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PNEUMONIA MANAGEMENT PROGRAM FOR PARENTS OF CHILDREN UNDER 5 YEARS OLD: EVIDENCE-BASED NURSING

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ABSTRACT

Pneumonia is the leading cause of illness and death for under 5 year old children in Bangladesh and many other countries in the world. This study aimed to summarize related evidence in regard to educational programs about pneumonia management to improve knowledge and skill in caring for children with pneumonia and make a conclusion based on recommendations from the evidence. The related evidence published from 2010-2014, in English, was searched from Mahidol University electronic databases. Searching for evidence was conducted by using the PICO (Population, Intervention, Comparison and Outcome) framework. Three quasi-experimental studies, one pre-experimental study and one international guideline were included in this study. The educational programs about pneumonia management were frequently delivered in the hospitals. The methods of the educational programs were lecture, group discussion, role play, demonstration and return demonstration provided by nurses, booklets, flipcharts, leaflets, and posters. The contents consisted of the nature of the disease, management and care, immunization, nutrition, preventing dehydration, management of fever, mmedication administration and follow up appointment etc. The outcome measurement tools used were questionnaires, multiple choice questions, observational checklists, and 3-point practice scales. Findings from the evidence

support the view that educational programs about pneumonia management are effective for parents of children under 5 years old to improve knowledge and skills in caring for children with pneumonia. It is recommended that the pneumonia management program should be developed and implemented to suit the clinical practice context of Bangladesh. Further research to evaluate the effectiveness of pneumonia management programs is also recommended.

Keywords: Childhood Pneumonia, Pneumonia Management Program, Evidence-Based Nursing

1. INTRODUCTION

1.1 Background and significance of the study

Childhood pneumonia is an important cause of death in children under 5 years old. Approximately 156 million new childhood pneumonia cases are reported per year globally. In developing countries, it has been estimated that 151 million new childhood pneumonia cases occur each year 'Rudan *et al*, 2008 **[1]**. The predicted number of new childhood pneumonia cases was 7.84 million in the US and 60.95 million in South East Asia each year. India, China, Pakistan, Bangladesh, Indonesia and Nigeria are the top five countries with high numbers of new childhood pneumonia cases. The predicted number of new childhood pneumonia cases per year in these countries was 43.0 million in India, 21.1 million in China, 9.8 million in Pakistan, 6.1 million in Nigeria and 6.0 million in Indonesia. And Bangladesh is one of the top five countries with high numbers of new childhood pneumonia cases. The predicted number of new childhood pneumonia cases in Bangladesh amounts to 6.4 million each year 'Rudan *et al*., 2008 **[1]**. Pneumonia is the most prevalent cause of death among children in Bangladesh and accounts for 14% of deaths in children under 5 years old each year 'Ferdous *et al*., 2014 **[2]**.

The impact of childhood pneumonia in children includes long-term morbidity, low health-related quality of life, loss of ability for daily activity 'Gray & Zar, 2010 **[3]** and absence from school 'Farha & Thomson, 2005 **[4]**. The impact of childhood pneumonia on the families includes loss of work, loss of other childcare and absence from school for other children and heavy financial burden 'Farha & Thomson, 2005 **[4]**. Childhood pneumonia not only kills children, but places a huge burden on hospitals and health care systems 'Qazi, Weber, *et al*, 2008 **[5]**. The low resources of the health care system lead to unavailability of oxygen delivery systems, increased workloads 'Gray & Zar, 2010 **[3]**, lengthened hospital stays, higher bed occupation rates, escalating costs for

hospital admission / treatment and rising hospital mortality rates 'Fuchs, *et al*, 2005 **[6]**. Taking care of these children becomes a burden for family caregivers and poses a serious economic threat to the nation.

