

CRISIS BULLETIN

High prevalence of anemia among young children in urban and rural areas

Indonesia's crisis has increased food prices and reduced purchasing power, which has left the poorest and most vulnerable groups unable to afford micronutrient-rich foods such as animal products. This has resulted in an increased prevalence of micronutrient deficiencies, particularly that of iron and vitamin A. This Bulletin reports on the very high prevalence of anemia found in urban and rural areas, particularly among young children.

Data collected by the HKI/GOI Nutrition Surveillance System (NSS) in Jan – Mar 1999 and Apr – May 1999 show that the prevalence of anemia among underfives, which was approximately 40% in 1995¹, is now around 50-85%.

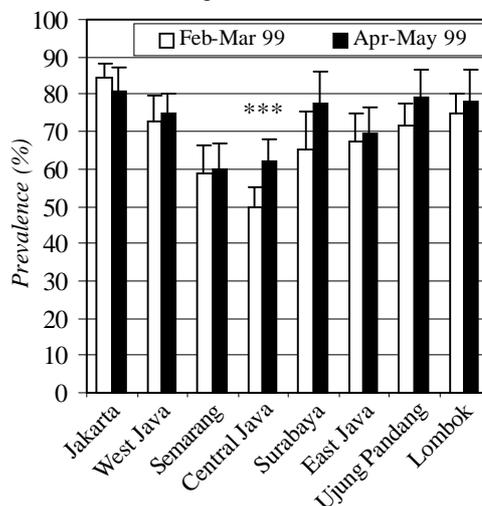
Iron deficiency anemia reduces immunity, causes lethargy and limits a child's psychomotor and mental development and can therefore result in reduced intellectual capabilities. The fact that the majority of young children in Indonesia suffers from iron deficiency anemia will have serious consequences for the nation's future development. Among non-pregnant

women, the prevalence of anemia also increased, from 20-30% in 1995 to 22-47% in early 1999. The prevalence of anemia among pregnant women was found to range from 20-65%. Iron deficiency anemia in women reduces productivity and immunity, and in pregnancy it is an important cause of maternal mortality and leaves the newborn with low iron stores.

NUTRITION SURVEILLANCE SYSTEM

The HKI/GOI-MOH NSS regularly collects data among 30,000-40,000 households that are selected by multistage cluster sampling, in a variety of urban and rural areas of Indonesia, to assess the health and nutritional status of women and children, and to monitor health- and crisis-relief- programs. In Jan-Mar '99 and in Apr-May '99, hemoglobin concentration was assessed for a subsample of underfives and their mothers in four urban slum areas (Jakarta, Surabaya, Ujung Pandang and Semarang) and four rural areas (West Java, Central Java, East Java and Lombok). A drop of blood was collected from the fingertip and the *HemoCue* device (Angelholm, Sweden) was used to determine its hemoglobin concentration.

Figure 1. Prevalence of anemia (Hb<110 g/L) in Jan-Mar '99/Apr-May '99 among urban and rural children aged 12-23 mo old. Bars indicate 95% CI (Confidence Interval) corrected for design effect.



*** Significant difference between rounds in an area, $p < 0.001$, Chi-square test corrected for design effect.

1. Ministry of Health, Republic of Indonesia. *Survei kesehatan rumah tangga (SKRT) 1995, survei morbiditas maternal* (Household survey, survey of maternal morbidity). Jakarta: National Institute for Health Research and Development, MOH/RI, 1995.

Children most vulnerable to malnutrition between 6-24 months of age

Children are most vulnerable to malnutrition between 6-24 months of age. At that time, their nutritional requirements are very high, breastmilk alone cannot meet these requirements anymore, and home-prepared foods that are commonly fed to infants generally have a low content of micronutrients and often the bioavailability of the micronutrients is poor. For example, an infant needs almost as much iron as an adult male, but traditional weaning foods contain less than 20-30% of these needs.

In addition to a low micronutrient content, many weaning foods also have a low energy-density. The latter, often combined with too low a frequency of feeding, results in an inadequate intake of energy and macronutrients. A low frequency of the consumption of foods that already have a low micronutrient content inevitably results in too low an intake of micronutrients.

