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 IHSS aimed to contribute to reducing maternal and child mortality. In alignment with government policies and plans, the IHSS sought to strengthen the health system’s capacity to deliver high-impact interventions at the community level, thereby contributing to increased coverage and lives saved. The programme was implemented in two phases in Ghana. Phase I (2007-2010) focussed on the delivery of a number of preventive interventions, including immunizations, vitamin A supplementation, promotion of infant and young child feeding (IYCF) practices and the distribution of insecticide-treated nets (ITNs). A 2009 change in policy to allow the treatment of pneumonia with amoxicillin and diarrhoea with zinc by Community Based Agents (CBAs) paved the way for Phase II (2010-2013), which focused on the scale up of integrated community case management (iCCM) of diarrhoea, malaria and pneumonia.

The IHSS was implemented in the Northern, Upper West and Upper East regions of Ghana, the most disadvantaged regions in terms of maternal and child health outcomes. There was also some support for CBA training and deployment in the Central region. Approximately 1.2 million children under 5 years of age live in the targeted regions.

1 CBAs are volunteer community health workers who do not receive a government salary but charge a small fee/token for medicines dispensed.
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 Ghana and to inform future programme and policy decisions in Ghana 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 Ghana. However, lack of government ownership is a concern. The roll out of iCCM in Ghana was facilitated by the 2009 change in policy to allow CBAs to administer antibiotics and zinc. In contrast to other IHSS countries, where similar shifts required intense and long-term advocacy, UNICEF country staff reported that the change in policy was not particularly problematic in the country, reflecting the fact that the programme was well aligned with the government’s priorities. Despite this, and although the government was involved in all aspects of its implementation, the evaluation team found that there was very little government ownership of the programme, with iCCM operating alongside the public health service, rather than within it.

**Key conclusion 2**: By training more than 17,000 front-line health workers, the IHSS strengthened Ghana’s health system.

Through the IHSS, a total of 16,800 CBAs were trained in iCCM (representing, after Ethiopia, the second largest number trained within the IHSS focus countries). Over 600 nurses and clinicians were also trained in iCCM and the Integrated Management of Childhood Illness (IMCI). The evaluation found that this training of front-line health workers made a major contribution to health system capacity in the supported regions of Ghana. However, the sustainability of the increased capacity is a concern. Data from a 2012 lot quality assurance sampling (LQAS) survey revealed deficiencies around in-service training, with less than 60 per cent of CBAs reporting to have had refresh training in the last 12 months.

### Table 1: Summary of coverage trend indicators (% and 95% confidence intervals)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>DHS 2003 (pre IHSS)</th>
<th>Ghana Northern Regions</th>
<th>MICS 2007 (special baseline)</th>
<th>LOAS 2012 (endline)</th>
<th>Average annual rate of change pre IHSS (2003-2007)</th>
<th>Data shown as % per year</th>
<th>Average annual rate of change during IHSS (2007-2012)</th>
<th>Data shown as % per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetanus toxoid vaccination of pregnant women (at least 2 doses)</td>
<td>47 (41-52)</td>
<td>64</td>
<td>17 (15-19)</td>
<td>4 (3-6)</td>
<td>-9 [-10 (-9)]</td>
<td></td>
<td>2 (1-3)</td>
<td></td>
</tr>
<tr>
<td>IPT</td>
<td>1 (0.3-2.2)</td>
<td>59</td>
<td>68 (66-70)</td>
<td>15 (14-15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postnatal care for the mother</td>
<td>15 (11-20)</td>
<td>Not collected</td>
<td>44 (42-46)</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early breastfeeding</td>
<td>58 (52-64)</td>
<td>45</td>
<td>55 (53-57)</td>
<td>-3 [-5 (-2)]</td>
<td>2 (1-3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exclusive breastfeeding</td>
<td>53 (44-63)</td>
<td>71</td>
<td>69 (67-71)</td>
<td>4 (2-7)</td>
<td>-0.3 (-1-0.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin A supplementation</td>
<td>74 (70-79)</td>
<td>50</td>
<td>45 (45-46)</td>
<td>-6 [-7 (-5)]</td>
<td>-1 [-1.7 (-0.5)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles immunization</td>
<td>80 (73-86)</td>
<td>92</td>
<td>90 (89-90)</td>
<td>3 (2-5)</td>
<td>-0.7 [-1.1 (-0.1)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPT3 immunization</td>
<td>70 (61-77)</td>
<td>91</td>
<td>90 (89-92)</td>
<td>5 (4-7)</td>
<td>-0.1 [-0.7 (-0.5)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care-seeking of suspected pneumonia</td>
<td>49 (38-60)</td>
<td>43</td>
<td>64 (62-66)</td>
<td>-2 [-3 (-2)]</td>
<td>4 (2-6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care-seeking for fever</td>
<td>50 (41-58)</td>
<td>Not collected</td>
<td>69 (67-71)</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td>Not collected</td>
<td>13</td>
<td>37 (35-39)</td>
<td>-</td>
<td>5 (4-5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITN</td>
<td>11 (8-16)</td>
<td>60</td>
<td>75 (73-77)</td>
<td>12 (11-13)</td>
<td>3 (2-4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORS coverage</td>
<td>40 (32-48)</td>
<td>32</td>
<td>41 (39-44)</td>
<td>-2 [-4 (-0.1)]</td>
<td>2 (1-3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IPTp = intermittent preventive treatment of malaria for pregnant women; ITNs = insecticide-treated nets; DPT = diphtheria, pertussis and tetanus; ORS = oral rehydration salt; *2012 EPI Survey