In developing countries, the most important evidence found that the causal risk factors occurring are associated with the host and the environment in influencing the incidence of childhood pneumonia. Definite risk factors are malnutrition, low birth weight, non-exclusive breastfeeding, no measles immunization (within the first 12 months of life), indoor air pollution and crowding. Likely risk factors are parental smoking, zinc deficiency, mother's experience as a caregiver, concomitant diseases (e.g. diarrhea, heart disease, asthma). Possible risk factors are mother's education, day-care attendance, rainfall (humidity), high altitude (cold air), vitamin A deficiency, and outdoor air pollution 'Rudan *et al*., 2008 **[1]**. In India, parents' educational attainment was an important risk factor for the occurrence of childhood pneumonia. Poverty, poor immunization status, indoor air pollution, overcrowding and malnutrition / poor nutritional practices appear to be the main risk factors 'Ghimire, et.al, 2012 **[7]**. Additionally '(Bari, 2007 **[8]** studied the risk factors of pneumonia in children under 5 years of age in Bangladesh and found the risk factors to be malnutrition, vitamin A and zinc deficiency, low birth weight, overcrowding, bad housing, low socioeconomic conditions, no immunization, and outdoor and indoor air pollution. The factors related to increasing deaths in children under 5 years old include the young age of the mothers, the absence of appropriate education for fathers, the young ages of the children, delayed hospitalization with cyanosis, grunting, related chest in drawing, hepatomegaly, acute malnutrition, inability to drink, related loose stools or heart disease, anemia, rickets, and no breastfeeding 'Tiewsoh *et al*., 2009 **[9]**. This study is to summarize evidence-based pneumonia management programs for parents of children under 5 years old.

1.2 Purpose of the study

The purpose of this study is to summarize evidence-based pneumonia management programs for parents of children under 5 years old.

1.3 Expected benefits of the study

1.3.1 Nurses and health care professionals will gain a body of knowledge related to pneumonia management programs in terms of the characteristics of the program and methods of teaching with training and teaching content.

1.3.2 Nurses can apply the recommendations from this study to develop an appropriate pneumonia management program for parents of children under 5 years old.

1.3.3 The hospital will have a clinical practice guideline for use with parents to improve knowledge and practice for mothers of children under 5 years old.

2. MATERIALS AND METHOD

2.1 Study area and period Thailand

Mahidol University (MU), in Bangkok, Thailand. The study was carried out from July to December 2014.

2.2 Search Strategy

The search strategy was applied in order to meet the purpose of the study concerning the correlations with population, intervention and research findings, find articles and guidelines for analysis and summarized of the evidence related to pneumonia management program.

2.2.1 Search framework: By using the PICO (Population, Intervention, Comparison and Outcome) framework**,** we searched and selected evidence to improve parents' knowledge and skills in caring for children under five years of age with pneumonia through a pneumonia management program.

2.3 Appraisal method and levels of evidence

We used the method and criteria as proposed by 'Melnyk and Fineout-Overholt, 2011 **[10]** to appraise the quality of the evidence in terms of validity, reliability and applicability. The collected evidences were appraised on the basis of the following three questions:

a) Validity: The validity of the evidence means whether or not the evidence was conducted through scientific method and able to scientifically answer the research questions. It is the findings were proposed to answer the questions and solve the problems.

b) Reliability: Reliability means the findings can be developed on for accuracy, honesty, consistency, achievement and repeatability in order to ensure that anyone can perform the same experiment by using similar equipment and conditions to achieve exactly the same outcome. **c) Applicability:** Applicability means the usefulness of the results in a given situation. Validity, reliability and usefulness for clinical decision-making are considered during the application of the results in a clinical setting. In selected evidence, the applicability is measured by matching with setting conditions, resources availability, abilities of the health care providers, benefits of the patients and families, community or society and national support by the authority 'Melnyk and Fineout-Overholt, 2011 **[10]**.

