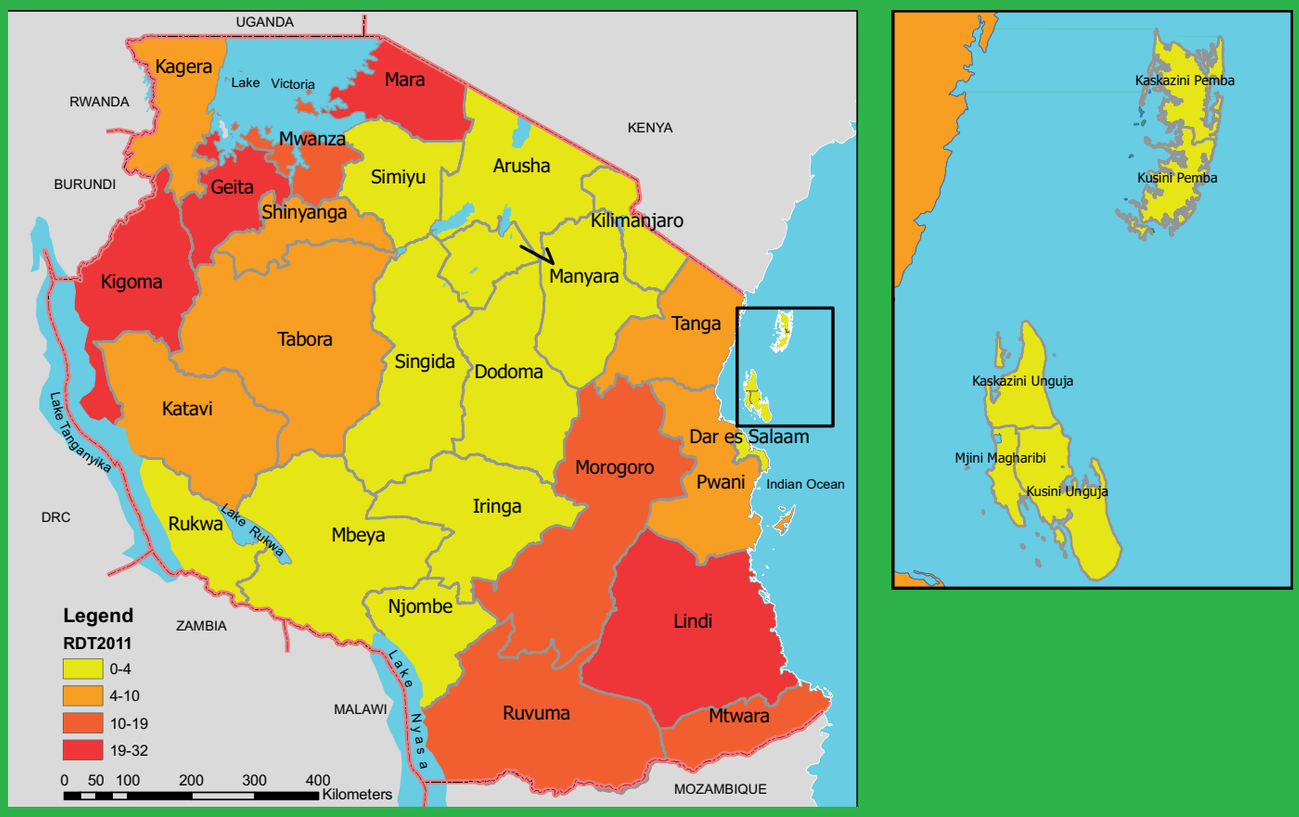
Tanzania

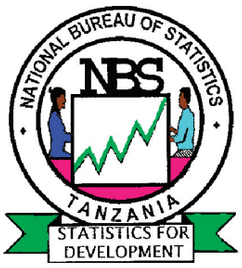


Malaria Atlas
The 2011-12 Tanzania HIV/AIDS and Malaria Indicator Survey

2012

The United Republic of Tanzania

Malaria Atlas
The 2011-12 Tanzania HIV/AIDS and Malaria Indicator Survey



MEASURE DHS, ICF Macro Calverton, Maryland USA

National Bureau of Statistics Dar es Salaam, Tanzania

February, 2014

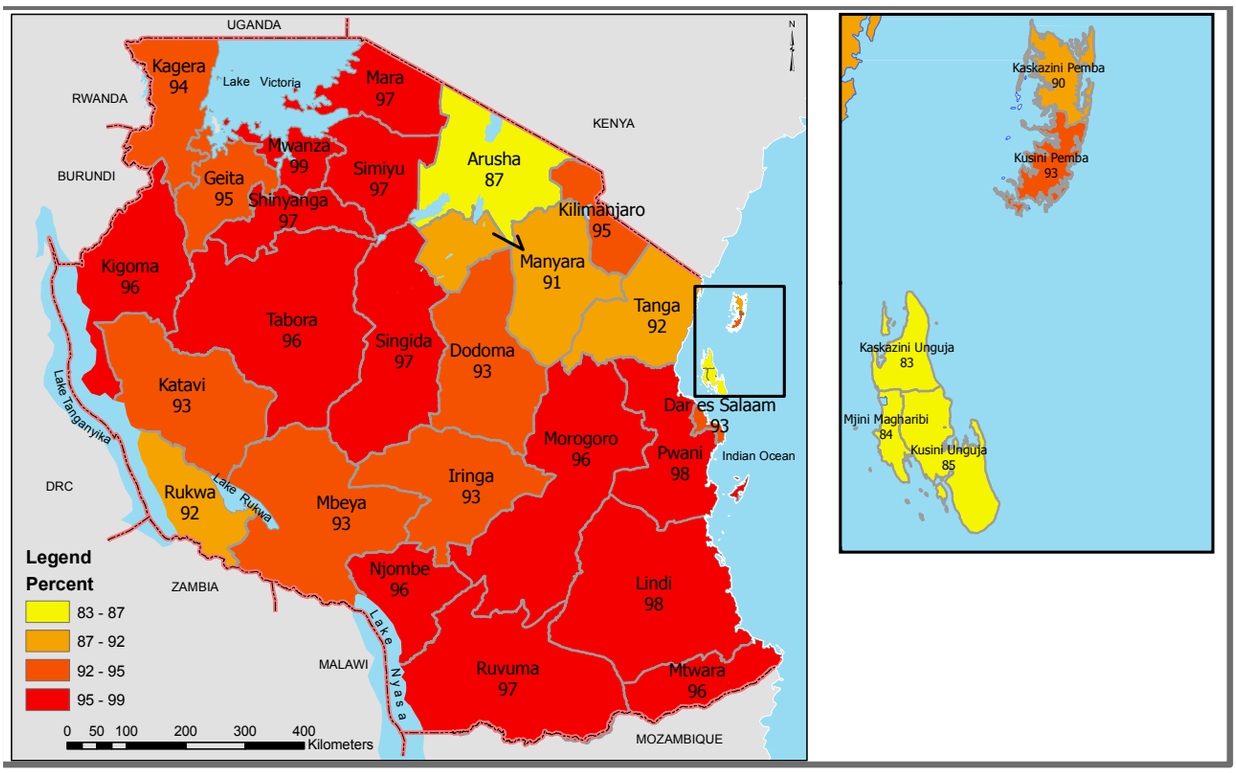
1.0 Introduction

The 2011-12 Tanzania HIV/AIDS and Malaria Indicator Survey (2011-12 THMIS) was implemented by the National Bureau of Statistics (NBS) and the Office of the Chief Government Statistician Zanzibar (OCGS) in collaboration with the Ministry of Health and Social Welfare (MoHSW). Data collection on the Mainland took place from 16 December 2011 to 24 May 2012. In Zanzibar, data collection was from 16 December 2011 to mid-April 2012. The survey was commissioned by the Tanzania Commission for AIDS (TACAIDS) and the Zanzibar AIDS Commission (ZAC). ICF International provided technical assistance through the USAID-funded MEASURE DHS project, which provides support and technical assistance for the implementation of population and health surveys in countries worldwide. Other agencies and organizations that facilitated the successful implementation of the survey through technical or financial support were the Ministry of