Equity trends in ownership of insecticide-treated nets in 19 sub-Saharan African countries
Cameron Taylor,a Lia Floreyb & Yazoume Ye*b

Introduction
Equity in health is a major tenet of global development organizations, such as the World Health Organization (WHO) and the World Bank, whose policies are aimed to decrease the gap between poor and rich populations. WHO defines health inequity as “inequality with respect to health determinants, access to the resources needed to improve and maintain health or health outcomes”. Many diseases, such as malaria, are not distributed equitably among populations. Malaria disproportionately affects poor, rural populations, with pregnant women and young children at highest risk of severe morbidity and mortality.2-10 Addressing inequities that are actionable, such as the availability of commodities, has been the cornerstone of malaria control efforts for more than a decade.11,12 The aim of this initiative, countries have achieved high ITN coverage and the World Bank, whose policies are aimed to decrease the malaria burden.25

The mass distribution campaigns aim to provide one ITN per two household members. Based on the longevity of the nets and the cost-effectiveness of conducting a mass distribution as compared to a targeted net replacement, these campaigns are recommended to take place every three years.26

In 2015, seven years after the launch of the initiative, few multicountry studies have documented the effect of the mass distribution strategy on equity in ITN ownership coverage in sub-Saharan Africa. This study assesses the level of equity in bed-net ownership before and after the widespread implementation of national ITN distribution strategies.

Methods
Data
We used data from Demographic and Health Surveys (DHS) and Malaria Indicator Surveys (MIS), which are nationally representative, population-based household surveys and which use validated standard methods in all countries. Further details can be found elsewhere.27 The analysis focused on malaria-endemic countries in sub-Saharan Africa that have conducted DHS or MIS between 2003 and 2014. We defined surveys made before the launch of the initiative as baseline surveys and after the launch of the initiative as endpoint surveys.

Findings
Out of the 19 countries we assessed, 13 countries showed improved equity between baseline and endpoint surveys and two countries showed no changes. Four countries displayed worsened equity, two favouring the poorer households and two favouring the richer. The multicountry pooled analysis showed an improvement in equity (baseline survey C-index: 0.11; 95% confidence interval, CI: 0.10 to 0.11; and endpoint survey C-index: 0.00; 95% CI: −0.01 to 0.00). Similar trends were seen in both low- and intermediate-risk and high-risk zones.

Conclusion
The mass ITN distribution campaigns to increase coverage, linked to the launch of the Cover The Bed Net Gap initiative, have led to improvement in coverage of ITN ownership across sub-Saharan Africa with significant reduction in inequity among wealth quintiles.
and these were conducted between the years 2003–2008. Surveys carried out between years 2009–2014, we defined as endpoint surveys. All surveys are independent from each other.

**Analysis**

We did two sets of analyses: a country-level equity trend analysis of ITN ownership and a multicountry pooled analysis examining equity of ITN ownership by malaria transmission risk zones. Inclusion criteria for the country-level equity trend analyses included: (i) countries with one survey conducted between years 2003–2008 (baseline) and the other survey conducted between years 2009–2014 (endpoint); and (ii) all surveys must have included data on ITN ownership via a bed-net roster in the household questionnaire.

To explore if equity in ITN ownership varies by level of malaria transmission, the multicountry pooled equity analysis categorized all survey clusters into categories of malaria risk. We included surveys that had publicly available global positioning system (GPS) data for the surveyed clusters. If a country had more than one survey with GPS data in a time period, we used the most recent survey in both the baseline and endpoint. However, in Rwanda, we used the 2010 DHS GPS coordinates for the endpoint due to a lack of GPS coordinates for the most recent 2013 MIS survey. Only countries with GPS data from both surveys were included in the pooled analysis.

**Defining ITN ownership**

The outcome of interest is household ITN ownership, defined as the proportion of households with at least one ITN. As recommended by the Roll Back Malaria Monitoring and Evaluation Reference Group, the indicator is standard across countries and reflects the extent to which ITN distribution campaigns have reached all households. For each survey, we calculated the proportion of households with at least one ITN. To test for significant changes in ITN ownership between baseline and endpoint surveys, we calculated 95% confidence intervals (CI).

