of crackles was
associated with tachypnea and with chest in drawing as well as the presence of wheezing
was associated with tachypnea and with chest in drawing.

The study gave evidence, wheezing being as effect modifier of crackles in
children with pneumonia. The importance of using tachypnea as a diagnostic criterion for
childhood pneumonia is the ease of its use by primary health care workers for whom it is
not possible to use the stethoscope.

Reddiah, V.P. & Kapoor, S.K. (1991) conducted a study on “Effectiveness of ARI
Control strategy on under-five child mortality”. A prospective intervention study was
conducted at Ballabhagarrh Block of Haryana. The study area has a population of 30,000
under a state Run P.H.C. area. The control area has got a population of 60,000. ARI
control strategies as advocated by WHO; was instituted in the study area. Measles and
DPT immunization was strengthened. ARI cases reported or detected by health workers
were managed as -per the STD cases management procedure. The under-five mortality
rate was higher in the study area. After two years reductions in the study area were
significant. The reduction of thirty-seven per cent in under-five mortality and twenty-six
per cent due to ARI mortality is substantial. More benefits were attained with measles
immunization. Therefore measles immunization coverage has to be improved and private
practitioners must be included in the effective case management.

WHO has established key indicators for the assessment of correct ARI
management. These indicators were measured through health facility survey in India in
1992. The findings of the survey performance indicators of ARI case management shows
that inappropriate antibiotic used for cough and cold'sixty-five per cent, children with
pneumonia not given antibiotic nineteen per cent, Respiratory rate counted twenty-two
per cent, chest in-drawing checked forty-eight per cent, care taker (mother) knows correct
home care four per cent. The findings are an indicator of quality of treatment given. The
survey indicates the need for further improvement, especially in the areas of training, communicating with caretaker and regular monitoring of national program.

Oral antibiotic for Pneumonia: Pneumonia is one of the world’s deadliest diseases among children in developing countries. Now a new study shows pneumonia could be treated with the oral antibiotic amoxicillin, rather than injectable penicillin, to produce better health outcomes and reduce treatment costs.

The W.H.O. has recommended penicillin given by injection as the treatment for severe pneumonia. Yet, if oral amoxicillin proves equally effective, it could reduce referral, admission and treatment costs. The study included 1,700 children below five years of age from developing countries in Africa, Asia, and South America. The children were randomly treated with injectable penicillin or oral amoxicillin. The outcome is the same in both the groups. If these finding were applied to public health policy, oral amoxicillin would reduce needle-borne infections, the need for referral and admission to medical care, treatment costs, and transport, food and lost income costs for the family.

2.2 Factors influencing ARI:

Impact of Zinc Supplementation on morbidity from diarrhea and respiratory infections among rural Guatemalan children was found out by Ruel M T, 1997. In this community based trial, forty-five children aged six to nine months received ten mg of zinc daily for an average of seven months while forty-four control children received a placebo. The incidence of diarrhea was twenty-two per cent lower and the percentage of children with persistent diarrhea was reduced by sixty-seven per cent in the zinc group. No effects were found in the prevalence and incidence of respiratory infections.

Zinc supplementation reduces the incidence of acute lower respiratory infections in infants and preschool children: a double blind, controlled trial was conducted by (Sazawalas, et al, 1998). In poor community in urban India, 609 children aged 6-36 months were randomly assigned to receive daily supplements of ten mg of zinc (298 children) or a placebo (311 children) for six months. After supplementation, the zinc group, while it increased in the placebo group. During the follow-up period of six months, the incidence of acute lower respiratory infections, mainly pneumonia, was forty-five per cent lower in the zinc group (0.19 episodes/child/ yr compared with 0.35 in the placebo group). The benefits were greater in children aged more than eleven months
with severe malnutrition. Where malnutrition and zinc deficiency are common, zinc supplementation reduces the incidence of pneumonia and may improve the health and survival of pre-school children.

Preventing Vitamin A deficiency may prevent some deaths from ARI. When there is vitamin A deficiency, immunity is depressed (particularly T-cell function); and mucus production is decreased, so that bacteria can stick more easily to the respiratory mucosa. Because of this, even mild vitamin A deficiency may more susceptibility to respiratory disease (Finhock, c. 1990).

In a study in rural Indonesia, children were monitored for eighteen months and examined at three-month intervals. It was found that children with symptoms of mild vitamin A deficiency had a two-fold increased risk of respiratory infection. The increased risk was independent of the children's overall nutritional status. More recently, a similar study of children in urban India also found that there was a two-fold increased incidence of respiratory disease in children who were vitamin A deficient. In Ethiopia, it has been found that the prevalence of both diarrhea and respiratory disease is twice as high in children with xerophthalmia, as in those without (de Sole et al., 1987).

Pacifier as a Risk factor for acute otitis media: A Randomized, controlled trial of parental counseling was done, to evaluate the association between pacifier use and the increased occurrence of acute otitis media in an intervention trial. The fourteen well baby clinics were selected. It was a Controlled Cohort study. The nurses at the intervention clinics were trained to instruct the parents of children less than eighteen months old to limit pacifier use during their prescheduled visits to the clinic. The intervention consisted of a leaflet explaining the harmful effects of pacifier use and instructions to restrict its use. 272 children were successfully recruited from the intervention clinics and 212 from the control clinics.

The pacifier use appeared to be a preventable risk factor for AOM in children. Its restriction to the moments when the child was falling asleep effectively prevented episodes of AOM.

Socio-Demographic and maternal determinants of low birth weight: A multivariate approach in community based prospective study was conducted in rural areas of Udipi taluka, Karnataka state to identify the socio-demographic, maternal and
obstetric determinants of low birth weight. All singleton line births that occurred in the study area during a one year’s period (Oct. 1991 to Sept 1992) were included. A total of 2919 singleton child-mother pairs formed the basis of the analysis. Information about socio, demographic and economic condition of the families, maternal factors such as age, parity quality of antenatal care and previous obstetric history was collected by interviewing the mothers and family members and verifying the available medical records through the field investigators especially recruited and trained for this purpose collected history. Data was analyzed using multiple logistic regression model. Primiparous, elderly mothers and mothers who had not received good quality antenatal care were found to be more at risk of having low birth weight babies. Other significant determinants were family customs, socio-economic status and environmental sanitation.

Education improves health:

(Jones J. 1995), “Improving health through schools.” Surveys in twenty-five developing countries show that all else being equal, one to three year schooling among mothers reduced child mortality by about fifteen per cent, and by much more when mothers had more education. In Peru for example seven or more years of schooling reduced the mortality risks by nearly seventy-five per cent.

The data from thirteen African countries for 1975-85 shows that ten per cent increase in female literacy rate was accompanied by a ten per cent reduction in child mortality.

Singhi, S., and Singhi, P. (1987) say in prevention of ARI, the factors responsible for ARI are breast feeding, nutrition, indoor environmental pollution caused by cooking fire and parental smoking and immunization and this can be supported by Mukhopadhyaya J. (1992). In his prospective study of factors affecting incidence of ARI among children found that breast feeding, nutrition, indoor smoke pollution, parental smoking habit and also immunization were the most important factors which affect the incidence of ARI. All the factors have been recognized as amenable to change. Therefore an effective preventive strategy has greater importance in reducing the ARI related mortality in young children.

Functional illiteracy is a growing problem. Nurses often rely on educational pamphlets of brochures as teaching aids for clients. However many are written at well
above the eighth grade level. A reading level below fifth grade is considered functional illiteracy.

Miller and Bodie chose a convenience sample of 100 subjects from in patients and ambulatory care are as of a veteran’s affairs center determined their reading levels, and correlated the reading levels of the subjects with their highest grade completed in school. Approximately sixty per cent of the sample held a high school diploma, a general education diploma, of a college degree, and the average grade completed was calculated as 11.6. However, eighty per cent of the veterans included into each sample were considered partially illiterate with the average veteran in the facility reading at a 5.6 grade level.

Implications for practice: The assumption that the last grade level completed equals reading ability is unwarranted.

Health education materials for the veterans in this medical center should be written at a fifth grade level. Replication of this study to other population to increase the generality of the findings should be completed.

Vidyuthlatha, conducted a study to assess the knowledge of mothers about risk factors of low birth weight in government maternity hospital, Hyderabad. The objectives of the study were to assess the knowledge of mothers about risk factors of low birth weight and to analyze the relationship between knowledge and selected variables, to identify the relationship between mothers knowledge and birth weigh of new born babies and to prepare an information module for mothers on risk factors and prevention of low birth weight births.

Population of the study was prim postnatal mothers with a normal live born baby admitted in postnatal wards. The sample size was 100, selected with purposive sampling. Structured interview schedule was prepared for data collection. Findings of the study revealed that eighty-six per cent of mothers were housewives and belonged to low income group. Eighty-two per cent were in the age group of nineteen to twenty-five years, sixty-eight per cent of mothers were from joint family. Forty-five per cent of mothers were from urban slum area and fifty-two per cent of them were illiterates.

Knowledge scores revealed that majority of the mothers had medium level knowledge about risk factors. There was significant relationship between mothers’
knowledge and age, type of family, place of living and socio-economic status. The mothers with high knowledge scores gave birth to normal weight babies. This hypothesis was supported by the findings of the study. The findings of the study revealed that about 50% of the mothers expressed their interest to know the prevention of low birth weight births. Based on the findings of the study an information module was prepared on risk factors and prevention of low birth weight births.

