

## Severe malnutrition in infants displaced from Mosul, Iraq

Médecins Sans Frontières (MSF) provides emergency medical care, including mother and child care, in 10 governorates of Iraq. The military operation by the Iraqi government on Mosul, the second largest city in Iraq, began in late 2016 and ended with a siege of the city that lasted from February, 2017 until July, 2017. The siege led to food shortages, and subsequent mass displacements presented further challenges for food security.

Mass screening among children aged 6–59 months in displacement camps, done by implementing partners as part of their programme, showed a low prevalence of malnutrition. However, in Qayyarah, one of the major sites for displaced persons, hospital-based MSF teams reported high admissions of severely malnourished infants aged under 6 months, especially from western Mosul. Therefore in May, 2017, MSF did an exhaustive screening in Al-Jad'ah camp in Qayyarah to estimate the prevalence of malnutrition among infants aged 1–5 months, and to explore barriers to adequate infant feeding.

Weight-for-length Z-score is the WHO standard for malnutrition assessment among children in this age group.<sup>1</sup> However, due to the complexity of this method and, following recommendations<sup>2</sup> in 2015 from the Management of Acute Malnutrition in Infants project, we defined severe malnutrition in infants aged 1–5 months as: (1) having a mid-upper arm circumference of less than 110 mm (with or without oedema); (2) having a weight-for-age Z-score of less than -3 (with or without oedema); or (3) presence of oedema. Evidence suggests a strong association between these criteria and mortality.<sup>3</sup> We conducted semi-structured interviews with

mothers of severely malnourished children who were admitted to inpatient facilities supported by MSF to determine barriers to feeding.

The prevalence of severe malnourishment among infants aged 1–5 months was 26% using mid-upper arm circumference (with or without oedema), 25% using weight-for-age Z-score (with or without oedema), and 4% using oedema alone. Interviews with mothers indicated that the use of infant formula was common, consistent with evidence from other studies among Iraqi women before the war.<sup>4</sup> Some women interviewed were not able to breastfeed or perceived an inability to breastfeed on the basis of their own poor access to good nutrition and several life stressors. Inadequate access to formula milk resulted in substitutions such as water and sugar.

Although breastfeeding is recommended and should be encouraged, it is not an option for all women. In complex humanitarian emergencies, breastmilk substitutes and, particularly, the distribution of formula milk should be incorporated into the response. Promoting breastfeeding and ensuring the availability of breastmilk substitutes are not mutually exclusive. The situation in Iraq underlines the need to adapt the humanitarian response to each context.

We declare no competing interests.

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