Nutrition Surveillance Reports
HEALTH ASSESSMENT PROGRAMME

Malnutrition among refugee children aged 6–59 months is a critical public health concern due to the heightened disease vulnerability of this age group and the food insecurity facing refugee populations.[1] As part of refugee health assessments at key locations around the world, the IOM Migration Health Division teams routinely conduct anthropometric measurements for all persons examined. Using this data, IOM provides regular Nutrition Surveillance reports that are disseminated to key partner agencies, including the United Nations High Commissioner for Refugees (UNHCR) and other non-governmental organizations (NGOs). These reports will contribute to refugee health monitoring and aid in the planning of essential nutrition interventions for refugee children.

Child growth and malnutrition indicators

This report presents the prevalence of two key indicators for protein–energy malnutrition recommended by the World Health Organization (WHO),[2] UNHCR[1,3] and World Food Programme (WFP),[4] namely weight-for-height or wasting and height-for-age or stunting. Wasting is generally indicative of recent and severe weight loss, often associated with acute starvation and/or recent disease. Wasting is considered the best indicator of acute malnutrition and a strong predictor of mortality among children under age five. Stunting is generally indicative of a more chronic process that results from suboptimal nutrition and/or health conditions.

Data collection and analysis

The IOM data management software called Migrant Management Operational System Application (MiMOSA) is used in refugee health assessments to capture and analyse operational data. MiMOSA data are gathered and undergo quality control in a Central Data Repository (CDR) that is used for generating statistical reports. This report uses MiMOSA data on country of origin, age, gender, height (or length) and weight for refugee children aged 6–59 months from IOM sites in seven countries, namely Ethiopia, Iraq, Jordan, Kenya, Malaysia, Nepal and Thailand. As recommended for population-based assessments, the z-score system of expressing indicators as number of standard deviations (SD) or z-scores above or below reference mean is used.

The severity or public health importance of malnutrition among refugees aged 6–59 months examined in various

countries – overall and at specific sites – is assessed using prevalence ranges recommended by WHO.[2]

Government child growth monitoring and immunization campaign at IOM Eastleigh Community Wellness Centre in Nairobi.
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Summary of findings

A total of 4,665 refugee children (12% of a total of 39,763 refugees examined) are included in this report. Overall, this sample shows medium prevalence of wasting (7.8%; 7.0–8.6) and low prevalence of stunting (19.4%; 18.3–20.6).

The prevalence levels of wasting are high among refugee children in Ethiopia (14.9%) and Malaysia (13.5%), and medium in Iraq (6.1%), Kenya (9.0%) and Thailand (6.4%). Jordan (3.5%) and Nepal (4.7%) show relatively low levels of wasting or acute malnutrition in refugee children.

The prevalence levels of stunting are high in Thailand (39.0%); medium in Ethiopia (28.4%) and Kenya (20.5%); and low in Iraq (13.3%), Jordan (4.1%), Malaysia (7.8%) and Nepal (17.1%).

Nutrition status data on refugees aged 6–59 months assisted by IOM in Addis Ababa and refugee camps in Kebribeya, Axum and Shimelba from January to June 2011

Demographic characteristics

There are a total of 328 children aged 6–59 months (10% of all 3,375 refugees) with a mean age of 32 months across the four sites. The sex ratio of the examined children is 1.0 in Kebribeya, 1.2 in Addis Ababa, 1.3 in Shimelba and 2.7 in Axum. Children at Kebribeya and Addis Ababa are from Somalia, while those at Axum and Shimelba are from Eritrea.

Findings

For all refugee children aged 6–59 months examined in Ethiopia, the prevalence of wasting is high (14.9%; 11.1–18.8) and stunting is medium (28.4%; 23.5–33.2). The severity of wasting is very high in Kebribeya (16.4%; 11.7–21.0), high in Shimelba (14.3%; 4.5–24.1), medium in Axum (9.1%; 0–26.1), and low in Addis Ababa (4.2%; 0–12.2). The severity of stunting is low (16.3%; 6–26.7) in Shimelba, medium in Addis Ababa (29.2%; 11–47.4) and Axum (27.3%; 1.0–53.6), and high in Kebribeya (30.7%; 24.9–36.5).