2.3 Mothers' knowledge and practices regarding ARI in children:

2.3.1 Care seeking:

Care-seeking for illness in young infants in urban slum of India (De Zoysa I, et al 1998) conducted a study. Interviews with eleven key informants (including five TBA), thirty-seven mothers, one M.O, twenty-two private practitioners, and three folk healers, were conducted in a slum of New Delhi to assess maternal recognition and interpretation of illness in young infants (one week to two months of age) and constraints to adequate provision of care. In addition data were gathered through repeated household visits for nine episodes of illness, unstructured observation of twenty-seven consultations, and visits to four hospitals and three nursing homes to interview key health care providers. The findings suggest that maternal recognition of illness is not a limiting factor in the use of health care services for young infants in this setting. Mothers are usually prompt in seeking care outside the home. They are not able; however, to discriminate among the many sources of health care available, and give preference to local unqualified private practitioners who show critical failures in the care of sick young infants. The effectiveness of care is further compromised by discontinued prescribed courses, frequent changes in practitioners and reluctance to seek hospital care.

An increasing proportion of infant mortality is concentrated in the first two months of life. In addition to social and economic development, and to better care during pregnancy and childbirth, good care management care is needed to reduce that burden of death. Prompt care seeking from an adequate provider is required for good case management. Mothers must be able to recognize and interpret key signs of illness to take proper action at home, and to timely seek adequate care out side home. Many factors affect the way mother seek care and choose prescription 1) while social and economic factors are hardly modifiable by health interventions, maternal knowledge and care-
seeking practices can be changed through good information and communication. In some setting, like in the urban slum of India mention above, recognition of illness may be adequate, while care-seeking is a problem. But good care seeking above may not be enough. 2) The appropriate referral and admission to hospital of severe cases, and the quality of hospital care, are other important determinants of good outcome.

Mother’s perceptions of severe pneumonia in their own children: a controlled study in Pakistan by (Mull D S et al). In this study about 320 mothers were interviewed at Pakistan’s Rawalpindi General Hospital. The main goal was to find which of the symptoms mothers saw in their children were most consistently linked with a clinical diagnosis of pneumonia as opposed to a common cold. Four groups of mothers with children were interviewed: pneumonia admission, outpatient pneumonia cases, common colds and children who were well. Mothers of children with either pneumonia or a common cold spontaneously mentioned fever and cough. However, when questioned about a list of symptoms, it seemed that mothers of children with pneumonia had recognized fast breathing and chest in drawing. When prompted, their reporting of fast breathing and or chest in drawing was highly correlated with pneumonia. (Sensitively 64%; specificity 90%) (Khan, M. 1995).

Recognition by mothers of the key signs of pneumonia (fast breathing or chest in drawing) is essential if pneumonia deaths are to be reduced. Before designing health education messages it is important to find out about mothers knowledge, local terms for illness, and to learn more about what influences health seeking behavior. This is especially important in countries with several languages, dialects and cultures. It is also necessary to focus on other social and economic factors that favor the survival of certain children and not others.

(Campbell H, et al, 1990) Acute lower respiratory infection in Gambian children: maternal perception of illness. A study in seven villages in the Gambia looked at the extent to which mother’s perceptions of ARI matched clinical diagnosis. During weekly visits by trained field workers over a period of a year, 500 children were examined for signs of respiratory infection. All the children who had signs of pneumonia, as well as any suspected cases, were referred to the project clinic for assessment and treatment. Their mothers were asked about any symptoms they had seen during the previous week.
Over the year the mothers reported about 4,500 episodes of respiratory illness. Symptoms included blocked nose, fever, cough, chest pain, fast breathing, open chest and refusal to feed. The term ‘open chest’ is used to describe a child whose chest is seen to be bigger than normal. There is no specific local term for chest in drawing. The term for chest pain, fast breathing and open chest were used to describe children with both fast breathing and chest in drawing.

Mothers identified cough and fever as the most common symptom associated with ARI. However, cough and fever are found equally with children with acute lower respiratory infections and in those with upper respiratory infections, indicating that they are not useful signs for recognizing pneumonia.

Mothers took children for treatment in forty per cent of episodes with fast breathing. Over half the episode took for treatment for chest pain or open chest. But mothers had also sought care for children with less serious symptoms such as fever and blocked nose.

Comparing mother's reports with clinic based medical assessments showed that cases where mothers had report chest pain, fast breathing or open chest were more likely to be confirmed as pneumonia than as an upper respiratory tract infection.

Community education to raise mothers awareness of pneumonia should emphasize these three symptoms as danger signs, and explain how children showing other symptoms do not need to see health worker, but can be treated at home.

What made mothers to seek health facility:

In Montevideo, the capital of Uruguay, many children with pneumonia are treated at the emergency section of the children’s hospital. Health workers or doctor referred some children for treatment, and their mothers bring others directly to the hospital. During a two years survey, data were collected on over four hundred children under five years old with ARI.

Hospital staff recorded the reason why each family decided to bring their child to the hospital. WHO criteria (respiratory rate and presence of chest in-drawing) were used to check whether or not the mother had correctly assessed the child’s condition, and whether or not referral had been appropriate and timely.
Over eighty per cent had correctly assessed that their child needed treatment. The most frequently mentioned sign, which prompted families to seek care, was fast or difficult breathing. However, in children aged three months and older, fever was also considered an important sign, often in conjunction with fast breathing.

Cough and/or being unable to drink were given as reasons for seeking treatment in a lower, but still significant, proportion of cases. Other signs and symptoms reported by a few mothers were bluish lips and tongue, general listlessness and vomiting, and interruption of breathing.

None of the mothers mentioned chest in drawing. Earache or purulent discharge was rarely mentioned as the sign that prompted them to seek care, even though examination found that children with pneumonia often had otitis media too.

2.3.2 Views and practice:

A Focused Ethnographic study of ARI was conducted in Ile-Ife, Nigeria by a team consisting of a social scientist from the local university, a ministry of health staff members and three research assistants.

Key findings of the study are as follows:

**Recognition of fast breathing:**

Fast breathing was not generally recognized by mothers, and was rarely noted when they watched videotape developed to assess recognition of ARI S/S. Because of the importance of fast breathing, as an indicator for immediate care seeking, the investigators recommended that mothers in Ile-Ife should be taught to recognize this danger sign.

**Interpretation of illness:**

The mothers regarded many of the s/s of ARI, such as fever, cough and even convulsions, as a normal part of a child’s development. This belief may prevent them seeking help when a child has signs of pneumonia and should be addressed in health education messages.

**Home treatment:**

When children in Ile-Ife have ARI, mothers often treat them with traditional herbal teas (agbo) or home made remedies for cough. Mothers may also buy antipyretics and antibiotics from the pharmacy or local drug sellers.
Antibiotic sales:

The study found that drug sellers and pharmacists routinely sell antibiotics to parents seeking advice for children with ARI. The investigators pointed out the need for interventions aimed at changing inappropriate behaviors of drug sellers and pharmacists and suggested training them to give health education messages.

Views and practice: (FES in Egypt) Key findings of the study are as follows:

- Mothers make a clear distinction between mild respiratory infection (such as coughs and colds) and more serious illness that affects the chest (such as pneumonia).
- The most commonly identified cause of ARI is rapid chilling of the body.
- 'Evil eye' is described as a possible but infrequent cause, and does not usually interfere with seeking medical care.
- There are culture-specific childhood illness that mothers believe must treated by traditional healers, but none of these include signs and symptoms of pneumonia.
- Respiratory symptoms in newborns thought to be caused by mishandling at the time of birth, i.e. either failure to keep the baby warm or to adequately clean the nose and mouth. The belief that nothing can be done for babies, have that respiratory symptoms are best treated by TBA, may prevent early care seeking.
- Mothers recognize the symptoms of rapid and or difficult breathing, but do not believe them to be serious or a reason to seek care. Fever and noisy breathing are of much greater concern.
- Respiratory infections are first treated at home with water flavored with sugar and spices such as fenugreek, mink, cumin and anise, mothers continue to breast feed during ARI, although they note that children often have decreased appetite.
- Fever is treated with aspirin preparation, often in combination with caffeine.
- Government health facilities are seen as sources of prescription but not of medical care.
- Mother often seeks advice and medicines directly from pharmacies without first going to see a doctor of other health worker.
• Most mothers are realistic and expect medications to make child better after two to three days. But there is a tendency to stop giving medicines when symptoms go or to save them for future episodes.

The implication from these two studies is to:

- Improve the quality and effectiveness of training health workers is to improve their skill in communicating with mothers, training materials must refer to terms that mothers use and take into account their expectations about treatment.
- Design messages in social marketing and communication activities.

Because of the similarity of the results from the two studies, the ARI program has been able to develop educational messages; which can be applied nationally.

• Initial home practices (use of tisanes, continued feeding during illness, and keeping babies warm) are appropriate and mothers will be encouraged to continue these.
• Aspirin is commonly and discriminatingly used at home. To avoid the risk involved, the program is stressing the use of paracetamol for the treatment of high fever.
• As mothers already recognize fast or difficult breathing the focus will be on teaching mothers that it is a serious symptom. The key massage is to take children to a health provider as soon as rapid or difficult breathing develops.
• Mothers need to be assured that staff at government health facilities can treat serious illness; mothers should not wait until they have the money to go to a private doctor.
• Mothers' expectations of medicines given for ARI are realistic. Instructions at health facilities will focus on encouraging completion of the treatment course and on discouraging keeping and sharing of medication.

As a result of the studies - The Egypt ARI Program: (decided to) –

• Direct health education massages not only to mothers to the family as a whole. Mothers have little decision making power especially in rural areas.
• Include pharmacists in training programs
• Produce single dose packets of antibiotics and make them available at the clinics.
• Develop a safe cough syrup and make it available at clinics.
Ashley, S. (1998) found in her study that there was a positive effect of teaching in the mother's knowledge and practices regarding the care of children with upper respiratory tract infection, in age group of 0-3 years.

Reena Bose conducted a study in republic of Maldives on knowledge and practice of mothers in connection with prevention of diarrhoeal disease in children below five years of age. The study indicated that lack of hygiene is most likely to have contributed to the diarrhoeal disease. Therefore researcher views that health education on these aspects may help in control of diarrhoeal disease.

