

ANALYSIS OF PROGRAM IMPLEMENTATION SCREENING FOR CONGENITAL HYPOTHYROIDISM (SHK) IN INDONESIA: A SYSTEMATIC REVIEW

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ABSTRACT

The importance of Newborn Screening which refers to the examination of a newborn is an important component in identifying conditions that may impact the long-term health or survival of the baby. One type of newborn screening is for hypothyroidism. This is a literature review. Articles searching were conducted from several electronic databases including Science Direct, Google Scholar, Semantic Scholar, Pub Med, Publish or Perish from 2020-2024. Researchers used the PRISMA method. Lack of regulation about screening hypothyroidism congenital. This happens throughout all countries. Since it was established in 2000, Indonesia is still only screening hypothyroidism congenital examinations with fewer satisfying results. Studies show the existence of a lack of awareness among mothers and provider service health about the importance of neonatal screening for hypothyroidism congenital. Required effort to increase knowledge and practice screening among provider service health through education and development programs access to source power. Although there is progress, still lots of areas that have not been structured by neonatal screening hypothyroidism congenital program, and the gaps in access to screening become an important issue.

Keywords: Congenital Hypothyroidism Screening examination program; Independent Midwife Practice

INTRODUCTION

Definitions of newborn screening vary, but generally describe the practice of testing each newborn for potentially critical conditions in the first few days of the newborn's life. The goal of newborn screening should ideally be pre-symptomatic detection or at least to detect abnormalities that are life-threatening or cause long-term disability before the condition causes death or permanent damage. Therefore, newborn screening could save thousands of newborn lives by starting treatment as soon as possible to prevent or reduce the adverse effects of the condition.

Congenital Hypothyroidism is defined as a deficiency of thyroid hormones since birth. Generally, it is caused by dysgenesis or dyshomogenesis. Prompt diagnosis and adequate treatment will result in very normal neurocognitive outcomes in adulthood, underscoring the importance of congenital hypothyroid screening in newborns. Currently, the worldwide incidence of Congenital Hypothyroidism is approximately 1:1400-1:1700, almost twice as high as the previously quoted figure of 1:2000-1:4000.

Indonesia first started a pilot newborns screening project in collaboration with the International Atomic Energy Agency (IAEA) from June 2000 to March 2001 involving four hospitals and 6797 blood samples (3534 samples taken from cord blood serum and 3263 samples taken from dried blood spots on the heels of newborns).

The Indonesian government, through the Ministry of Health, made CHS mandatory for all newborns nationwide in 2014. However, costs are passed on to local governments and individuals as the program is not yet funded by national health insurance or integrated into the national health program. In 2014, newborn screening coverage for Congenital Hypothyroidism was only 0.6% of the total, i.e.: 28,421 out of 4,736,000 newborns.

Currently, Congenital Hypothyroid Screening is supported by National Health Insurance (JKN) financing in all provinces in Indonesia. The government's seriousness in this program is contained in Permenkes number 78 of 2014 concerning Congenital Hypothyroid Screening which regulates the management of SHK activities.

In addition, other financial support for SHK is regulated in the Decree of the Minister of Health number HK.01.07/MENKES/1511/2023 concerning Technical Guidelines for the Implementation of Obstetric and Neonatal Services.

Health services for pregnancy, childbirth, and congenital hypothyroid screening in accordance with the issuance of Permenkes Number 3 of 2023 concerning Health Service Tariff Standards in the Implementation of the Health Insurance Program, the Ministry of Health will fulfill SHK financing for all Puskesmas with a calculation of needs based on the target of babies born from pusdatin data. where the fulfillment of supporting tools and materials for SHK examinations in the form of Medical Consumables (BMHP) will be obtained from Non-physical DAK funds and the state budget. It is hoped, with government support, it can increase the number of Congenital Hypothyroid Screening in Indonesia.

RESEARCH METHODOLOGY

Design

A literature review.

Eligibility criteria

The questions in this literature study were determined using the PICO framework.

- P (population) : Independent Practice Midwife
- I (intervention) : SHK examination in newborns
- C (comparison) : Midwives who do not conduct SHK checks
- O (outcomes) : SHK inspection carried out

The inclusion criteria of this study were articles with full text, accessible for free downloadable academic journals, in a healthcare environment, in Bahasa and English, articles from 2020-2024, as well as articles with all learning types research designs. The exclusion criteria were: paid academic journals, outside the healthcare environment.

Searching Strategy

The searching strategy was carried out by PICO application. The researcher used the following search strategy in each database with the keywords “*Congenital Hypothyroidism Screening examination program*”, “*Independent Midwife Practice*”

Source

The data sources in this study were articles found in the electronic databases of: Science Direct, Google Scholar, Semantic Scholar, Pub Med, Publish or Perish from 2020-2024.

Selection of studies

The first step was screening the title, abstract and full text of the article for eligibility by the researcher. When the above keyword indication was found in all abstracts, the whole article was taken. The references to the chosen articles were reviewed and confirmed for any new articles that qualified in the second phase. The articles were assessed by the authors in this step while taking the inclusion and exclusion criteria into account. The full-text articles were rated for further analysis in the third step.

