

# Presenting the universal congenital hypothyroidism screening in Dr. Soetomo Hospital

*by* Febrina Pradita

---

**Submission date:** 06-Oct-2021 02:51PM (UTC+0800)

**Submission ID:** 1666668774

**File name:** I\_congenital\_hypothyroidism\_screening\_in\_Dr.Soetomo\_Hospital.pdf (5.25M)

**Word count:** 2251

**Character count:** 14047

p-ISSN 0030-9311  
e-ISSN 2338-4786

Vol. 56 • No. 5 (Supplement) • September 2016

# Paediatrica Indonesiana

(The Indonesian Journal of Pediatrics and Perinatal Medicine)

Abstract of the 8<sup>th</sup> Annual Scientific Meeting  
Indonesian Pediatric Society,  
Makassar, Indonesia,  
September 17-21, 2016



Published by  
Indonesian Pediatric Society

EP-NEF-057	Acute kidney injury and urosepsis in children with hydronephrosis due to nephrolithiasis bilateral and right stenosis ureter distal: a case report	212
EP-NEF-058	Renal involvement in systemic lupus erithematosus	212
EP-NEF-059	Congenital nephrotic syndrome	213

**Poster Presentations: Neonatology**

EP-NEO-001	Neonatal dengue: a case report	214
EP-NEO-002	Profiles of neonates with asphyxia neonatorum in PKU Muhammadiyah Gombong Hospital, Kebumen during 2015	214
EP-NEO-003	Lymphangioma cystica in the right axilla in a newborn	215
EP-NEO-004	Perinatal transmission of dengue virus	215
EP-NEO-005	Complete duodenal atresia with annular pancreas in a 3-day-old neonate	216
EP-NEO-006	5-days-old infant boy with ingestion of methyl-ergometrine: a case report	216
EP-NEO-007	Diagnostic value of C-reactive protein and hematologic scoring system toward blood culture as a definitive diagnostic in neonatal sepsis	217
EP-NEO-008	Diagnosing gastroesophageal reflux disease with non-invasive modality: a case report	217
EP-NEO-009	Comparison of discharge weight and length of stay among breastfed and non-breastfed babies	218
EP-NEO-010	Staphylococcal scalded skin syndrome in a newborn: a case report	218
EP-NEO-011	The influence of intermittent kangaroo mother care method in stabilizing temperature on low birth weight infant	219
EP-NEO-012	The correlation between clinical presentations and radiological findings of necrotizing enterocolitis in neonates	219
EP-NEO-013	Congenital leukemia in neonates: a report of 7 cases	220
EP-NEO-014	Risk factors for low birth weight delivery among Biak society: a hospital-based study	220
EP-NEO-015	Neonatal with hypoxic-ischaemic encephalopathy: a case report	221
EP-NEO-016	The accuracy of serum interleukin-8 level to diagnose neonatal sepsis	221
EP-NEO-017	Unusual and rare teratoma in frontotemporoparietal region: a case report	222
EP-NEO-018	The influence of intralipid to C-reactive protein and absolute neutrophil count in parenteral nutrition on preterm infants with suspected early onset sepsis	222
EP-NEO-019	The correlation between the frequency of breastfeeding and incidence of physiologic jaundice in newborn at Prof. Dr. W. Z. Johannes Regional General Hospital, Kupang in 2015	223
EP-NEO-020	Universal congenital hypothyroidism screening in Dr. Soetomo Hospital	223
EP-NEO-021	Surabaya quintuplet: a breastfeeding success story	224
EP-NEO-022	Patau syndrome with genotype 47,XY,+13,t(13:18)	224
EP-NEO-023	Risk factors of late onset neonatal sepsis in preterm infant in Dr. Soetomo Hospital, Surabaya	225

EP-NEO-019

### The correlation between the frequency of breastfeeding and incidence of physiologic jaundice in newborn in Prof. Dr. W. Z. Johannes Regional General Hospital, Kupang in 2015