Patil, A. (1994), found majority of mothers attribute the causes of ARI to bad weather and consumption of cold foods. Mothers feel rapid breathing as an indication of complication of ARI can be improved by health education.

Bandyopadhyay (1989) conducted a study to find out ability of mothers about providing care to their children with ARI and also to find out the relationship between family support and care management practices in a selected rural community of West Bengal, found that care ability of mothers were inadequate. Accepted pattern of health seeking behavior was found in forty per cent of cases. There was positive significant relationship with family support and ability to provide care.

Pradhan, I. (1991) had done a study to find out the effect of planned health education on knowledge of the mothers of infants admitted with acute respiratory infection. The study showed that knowledge and practices was improved significantly after education.

Vastrad, S. (1990). In India health of under-five children is not satisfactory. Child rearing practices play an important rôle in determining the health of children. The ignorance of the mothers is an important factor, which affect the health of her children, with this background the study was conducted in the primary health center, Nelamangalam to know the knowledge, attitude and practices of the mothers regarding child rearing.

The study showed majority (78.83%) of mothers started breast feeding on third day on an average they gave 5.78 times breast milk per day. Majority stopped breast-feeding because of insufficient breast milk and pregnancy. Most (78.3%) of them weaned their children after twelve month. Only few (6%) of the mothers gave daily bath to their
children. This shows rendering of very poor personal hygiene of the child. Few (18%) of the mothers took their children to doctors for minor ailments.

This shows that there is greater need of health education to the mothers regarding child rearing.

Trepka M.J. (1997). The effect of a community intervention trial on parental knowledge and awareness of antibiotic resistance and appropriate antibiotic use in children: A baseline survey was conducted during June to July 1997 and post intervention on survey of baseline participants during June to August 1998 in communities of northern Wisconsin.

Parents of randomly selected children less than four years of age 430 participants were in baseline, and 365 (80%) participated in the post intervention on survey.

Intervention- parent- oriented activities included distribution of material and presentations. Physician- oriented activities included formal presentations and small group meetings. Results: The percentage of parents with high degree of antibiotic resistant awareness increased more in the intervention area that in the control area (65%). In intervention area, there was also a larger increase in knowledge in knowledge regarding appropriate indications for antibiotic use, compared with the control area. The proportion of parents who expected an antibiotic for their child did not receive one declined in the intervention area, while it increased in the control area. In addition the percentage of parents in the intervention area who brought their child to another physician because they did not receive an antibiotic decreased, while it increased in the control area.

Mothers as a child health worker: Chaudhari, S. (1991) stated in his study that, mothers both in the clinics and at home do not receive the type of support they need from health workers, when their children fall sick. Majority of mothers are able to manage the scare commodities such as food, health care and other basic needs in a poverty situation quite effectively, the exceptions being during periods of stress. The odds that the mother has to struggle within a poor environment facing various kinds of discriminations and later in her husband’s household are analyzed.

The grass root health workers should available locally when the mothers need their help. The health workers should encourage the positive traditions prevailing. All
efforts should be made by the peer group, so that the mothers continue to receive support in bringing about the encouragement.

"Knowledge, attitude and practices regarding Acute Respiratory Infection." (1990): This study conducted by S. K. Kapoor, V. P. Reddaiah and G V S Murthy. One hundred and six mothers in a rural area were interviewed to determine as to how they recognize pneumonia in children, what therapies they practice with mild acute respiratory illness and pneumonias and the feeding practices they adopt. Most mothers recognized pneumonia by noticing fast respiratory rate and difficulty in breathing. More severe cases were recognized by these signs among a higher percentage of mothers. As regards management of mild ARI episodes, more than half the mothers preferred not to give any treatment of use only home remedies. In pneumonias a majority of them preferred to consult a qualified doctor. Nearly a third of them were of the opinion that they would take the child to hospital if the disease were severe. Regarding feeding practices, most of them stated that they would continue feeding, fluid and breastfeeds. Only ten per cent desired to stop and another fifteen per cent would decrease the amounts.

*Mothers were interviewed and responses were recorded on the pre-tested pro-forma.
Criteria- respondent had children below five years and not necessarily had a recent attack of ARI in her children.
*Respiratory rate > 50/mt., cough, cold fever in combination is the criteria for pneumonia.
*Pneumonia presence of chest in drawing, cyanosis, loss of consciousness, inability to drink water and convulsions suggests severe pneumonia.

A good attitude was observed regarding feeding of children during pneumonia. There were more than seventy per cent who would continue feeding which was in contrast to the findings of Kumar et al. However emphasis on continuing feeding during sickness needs to be laid in hospital education program. Regarding breastfeeding only 10.4% claimed restriction on which was for less than that reported by Kumar et al (1981).
2.4. Health education to mothers:

A study was carried out in a rural province in Turkey to find out the best way to teach mothers about when, and when not to take their children to the health center.

One group about fifty local women was given a detailed account of how to recognize pneumonia, when and why to seek medical help, and the use of supportive therapy. A second group was taught two simple points:

- Go to a health facility if a child with cough has faster or more difficult breathing than normal.
- If a child has cough and/or running nose and or sore throat, treat for fever with an anti-pyretic (a brand specified by the educators), give food and drink more often than usual, and check how fast he or she is breathing.

Local midwives taught both groups over a five-day period. Afterwards, health personnel monitored the children of the women in both groups for six months. The women’s assessments of their children’s respiratory infections were compared with medical diagnoses. During this time the health-centers in the area covered by the project recorded more ARI cases than during the previous six months winter period, suggesting that mother’s awareness of ARI had increased overall.

In the 1st group, which received more detailed information, the doctors confirmed only forty-six per cent of pneumonia cases identified by mothers. In the second group, mothers recognized sixty-nine percent of the total number of cases.

The 1st groups’ poorer understanding of pneumonia meant that fewer of their assessments was correct. Many more women in the 2nd group had made correct assessments of their child’s condition. Simple education had more success in teaching women to recognize pneumonia.

Focus ethnographic study: an ARI research tool.

Teaching parents when to seek medical help for their children is crucial to ARI control. To get this information across, health worker need to understand local beliefs and terms. ARI news looks at a new research method designed to improve communication.

People explain, classify and manage illness largely according to past experience, cultural beliefs and tradition. When health workers know about local beliefs and
practices, and make use of familiar terms and concepts, communications with families will be improved.

The WHO program has developed a research protocol called the Focused ethnographic study (FES). The protocol is a standardized method for collecting information about communities’ perception and practices related to ARI. It aims to streamline research and to ensure that results can be easily used. The FES is an intended to be used by trained researchers. The information is collected from:

- Six to eight key informants (grandmothers, mothers, teachers, traditional healers and C. H. workers).
- A community based sample of 25-30 mothers or careers.
- A clinical sample of 25 –30 mothers seeking care for children with ARI.
- A representative sample of local health workers and
- Pharmacists and drug sellers.

Researchers use this information to identified commonly held local beliefs and to analyze how locally recognized signs and symptoms related to the clinical definition of ARI, in particular pneumonia. Information is also sought about the usual patterns of seeking out side help for ARI, and the reasons why mothers do not seek medical advice.

This information can be used to construct massages that families understand, as well as other aspects of ARI program planning.

Jenny (1978) says that the nurse is the only person constantly at the bedside of the patient. She is a defacto educator and coordinator of patient education in the complexity of his care. The nurse has more opportunity for patient teaching than any other member of the health care team.

Mcleod Clark (1981) found that nurses spend only ten per cent of their time communicating with patients. It was therefore not surprising that little patient teaching is being done.

Anne Close (1988) in her literature review about patient education on identified barriers that came in the way of effective patient teaching. She stated that it is generally agreed that it is the part of the nurse’s role to educate patients, but often this is not carried out in reality. Where it is done it is mostly unplanned and haphazard.
effectiveness is uncertain. There are many reasons she cited such as inadequate education and training of nurses for this role, lack of knowledge about the content of teaching, lack of communication skills, lack of teaching skill, low priority to educating patients.

A study done by Kumar, J. on effect of planned health teaching to the mother on selected area denote care at home, the study showed that there is significant improvement in the knowledge and practice of mothers. During home visit the practices were observed and it was satisfactory.

It can be concluded that planned teaching brings effective change in mother’s knowledge and practice.

Frona’s et al conducted a study to find out the effect of health education compliance with anti-tuberculosis chemprophylaxis in school children in Poland, and found that after health education by nursing personnel better result were obtained and parents improved their practices related to the drug regime.

Noble (1991) discussed the importance of new well nurses educate their patients and what strategies the profession may need to consider in order to meet educational needs of the future. She concludes that nurses can be effective educators. However they need to improve the skills, knowledge, motivation and support to organize and implement an adequate program of patient education.

Jones (1983) suggests that one of the underlying principles in deciding should take responsibility for appropriate health education is that those have the closest contact with the individual should do it.

According to Gupte S. (2001), health education is very effective in bringing about a significant improvement in knowledge. What is most noteworthy and, perhaps, ignored in the past, reinforcement of the awareness exercise periodically is necessary for deriving optimal benefit from health education/ awareness programs.

Health education impact depends on many points. In the first instance, equality and intensity of health education with which it is delivered to the target mothers has a considerable bearing on its impact. Half-hearted messages, delivered in haste, often prove counterproductive. Friendliness, knowledge of the local dialect, customs and practices are important for the competent educator. So are the conviction and enthusiasm! For instance, a health worker who is, herself ambivalent about the benefit of feeding during
the diarrhoeal episode is not expected to pass on such an advice effectively to the mothers.

Secondly, the "receptiveness" of the mothers is extremely important for health education to be really effective. Patiently listening to the patient's problems and queries is bound to enhance better communication and produce better confidence in her.

