



Growth monitoring and mortality risk in low-birthweight infants

This is a summary of the following paper:

Mwangome M, Ngari M, Bahwere P, Kabore P, McGrath M, Berkley J. (2021). Growth monitoring and mortality risk in low birthweight infants: a birth cohort study in Burkina Faso [version 2; peer review: 1 approved, 1 approved with reservations]. *Gates Open Research*, 5,82.

<https://gatesopenresearch.org/articles/5-82>

Wasting and underweight in infancy is an increasingly recognised problem. However, there is a lack of consensus on how best to identify infants with the highest risk of mortality. In particular, there is uncertainty on interpreting anthropometry among low birth weight (LBW) infants who may be growing 'normally'.

This secondary data analysis examined the growth of infants from birth to two (the age of vaccination) and six months of age. Furthermore, the study investigated the overall risk of mortality among LBW infants and whether, among infants underweight at two and six months of age, LBW infants were associated with a lower risk of mortality than normal birth weight (NBW) infants. The study used data collected in 2004 from a birth cohort of 1,103 infants in Burkina Faso. The study used this dataset as it contains follow-up data of an untreated infant cohort that would now be challenging to generate. Anthropometry was performed monthly from

zero to 12 months of age. The study assessed associations with mortality using Cox proportional hazards models and assessed discriminatory values using the area under receiver operating characteristics curves.

Of the 1,103 infants, 21% were born LBW. Overall, 7.8% of all children died before their first birthday and 30% and 59% of these children died within two and six months of life, respectively. At two months of age, assessing weight gain since birth did not better discriminate mortality risk than a single anthropometric measure at the point of vaccination using weight-for-age (WAZ), height-for-age or mid-upper arm circumference (MUAC). These anthropometric measures were better predictors of mortality risk than weight-for-length. LBW was associated with an increased risk of death during the first year of life. LBW infants were also persistently more underweight during the first year of life. Among underweight infants at two and six months of age, LBW infants were not at a reduced risk of death compared to NBW infants.



An infant is being screened for malnutrition, Burkina Faso

Infants identified as underweight, irrespective of birth weight, are at increased risk of death and should receive targeted support. Using a MUAC cut-off of <11.0cm and WAZ<-3 when applied at two months (vaccination point) will effectively identify infants with a high risk of subsequent mortality. To reduce the risk of death among infants, research should focus on interventions to prevent LBW and on effective, comprehensive interventions to reduce mortality risks, such as the Management of At risk Mothers and Infants (MAMI) care pathway approach.

Treating high-risk moderate acute malnutrition using therapeutic food compared with nutrition counselling

This is a summary of the following paper:

Lelijveld N, Godbout C, Krietemeyer D, Los A, Wegner D, Hendrixson D et al (2021) Treating high-risk moderate acute malnutrition using therapeutic food compared with nutrition counselling (Hi-MAM Study): a cluster-randomized controlled trial. *The American Journal of Clinical Nutrition*, 114, 3, 955-964.

<https://academic.oup.com/ajcn/advance-article/doi/10.1093/ajcn/nqab137/6272382?guestAccessKey=7fa4bba8-701b-47a1-9978-e957e88a8cbd>

Currently, there is no consistent guidance on how best to manage children with moderate acute malnutrition (MAM). Often, MAM is not treated at all or treated with a variety of non-standardised approaches such as counselling or supplementary feeding. However, neither of these approaches have demonstrated acceptable recovery rates.

This study is a cluster-randomised controlled trial of 22 nutrition clinics in Pujehun District, Sierra Leone. The study investigated whether dividing MAM into high risk (HR-MAM) and low-risk populations and aligning the treatment

of HR-MAM children with that of severe acute malnutrition (SAM) would result in higher recovery rates and less deterioration than nutrition counselling alone.

In the 11 intervention sites, HR-MAM children were given ready-to-use therapeutic food (RUTF), amoxicillin – a routinely prescribed antibiotic for SAM cases – and nutrition counselling for two to 12 weeks. All other children received six weeks of nutrition counselling alone. The study defined HR-MAM as mid-upper arm circumference (MUAC) <11.9 cm, weight-for-age (WAZ) z score <-3.5, mother not the

primary caregiver or a child below two years of age not being breastfed. Outcomes were compared using intention-to-treat analysis which included 573 children at the intervention sites and 714 children at the control sites. Overall, 55% of children at the intervention sites were classified as HR-MAM. Short-term recovery was greater at 12 weeks at the intervention sites (48% compared to 39%). Children at the intervention sites had a lower risk of deteriorating to SAM (18% compared to 24%), a lower risk of death (1.8% compared to 3.1%) and greater gains in MUAC and weight than children at the control sites. However, by 24 weeks, the risk of SAM was similar between the two arms. Control group data identified recent illness, MUAC <12.0 cm, WAZ <-3, dropping anthropometry, being a twin, being below 12 months of age and a history of SAM as risk factors for deterioration.

The findings from this study suggest that nutrition counselling alone is insufficient for all children with MAM. The provision of RUTF and antibiotics to HR-MAM children improved short-term recovery and the short-term risk of deterioration. However, recovery rates were still sub-optimal and differences were not sustained six months after enrolment. A longer or more holistic package of interventions may therefore be necessary.