Scale-up of a programme for malaria vector control using long-lasting insecticide-treated nets: lessons from South Sudan

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Problem Long-lasting insecticidal nets (LLINs) are important tools in malaria control. South Sudan, like many other endemic countries, has struggled to improve LLIN coverage and utilization.

Approach In 2006, Southern Sudan – known as South Sudan after independence in 2011 – initiated a strategic plan to increase LLIN coverage so that at least 60% of households had at least one LLIN each. By 2008, the target coverage was 80% of households and the Global Fund had financed a phased scale-up of LLIN distribution in the region.

Local setting South Sudan's entire population is considered to be at risk of malaria. Poor control of the vectors and the large-scale movements of returnees, internally displaced people and refugees have exacerbated the problem.

Relevant changes By 2012, approximately 8.0 million LLINs had been distributed in South Sudan. Between 2006 and 2009, the percentage of households possessing at least one LLIN increased from about 12% to 53% and LLIN utilization rates increased from 5 to 25% among children younger than 5 years and from 5 to 36% among pregnant women. The number of recorded malaria cases increased from 71 948 in 2008 to 1 198 357 in 2012.

Lessons learnt In post-conflict settings, a phased programme for the national scale-up of LLIN coverage may not have a substantial impact. A nationwide campaign that is centrally coordinated and based on sound guidelines may offer greater benefits. A strong partnership base and effective channels for the timely and supplementary deployment of LLINs may be essential for universal coverage.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

Malaria remains an important cause of morbidity and mortality. Approximately 219 million malaria cases and 660 000 malaria-related deaths were reported globally in 2010.[1] The greatest toll is exacted in sub-Saharan Africa, where over 80% of all malaria episodes and 90% of all malaria-related deaths occur.[1] The huge malaria burden in sub-Saharan Africa has been partly attributed to the presence of efficient vectors that maintain high levels of transmission.[2] Recent increases in international funding for malaria control have enabled many countries with endemic malaria to scale up their vector control efforts at both individual and community levels.[3] In some countries in sub-Saharan Africa, for example, millions of long-lasting insecticide-treated nets (LLINs) have been distributed.[1] By 2012, an estimated 53% of the households considered to be at risk of malaria in this region had at least one LLIN each.[1]

In South Sudan – formerly Southern Sudan, an autonomous region that in 2011 gained its independence from the country then known as Sudan – malaria control is currently based on the early definitive diagnosis of febrile cases by microscopy or the use of a rapid diagnostic test, the treatment of malaria cases with artemisinin-based combination therapy, and the use of LLINs and intermittent preventive treatment.[4] The national Ministry of Health supports a well-established and functioning health information system that uses surveillance at sentinel sites to estimate the incidence of malaria and determine the outcomes of malaria-control interventions.[4]

Although South Sudan received considerable financial support to scale up LLIN coverage – both from the Global Fund to Fight AIDS, Tuberculosis and Malaria's rounds 2, 7 and 10 for malaria control, and other funding agencies – malaria remained endemic in all 10 of South Sudan's administrative states in 2012.[5] This paper describes the approaches that first Southern Sudan and then South Sudan followed to scale up LLIN coverage, the challenges encountered, the lessons learnt from this experience, and how these lessons have informed LLIN distribution.

Local setting

Human malaria occurs throughout South Sudan and the country's entire population is considered to be at risk of the disease.[6] Transmission of the causative parasites occurs for 7 to 8 months of the year in the south of the country and for 5 to 6 months of the year in the north. The main vectors are *Anopheles gambiae* sensu stricto, *A. arabiensis* and *A. funestus*.[7] Attempts to control the vectors have been limited and intermittent and have had little apparent impact on the huge malaria burden.

Five decades ago, "indoor residual spraying" and larviciding were used to limit malaria transmission in what was then southern Sudan.[6] However, these interventions ceased when the First and Second Sudanese Civil Wars – in 1955–1972 and 1983–2005, respectively – led to a general collapse of infrastructure and public health services. After several decades without any vector control, programmatic control of the malaria vectors was relaunched in Sudan – along with malaria case management – in 2004. Insecticide-treated bednets were distributed to individuals who were considered particularly vulnerable to malaria: children younger than 5 years, pregnant women, internally displaced persons and nomadic pastoralists. These nets were initially distributed on a small scale – via a public–private partnership – using a social marketing