Health and Social Welfare (MoHSW), the National AIDS Control Programme (NACP), the National Malaria Control Programme (NMCP), the Zanzibar AIDS Control Programme, the Zanzibar Malaria Control Programme (ZMCP), the Muhimbili University of Health and Allied Sciences (MUHAS), and the Ifakara Health Institute (IHI)-Bagamoyo Site.

This Atlas presents key selected Malaria findings from the 2011-12 THMIS. A comprehensive analysis of the data is presented in a final report published in 2013 and available from the National Bureau of Statistics.

2.0 Ownership of any Mosquito Net

Percentage of Households Owning any Mosquito Net



The 2011-12 THMIS included questions on mosquito net ownership, use, and type of net. Overall, 95 percent of households owned at least one of any type of mosquito net. Ownership of mosquito nets did not differ markedly by urban-rural residence.

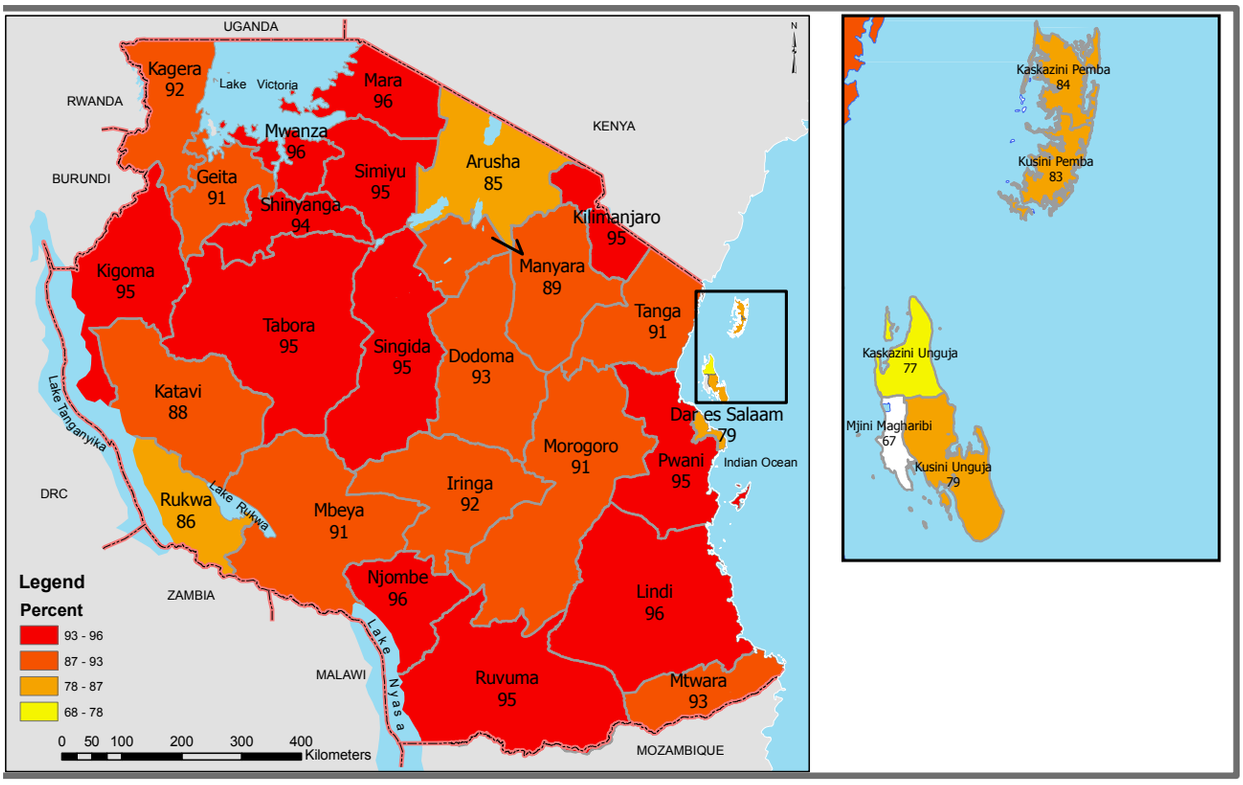
Ownership of mosquito nets did not vary widely across regions in Mainland Tanzania. Mwanza had the highest percentage of households with mosquito nets (99 percent) while Arusha had the lowest (87 percent). The percentage of households in Zanzibar that owned any mosquito net ranged from 83 to 93 percent.

Ownership of any type of mosquito net has increased from 75 percent in the 2010 Tanzania Demographic and Health Survey (TDHS) to 95 percent in the 2011-12 THMIS.