Data Analysis

Researchers used the Preferred Reporting Items for Systematic Reviews and Meta-analyses Statement (PRISMA) method to follow the correct stages or research protocols. Based on the search strategy and selection criteria above, out of 237 articles in total, and 18 studies were fully reviewed. Finally, only 3 studies had been analysed to the end. The process of selecting these 3 studies has been presented in figure 1.

RESULTS

Indonesia first initiated an NBS pilot project in collaboration with the International Atomic Energy Agency (IAEA) from June 2000 to March 2001, involving four hospitals and 6797 blood samples (3534 samples taken from cord blood serum and 3263 samples taken from dried blood spots (DBS). The recall rate was 3.28% for samples obtained from cord blood tests and 0.64% for heel stick samples, with 0.78% of those samples not analyzed due to improper collection procedures.

Between 2000 and 2005, Hasan Sadikin Hospital and RSCM Hospital, screened 55,647 and 25,499 newborns for CH, resulting in an incidence of 1:3528 cases. On September 27, 2006, a health technology assessment was conducted, which resulted in the Ministry of Health approving mass CH screening. Following the HTA, provinces West Sumatra, Jakarta, West Java, Central Java, Yogyakarta, East Java, Bali, and South Sulawesi, were selected for a pilot screening project with two laboratories selected as reference laboratories for congenital hypothyroid screening.

Due to the lack of integrated data and continuous CH screening, current data on the incidence in Indonesia is fragmented. Between 2000 and 2013, 199,708 newborns were screened with 73 cases of CH (1:2736) in 11 provinces (out of 33 provinces). In 2014, the Indonesian Ministry of Health (KEMENKES) issued a regulation mandating all provinces to conduct routine congenital hypothyroid screening (CHS) for all newborns. However, costs are passed on to local governments and individuals as the program is not yet funded by national health insurance or integrated into the national health program.

In 2014, NBS coverage for CH was 0.6% (28,421 out of 4,736,000 newborns). Later, when three provinces were added to the data, the incidence became 1: 2513. Between October 2015 and January 2016, five provinces (Jakarta, Cilegon, Semarang, Yogyakarta, and Denpasar) were screened, resulting in an incidence rate of 1:226.

In 2017, NBS screening was conducted in 32 provinces with funding from deconcentration funds and non-physical special allocation funds aimed at assisting local public service operations. The following year saw an increase in NBS coverage for CH to 4.6%, with three reference laboratories, which increased to five laboratories in 2019. By 2020, newborn CH screening coverage was less than 2% of all newborns. There is a revised Ministry of Health mandate to accelerate newborn CH screening in 2020 and 2021. In 2022, the MOH accelerated

the NBS program for CH with 11 reference laboratories. They targeted 463,000 samples to be screened, equivalent to 10% of all newborns. By the end of 2022, only 99,263 samples (21.4%) were screened against the initial target. By the third week of August 2023, there were 369,552 samples collected or 8.26% of the target. This final result is still very far from the target of one hundred percent.

DISCUSSION

Cooperation is needed from all available health workers, to jointly achieve the 100% target. Independent Practitioner Midwives as health workers who are closest to the community, have a very strategic role in the implementation of the SHK program. They are often at the forefront of providing maternal and child health services, including CH screening.

Data from the Health HR information system as of April 7, 2021, midwives are one of the most numerous health workers with a total of 202,309 from 10,279 and 61,749 midwives from 2,955 hospitals, independent midwife practices with a total of 42,288 spread throughout Indonesia. These independent midwives can be optimally utilized to succeed the program, provided that they are given the opportunity and facilities that can support the success of this Congenital Hypothyroid Screening program.

Limitation

This review is limited by the small number of studies found and this literature review includes the prevention of screening hypothyroidism congenital program in Indonesia. However, relevant studies were identified using a structured and methodology-based search in scientific databases.

CONCLUSION

Since its establishment in 2000, Indonesia has only screened CHs with unsatisfactory results. While other Asian countries may face similar challenges, Indonesia is still struggling. Despite evidence, the Indonesian government does not mandate or regulate newborn diseases such as CHD, CAH, hearing loss and IEM. This lack of regulation comes despite several pilot projects and studies showing the tremendous benefits of newborn screening to reduce infant mortality.

Researchers need to conduct more studies and include convincing data on CH screening to make this program successful. Efforts are needed to improve screening knowledge and practices among healthcare providers through educational programs and developing access to resources. Despite progress, there are still many areas that are unstructured by the congenital hypothyroidism neonatal screening program and gaps in access to medical personnel for screening are an important issue. For example: filter paper equipment is limited, not all health workers can perform CH screening even though they have received training, and not all health workers have been trained in taking CH samples.

I hope with this literature review that I have made, it can open a new perspective, how far we are from the 100% target. hopefully this literature review can also add insight into the literature regarding congenital hypothyroid screening in health workers, especially midwives, which is still very little in Indonesia.

ETHICAL CONSIDERATIONS

This research has been conducted through ethical consideration. There was no conflict of interest that might influence the results or interpretation of the result.

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CONFLICT OF INTERESTS

The authors declare: there is no conflict of interests.

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