THE PREVALENCE OF ANAEMIA AMONG CHILDREN AGED 6 – 59 MONTHS OLD IN MALAYSIA:

A SUBSAMPLE ANALYSIS FROM THE NATIONAL HEALTH AND MORBIDITY SURVEY (NHMS) 2022: MATERNAL AND CHILD HEALTH

Khairul Hasnan Amali[1], Teh Wai Siew[2], Lalitha Palaniveloo[1], Ahmad Ali Zainuddin[1] & Mohd Shaiful Azlan Kassim[1]

[1] *Institute for Public Health, National Institute of Health, Ministry of Health Malaysia*

[2] *Nutrition Division, Ministry of Health Malaysia*

MINISTRY OF HEALTH MALAYSIA
INSTITUTE FOR PUBLIC HEALTH

Introduction

1. Anaemia is a condition in which the number of red blood cells (and consequently their oxygen-carrying capacity) is insufficient to meet the body's physiologic needs. Specific physiologic needs vary with a person's age, gender, residential elevation above sea level (altitude), smoking behaviour, and different stages of pregnancy.
2. Globally, it is estimated that 40% of all children aged 6–59 months are affected by anaemia.
3. The WHO defined anaemia among children aged 6-59 months old for this age group as a haemoglobin concentration below than 110 g/L at sea level (Table 1).

Table 1: Haemoglobin levels to diagnose anaemia at sea level (g/l)

Population	Non-Anaemia*	Anaemia		
		Mild[a]	Moderate	Severe
Children 6-59 months of age	110 or higher	100-109	70-99	lower than 70

4. Anaemia is associated with poor cognitive and motor development outcomes in children, can cause fatigue and low productivity, and, when it occurs in pregnancy, is associated with poor birth outcomes (including low birth weight and prematurity) as well as maternal and perinatal mortality.
5. Anaemia is one of the global malnutrition indicator and national estimates data are needed to monitor the children under-5 health status.

Objective

This study aimed to determine the prevalence of anaemia among children aged 6-59 months in Malaysia.

Methodology

1. The NHMS: MCH is a cross-sectional survey, using a multistage cluster random sampling focused on the woman of reproductive age.
2. A subsample of children aged 6-59 months were selected for this study purpose in selected households. A total of 70 Enumeration Blocks were randomly selected.
3. Written informed consent was obtained from parents/caregivers prior to conducting the blood test, which were using HemoCue® Hb 201+ system through a finger prick (capillary blood) at the primary health clinic. The blood sample will be used specifically for this study and will be discarded according to standard procedure after haemoglobin level is determined (Figure 1 & 2).
4. All child's information obtained in this study kept and handled in a confidential manner, in accordance with applicable laws and/or regulations.
5. Complex samples analysis (frequencies) was used to determine prevalence of anaemia by using IBM SPSS Statistics Version 28.0