3.0 Insecticide-Treated Nets (ITN) Coverage

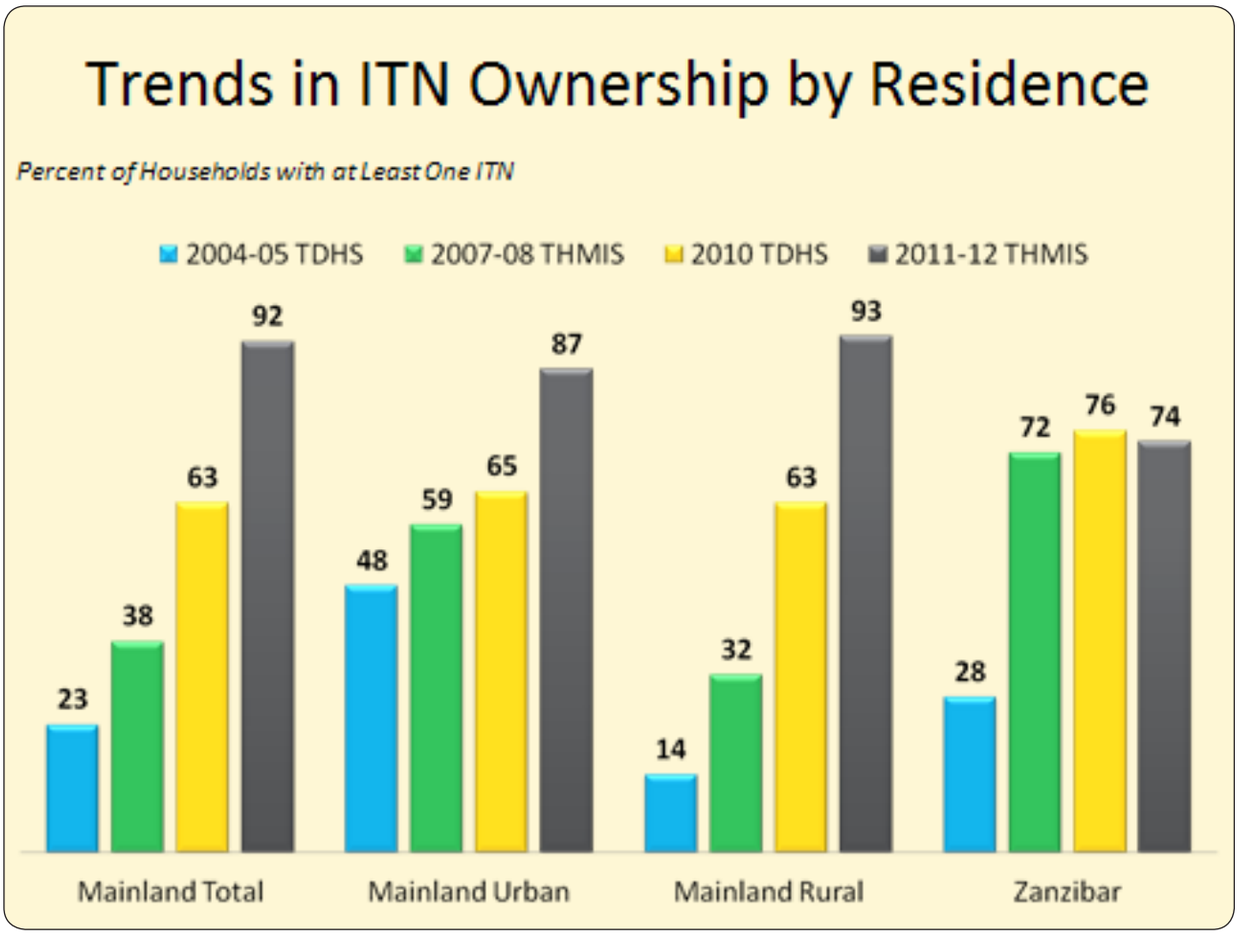
3.1 Ownership of ITNs

Percentage of Households With at least One Insecticide-Treated Nets (ITN)



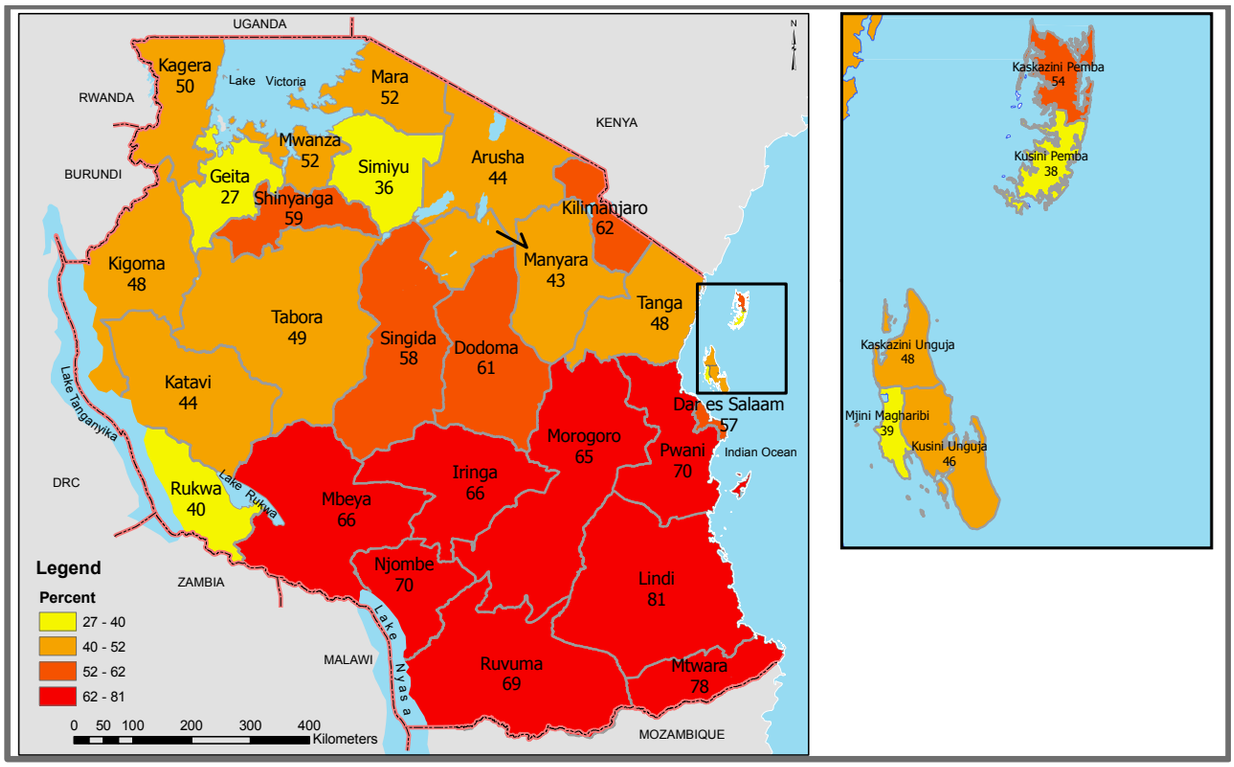
Significant advances have been made in the prevention of malaria through the use of insecticide-treated mosquito nets (ITNs), including long-lasting insecticidal nets (LLINs). Use of treated mosquito nets significantly reduces malaria transmission.

Ninety-one percent of households had at least one ITN. Households in rural areas are more likely to own an ITN than households in urban areas (93 percent and 87 percent, respectively). Ownership of ITNs was higher in Mainland Tanzania than in Zanzibar (92 and 74 percent respectively).



ITN ownership has increased markedly throughout Tanzania. In 2004-05 only 23 percent of households in Mainland Tanzania owned at least one ITN compared with 9 in 10 households in 2011-12. The increase has been most substantial in rural households in Mainland Tanzania where ownership of at least one ITN has increased more than six fold in less than a decade.