Figure 1: Prevalence of wasting among refugees aged 6–59 months (n=328), Ethiopia, 2011

Figure 2: Prevalence of stunting among refugees aged 6–59 months (n=328), Ethiopia, 2011
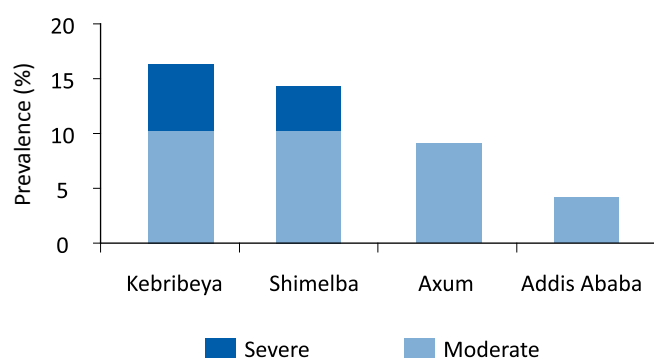
When compared with the annual prevalence over the past two to three years, a decline in the prevalence of wasting from January to June 2011 is observed in Addis Ababa and Shimelba, whereas an increase is observed in Kebribeya.
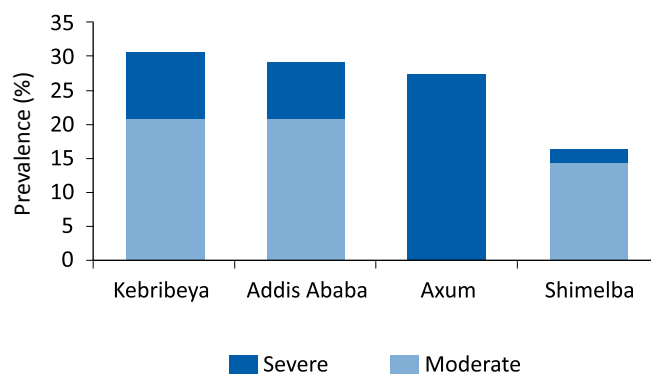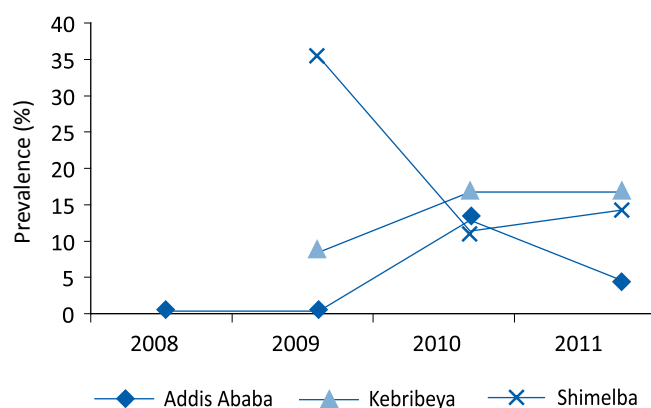
**Figure 3: Trends in prevalence of wasting, Ethiopia, 2008–2011**

Nutrition status data on refugees aged 6–59 months assisted by IOM in Al Walid camp and Baghdad from January to June 2011

Demographic characteristics

There are a total of 978 children aged 6–59 months (13% of all 7,351 refugees) with a mean age of 32 months across the two sites. The sex ratio of the examined children is 0.8 in Al Walid camp and 1.1 in Baghdad. The refugee children in Baghdad are from Iraq and those at Al Walid camp are from the Palestinian Territory.

Findings

Among all refugees aged 6–59 months examined at various sites in Iraq, the prevalence of wasting is medium (6.1%; 4.6–7.6) and that of stunting is low (13.3%; 11.2–5.4). No wasting is observed in Al Walid camp in this period. The severity of wasting among refugees aged 6–59 months is medium in Baghdad (6.2%; 4.7–7.7). The severity of stunting is low in Baghdad (13.2%; 11.1–15.3) and medium in Al Walid camp (22.2%; 0–49.4).