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approach. The large-scale deployment of LLINs was only attempted after the signing of a comprehensive peace agreement in 2005. Even then, the scale-up of LLIN coverage was hampered by strong social and geographical barriers. "Post-conflict" southern Sudan was characterized by poor infrastructural development, transport and health services, the presence of large numbers of vulnerable individuals other than those previously targeted – such as orphans, the elderly, the chronically ill, returnees and refugees – and a general preference for a locally made and untreated cotton bednet – called *dumuria* – over conventional insecticide-treated bednets. There was no coordinated or standardized system for the distribution or quality control of LLINs and no relevant national operational guidelines, training manuals or communication strategy. Although there were systems in place for the monitoring and supervision of the net distributions, these had no set targets or reporting protocols.

Relevant changes

Policy and guidance

Southern Sudan's Ministry of Health issued a health policy document in 2006 that emphasized the need for malaria control[8] and the same Ministry developed a strategic plan to cover malaria control between 2007 and 2013.[6] The plan prioritized the distribution of LLINs. The initial target of the distribution – 60% household coverage[6] – was soon raised to 80% household coverage in the relevant guidelines.[9] In 2007 the Global Fund to Fight AIDS, Tuberculosis and Malaria financed the scale-up of LLIN distribution in Southern Sudan, with the stated aim of reducing malaria incidence in the region by at least 50% by 2010.

Delivery mechanisms

In an attempt to ensure universal LLIN coverage – that is, to ensure that every sleeping space in every household is covered by an LLIN – guidelines were developed to streamline LLIN deployment and improve the uptake and utilization of the nets throughout Southern Sudan.[9] Distribution of most (80%) of the nets followed a phased approach in which, in any single year, community-based mass distribution campaigns were run in just one to four states. The ultimate aim of the distributions was to provide at least one net for every 1.8 people – as recommended by the World Health Organization (WHO).[7]

The mass distribution campaigns followed a prescribed methodology and targeted 100% of the population in both rural and urban areas. They aimed to increase the level of supervision, accuracy and quality of the work conducted by community volunteers and to improve each beneficiary's knowledge of LLIN use and maintenance. For each mass distribution, a coordinator, a supervisor to cover each subcounty or *payam*, a site manager, a community registrar and one or two community "communicators" were recruited to conduct and supervise all of the logistical, financial, training and communication activities. All of these personnel were given activity-based training that was tailored to the needs of the target communities. The implementation process involved bottom-up "micro-planning", with community participation. This planning phase was followed by 5 days of household registration by community volunteers and 2 days of identifying suitable sites for the distribution of the LLINs. One net was given for every two people in each household. Supervision of the distributions was the responsibility of the supervisors, managers and implementing partners. After each mass distribution, a "hang it, use it" campaign was conducted to help householders hang the distributed nets before the distribution sites were cleaned and tidied.[10]

The 20% of nets not distributed in the mass campaigns were given out during the provision of routine health services, particularly to children and pregnant women who were attending clinics associated with the Expanded Programme on Immunization or antenatal care. In one small area of South Sudan, a method for the "continuous" distribution of LLINs was piloted in an attempt to see if universal LLIN coverage could be maintained through a community-based replacement mechanism.[11]

For each mass distribution, the target number of nets – that is, the number needed to satisfy the goal of at least one net in 80% of households – was estimated. The numbers of nets distributed were subsequently expressed as percentages of the corresponding target numbers – to give an "administrative coverage" for each distribution.

Challenges and obstacles encountered

Although LLIN distribution has been the main vector-control intervention in South Sudan, with enough nets distributed to reach – in theory – the current target of 80% household coverage, several challenges were encountered during the scale-up (Table 1) and the malaria burden remains high (Fig. 1). The intervention has not been nearly as effective as anticipated, probably because of suboptimal LLIN coverage, retention and utilization. Many members of targeted households were seen sleeping outdoors, without a bednet. Some used the distributed nets for fishing or fencing. Although the national guidelines for the LLIN distributions recommended that only net types that had been prequalified by the WHO be distributed, not all of the distributed nets met this criterion. "Leakage" of the distributed nets into local markets and their illegal sale were reported. Despite the supplementary, clinic-based distribution of LLINS, the LLIN utilization rates among pregnant women and children younger than 5 years remained disappointing. The insecticidal activity and physical durability of the nets may be compromised by the harsh environmental conditions that are common in South Sudan. Attempts to improve LLIN use – via information and education or behaviour-change communications – have been weak (see below). Effective LLIN distribution in South Sudan is made difficult by the population movements and overcrowding that result from natural disasters, armed conflicts and intercommunal violence.[4]