2.4. Appraisal methods for the guidelines: We selected guideline for appraisal that were scientific, evidence-based, compatible with real clinical settings and published in 2011. The guideline was evaluated by the AGREE II appraisal method 'Brouwers *et al*., 2010 **[11]**. This

AGREE II refers to the validity, reliability and applicability of the guidelines. The principle of the tool is to differentiate between higher and lower quality of guidelines. The appraisal method using AGREE II consists of 6 domains with 23 key items. The domains are as follows:

Domain 1 Scope and Purpose. **Domain 2** Stakeholder Involvement. **Domain 3** Rigor of Development. **Domain 4** Clarity of presentation. **Domain 5** Applicability. **Domain 6** Editorial Independence.

This evaluation also included the scope of the quality of the guidelines and whether or not the recommendations should be suggested for used in a clinical setting. The key items were rated on a rating scale with the following range of ratings: 1 = (Strongly Disagree) to 7 = (Strongly Agree). Score of 1 is given when there is no information on that item or if it is weakly reported. A score of 7 is given if the quality of coverage is excellent and when full criterions have been met (in the User's Manual). The items in each domain of the AGREE II appraisal instruments are described below:

Table 1: Level of rating system for the hierarchy of evidence, 'Melnyk and Fineout-Overholt, 2011 [12]

S/No	Level of Evidence	Source of Empirical Evidence
1	Level I	Evidence from a systematic review or meta analysis of all relevant RCTs.
2	Level II	Evidence obtained from well-designed RCTs
3	Level III	Evidence obtained from well-designed controlled trials without randomization.
4	Level IV	Evidence from well-designed case-control and cohort studies.
5	Level V	Evidence from systematic reviews of descriptive and qualitative studies.
6	Level VI	Evidence from single descriptive or qualitative study.
7	Level VII	Evidence from the opinion of authorities and / or reports of expert committees.

3. FINDINGS

The search results and summary of evidence are described in order to detail the intervention concerning educational programs about pneumonia management for parents of children under 5 years old with pneumonia. The details of the descriptions are as follows:

3.1 Search results

The author searched the electronic databases of the Mahidol University Library system for evidence of pneumonia management programs for parents of children under 5 years old. After completing the search for evidence, we obtained different types of evidence including research articles and guidelines. Initially, we collected 31evidences based on pneumonia management programs for parents of children under 5 years old. After the preliminary screening on the titles and abstracts, we selected 20 evidences and eliminated 11 evidences. Before the secondary screening, we read each evidence superficially and selects 10 evidences. In the third and final phase of

the selection, we read each evidence in detail and eventually selected five evidences that specifically described pneumonia management programs.

The list of the selected evidences with their type and level of evidence is indicated in **Table 2**.

Table 2 describe the evidence includes 3 quasi-experimental studies (one study level-III, another two studies level-IV), 1 pre-experimental study (Level-IV) and 1 international guideline (Level-II).

Table 2: Selected evidence, research design and strength of the evidence

S/No	Author, title and source of publication	Study design	Level of strength of evidence
1.	Parvez, M. M., Wiroonpanich, W., &Naphapunsakul, M. (2010). The effects of educational program on child care knowledge and behaviors of mothers of children under five years with pneumonia. Bangladesh Journal of Medical Science, 09(3), 136-142.	Quasi-experimental study.	Level III
2.	Zein El Dein, N. A., Elbahnasawy, H. T., &Diab, S. S. (2013). The effect of guidancebooklet on discharged mothers of children with respiratory tract infection.Journal of Natural Sciences Research, 3(2), 83-97.	Quasi-experimental study.	Level IV
3.	Jena, M. (2014). Effectiveness of information booklet on knowledge & practice about prevention of pneumonia among mothers of under five children. International Organization Scientific Research Journal of Nursing and Health Science, 3(1), 25-30.	Pre-experimental study.	Level IV
4.	Prasanna, K. L., & Sharma, N. K. (2014). Effectiveness of structured teaching programme vs. Self-instructional module regarding prevention of acute respiratory infections in children among mothers. International Organization of Scientific Research Journal of Nursing and Health Science 3(1), 09-15.	Quasi-experimental study.	Level IV
5.	Harris, M., Clark, J., Coote, N., Fletcher, P., Harnden, A., McKean, M., & Thomson, A. (2011). British Thoracic Society guidelines for the management of community acquired pneumonia in children: Update 2011. Journal of the British Thoracic Society, 66:ii1 eii23.	International guideline	Level II

Summary of the five selected evidences: Each evidence was read and the contents related to education program about pneumonia management were extracted and briefly presented.