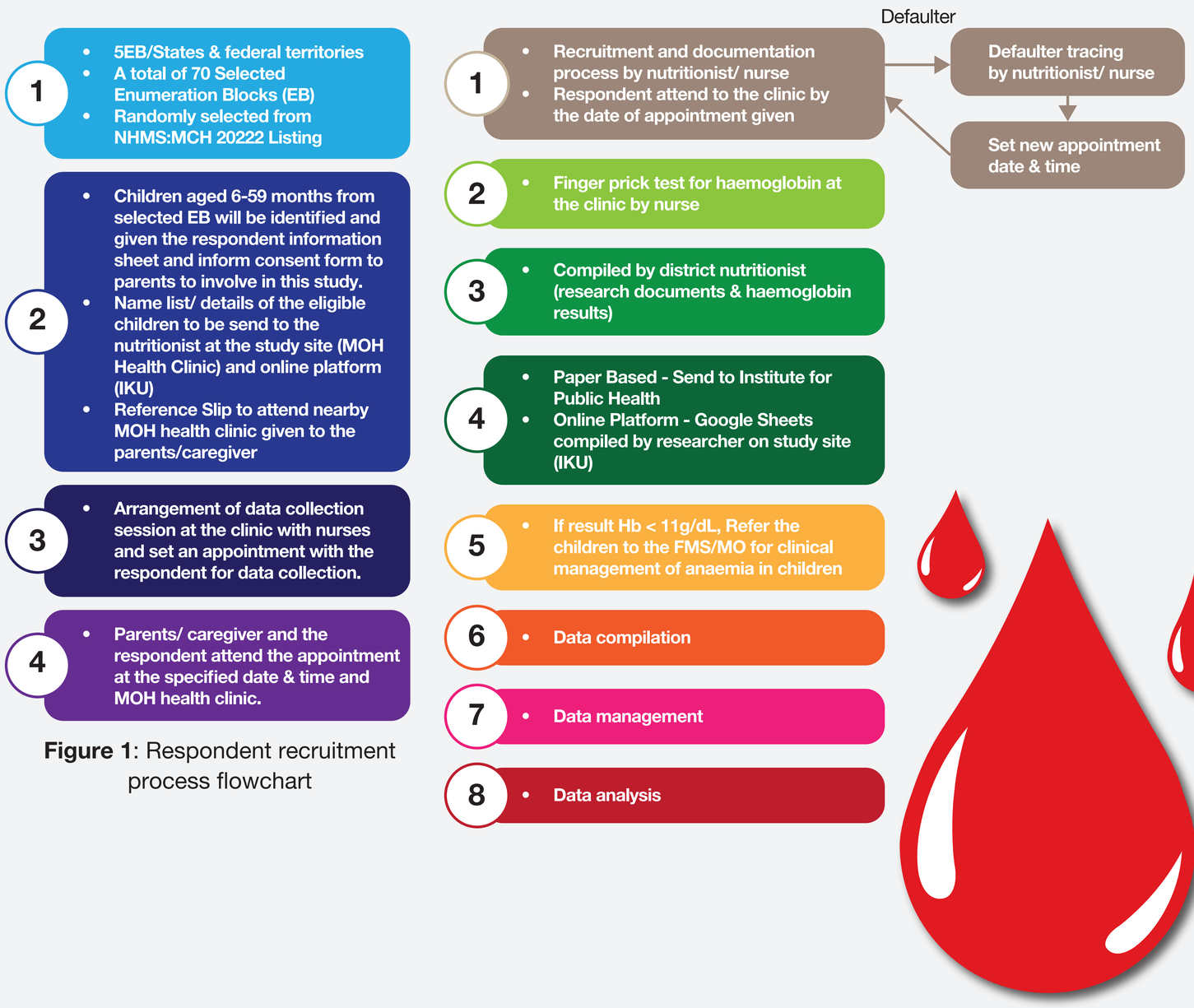

Figure 1: Respondent recruitment process flowchart

Results

1. A total of 1047 children involved in this study.
2. The overall prevalence of anaemia in children aged 6-59 months was 46.5% (95% CI: 35.56-57.78)
3. By severity of the anaemia, 24.3% (95% CI: 20.19-29.02) had mild anaemia, 21.9% (95% CI: 12.25-36.00) had moderate anaemia and 0.3% (95% CI: 0.06-1.30) had severe anaemia (Table 2).
4. These findings indicated a significant public health concern, as the prevalence of anaemia among children 6–59 months of age surpassed the WHO Global Health Observatory's 2019 estimation of 24.6% for Malaysia and 40% for globally.

Table 2: Prevalence of Anaemia among children aged 6 – 59 months old in Malaysia, NHMS 2022: MCH (n=1,047)

	Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
MALAYSIA	439	1,109,072	46.5	35.56	57.78
Severity of anaemia					
Mild Anaemia (100 – 109 g/L)	268	580,351	24.3	20.19	29.02
Moderate anaemia (70-99 g/L)	168	522,012	21.9	12.25	36.00
Severe anaemia (<70 g/L)	3	-	-	-	-

Conclusion

The prevalence of anaemia among children aged 6-59 months in this survey was considered as severe public health problem (≥ 40%). The findings of this survey were much higher than estimation by WHO Global Health Observatory 2019. Among children with anaemia, a major proportion of them had mild and moderate anaemia. Recommendation to incorporate anaemia prevention strategies into complementary feeding and preschoolers education for mothers and caregivers.

Acknowledgement

The authors would like to express our gratitude to the Director General of Health Malaysia for the permission on the poster presentation of this study. The authors also thanked the Principle Investigator and NHMS:MCH 2022 team members, Nutritionist and Nurses at the study site and Director of Institute for Public Health for their contribution to the success of this study.

References

1. WHO. Haemoglobin concentrations for the diagnosis of anaemia and assessment of severity. Vitamin and Mineral Nutrition Information System. Geneva, World Health Organization, 2011 (WHO/NMH/NHD/MNM/11.1) (http://www.who.int/vmnis/indicators/haemoglobin.pdf, accessed [28 June 2023]).
2. Nutritional anaemias: tools for effective prevention and control. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.
3. Nutrition Landscape Information System (NLiS): Anaemia (https://www.who.int/data/nutrition/nlis/info/anaemia, accessed [28 June 2023])