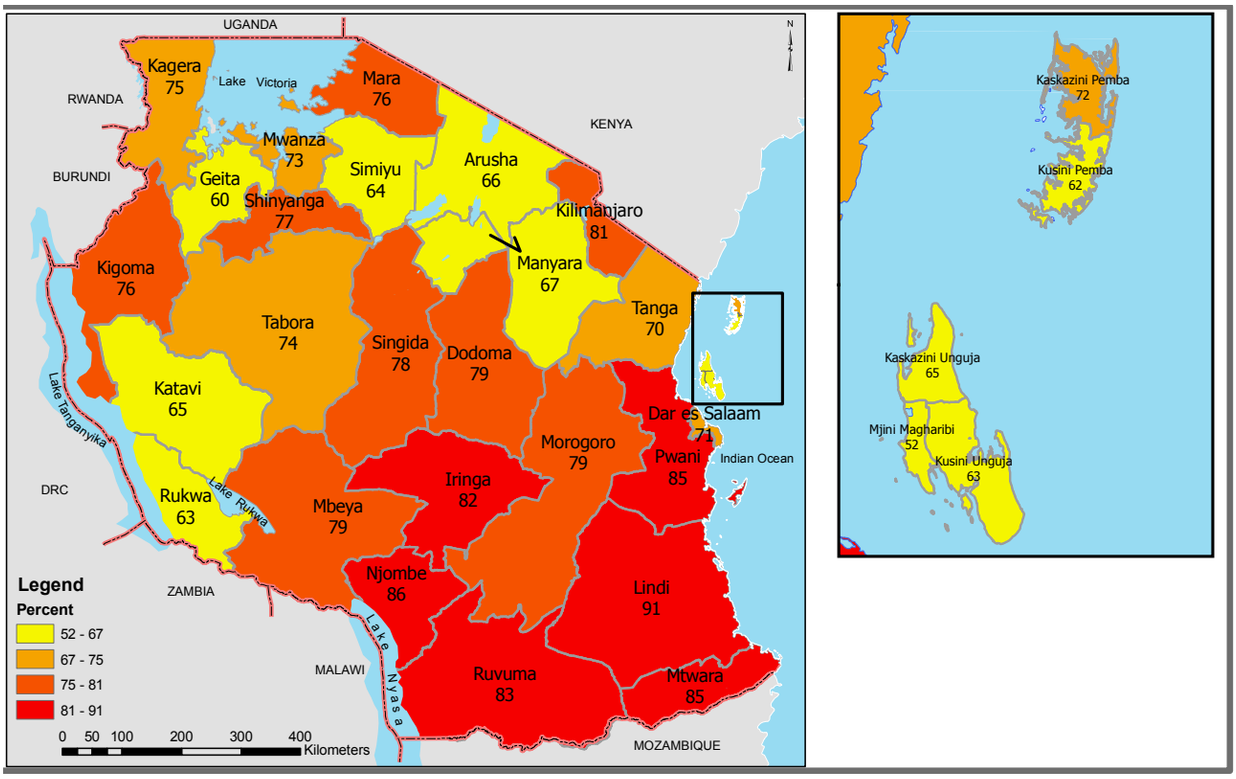
Percentage of Households With at least One ITN for Every Two Persons Who Spent a Night Before the Survey



The availability of ITNs to all household members, that is at least one ITN for every two persons, is closely linked with high ITN use. More than half (56 percent) of households have achieved universal coverage-owning one ITN for every two people in the household. More than 70 percent of households own one ITN for every two people in Lindi and Mtwara. Universal coverage is lowest in Geita, Kusini Pemba, Mjini Magharibi and Simiyu, where less than 40 percent of households own one ITN per two residents.

3.2 Access to ITNs

Percentage of the Defacto Population with Access to an ITN

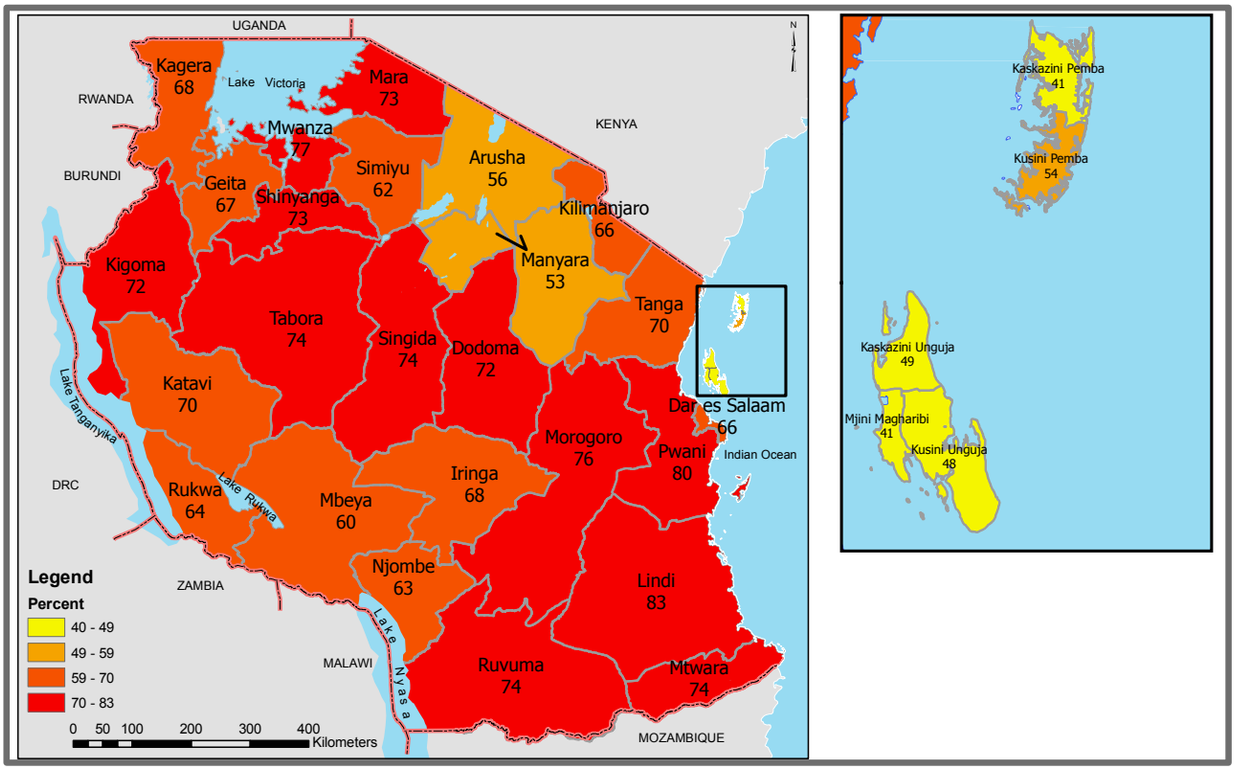


Another way of looking at availability of ITNs is by measuring access to an ITN among all the people who slept in the household the night before the survey whether usual residents or visitors, this is designated as the de facto household population. This indicator measures access among people, not households, and assumes that two people share a net.

Three-fourths of the Tanzania population has access to an ITN. Access is somewhat lower in Zanzibar than in Mainland Tanzania. Nationwide, access ranges from a low of 52 percent in Mjini Magharibi and 60 percent in Geita to a high of 91 percent in Lindi.

