

**Substandard discharge rules in current CMAM protocols lead to hidden and varying proportions of erroneous cured status.**

**A long-overlooked source of ineffectiveness for programs?**

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# Introduction

Currently applied national and generic CMAM protocols deviate from WHO recommendations in many ways as regards discharge rules. The objective of this work was to describe the impact of these varying rules on apparent cured rates, and on the proportions of children discharged as cured while still acutely malnourished.

**Objective:** to describe the consequences of varying discharge rules set by current protocols



# Methods and Results

To this end, we have applied a posteriori varying discharge procedures, inspired by currently existing protocols, to a single dataset consisting of the repeated anthropometric measurements observed in a large cohort of uncomplicated SAM children.

In this cohort, SAM children were treated and followed without discharge over a fixed period, and with very little loss to follow-up.

Through our simulations, we observed dramatic variations in apparent cured rates depending on the discharge rules applied, from less than 50% until more than 90%. Increase in apparent cured rates was the result of protocol-driven misclassification of children as cured while they are in fact still MAM, or even SAM.



# Varying discharge rules applied in simulations

**Nepal protocol:** discharge criteria  $MUAC \geq 115\text{mm}$  AND minimal duration of 42 days applied to all SAM children admitted, whatever is their admission criteria ( $MUAC < 115\text{mm}$  OR  $WHZ < -3$ )

**Standard protocol used in most african countries:** discharge criteria of  $MUAC \geq 125$  OR  $WHZ \geq -1,5Z / -2Z$  applied to all SAM children, whatever is their admission criteria; and recommendation to assess achievement of discharge WHZ cut-off based on the achievement of corresponding target weight fixed at admission rather than based on WHZ measurement at discharge. This practice is not taking into consideration changes or just better measurements in height arising after admission

**Burkina Faso protocol:** same as below; and recommendation to assess achievement of discharge WHZ cut-off based on the achievement of the target weight fixed at admission rather than based on WHZ measurement at discharge. This practice is not taking into consideration changes or just better measurements in height arising after admission

**Lowered WHO recommendation type 2:** discharge criteria of  $MUAC \geq 125\text{mm}$  applied to children with a  $MUAC < 115\text{mm}$  at admission, irrespective of their admission WHZ, and discharge criteria of  $WHZ \geq -2$  applied to children with only a  $WHZ < -3$  at admission