Figure 4: **Prevalence of wasting among refugees aged 6–59 months (n=978), Iraq, 2011**

Figure 5: **Prevalence of stunting among refugees aged 6–59 months (n=978), Iraq, 2011**
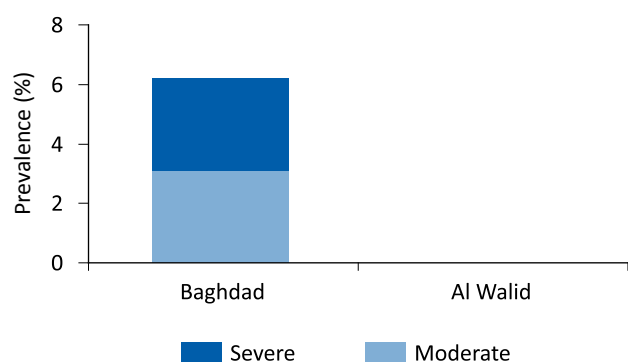
Nutrition data for the age group 6–59 months over the past two years are available for Baghdad. When compared with the annual prevalence over the past two years, a decline in the prevalence of wasting is observed in Baghdad from January to June 2011.
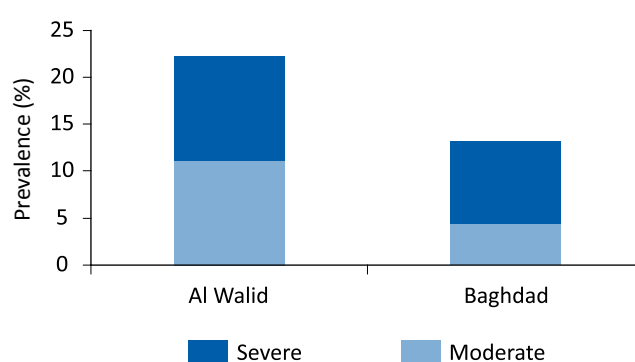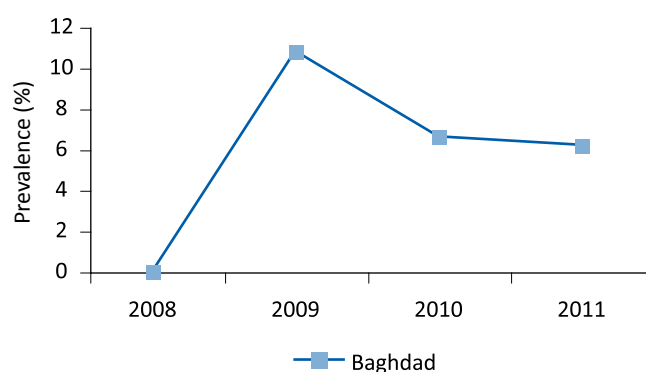
Figure 6: **Trends in prevalence of wasting, Iraq, 2008–2011**

Nutrition status data on refugees aged 6–59 months assisted by IOM in Amman from January to June 2011

Demographic characteristics

There are a total of 370 children aged 6–59 months (9% of all 3,991 refugees) with a mean age of 32 months and a sex ratio of 1.0. The majority of the children examined in Amman are from Iraq (95%), with a small number (5%) from Sudan.

Figure 7: **Prevalence of wasting among refugees aged 6–59 months (n=370), Jordan, 2011**
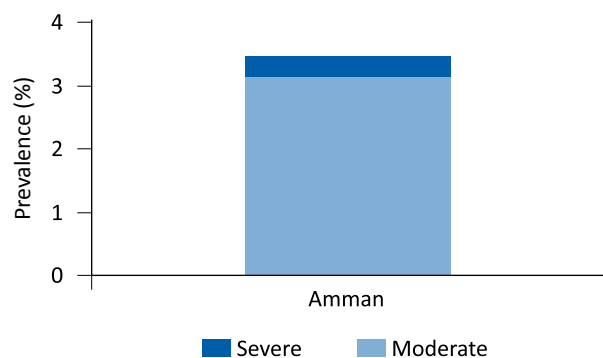
Findings

Overall, among refugees aged 6–59 months, the severity of wasting (3.5%; 1.6–5.4) and stunting (4.1%; 2.0–6.1) in Jordan (Amman) is low. Among the few refugees aged 6–59 months from Sudan (n=18), the severity of wasting is very high, with a prevalence of 16.7% (0–33.9).