Evidence Number 1

Title: The effects of educational program on childcare knowledge and behaviors of mothers of children under five years with pneumonia

Authors / year: Parvez, M. M., Wiroonpanich, W., & Naphapunsakul, M. / 2010.

Publication source: Bangladesh Journal of Medical Science.

The objective of this study was to evaluate the effects of educational programs on child care knowledge and behaviors of mothers of children under five years of age. The study was based on a quasi-experimental research design. The study was conducted

in a public hospital in Dhaka, Bangladesh. The participants were composed of fifty mothers of children under five years who had been admitted to the hospital with pneumonia. The experimental and control groups were equal. The study intervention was an educational program. The intervention was provided by the researcher (Nurse). In this study, the teaching methods used included lecture, demonstration and return demonstration. The materials used were flipcharts and leaflets. The duration of the intervention was two hours. The experimental group received an educational program and the control group received routine treatment only. The content in the program was composed of the definition of pneumonia, etiology of pneumonia, risk factors for pneumonia, signs and symptoms of pneumonia, management and care, immunization and prevention of pneumonia. The mothers' knowledge was measured by a questionnaire with 44 true-false questions. Six maternal behaviors (respiratory rate, identifying chest retraction, measuring temperature, providing tepid sponging, cleaning nose or airway and measuring medication) were measured by a behavioral checklist with 22 items. The data were analyzed by the SPSS software. According to the findings, the study group mothers' pretest knowledge score was 26.40 with a posttest score of 34.64 ($p<0.001$). After the intervention, the mothers' childcare behaviors were significantly higher in the study group at 17.68 while the same score in the control group was 6.64 ($p<0.001$). Hence, there was a significant increase in child care knowledge and behaviors of mothers of children under 5 years of age with pneumonia.

Evaluation of the evidence

Validity: The objectives of the study were clearly identified. The intervention was the education program. The program was developed by the researcher. Fifty mothers were randomly allocated into experimental and control groups, and the allocation was concealed. The baseline information about the subjects in the intervention and control groups was equal. However, the patients, health workers and researchers were not blind to the treatment. Aside from the experimental intervention, the groups were treated equally. The measurement was developed in English but translated into Bengali by using the back translation technique with validation by three experts. The Chronbach's alpha of the mothers knowledge questionnaire was 0.72 and behavioral checklist was 0.70 and acceptable. The outcomes were measured with questionnaires and a behavioral checklist.

Reliability: The primary outcomes, which are knowledge and practice for pneumonia management statistically significant

between intervention and control groups. The improvement of the child care knowledge and behaviors of mothers were clearly identified.

Applicability: The study was developed as a hospital-based educational program for mothers of children under 5 years of age with pneumonia. This type of program is easy to apply in the author's clinical setting because the program uses simple media. Nevertheless, the program requires a nurse for instruction and demonstration.

Evidence Number 2

Title: The effects of guidance booklets on discharged mothers of children with respiratory tract infections

Authors / year: Zein El Dein, A. N., Elbahnasawy, H. T., & Diab, S. S. / 2013.

Publication sources: Journal of Natural Sciences Research.