Community sensitization and mobilization

The mass media and interpersonal communication channels have been used to disseminate behavioural-change and information and education communications.[12] These communications have emphasized the main benefit of LLIN retention and use – that is, malaria prevention – as well as the need to use the nets every night, irrespective of the season, the correct way to hang and use the nets, and who should be given priority for sleeping under the nets. Unfortunately, such communications have been rarer and more sporadic than intended and largely confined to the days when mass distributions were occurring. Leakage

and sale of the nets were discouraged by labelling each net "NOT FOR SALE" and "MoH", by removing each net from its original packaging when it was distributed, and by the orientation of local leaders and authorities.

Spatial scale, performance and policy change

By 2012, LLINs had been distributed in every state of South Sudan. In every state-wide mass distribution except two, the administrative coverage was 83.8 to 100%. The exceptions were the distribution in Western Equatoria in 2008 (32.3%) and that in Central Equatoria in 2010 (69.0%), The number of nets distributed each year gradually increased, from 45 000 in 2003 to 1 529 509 in 2012 (Fig. 1). By 2012, approximately 8 million LLINs had been distributed. The percentage of households having at least one LLIN reportedly increased from about 12% in 2006 to 53% in 2009.[4] Other investigations indicated that this proportion increased from 34.2% in 2010[13] to 66.3% in 2012.[11] Between 2006 and 2012, LLIN utilization rates increased from 5 to 40.7% among children younger than 5 years old and from 5 to 38.2% among pregnant women.[4,12] Despite these apparent improvements in malaria prevention – and the downward trend seen in reported cases of malaria between 2003 and 2007 – the annual numbers of reported malaria cases gradually increased from 71 948 in 2008 to 1 198 357 in 2012 (Fig. 1).[5,11,13] These disappointing observations – and the fact that the observed utilization rates fall well below the values that might be expected from the numbers of nets distributed – have led to the effectiveness of a phased distribution being questioned and a proposed policy change to the implementation of a single, nationwide distribution every 2 years.

Lessons learnt and discussion

The main lessons learnt are summarized in Box 1. While widespread access to insecticide-treated bednets has been advocated by the Roll Back Malaria Partnership, universal deployment of such nets still requires major financial, technical and operational inputs,[14] particularly in post-conflict environments.[15]

Successful delivery of LLINs requires meticulous operational considerations and preparedness. Adequate planning – including detailed logistical assessments to obtain relevant local data – is crucial for both the quantification of needs and the distributions. This process should include stakeholders and com-

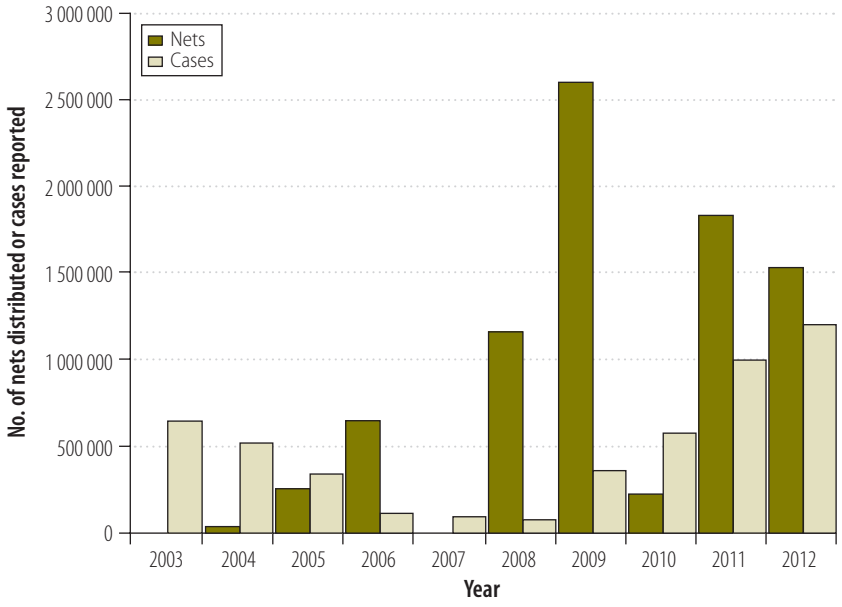
Table 1. **Challenges encountered in scaling up net distribution and remedial measures implemented, Southern Sudan, 2003–2010, and South Sudan, 2011–2012**