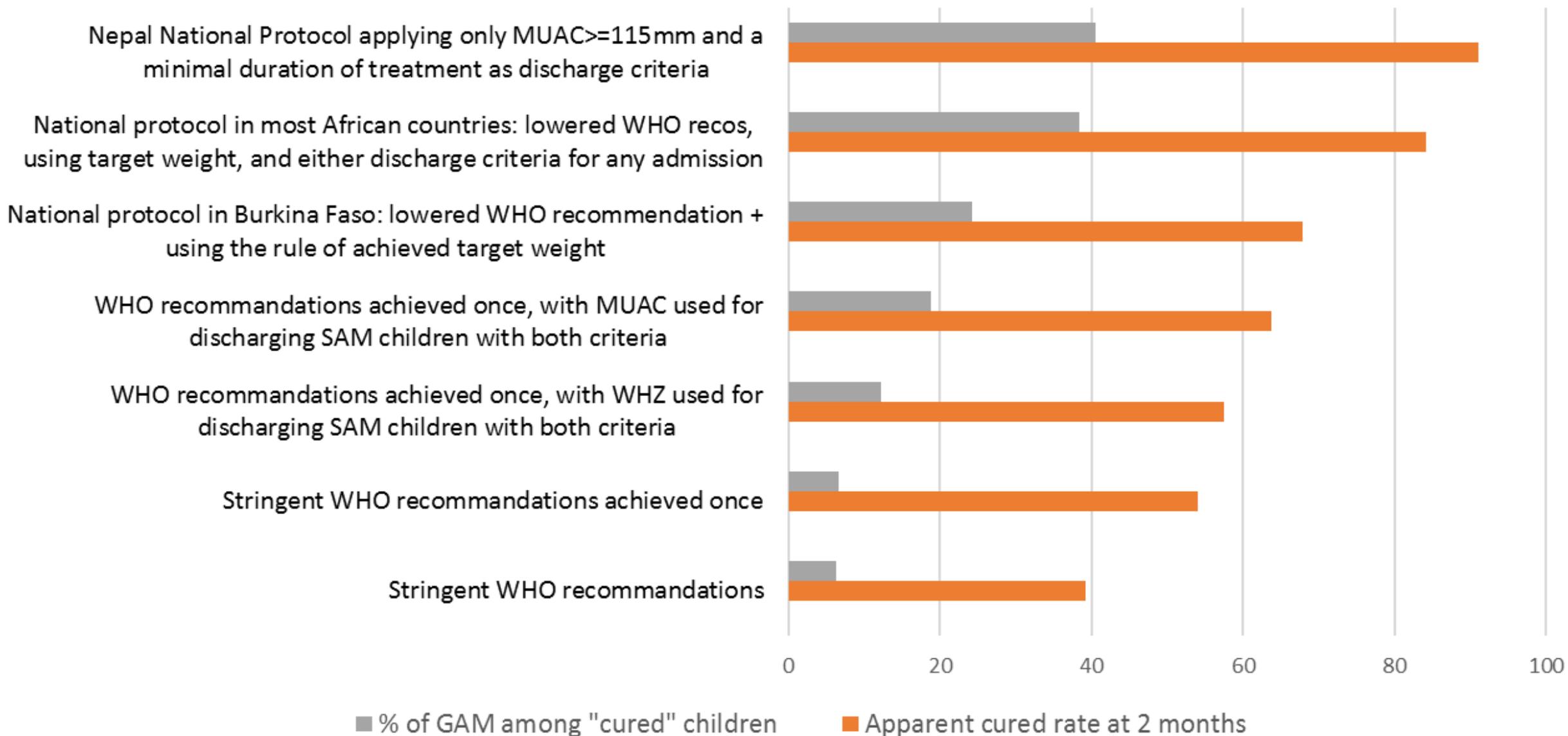
**Lowered WHO recommendation type 1:** discharge criteria of  $WHZ \geq -2$  applied to all children presenting with  $WHZ < -3$  at admission, irrespective of their admission MUAC, and discharge criteria of  $MUAC \geq 125\text{mm}$  applied to children with only a  $MUAC < 115\text{mm}$  at admission

Stringent WHO recommendation as below, at one single visit.

**Stringent WHO recommendation:** discharge criteria of  $WHZ \geq -2$  applied to all children presenting with  $WHZ < -3$  at admission, and discharge criteria of  $MUAC \geq 125\text{mm}$  applied to all children presenting with  $MUAC < 115\text{mm}$  at admission, at two consecutive visits; children admitted with both SAM criteria need to achieve both discharge criteria



# Impact of varying discharge rules on apparent cured rates: simulations in a cohort of 4409 SAM children treated similarly during 2 months



Accordingly, we also report elevated- though likely underestimated - proportions of GAM among cured children in examples of real-life programs following substandard national protocols.

program location	size of the cohort (Nbre of SAM children admitted to treatment)	% of children discharged as cured	% GAM among children discharged as cured
W	1246	87,2	44,5
X	1217	78,2	24,3
Y	2356	76,3	45,9
Z	490	65,5	20,2



# Conclusion and Recommendations

As a conclusion, we postulate that **an overlooked proportion of malnourished children is misclassified as cured by CMAM programs**, mostly because of varying and substandard discharge rules set by current protocols.

This issue, which is also likely to affect the risks of relapse and poor health outcomes in the mid to long-term, precludes us from getting a valuable assessment of the effectiveness of real-life SAM management programs around the world, and of the factors affecting it.

We thus call for a global effort to **standardize protocols** and to **evaluate rigorously the effectiveness of current WHO recommendations** in a range of contexts, based on similar judgment criteria.