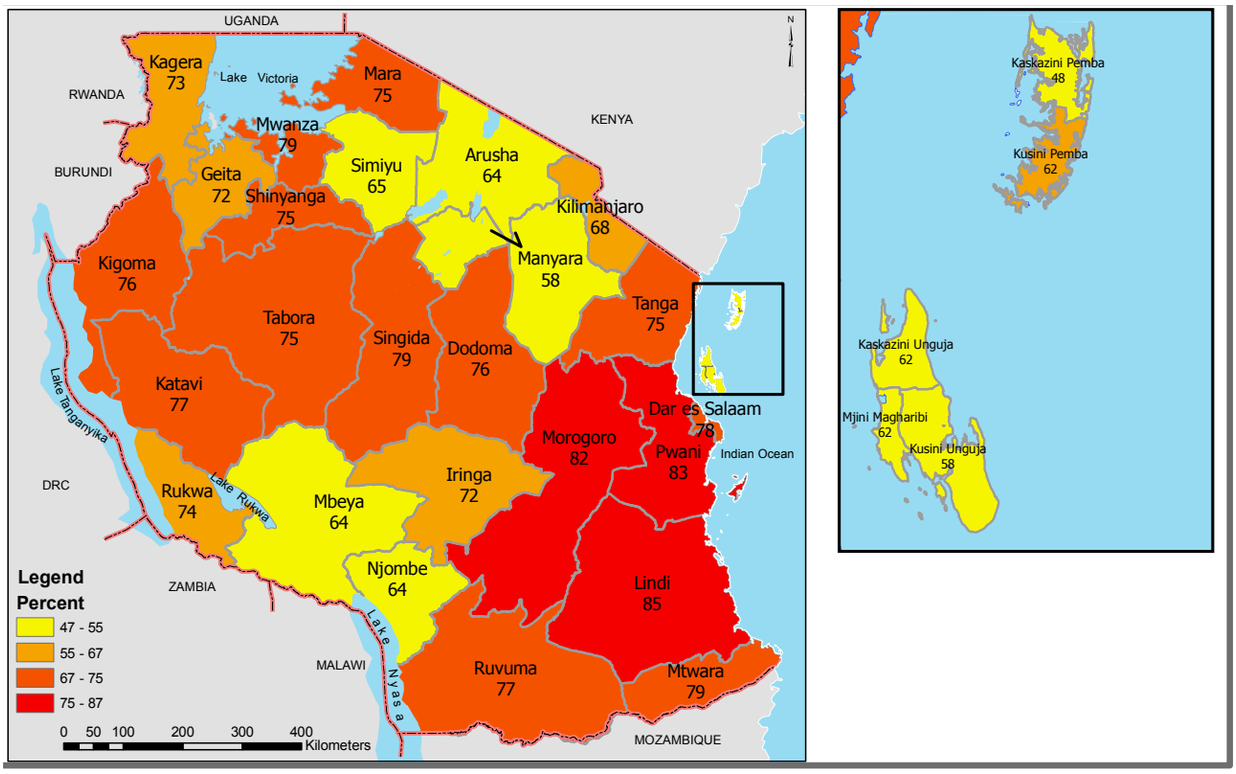
3.3 ITN Use

Percentage of the Defacto Household Population who Slept Under an ITN the Night Before the Survey



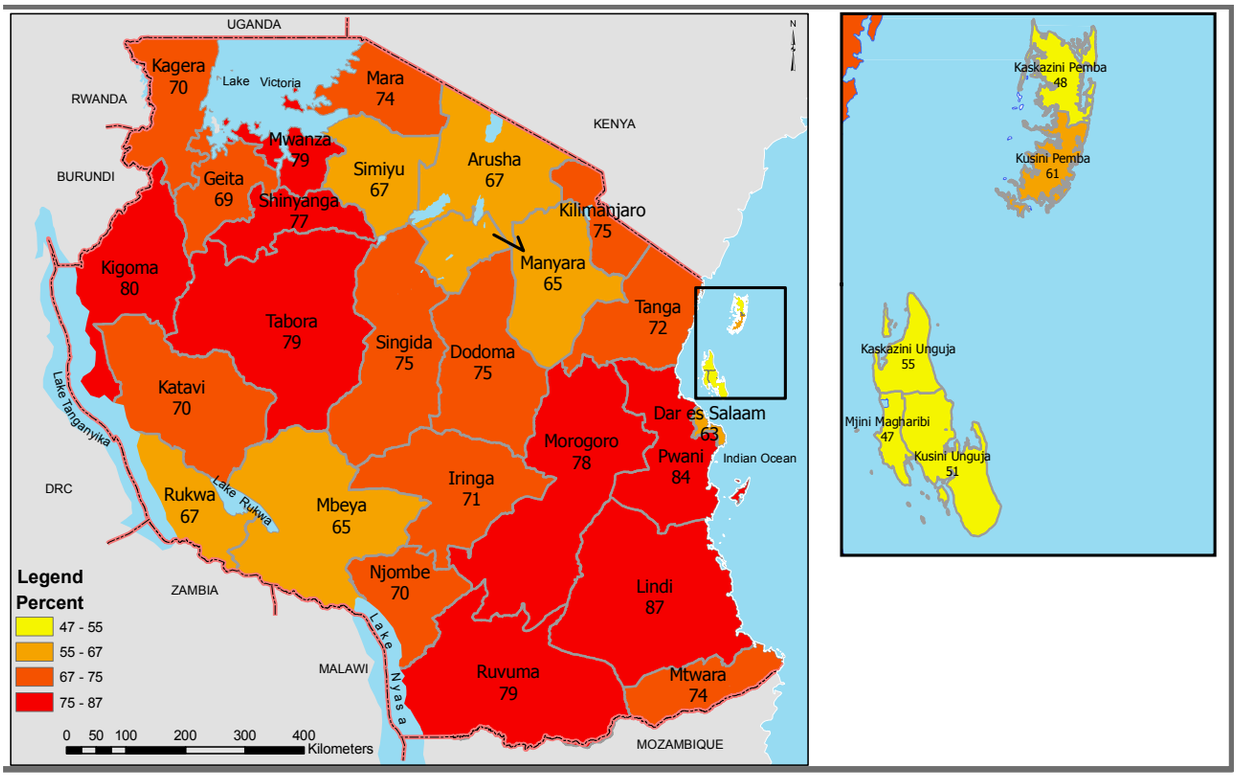
According to the 2011-12 THMIS, over two-thirds of the de facto household population in Tanzania slept under an ITN the night before the survey. Three-fourths or more of the de facto household population slept under an ITN the night before the survey in four regions - Pwani (80 percent), Lindi (83 percent), Morogoro (76 percent), and Mwanza (77 percent).

Percentage of Household Population in Households With at least One ITN, Who Slept Under an ITN the Night Before the Survey

