

SYSTEMATIC REVIEW

Barriers and Challenges of Treatment for Pneumonia in Children: A Systematic Review

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ABSTRACT

Introduction: It is important to acknowledge barriers in childhood pneumonia management to organize methods to decrease pneumonia rates of morbidity and mortality in children. This systematic analysis assesses barriers that have arisen in different health care systems in the management of pneumonia in children under the age of five. **Methods:** A systematic analysis was carried out on Systematic Review's EBSCO, PUBMED, OVID, and Cochrane database. Around 2000-July 2018, electronic tracing was performed to classify a published document. Keywords for tracing literature include childhood pneumonia, barriers or obstacles, or challenges, management, care, or treatment. For the next test, a total of 12 experiments were taken that met the criteria. **Results:** Three studies on the barriers and challenges in hospital pneumonia management, four studies on the barriers and challenges of pneumonia management in primary health care facilities, three articles on pneumonia treatment, and one article on the multi-country approach to barriers to reducing pneumonia mortality rates in infants, which is the trans Based on the study of obstacles and difficulties in different healthcare facilities and government environments. **Conclusion:** It can be concluded that financial constraints are still a major obstacle to the implementation of policies such as government-level policy inadequacy, decisions by parents in accessing health services, and vaccination programs.

Keywords: Barrier, Challenges, Pneumonia, Review

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INTRODUCTION

Pneumonia is one of the health issues and the world's largest single causes of death among children under five (1). Indonesia ranked sixth among 15 places with the highest rate of pneumonia-caused mortality. Global Strategies for Mothers, Children, and Adolescents, 2016-2030 emphasizes the importance of applying a strategic change to priority intervention areas and unique measures, including increasing medical coverage for pneumonia (pneumonia care) that only reaches 54 percent of the 100 percent rate (2). This low pneumonia coverage, particularly in developing countries, can increase the high mortality rates before

the age of five, and then appear to be 1.5-2.5 times higher than developed nations (3).

Inequality of care for pneumonia, particularly in developing countries affected by socio-economic factors and low maternal education (4), low immunization coverage, malnutrition, low birth weight babies, ineffective breast milk feeding, crowded households, tobacco smoke exposure, inadequate sunlight exposure, vitamin A deficiency, anemia, population attention from within In Indonesia, the increased morbidity and mortality rate of pneumonia is linked to poverty, low educational level of parents, crowded and slum households, poor knowledge of nutritional value, and challenges in obtaining health facilities (5).

Several measures are listed as priority interventions aimed at reducing the mortality burden of pneumonia-borne children (6-8). The technique featured that was

performed is Integrated Sick Toddler Management (MTBS) at primary healthcare centers. While this technique has long been applied, it's not been correctly implemented (9). Ineffective implementation of that policy also revealed a link with low interest and active engagement in developed countries (10). Therefore, it is important to recognize barriers in child pneumonia management to organize methods for managing pneumonia rates of morbidity and mortality in children. This systematic analysis observes barriers that have arisen in different health care systems in the management of pneumonia in children under the age of five.

MATERIALS AND METHODS

Sources and Data Collection

This systematic review was performed in compliance with *Preferred Reporting Items for Systematic Reviews and Meta-Analysis Guidelines* (PRISMA-Guidelines). A systematic analysis was carried out on Systematic Review's EBSCO, PUBMED, OVID, and Cochrane database. Around 2000-July 2018, digital tracing was performed to classify released documents. Keywords for mapping literature include childhood pneumonia, barriers or obstacles, or challenges, management, care, or treatment. One researcher checked the title when two scientists checked the abstract and full-text paper. Inclusion requirements for this paper have released an article in English and based on pneumonia treatment in children below the age of five. Criteria for exclusion include pneumonia treatment in neurocritical conditions.

Data Extraction and Quality Assessment

Data were collected using the standardized method of a researcher. Two reviewers did collect data separately. Quality evaluation was conducted following the Critical Appraisal Skill Program (CASP). Cross-checking was carried out if there were conflicting views, a dialogue will be held to find agreement, and if the agreement could not be found, the third party would be consulted for consultation. All included studies had low risk of bias.