The objectives of this study were to evaluate the effects of guidance booklets on discharged mothers of children with respiratory tract infections through: Identifying mothers' needs, developing a guidance booklet on discharge according to mothers' needs and evaluating the effects of the guidance booklets on the mothers' childcare skills and pneumonia management, the research design was a quasi-experimental study. Both groups pretest and posttest design. The study was conducted at the pediatric unit in El-Menoufya University Hospital (Egypt) and El-Basher Hospital (Jordan). The total participants were composed of 80 mothers who had children suffering from respiratory tract infections. The researchers divided the sample into two equal groups. Inclusion criteria of the study were children aged from 2 months to 5 years of age who were only suffering from respiratory tract infections. Exclusion criteria of the study were children over 5 years of age suffering from other diseases. The study intervention was a guidance booklet with discharge instructions. Both groups' participants were received guidance booklet with discharge instructions. The intervention was provided by the researcher. In this study, teaching methods were used in the discussion with the guidance booklet, role play, demonstration and re-demonstration. The material used comprised posters. Intervention consists of two sessions with each session lasting 60 minutes. At the first session, the researcher individually met with the mothers and discussed the child's problems and needs. At the second session, the researcher met with all of the mothers together to discuss the content of the booklets. The content in the booklets was composed of the definition of respiratory infection, danger signs of respiratory infection, nutrition, fluids, medication administration (dose, route, methods of administration, side effects) and follow-up appointments. The mothers' knowledge

was measured by questionnaires. The mothers' practices were (child position, use nasal drops, check auxiliary temperature, tap compresses and hand washing) measured by asking questions with an observational checklist. The data were analyzed by the Excel program and SPSS software. The mothers had to be able to measure vital signs correctly, understand and interpret the values obtained and determine the severity of respiratory distress. Before discharge, mothers should be taught and give opportunities to practice techniques such as measuring temperature, administering care procedures, using and monitoring equipment and recognizing symptoms and other elements of child care. The mothers should also be assessed in order to identify their medical knowledge, which is very important. According to the findings, the mothers' knowledge and practice was highly and significantly different in both groups. The mothers' knowledge and practice regarding respiratory tract infections (management, medication, applying simple procedures, preparedness for education and equipment used in measuring temperature, using tap compresses, giving oral and other medication, appropriate nutrition and adequate fluid intake) was indicated to have statistically significant improvement after the guidance booklets with discharge instructions in both groups.

Evaluation of the evidence

Validity: The objectives of the research study were clearly identified to evaluate the effects of guidance booklets in each setting. The intervention was a teaching program using a guidance booklet with discharge instructions. Eighty mothers were randomly allocated into each setting. The media used in the study was well-developed based on the needs of the participants. Measurement was developed by researcher and validated by nursing expertise from the pediatric specialists of 5 Faculties'.

Reliability: The primary outcomes, namely, knowledge and practice for pneumonia management were statistically significant improvements between pretest and posttest in both groups.

Applicability: The study developed a hospital-based guidance booklet with discharge instructions for mothers of children with respiratory tract infections. This type of program is easy to apply in the author's clinical setting. Although this program might use simple media, it needs to provide the teaching technique in greater detail.

Evidence Number 3

Title: Effectiveness of information booklets on knowledge & practice about prevention of pneumonia among mothers of under five children

Author / Year: Jena, M. / 2014.

Publication source: International Organization of Scientific Research Journal of Nursing and Health Science (IOSR-JNHS).

The main objective of the study was to assess the effectiveness of information booklets on knowledge and practice about prevention of pneumonia among mothers of children under five years of age. The study design was pre-experimental with a one-group pretest and posttest design. The study was conducted at the pediatric ward of Medical College Hospital, Odisha. In this study, the participants were 50 mothers of children under five years of age who were admitted to the pediatric ward with pneumonia. Inclusion criteria: Mothers of children under five years of age admitted to the pediatric ward of the Medical College Hospital, Odisha, who were able to read and write in Oriya and English. Exclusion criteria: Mothers of children over five years of age who could not read in Oriya and English**.** The study intervention was composed of information booklets. The intervention was provided by the researcher. The content in the booklet consisted of risk factors for pneumonia, etiology of pneumonia, signs and symptoms of pneumonia, prevention of pneumonia and when to seek medical help. Mothers' knowledge regarding the prevention of pneumonia was measured by 25 items composed of multiple-choice questions. The mothers' practices regarding the prevention of pneumonia were measured by 17 items rated on 3-point rating scales. The data were analyzed by the SPSS program. The study found that the mean pretest knowledge score was 11.54 and the posttest score was 19.94. The mothers' posttest knowledge score was higher than the pretest knowledge score, which indicates a marked gain in knowledge about prevention of pneumonia. The study showed that the mean pretest practice score was 32.8 with a posttest score of 41.5. The mothers' posttest practice score was higher than the pretest practice score, which indicates an improvement in practice about prevention of pneumonia.