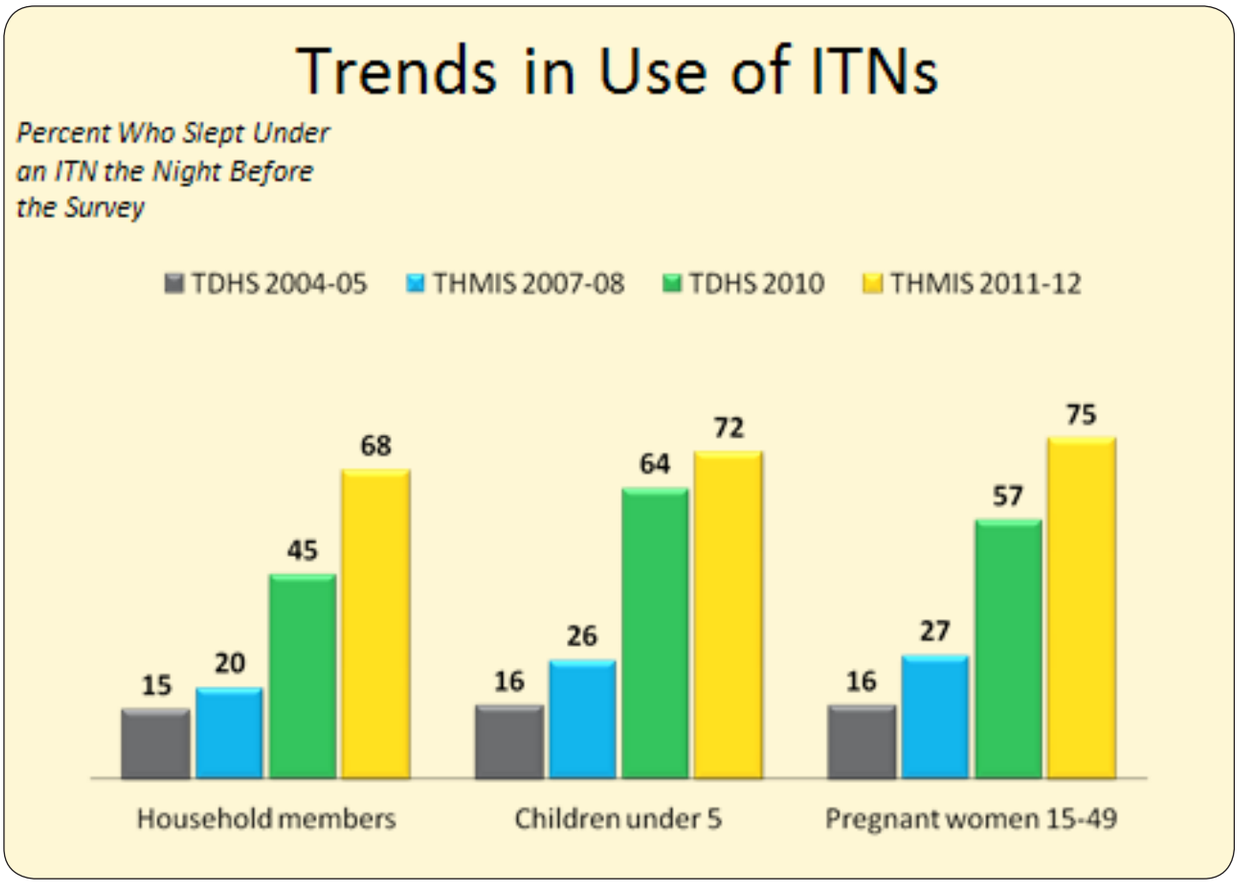


Among households which owned at least one ITN, 73 percent of the household population slept under an ITN the previous night. Net usage in households owning at least one ITN is just slightly higher than net usage in all households, reflecting the overall high net ownership in Tanzania.

Percentage of Children Under Age 5 in All Hoouseholds Who Slept Under an ITN the Night Before the Survey



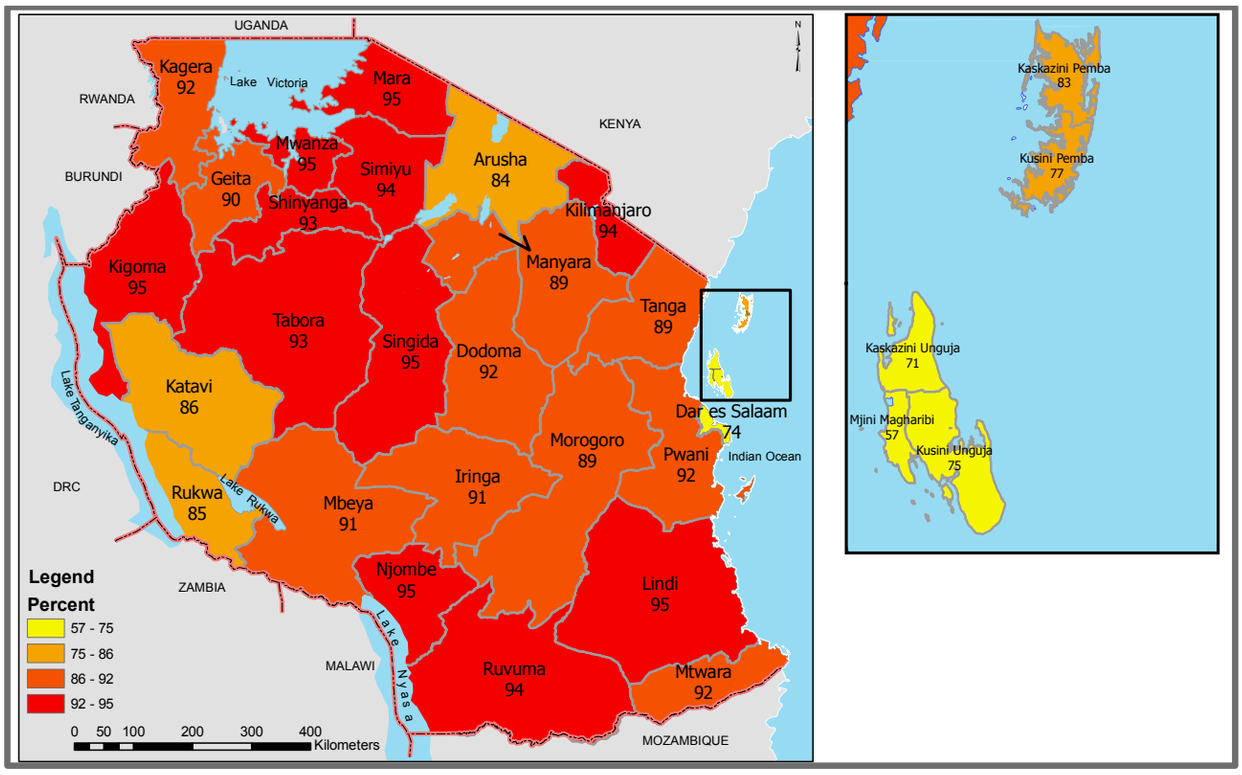
Since children and pregnant women are particularly at risk, their use of ITNs is very important for preventing malaria. More than seven in ten children under age 5 slept under an ITN. This represents an increase of eight percent from 64 percent in the 2010 Tanzania Demographic and Health Survey (TDHS).



All Tanzanian household members, as well as children and pregnant women, are using ITNs. Net usage has increased among all household members from 15 percent in 2004-05 to 68 percent in 2011-12 and among pregnant women from 16 percent to 75 percent. This represents more than a fourfold increase.