We did not use the indicator for universal bed-net coverage, i.e. the proportion of households with at least one ITN for every two people, since the indicator was not launched until 2008 and therefore not captured in baseline surveys.

**Defining wealth quintiles**

The DHS wealth index measures economic well-being of households independently from health and education. The DHS wealth index is a survey-specific measure of the relative economic status of households based on analysis of household assets and service amenities at a particular point in time. Wealth quintiles (lowest, second, middle, fourth, and highest) ranking indicates relative rather than absolute economic status of the household.

**Defining malaria endemicity**

We assigned each household cluster into geographical zones based on malaria transmission risk. To link DHS and MIS geo-coordinates (latitude, longitude) of each survey cluster to transmission risk zones, we used geo-coordinated *Plasmodium falciparum* parasite prevalence rates among children aged 2–10 years (*PfPR* 2-10) from the Malaria Atlas Project 2010. We assigned all households in a cluster from the DHS or MIS survey

| Country                  | Baseline survey, type and year | Mid-point survey, type and year | Endpoint survey, type and year | PfPR 2–10,a % | Included in pooled analysisb |
|--------------------------|-------------------------------|--------------------------------|--------------------------------|--------------|-----------------------------|
| Angola                   | 2006–2007 MIS                 | N/A                            | 2011 MIS                       | 8.1          | Yes                         |
| Benin                    | 2006 DHS                      | N/A                            | 2011–12 DHS                    | 29.9         | No                          |
| Burkina Faso             | 2003 DHS                      | N/A                            | 2010 DHS                       | 65.4         | Yes                         |
| Cameroon                 | 2004 DHS                      | N/A                            | 2011 DHS/MICS                  | 23.5         | Yes                         |
| Congo                    | 2005 DHS                      | N/A                            | 2011–2012 DHS                  | 17.5         | No                          |
| Democratic Republic of the Congo | 2007 DHS                  | N/A                            | 2013–2014 DHS                  | 48.0         | Yes                         |
| Guinea                   | 2005 DHS                      | N/A                            | 2012 DHS/MICS                  | 42.4         | Yes                         |
| Madagascar               | 2008–2009 DHS                 | 2011 MIS                       | 2013 MIS                       | 5.8          | Yes                         |
| Malawi                   | 2004 DHS                      | 2010 DHS                       | 2012 MIS                       | 35.6         | Yes                         |
| Mali                     | 2006 DHS                      | N/A                            | 2012–2013 DHS                  | 32.0         | Yes                         |
| Mozambique               | 2007 MIS                      | N/A                            | 2011 DHS                       | 35.5         | No                          |
| Niger                    | 2006 DHS                      | N/A                            | 2012 DHS                       | 29.3         | No                          |
| Nigeria                  | 2008 DHS                      | 2010 MIS                       | 2013 DHS                       | 32.5         | Yes                         |
| Rwanda                   | 2005 DHS                      | 2010 DHS                       | 2013 MIS                       | 2.3          | Yes                         |
| Senegal                  | 2005 DHS                      | 2008–2009 MIS                  | 2010–2011 DHS                  | 5.8          | Yes                         |
| Sierra Leone             | 2008 DHS                      | N/A                            | 2013 DHS                       | 52.8         | Yes                         |
| Uganda                   | 2006 DHS                      | 2009 MIS                       | 2011 DHS                       | 37.0         | Yes                         |
| United Republic of Tanzania | 2004–2005 DHS              | 2007–2008 THMIS                | 2011–2012 THMIS                | 10.6         | Yes                         |
| Zimbabwe                 | 2005–2006 DHS                 | N/A                            | 2010–2011 DHS                  | 2.5          | Yes                         |

DHS: Demographic Health Survey; MIS: Multiple Indicator Cluster Surveys; MIS: Malaria Indicator Survey; N/A: not available; *PfPR* 2–10: *Plasmodium falciparum* parasite rate; THMIS: Tanzania human immunodeficiency virus and malaria indicator survey.

