

# Factors that raise the risk of mortality among children with severe acute malnutrition

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Some 45% of all deaths among children under age five are due to malnutrition, resulting in an estimated 3.1 million deaths per year around the world. In particular, children with severe acute malnutrition, the most serious form of malnutrition, are at highest risk. In fact, some studies report that up to 40% of children hospitalized for severe acute malnutrition do not survive.

Published in *The American Journal of Clinical Nutrition*, the premiere journal of the American Society for Nutrition, "Predictors of Inpatient Mortality among Children Hospitalized for Severe Acute Malnutrition: A Systematic Review and Meta-analysis" delved deeper beyond the statistics to find out why so many [children](#) hospitalized for severe acute [malnutrition](#) die. In particular, the authors sought to determine whether there were additional independent factors that raised the risk of mortality among children afflicted with severe acute malnutrition, with the goal of helping health care providers identify and triage patients at highest risk. Dr. Radhini Karunaratne, Pediatrician at Northwick Park Hospital, and one of the review's lead authors, added, "the hard reality of persistent high mortality rates on malnutrition wards, along with the challenges of managing critically unwell children with complicated severe acute malnutrition in resource limited settings, inspired me to further explore what is known about the predictors of mortality among this population."

To conduct their research, the authors of this scientific review performed a comprehensive search of the scientific literature, leading

them to 28 studies that met their criteria. Nineteen of those studies looked at all children with severe acute malnutrition; nine additional studies were more narrowly focused on specific subgroups of children with severe acute malnutrition. The 19 main studies were conducted in eight countries across Sub-Saharan Africa, with an average of 400 children per study.

After conducting their research, the authors found six independent predictors of inpatient mortality among children with severe acute malnutrition: HIV infection, diarrhea, pneumonia, shock, lack of appetite, and low weight-to-height ratio. In particular, most studies that the authors reviewed found that children with lower weight-to-height ratio at hospital admission were at highest risk of mortality. "Early recognition of these prognostic factors within the community, alongside risk stratification at hospital admission, may help reduce inpatient mortality among children with severe acute malnutrition," according to another lead author, Dr. Jonathan Sturgeon, Clinical Research Fellow at the Queen Mary University of London.

The relationship between mortality and other factors was less clear. For example, the effect of edema was mixed across studies. Some found that the presence of edema increased the risk of mortality among children with severe acute malnutrition, whereas others found no association.

Dr. Sturgeon commented, "despite the ongoing unacceptably high worldwide [mortality](#) rate, complicated severe acute malnutrition remains a condition that we understand frustratingly little about. We urgently need to rectify this. With a better understanding of the underlying pathology of severe acute malnutrition, we may be able to trial new treatments to improve recovery."

**More information:** Karunaratne R, Sturgeon JP, Patel R, et al. Predictors of inpatient mortality among children hospitalised for severe

acute malnutrition: a systematic review and meta-analysis. *The American Journal of Clinical Nutrition* (2020). [DOI: 10.1093/ajcn/nqaa182](https://doi.org/10.1093/ajcn/nqaa182)

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