4.0 Ownership of Long-Lasting Insecticide Net (LLIN)

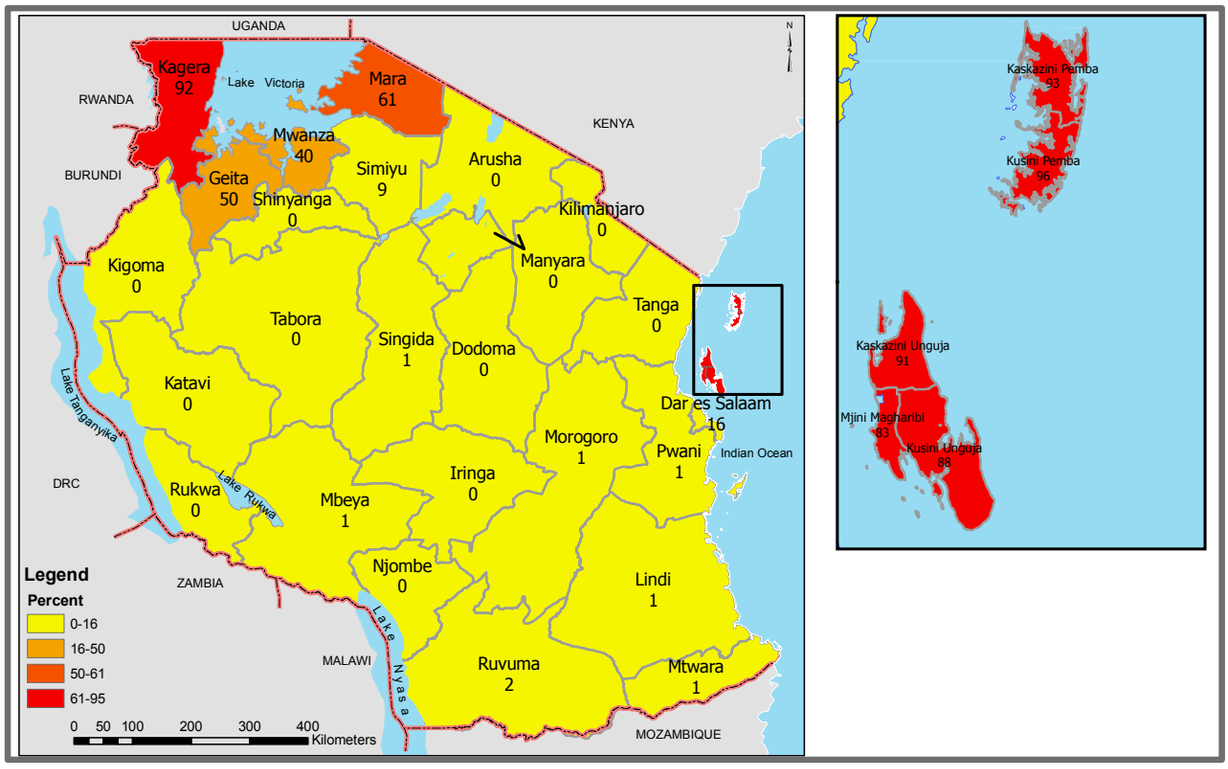
Percentage of Households With at least One LLIN



Long-lasting insecticidal nets (LLIN) are a type of ITN. LLINs are specially made to retain high insecticidal efficacy for three to five years. About nine in ten households in Tanzania own at least one LLIN. Ninety two percent of rural households own an LLIN compared to 84 percent of urban households. Ownership of LLIN was higher in Mainland Tanzania than in Zanzibar (90 and 66 percent, respectively).

5.0 Indoor Residual Spraying (IRS) against Mosquitoes

Percentage of Households with IRS in the Past 12 Months Preceding the Survey



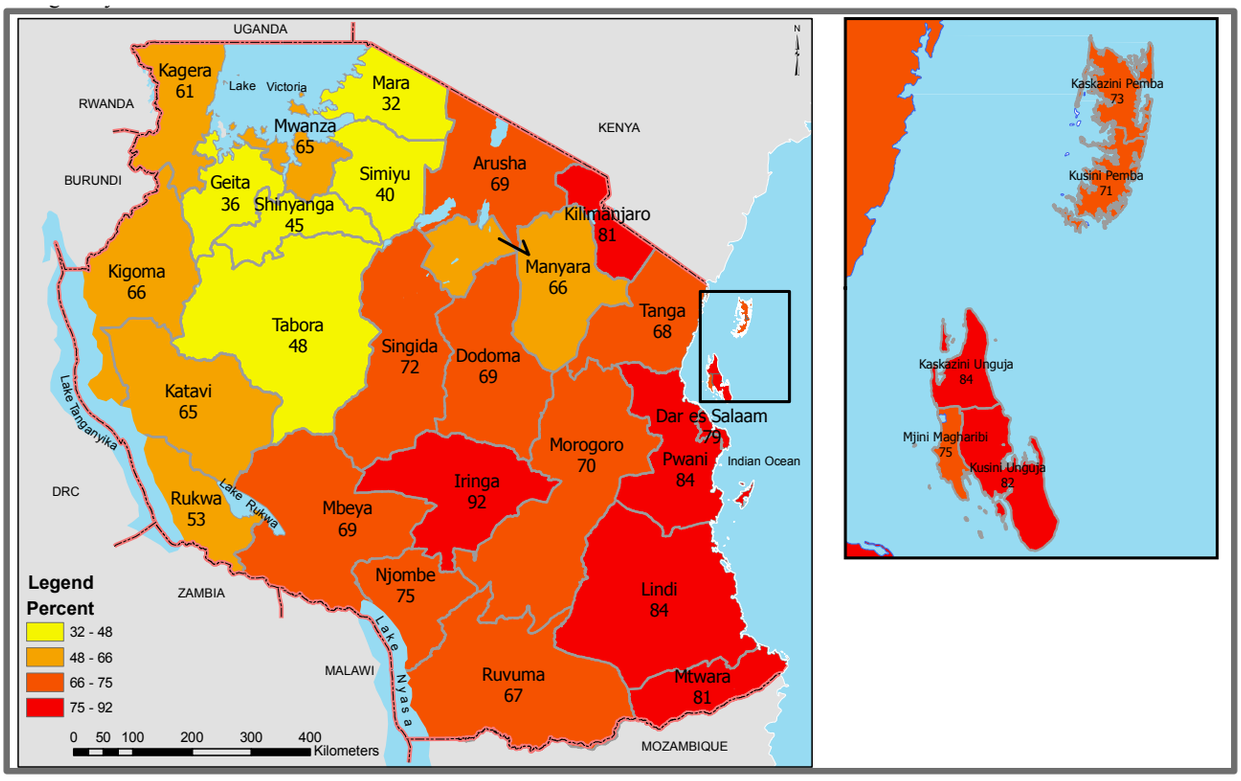
Indoor Residual Spraying (IRS) is the spraying of the interior walls and ceilings of a dwelling with long-lasting insecticide. IRS reduces the transmission of malaria by killing adult female mosquitoes when they rest on the walls of the dwelling after feeding. Overall, 14 percent of households reported having received IRS in the 12 months prior to the survey. Regions on the Mainland that reported wide-scale IRS include Kagera (92 percent), Mara (61 percent), Geita (50 percent) and Mwanza (40 percent). For regions in Zanzibar, the percentage of households that have received IRS ranged from 83 to 96 percent.

It is worth noting that, IRS started in Kagera region in selected malaria epidemic-prone in 2007. In 2010, the programme was further expanded into two more regions of Lake Zone, Mwanza and Mara. In Zanzibar IRS began in 2006 and covered both Islands of Unguja and Pemba.

