Children who are both wasted and stunted (WaSt) are also underweight and have a high risk of death

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Multiple Nutrition Deficits (MND) and Mortality (McDonald CM et al., 2013)

- MUAC are independently associated with mortality within 6 months (14,307 children; 5,751 six month follow-up episodes; WaSt = MUAC < 115 mm and WHZ < -3). WAZ < -3 is also associated with mortality.

Multiple Nutrition Deficits – Graphical View (1,796,991 children; 2,426 surveys; 51 countries)

- MND is the same as concurrent WHZ < -2 and HAZ < -2 (WaSt). So WaSt children have the same high mortality risk.

According to the WHO Growth Standards

- Children with both WHZ = -2 and HAZ = -2 (WaSt) have maximum WAZ of -2.36 (boys) or -2.42 (girls).

Who are these WaSt children? (1,796,991 children; 2,426 surveys; 51 countries)

- All children are at risk of being WaSt. Boys are at most risk. M:F prevalence ratio = 1.63 (95% CI = 1.60; 1.65). Younger children are more at risk of being WaSt.

Some summary statistics (1,796,991 children; 2,426 surveys; 51 countries)

- Being wasted and being stunted are associated with each other. Odds Ratio = 1.40 (95% CI = 1.32; 1.49).

Detecting WaSt with MUAC or WAZ (1,796,991 children; 2,426 surveys; 51 countries)

- MUAC and WAZ used because demonstrably practicable in community and clinical settings with good coverage.

Anthropometry and Mortality (Cohort Data) (14,307 children; 5,751 six month follow-up episodes; Niakhar, Senegal)

- Anthropometric status
  - Odds Ratio
  - P
  - WAZ < -3
    - 1.32
    - (0.99; 1.80)
    - 0.1210
  - WHZ < -3
    - 2.84
    - (1.37; 3.64)
    - 0.0004
    - 3.61
    - (2.33; 3.90)
    - < 0.0001
  - WHZ < -2
    - 1.46
    - (0.99; 2.26)
    - 0.0084

- Significant variables are those remaining in the model after backwards stepwise elimination of non-significant associations.

In a multivariate analysis (logistic regression), WAZ and MUAC are independently associated with mortality within 6 months of measurement.

Conclusions

- Children who are concurrently wasted and stunted (WaSt) are also underweight.
- Children with WaSt have a high risk of death.
- Younger children, younger boys in particular, have the highest risk of being WaSt.
- Being wasted (WHZ < -2) and being stunted (HAZ < -2) are associated with each other.
- WaSt children are more wasted than wasted only children.
- WaSt children are more stunted than stunted only children.
- WaSt children can be identified using WAZ.
- WAZ and MUAC (but not WHZ or HAZ or WaSt) are independently associated with mortality.
- A combination of MUAC and WAZ can identify all deaths associated with WaSt and WHZ.
- A combination of MUAC and WAZ could be used in programmes such as CMAM in order to identify and admit children at high risk of death. Further work is required to understand the implications for program caseloads.

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Feel free to contact us if you need further information about this study or about the ENN WaSt project (tanya@ennonline.net).