Thirdly, despite availability of several educations to parents, the one-to-one approach remains matchless. There is evidence that face-to-face guidance ensures correct instructions to all households.

Fourthly, though a large chunk of health education has rightly been directed at the mothers in the past, there is now a felt need for involvement of the men too. Else, the beneficial effect is likely to remain "poorly cooked" if not exactly half-cooked. Naturally, such a massage is bound to be inadequately digested and absorbed with insufficient dissemination of knowledge, including teaching of such vital skills as recognition of dehydration signs, preparation of ORS, etc. to the family as also to the community.

And, finally, nutrition education must be considered a part and parcel of health education in any disease. The major messages for the mother should include exclusive breastfeeding for at least first five to six months, timely introduction of semisolids, and continuation of feeding during an episode of illness.

Active participation of the community, which is central to the success of any health education strategy, should rank supreme.

Mangala S. & et al. (2001), studied the impact of educational intervention on knowledge of mothers regarding home management of diarrhoea. A pre and post comparison study was carried out in Karnataka to assess the impact of educational intervention on the knowledge of mothers of under five year children on home management of diarrhoeal diseases. Sample of 225 mothers were included in the study. The study was conducted in three stages. Stage I – initial knowledge, attitude and practices of mothers were assessed. Stage II- one to one educational intervention was conducted and supported by audiovisual aids and live demonstration. Stage III – included post intervention knowledge, attitude and practice after two months and two years. In this study knowledge questions were standardized using the sigma weightages.
The study revealed that several aspects regarding knowledge of mothers in home management; of diarrhoeal diseases improved significantly two months after the educational intervention. Though the proportion of the mothers retaining the knowledge dropped at the end of two years, there was statistically significant improvement when compared to the baseline study.

This shows that there is a need to reinforce the knowledge at frequent intervals. The use of instructional manual will be more appropriate because mother can repeatedly go through the manual.

Narrow (1979), parallels patient education to the nursing process in terms of its stages, therefore implying a need for a very detailed assessment before a teaching plan can be developed, implemented and evaluated. Therefore a solid knowledge base, good communication skills and interpersonal skills are essential if the nurse is to carry out an adequate assessment of the patient’s educational needs and readiness to learn.

Teaching the patient what he already knows is a waste of time and energy (Wilson Barnett 1985) and teaching an irrelevant mater becomes frustrating and confusing. (Spice, 1982).

Smith (1989) insist that current cost containment in health services will bring client education issues to the forefront of economic debate.

Indeed, the over riding argument for developing client education is a key facet in nursing is emerging, not just on health grounds, but as a consequence of in creating financial stringency. Therefore we have to direct our energies to develop client education in nursing practice.

2.5 Developing self-instructional materials:

Studies have found that nurses and patients differ in rating the importance of patient education topics. Generally, studies have found nurses information about mediation more than patients’ value this information.

In contrast to nurse’s priorities, patient’s rated risk factors as a higher priority for learning than medication. Nurses ranked the psychological category as more important than patients’ ranked it. (Gerard and Pelerson 1984, Karlil and Yarcheski 1987, Karlil et al 1990).
Patients and nurses may value different information and that patients may not believe it is realistic to learn all the information while hospitalized. Unfortunately, no research has been reported documenting mothers or nurses’ perceptions of ARI mothers learning needs.

The nurse, as a key member of the health care team, share responsibility for educating clients in a variety of health related settings. However, the challenge associated with increasing client autonomy necessitates a shift in the thinking of many nurses. Nurses are in a unique position to maximize the health potential of the client so it is imperative that this responsibility is recognized as an inherent aspect of professional practice.

Moran (1995) in the study of quality indicators of patient information in short-stay surgery units, expressed that printed information appeared highly desirable. Benefits of having printed information for support and advice were obvious with patients and caregivers reporting frequently referral to the leaflets. Take home written information is increasingly used to reinforce verbal instructions given in the health care settings.

Jacob, M (1996). Teaching using planned instructional material helped in improving knowledge and practice of parents with regard to the care of their children receiving chemotherapy. Parents gave opinion that the instruction material was useful to them.

Pohl (1965) says lack of time, heavy work load and inadequate staffing were often cited as reasons for not doing patient teaching, but it is occasionally due to lack of desire or poor organization.

Dodge (1972) found that there is disagreement between patients and nurses over information they should receive and concluded that the information the patient saw as was information they had not yet received.

According to Cartwright (1981) all patients have information needs and they are keen to learn about their disease condition.

Robert V. (1978) described that patient education encompasses two important objectives. The objective is to provide vital information which patients need in order to manage their lives in a better manner. The second objective should be to give support and encouragement to individuals who are experiencing health crisis.
Smith (1979) Nurses are often the most immediate source of information whom patient can approach and they form largest group of health care workers.

Gregor (1981) conducted a study to compare the effect of a self-instructional booklet designed to teach basic facts about myocardial information, unstable angina and treatment with routine instruction. Those having instructional booklet and significantly higher posttest and retention score that the patients receiving routine instructions.

Parinello (1983) conducted a survey among twenty-eight patients hospitalized for vascular surgery, to determine the effectiveness of a preoperative teaching booklet. The booklet was rated as very helpful a by eighty per cent of the patients. Its helpfulness was increased when discussed with a member of the health care team.

Lamb (1984) in the study, patients understanding of a teaching manual on cardiac catheterisation, found put patient fully cooperated with the medical plan of care since they got a basic understanding of the procedure from the manual.

Russel (1974) says there is more to it than just pictures. Creating patient education booklet requires more than just sitting down and writing.

The steps in preparing such a booklet are closely related to the six steps, which are used for designing, developing and validating modular instruction. The steps are: Specifying objectives, constructing criteria, analyzing learner characteristics and specifying entry behavior sequencing instruction and selecting media, trying out the module, and finally evaluating the module.


Finding of the study shows that policy makers and planners of health education activities were interested in quantitative results, that’s why fulfilling required targets, were one of the major hindrances in adoption of A.V. media for health education.

Most of the time the selected A.V. media were not suitable for personal hygiene health education. Inconvenient communicating facility was one of the hindrances in making use of A.V. aids for health education in the community.

Time limitation, limited manpower, and lack of researchers, inconvenient transportation system was some of technical problems behind not making proper use of A.V. aids in the field.
International consultation of representations of government and UN Agencies was held in Washington, on control of acute respiratory infections amongst children. The meeting endorsed the following six points global approach (WHO, 1983):

- Training.
- Supplies and logistics
- Information to mothers.
- Immunization.
- Vaccine for pneumonia.
- Preventive measures against low birth weight and indoor pollution.

The most important outcome of this meeting was the recognition that pneumonia now ranks 'First' among the cases of child mortality, where the ORT is being successfully implemented.

Training and education:

Kumar V. Has described a program in India in which primary health care workers and the community is learning about ARI. A study was conducted in Haryana a province of north India.

A part of ARI control program, training material and education aids, which summaries simply what is known about ARI has been developed. These illustrated materials are produced in English and local languages to help people to recognize severe ARI, which requires treatment or referral. They are used as talking points during health education along with other educational materials and include:

- Posters describing the signs of pneumonia, with spaces for the names of health workers and place of treatment to be filled in to help families locate the place in the village. The posters were displayed in prominent places in village schools, grocery shops and community centers.
- A simple pocket size booklet for PHC workers, which contains guidelines on diagnosis and treatment.
- A manual for trainers and supervisors of PHC workers and charts, which provide overview of program activities.
- Illustrated cards use to make good starting points for discussions.
Families, which have experienced favorable outcomes with ARI following standard management guidelines, are encouraged to discuss their experiences with their friends, neighbors and relatives.

The impact of training and health education has become measured directly and indirectly in Haryana. Randomly selected PHC workers have been given multiple-choice questionnaires. Correct responses to twelve questions have varied from fifty-three to 100 per cent.

Increased use of standard treatment by PHC workers and a significant increased in the acceptance of co-trimoxazole therapy have been documented. This is in contrast to the poor utilization of existing health facility in other areas. The indirect impact of the training program has been seen in a dramatic fall in ARI related mortality in children in the province.

Lalramdini, (2002), conducted a study on development of self-instructional module for mothers on care of L.B.W. infants. The approach was descriptive in nature. The sample consists of thirty mothers of LBW infants whose infants are less than sixteen weeks old. The samples were selected based on predetermined criteria and on their availability. The technique employed for sampling was non-probability convenience sampling. During the study, it was observed that all mothers needed information on care of L.B.W. infants. Even though majorities of the infants (70%) were delivered in hospital, mother usually not informed about the birth weight of infant being low and its implication. The preparation of self-instructional module was well appreciated by the mothers. All understood information in the module and module was given a rating of very good by majority of the mothers.

Vishvasrao, (1998), conducted a study on development of an informational booklet for patients attending the Cardiac Surgical O.P.D. The approach was descriptive, evaluation in nature. The sample consisted of fifty patients who were selected according to availability, criteria laid down and willingness to participate in the study. The tool used for data collection was questionnaire and the technique used for data collection was the Interview method. Most of the patients expressed the need for information in all areas. The response obtained from the interview contributed towards developing the booklet, which was given to patients and their relatives. Most of the sample responded that the
booklet was very useful for them and the information was adequate. They also expressed that having gained information; the cardiac surgical OPD environment was less frightening to them. The findings supported that written information is useful in their coping.

Sandler et al (1982), looked at the recall of patient who was given an information booklet on discharge from the hospital. 130 patients discharged from the hospital were alternately chosen to act as control or to review an information booklet. Result of the study indicated that of those in the group that received the booklet, eighty-six per cent knew the names of the drugs, ninety-five per cent knew how to take them and eighty-five knew the reason for taking the drugs. This was for higher than in the control group of whom forty-seven per cent knew the names, fifty-eight per cent the drug and only forty-two per cent the reason for taking the drugs. This implies that those who were given a booklet on discharge from the hospital has an increased level of recall about their drug therapy than those who were not given written information.