Challenge	Remedial measure
Resistance by the population to use the nets and misuse of the nets for fishing, fencing, etc.	Strengthened educational and behaviour-change communications frequently disseminated via print and mass media channels in addition to "malaria commemorative" days
Leakage of distributed LLINs into the market	Qualitative research to determine why leakage is occurring. Hampering leakage by removings nets from packaging and labelling them "not for sale"
Influx of untreated nets and other unrecommended types into the country	Only WHO-approved LLINs of at least 100 denier were procured centrally
Low ownership of LLINs by vulnerable groups	"Continuous" community-based distribution investigated
Weak monitoring and evaluation	A documentation system at national, state and county levels was established and regular supervisory visits to health facilities were supported
Lack of operational research to guide informed decision-making	Consumer preference studies on net shape, size, colour, coverage, retention, use and durability and on effective replacement mechanisms are planned. Vector bionomics and insecticide susceptibilities and epidemiological impact of LLIN distribution are to be arranged
Weak collaboration among the partners involved in planning, implementation, monitoring and evaluation, including limited capacity for supportive supervision at state and county level	Partnerships strengthened via a Malaria Technical Working Group, overall technical oversight of implementation at national level, coordination of the implementation at state and county levels and primary microplanning for a coordinated delivery of mass distributions at county level
Lack of defined roles and responsibilities for implementing partners	Roles for different partners were defined[a]
Variation in size of eligible population because of movements of refugees, returnees and internally displaced persons	Size of the eligible population confirmed – before the distribution – during a logistical assessment in collaboration with IOM, UNHCR and other partners "on the ground"
Inaccessibility because of natural disasters and violence	Humanitarian organizations and international NGOs deployed in the affected areas
Conditions of households predispose the LLINs to heavy wear and tear	Increased health education and emphasis on the need to maintain the physical integrity of the nets
Inconsistencies in distribution campaigns	A nationwide mass campaign should be conducted every 2 years and supplemented by the routine distribution of LLINs via antenatal clinics and EPI
Inadequate information and education or behaviour-change communications and educational materials on LLINs	The choice of media, messages and target audiences to be based on the results of formative research

EPI, Expanded Programme on Immunization; IOM, International Organization for Migration; LLINs, long-lasting insecticide-treated nets; NGOs, nongovernmental organizations; UNHCR, Office of the United Nations High Commissioner for Refugees; WHO, World Health Organization.

[a] The partners in the public sector were to mobilize resources and partnerships, ensure equitable distributions and access, and monitor and regulate the quality of the distributions. Those in the private commercial sector were to create awareness and demand, update strategies and maintain transportation and storage. Civil society and NGOs were to encourage community involvement and participation and equitable distribution to people at risk and support the development and dissemination of educational communications and materials. Multilateral agencies and donors were to provide LLINs and other resources, build capacity and provide advocacy for the prioritization of the LLIN-based programmes

Fig. 1. **Numbers of malaria cases reported and long-lasting insecticide-treated nets distributed, Southern Sudan, 2003–2010, and South Sudan, 2011–2012**



Box 1. **Summary of main lessons learnt**

- A phased and fragmented approach to the scale-up of a national campaign for the distribution of long-lasting insecticide-treated nets (LLINs) may not provide a good model for achieving universal bednet coverage in post-conflict settings.
- A nationwide campaign that is centrally coordinated and based on sound guidelines may offer greater benefits.
- A strong partnership base and effective channels for the timely and supplementary deployment of LLINs may be essential if universal LLIN coverage is to be achieved.

munity participation – in a bottom- up micro-planning approach – as critical elements. Community volunteers need to be trained well if they are to supervise logistical activities, communicate and conduct registration and distribution activities effectively. Immediately after the distribution, a campaign to support the hanging and correct use of the nets should be conducted.

It seems clear that in South Sudan the distribution of sufficient nets to exceed the set target – of at least one LLIN in 80% of households – has failed to halt a recent upward trend in malaria incidence. LLIN usage remains relatively low. All sectors of South Sudanese society need to be educated and mobilized to promote the retention and appropriate use of LLINs. Research is needed to identify the most effective media, messages and target audiences, and to determine the causes of net misuse and the net shapes, colours and sizes preferred by the end-users. Although the government of South Sudan had declared insecticide-treated nets to be exempt from import tariffs and taxes, it has not legislated to ensure that the LLINs being distributed are of adequate quality.[12] The leakage or theft of LLINs for resale – although irritating to the distribution teams – may not be particularly detrimental to South Sudan's malaria-control efforts, since the people who buy nets are probably more likely to use nets than those who receive nets free of charge.