- **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, stock outs were a significant challenge.

Eighty-four per cent of the trained CBAs received their initial supply kit, which included diagnostics and drugs for the treatment of diarrhoea, malaria and pneumonia. The procurement and distribution of these supplies was supported through UNICEF matching funds. However, drug stock outs were reported to be a major problem by all evaluation informants. The LQAS survey revealed that very few CBAs had all key iCCM drugs on the day of the survey (ranging from 21 per cent in the Upper East region to only 2 per cent in the Upper West region). Stock outs of artemisinin-based combination therapy (ACT) for malaria were the most common.

Stock outs were caused both by unavailability of supplies at health facilities and CBAs’ lack of transport to collect the drugs from the facilities when they were available. Although UNICEF initially supplied bicycles to CBAs and zonal coordinators, by the end of the programme these bicycles were in disrepair and were not being replaced or repaired.

Key conclusion 4: Exclusion of CBAs from the National Health Insurance Scheme hindered utilization.

CBAs are unpaid volunteers and are not formally accountable to the government. As a consequence, payment for their services is excluded from the National Health Insurance Scheme (NHIS). The evaluation found that the token system, which requires clients to pay a small fee to receive drugs from CBAs, leads many caregivers to bypass CBAs in favor of health facilities where they receive free treatment. Among the 16,800 CBAs trained, each provided just nine treatments per year between June 2009 and May 2013, the lowest among the IHSS focus countries.

Key conclusion 5: Improvements in coverage of a number of focus interventions were realized during the IHSS. However, low utilization of CBAs suggests that their contribution to these increases was relatively small.

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 (2003-2007) and the IHSS period (2007-2012). These data revealed higher annual rates of change in coverage between the pre-IHSS period (2003-2007) and the IHSS period (2007-2012). These data revealed higher annual rates of change in the IHSS programme period for early initiation of breastfeeding, coverage of ORS and care-seeking for pneumonia; for instance, between 2007 and 2012 care-seeking for suspected pneumonia increased from 43 per cent to 64 per cent. Within this indicator, the average annual rate of coverage change was negative during the pre-IHSS period (-2 per cent per year) and positive (4 per cent a year) during the programme period. Utilization data—which show that CBAs were treating an average of only nine children per year during the programme—suggest that the contribution of CBAs to these increases was small. However, the evaluation concluded that it is plausible that the presence and health promotion activities of trained CBAs in communities could have plausibly contributed to improved care-seeking at government health facilities.

Key conclusion 6: The programme’s effect on equitable access to health services was mixed.

The evaluation team found that for several indicators, including for intermittent preventive treatment of malaria for pregnant women (IPTp), vitamin A supplementation and care-seeking for fever, coverage increased significantly in the poorest quintile during IHSS implementation. For other interventions, including anti-malarial drugs, tetanus toxoid and oral rehydration salts (ORS), there was no improvement in coverage amongst the poorest. Insecticide-treated nets (ITNs) were found by the evaluation to be significantly pro-poor, with 46 per cent among the poorest quintile in 2011, compared to 31 per cent among the richest two quintiles (see Figure 1).