A study was conducted by Gauld (1981) to evaluate the effect of written advice on patient compliance and recall. Total samples in the study were 100. Two groups with urinary tract information were randomly allocated to receive written and verbal information or verbal information only. Result of the study at the follow up indicated that, those who were given both sets of information were able to recall better and had increased amount of information over those who had received only verbal information.

From these studies, it can be concluded that written information in various forms, leaflet, booklet, module etc. help to strengthen and grow in the initial level of knowledge and given guidance to put the knowledge to practice when needed.

Judith Noronha, (1998) conducted an experimental study to identify “information need” of pregnant women. Based on this information, a booklet was developed and tested for its effectiveness, in improving knowledge of warning signs for thirty-three pregnant women using a one group pre-test, post-test design. The finding reveled that the mean post-test score of eighty-nine per cent was significantly higher than the mean pre-test score of twenty-six per cent. This indicated that the information booklet was effective in increasing the knowledge of pregnant women regarding warning signs.
• Many times patients and family members do not get complete health information, which creates anxiety and causes difficulty in coping with disease condition or health care services.

Gulani, K. et al (1988), concluded an Experimental Pilot Study in an Indian rural setting to assess father’s level of knowledge of DPT immunization and to measure the effect of a formalized teaching programme for fathers on completion of immunization schedule for their infants.

A randomized, pretest, post-test control group design was used. The sample was selected at random to include nine fathers in the experimental group and fourteen fathers in the control group. A one-hour formal immunization target programme was developed by researchers and taught to fathers in the experimental group. A questionnaire was used to assess the fathers’ level of knowledge about immunization before and after the formal target programme.

The experimental group acquired significantly more knowledge than the control group. A high the co-relation between father’s education level and level of knowledge of immunization was found.

Chatterjee, S. (1988), a study was conducted to assess the learning needs of leukemia patients. A structured interview schedule was developed to assess the subjects’ knowledge and their expressed needs to know more about home management in leukemia. The findings revealed that the leukemia patients and their attending relatives had specific learning needs regarding home management of these patients, as revealed by their low knowledge and high expressed desire to know.

A self-instructional module was prepared and tested on an experimental group of patients and relatives. It was found that the module was effective in bringing about changes in cognitive behavior of leukemia patients.

The study highlights that patients require self-instructional material to become more responsible for their own health under the guidance of health professionals.

Lalramdini (2002), conducted a study on development of self-instructional module for mothers care of low birth weight infants. The approach was descriptive in nature. The samples consist of thirty mothers of low birth weight infants whose infants are less than sixteen was old. The samples were selected based on predetermined criteria
and on their availability. The technique employed for sampling was non-probability convenience sampling. During the study, it was observed that all mothers needed information on care of low birth weight infants. Even though majorities of the infants (70%) were delivered in hospital, mother usually not informed about the birth weight of infant being low and its implication. The preparation of self-instructional was a scientific process involving various steps. The prepared self-instructional module was well appreciated by the mothers. Information of the module was understood by all and module was given a rating of very good by majority of the mothers.

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Many times patients and family members do not get complete health information, which creates anxiety and causes difficulty in coping with disease condition of health care service.

Downs and Fernbach (1973), report on experimental study designed to assess the effect of a prenatal leaflet series on knowledge and subsequent behavior. A Solomon four group design was used with a starting sample of 286 subjects drawn from the Maternity and Infant Care family planning projects. No differences in information level were found, nor were knowledge and behavior related.

Garrey and Kramer (1983) compared the effects of a structured self-paced educational program to the effects of a previous method of one-on-one teaching by a nurse. The instruction was designed to help thirty-two cancer patients self-administer chemotherapy with a portable infusion pump. Results showed that the self-paced program decreased teaching time by fifty per cent, eliminated the need for outpatient teaching, reduced the number of night time phone calls for help and resulted in higher patient satisfaction.
Young and Brooks (1986) used sixteen multiple sclerosis patients randomly assigned to an experimental and control group to determine the effectiveness of a teaching manual concerning medication. Both groups were given instruction by a physician and a nurse, and the experimental subjects also received a patient information manual. The experimental group had significantly higher post-test scores than the others.

Lamb (1984) evaluates the effectiveness of a teaching manual about cardiac catheterization for use by patients. A total of thirty patients scheduled for elective cardiac catheterization, served as subjects. They were pre-tested, given the booklet and then given the post-test. Finding supported a significant increase in mean scores from pre-test to post-test.

Gregor (1981) compared the effects of a self-instructional booklet designed to teach basic facts about myocardial infarction, unstable angina, and treatment with routine instruction. A total of 100 patients from two hospitals were assigned randomly to the control or experimental group. The dependent variable was knowledge acquisition and retention. Those completing the self-instructional booklet had significantly higher post-test and retention scores.

Lalrinhlui conducted a study to develop an information booklet for caregivers on care of a patient with depression. A descriptive research approach was used. The study consisted of fifty samples. The caregivers existing knowledge was analyzed. The caregivers needed information regarding care of a depressed patient. The caregivers lacked the knowledge about the variance aspects of care of their depressed patients. The information booklet was prepared and was given to the caregivers. They felt the content was adequate in all the areas of care and the caregivers appreciated it.

A descriptive evaluative approach was used for development of a booklet for parents of neonates admitted to the neonatal intensive care unit, based on the information needs. The sample consisted to thirty mothers whose neonates were admitted to neonatal intensive care unit and questionnaire was used for data collection. The result of the study indicated that all the parents were in need of information, but they did not know what kind of information they were entitled to, whom and when to approach for obtaining information or what response they would get to their queries. The booklet helped the
parents in getting the information of the neonatal and regarding his care. (D’ Souza, A 1996)

Alphonso, L. (1994), conducted an exploratory research approach study on evolving an instruction manual for patients undergoing diagnostic cardiac catheterization. The purpose of the study was to find out the view from doctors and nurses about the same. Based on these findings an instruction manual was prepared. From three municipal hospitals thirty patients, fifteen nurses and fifteen doctors were selected as samples. The study concluded that patients prefer to receive information in the OPD from the doctors and later in the ward they would like the nurses to provide them further information. Doctors and nurses felt that clients should be furnished with the necessary information.

Lalhlimpuli, M (2003), conducted a descriptive study to develop self explanatory booklet on home care of hypertension for general public at a selected area of Malvani. The study included thirty samples of variance categories such as skilled workers, semiskilled workers, unskilled workers and housewives. The knowledge and learning needs were assessed by interview method. Based on long needs the self-explanatory booklet was prepared. The study showed that the subjects needed information on home care of hypertension. Even-though majority had received information through various sources their level of knowledge was not adequate. The booklet was understood and appreciated by all the subjects.

Vasundhara T. (1999), conducted a study on “The effectiveness of the instructional module on self care practices of renal transplant patients.”

Helping patients to learn to care for themselves has been an integral part of nursing practice. Self- instructional modules (SIM), which impart information and develop new cognition offer potential, effective and relatively inexpensive tools for patient education. The study was done in two phases. In the first phase a survey approach was used for learning needs assessment. In the second phase a SIM was developed and evaluated through pretest, post-test control group design. SIM was prepared in the form of booklet based on findings of learning needs of such patients. The control and experimental group had fifteen renal transplant patients in each. The finding of the study revealed that the mean post-test knowledge score of experimental group was significantly higher than that of the control group. The study reports the effectiveness of a (SIM) in the
self care of a patient with renal transplants. SIM is a simple, convenient and time saving method for providing information to renal transplant patients. A specially designed information booklet on ‘warning signs in pregnancy for primigravid women’ (Judith, 1966) was found to be higher effective in self-care and assessment of pregnant women.

However, self instructional modules have a limitation that the self-instructional module can be used only with educated patients.

Bairwa, conducted a study to develop and evaluate the effectiveness of an informational booklet on cancer risk factors. The study population was college students. The one group pre-test post-test experimental research design was adopted for the study. Convenient sampling method was used to select the population. The reliability of knowledge questionnaire and opinionnaire were computed using Kudar Richardson twenty formula and test-retest method was found 0.98 and 0.65 respectively. Pre-test was given the informational booklet was given on day one and post-test was administered on 7th day after collecting back the informational booklet. The data collected was analyzed in terms of frequency, percentage, mean, median, standard deviation and 't' value.

Finding of the study were: The information book was effective in increasing the knowledge of the college students as evident from 't' (29) = 52.44 P < 0.05 and 0.01 computed between pre-test and post-test knowledge scores. It was also indicated that the informational booklet was acceptable and useful.

From these studies, it can be concluded that written information in various form e.g. leaflet, booklet module etc. help to strengthen and increase level of knowledge and helps to practice accordingly.
2.6 IMPLICATIONS FOR THE PRESENT STUDY

- Diagnosis of the pneumonia is done by stethoscope by seventy five per cent of the practitioners, whereas only few use respiratory rate as first choice for diagnosis. And maximum go for X-ray chest for diagnosis.
- Maximum practitioners use antibiotic and Ampicillin and Erythromycin as the drug of choice and very few chooses to give cotrimoxazole whereas WHO has recommended this in its standard case management of ARI.
- From the fact and figures, it is clear that ARI places a considerable strain on health services throughout the developing world.
- ARI is an important cause of high morbidity and mortality among children under five years. The threat posed by ARI to child survival in India is tremendous. It is estimated about 0.75 million children below five years die of ARI every year in India.
- There is inappropriate antibiotic use for cough and cold. Some children with pneumonia do not receive antibiotic. Very few caretakers (mothers) know correct home care of the children with ARI. Hence we have to promote the standard case management of ARI and educate the mothers about the correct home care.
- The study in Pakistan shows that the cost of antibiotics use can be reduced be using WHO guidelines. An effective use of ARI treatment guideline had a rapid impact in reducing pneumonia deaths among children.
- The tachypnea is used as a diagnostic criterion for childhood pneumonia as the primary health care workers cannot use stethoscope. The mothers also can be taught how to count the respiratory rate and they will seek the medical help if tachypnea is observed.
- Zinc supplementation reduces the incidence of acute lower respiratory infections.
- Vitamin ‘A’ deficiency increases the risk of respiratory infection.
- Use of pacifier leads to risk factor for acute otitis media and when it was restricted to use only when child was falling asleep effectively prevent episode of acute media.
Breastfeeding, nutrition, indoor environment pollution caused by cooking fire, parental smoking and immunization are the most important factors which affect the incidence of ARI.

