Evaluation of UNICEF’s Integrated Health Systems Strengthening (IHSS) Programme in Mali

UNICEF’s health programme in Mali supports the Ministry of Health to improve the continuum of care, reduce childhood diseases, improve maternal health and save lives.

The Catalytic Initiative to Save a Million Lives was an international multi-donor partnership designed to accelerate progress on the health-related Millennium Development Goals (MDGs). As part of the Catalytic Initiative, from 2007 to 2013 the Canadian Department of Foreign Affairs, Trade and Development (DFATD) supported UNICEF’s Integrated Health Systems Strengthening (IHSS) programme in Ethiopia, Ghana, Malawi, Mali, Mozambique and Niger.

The aim of the IHSS was to reduce maternal and child mortality by strengthening the health system’s capacity to deliver high-impact interventions at the community level. The programme was implemented in two phases in Mali. Phase I (2008-2010) focused on training the relais communautaire cadre of volunteer health workers to deliver a range of interventions around health, nutrition and water, sanitation and hygiene (WASH). During Phase II (2010-2013), the IHSS supported the establishment of a new cadre of community health workers—Agents de Santé Communautaire (ASC)—who were trained on the integrated community case management (iCCM) of childhood diarrhoea, malaria, pneumonia and acute malnutrition.

The IHSS implementation period was plagued by multiple challenges in Mali, including a suspension of Global Fund finances in 2010 due to concerns around grant management, droughts and food crises in 2008, 2010 and 2012, and a military coup in 2012 that resulted in the suspension of a large proportion of donor funding. Throughout the IHSS, activities focused on 44 of Mali’s 59 districts, covering six of the country’s regions including Kayes, Koulikoro, Sikasso, Segou, Mopti and Gao.

Evaluation purpose and objectives
In 2014 DFATD and UNICEF contracted the Medical Research Council (MRC),
South Africa, to conduct an external evaluation of the IHSS. The purpose of the evaluation, which was conducted in partnership with the University of the Western Cape and Save the Children, was to evaluate the effect of the IHSS on coverage of a package of maternal and child health interventions in Mali and to inform future programme and policy decisions in Mali and regionally.

The objectives of the evaluation were to assess the effect of the IHSS on the following:

- **Relevance**: Alignment with national priorities and plans, enhanced policy environment and promotion of gender equity.
- **Effectiveness**: Effect on strengthening the health system and the capacity of government and/or civil society organizations to train, equip, deploy and supervise front-line health workers to deliver a limited package of high-impact health interventions.
- **Impact**: Effect on coverage of health and nutrition interventions supported by the IHSS; as well as the effect on the number of additional lives saved calculated using the Lives Saved Tool (LiST).
- **Sustainability**: The cost of implementing iCCM and the organizational and financial sustainability of the programme.

The full evaluation report is available at link. Evaluation briefs for each of the six countries and for the overall programme are available at [www.unicef.org/evaldatabase/index_82018.html](http://www.unicef.org/evaldatabase/index_82018.html).

**Evaluation findings and conclusions**

**Key conclusion 1: The IHSS was well aligned with the policies of the Government of Mali.**

Prior to the IHSS, the Government of Mali had implemented a number of policies to decentralize the delivery of primary health care—including through the creation of the relais communautaire cadre of volunteer health workers—providing a strong foundation upon which iCCM could be implemented. The evaluation found that the IHSS was successful in catalysing the establishment of the ASC cadre and the revitalization of the relais communautaire. Significantly, the Ministry of Health has demonstrated commitment to and ownership of the iCCM programme, which has been integrated into the national health system.

**Key conclusion 2: By training more than 6,000 community health workers, the IHSS strengthened Mali’s health system. However, supervision remains a challenge.**

During Phase I of the programme, the IHSS provided training for approximately 4,000 relais communautaire in a range of interventions around health, nutrition and WASH. In addition, traditional birth attendants were trained on the management of pregnancy and delivery and approximately 200 facility-based workers were trained in the Integrated Management of Childhood Illness (IMCI).