Edward Jenerd Ch. Munde<sup>1</sup>, Maria Agnes Etty Dedy<sup>2</sup>, Azaria Amelia Adam<sup>3</sup>, Regina Maya Manubulu<sup>4</sup>  
 University of Nusa Cendana Medical School<sup>1</sup>, Department of Public Health University of Nusa Cendana Medical School<sup>2</sup>, Department of Biomedical Science Faculty of Medicine University of Nusa Cendana<sup>3</sup>, Prof. Dr. W. Z. Johannes Regional General Hospital Kupang<sup>4</sup>, East Nusa Tenggara, Indonesia

#### Abstract

**Background** Approximately 6.6% of child mortality caused by jaundice that can lead to kern icterus or bilirubin encephalopathy. In order to suppress the incidence of neonatal jaundice in newborns, frequent breastfeeding can be done as early as possible. An early and frequent breastfeeding with sufficient calories can increase intestinal motility. Intestinal motility can help pass the meconium, so that the enterohepatic circulation and serum bilirubin levels can be decreased.

**Objective** To find out the correlation between frequent breastfeeding and the incidence of physiological jaundice in newborn baby at Prof. Dr. W. Z. Johannes Regional General Hospital Kupang in Year 2015.

**Methods** This is an observational analytic study using study cross sectional approach and Non-Probability Consecutive sampling method. The study was conducted at Prof. Dr. W. Z. Johannes Regional General Hospital Kupang in August to November 2015.

**Results** Thirty six babies were observed in this study. From nine of infants who were rarely breastfed, there are seven infants (77.8%) experienced jaundice and two infants (22.2%) had no jaundice. Sixteen infants (44.4%) who were moderately breastfed, the 7 infant had jaundice (43.8%) and 9 infants (56.2%) had no jaundice. But, all 11 babies who were often breast-fed, had no jaundice ( $r = 0.513$ ;  $P=0.002$ ).

**Conclusion** There is a significant relationship between the frequency of breastfeeding with physiological jaundice in newborn baby in Prof. Dr. W. Z. Johannes hospitals Kupang.

**Keyword:** breastfeeding, physiologic jaundice

EP-NEO-020

### Universal congenital hypothyroidism screening in Dr. Soetomo Hospital

Febrina Pradita, Masayu Ramadhani Polanunu, Mahendra Tri Arif Sampurna, Dina Angelika, Kartika Darma Handayani, Martono Tri Utomo, Risa Etika, Agus Harianto, Muhammad Faizi  
 Department of Child Health, Airlangga University Medical School/ Dr. Soetomo Hospital, Surabaya, East Java, Indonesia

#### Abstract

**Background** Congenital hypothyroidism (CH) is one of the most common preventable causes of mental retardation. The primary thyroid-stimulating hormone (TSH) screening has become standard in many parts of the world. Worldwide, the incidence of CH is 1 in every 3000 births, in iodine deficient areas the incidence has been reported to be as high as 1 in 600 births. In Surabaya, there were no data of CH.

**Objective** To determine the prevalence of congenital hypothyroidism in Dr. Soetomo Hospital, Surabaya.

**Methods** All neonate in Dr. Soetomo Hospital between August to November 2015 were screened. All neonate 48-72 hours after birth had their blood heelstick in plain tubes and sent to the laboratory, where TSH level at categorized least in 100 3 groups including  $>20$ ,  $15-20$  and  $<10 \mu\text{U/mL}$ . The descriptive statistic analysis was performed using SPSS version 16.0. All the baby with TSH level  $>20 \mu\text{U/mL}$  need further confirmation.

**Results** One hundred and sixty six neonates were included. One hundred and fifty nine neonates with TSH level below  $10 \mu\text{U/mL}$ , 6 neonates with TSH level between  $15-20 \mu\text{U/mL}$ , and 1 neonate with TSH level above  $20 \mu\text{U/mL}$  ( $22.10 \mu\text{U/mL}$ ) which already confirmed as normal result.

**Conclusion** Screening of congenital hypothyroidism in Dr. Soetomo Hospital is regularly performed. The prevalence of congenital hypothyroidism is 0.6%. However, further evaluation still needed.