All the factors have been recognized as amenable to change. Therefore an effective preventive strategy has greater importance in reducing the ARI related mortality in young children.

Whereas the study conducted in UK to find out the association between URTI and air temperature and humidity in the home found no association between URTI and type of home, family size, level of occupancy, smoking habits, temperature and humidity which were compared with non infected children.

These are the factors which influence ARI should be kept in mind while collecting the data and developing the Self-Instructional manual.

Fever and cough and when questioned faster breathing these were the clinical findings mothers saw in their children according to them it could be pneumonia.

Fast or difficult breathing and fever was an important sign for the mothers to seek the care.

Mothers are prompt in seeking care but not able to discriminate from when to seek health care. Many prefer to go to unqualified private practitioners and traditional healers and also frequent changes in practitioners and reluctance to seek hospital care.

Mothers identify cough and fever as common symptom of ARI. Mothers seek medical help when there is fast breathing but also many seek help when there is fever and blocked nose.

The Gambian use the term chest pain, fast breathing and open chest for fast breathing and chest in-drawing. The mothers reported cases with these symptoms were clinically diagnosed as pneumonia. Hence mothers play a key roles for identifying the symptoms and seeking prompt help and prevent moderate illness progressing towards sever illness.

Mothers know that fever is danger of death due to pneumonia. Maximum mothers restrict the food during illness. Many mothers prefer modern system of medicine
but very few of them utilize the hospital service. Many of them go to traditional local rural medical practitioners.

- Majority of mothers in rural area start breastfeeding on the 3rd day and stop breast-feeding early because of insufficient and pregnancy. And weaning is also done late and personal hygiene of the children is not given attention and few mothers take their children for minor ailments to doctors.

These entire practices child rearing are the influencing factor for ARI.

- Mothers feel bad weather and cold food consumption is the cause of ARI.

- Study conducted in Nigeria shows that, fast breathing was not generally recognized by mothers. But it is an indicator for immediate care seeking. Therefore mothers should be taught to recognize this danger sign.

- Maximum mothers believe the traditional local doctor to be sought and have remedies for cough. Some mothers directly seek medicine advice from pharmacies and give haphazard drug regime. There are frequent changes in practitioners.

- Accepted pattern of health seeking behavior is found in some mothers but care ability of mothers is inadequate, whereas there is significant positive relationship with family support and ability to provide care.

- Well-planned health education to the mothers shows a significant improvement in the knowledge and practices of the mothers.

- It is observed that simple, minimum to the point information is retained by the mother than detailed information. Mothers are able to identify the danger signs, seek the medical help in time, and initiate medical treatment on time if simple instructions are given.

- When mothers receive information they are able to see the symptoms in their children and seek the medical help, and maximum cases the clinical diagnosis by doctors regarding pneumonia and the mothers identifying the danger signs and symptoms coincide, this shows education does make a significant improvement.

- If health education improves health practices who will do this? I am sure the answer is Nurse. Since she is the one who is constantly with the patient. And one
of the role of the nurse is patient educator. In this study the mothers have to be educated in childcare.

- Patients express the printed information, booklet as high desirable. The patients fully co-operate with the medical plan of care because they get the basic understanding from the procedure manual.

- The manual patient can go through it and retain the information. They can refer to it repeatedly.

- Warning signs in pregnancy for primigravida women was found to be highly effective in the self-care and assessment of pregnant women. The self-instructional module in the self-care of patient with renal transplant showed an effective teaching module. It is considered as a simple, convenient and time saving method for patient teaching.

- The mothers understand the simple. Clear, specific and their local language instruction, than the more complicated and difficult teaching.

While developing the instructional manual the patients needs use of language, local terms for the symptoms, or medical jargon, literacy level of the group all these aspects have to be kept in mind.

2.7 Related Literature about ARI

2.7.1 Introduction

ACUTE RESPIRATORY INFECTION

Acute respiratory infection (ARI) is not just another disease. It is a very important cause of high morbidity and mortality among children under-five years. In India of all the deaths among children under-five years of age, approximately fifteen to thirty percent are contributed by ARI. Data from community based studies suggested ARI mortality rate of 642.5/100,000 children under-five years in India. It is estimated that about 0.75 million of children under the age of five years die of ARI every year in India.

Different studies both within and outside the country has shown that, mortality from ARI could be significantly reduced through proper case management. This resulted in introduction of ARI control programme. On a pilot basis in selected districts and later it became a part of the primary health care system.
Now we will discuss what is ARI? Acute respiratory infection comprises a group of conditions caused by a variety of pathogens, including bacteria and viruses. ARI is defined as an episode of acute symptoms and signs resulting from infection of any part of the respiratory tract or any related structure including para nasal sinuses, middle ear and pleural cavity. A new episode is one occurring in an individual, who has been free of symptoms for at least forty-eight hours. ARI is often classified by clinical syndromes depending on the site of the infection and is referred to as ARI of the upper (AURI) or lower (ALRI) respiratory tract.

The working group of WHO which met in 1985 to draft proposals on the classification of ARI for the tenth revision of the International Classification of Diseases recommended that ARI should be broadly into two groups; that is upper and lower respiratory infections. The upper include common cold, pharyngitis and otitis media. The lower include epiglottitis, laryngitis, bronchitis, bronchiolitis and pneumonia.

2.7.2 Signs and Symptoms:

ARI may involve many areas of the respiratory tract and there can be a wide variety of signs and symptoms. They primarily include: cough, difficult breathing, sore throat, runny nose, fever, ear pain etc. A community-based longitudinal study has observed the following signs and symptoms in ARI:

- Cough, runny or blocked nose, fever, rapid breathing, in-suction, ear discharge, ear pain, wheezing, food refusal, grunting, irritable stridor, sore throat, hoarseness, listless.

The above information can give some ideas about the presenting features of ARI. However, sometimes ARI may present itself, particularly in 0-2 month’s old infants, which non-specific and vague manifestations.

2.7.3 Classification:

The classification of acute respiratory infection is complex and difficult. Some commonly used classifications are as follows:

I. Aetiological classification: * Viral, * Bacterial * Fungal * Mycoplasma * Allergic
II. Anatomical classification: * Rhinitis * Otitis media * Pharyngitis * Sinusitis * Tonsilitis * Epiglottitis * Laryngitis * Tracheitis * Pneumonia.

III. Classification as per site of involvement:
Upper: upper respiratory infection, pharyngitis.
Mid : epiglottitis, laryngo-tracheo bronchitis.
Lower: bronchiolitis, pneumonia.

IV The working group of W.H.O. in tenth revision of International classification of diseases recommended that ARI should be classified broadly into two groups: upper and lower respiratory infections.
Upper: Cold, ear problem (otitis media) and Sore throat (Pharyngitis).
Lower: Croup, obstructive laryngitis (epiglottitis, laryngitis, Tracheitis), Bronchitis, Bronchiolitis and Pneumonia.

V Giving considerations to the management of ARI at primary health care level, W.H.O. has classified ARI as follows:

The Functional Basis of Respiratory Pathology:
Airways: The basis structure of the airways is already present at birth, and thus neonates and adults share a common broncho-pulmonary anatomy. Airways within the lung, however, are quite asymmetric at all ages. When airways divide, there is a variation in the size and number of branches, and depending on the location there may be anywhere from 10 hilar region to 25 based region airway divisions before the gas-exchanging units are reached. As the bronchi branch and decrease in size, they lose their cartilage and become bronchioles. Ultimately, a terminal bronchiole opens up into the gas-exchanging area of the lung.
STRUCTURE OF RESPIRATORY SYSTEM
FIG NO 4
The airways are lined with an epithelial membrane that gradually changes from ciliated pseudostratified columnar epithelium in the bronchi to a ciliated cuboidal epithelium near the gas-exchanging units. Ciliated cells predominate throughout this epithelium and are responsible for propelling mucus from peripheral airways to the pharynx. This mucociliary transport system is an important defense mechanism of the lung.

Goblet cells are seen in the trachea and bronchi. They produce mucin within their rough endoplasmic reticulum and Golgi apparatus. Mucin is a viscous mixture of acid glycoproteins that contributes to the mucons larger; Goblet cells can increase in number in disorders such as chronic bronchitis, the result being mucons hypersecretion and increased sputum production.

Terminal Respiratory Unit: The terminal respiratory (gas-exchanging) unit consists of the structures distal to the terminal bronchiole, the respiratory bronchiole (bronchiole with alveoli budding from its wall), alveolar ducts, and alveoli. The alveoli are lined by two types of epithelial cells. The type I epithelial cell is an extremely broad, thin cell that covers 95 per cent of the alveolar surface. It is markedly differentiated cell possessive few organ cells. The type II epithelial cells are more numerous than type I cells, but owing to their cuboidal shape, type II cells occupy only five per cent of the alveolar surface area.

There is a thick side and a thin side to the alveolar capillary membrane. Gas exchange occurs predominantly on the thin side.