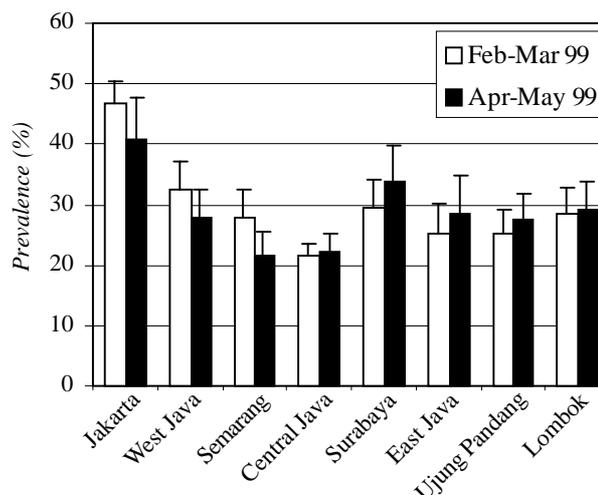
FINDINGS AND PROGRAMS

The HKI/GOI Crisis Bulletin, Yr. 1, Iss. 7 (November 1999), reported a very high prevalence of wasting among children aged 12-23 mo, especially in urban areas (20-30%), indicating that the absolute amount of food consumed is inadequate. The very high prevalence of anemia indicates that the intake of micronutrients is very much lower than required. Thus, these children urgently need energy-dense, micronutrient-rich, weaning foods.

The Complementary Food Initiative (CFI), which was launched by the Government of Indonesia and is supported by UNICEF, provides such a food to young children aged 6-24 months old, in particular infants aged 6-12 months old. The food, *Vitadele*, is produced locally and distributed to poor villages in 'hardest hit' districts in West, Central and East Java, East Nusa Tenggara, East Timor, and West Nusa Tenggara, where it can be obtained from the Posyandu (integrated health post) at minimal cost. Loans from the International Monetary Fund and the Asian Development Bank for the government's social safety net program have been allocated to the initiative, and the Australian Agency for International Development and the US Agency for International Development are providing funds for further expansion.

HKI is currently evaluating the impact of *Vitadele* consumption on anemia and linear growth among children aged 6-18 mo old.

Figure 2. Prevalence of anemia (Hb<120 g/L) in Feb-Mar '99/Apr-May '99 among non-pregnant urban and rural mothers. Bars indicate 95% CI corrected for design effect.



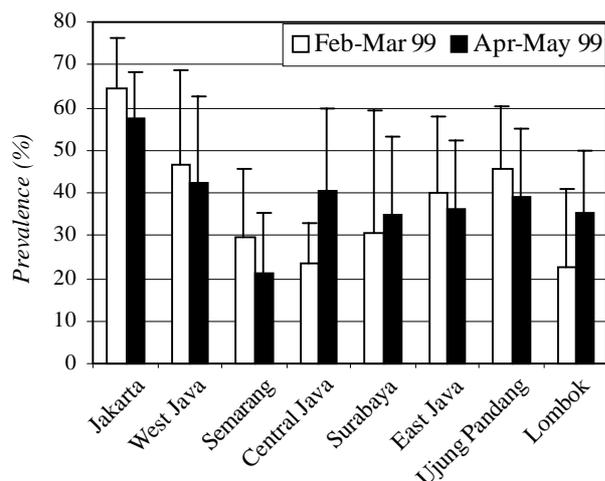
ANEMIA AMONG UNDERFIVES

Figure 1 shows the prevalence of anemia among children aged 12-23 mo old. The prevalence ranged between 65-85% in all areas, except in Central Java, including the slums of the city of Semarang, where it was between 50-62%. Also, in all areas, except the slums of Jakarta, the prevalence of anemia seemed to be higher in Apr-May than in Feb-Mar. Data that were collected in Sept-Dec 1999 should reveal whether this trend was sustained.