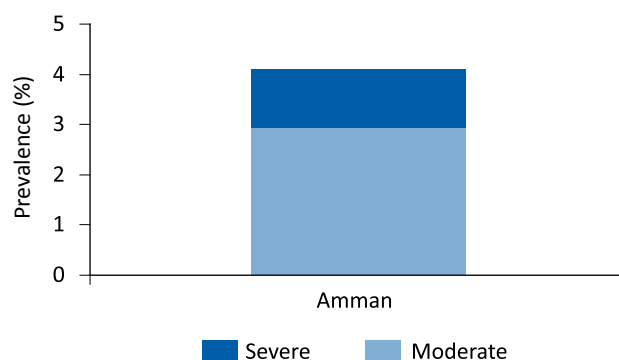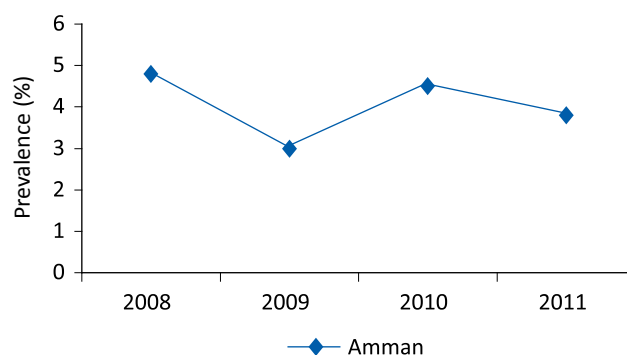**Figure 8:** **Prevalence of stunting among refugees aged 6–59 months (n=370), Jordan, 2011**

When compared with annual rates over the past three years, the observed prevalence of wasting among refugees aged 6–59 months in Amman in 2011 so far remains in the same range (about 3.0–4.8%).

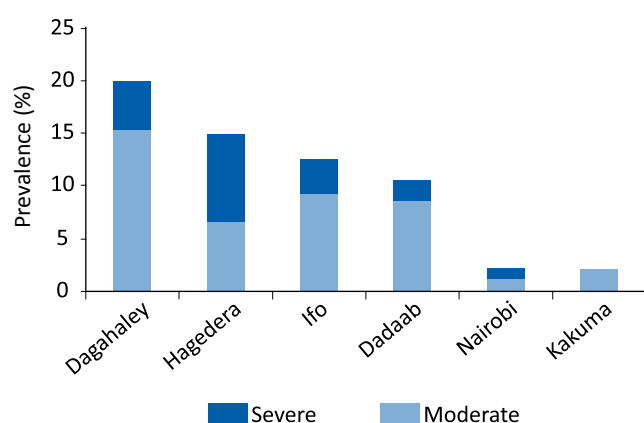**Figure 9:** **Trends in prevalence of wasting, Jordan, 2008–2011**

Nutrition status data on refugees aged 6–59 months assisted by IOM in Dadaab, Dagahaley, Hagedera, Ifo, Kakuma and Nairobi from January to June 2011

Demographic characteristics

There are a total of 600 children aged 6–59 months (14% of all 4,308 refugees) with a mean age of 28 months. The sex ratio of the examined children ranges from 0.8 in Hagedera to 1.8 in Nairobi. Almost all the children assisted in Dadaab, Dagahaley, Hagedera and Ifo are of Somali origin. In Kakuma, about 65 per cent of the children are from Somalia, and the rest are from Ethiopia (16%) and Sudan (19%). In Nairobi, 52 per cent of these children are from Ethiopia; 38 per cent are from Somalia; and the rest are from the Democratic Republic of the Congo (10%).

Findings

Overall, among refugees aged 6–59 months in Kenya, the severity of wasting (9.0%; 6.7–11.3) and stunting is medium (20.5%; 17.3–23.7). The severity of wasting among refugees aged 6–59 months in Kenya is very high in Dagahaley (20%; 10.3–29.7) and high in Dadaab (10.5%; 5.6–15.4), Hagedera (14.8%; 5.9–23.7) and Ifo (12.6%; 5.7–19.6). Kakuma and Nairobi have low severity, with prevalence of about 2 per cent. Dadaab, Dagahaley, Hagedera and Kakuma have medium severity of stunting, with prevalence ranging from 23 per cent to 25 per cent. The severity of stunting is low in Ifo and Nairobi (12–14%).

