

Nutrition

The Problem

India is the home of largest number of undernourished children in the world (World Bank 2005). In 2005–06, nearly half of all children under 5 years of age in India were stunted and 43 per cent were underweight (International Institute for Population Sciences 2007). Although recently released NFHS-4 reports a decline in undernutrition (35.7 per cent) and stunting (38.4 per cent), the proportion of children who exhibit wasting has increased over time (from 20 per cent to 21 per cent).

Andhra Pradesh 60 percent of women in the age group 15-49 years are anaemic and a high percentage of children under 5 years of age stunted as per National Family Health Survey (NFHS-4). Hence the provision of essential health and nutrition inputs is a clear priority. In AP, the prevalence of stunting and wasting are 31 per cent and 17 per cent respectively. As per the NFHS-4 report (2015-16), the rate of wasting has increased between 2006 and 2016.

The Government of India has in place nutrition and health programmes Integrated Child Development Scheme (ICDS) implemented by the Ministry of Women and Child Development & National Health Mission (NHM) implemented by the Ministry of Health and Family Welfare which include nutrition based interventions. Recently, Andhra Pradesh government launched the Nutrition Mission to improve the food intake of mother and child during the first 1,000 days of life. But, low coverage of nutrition-based interventions for children persists as a major concern (Mani. et. al., 2017).

The overall intervention is expected to reduce the prevalence of both severe and moderate stunting by 20 per cent to 8.5 per cent and 16.5 per cent, respectively in Andhra Pradesh.

Solutions

Interventions	BCR	Benefit per Beneficiary (INR)	Cost per Beneficiary (INR)
Direct nutrition based interventions	9	120,824	12,885
Interpersonal counselling for behaviour change	61	71,423	1,177
Supplementary food for mother and child	10	107,135	10,341
Micronutrient supplementation for pregnant women during ANC visits	39	34,678	884
Community based treatment of SAM using RUTF (median)	4	32,523	8829

All costs and benefits are discounted at 5%

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Direct Nutrition based interventions

The Problem

In Andhra Pradesh 31 percent of children below five years are stunted and 32 percent are underweight. 60 percent women in reproductive age group are anaemic (NFHS-4). Such nutritional deficiencies adversely affect the health of the mothers and the children.

Underweight children below 5 years



The Solution

Direct nutrition-based interventions include counselling for behaviour change, supplementary food and micronutrient supplements.

Costs

Cost of interventions related to provision of supplementary food and micronutrients which are primarily delivered through the government health programmes have been considered.

Cost per beneficiary is Rs.12,885 and for a 10 percent increase in coverage the cost is Rs 140 crore. 53 per cent of the cost is the value of caregiver time and the rest are financial outlays by the state

Benefits

The primary beneficiaries are pregnant women and lactating mothers and children up to 5 years of age. The benefits will be realized in terms of sizeable reduction in terms of Years of Life Lost (YLLS) and

Years lost due to disability (YLDs as well as stunting. A 10 percent increase in coverage would avoid, 181 deaths, and reduce stunting by 20% in the population receiving the intervention.

Benefits realized per beneficiary are Rs.120,824, 89 per cent of which represent improved lifetime productivity from avoided stunting. Total benefits for a 10 percent increase in coverage are Rs. 1,171 crore.

Interpersonal Counselling for Behaviour Change

The Problem

Diarrhoea is a major cause of deaths among children under 5 years of age in Andhra Pradesh. Low socioeconomic status, poor maternal literacy, inadequate breastfeeding, malnutrition, poor sanitation and hygiene practices of the mother or the caretaker are the major determinants of diarrheal diseases.

The Solution

The intervention seeks provision of interpersonal counselling for behaviour change. A six-year intervention (2016-2021) which include counselling for breastfeeding and counselling for complementary feeding and hand washing will help in avoiding 240 deaths in Andhra Pradesh which are related to diarrhoea.

Costs

Major proportion of cost which is Rs.486 will be incurred on providing complementary feeding and hand washing education (6–12 months of age). Cost per beneficiary is Rs. 1117 cost for increasing coverage by 10 percent is Rs. 13 crore.

Benefits

A total of 107 YLLS and 73 Years lost to Disability (YLDs) will be avoided for a 10 percent increase in coverage. The major beneficiaries are the children under 5 years of age who will benefit because of sizeable reduction in diarrhoea. Stunting will be reduced by 12% in the beneficiary population. Benefits realized per beneficiary is Rs. 71,423, 89 per cent of which represent improved lifetime productivity from avoided stunting. Total benefits for a 10 percent increase in coverage are Rs. 775 crore.

Supplementary food for mother and child

The Problem

The health status of a child is inextricably linked to the health status of the mother. Women who are anaemic are likely to deliver low birth weight babies, who are likely to remain anaemic and suffer from cumulative growth and development deficit. Adequate nutritional health is critical for safe motherhood and to break the otherwise perpetual intergenerational cycle of under-nutrition. In India, there is very high prevalence of both maternal and child undernutrition.