**Keywords:** screening, neonate, congenital hypothyroidism

**Presenting the universal congenital hypothyroidism screening  
in Dr. Soetomo Hospital**

Febrina Pradita, Masayu Ramadhani Polanunu, Mahendra Tri Arif Sampurna<sup>1</sup>, Dina  
Angelika<sup>1</sup>, Kartika Darma Handayani<sup>1</sup>, Martono Tri Utomo<sup>1</sup>, Risa Etika<sup>1</sup>, Agus Harianto<sup>1</sup>,  
Muhammad Faizi<sup>2</sup>

Division of Neonatology<sup>1</sup>, Division of Endocrinology<sup>2</sup>

Department of Child Health, Faculty of Medicine,

Airlangga University/Dr. Soetomo Hospital, Surabaya-Indonesia

10

**ABSTRACT**

**Background:** Congenital hypothyroidism (CH) is one of the most common preventable causes of mental retardation. The primary thyroid-stimulating hormone (TSH) screening has become standard in many parts of the world. Worldwide, the incidence of CH is 1 in every 3000 births, in iodine deficient areas the incidence has been reported to be as high as 1 in 600 births. In Surabaya, there were no data of CH.

**Objective:** To determine the prevalence of congenital hypothyroidism in Dr. Soetomo Hospital.

**Methods:** All neonates in Dr. Soetomo Hospital between August to November 2015 were screened. All neonates 48-72 hours after birth had their heel's blood taken in plain tubes and sent to the laboratory, where at least 100  $\mu\text{L}$  of serum was obtained. TSH level categorized in 3 groups including  $>20$ , 15-20 and  $<15$   $\mu\text{U}/\text{mL}$ . The descriptive statistical analysis was performed using SPSS version 16.0. All the babies with TSH level  $>20$   $\mu\text{U}/\text{mL}$  need further confirmation.

**Results:** One hundred and sixty six neonates were included. One hundred and fifty nine neonates with TSH level below 15  $\mu\text{U}/\text{mL}$ , six neonates with TSH level between 15-20  $\mu\text{U}/\text{mL}$ , and one neonate with TSH level above 20  $\mu\text{U}/\text{mL}$  (22,10  $\mu\text{U}/\text{mL}$ ) which already confirmed as normal result.

**Conclusion:** Screening congenital hypothyroidism in Dr. Soetomo Hospital is regularly performed. The prevalence of Congenital Hypothyroidism was 0.6%. However, further evaluation still needed.

**Keywords:** screening, neonate, congenital hypothyroidism.

## Presenting the universal congenital hypothyroidism screening in Dr. Soetomo Hospital

Febrina Pradita, Masayu Ramadhani Polanunu, Mahendra Tri Arif Sampurna<sup>1</sup>, Dina Angelika<sup>1</sup>, Kartika Darma Handayani<sup>1</sup>, Martono Tri Utomo<sup>1</sup>, Risa Etika<sup>1</sup>, Agus Harianto<sup>1</sup>, Muhammad Faizi<sup>2</sup>

Division of Neonatology<sup>1</sup>, Division of Endocrinology<sup>2</sup>  
Department of Child Health, Faculty of Medicine,  
Airlangga University/Dr. Soetomo Hospital, Surabaya-Indonesia

### ABSTRACT

#### Background:

Newborn screening (NS) for congenital hypothyroidism (CH) is one of the major achievements in preventive medicine. Most neonates born with CH have normal appearance and no detectable physical signs. Hypothyroidism in the newborn period is almost always overlooked, and delayed diagnosis leads to the most severe outcome of CH, mental retardation, emphasizing the importance of NS. Congenital hypothyroidism (CH) is one of the most common preventable causes of mental retardation. The primary thyroid-stimulating hormone (TSH) screening has become standard in many parts of the world. Worldwide, the incidence of CH is 1 in every 3000 births, in iodine deficient areas the incidence has been reported to be as high as 1 in 600 births. In Surabaya, there were no data of CH. The aim of this study is to determine the prevalence of congenital hypothyroidism in Dr. Soetomo Hospital.

#### Methods:

##### Study design and settings

This cross-sectional study was conducted at Dr. Soetomo Hospital Surabaya. We included all newborn baby between August to November 2015. A written consent was obtained from parents prior to the start of the study.