a *PfPR* 2–10 is the national mean of *Plasmodium falciparum* parasite rate in children aged 2–10 years and was obtained from the 2010 Malaria Atlas Project.22

b Countries with no GPS data for both surveys were excluded from the pooled-analysis.
data to the same malaria transmission risk zone based on corresponding $P_{PR_{2-10}}$ data for that cluster. For the transmission zone categories, we used the standard $P_{PR_{2-10}}$ cut-offs from the Malaria Atlas Project: no-risk: $P_{PR_{2-10}} < 0.1$%; low-risk: $0.1% > P_{PR_{2-10}} \leq 5$%; intermediate-risk: $5% > P_{PR_{2-10}} \leq 40$%; and high-risk: $P_{PR_{2-10}} > 40$.35

Out of the 346,272 household clusters located in 15 countries, 50% (173,136) were categorized in the high-risk category, 36% (124,658) in the intermediate-risk category, and 4% (13,851) in the low-risk category. We excluded clusters located in areas with no risk of malaria from analyses because populations in these areas would not be targeted by ITN distribution campaigns.

Due to small sample size in the low-risk group, we combined the intermediate and the low-risk groups.

**Equity calculation**

We used the Lorenz concentration curve (C-curve) and the Lorenz concentration index (C-index) to assess equity in household ITN ownership across household wealth quintiles. The C-curve graphically presents the degree of economic-related inequality.36,37 In the C-curve graphs, the $x$-axis presents the cumulative percentage of the distribution of wealth, while the $y$-axis presents the cumulative percentage of the sample, ranked by wealth, beginning with the poorest, while the $y$-axis presents the cumulative percentage of the variable of interest corresponding to the cumulative percentage of the distribution of wealth.36 In the C-curve graphs, the dashed 45° line represents equity whereby the health outcome is distributed equally among all wealth quintiles. The C-curve will be below the equity line if ITN ownership is concentrated in richer households and will be above the equity line if ITN ownership is predominantly among poorer households.

The C-index, which provides quantification of this measure of equity, is defined as twice the area between the C-curve and the 45° line of equity. We calculated the C-index values by using the following equation $C = (P_{1L_{2}} - P_{1L_{1}}) + (P_{2L_{3}} - P_{2L_{2}}) + ... + (P_{nL_{n-1}} - P_{nL_{n}})$, where $P$ is the cumulative percentage of the household ranked by economic status in group $i$, and $L$ is the corresponding concentration curve ordinate.33 C-index values range between $-1$ to $1$. A value of

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**Fig. 1.** Proportion of households with at least one insecticide-treated net by country and survey year, 19 countries in sub-Saharan Africa, 2003–2014

![Graph showing ITN ownership by country and survey year](image_url)
0 suggests no difference in ITN ownership between different wealth quintiles. A C-index larger than 0 suggests that ITN ownership is predominantly among the richer households. Conversely, a negative index indicates that ITN ownership is more concentrated among the poorer households.\textsuperscript{17,38}

We used the \texttt{concindc} command in Stata version 13 (StataCorp LP, College Station, United States of America) to calculate the C-index values and their standard errors and we used the \texttt{clorenz} command for producing the C-curves. We calculated 95\% CI for the C-index values.

**Results**

In total, 19 countries (45 surveys) met the inclusion criteria for country-level equity analysis. For the multicountry pooled equity analysis, we included 15 countries (30 surveys; Table 1).

**ITN ownership**

In all countries, except Angola, there was a statistically significant increase in ITN ownership between the baseline and endpoint surveys. Rwanda and the United Republic of Tanzania showed the greatest improvement in ITN ownership, from 15\% to 83\% and from 23\% to 91\%, respectively. Angola displayed the smallest improvements in ITN ownership (from 28\% to 35\%; Fig. 1).