Outcome

The expected outcomes consist of barriers, challenges, pneumonia management issues in children under the age of five in various health care facilities, particularly the application of Sick Toddler's Integrated Management (MTBS) and pneumonia management for children in a medical facility.

Synthesis and Analysis of Data

The results of the study were tabulated and qualitatively reported.

RESULTS

In the initial search, they found a total of 460 English language literature. Once homologous recombination was selected and titles and abstracts checked for eligibility, 62 full-text articles were taken for evaluation. For the next test, a total of 12 experiments were taken that fulfilled inclusion standards.

Description of Research Results

The research is classified based on the theme of the barriers and challenges faced in treating children under five years of age with pneumonia. Three studies on the barriers and challenges in hospital pneumonia management, four studies on the barriers and challenges of pneumonia management in primary health care facilities, three articles on pneumonia treatment, and one article on the multi-country approach to barriers to reducing pneumonia mortality rates in infants, which is the trans.

As for the variety of styles of studies encountered, there are qualitative research, narrative and systemic structure literature review, observational studies, and surveys. A common feature of all research included in this analysis is the emphasis on the underlying problems of high incidence and mortality rates of pneumonia in children, the average study conducted in low-income countries, including the issue of antibiotics, the focus on skills in health care providers in the determination of the diagnosis and caregiver as a person who plays a role in the treatment of children.

Theme 1: Barriers and Challenges of Pneumonia Management in Hospital

Hospital pneumonia treatment consists of diagnosis, medical confirmation, antibiotic use, signs, and symptoms treatment before the discharge phase. Although the barriers to the overall process of treating pneumonia in hospitals were not comprehensively addressed, some barriers and challenges were established from some of the literature found. Barriers identified in hospital pneumonia management emphasize the limited capacity of health care professionals to perform assessments to evaluate the diagnosis and maximize the delivery of treatments, especially under the circumstances of multiple cases of upper respiratory tract infections that may become life-threatening (11). The restriction of thorough diagnosis is still particularly found when recognizing cases with extreme risk categories. The restriction of the scope of clinical quality metrics in research in developing countries has not been maximized, where C-reactive protein has been optimally applied in the medical as a predictor of diagnostic seriousness in pneumonia due to inexpensive treatment costs (12). Other barriers found are the

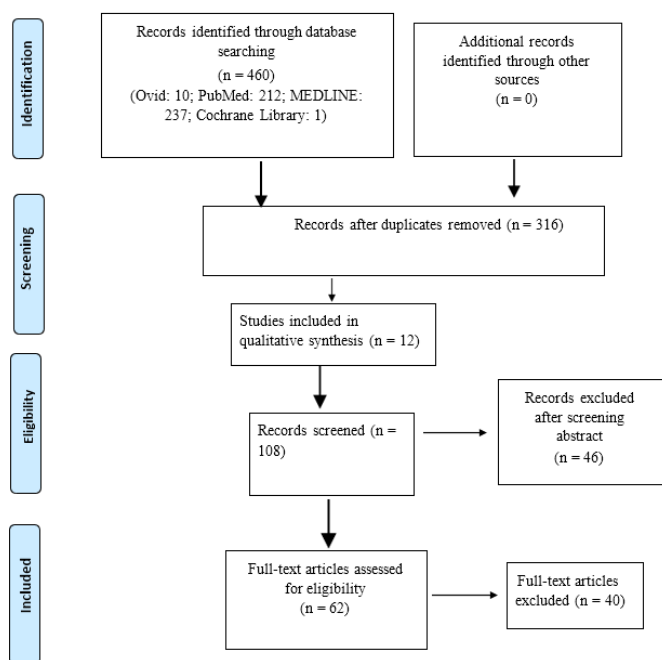


Figure 1. PRISMA Flow Chart

Figure 1 : PRISMA Flow Chart.

strong comorbid diversity which increases the severity and risk of pneumonia death. Studies have reported higher mortality rates in children with malnutritional pneumonia (OR 2.37, 95% CI 1.94-2.88) and anemia (OR 1.41, 95% CI 1.03-1.92) (3). The likelihood of antibiotic resistance is related to a lack of accuracy in the implementation of etiology while determining the diagnosis, especially in the management of pneumonia in developing countries (13,14). Challenges in the discharge planning phase were established concerning enhancing the capacity of families to conduct self-care, where knowledge of signs and forms of administration was required. In this situation, the capacity of the caregiver to obtain and process information may be a contributing factor in children's deteriorating condition (11,15).

