A review of cost and cost-effectiveness of treatment for child undernutrition

Research snapshot[1]

Malnutrition is estimated to account for an 11% yearly loss in gross national product in Africa and Asia as a result of provider costs of treating undernutrition and its associated infections, reduced educational performance and lower agricultural activity. To reduce the cost of programmes and increase cost-effectiveness, it is recommended that outpatient and inpatient care for children with undernutrition are integrated through the community-based management of acute malnutrition (CMAM) programmes.

This study aims to determine the current state of knowledge about the costs and cost-effectiveness of child undernutrition treatment to households, health providers, organisations and governments in low- and middle-income countries. Through a systematic review of peer-reviewed studies, the authors identified 50 articles that included the costs of child undernutrition treatment. Costing methods used included cost analyses (n=33), cost-effectiveness studies (n=15) and cost benefit analyses (n=2).

The studies varied in the interventions considered and the costing methods used. The treatment costs reported ranged from USD0.44 to USD1,344 per child. Substantial costs for health providers and programmes were due to personnel, medication and therapeutic feeds. The costs of therapeutic feeds were high mainly because they were imported which suggests that using local ingredients to produce therapeutic foods could potentially reduce costs. Cost per disability adjusted life year (DALY) averted for CMAM programmes ranged between USD26 and USD53 which was much lower than facility-based management (USD1,344).

Despite the recommended integration of outpatient and inpatient care, this has not been adopted by many countries, hence many of the studies compared the cost outcomes of outpatient and inpatient care separately. Most studies adopted institutional/programme and health provider perspectives rather than community or household perspectives. Costs incurred by households with undernourished children have largely been ignored even though such costs may exceed government costs. This is predominantly due to the high expenditure on healthcare during malnutrition treatment and indirect costs, including the opportunity cost of time spent away from normal duties while taking care of sick children or attending clinics, majorly affecting a household's economic productivity.

There is a need to assess the burden of the direct and indirect costs of child undernutrition to households and communities in order to plan, identify cost-effective solutions and address issues of cost that may limit delivery, uptake and effectiveness. Standardised methods and reporting in economic evaluations would facilitate interpretation and provide a means for comparing the costs and cost-effectiveness of interventions.

Community sensitisation of a CMAM programme

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[1] Njuguna, R. G., Berkley, J. A., & Jemutai, J. (2020). Cost and cost-effectiveness analysis of treatment for child undernutrition in low- and middle-income countries: A systematic review. *Wellcome open research, 5*, 62. https://doi.org/10.12688/wellcomeopenres.15781.2

Review of the cost-efficiency and cost-effectiveness of the management of severe wasting in children

Research snapshot[1]

The integration of wasting treatment into national primary healthcare services, treatment at the community level by community health workers as well as new 'simplified approaches' all have the potential to increase the coverage of wasting treatment services. However, robust cost-effectiveness evidence is needed to inform policy-level decision-making in support of scale-up. This review examines the latest available evidence on the cost-efficiency and cost-effectiveness of interventions to treat wasting. The review included peer-reviewed papers and evaluation reports published online since 2000. Eleven cost-effectiveness studies were found including two looking at outpatient versus inpatient care, three looking at community health worker-led care and one at the use of simplified combined protocols. The majority of the studies assessed short-term and small scale programmes. A further 10 publications evaluating cost-efficiency were identified that mostly assessed standard community-based management of acute malnutrition (CMAM) programmes.

Overall, findings indicate that CMAM is cost-effective. There is some evidence that community health worker-led treatment of severe wasting increases cost-effectiveness relative to outpatient treatment alone, particularly in high burden contexts. The combined protocol for treatment of moderate and severe wasting was also found to be cost-effective compared to standard care. The cost per child treated for severe wasting ranged from USD56 to USD805 while the cost per child recovered ranged from USD114 to USD1,041. The high degree of variance in the findings suggests important contextual determinants of cost-efficiency and cost-effectiveness including programme scale, population density, burden of wasting and health system factors. It also reflects differences in the methods used in data collection and analysis with respect to whose costs (only the main implementer, all partners, beneficiary costs) and what costs (training, ready-to-use therapeutic foods, logistics, financial vs non-financial costs) were collected as well as the outputs and outcomes used to measure cost-efficiency and cost-effectiveness.

The findings point to the need for more cost-efficiency and cost-effectiveness analyses, in particular of large scale and longer-term community-based programmes and new approaches currently being implemented. Data collection for costing activities, cost-efficiency and cost-effectiveness analysis methodologies should be agreed and standardised across the sector to allow comparison within and across contexts to better understand the determinants of cost-efficiency, cost-effectiveness and cost drivers. Economic analyses should be more routinely integrated into programme implementation and monitoring.

[1] Chui, J., Donnelly, A., Cichon, B., Mayberry, A., Keane, E. (2020). The cost-efficiency and cost-effectiveness of the management of wasting in children: A review of the evidence, approaches, and lessons. No Wasted Lives. https://acutemalnutrition.org/en/resource-library/3DI76SDmJn5lIRGm8rk4ry