Figure 10: Prevalence of wasting among refugees aged 6–59 months (n=600), Kenya, 2011

Figure 11: Prevalence of stunting among refugees aged 6–59 months (n=600), Kenya, 2011

When historical figures are examined, a general decline from previous years in the prevalence of wasting among refugees aged 6–59 months is observed in 2011 at Dagahaley, Hagedera, Ifo, Kakuma and Nairobi. Nutrition status data for Dadaab are only available for January to June 2011 so far, thus limiting our ability to comment on any prevalence trend.
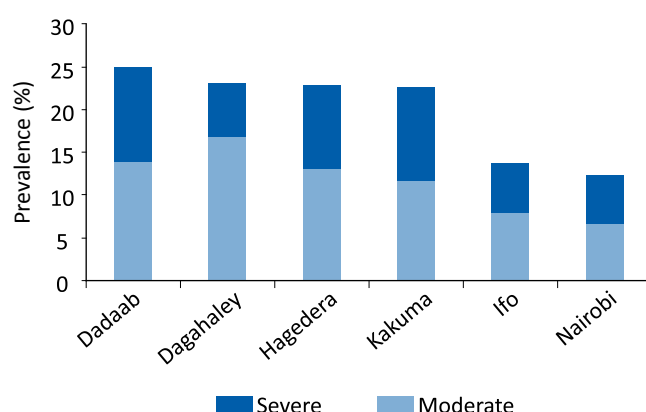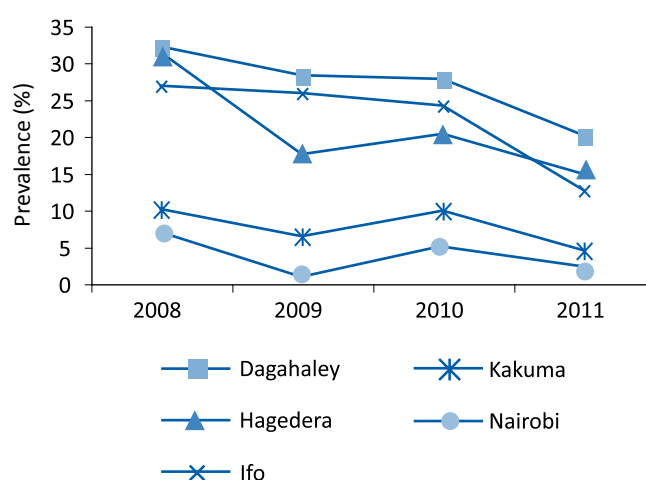
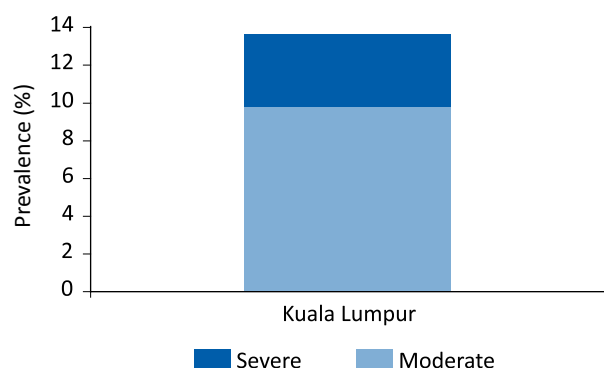**Figure 12: Trends in prevalence of wasting, Kenya, 2008–2011**

Nutrition status data on refugees aged 6–59 months assisted by IOM in Kuala Lumpur from January to June 2011

Demographic characteristics

There are a total of 682 children aged 6–59 months (14% of all 4,973 refugees) with a mean age of 24 months and a sex ratio of 0.9. All the children examined in Kuala Lumpur are from Myanmar.

Figure 13:   Prevalence of wasting among refugees aged 6–59 months (n=682), Malaysia, 2011

When compared with annual rates over the past three years, the observed prevalence of wasting among refugees aged 6–59 months in Kuala Lumpur shows a general increase.

Findings

Overall, among refugees aged 6–59 months in Malaysia, the severity of wasting (13.5%; 10.9–16.1) is high and stunting (7.8%; 5.8–9.8) is low.