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 modeling exercise found that an additional 1,900 lives were saved in the intervention areas during Phase I of the programme. Approximately 66 per cent of the deaths were averted due to interventions supported by the IHSS. An additional 1,900 lives were saved during Phase II, with 60 per cent of the deaths averted due to interventions supported by the programme. The case management of diarrhoea, malaria and pneumonia were prominent in the lives saved results across regions and time periods. In addition, improvements to care at birth consistently saved a large proportion of lives in the models.

Considering changes in coverage levels across all interventions, the evaluation team concluded that the IHSS plausibly contributed to the lives saved during the programme. It should be noted that at the time of the evaluation, iCCM in Ghana had been at scale for only one year. The evaluation suggested that the number of lives saved would likely increase as the programme matures.

Key conclusion 8: The additional cost of an iCCM treatment was very high, at an average of $13.70 per treatment.

The costing exercise conducted by the evaluation team found that the additional cost of a malaria treatment provided by a CBA, including rapid diagnos-
tic test and drugs, was $12.63. Treating one case of childhood diarrhoea with ORS and zinc cost $13.81 and pneumonia costs were found to be $12.66 per treatment. The weighted average additional cost of an iCCM treatment was $13.70, which is very high compared to other countries (e.g. the average cost in Malawi and Niger was $1.44 and $3.32, respectively). The evaluation concluded that the primary reason for these high costs was the low number of treatments delivered per CBA. The inefficient use of CBAs was also found to be a factor. Within Ghana’s iCCM programme, it is standard practice to have two CBAs per village, each covering an average of 72 children under 5 years of age. This is very low in comparison to other countries with similar programmes (in Ethiopia, each community health worker covers 377 children).

Key conclusion 9: The CBAs trained were evenly split between men and women. This was widely seen as appropriate.

One of the explicit intentions of the IHSS was the empowerment of women, particularly through training women to deliver community-based health care. In Ghana, where it is standard to assign two CBAs, one male and one female, to each community, approximately 48 per cent of the CBAs trained were female. The evaluation found that this was widely accepted as appropriate.

Informants generally felt that both men and women were needed since their roles were complementary, with male CBAs focusing on outdoor, physical tasks and female CBAs focusing on home-based care and breastfeeding.

The evaluation further found that approximately 70 per cent of the community health officers (CHOs), who are one level above CBAs and work at health posts, were female. Conversely, the zonal coordinators, who supervise the CBAs, were all men.

The Way Forward

Ghana’s iCCM programme was set-up to respond to a lack of access to health services, in particular for the country’s poorest and most vulnerable people. The evaluation concluded that the cost of the programme does not appear to be a significant barrier to iCCM sustainability in Ghana. However, programme impact is being hindered by low utilization of CBAs. The evaluation suggested several possible reasons for this low utilization, including the exclusion of CBAs from the NHIS, improvements in access to facility-based care, lack of attention and funding to demand creation strategies, drug stock outs, and the fact that CBAs are voluntary and spend little of their time on iCCM.

Key recommendations to UNICEF and its partners

- Develop and implement strategies to increase demand for CBA services, including the possibility of including CBAs within the NHIS.
- Consider using CBAs to implement community-led total sanitation (CLTS) and community-based nutrition as part of the SUN (Scaling Up Nutrition) Initiative.
- Improve monitoring of the utilization of iCCM through community-based systems and periodic LQAS surveys.
- Document and disseminate lessons learnt around the increases in early initiation and maintenance of exclusive breastfeeding.
- Conduct further research to determine whether NHIS requirements are detrimentally affecting care-seeking.
- Improve the distribution and monitoring of drugs and other health supplies, possibly through the use of information technology.
- To reduce treatment costs and improve programme sustainability, undertake one of the following:
  - Reduce the total number of CBAs, increasing the number of treatments provided per CBA; or
  - Reduce the number of CBAs who provide iCCM. The other CBAs would provide only preventive and promotional interventions.