**Country-level equity analysis**

At the country level, 13 out of the 19 countries showed improvements in equity of ITN ownership between baseline and endpoint surveys, while two countries showed no changes and four countries displayed worsened equity (Table 2).

For all countries showing improvements in equity, the ITN ownership was concentrated in households from the highest wealth quintiles in the baseline surveys, as indicated by a C-curve below the equity line (C-index > 0). However, the countries showed different levels of improvement. For Burkina Faso, the Democratic Republic of the Congo, Malawi, Rwanda and Uganda equity significantly improved with C-index values closer to zero in the endpoint surveys. For Benin, Cameroon and the United Republic of Tanzania, equity in ITN ownership across wealth quintiles (C-index = 0) had been achieved. The endpoint surveys from the Congo, Guinea, Nigeria, Sierra Leone and Zimbabwe showed higher levels of ITN ownership among poorer households (C-curve above the equity line and C-index < 0; Fig. 2; Table 2).

In Mali, ITN ownership was equally distributed across wealth quintiles in both baseline and endpoint surveys with no significant change. In Mozambique, ITN ownership remained concentrated among richer households in the endpoint survey. However, C-index values were close to zero (Fig. 2; Table 2).

### Table 2. Equity changes in ownership of insecticide-treated nets before and after the launch of the Cover The Bed Net Gap initiative, sub-Saharan Africa, 2003–2014

| Equity change | Country | Baseline survey | Endpoint survey |
|---------------|---------|-----------------|-----------------|
| Improved      | Burkina Faso | 0.45 (0.40 to 0.49) | 0.06 (0.05 to 0.06) |
|               | Democratic Republic of the Congo | 0.26 (0.23 to 0.30) | 0.03 (0.03 to 0.04) |
|               | Malawi | 0.29 (0.28 to 0.31) | 0.06 (0.04 to 0.07) |
|               | Rwanda | 0.35 (0.33 to 0.38) | 0.02 (0.02 to 0.03) |
|               | Uganda | 0.11 (0.09 to 0.14) | 0.02 (0.02 to 0.03) |
|               | Benin | 0.23 (0.21 to 0.24) | 0.00 (−0.01 to 0.00) |
|               | Cameroon | 0.25 (0.17 to 0.33) | 0.02 (0.00 to 0.03) |
|               | United Republic of Tanzania | 0.41 (0.39 to 0.43) | −0.01 (−0.01 to 0.00) |
| No change     | Mali | 0.02 (0.00 to 0.03) | 0.00 (0.00 to 0.01) |
| Ownership was concentrated in richer households | Mozambique | 0.05 (0.02 to 0.08) | 0.04 (0.03 to 0.05) |
| Worsened      | Madagascar | −0.04 (−0.04 to −0.03) | −0.06 (−0.07 to −0.05) |
|               | Senegal | −0.01 (−0.05 to 0.00) | −0.11 (−0.12 to −0.10) |
| From ownership concentrated in poorer households | Angola | 0.05 (0.01 to 0.08) | 0.17 (0.15 to 0.18) |
|               | Niger | 0.00 (−0.02 to 0.01) | 0.09 (0.08 to 0.10) |

CI: confidence interval; C-index: concentration index; ITN: insecticide-treated net.

Notes: Cover The Bed Net Gap was an initiative launched by the Roll Back Malaria Partnership in April 2008.\textsuperscript{12} Years of the surveys are given in Table 1. A value of 0 suggests no difference in ITN ownership between different wealth quintiles. A C-index larger than 0 suggests that ITN ownership is concentrated among the richer households. Conversely, a negative index indicates that ITN ownership is more concentrated among the poorer households.\textsuperscript{17,38}
Madagascar and Senegal maintained levels of inequity that favoured the poorest households. In Angola and Niger, while the inequity in the baseline surveys was close to zero, in the endpoint surveys, household ITN ownership increased and was in favour of the richer households (Fig. 2; Table 2).