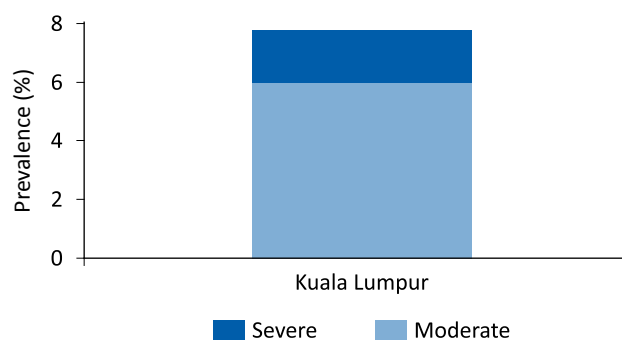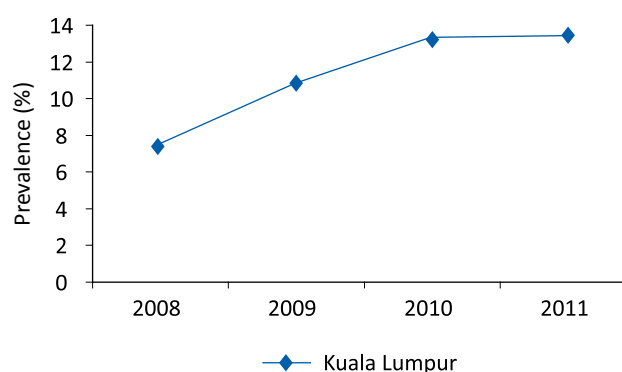**Figure 14:   Prevalence of stunting among refugees aged 6–59 months (n=682), Malaysia, 2011**

**Figure 15:   Trends in prevalence of wasting, Malaysia, 2008–2011**

Nutrition status data on refugees aged 6–59 months assisted by IOM at Beldangi I, Beldangi II, Beldangi II extension, Goldhap, Khudunabari, Sanischare amd Timal from January to June 2011

Demographic characteristics

There are a total of 788 children aged 6–59 months (8% of all 9,304 refugees) with a mean age of 30 months. The sex ratio of the examined children ranges from 1.0 in Khudunabari, Beldangi II and Sanischare to 1.8 in Goldhap. All the children examined at all sites in Nepal are from Bhutan.

Findings

For all refugees aged 6–59 months examined at various sites in Nepal, the prevalence of wasting (4.7%; 3.2–6.2) and stunting is low (17.1%; 14.5–19.8). The severity of wasting among refugees aged 6–59 months in Nepal is medium in Beldangi II extension (5.7%; 1.6–9.8), Sanischare (7%; 3–10.9) and Timai (9.0%; 4.2–13.9). All other sites have low severity of wasting prevalence ranging from 0.7 per cent in Beldangi II to 3.7 per cent in Beldangi I. Similarly, the severity of stunting in all sites is low (<20% prevalence), except for Sanischare and Beldangi II extension, where it is medium (about 22%).

Figure 16: Prevalence of wasting among refugees aged 6–59 months (n=788), Nepal, 2011
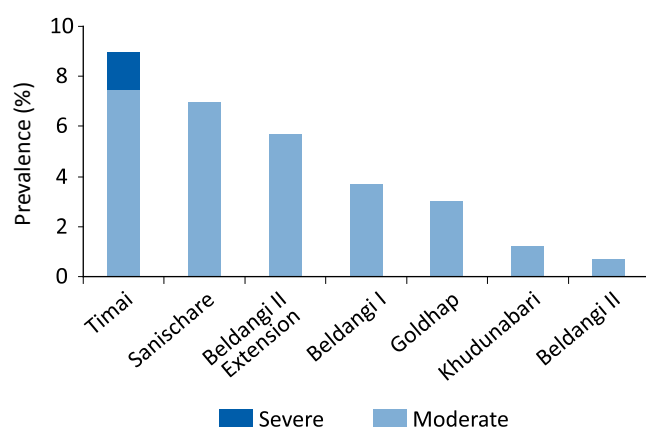
Figure 17: Prevalence of stunting among refugees aged 6–59 months (n=788), Nepal, 2011