Malaria monitoring, evaluation and surveillance are essential for establishing the effectiveness of interventions and for the early detection of – and prompt response to – malaria outbreaks and epidemics.[16] In South Sudan, the reporting system for malaria is fully integrated into the country's routine health management information system. The development and improvement of this system could in part explain the observed upsurge in the annual numbers of malaria cases reported between 2008 and 2012. The varying quality of the system for recording malaria cases in Southern Sudan and South Sudan since 2003 makes it difficult to assess the true impact of the distributed LLINs.

If universal LLIN coverage is to be achieved and sustained among at-risk populations, refugees and other displaced individuals have to be considered in our strategic planning.[15] Effective methods for the supplementary distribution of LLINs – beyond the mass distributions – also need to be developed and deployed. These methods may include community-based "continuous" distributions,[11] commercial distribution, channels to target orphans, the aged and the chronically ill, access to LLIN during routine visits to health facilities, and school-health-based and employer-based schemes for the distributions of LLINs. There is also a need to establish the true impact of LLINs on the principle entomological indicators associated with the transmission of malarial parasites.

In South Sudan, flooding, armed conflicts and intercommunal violence – which lead to population displacement and overcrowding – could be playing a major role in compromising the efficacy of the LLIN distributions.[4] In 2012, for example, the states of Jonglei, Northern Bahr el Ghazal, Upper Nile and Warrap suffered both heavy flooding and active conflict.[17] The poor quality of housing – particularly in rural areas and the camps for displaced populations – may also have reduced the effectiveness of the LLINs that were distributed. Improvement in housing has been shown to enhance the efficacy of LLINs and could be useful in post-conflict settings.[18]

The observations made in Southern Sudan and South Sudan over the last decade demonstrate that a phased and fragmented scale-up of LLIN distribution may be both arduous and a poor approach to universal coverage, at least in a post-conflict setting. The scale-up of LLIN distributions in similar settings will need to be carefully considered and adapted to the local context.[19] ■

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ملخص

زيادة حجم برنامج لمكافحة نواقل الملاريا باستخدام الناموسيات المعالجة بالمبيدات الحشرية طويلة الأجل: الدروس المستفادة من جنوب السودان

المشكلة تمثل الناموسيات المعالجة بالمبيدات الحشرية طويلة الأجل أدوات مهمة في مكافحة الملاريا. وكافحت جنوب السودان، مثل غيرها من البلدان التي يتوطنها هذا المرض، لتحسين التغطية بالناموسيات المعالجة بالمبيدات الحشرية طويلة الأجل واستخدامها.

الأسلوب بدأت جنوب السودان – التي عرفت بهذا الاسم بعد استقلالها في عام 2011 – خطة استراتيجية في عام 2006 لزيادة التغطية بالناموسيات المعالجة بالمبيدات الحشرية الطويلة الأجل حيث حصلت 60 ٪ من الأسر المعيشية على الأقل على ناموسية معالجة بالمبيدات الحشرية طويلة الأجل لكل واحدة منها. وبحلول عام 2008، بلغت التغطية المستهدفة 80 ٪ من الأسر المعيشية وقام الصندوق العالمي بتمويل الزيادة التدريجية في توزيع الناموسيات المعالجة بالمبيدات الحشرية طويلة الأجل في المنطقة.

المواقع المحلية يعتبر جميع السكان في جنوب السودان عرضة لخطر الإصابة بالملاريا. وأدى ضعف مكافحة نواقل المرض وتحركات العائدين والمشردين داخلياً واللاجئين على نطاق واسع إلى تفاقم المشكلة.