Evaluation of the evidence

Validity: The aims of the study were clearly recognized. The intervention was a teaching program using an information booklet about the prevention of pneumonia. Fifty mothers were assigned to one group. Hence, the findings on the knowledge and practice of the mothers cannot be said to have been improved because of the information booklets because there was no comparison. However, the researchers do not exactly state the methods for teach the mothers of the program. The booklet media was developed by researchers and measurements for the knowledge questionnaire were measured by the

multiple choice questions and 3-point practice scales.

Reliability: The primary outcomes, namely, the knowledge and practice of the mothers of children under five on the prevention of pneumonia showed a significant increase between the pretest and posttest scores.

Applicability: The study developed a hospital-based information booklet about the prevention of pneumonia among mothers of under five children. This type of program is feasible for application in the author's clinical setting. The program requires methods and media for teaching and demonstration.

Evidence Number 4

Title: Effectiveness of structured teaching programme vs. self-instructional module regarding prevention of acute respiratory infections in children among mothers

Authors / Year: Prasanna, K. L., & Sharma, N. K. / 2014.

Publication source: International Organization of Scientific Research Journal of Nursing and Health Science.

The objectives of this study were to determine the effectiveness of Structured Teaching Program (STP) and self-instructional module (SIM) on knowledge regarding the prevention of ARI among the two groups and to compare the effectiveness of STP and SIM on knowledge regarding the prevention of ARI among the two groups. The research design was a quasi-experimental study. The study was conducted in a Mahalakshmipuram urban area in Bangalore, India. A total of 60 mothers were randomly assigned into STP and SIM groups. The study intervention was two teaching strategies with a structured teaching program (STP) and a self-instructional module (SIM). The intervention was provided by the researcher. The content of the STP and SIM consisted of the definition of acute respiratory infection, explanation of the etiology and clinical features of acute respiratory infection, descriptions of the common cold, bronchitis and pneumonia with preventive measures. Mothers' knowledge was measured by structured questionnaires regarding acute respiratory infections in children. According to the findings (structured teaching program and self-instructional module), both groups of mothers' posttest knowledge scores were higher than the pretest knowledge scores with marked gains that were better in posttest than the pretest. The mean difference between the pretest and posttest knowledge scores was significant ($p<0.01$) in both groups. But the STP group of mother's posttest knowledge score was 22.33 and the SIM group was 19.77. The STP group of mothers' knowledge was higher than the SIM group and the STP group increased significantly ($p<0.05$).

Hence, the SIM group of mothers should be encouraged to improve their knowledge regarding the prevention of acute respiratory infection for proper care, support and appropriate management with prevention of complications for their children.

Evaluation of the evidence

Validity: The objectives of the study were clearly identified to evaluate the effects of structured teaching programs (STP) and self-instructional modules (SIM). The intervention involved teaching strategies using the structured teaching program (STP) and self-instructional module (SIM). Sixty mothers were randomly allocated into STP and SIM groups. The method involved teaching strategies but did not identify the exact teaching procedures. However, the researchers did not exactly identify the media and components of the STP and SIM groups for teaching the mothers. The primary outcomes were measured by questionnaires.

Reliability: The primary outcomes, namely, the knowledge of mothers on ARI, were significantly greater between the pretest and posttest knowledge in both groups.

Applicability: The study population, objectives and expected outcomes of community- based structural teaching program and self-instructional module regarding the prevention of acute respiratory infections in children among mothers. It is quite fit for application in the community because very few nurses are posted in the community. In future, the author may apply the intervention in her local setting for better management of children with acute respiratory infections.

