The global burden of sickle cell anemia in young children is increasing

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The global burden of sickle cell anemia (SCA), a hereditary blood disorder, is increasing, with almost half a million babies estimated to be born with the condition in 2050, according to a study published in this week's *PLOS Medicine*. The study, conducted by Frédéric Piel and colleagues from the University of Oxford and Imperial College in the United Kingdom, and the KEMRI/Wellcome Trust Research Programme, Kenya, suggests that implementing basic health interventions could significantly reduce death rates in children aged less than 5 years with the condition. These findings can be used to guide national policy decisions on public health spending.

The researchers used estimated country rates of SCA and information on projected birth rates to show that the number of newborn babies with SCA is likely to increase from roughly 305,800 in 2010 to about 404,200 in 2050. Newborn babies in Nigeria, the Democratic Republic of the Congo, and India will be most affected, accounting for 57% of all of the babies born with SCA in 2010, and this proportion is likely to increase by 2050.

The authors show that implementing basic health interventions for SCA such as newborn screening, penicillin prophylaxis, and vaccination, by 2015, could increase survival of more than five million newborns with SCA by 2050. Similarly, universal screening programs could save the lives of almost 10 million newborns with SCA globally, 85% of whom will be born in sub-Saharan Africa. However, the findings of this study are limited by the uncertainty around these estimates, and the

assumptions made by the authors about how the estimated reduced death rates were linked with the health interventions.

The authors say: "Our quantitative approach confirms that the global burden of SCA is increasing, and highlights the need to develop specific national policies for appropriate public health planning, particularly in low- and middle-income countries."

In an accompanying perspective article, David Osrin and Edward Fottrell of UCL Institute of Child Health, United Kingdom (both uninvolved in the study), discuss how as child death rates decrease, the relative burden of child morbidity and disability will increase, saying: "SCA is an inherited disease whose global importance will increase in terms of absolute numbers and relative population burden."

Osrin and Fottrell urge the global health community to respond to the changing patterns of disease burdens, saying: "The estimates from Piel and colleagues underscore the need for both collaborative responses and better data for planning and monitoring."

More information: Piel FB, Hay SI, Gupta S, Weatherall DJ, Williams TN (2013) Global Burden of Sickle Cell Anaemia in Children under Five, 2010: Modelling Based on Demographics, Excess Mortality, and Interventions. *PLoS Med* 10(7): e1001484. doi:10.1371/journal.pmed.1001484

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