During Phase II, the IHSS supported the training of 2,052 ASCs on iCCM, including the treatment of diarrhoea, malaria, pneumonia and malnutrition and

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**Table 1: Summary of coverage trend indicators**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>DHS 2001 (pre IHSS) % (95% CI)</th>
<th>DHS 2006 (baseline) % (95% CI)</th>
<th>DHS 2012 (endline) %</th>
<th>Average annual rate of change pre IHSS (2001-2006). Data shown as % per year</th>
<th>Average annual rate of change during IHSS (2006-2012). Data shown as % per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetanus toxoid vaccination of pregnant women (at least two doses)</td>
<td>27 (24-30)</td>
<td>47 (44-50)</td>
<td>35</td>
<td>4.0 (3.6-4.4)</td>
<td>-2.0 (12.4-(-1.6))</td>
</tr>
<tr>
<td>At least one dose of IPTp</td>
<td>1 (0.6-1.5)</td>
<td>23 (20-26)</td>
<td>30</td>
<td>4.3 (4.1-4.6)</td>
<td>1.3 (0.9-1.7)</td>
</tr>
<tr>
<td>Two or more doses of IPTp</td>
<td>N/A</td>
<td>19 (16-21)</td>
<td>17</td>
<td>N/A</td>
<td>-0.2 (-0.5-0.1)</td>
</tr>
<tr>
<td>Postnatal care for the mother</td>
<td>8 (6-9)</td>
<td>13 (11-16)</td>
<td>N/A</td>
<td>1.1 (0.9-1.4)</td>
<td>N/A</td>
</tr>
<tr>
<td>Early breastfeeding within one hour of birth</td>
<td>30 (28-33)</td>
<td>52 (48-55)</td>
<td>58</td>
<td>4.2 (3.8-4.6)</td>
<td>1.1 (0.6-1.5)</td>
</tr>
<tr>
<td>Exclusive breastfeeding (0-6 months)</td>
<td>26 (22-31)</td>
<td>39 (35-43)</td>
<td>*33</td>
<td>2.6 (1.8-3.3)</td>
<td>-1.0 (-1.9-(-0.2))</td>
</tr>
<tr>
<td>Vitamin A supplementation (6-59 months)</td>
<td>38 (35-41)</td>
<td>72 (70-75)</td>
<td>59</td>
<td>6.9 (6.6-7.2)</td>
<td>-2.2 (-2.5-(-1.9))</td>
</tr>
<tr>
<td>Measles immunization (12-23 months)</td>
<td>45 (41-49)</td>
<td>67 (62-74)</td>
<td>69</td>
<td>4.5 (3.9-5.1)</td>
<td>0.3 (0.3-0.9)</td>
</tr>
<tr>
<td>DPT3 immunization (12-23 months)</td>
<td>35 (30-40)</td>
<td>67 (63-71)</td>
<td>59</td>
<td>6.4 (5.8-7.1)</td>
<td>-1.3 (-2.0-(-0.7))</td>
</tr>
<tr>
<td>Care-seeking of suspected pneumonia</td>
<td>40 (35-45)</td>
<td>35 (30-41)</td>
<td>28</td>
<td>-0.8 (-1.9-0.2)</td>
<td>-1.2 (-2.9-0.5)</td>
</tr>
<tr>
<td>Care-seeking for fever</td>
<td>37 (34-39)</td>
<td>31 (28-35)</td>
<td>28</td>
<td>-1.0 (-1.6-(-0.4))</td>
<td>-0.6 (-1.3-0.2)</td>
</tr>
<tr>
<td>Treatment with any antimalarial for fever</td>
<td>39 (36-43)</td>
<td>32 (28-36)</td>
<td>22</td>
<td>-1.5 (-2.0-(-0.9))</td>
<td>-1.7 (-2.5-(-1.0))</td>
</tr>
<tr>
<td>Children under 5 sleeping under an ITN</td>
<td>N/A</td>
<td>26 (24-29)</td>
<td>69</td>
<td>N/A</td>
<td>7.1 (6.9-7.4)</td>
</tr>
<tr>
<td>ORS coverage</td>
<td>10 (8-12)</td>
<td>13 (10-16)</td>
<td>35</td>
<td>0.5 (0.1-1.0)</td>
<td>3.7 (2.9-4.5)</td>
</tr>
</tbody>
</table>