التغيّرات ذات الصلة بحلول عام 2012، تم توزيع حوالي 8 مليون ناموسية معالجة بالمبيدات الحشرية طويلة الأجل في جنوب السودان. وزادت النسبة المئوية للأسر المعيشية التي يوجد لديها على الأقل ناموسية واحدة معالجة بالمبيدات الحشرية الطويلة الأجل في الفترة من 2006 إلى 2009 من 12 ٪ إلى 53 ٪ تقريباً وزادت معدلات استخدام الناموسيات المعالجة بالمبيدات الحشرية طويلة الأجل من 5 إلى 25 ٪ بين الأطفال الأقل من 5 سنوات ومن 5 إلى 36 ٪ بين النساء الحوامل. وزاد عدد حالات الملاريا المسجلة من 71948 في عام 2008 إلى 1198357 في عام 2012.

الدروس المستفادة قد لا يكون للبرنامج التدريجي لزيادة التغطية الوطنية بالناموسيات المعالجة بالمبيدات الحشرية طويلة الأجل أثر كبير في المناطق التي انتهى فيها الصراع. وقد توفر حملة وطنية ذات تنسيق مركزي وتستند على الدلائل الإرشادية السليمة مزيداً من الفوائد. وقد يكون إنشاء قاعدة شراكة قوية وقنوات فعالة لنشر الناموسيات المعالجة بالمبيدات الحشرية طويلة الأجل في الوقت المناسب وعلى نحو تكميلي شرطاً أساسياً للتغطية الشاملة.

摘要

使用长效防虫蚊帐进行疟疾传病媒介控制计划的扩大：南苏丹经验教训

问题 长效防虫蚊帐（LLIN）是控制疟疾的重要工具。南苏丹和许多其他地方病国家一样，一直在努力改善 LLIN 覆盖和利用情况。

方法 在 2006 年，南部苏丹（即在 2011 年独立的南苏丹）启动了一项提高 LLIN 覆盖率的战略计划，从而使至少 60% 的家庭至少拥有一顶 LLIN。截至 2008 年，目标覆盖率是 80% 的家庭，全球基金已经为该地区阶段性扩大分发 LLIN 提供了资金。

当地状况 南苏丹整个人口被认为面临疟疾风险。对传播媒介控制不力以及回国人员、国内流离失所者和难民的大规模流动加剧了问题的严重性。

相关变化 截至 2012 年，南苏丹已经分发了大约 800 万顶 LLIN。在 2006 和 2009 年之间，拥有至少一顶 LLIN 家庭的百分率从大约 12% 提升到 53%。在不到 5 岁的儿童中，LLIN 利用率从 5% 增加到 25%，孕妇当中的利用率从 5% 增加到 36%。登记的疟疾病例数量从 2008 年的 71948 例增加到 2012 年的 1198357 例。

经验教训 在冲突后的环境中，全国扩大 LLIN 覆盖的阶段性计划可能不具有实质的影响。集中协调并基于合理指导的全国性运动可能会有更好的效果。通过强大的合作伙伴群体和有效的渠道，进行及时和补充性的 LLIN 部署，可能对实现全民覆盖至关重要。

Résumé

Élargissement d'un programme de lutte contre les vecteurs du paludisme à l'aide de moustiquaires imprégnées d'insecticide longue durée: les leçons du Soudan du Sud

Problème Les moustiquaires imprégnées d'insecticide longue durée (MILD) sont des outils importants dans la lutte contre le paludisme. Le Soudan du Sud, comme beaucoup d'autres pays endémiques, s'efforce d'améliorer la couverture et l'utilisation des MILD.

Approche En 2006, le sud du Soudan - appelé Soudan du Sud après son indépendance en 2011 - a lancé un plan stratégique visant à augmenter la couverture des MILD, de sorte qu'au moins 60% des ménages disposent d'une moustiquaire au moins. En 2008, l'objectif

de couverture était de 80% des ménages et le Fonds mondial a financé un élargissement progressif de la distribution des MILD dans la région.
Environnement local L'ensemble de la population du Soudan du Sud est considérée comme exposée au paludisme. Un contrôle médiocre des vecteurs et la forte ampleur des mouvements de rapatriés, de déplacés internes et de réfugiés ont exacerbé le problème.
Changements significatifs En 2012, environ 8 millions de MILD ont été distribuées au Soudan du Sud. Entre 2006 et 2009, le pourcentage de ménages possédant au moins une MILD est passé d'environ 12% à 53%, et le taux d'utilisation des MILD est passé de 5% à 25% chez les enfants de moins de 5 ans et de 5% à 36% chez les femmes enceintes. Le nombre de cas de paludisme enregistrés est passé de 71 948 en 2008 à 1 198 357 en 2012.
Leçons apprises Dans des contextes post-conflictuels, un programme échelonné pour l'élargissement au niveau national de la couverture des MILD peut ne pas avoir d'impact important. Une campagne nationale coordonnée de manière centrale et basée sur des directives judicieuses peut offrir de plus grands avantages. Une base de partenariat solide et des moyens efficaces pour le déploiement rapide et complémentaire de MILD peuvent être essentiels à une couverture universelle.

