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# The Needs of Premature Infants for Milk

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**Abstract**

Breast milk is a natural gift to mothers as the first food for babies, containing the best nutrition. The benefits of breast milk are undeniable and have been proven through numerous studies. One of the important roles of breast milk is that it can accelerate the growth process of premature infants and reduce the risk of death due to serious intestinal issues, commonly known as necrotizing enterocolitis. However, hospitals often face issues with insufficient supplies of breast milk to provide for premature infants. This is because some mothers who give birth prematurely are still unable to produce their own breast milk. Additionally, the services of wet nurses are very difficult to obtain immediately. Therefore, this article is written to identify the extent of the importance of establishing milk banks in order to save the lives of premature infants. The data for this article was collected using document analysis method. The findings indicate that breast milk plays a crucial role in saving the lives of premature infants. The development of milk banks, especially sharia-compliant milk banks, is essential to ensure that the supply of breast milk in hospitals is always sufficient to meet the needs of premature infants and, ultimately, save their lives.

**Keywords**: Milk Bank, Premature Infants

## Introduction

Premature infants are a category of babies at high risk if they are not provided with breast milk. Moreover, this can cause harm to the infants. Statistics on the birth of premature infants from 2005 to the present show a significant increase. Therefore, the birth of premature infants must be given attention by hospitals, as the risk of mortality is very high. Consequently, milk banks should be established to save the lives of premature infants. All parties must come together to support the establishment of these milk banks, as they can provide greater benefits than harm in Muslim countries. However, various efforts need to be taken, especially by the Ministry of Health and the Department of Islamic Development

Malaysia (JAKIM), to develop sharia-compliant milk banks that not only can save the lives of infants but also prevent issues related to the confusion of milk kinship.

This discussion will cover the definition of premature infants, contributing factors to premature births, diseases that are easily contracted by premature infants, premature infants' need for breast milk, as well as statistics on the increase of premature births in Malaysia

*Definition of Premature Infants*

Premature infants are also known as low birth weight infants (LBW). The conventional definition of prematurity is a birth that occurs before the completion of 37 weeks of gestation. In medical term and according to WHO, a premature infant is one that born before the 37th week of pregnancy (Turner-Maffei et al., 2014).

According to the Ministry of Health (KKM), most babies are born within a gestational age of 40 weeks. A baby is considered mature if born between 37 to 42 weeks of gestation. If a baby is born before 37 weeks of gestation, it is classified as premature. There is also the term 'late premature infant,' which refers to babies born between 34 weeks and 0 days to 36 weeks and 6 days. Meanwhile, a full-term baby is one born between 37 weeks and 0 days to 41 weeks and 6 days (Nordin, 2001).

There are several categories of premature births: less than 28 weeks, 28 to 32 weeks, and 32 to 37 weeks. Additionally, the definition of low birth weight (LBW) refers to infants born with a weight of less than 2500g. Babies weighing less than 1500g are called very low birth weight (VLBW), while those born weighing less than 1000g are referred to as extreme low birth weight (ELBW) (Nordin, 2001). Therefore, premature infants require intensive care because they are born before the appropriate gestational age.

*Increase in Premature Births*

Starting from the issue of breast milk banks, a report by The Malaysian National Neonatal Registry (MNNR) regarding the census in this study involves participation from several hospitals across Malaysia that are registered under MNNR. MNNR is one of the neonatal registration portals established to study and record the number of babies admitted to the Neonatal Intensive Care Unit (NICU) within a year.

In this study, there are approximately 30 NICUs across Malaysia under MNNR. The selection criteria for premature babies are based on birth weight, specifically those weighing 1500g or less, from 2005 to 2008 and in 2010. The results of this study indicate that the number of premature births is increasing each year.

In 2005, MNNR reported a total of 226,878 births across 27 hospitals, with 2,063 being stillbirths and 224,815 live births. Of these, 32.2% were premature babies under 32 weeks of gestation, and 37.2% weighed 1500g or less. After two years, the number of births increased to 249,468 across 32 hospitals, with 2,081 stillbirths and 247,387 live births. Additionally, 10,835 babies were reported in level III NICUs, with 3,203 being recorded as premature under 32 weeks and 3,651 weighing 1500g or less.

