

# Seasonal malaria chemoprevention (SMC): slow uptake of a proven technology

There is frustration in the malaria community at the serious lack of progress with SMC

Over five years of research went into proving that intermittent preventive treatment of infants and children (IPTi/IPTc) for malaria was not only safe but effective.<sup>1</sup> The World Health Organization (WHO) used this evidence to convene a group of 10 of the potential 16 countries in the Sahel at Dakar, Senegal in December 2012 to orient them to and to plan for the application of IPTi/c during high malaria transmission periods and called it seasonal malaria chemoprevention (SMC).

SMC has been defined as a complete treatment course of amodiaquine plus sulfadoxine-pyrimethamine (AQ+SP) should be given to children aged between 3 and 59 months at monthly intervals, beginning at the start of the transmission season, to a maximum of four doses during the malaria transmission season.<sup>2</sup>

Delivery mechanisms for SMC vary. During the original IPTi/c research a number of sites successfully integrated it with child immunisation programmes.<sup>3,4</sup> The current WHO recommendation is, 'if possible, its delivery should be integrated into existing programmes, such as Community Case Management and other Community Health Workers schemes'.

As we approach the third transmission season since the Senegal meeting it is important to take stock of how far countries have come finding the needed sources, establishing appropriate policies and protocols, and finally, implementing SMC.

## National policy

The World Malaria Report (WMR) of 2014 states that, 'Adoption and implementation of IPTi has been slow. Despite the WHO IPTi policy recommendation in 2010 (30) and the IPTi Implementation field guide, published in 2011 (31), only Burkina Faso has adopted IPTi as national policy, and the country has not begun implementation. Reasons for the slow progress are unclear, but may be related to the difficulty in coordinating an intervention across health programmes, the complexity of recommendations, and concerns about parasite resistance to SP'.<sup>5</sup> In addition, the WMR indicates that Chad, Congo, Mali, the Niger, Senegal and Togo had adopted national SMC policies in 2013.

Specifically, the national case management directives from Burkina Faso spell out the nature of SMC. These directives then state that, 'The implementation of the CPS strategy AQ + SP will take the form of campaign and will last 4 days per month during the months of August,

September, October and November. The distribution of AQ + SP will be by community distributors (DC) under the supervision of nursing heads of post (ICP)'.<sup>6</sup>

Other countries have also embraced SMC. Nigeria's current national malaria strategic plan mentions that, 'Robust multiple prevention strategies driven by significant scale-up of indoor residual spraying, universal coverage of long-lasting insecticide treated nets, and strategic use of larviciding. Use of IPT with SP for pregnant women will be invigorated while also strategically deploying SMC'.<sup>7</sup>

Mali also addresses SMC in its current malaria plans.<sup>8</sup> *The Graphic Online* reported in 2014 that, 'Ghana had adopted the SMC strategy as a policy and implementation would begin this year in the Upper West Region'.<sup>9</sup>

It is important to note that having a plan or strategy does not translate into having a full-scale national programme. Alternatively, not having policy did not stop pilot efforts. Therefore much of what has been reported to date on SMC implementation has come from pilot efforts by Non-Government Organisations (NGOs) and governments.

## Pilot SMC efforts

The London School of Hygiene and Tropical Medicine had been involved in the earlier research on IPTi/c. They reported that in 2014, 'SMC was implemented in Burkina Faso, Chad, Mali, Niger, Nigeria, Senegal, The Gambia and Togo, and a further five countries, Cameroon, Guinea, Guinea Bissau and Mauritania, have plans to introduce SMC. UNITAID recently announced a programme of US\$67 million to improve access to SMC in the Sahel in 2015 and 2016'.<sup>10</sup> Some information on



Normally a child with fever is tested, but SMC reduces cases

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action in specific countries has also been reported.

Médecins Sans Frontières (MSF) implemented in Niger for the first time in 2013. It is now part of efforts under the national programme to control the disease. 'July to October 2013, MSF conducted a mass campaign, targeting more than 206 000 children from 3 to 59 months of age in more than 1045 villages in the Magaria, Madaoua, Bouza, Madarounfa, and Guidam-Roumji Health Districts of Zinder, Tahoua and Maradi Regions.'

In Niger a variety of distribution methods were carried out. More than 2000 community workers were deployed at 179 sites based within health facilities or public places, 75 advanced sites in the homes of village chiefs, or in hamlets, and by 99 teams going door-to-door.<sup>11</sup> The three distribution strategies resulted in a coverage rate of more than 85%.

*The Public Library of Science Medical Journals' Community Blog* reported in April 2013 on MSF efforts for SMC in Mali and Chad.<sup>12</sup> It was said that MSF clinics experienced higher caseload in the rainy season from July to November when children under 5 years of age each contracted malaria two to three times. The pilot required extensive negotiations with government since SMC had not yet been adopted as policy.