The Solution

All children below 6 years of age, pregnant women and lactating mothers are eligible for availing of supplementary food services under the Integrated Child Development Scheme (ICDS) which is funded by both Central and State government.

Supplementary nutrition need to be better targeted towards those sections that actually require the appropriate nutrition.

Costs

Costs include provision of complementary food supplements to children aged 6-12 (Rs. 985) and 12-36 months (Rs.1970) and pregnant and lactating women (Rs.1149) . Marginal cost of mother's time for these activities is Rs.6962. Cost per beneficiary is Rs.10,341 and a ten percent increase in coverage would cost 112 crores.

Benefits

The primary beneficiaries are children aged 6-12 and 12-36 months and pregnant and lactating women. The benefits will accrue through reduction in deaths and morbidity from specific diseases due to provision of improved nutrition. It is estimated that 161 lives will be saved for a ten percent increase in coverage. Stunting will be reduced by 18% in the population receiving the intervention. Benefits realized per beneficiary are Rs. 107,135, 89 per cent of which represent improved lifetime productivity from avoided stunting. Total benefits for a 10 percent increase in coverage are Rs. 1,162 crore.

Micronutrient supplementation for pregnant women during ANC visits

The Problem

Although micronutrients are required in small amounts for optimal health and development, their absence in diet could lead to susceptibility to infections. Their interacting effects on health, growth and immunocompetence cannot be ignored. The micronutrient deficiencies of vitamin A, iron, iodine, calcium, zinc and folic acid are common among women and children (MWCD, 2012).

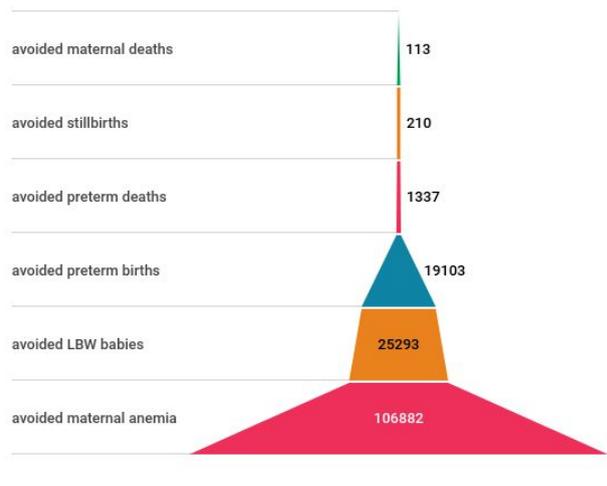
The Solution

Micronutrient supplementation for pregnant women during ANC visits. The interventions focuses on providing , Vitamin A supplementation, iron, iodine, calcium, zinc and ORS. The intervention aims at reducing maternal anaemia, reduce the risk of preterm births and low birth weights.

It is assumed that during each visit a two month supply of Calcium and Multi-micronutrients will be provided to the beneficiary.

Impacts from intervention

Micronutrient supplementation for pregnant women during ANC visits



Costs

The total cost of this intervention in Andhra Pradesh for one year is 88 crore rupees and includes the cost

of health workers, training of the workers and provision of the supplements. Cost per beneficiary is Rs. 884, all of which are financial outlays.

Benefits

The benefits estimated from this intervention are Rs. 3542 crore. There are a multitude of impacts from the intervention: 106,882 cases of maternal anemia avoided, 25,293 avoided LBW babies, 113 avoided maternal deaths, 19,103 avoided preterm births, 1,337 avoided preterm deaths and 210 avoided stillbirths. Benefits realized per beneficiary is Rs.35,583.

Community Based Treatment of children with SAM using Ready-to-use-therapeutic foods (RUTF)

The Problem

The percentage of wasted children in Andhra Pradesh has increased to 17 per cent (NFHS-4, 2015-16) from 14 per cent in NFHS-3, 2005-06. Children with weak nutritional base are more likely to experience growth failure and probably pass it on to the next generation. This intergenerational cycle of under-nutrition adversely affects certain segments of population, particularly from lower socio-economic status.

The Solution

Children with Severe Acute Malnutrition (SAM) have nine times higher risk of dying than well-nourished children (GOI). Currently there is no systematic implementation of community based management of SAM in India. This intervention proposes scale up of SAM screening by ASHA workers and implementation of community based management of SAM using RUTF or local-based nutritionally equivalent therapeutic foods. Special focus is given on timely, adequate and appropriate feeding for children.

The intervention assumes a scale up of a community-based program that will actively screen and treat 50% of all children suffering from SAM using RUTF.

Costs

Major components include cost of provision of RUTF for children suffering from SAM, total personnel and training cost and cost incurred by households on treatment visits. Cost per beneficiary is Rs. 8829 (range Rs 5,287-Rs 12,371).

Benefits

This intervention would avoid 424 to 664 deaths each year mostly from avoided deaths due to diarrhea and respiratory infections. It would also avoid 749 to 1175 YLDs per year, mostly from avoided diarrhea and other infections. Benefits realized per child treated range from Rs. 25,330 to Rs 39,716.

Rs. costs and benefits per beneficiary