Theme-2: Barriers and Challenges in Implementing Management of Pneumonia in Primary Healthcare Facilities

Barriers and challenges faced pneumonia treatment at the primary healthcare settings focus on evaluating and improving the Integrated Childhood Disease Management (IMCI), particularly in resource-limited developing countries. The first barrier to be established is the clinical overlap of pneumonia signs and symptoms such as cough and fever which needs accuracy to determine the diagnosis (16). Despite the availability of guidelines as management guidelines, good clinical expertise in the implementation process, which is linked to the skill of any health care provider, is still required. Focus is still also being paid to the antibiotic therapy in primary healthcare centers relating to the

likelihood of high risk of drug resistance that could be caused by inaccuracies in the administration of drugs in children with pneumonia-like symptoms who do not need antibiotic treatment (16). Another barrier found in this order is the inadequacy of the referral mechanism concerning poor health outcomes in children with pneumonia, especially in children with rapid clinical deterioration (17). Furthermore, the promotion of pneumonia prevention by vaccination campaigns is considered a more successful route, even though obstacles in low-economic countries are difficult during the implementation process (9).

Theme- 3: Barriers and Challenges in enhancing care-seeking in pneumonia cases

According to data from the Counting Report 2015 of the World Health Organization, statistics on progress in survival mothers, newborns and children were obtained that treatment coverage for pneumonia (pneumonia care) currently only met 54% of the 100% target. There are many barriers encountered in efforts to increase the coverage of pneumonia treatment by defining the starting point for pneumonia-related expectations of parents and caregivers (10,18) insufficient caregivers or parental awareness of disease, identification and disease responses (10,18-20).

Some research also illustrates the barrier of ill children seeking treatment through decision-making (10,20). When coping with sick children, the decision-making process is defined as a dynamic process characterized by a lot of discussions because it requires complex social dynamics and is affected by economic means.

Theme-4: Barriers and Challenges in Reducing the Incidence of Pneumonia on the National Scale

In 2009, WHO and UNICEF launched the Global Action Plan on Pneumonia (GAPP) in an attempt to minimize the incidence of pneumonia that can be incorporated into local, national, and international governance arrangements. However, some of the major obstacles are found in its implementation in a country, such as (1) the lack of cooperation between government and stakeholders when implementing program interventions. Thus, external interests are often given priority over national priorities; (2) poor (up-down) policy alignment so that the policy does not adhere to the latest guidelines; (3) financial and human resource barriers; (4) prevention strategy and promotion are still limited to the use of governmental arrangements, especially in efforts to prevent pneumonia and increase health-care-seeking behavior which is a critical key for management of pneumonia in children (21).

DISCUSSION

This research study refers to the study of barriers and challenges that exist in the treatment of pneumonia in children under the age of five in various settings such as hospitals, primary healthcare centers, pneumonia

management in the family, in particular concerning care behavior, and mortality control constraints in children with pneumonia under the age of five. The obstacles and difficulties in the hospital setting include the entire hospitalization phase up to discharge preparation with a focus on both facilities and staff resources. In certain cases of infection, there are possibilities for the deterioration that can be life-threatening, meaning that the involvement of health care providers is required in determining the risk factors that influence the seriousness of the disease, stressing the significance of the initial examination's ability and precision to identify potential patients with a risk of worsening as soon as possible (11).