CI = confidence interval; IPTp = intermittent preventive treatment of malaria for pregnant women; ITNs = insecticide Treated Nets; DPT = diphtheria, pertussis and tetanus; ORS = oral rehydration salt; * National estimate which includes Bamako

- Decrease in rate of change between pre-IHSS and IHSS programme period
- Stable coverage rate between pre-IHSS and IHSS programme period
- Increase in annual rate of change between pre-IHSS and IHSS programme period
Key conclusion 3: The IHSS supported the procurement and distribution of a range of essential supplies. However, the use of a parallel system was contrary to the programme’s health systems strengthening approach.

The evaluation indicates that newly trained ASCs were provided with a range of initial supplies, including a bicycle and drugs for the treatment of diarrhea, malaria and pneumonia. Relais communautaires were provided with soap, contraceptives, water treatment tablets, insecticide-treated nets (ITNs), ORS and zinc. UNICEF was responsible for the initial procurement of equipment and drugs, with the exception of malaria diagnostics and drugs, which were procured using Global Fund resources (UNICEF provided emergency supplies of malaria diagnostics and drugs during the 2010 Global Fund crisis). The evaluation found that Mali’s cost recovery mechanism, through which caregivers pay for most drugs, minimized the frequency of stock outs.

Significantly, supplies for iCCM are not channeled through the national system but rather through a parallel system that supplies districts with commodities directly. The evaluation team concluded that this approach is contrary to the health system strengthening goals espoused by the IHSS.

Key conclusion 4: Despite the multiple challenges faced, the IHSS catalysed increased utilization of community health services.

The evaluation found that from June 2012 to May 2013 the average iCCM caseload for ASCs was approximately 342 per 1,000 children. In comparison to the other five IHSS focus countries, Mali achieved the third highest iCCM treatment rate, despite its low population density and the multiple and severe challenges faced during implementation. Data further revealed that ASCs treated 18 per cent of all under-five cases of pneumonia, malaria and diarrhoea treated in the public sector (32 per cent of diarrhoea cases, 20 per cent of pneumonia cases and 15 per cent of malaria cases), representing a significant extension of Mali’s health system into the community. Importantly, interviews conducted by the evaluation team indicated a high level of competency on the part of the ASCs and a high degree of confidence among users.

Key conclusion 5: The IHSS contributed to improvements in coverage of a few interventions and the maintenance of coverage in other interventions.

To assess the plausible contribution of the IHSS to changes in coverage of supported interventions, the evaluation team compared the annual rate of change in coverage between the pre-IHSS period (2001-2006) and the IHSS period (2006-2012). The evaluation found ORS coverage and the proportion of children under 5 years of age sleeping under an ITN had high positive annual rates of change during the IHSS programme period, corresponding to almost 4 and 7 per cent per year, respectively (see Table 1). While ORS coverage increases were significantly higher over the IHSS programme period in comparison to the pre-IHSS period, data on ITN coverage was not available in 2001 to be able to make the same comparison. The evaluation team concluded that these successes were at least partly the result of significant investment in the procurement of commodities and the training of staff to distribute them. Maternal indicators, including antenatal care, were maintained during IHSS implementation, while skilled birth attendance doubled by 2012, likely due to IHSS investment in relais communautaire and traditional birth attendants.

The evaluation team concluded that these results represent an accomplishment, especially given the extremely challenging environment in which the IHSS was implemented in Mali.

Key conclusion 6: The IHSS was not able to achieve positive impacts on equity with the exception of a few indicators, including ITNs and ORS.

Unsurprisingly, the evaluation found that financial, security and political crises in Mali had a disproportionate impact on coverage of health interventions for children in the poorest wealth quintile. As a result, the programme was not able to achieve positive impacts on equity, with the exception of a few indicators, including ITNs and ORS. For instance, by 2012 the gap between the proportion of children among the richest and poorest quintiles sleeping under an ITN narrowed, with coverage at 68 per cent and 66 per cent, respectively (see Figure 1).