Fig. 3 shows a scatter plot of the C-index by ITN ownership for all surveys included in the country-level analyses. The plot indicates a decline in the disparity of the C-index values as ITN coverage increases. Surveys that took place between 2009–2014 have higher levels of ITN ownership and greater equity compared to surveys from 2003–2008.

**Pooled equity analysis**

**All countries**

The multicountry pooled analysis indicates a significant improvement in ITN ownership equity between baseline (C-index: 0.11; 95% CI: 0.10 to 0.11) and endpoint surveys (C-index: 0.00; 95% CI: −0.01 to 0.00; Fig. 4).

**By transmission risk**

In high malaria transmission risk zones, ITN ownership was concentrated in households from the higher wealth quintiles in the baseline surveys (C-index: 0.07; 95% CI: 0.06 to 0.08). However, in the endpoint surveys this inequity was no longer evident (C-index: 0.00; 95% CI: 0.00 to 0.01; Fig. 4). In the...
In low and intermediate malaria transmission risk zones, the ITN ownership was in favour of richer households in the baseline surveys (C-index: 0.14; 95% CI: 0.13 to 0.14), but shifted to favour the poorer households in the endpoint surveys (C-index: −0.01, 95% CI: −0.02 to −0.01; Fig. 4).

Discussion

This study presents evidence of the positive impact of mass ITN distribution strategies on equity of ITN ownership in 19 malaria-endemic countries in sub-Saharan Africa. In 15 of the 19 countries analysed, ITN ownership either became more equitable or maintained equity between baseline and endpoint surveys. In countries with very high levels of household ITN ownership, such as Rwanda and the United Republic of Tanzania, the chances of equitable distribution are inherently higher. Thus, the recent funding for malaria control has resulted in significant increases in the proportion of households with at least one ITN between baseline and endpoint surveys. In the countries where ITN ownership either became more equitable or maintained equity, all showed a significant increase in the proportion of households with at least one ITN.

The pooled multicountry analyses further supported the findings that the significant increase in ITN ownership has favoured the poorest households in most settings. In the countries where ITN ownership either became more equitable or maintained equity, all showed a significant increase in the proportion of households with at least one ITN between baseline and endpoint surveys. In countries with very high levels of household ITN ownership, such as Rwanda and the United Republic of Tanzania, the chances of equitable distribution are inherently higher. Thus, the recent funding for malaria control has resulted in significant increases in the proportion of households with at least one ITN between baseline and endpoint surveys.

The trend of increasing inequity in Angola could be partially due to the timing of campaigns in relationship to the survey as well as a shift in ITN distribution from integrated campaigns to distribution in only selected municipalities. Reasons for the worsened equity in Angola are less clear, but...
possible explanations could include the lack of implementation of free ITN distribution campaigns between baseline and endpoint surveys.\textsuperscript{19,25} Madagascar and Senegal were the only countries that maintained levels of inequity from baseline to endpoint in favour of households from the lowest wealth quintiles.

The trend seen in Congo, Guinea, Nigeria, Sierra Leone and Zimbabwe – i.e. ITN ownership shifted from being concentrated in the richer households to being concentrated in the poorer households – is not surprising. These countries have moved towards universal ITN coverage for populations at-risk and shifted their distribution of ITNs to high-risk rural-areas, which are usually less wealthy than urban centres.\textsuperscript{2} Another reason for this trend may be that wealthier households have access to a wider range of other effective interventions, such as improved housing with screened windows and doors and closed eaves that make ITNs less essential for malaria prevention.

To explore if equity of ITN ownership varies by malaria transmission risk, we pooled clusters into two groups stratified by low/intermediate and high levels of malaria transmission. In the pooled analysis, equity increased significantly in both groups. However, the greatest improvement in equity occurred in clusters in low- and intermediate-risk zones. The observed results could be due to changing ITN policies between baseline and endpoint surveys, and more specifically, the rollout of free mass distribution campaigns after 2008. Before 2008, financial and logistic constraints caused most distribution campaigns to be targeted to high-risk populations (children younger than five years and pregnant women) and/or high-risk regions (rural, high-transmission zones). Therefore, households from the lowest wealth quintiles in low- and intermediate-risk zones were less likely to own a net if they did not have access to healthcare services or could not afford to pay for a net at market price. The shift to free mass distribution campaigns may have improved equity by providing access to the households from the lowest wealth quintiles that did not have previous access to nets.