When historical figures are examined, a general decline from previous years in the prevalence of wasting among refugees aged 6–59 months is observed across all sites in Nepal.
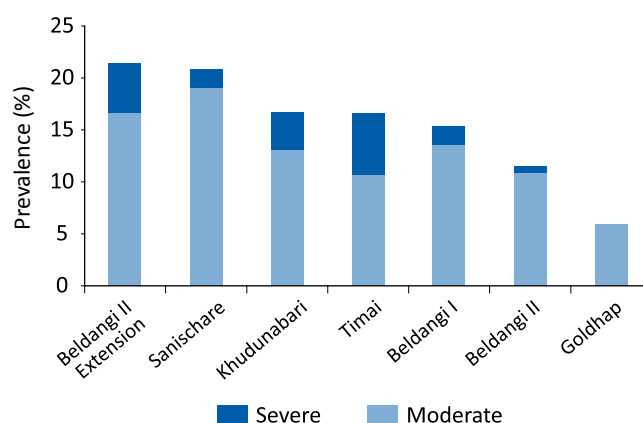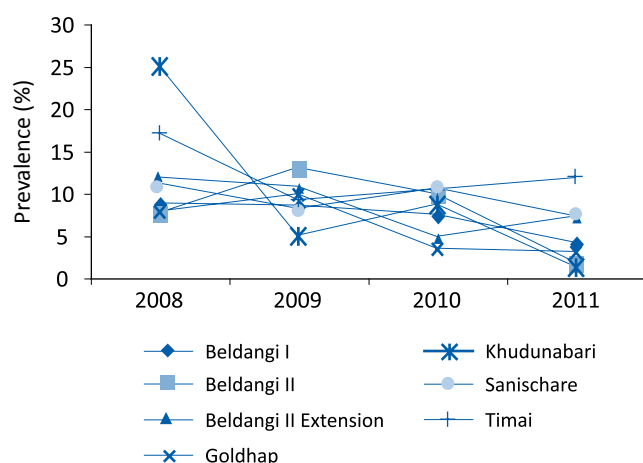
Figure 18: Trends in prevalence of wasting, Nepal, 2008–2011

Nutrition status data on refugees aged 6–59 months assisted by IOM in Ban Don Yang, Ban Mae Surin, Ban Mai Nai Soi, Mae La, Mae La Oon, Mae Ra Ma Luang, Nupo, Tham Hin and Umpiem camps from January to June 2011

Demographic characteristics

There are a total of 919 children aged 6–59 months (14% of all 6,488 refugees) with a mean age of 32 months. The sex ratio of the examined children ranges from 0.6 in Ban Mae Surin to 2.0 in Ban Don Yang. All the children examined at all sites in Thailand are from Myanmar.

Findings

Overall, the assessment of malnutrition among refugees aged 6–59 months in Thailand shows medium severity of wasting (6.4%; 4.8–8.0) with a high level of stunting (39.0%; 35.8–42.1). The severity of wasting among refugees aged 6–59 months in Thailand is high in Mae La Oon (10.9%; 7.0–14.8); medium in Mae La, Ban Mae Surin, Nupo and Tham Hin (5.2–6.7%) and low in Ban Mai Nai Soi, Umpiem and Mae Ra Ma Luang camps. Ban Don Yang shows no wasting, but very high severity of stunting (50%; 21.7–78.3). A very high prevalence of stunting is also seen in Mae La Oon, Mae Ra Ma Luang, Nupo, and Tham Hin (43–47%). Stunting prevalence levels are high in Mae La, Ban Mae Surin and Umpiem (36–39%) and medium in Ban Mai Nai Soi (27%; 19.9–34).

Figure 19: Prevalence of wasting among refugees aged 6–59 months (n=919), Thailand, 2011
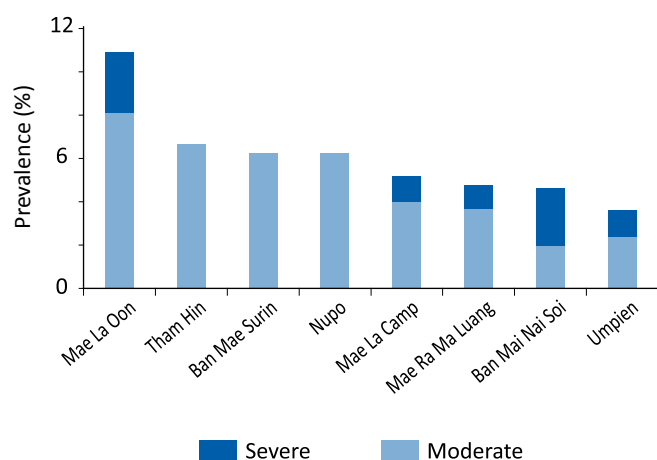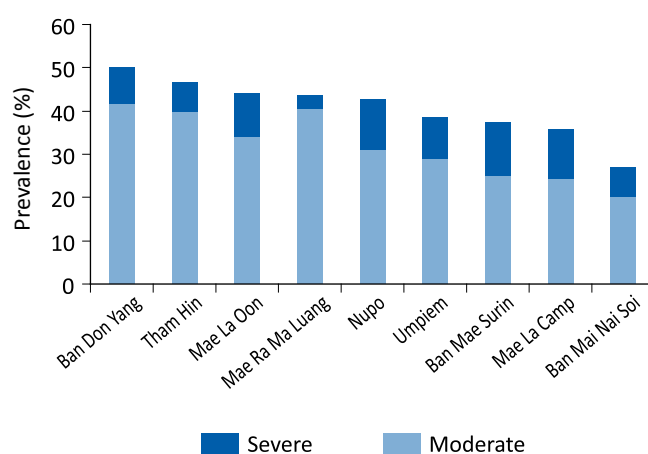