Furthermore, complications may arise both as long as the child is treated, or shortly after returning from the hospital, so a thorough diagnostic formulation procedure is required to ensure the accuracy and detection of serious cases requiring further care. Although the WHO guideline has been implemented in the management of children with pneumonia in hospitals, the clinical quality indicators that become an important part of the intervention-related decision-making process are still not maximally implemented in all hospitals (12). Comorbid diversity is increasing the incidence and risk of death from pneumonia, particularly in developing countries. Studies have shown a higher mortality rate in children with malnutritional pneumonia (OR 2.37, 95% CI 1.94-2.88) and anemia (OR 1.41, 95% CI 1.03-1.92) (3). Comorbid management as a potential factor is required to lower mortality rates among pneumonia-infants.

Antibiotic use is a significant problem in the treatment of pneumonia infants, WHO advises the use of oral antibiotics for treatment. However, there is also much concern given to the risk of antibiotic resistance that may arise because the most common cause of pneumonia is a virus that may need more assistance due to antibiotic treatment. In comparison, bacterial pneumonia requires antibiotics to avoid complications. The importance of diagnostic accuracy and the implementation of pneumonia etiology is indispensable, but lack of knowledge about it is frequently found especially in developing countries (13,22). In countries with low and middle economic status, antibiotic use based on WHO Recommendations is still advised with a range of considerations by considering the limitations of resources to diagnose the etiology of pneumonia rapidly and precisely. Pneumonia infections caused by bacteria or viruses may occur together, and the detection of the virus causes does not rule out the possibility of bacterial causes (13). Furthermore, previous research has suggested that mortality rates were found to be higher in children with pneumonia who came to the hospital without referral compared to the primary health care patients who had prior antibiotic treatment (3). While medication for justice can still be sought, this is not due to the insufficient availability of antibiotics.

Another difficulty in hospital setting pneumonia management is the capacity of health care professionals, particularly nurses as front liners, to carry out the release development process. Pediatric nurses are expected to prepare discharge arrangements in this situation when the child enters the hospital, provides parents with knowledge and guidance about home treatment, and ensures follow-up in general practice or outpatient clinics. As well as nurses' ability, another critical factor that needs to become the priority is the capacity of the caregiver to obtain and process information (11). The inability to obtain and process information may be a risk factor in children's problems deteriorating (15). The lack of coordination between hospitals and health care facilities has been described as the cause of the lack of assessment and follow-up.

Barriers are found in the healthcare delivery system in maximizing the implementation of integrated case management methods for infants (IMCI), which are linked to limited resources, particularly in low-economic countries. As the key skills in coping with different conditions and the complexity of patients that come to primary health care facilities, both good clinical judgment and decision-making are needed. Medical variation is seen in pneumonia signs and symptoms, such as fever and cough, which means that information and expertise are required to determine the diagnosis. Fever, cough, and quick breathing are also reported as signs and pneumonia symptoms that require antibiotics. Although other causes that do not require antibiotics can cause this (16). Previous studies in Asia revealed a disparity in the use of large-scale antibiotics in children with moderate pneumonia, accompanied by wheezing (23).

In extreme cases, children with serious pneumonia need urgent access to health care facilities to receive parenteral antibiotics and a supply of oxygen. However, decent equipment at the time of reference does not meet these requirements because of the limited resources. Additionally, in children with pneumonia, there are many reasons for treatment failure including age, antibiotic resistance, and others. High-risk babies and children such as babies or children with malnutrition or HIV infection also suffer these failures. The most effective way to reduce pneumonia-related deaths is to improve access to early treatment where there are simple and appropriate interventions, including referrals when needed. To do that, early treatment requires a sufficient number of health care providers, training and resources, and antibiotic and oxygen supply availability.

Primary health care facilities as a first-level health facility are also expected to provide a pathway to pneumonia prevention by combining comprehensive case management methods for children under the age of five with vaccines as outlined in the Global Action

Plan for Pneumonia Prevention and Control GAPP (9). The non-vaccine strategy that has been introduced in its implementation is known to have a lower evidence-based standard compared with the efficacy of preventing pneumonia by vaccination. The high price of vaccines, however, is also an obstacle to the implementation of pneumonia prevention efforts, especially in countries with low economies. Integrating pneumonia prevention and management with immunization programs is very important and can be considered as one of the measures to prevent and minimize mortality rates among pneumonia-infected children. Care-seeking activity is one of the key elements in treating pneumonia in infants. Some of the defined obstacles show the diversity of variables that still demand attention from health care providers to improve care-seeking behavior. In parents of children with pneumonia, average delayed care-seeking activity ranging from 3 -14 days (10).