In 2008, MNNR reported a total of 258,635 births across 32 hospitals, with 2,198 stillbirths and 256,437 live births. A total of 11,219 births were recorded in level III NICUs. There were 3,348 premature babies under 32 weeks of gestation and 3,699 babies weighing 1500g or less reported that year. In 2010, MNNR reported 269,012 births in 34 participating hospitals. Of this total, 11,685 babies were in level III NICUs. MNNR recorded 3,320 premature babies under 32 weeks of gestation and 3,699 babies weighing 1500g or less. Based on the birth statistics, it can be stated that the number of premature babies born is increasing year by year. The following Figure 1 refers to the statistics on the number of babies from 2005 to 2008 and in 2010.

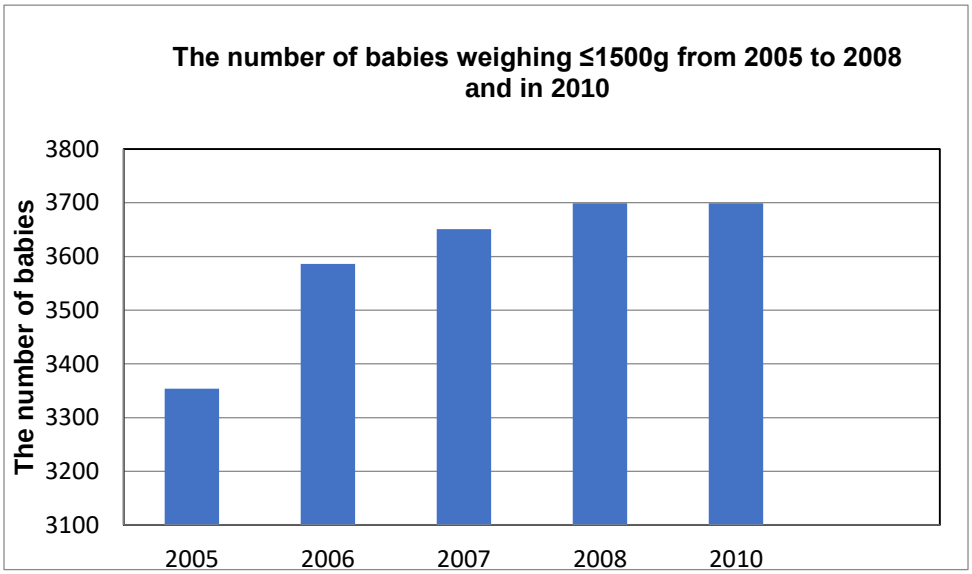


Figure 3.1: Statistics on the Number of Premature Births from 2005 to 2008 and 2010

The conclusion from Figure 1 indicates that in 2005, the number of premature babies born weighing less than 1500g was 3,354. In 2006, there were 3,586 premature births, and in 2007, it rose to 3,651. The numbers for 2008 and 2010 were the same at 3,699. Based on the increasing statistics, the study predicts that the number of premature babies will continue to rise in the future. This increase has led to insufficient breast milk for these infants. Therefore, the establishment of breast milk banks, aligned with Islamic principles, could provide a solution to the shortage of breast milk needed to save the lives of premature babies (MNNR, 2016).

**The Needs of Premature Babies for Breast Milk Banks**

Breast milk has become an essential requirement for premature babies. They need to receive good nutrition to develop at a similar rate to the babies that are still in the womb (Poindexter & Ehrenkranz, 2015). The criteria for selecting breast milk for premature babies are due to its easier digestibility, allowing babies to feed via a tube without much difficulty compared to those receiving formula. Additionally, premature babies' kidneys are better equipped to process breast milk rather than formula. Therefore, breast milk is the best nutrition for premature infants to combat infections and support their immature intestines in obtaining sufficient nutrients.