Equity remained stable with regard to early breastfeeding, exclusive breastfeeding and care seeking for suspected pneumonia, which, given the difficult circumstances, the evaluation team considered a success.

Key conclusion 7: The IHSS contributed to a significant number of deaths averted.

The evaluation used LiST to investigate the extent to which changes in child mortality in the intervention areas could be attributed to increases in coverage of programme-supported interventions. The results indicate that the lives of approximately 41,900 children under 5 years of age were saved between 2001 and 2012 (see Figure 1).
2007 and 2012, 90 per cent of which (37,900) were due to interventions supported by the IHSS. The use of ITNs was responsible for the most deaths averted (15,300), followed by the pneumococcal vaccine (8,300) and ORS (9,000). The evaluation concluded that the programme plausibly contributed to these additional child lives saved.

Key conclusion 8: The additional cost of an iCCM treatment was relatively high, at an average of $8.75 per treatment.
The costing exercise conducted by the evaluation team found that the additional cost of a malaria treatment provided by ASC, including rapid diagnostic test and drugs, was $7.96. Treating one case of childhood diarrhoea with ORS and zinc cost $9.62 and pneumonia costs were found to be $7.04 per treatment. The weighted average additional cost of an iCCM treatment was $8.75, which is relatively high compared to Malawi and Niger, where the average cost was $1.44 and $3.32, respectively, but much lower than in Ghana, where the cost was $13.20. The share of ASC-related fixed costs (training, supervision, etc.) represented an average of 79 per cent of the cost per treatment. The evaluation team concluded that the cost per treatment would decrease significantly if utilization increased.

Key conclusion 9: Gender equality remains a challenge, with high attrition among female ASCs.
While the iCCM programme in Mali does not have a specific gender recruitment policy, by mid-2012 fifty-six per cent of trained ASCs were women. There were challenges, however, with the retention of female ASCs. The ratio dropped to 43 per cent by the end of the programme; a drop of 13 per cent in only 12 months. Interviews conducted by the evaluation team suggested that many husbands do not want their wives to move away from their village to take up an ASC post. Furthermore, as many of the female ASCs had previously been nursing assistants or matrons, and thus qualified to provide a broad spectrum of health services, the narrow scope of practice of the ASCs led to dissatisfaction among many women and resulted in resignations.

More positively, the evaluation found that the IHSS provided a stimulus for the mobilization of women’s groups who participate in income generating activities as a means to gain economic independence and increase access to the newly established community health services.

The Way Forward
The financial and political crises experienced in Mali disrupted the timely implementation of the programme as well as financial planning for its long-term sustainability. The evaluation concluded that trends in the national budget, where government health expenditure per capita decreased from $10.70 in 2007 to $8.70 in 2011, combined with increased security demands, could threaten the sustainability of the programme. The new funding model of the Global Fund, in which iCCM programmes are eligible for funding, could help maintain and expand the programme.

Key recommendations to UNICEF and its partners

- Assess the possibility of reducing user fees for health care to increase utilization.
- Increase investment in IMCI at community health centres to ensure a strong continuum of care.
- Establish a system to ensure that the supplies and commodities needed by ASCs are efficiently replenished.
- Increase efforts to eliminate maternal and neonatal tetanus and to improve access to antenatal care.
- Invest in training to ensure that relais communautaire and traditional birth attendants are effective at promoting breastfeeding.
- Investigate the cause of the declines in coverage in important preventive interventions, including vitamin A supplementation.
- Investigate the possibility of increasing the catchment area per ASC (in areas where feasible) to help decrease the cost of the programme.
- Undertake a new sustainability study once the programme has reached higher maturity to better evaluate the additional costs of the programme.

This brief is based on the comprehensive Evaluation of UNICEF’s Integrated Health Systems Strengthening (IHSS) Programme in Mali, which can be downloaded from www.unicef.org/evaldatabase/index_82018.html. The purpose of this brief is to facilitate the exchange of knowledge between UNICEF and its partners. The contents of the evaluation report, and consequently of this brief, do not necessarily reflect the policies or views of UNICEF. For more information, please contact the UNICEF Health Section.