Previous studies have also concluded that on average parents of children with pneumonia delay have come to health care for 2-3 days after the onset of disease symptoms in children, especially fever and cough (24,25). Parents consider the appearing symptoms to be normal and not harmful so that they can be treated at home alone (10,18). Therefore, if the situation does not change, children in the early stages of the disease come to health services. Previous research has suggested that a lack of maternal awareness about signs and symptoms and the seriousness of the disease may cause either delayed treatment or excessive care ineffectiveness (18). Although some studies highlight the role of mothers in caring for sick children as primary caregivers (10,18,20). This reality can be key to implementing interventions that are prioritized in strategies to enhance health-seeking behavior by growing the mothers' understanding, awareness, and attitudes in reacting to a childhood disease condition. So, they may help a set of complex decision-making processes in health.

Previous contact with the same disease often decreases health-seeking behavior, in which parents continued to take basic herbal remedies, purchase counter-drugs, and adopt the same dosage previously given by health care providers (10). Generally, this procedure is conducted in rural areas with restricted geographical access to herbal medicine conventional health services (10,18–20). The presence of philosophical convictions regarding a ban on the use of medical care has contributed to the rise of alternative treatment methods for healers (19,20). Other factors are distrust of the health care system because it is deemed not to provide sufficient care for their children, low-quality care, particularly in public hospitals, and lack of adequate health care provider skills (10,18,20). Delay in providing the right treatment occurs when health care providers are unable to provide the right diagnosis and provide the right treatment, particularly at the primary healthcare level.

On a national basis, the application of the Global Pneumonia Action Plan (GAPP), implemented by WHO and UNICEF since 2009, has many hurdles in efforts to minimize the death rate of children under the age of five due to pneumonia. (21) concluded that pneumonia under priority is one of the reasons for the ineffectiveness of the program demonstrated by the high prevalence of pneumonia infants. The lack of cooperation in executing program initiatives between the government and stakeholders allows external interests to take priority over national priorities. There is also a lack of continuity in policies that are not related to up-to-date practice guidelines or implementation preparation because policy translation errors arise in the implementation process. Other barriers found were the financial and human resources problems, for example in incorporating integrated group case management that does not perform well because of the low wages offered. But the services offered were already in a low condition, and there was no standardized structure in place to train administrators (community health workers) as community health care providers.

Hence the demands of the community-based capacity of health care providers to offer antibiotic treatment. Thus not providing policies related to these competencies in some developed countries creates a paradoxical effect such that patients may try to find their own prescription to drug dealers who can supply the wrong form and dosage of drugs. Lastly, the most significant obstacle is the low promotion of pneumonia-related health-seeking behavior, which becomes the secret to reducing the morbidity rate. That was also linked to the belief that HIV / AIDS or malaria also gave priority to pneumonia. This stereotype makes pneumonia as a disease with a high prevalence and potential to cause death in children under the age of five appear to be treated as a simple illness in the view of caregivers.

CONCLUSION

Based on the study of obstacles and difficulties in different healthcare facilities and government environments, it can be concluded that financial constraints are still a major obstacle to the implementation of policies such as government-level policy inadequacy, decisions by parents in accessing health services, and vaccination programs. The skills of the human resources also need to be strengthened in both hospital and primary health care facilities, especially in clinical judgment and decision-making skills related to deciding diagnosis and patient management from admission to discharge planning. The magnitude of the position of the parents, particularly mothers, in the child care process so that the right information, skills, and attitudes related to the diseases are highly demanded as a modifiable factor in efforts to reduce the mortality rate of children under five years

of age with pneumonia. The findings in this systematic review suggest the value of continuous treatment in different settings in attempting to improve pneumonia-infected health services in children. The enhancement plan is given priority not only to patients but also to health care providers in neighborhood primary healthcare facilities as well as in-hospital clinical settings.

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