##### Screening protocol

All neonate 48-72 hours after birth had their heel's blood taken in plain tubes and sent to the laboratory, where at least 100  $\mu$ L of serum was obtained. TSH level categorized in 3 groups including  $>20$ , 15-20 and  $<15$   $\mu$ U/mL. All the baby with TSH level  $>20$   $\mu$ U/mL need further confirmation.

#### Statistical analysis

Data was analyzed using the Statistical package for Social Sciences (spss) Version 16 (Armonk, NY: IBM Corp.). The frequency tables (number, percentage) were calculated for all measurements.

**Results:**

**Table 1** shows that One hundred and sixty six neonates were included. Ninety one neonate was female, 1 baby with extremely low birth weight, eleven babies with very low birth weight, sixty five babies with low birth weight and eighty six babies with normal body weight. Eighty two babies were term infant. **Figure 1** shows that one hundred and fifty nine neonates with TSH level below 15  $\mu\text{U/mL}$  six neonates with TSH level between 15-20  $\mu\text{U/mL}$ , and one neonate with TSH level above 20  $\mu\text{U/mL}$  (22,10  $\mu\text{U/mL}$ ).

Table 1. Baseline characteristic

---

Sex	
Male	72
Female	91
Birth weight	
Extremely low birth wight	1
Very low birth weight	11
Low birth weight	65
Normal	86
Term Infant	82
Preterm Infant	81

---

### Screening Congenital Hypothyroidism

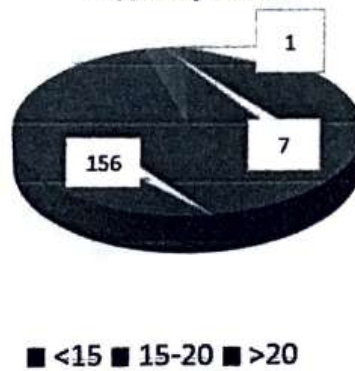


Table 1. Results of screening hypothyroidism in three group

#### Discussion

Newborn screening (NS) for congenital hypothyroidism (CH) is one of the major achievements in preventive medicine. Most neonates born with CH have normal appearance and no detectable physical signs. Hypothyroidism in the newborn period is almost always overlooked, and delayed diagnosis leads to the most severe outcome of CH, mental retardation, emphasizing the importance of NS.<sup>1,2</sup>

Most industrialized and some developing countries conduct routine newborn screening. Programmes in developed countries record prevalences between 1:3000 and 1:4000. Although newborn screening for CH has been a routine practice in developed countries for more than 40 years, developing countries have addressed this concern only in the past decade.<sup>3</sup> CH prevalence varies throughout the world, but the worldwide prevalence is one in 3000–4000 live births. It has been reported as 1:2736 in Turkey, 1:781 in Pakistan and 1:10,000 in African Americans.<sup>4,5</sup>

Varying prevalences of CH reported from different parts of the world may be due to several factors. Iodine deficiency is a known risk factor for CH.<sup>6</sup> A recent study showed that in an iodine-sufficient area, median urine and milk iodine concentrations in neonates and mothers were within the acceptable range.<sup>7</sup>

Some studies suggest that CH prevalence in premature compared with full-term neonates is two-fold or greater.<sup>8</sup> In our study, 4.37% of all neonates and nine of the 94 CH cases were premature, showing that 0.33% of premature neonates had hypothyroidism. The observed difference may be due to our small sample size.



An important finding in this study is that only maternal age was found to be related to hypothyroidism. In 14 of the 94 CH neonates maternal age was more than 35 years. In some studies, CH incidence in neonates born to older mothers has been higher than in those with younger mothers. We found no significant association between CH and the other variables such as sex, weight, gestational maturity of the neonates or parental consanguinity. This is in line with the results obtained in one other study, which also showed no significant relationship between parental consanguinity and CH, but many studies in Iran have shown that parental consanguinity in cases of neonatal CH was 1.5 times that among neonates without CH.<sup>9</sup>