ANEMIA AMONG WOMEN

The prevalence of anemia among non-pregnant women ranged between 22-47% (see figure 2), while it was around 20-30% in 1995.¹ The prevalence of anemia was highest in the slum areas of Jakarta and Surabaya (30-47%) and lowest in rural Central Java. However, also in Central Java, as reported in HKI/GOI Crisis Bulletin, Yr. 1, Iss. 3 (Oct. 1998), a comparison of data collected before and after the onset of the crisis (Jun-Aug 96 and Jun-Aug 98) showed that the prevalence of anemia among non-pregnant women was higher after the onset of the crisis (20% compared to 15%). Among pregnant women, who formed a relatively small proportion of the total group of mothers included in the surveillance samples, the prevalence of anemia was also highest in Jakarta, 57-64%, and ranged between 30-45% in most other urban and rural areas (figure 3). While among children the prevalence seemed higher in Apr-May than in Jan-Mar, the prevalence of anemia among women (pregnant as well as non-pregnant) was comparable in these two periods.

Figure 3. Prevalence of anemia (Hb<110 g/L) in Feb-Mar '99/Apr-May '99 among pregnant urban and rural mothers. Bars indicate 95% CI corrected for design effect.



INCREASED MICRONUTRIENT DEFICIENCIES

These findings clearly show that Indonesia's crisis has a devastating impact on the prevalence and severity of micronutrient deficiencies (see also HKI/GOI Crisis Bulletins, Yr. 1, Iss. 2, 3 [Oct. 1998] and 8 [Dec. 1999]). NSS data have also shown that the increase of micronutrient deficiencies is mainly due to a lower consumption of micronutrient-rich foods, especially animal foods and fortified foods, because these are also the most expensive foods that have now become very difficult to afford for the majority of the population.

Among children, the increase of the prevalence and severity of vitamin A deficiency is less severe than that of anemia, because the distribution of high-dose vitamin A capsules has been relatively well-maintained (see HKI/GOI Crisis Bulletin, Yr. 1, Iss. 8, Dec. 1999). The very high prevalence of anemia calls for immediate interventions that can add to the existing programs for reducing iron deficiency anemia and indicates the urgent need for information about the prevalence and severity of anemia among various target groups in different areas of Indonesia.

CONCLUSION

The prevalence of anemia among young children is very high (50-85%). Also, among women, the prevalence of anemia is considerably higher than before the onset of the crisis. Iron deficiency anemia reduces immunity, productivity, pregnancy outcome, and mental and psychomotor development. The high prevalence of anemia will not only have a devastating impact on the development of the individual, but also on that of the nation. Therefore subsidized micronutrient-rich and energy-dense, weaning foods for young children, and iron supplements for women of reproductive age as well as for particular groups of children are strongly recommended.

Recommendations

Based on the findings presented, we recommend that:

1. Feeding of infants and young children is improved by:

- promotion of exclusive breastfeeding for the first 4-6 months of life, including the feeding of colostrum (first breastmilk produced by mother after delivery)
- increasing intake of both micro- and macronutrients by including more fortified foods (such as micronutrient-rich, energy dense, weaning foods) and foods of animal origin in the diet
- increasing feeding frequency
- micronutrient supplementation, particularly with iron, to those groups among whom it is difficult to sufficiently increase micronutrient-intake through the diet.

Because many families will not be able to afford commercially available, energy-dense, micronutrient fortified, weaning foods, such foods will have to be subsidized and be made available to specific target groups.

2. Food aid and micronutrient supplements (particularly iron and vitamin A) are provided to pregnant and breastfeeding women in poor areas.

3. Monitoring of the health and nutrition situation in urban and rural areas of Indonesia is continued and expanded in order to:

- monitor the impact of the crisis on different subgroups of the population and in different areas
- identify necessary and appropriate interventions as well as areas and target groups that need them the most
- monitor the impact of programs for limiting the consequences of the crisis on health, nutrition and education, as is the case with the Complimentary Food Initiative (see box, previous page).

4. New initiatives for limiting the risk of micronutrient deficiencies are well piloted and well tested, in order to allow their adjustment where necessary.

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