This study has a few limitations that should be highlighted. The wealth quintiles are based on assets, which may be different from country to country as the individual assets might have different weights in the principal component analysis. While the analysis used data from 19 countries, other countries may have experienced changes in equity, but were not captured in this analysis. In addition, we excluded four of the countries.
Endpoint surveys (2009–2014)

Figure 3. Proportion of households with at least one insecticide-treated net, by concentration index, sub-Saharan Africa, 2003–2014

C-index: concentration-index; ITN: insecticide-treated net.

Note: We used the Lorenz C-index to assess equity in household ITN ownership across household wealth quintiles. ITN universal coverage of 80% is based on the Global Strategic Plan 2005–2015.15

C:

	has increased ITN coverage and reduced economic inequity in ITN ownership since the launch of the Cover The Bed Net Gap initiative in 2008.13 However, further improvements are still needed to reach and maintain coverage targets. With the combination of increased ITN distribution through multiple adapted distribution mechanisms and monitoring inequities to ensure that the poorest are also get protected, great strides can be made towards malaria prevention across sub-Saharan countries.

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Competing interests: None declared.

used in the country-level analysis from the pooled analysis due to a lack of GPS data. This study focused on equity of ITN ownership and did not assess ITN use or ITN access, i.e. the proportion of the population who could use an ITN with the assumption that one ITN can protect two individuals. Future studies should examine equity of ITN access as it is a more comprehensive measure of the level of protection within a household. With more countries implementing universal bed-net coverage strategies, capturing changes in equity of ITN access through survey data will be possible.

In conclusion, our findings support the hypothesis that national ITN distribution campaigns have increased ITN coverage and reduced economic inequity in ITN ownership since the launch of the Cover The Bed Net Gap initiative in 2008. However, further improvements are still needed to reach and maintain coverage targets. With the combination of increased ITN distribution through multiple adapted distribution mechanisms and monitoring inequities to ensure that the poorest are also get protected, great strides can be made towards malaria prevention across sub-Saharan countries.

Table 1. Proportion of households with at least one ITN

| Country       | Proportion of households with at least one ITN |
|---------------|-----------------------------------------------|
| Country 1     | 0.10                                          |
| Country 2     | 0.09                                          |
| Country 3     | 0.08                                          |
| Country 4     | 0.07                                          |
| Country 5     | 0.06                                          |

Equity line

Proportion of households with at least one ITN

C-index (%)

-2.0

-1.0

0.0

1.0

2.0

Baseline surveys (2003–2008)

Endpoint surveys (2009–2014)

Equity line

C-index: concentration-index; ITN: insecticide-treated net.

Note: We used the Lorenz C-index to assess equity in household ITN ownership across household wealth quintiles. ITN universal coverage of 80% is based on the Global Strategic Plan 2005–2015.15

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摘要
19个撒哈拉以南非洲国家拥有杀虫剂浸泡蚊帐的公平性趋势
目的 旨在调查19个撒哈拉以南非洲国家在推行消除蚊帐差异举措前拥有杀虫剂浸泡蚊帐 (ITN) 的公平性变化。
方法 为了评估不同财富五分位家庭至少拥有一个杀虫剂浸泡蚊帐 (ITN) 的公平性变化, 我们使用了“人口与健康调查”和“疟疾检测指标调查”中的数据。我们将举措推行前 (2003-2008年) 开展的调查指定为基线调查, 而将2009-2014年的调查指定为端点调查。
结果 在我们评估的19个国家中, 有13个国家在基线和端点调查之间表现出公平性有所提高, 两个国家没有表现出任何变化。四个国家呈现出公平性降低, 其中两个国家有利于更贫穷的家庭, 另两个国家有利于更富裕的家庭。