In Mali, both door-to-door and fixed site distribution of SMC was used, while Chad used only fixed sites. As a result of the intervention, 'In-hospital mortality attributed to malaria fell from 14.5 to 4 deaths per week'. The programme in Mali covered the whole district of Koutiala, providing chemoprevention to an average of 159 317 children per month for three months. In contrast action in Chad covered an average of 10 231 children per month over four months. Koutiala's population is roughly estimated at 575 000,<sup>13</sup> so that the reported monthly coverage appears to be quite good.

By October 2014 MSF continued its third annual SMC distribution and spread to two districts. At this point some 80 000 children in remote parts of Moissala and Bouna received monthly doses during the rainy season. This project was said to result in '60% of malaria cases in children under five years old'. Based on evidence from these projects, SMC has now been integrated to the national plan against malaria in Chad, 'although it has yet to be implemented by any organisation other than MSF'.<sup>14</sup>

Other SMC pilot efforts are being planned. Malaria Consortium reports that it is, 'implementing and assessing the feasibility of a community-based seasonal malaria chemoprevention project in Katsina State, northern Nigeria, with funding from the Bill & Melinda Gates Foundation'. The pilot was to roll-out in the malaria transmission season of 2013, with the preparation of over 2800 healthcare staff, trainers and supervisors who were to roll-out the intervention.<sup>15</sup>

Ultimately around 485 000 children received preventive drugs for malaria in Katsina State, according to Malaria Consortium. They report that, 'The roll-out has shown that SMC can be successfully deployed in a cost-effective and feasible way in areas where the malaria transmission season is less than four months'.<sup>16</sup>



*The malaria transmission period happens in Burkina Faso's rainy season*

Malaria Consortium eventually expanded and in the upcoming season plans to reach 792 132 children under five years old in Zamfara and Sokoto states in 2015.<sup>17</sup> This expanded effort is part of a new multi-country programme called 'Achieving Catalytic Expansion of Seasonal Malaria Chemoprevention in the Sahel (ACCESS-SMC)', a UNITAID-funded project led by Malaria Consortium, in partnership with Catholic Relief Services (CRS). The ACCESS-SMC programme is aimed at seven West African countries: Burkina Faso, Chad, Guinea Conakry, Mali, Niger, Nigeria and The Gambia.

*The Point Newspaper*, Banjul, The Gambia reported on 22 January 2015 that 'a new component of the National Malaria Control Strategy commonly called SMC has been launched in The Gambia, mainly for children aged 3-59 months old'. Several partners are involved including 'CRS in collaboration with the Ministry of Health, UNICEF, WHO, and Medical Research Council'.<sup>18</sup> The Gambia has reduced malaria incidence by 85%, so SMC would augment these gains.

The West African Regional Network (WARN) of the Rollback Malaria Partnership (RBM) reported at a regional meeting in 2014 that six countries had implemented SMC, with a coverage rate in 2013 ranging from 10% to nearly 100% of the children under five years of age in the chosen pilot areas.<sup>19</sup> The biggest challenge was resource mobilisation for drugs and operational costs. Although a variety of community-based communication channels were used, countries agreed that the public needed to be better informed about SMC. The countries also reported challenges related to collecting and maintaining accurate data on SMC that was integrated with other aspects of malaria and healthcare programming.

### **Lessons learned for scaling-up and sustaining SMC**

It is encouraging that all the evidence created through the Research Consortium on intermittent preventive treatment of malaria for infants and children eventually resulted in a practical intervention that is beginning to save children's lives in the countries of the Sahel in Africa. While the concept has now been proven in theory and practice, the level of implementation still needs to



Village health workers in Burkina Faso are able to distribute SMC where needed be scaled-up.

Countries have experimented with various SMC delivery modes. Though WHO has recommended integration into community case management efforts, there is little so far to report on the value of this approach. It appears that community volunteers are important, but the present efforts appear more focused on a campaign-like mode during the high transmission months.

SMC does require additional resources, which may explain why to date it has not spread far beyond pilot efforts. Assistance from international organisations like UNICEF and UNITAID, and private sources like the Gates Foundation are helping these pilot efforts. In order to scale-up though, countries need to incorporate SMC into their national malaria strategies and action plans in order to receive greater financial support through the Global Fund's new funding mechanism.

Policy change does take time, but children's lives are at risk. Therefore it is not surprising that the NGO sector has taken the initiative and is pushing for change by demonstrating the worth of SMC through various pilot programmes. Ultimately, NGOs and governments need to collaborate to bring about enabling policies and funding to scale-up the pilot efforts.

One should also ask whether SMC will be implemented in the Southern African belt of low transmission that corresponds with the Southern Africa Development Communities' eight front line malaria elimination countries.<sup>20</sup> Finally, as sustained intervention in current high transmission areas brings down caseloads, SMC may in future find its way toward the middle of the continent.

In conclusion, it appears that SMC is being planned or implemented in most of the 16 appropriate countries.

Hopefully by this time next year better data will be available to report more results on the actual portions of at risk children who are being reached with SMC on a regular basis during the rainy season in the Sahel.

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