Mechanism of Respiration:

Muscles of Respiration:

The importance of the muscles of respiration derives from the fact that these muscles, like the myocardium, can fail under abnormal circumstances and can induce or contribute to an impending or existing ventilatory failure. The principal muscle of respiration is the diaphragm, a thin musculotendinous sheet that separates the thoracic from the abdominal cavity. Other skeletal muscles located in the chest of abdominal wall, such as the intercostals, the scalenes, and the abdominal muscles, can play an important role in ventilation. During normal breathing, most of the accessory muscles are silent. However, during abnormal conditions of disease states, these muscles are recruited to stabilize the chest of abdominal wall so that the diaphragm may be more effective. In
addition, it has been demonstrated that the external intercostals muscles contract in acute asthmatic attacks not only during inspiration but also during expiration; this contraction maintains a higher lung volume and hence increases airway diameter.

When airways are occluded during inspiration, abdominal muscles contract powerfully during expiration, pushing the abdominal contents and diaphragm toward the thoracic cavity. This action lengthens diaphragmatic fibers and enhances the capability of the diaphragm to generate force during the subsequent inspiration. The upper airways must be kept patent during inspiration, and therefore the pharyngeal wall muscles, genioglossus, and arytenoid muscles are properly considered muscles of respiration.

**Epidemiological Triad**

Acute respiratory infection is the result of interactions between three epidemiological factors i.e. host, agent and environment.

**Host:** children may vary not only in their genetic makeup, but also in the natural and acquired immunity of their bodies and respiratory tracts. Previous infection and poor nutrition can make them more susceptible to ARI. A genetic defect in the ability to produce certain antibodies can reduce a child's capacity to fight infection. Upper respiratory tract infections are several times higher in children than in adults. Rates for pharyngitis and otitis media increase from infancy to a peak at the age of five years. Illness rates are highest in the young children and decreases with the increasing age.

A study in urban Delhi, the incidence was 81/1000 in first year of life, and then decreased to 68, 67 and 56 and 31/1000 during subsequent four years. ARI was most commonly seen in the first year of life, followed by one to five years of age.

Respiratory infections tend to affect more frequently males than females. The ratio is about 1.7 to 1. The difference may partly be due to preferential treatment to male children, who when sick are more likely to be brought to hospitals or health care units.

**Agent:** The respiratory tract may be invaded by numerous microbial agents, ranging from sub-microscopic viruses to large bacteria, fungi or even parasitic worms. Recent studies have suggested a number of general conclusions about the agents causing ARI e.g. viruses are the most important initiators of minor upper respiratory infections, and bacteria are the agents which most often causes sever lower respiratory infections.
The common bacteria are streptococcus pneumonia, staphylococcus aureus and haemophilus influenza. The most common viral agents include respiratory syncytial viruses (RSV), para-influenza and adenoviruses.

**Environment:** The infection is usually transmitted within the families. Children of cigarette smokers are more prone to ARI in their early years. Respiratory infections usually occur more frequently during cold weather than in any other season. Most studies in Northern India show that incidence of ARI is highest during winter months. In Calcutta, peak incidence was seen before during monsoon.

**RISK FACTORS RELATED TO HOST AND ENVIRONMENT:**

<table>
<thead>
<tr>
<th>Related to host</th>
<th>Related to environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low birth weight</td>
<td>Clustering of houses</td>
</tr>
<tr>
<td>Failure of breastfeeding</td>
<td>Poor socio-economic condition</td>
</tr>
<tr>
<td>Under nutrition</td>
<td>Non use of antibiotics</td>
</tr>
<tr>
<td>Lack of childhood immunization</td>
<td>Non utilization of service facility</td>
</tr>
<tr>
<td>Neonatal period vulnerable to ARI</td>
<td>Over crowding</td>
</tr>
<tr>
<td>Vitamin ‘A’ deficiency</td>
<td>Inaccessibility of health facility</td>
</tr>
<tr>
<td>Antecedent viral infection</td>
<td>High level of outdoor pollution</td>
</tr>
<tr>
<td></td>
<td>Exposure to biomass fuel smoke</td>
</tr>
<tr>
<td></td>
<td>Passive smoking.</td>
</tr>
</tbody>
</table>

**Transmission:** ARI is primarily transmitted by droplet infection when organisms in the respiratory and nasopharyngeal secretions are expelled by an infected person by coughing, sneezing or talking. Person to person contact spread in the home also has been demonstrated. Enhanced production of respiratory secretions during viral infection may play a role in transfer of bacterial agents to susceptible persons.

**2.7.4 Laboratory Diagnosis of ARI:**

The lab triangle of bacterial viral agents can be done through conventional or rapid techniques:

A) Conventional technique:

1) Isolation of bacteria. –Nasal, Perinasal and throat swab.

2) Antigen detection of bacteria:

3) Conventional techniques for viruses.
B) Rapid techniques:

1) Rapid techniques for bacteria.
2) Rapid techniques for viruses.

**Clinical Assessment:** History taking is very important in the management of the acute respiratory infections. The age of the child, for how long the child is coughing, where the child is able to drink (if child is two months to five years), has the young infant stopped feeding well (child less than two months), has there been any antecedent illness such as measles, does the child have fever, is the child excessively drowsy or difficult to wake (if yes, for how long), did the child have convulsions, is there irregular breathing, short periods of not breathing or the child turning blue, any history of treatment during the illness.

**Physical Examination:** Look and listen for the following:

- Count the breaths in one minute.
- Look for chest in-drawing
- Look and listen for stridor
- Look for wheeze
- See if child is drowsy
- Feel for fever
- Check for severe malnutrition
- Look for cyanosis.

### 2.7.5 ARI Control Program:

The W.H.O. which vital concerned with the health of human race on this planet, could not sit idle and see some 4 million children dying from ARI each year. Studies in different parts of the world have helped in developing the generalizations about ARI are:

- Most ARI deaths due to ALRI.
- Most of ALRI deaths occur in the developing countries
- Pneumonia is responsible for about 75% of all ALRI deaths.
- Almost all pneumonia (ALRI) in the developing countries is of bacterial etiology and the bacteria are susceptible to common antibiotics.

The community based studies in India (Punjab) in 1970s had shown that:
- In remote and rural areas where vast majority of people live, properly trained health workers can identify pneumonia (ALRI) in children with the help of simple observable signs and treatment successfully with antibiotic.

- Though occurrence of ARI could not stopped, or reduce the strategy of time and proper management of pneumonia cases can reduce the ARI related mortality in children.

With this background the WHO program for control of ARI in children was officially established in 1982.

The important generalization made from the intervention studies, which helped to formulate major policy decisions in respect of WHO ARI control program are:

- A properly implemented case management program approach to ARI can reduce overall mortality specifically mortality due to pneumonia in children under five years age group.

- It is feasible to put oral antibiotic (co-trimoxazole) in the hand of peripheral health workers for treatment of pneumonia.

- As large number of ARI death in children occur in 0-2 months age group program should be enhanced to provide better guidance for management of pneumonia in this age group of infants.

- The program should discourage the inappropriate use of antimicrobials and other drugs in mild ARI cases.

- Program must be continuously monitored and evaluated.

- Respiratory rates and stridor (chest in-drawing) would be used by peripheral health workers as two sample observable signs for diagnosis of ALRI (pneumonia).

Components of ARI Control program

Health service components:

Correct cases management is the central strategy to reduce mortality due to ARI, particularly pneumonia

Immunization has been also been recognized as specific strategy to prevent respiratory infection, caused by diphtheria, measles, whooping cough and tuberculosis.

To support and strengthen nutrition, MCH and family welfare programs.
Key elements are mentioned in ARI treatment charts, in which the recognition and treatment of pneumonia is the most important feature.

Research Component:
WHO has recommended that ARI control program should focus its support on the problem of ALRI in under five children in developing countries. Priority research topics were outlined in the broad areas of epidemiology, aetiology, disease prevention, case management, vaccination and development of diagnostic tests.

2.7.6 National ARI Control Program

In India the ARI control activities are as old as the medical profession itself but now the introduction of organized activities against ARI which can be performed simultaneously to achieve effective and desired impact. The studies have been conducted in Chandigarh, Jhansi, Delhi and Varanasi through I.C.M.R. with UNICEF and WHO support. The results of these projects and other global projects gave enough direction to start an ARI control program in India. The program was included in 7th five-year plan and separate budgetary allocation was sought.

The objective of ARI control program is to reduce the pneumonia mortality in under-five year children.

The strategy adopted to achieve the objectives is standard case management.

Standard Case Management

I) Sub center/PHC without in-door beds: Child with ARI - assessed
*Cough or cold – mother is advised how to take care at home.
*If pneumonia - standard antibiotic + home care, and advised when to return to health worker.
*Serve pneumonia Or Danger signs - Referred for admission to PHC/hospital.

II) At hospital/PHC with in-door beds:

<table>
<thead>
<tr>
<th>Serve pneumonia</th>
<th>Standard treatment by health staff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Or</td>
<td>(O2, injectable antibiotics etc.)</td>
</tr>
<tr>
<td>Danger signs.</td>
<td>Wheezing child treated with bronchodilators.</td>
</tr>
<tr>
<td>And</td>
<td>If Ear infection → local care and antibiotics given.</td>
</tr>
<tr>
<td>(Young infants with Pneumonia)</td>
<td>If not responded to standard case management then referred to specialized hospital.</td>
</tr>
</tbody>
</table>
Studies conducted in developing countries by WHO, have found that 40% of deaths due to acute lower respiratory infections can be prevented by standard case management at first level of health facility. Treatment at first referral center (PHC/hospital) can prevent another 20% of deaths, and a still another 20% of deaths can be prevented by proper treatment at specialized hospitals.

Program is implemented through Primary Health Care.