The reported CH re-call rate also varies between different populations (varying from 0.16% to 3.3%). Our re-call rate of 2.5% is in the higher ranges. The difference may be due to the sampling method, or a different way of performing laboratory tests, and may also reflect the levels of iodine deficiency in different regions.<sup>10</sup>

Recent studies suggest that nearly all screening programmes report a female predominance, approaching 2:1 female to male ratio. In our study, this ratio was 1:1.41, with male preponderance. The female:male ratio varies in different studies (e.g. 6:1<sup>34</sup> in Estonia and 3:1<sup>35</sup> in Saudi Arabia). The difference may be due to the high prevalence of consanguineous marriages in our region, or more probably to our small sample size. To our knowledge, there have been no systematic long-term follow-up studies of the sex ratio among newborns with transient versus permanent hypothyroidism in Iran. In three of the CH neonates in our study (3.2%) the mother also had a history of thyroid disease, supporting the importance of genetic factors as a possible cause of congenital hypothyroidism.<sup>11</sup>

Seasonal variation in CH incidence has been described in some studies. In our study the highest prevalence (2.3 in 1000 live births) was found in autumn, and the lowest prevalence in summer. The seasonal variation suggests that environmental factors (e.g. viral infections) may be important in the development of CH; however, the seasonal variation in CH incidence in our study cannot be generalized. Further multicentre studies of longer duration and larger sample sizes will be required to determine the correlation between CH and seasonal variation in Indonesia.

We concluded that screening congenital hypothyroidism in Dr. Soetomo Hospital is regularly performed. The prevalence of Congenital Hypothyroidism was 0.6%. However, further evaluation still needed.

# Presenting the universal congenital hypothyroidism screening in Dr. Soetomo Hospital

## ORIGINALITY REPORT

16%

SIMILARITY INDEX

10%

INTERNET SOURCES

14%

PUBLICATIONS

0%

STUDENT PAPERS

## PRIMARY SOURCES

1	M Obaidulla Ibne Ali, Tanvir Iqbal, Nur E Atia, Tohorul Islam, K Khanam. "Study of Thyroid Hormone Status in Normal Newborn and Preterm, Low Birth Weight Baby", TAJ: Journal of Teachers Association, 2018 Publication	3%
2	services.rmh.med.sa Internet Source	2%
3	"Read by Title", Hormone Research in Paediatrics, 2008 Publication	1%
4	Atilla Büyükgebiz. "Newborn Screening, Hypothyroidism in Infants, Children and Adolescents", S. Karger AG, 2006 Publication	1%
5	www.pdn.ac.lk Internet Source	1%
6	ijn.mums.ac.ir Internet Source	1%
7	www.science.gov Internet Source	1%
8	pediatrics.aappublications.org Internet Source	1%
9	R V Mikelsaar, R Zordania, M Viikmaa, G Kudrjajtseva. "Neonatal screening for congenital hypothyroidism in Estonia", Journal of Medical Screening, 2016	1%

---

10	<a href="http://alm.plos.org">alm.plos.org</a> Internet Source	1 %
11	<a href="http://www.njhealthmatters.org">www.njhealthmatters.org</a> Internet Source	<1 %
12	Osama E. M. Bekhit, Remon M. Yousef. "Permanent and Transient Congenital Hypothyroidism in Fayoum, Egypt: A Descriptive Retrospective Study", PLoS ONE, 2013 Publication	<1 %
13	<a href="http://core.ac.uk">core.ac.uk</a> Internet Source	<1 %
14	Elric Brahm Malelak, Christopher Lauren, Donny Argie, Tri Nugraheni. "Congenital Midline Spinal Hamartoma in a 5-Month-Old Infant", World Neurosurgery, 2021 Publication	<1 %

---

Exclude quotes      On

Exclude matches      Off

Exclude bibliography      On

# Presenting the universal congenital hypothyroidism screening in Dr. Soetomo Hospital

---

GRADEMARK REPORT

---

FINAL GRADE

**/100**

GENERAL COMMENTS

**Instructor**

---

PAGE 1

---

PAGE 2

---

PAGE 3

---

PAGE 4

---

PAGE 5

---

PAGE 6

---

PAGE 7

---

PAGE 8

---