**Figure 20: Prevalence of stunting among refugees aged 6–59 months (n=919), Thailand, 2011**

Data on nutrition status over the past three years are available for five sites. A general decline in wasting prevalence in 2011 as compared to previous years is observed in Ban Don Yang, Mae La Camp and Umpiem, whereas an increase is observed in Nupo and Tham Hin.

Figure 21: Trends in prevalence of wasting, Thailand, 2008–2011
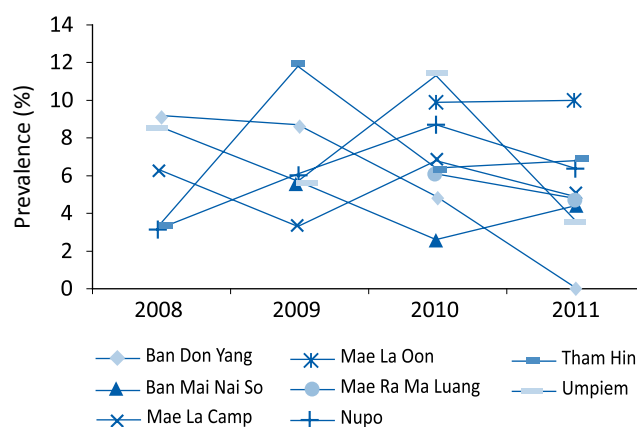
Comments on the interpretation of findings

This analysis includes data from all IOM locations where 50 or more refugees were examined from January to June 2011. In addition, trend lines for wasting are presented only for those sites where anthropometric exam data for refugees aged 6-59 months are available for one or more previous years. Summary statistics on the z-scores were computed using SQL 2005 functions STDEV and AVG for the standard deviation and mean z-scores, respectively. Summary statistics show that for several locations the SD values of the z-scores are over the expected values – indicating limitations in anthropometric measurement and/or inaccurate age reporting. Anthropometric measurements are typically taken only once without accounting for inter-observer variations and data entry errors. In order to improve the quality of data for this and future reports, observations with the outlier values of nutrition indicators (z score >|5|) are communicated on a monthly basis to IOM field programmes for verification of age, weight and height values. Age assessment is challenging in refugee settings where children and parents or guardians may not be able to report correct dates of birth. Finally, the resettlement populations across refugee settings in multiple sites in the seven countries featured in this report are heterogeneous due to various factors including origin, criteria for resettlement referrals and length of stay in refugee settings. This limits generalization of findings to the overall refugee children populations in each country.

Recommendations

Based on the report findings and existing practices,[1] the provision of blanket supplementary feeding programmes can be recommended for sites with high severity of wasting or acute malnutrition (prevalence >=10%), particularly in Ethiopia (Kebribea and Shimelba), the Dadaab camps in Kenya (Dadaab, Dagahaley, Hagedera and Ifo), Malaysia (Kuala Lumpur) and the Mae La Oon camp in Thailand. Sites with medium prevalence of wasting warrant close attention to refugee nutritional status. Additional surveys on malnutrition and refugee child growth, including the prevalence of anaemia and micronutrient deficiencies, are recommended for more comprehensive nutrition assessment in these refugee sites. In relation to individual referrals, IOM will strengthen capacity of its health assessment programmes with tools and guidance for prompt referrals of moderately malnourished children to Targeted Supplementary Feeding Programmes,[1] and those with severe acute malnutrition to Therapeutic Feeding Programmes[1] at respective sites. Ongoing nutrition surveillance, prompt referrals and further investigation at selected sites can contribute to reduce excess mortality and morbidity caused by malnutrition among refugee children.

References

1. UNHCR (2011) *Guidelines for Selective Feeding: The Management of Malnutrition in Emergencies*, http://www.unhcr.org/cgi-bin/texis/vtx/search?page=search&comid=4a1e83526&cid=49aea93ae2&keywords=acute%20malnutrition (last accessed on 16 August 2011).
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