Evidence Number 5

Title: British Thoracic Society guidelines for the management of community acquired pneumonia in children: Update 2011

Authors / Year: Harris, M., Clark, J., Coote, N., Fletcher. Harnden, A., McKean, M., & Thomson, A. / 2011.

Publication Source: Journal of the British Thoracic Society.

Parents of children receiving care at home should be given information on the management of fever for which patients can receive liquid Paracetamol. Tepid sponging is not recommended because tepid sponging (sponging with warm water) does not bring a child's temperature down for long and the fever will go back up as soon as the sponging is stopped. Sponging does not affect the part of the brain that controls temperature. Using cool water can be uncomfortable for a child, and if the child cries or shivers, the body temperature usually goes up, not down. Preventing dehydration involves encouraging children to drink water. Parents must recognize signs of other serious illnesses. Hence, the parents were provided with verbal or

written information on warning symptoms. A follow-up appointment was scheduled with a certain date and time. Furthermore, the researcher communicated with other healthcare professionals to ensure the parents had direct access to further assessment for their children.

Evaluation of the evidence

Validity: The guidelines do not clearly describe the objectives, but mention some important activities about management with pneumonia, including the management of fever, preventing dehydration, identifying any deterioration of severe illness and communicating with other healthcare professionals. If any severe conditions occur with children, they should be admitted to hospital. This guideline was developed by the British Thoracic Society Standards of Care Committee, which is an international agency in the UK working with pneumonia in children to raise parental awareness, promote prevention, establish early detection strategies and advocate for better standards of care through research. However, some suggestions of this guideline were summarized from expert opinion.

Reliability: The guideline was developed by the British Thoracic Society (BTS) which is recognized worldwide as a dependable organization working for pneumonia patients to fight the consequences of pneumonia and help those affected by pneumonia through research to manage, cure and prevent pneumonia in patients. Hence, the guideline is reliable for pneumonia management in parents of children under 5 years old.

Applicability: The British Thoracic Society Standard Guidelines focus on certain tasks for pneumonia management which can be implemented in the hospital as a guideline for nurses to help parents effectively manage their children with pneumonia.

Summary of the evidences: We obtained 31 studies in which 5 studies met the inclusion criteria, of these, three studies were quasi-experimental studies, one was a pre-experimental study, and one was an international guideline; 26 evidences were excluded from the study. All selected evidences were published in English from 2010 to 2014. Before conducting the study, the author had the evidence approved by expertise of the defense committee and concluded that “health education about pneumonia management intervention” is a valuable method for parents of children under 5 years old to manage pneumonia.

4. CONCLUSION AND SUGGESTIONS

Childhood pneumonia is a major public health problem worldwide. The incidence of childhood pneumonia is rising across the globe day by day. Despite the progression of pneumonia prevention programs, the rate of new childhood pneumonia incidence has

continued to increase, and this problem is a leading cause of death. In Bangladesh, caring for children with pneumonia is a parental role. Parents of children under 5 years of age with pneumonia do not take care of their children properly, not give medicine to children following the doctors orders regularly and follow up irregularly. Although parents have some knowledge regarding caring children at home, they do not know how to manage their children with pneumonia. However, many parents have deficient knowledge and practice. In addition, there are limited health care facilities for childhood pneumonia. The author would like to implement the pneumonia management program in the author's clinical setting in Bangladesh. The following strategies should be considered when implementing this program. Based on the research findings, it is recommended that parents of children with pneumonia under 5 years of age need to receive the pneumonia management program.

Limitations of the study:

The evidence about pneumonia management program is limited. Hence, the author selected only five evidences, then the summarized and based her findings only a few studies. In addition, the levels of selected evidences were low (Level 2-4). Every evidence has some weak points. For example, three evidences did not identify the methods for providing the intervention. Two evidences did not provide the duration of the intervention or use media. However, all of the evidence used outcome measurement instruments developed by researchers, even though the instruments were not standardized.

Conflict of interest:

None to declare.

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