**Management of cough or difficult breathing:**

(1) **Management chart**

WHO has a few charts for use by health staff at first level of health facilities, to manage cases of cough or difficult breathing. These charts have been adopted by our national ARI control program with some modifications. The steps involved to follow the charts are:

a. Assessment of the child i.e. obtaining information about the child’s illness, by asking the mother the few questions, looking and listening to the child.

b. Classification of the illness i.e. making decision about the type and severity of the disease. This is done by self-answering of questions by health staff about the signs those have been observed during the assessment.

c. Management i.e. extending of treatment as per the class of illness and it includes, giving an antibiotic, advice to mother to give home care, treatment of fever and referral action, if needed.

2. **Classes of illness and treatment of guidelines:**

As mentioned above, the illness of cough and difficult breathing is classified under two age groups (viz.:0-2 months & 2 months to <5 years). For treatment purpose each age group is further subdivided in to different categories as per the presenting features and there are specific guidelines for management of each class of illness:

(1) **Young infants (0 to 2 months):**

a) Very severe disease: the presenting features are, stopped feeding well, convulsion, abnormally sleepy or difficult to wake, stridor in calm child, wheezing, fever or feels too cold. In such cases the scope of treatment is very limited at first level of health
facility. After giving first dose of paediatric cotrimoxazole tab., the cases are to be referred to next higher level.

b) Server Pneumohia: This illness is presented with fast breathing (60 or more/minute) and sever chest in-drawing. Here also after giving first dose of antibiotic, the case is to be referred.

c) No pneumonia: in this case the child will have a breathing rate of <60/minute and there will be no severe chest in-drawing. Antibiotic is not needed in this case. Only the mother is to be advised to giving “Home Care”.

In young infants all pneumonia cases are to be taken as severe and to be referred after giving first dose of antibiotic.

(II) Children (two months to less than five years):

a) Very severe disease: the presenting features are, not able to drink, convulsion, abnormally sleepy, stridor in calm child and clinically severe malnutrition. Before referring the child, (which is must) first dose of antibiotic is to be given. Moreover if there is fever, necessary first dose of paracetamol is to be given.

b) Sever pneumonia: here the only presenting feature is chest in-drawing. For management, after giving first dose of antibiotic and first dose of medicine for fever (if present), the child is to be referred.

c) Pneumonia: there will be not any chest in-drawing. But fast breathing will be present (rates are fifty or more/minute for two months to one year age-group and forty or more/minute for one year to below five years age-group). In this class of illness, the first level health facility has got a lot to offer. Oral antibiotic (tab. Co-trimoxazole) for five days is to be given along with treatment of fever, if present. The mother is to be advised for “Home care”. Reassessment of the condition of the child is to be made after two days. If condition gets worsen, the child is to be referred.

d) No pneumonia: the child will come with cough and cold without any fast breathing of chest in-drawing. Treatment is very simple in this case, as no antibiotic is needed. Only treatment of fever, if present, is to be given orally. Mother must be advised to give “Home care”. However, if the cough is there for more than 30 days, the child is to be referred.

3. Dose schedule of Cotrimoxazole:
The dose schedule of Tab. Cotrimoxazole (pediatric) for treating different age groups is as follows:

- 0-2 months: 1 tab 12 hourly for 5 days.
- 2 months- 1 year: 2 tabs 12 hourly for 5 days.
- 1 year- <5 years: 3 tabs 12 hourly for 5 days.

4. When referral is not possible:

If referral services for needed cases are not available or if mothers are unwilling or unable to go to PHC/hospital, the above dose schedule has to be followed by the concerned health care providers for respective cases instead of doing nothing.

5. Treatment of fever:

Fever: all fever cases in young infants are to be referred to PHC or hospital. In case of child between 2 months and <5 years, if the fever is low i.e. 38-39 degree C, mother is only advised to give more fluid to the child. But if the fever is more than 39 degree C, paracetamol tablet, in appropriate dose, at 6 hourly intervals is to be given. Mother too is to be advised to keep the child lightly clothed. If fever does not come down within five days, the child is to be referred.

6. Home care:

Home care of the child is a very important aspect in the management to ARI. Mother should be explained properly about the following aspect:

* Why and how to give antibiotic regularly and for five days.
* Why antibiotic is to be taken in proper dose.
* Need for feeding a child during illness & to increase feeding after recovery.
* To clear the nose if it interferes with feeding and to keep young infant warm.
* To increase the fluid intake either by increasing the breastfeeding or giving extra drinks.
* Cough can be relieved only by using the simple home made decoctions viz: honey and lime juice, hot tea, ginger and tea etc.
* To bring back the child after two days for reassessment.
* To watch for “danger signs” viz. breathing is difficult, child becomes sicker and in such conditions the child should be brought back urgently.
2.7.7 Health education in ARI:

The thrust area of education will be the development of skill in mothers of observing respiratory rates, chest in-drawing and other danger signs in children. Modification of behaviors of mothers in respect of home care would be another important component.

**Management during illness**

Pneumonia: can be treated at home (co-trimazol).

Sever pneumonia/very severe pneumonia: child should be hospitalized; they will be given antibiotics, O₂ administration.

No pneumonia/AURI, cough, cold and fever: then give the child symptomatic treatment and care at home.

**Essential elements of home care:**

Feeding of the child to be continued. Frequency of feeding to be increased to prevent malnutrition.

Intake of fluid should be increased.

Fever should be treated with paracetamol.

If nose is blocked the mucous can be cleaned with saline drop or moist swab stick.

For soothing the throat and relieving cough, home remedies such as lime, honey, tulsi, ginger and warm water can be used. (These should not be given to less than two month old child.)

Commercially available cough syrups of antibiotics do not alter the duration of cold or cough. Neither do they prevent pneumonia or otitis media.

Keep the child warm.

Mothers must be informed to look after danger signs: Fast breathing – Difficult breathing, Not able to drink – refusal of feed, Excessively sleepy and difficult to wake, Condition gets worse than before, in such condition child should be brought back urgently.

Mothers should be explained why and how to give antibiotics regularly and for five days and proper dose.

To bring back the child after two days reassessment when treated at out patient dept.

**2.7.8 Prevention of ARI:**

- Nutritional education to mothers. –Breast feeding, weaning.
• Reduction in the incidence of L.B.W. babies by good antenatal care.
• Good ventilation in kitchen.
• Prevention of air pollution.
• Avoiding the child from cold exposure.
• Child hood immunization.
• Vitamin A supplementation.
• Children with cough and cold should be treated with home remedies.
• Mothers should be educated to identify symptoms and early signs of pneumonia and told to get the child early for treatment.
• Peripheral health staff should be trained to detect cases of pneumonia, give prompt treatment and identify cases for early referrals to the specialist.

**SUMMARIZED CHART**

The child (Age 2 months up to five years)

<table>
<thead>
<tr>
<th>Classify</th>
<th>Very sever disease.</th>
<th>Sever pneumonia.</th>
<th>Pneumonia.</th>
<th>No pneumonia (Cough or cold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sign</td>
<td><em>Not able to drink.</em> *Convulsions. *Abnormally sleepy or difficult to wake *Strider in calm child *Wheezing in calm child *Sever under-nutrition.</td>
<td>*Chest in-drawing.</td>
<td>*No chest in drawing. *Fast breathing, *(50/mt or &gt;/= if child 2 months, 40/mt or more if child 12 months up to 5 years.</td>
<td>*No chest in drawing &amp; *No fast breathing (&lt;50/mt if child 2 months up to 12 months to 5 years.)</td>
</tr>
</tbody>
</table>

81
(Reassess in 2 days a child who is taking an antibiotic)

- **Sign: Worse**
  - Not able to drink.
  - Has chest in-drawing.
  - Has other danger signs.

- **Improving**
  - Breathing slower> 
  - Less fever.
  - Eating better.

**Treatment:**
- Refer urgently to hospital.
- Review antibiotic or refer the child.
- Finish 5 days of antibiotic.

---

### The Child (Age less than 2 months)

<table>
<thead>
<tr>
<th>Classify as</th>
<th>Very severe Disease</th>
<th>Sever Pneumonia</th>
<th>No pneumonia</th>
</tr>
</thead>
</table>
| Signs       | - Stopped feeding well
- Convulsions
- Abnormally sleepy or difficult to wake
- Stridor in calm infant
- Wheezing in calm infant
- Fever or low body temperature | Fast breathing 60/mt or more and Sever chest in drawing | No fast breathing (<60/mt) & No sever chest in drawing |
| Treatment   | Refer urgently to hospital. Give 1st dose antibiotic. | Refer urgently to hospital for antibiotic by injection. Give first dose of antibiotic (if referral is not feasible treat with antibiotic and follow closely.) Keep the young infant warm during transfer. Breastfeed frequently during transfer. | Advice mother to give home care: Keep baby warm Breastfeed frequently. Clear nose, if it interferes with feeding. Advice mother to return if:
- Illness worsens
- Breathing is difficult
- Feeding becomes a problem. |

2.8 Summary:

A review of relevant literature is important to research because the researcher need to relate the proposed study to existing theory and to previous studies and to develop sound hypotheses.

A literature review usually begins with a defined problem. Problems may be selected and defined as the result of a literature review alone. Literature review conducted in search of topics assist students in clarifying ideas and in formulating specific problems that can be investigated by research methods. Literature review, development of topics and research as a "... slow and gradual process in which ... one group of investigators builds on the works of others and in turn, contributes their bit or bits, which may then serve as starting points for others."(Sellitz, Wrightsman and Cook, 1976, p57).

Thus, the students understand the building blocks that provide the foundation for the construction of new theories. It is these blocks that form the basis for the development of a reseachable topic. Once the area had been determined and the blocks identified, the student would review the literature related to that specific area. Further refinement of the topic occurs as the review progresses, and more specific concepts are developed.

The investigator attempts to determine how the proposed study fits into the larger universe of related knowledge. Thus it can be seen that previous studies will be help to clarify the ideas and the design of the studies. The quantity of relevant literature available for review will depend on the popularity of the topic. A timely topic would include greater number of (studies) publications than relatively new topic with little popularity.