Résumé
Tendances en matière d'égalité de possession de moustiquaires imprégnées d'insecticide dans 19 pays d'Afrique subsaharienne
Objectif Examinner les changements au niveau de l'égalité de possession de moustiquaires imprégnées d'insecticide (MII) dans 19 pays d'Afrique subsaharienne où le paludisme est endémique, avant et après le lancement de l'initiative Cover the bed net gap.
Méthodes Afin d'évaluer les changements concernant l'égalité de possession d'un mi moins une MII par ménage, dans différents quintiles de richesse, nous avons utilisé des données provenant des enquêtes démographiques et sanitaires ainsi que des enquêtes sur les indicateurs du paludisme. Les enquêtes menées avant le lancement de l'initiative (2003-2008) ont été prises comme enquêtes de référence et celles menées de 2009 à 2014 comme enquêtes finales. Nous avons effectué des analyses par pays ainsi que des analyses regroupées multi-pays. Les analyses regroupées en fonction du risque de transmission du paludisme ont été effectuées en divisant les zones géographiques selon le risque de transmission.
Résultats Sur les 19 pays que nous avons étudiés, 13 montraient une amélioration de l'égalité entre les enquêtes de référence et l'enquête finale, et deux pays ne présentaient aucun changement. Quatre pays affichaient une moindre égalité. Deux pays affichaient une moindre égalité.
Conclusion Les campagnes de distribution massive de MII visant à améliorer la couverture, associées au lancement de l'initiative Cover the bed net gap, ont permis d'améliorer le taux de possession de MII en Afrique subsaharienne et de réduire significativement les inégalités entre quintiles de richesse.
Вывод. Кампании по массовому распространению обработанных инсектицидами противомоскитных сеток, связанные с запуском инициативы Prevéntion el neprerwa en la distribución de mosquiteras, condujo a un aumento en la cobertura de las campañas nacionales de la iniciativa Cover the bed net gap.

Resumen

Tendencias de equidad en la propiedad de mosquiteros tratados con insecticida en 19 países del África subsahariana

Objetivo. Evaluar el cambio en la propiedad de mosquiteros tratados con insecticida (ITN) en 19 países donde la malaria es endémica en el África subsahariana, antes y después del lanzamiento de la iniciativa Cover the bed net gap.

Métodos. Para evaluar el cambio en la propiedad de mosquiteros, se utilizó información proveniente de las Encuestas de Demografía y Salud y las Encuestas de Indicadores de Malaria. Se asignaron las encuestas realizadas antes del lanzamiento (entre 2003 y 2008) como encuestas iniciales y las realizadas entre 2009 y 2014 como encuestas finales. Se realizaron análisis a nivel nacional y análisis conjuntos entre países. Los análisis conjuntos realizados en base al riesgo de transmisión de la malaria se llevaron a cabo dividiendo las zonas geográficas por riesgo bajo e intermedio o alto. A fin de evaluar los cambios en la equidad, se calcularon la curva de concentración de Lorenz y el índice de concentración (índice C).

Resultados. De los 19 países evaluados, 13 mostraron una equidad mejorada entre las encuestas iniciales y las finales, y dos no mostraron cambios. Cuatro países mostraron una reducción de la equidad, favoreciendo a los domicilios más pobres y otros dos a los más ricos. El análisis conjunto realizado en varios países mostró una mejora en la equidad (índice C de la encuesta inicial: 0,11; intervalo de confianza, IC, del 95%; de un -0,10 a un 0,11, e índice de la encuesta final: 0,00; IC del 95%; de un -0,01 a un 0,00). Se observaron tendencias similares tanto en las zonas de riesgo bajo e intermedio como en las zonas de riesgo alto.

Conclusión. Las campañas de distribución en masa de ITN para aumentar la cobertura (vacinadas al lanzamiento de la iniciativa Cover the bed net gap) han conducido una mejora en la cobertura de propiedad de ITN en toda el África subsahariana, con una reducción importante de la desigualdad entre los sectores demográficos.

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