**Fighting Infections in Premature Babies**

Breast milk contains all the necessary nutrients in the right balance. As soon as the baby is born, the mother's breasts produce colostrum, which is highly nutritious and essential for helping the baby fight infections during the first month of life. This is because its protein is three times higher than regular breast milk, and it is rich in antibodies and white blood cells (Abidin, 2009).

The immature immune system of a baby is unable to effectively combat diseases. Breast milk contains several anti-infective factors that help protect the baby from various types of infections. Among these is lactoferrin, which binds with iron to prevent the proliferation of intestinal bacteria. Additionally, the high levels of Immunoglobulin (IgA) and white blood cells in colostrum play a crucial role in fighting germs in the body. Colostrum serves as the first vaccine that should be given to babies to combat bacteria and viruses.

Furthermore, lymphocytes and macrophages help combat pathogens that enter the baby's body. Anti-inflammatory agents protect the baby from severe inflammatory responses. Maternal antibodies can be transferred to the baby through breastfeeding. A study conducted by the Centers for Disease Control and Prevention (CDC) in the United States found that breastfed babies receive antibodies from their mothers, providing protection against infections. Selenium, natural carotenoids, and nucleotides also contribute to the development and maturation of the baby's immune system. The maturation of the immune system is crucial for enabling the baby's body to fight off diseases effectively.

In addition to protecting against infections, exclusive breastfeeding can reduce the risk of allergic diseases such as asthma and eczema. The risk of diabetes during adolescence and obesity is also lower in babies who are breastfed. Furthermore, the lactose present in breast milk helps prevent rickets by enhancing calcium absorption and stimulating the baby's brain development.

As a result, babies who are breastfed rarely experience symptoms such as diarrhea, intestinal infections, and respiratory infections compared to those who are formula-fed. A study conducted by the Child Malnutrition Prevention Center in Brazil shows that breastfeeding can prevent deaths and complications caused by diarrhea in infants. Babies who are not breastfed have a 25 times higher risk of death due to diarrhea compared to those who are exclusively breastfed (Yusof et al., 2017).

At the same time, breastfeeding is the healthiest choice for mothers as it also reduces the risk of breast and ovarian cancer as well as bone fractures. According to Dr. Ahmad Azahari, a Pediatric Cardiology Specialist, from a practical point of view, the significant benefits of breastfeeding are that it is very easy to manage since there is nothing to wash, sterilize, or prepare (Hafidzin, 2015). Therefore, mothers are encouraged to breastfeed their children by providing sufficient colostrum because breast milk is clean and free from bacteria.

**Helping the Intestines of Premature Infants**

Breast milk is the best liquid to be given to premature infants. With breast milk, the risk of the baby facing serious intestinal infections such as NEC can be reduced. Therefore, colostrum is very important to provide to the baby immediately after birth. This is because the internal

organs, especially the intestines, are still immature and very susceptible to infections if formula milk is given to premature infants (Faridah Idris, 2013).

In addition, breast milk is easier for premature infants to digest the fats due to the presence of the enzyme lipase. Fats are the main source of energy for premature babies and help reduce the risk of vision problems that they may face. Breast milk contains nutrients that aid the intestines of premature infants in receiving food from the mouth and prevent frequent vomiting. Breast milk also promotes better brain and intellectual development compared to formula milk because it contains essential fatty acids and hormones for the formation and development of the baby's brain (Idris, 2013).

Therefore, the best milk to be given to premature infants is breast milk. This is because breast milk contains all the necessary nutrients that are complete for the needs of premature babies. Providing the best nutrition which can help with the growth process of the baby, combat infections, and offer long-term benefits for the baby's future life.

**Conclusion**

Premature infants are at high risk of being affected by various diseases. The external environment is unable to adequately protect the immune system of these infants from infections. The availability of breast milk from milk banks can help reducing the risks faced by these babies. However, the established milk banks must adhere to Islamic law, considering the beliefs of the majority of Muslims in Malaysia who follow the Shafi'i school of thought. In this way, milk banks are not only can save the lives of premature infants but also maintain the sanctity of breastfeeding relationships.

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