Резюме

Расширение программы по борьбе с переносчиками малярии с помощью долговечных обработанных инсектицидами противомоскитных сеток: уроки Южного Судана

Проблема Долговечные обработанные инсектицидами сетки (ДОИС) являются важным инструментом в борьбе с малярией. Южный Судан, как и многие другие эндемичные страны, приложил множество усилий для повсеместного распространения и использования таких сеток.
Подход В 2006 году Южный Судан, который обрел полную независимость только в 2011 году, инициировал стратегическую инициативу по увеличению охвата населения, пользующегося противомоскитными сетками, с тем, чтобы не менее 60% домохозяйств имело хотя бы одну такую сетку. К 2008 году целевой охват составил 80% домохозяйств и Всемирный фонд профинансировал поэтапное распространение ДОИС в регионе.
Местные условия Все население Южного Судана считается подверженным риску заболевания малярией. Плохой контроль над векторами развития и крупномасштабные перемещения репатриантов, вынужденных переселенцев и беженцев усугубили данную проблему.
Осуществленные перемены К 2012 году в Южном Судане было распространено примерно 8.0 млн. ДОИС. Между 2006 и 2009 гг. процент домохозяйств, имеющих, по крайней мере, одну ДОИС, увеличился с 12% до 53%, а коэффициент использования ДОИС увеличился с 5 до 25% среди детей в возрасте до 5 лет и с 5 до 36% среди беременных женщин. Число зарегистрированных случаев заболевания малярией возросло с 71 948 в 2008 году до 1 198 357 в 2012 году.
Выводы В постконфликтных ситуациях поэтапная программа, предусматривающая в будущем всесторонний охват населения ДОИС в национальном масштабе, может не оказывать существенного влияния. Общенациональная кампания, координируемая из центра и основанная на разумно достижимых принципах, может принести больше пользы. Важную роль для обеспечения всеобщего охвата может сыграть сильная партнерская база и эффективные каналы для своевременного и дополнительного распространения ДОИС.

Resumen

Ampliación de un programa de control de vectores de la malaria mediante mosquiteros tratados con insecticida de larga duración: lecciones de Sudán del Sur

Situación Los mosquiteros insecticidas de larga duración (LLIN, por sus singlas en inglés) son herramientas importantes para el control de la malaria. Sudán del Sur, como muchos otros países endémicos, ha luchado por mejorar el uso y la cobertura de los LLIN.
Enfoque En 2006, Sudán meridional, conocido como Sudán del Sur desde su independencia en 2011, inició un plan estratégico para aumentar la cobertura de los LLIN a fin de que como mínimo el 60 % de los hogares dispusieran de al menos un LLIN. En 2008, la cobertura objetivo era un 80 % de los hogares y el Fondo Mundial había financiado un plan de ampliación por fases de distribución de LLIN en la región.
Marco regional Se considera que toda la población de Sudán del Sur está en riesgo de contraer la malaria. Además, el control deficiente de los vectores y los movimientos a gran escala de los repatriados, los desplazados internos y los refugiados han exacerbado el problema.
Cambios importantes En 2012 se habían distribuido unos 8 millones de LLIN en Sudán del Sur. Entre 2006 y 2009, el porcentaje de hogares que poseían al menos un LLIN aumentó de alrededor del 12 % al 53 % y las tasas de uso de LLIN aumentaron del 5 al 25 % entre los niños menores de 5 años y del 5 al 36 % entre las mujeres embarazadas. El número de casos registrados de malaria aumentó de 71 948 en 2008 a 1 198 357 en 2012.
Lecciones aprendidas En los contextos posteriores a un conflicto, es posible que un programa gradual para la ampliación de la cobertura nacional de LLIN no tenga un efecto sustancial. Una campaña nacional que esté coordinada de forma central y se base en directrices sólidas puede ofrecer mayores beneficios. Por otro lado, una base de colaboración fuerte y canales eficaces para el despliegue oportuno y complementario de LLIN pueden ser esenciales para la cobertura universal.

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