6.0 Intermittent Preventive Treatment for Malaria in Pregnancy (IPTp)

6.1 IPTp Coverage

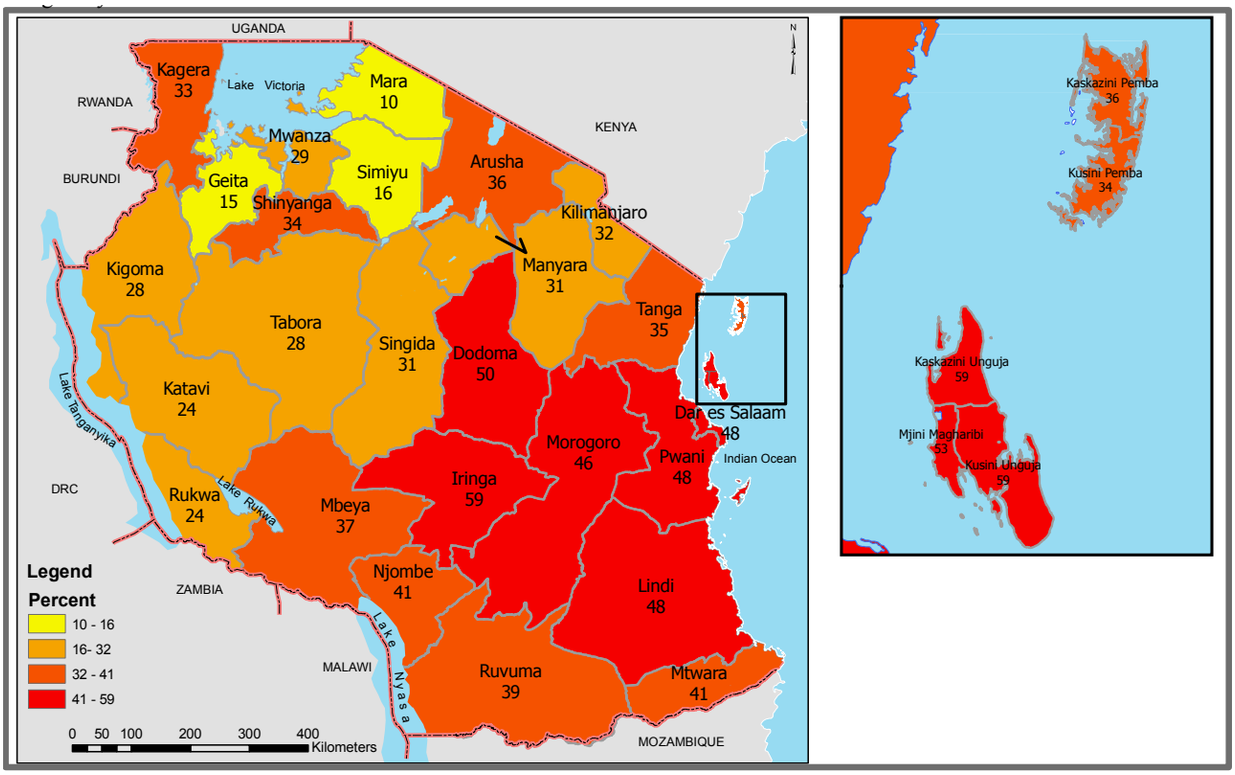
Percentage of Women Age 15-19 With a Live Birth in the Two Years Before the Survey Who Took Any SP/Fansidar during Pregnancy



Both the National and Zanzibar Malaria Control Programme guidelines require that pregnant women receive intermittent preventive treatment for malaria in pregnancy (IPTp). IPTp means that pregnant women should take two doses of the antimalarial drugs SP/Fansidar, ideally during regular antenatal care visits, to prevent malaria infection. The first dose should be taken at the beginning of the second trimester and the second dose, at the beginning of the third trimester.

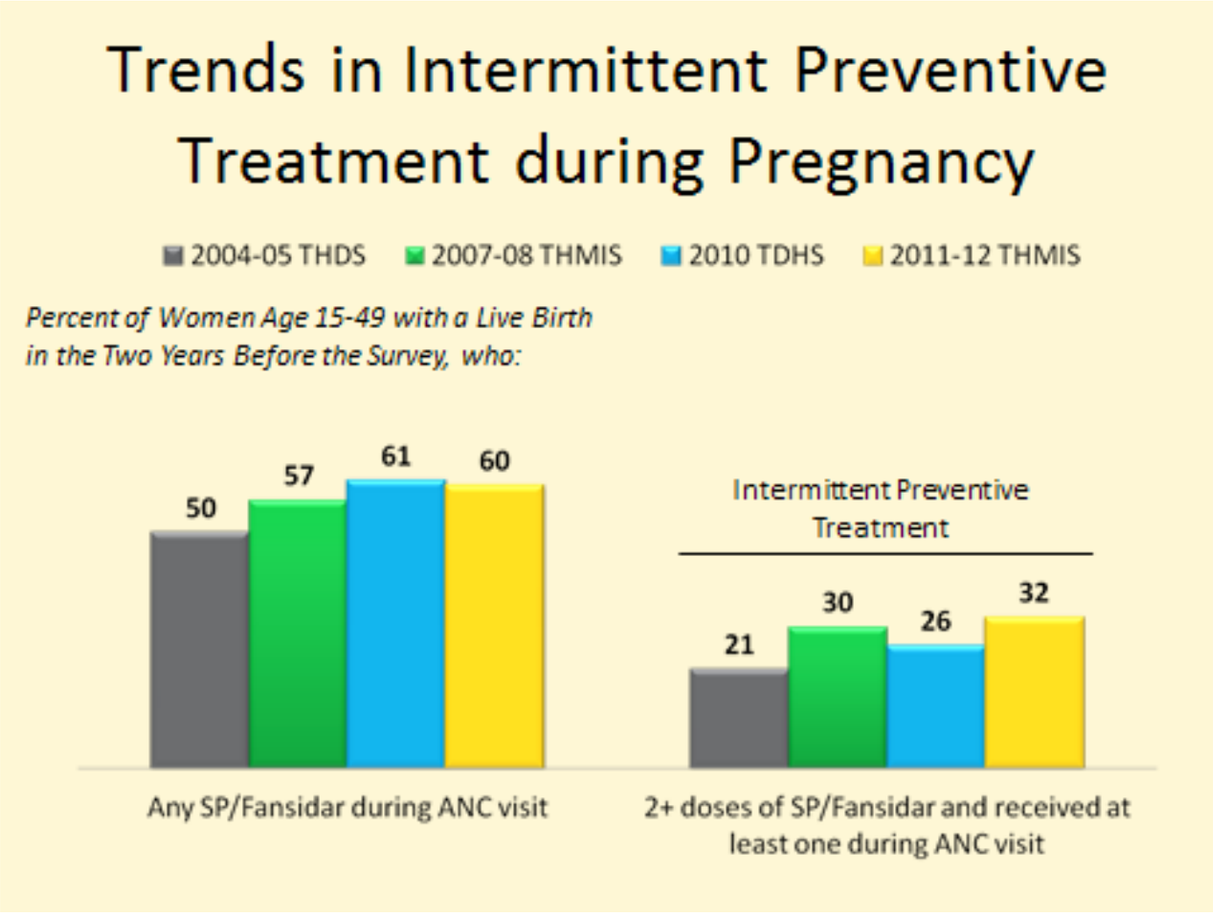
Just over 60 percent of women who had a live birth within two years preceding the survey took any SP/Fansidar during the most recent pregnancy. Use is highest in Iringa (92 percent), Lindi (84 percent), Pwani (84 percent) and Kaskazini Unguja (84 percent) and lowest in Mara (32 percent), Geita (36 percent), and Simiyu (40 percent).

Percentage of Women Age 15-49 With a Live Birth in Two Years Before the Survey Who Took 2+ Doses of SP/Fansidar during Pregnancy



Far fewer pregnant women, only 33 percent, took the recommended IPTp treatment of at least two doses during pregnancy. Less than 25 percent of pregnant women took IPTp in five regions, including only 15 percent in Geita. This is cause for concern since Geita has the highest malaria prevalence among children in Tanzania. Regions with highest use of IPTp include Iringa, Kaskazini Unguja and Kusini Unguja, each with 59 percent.

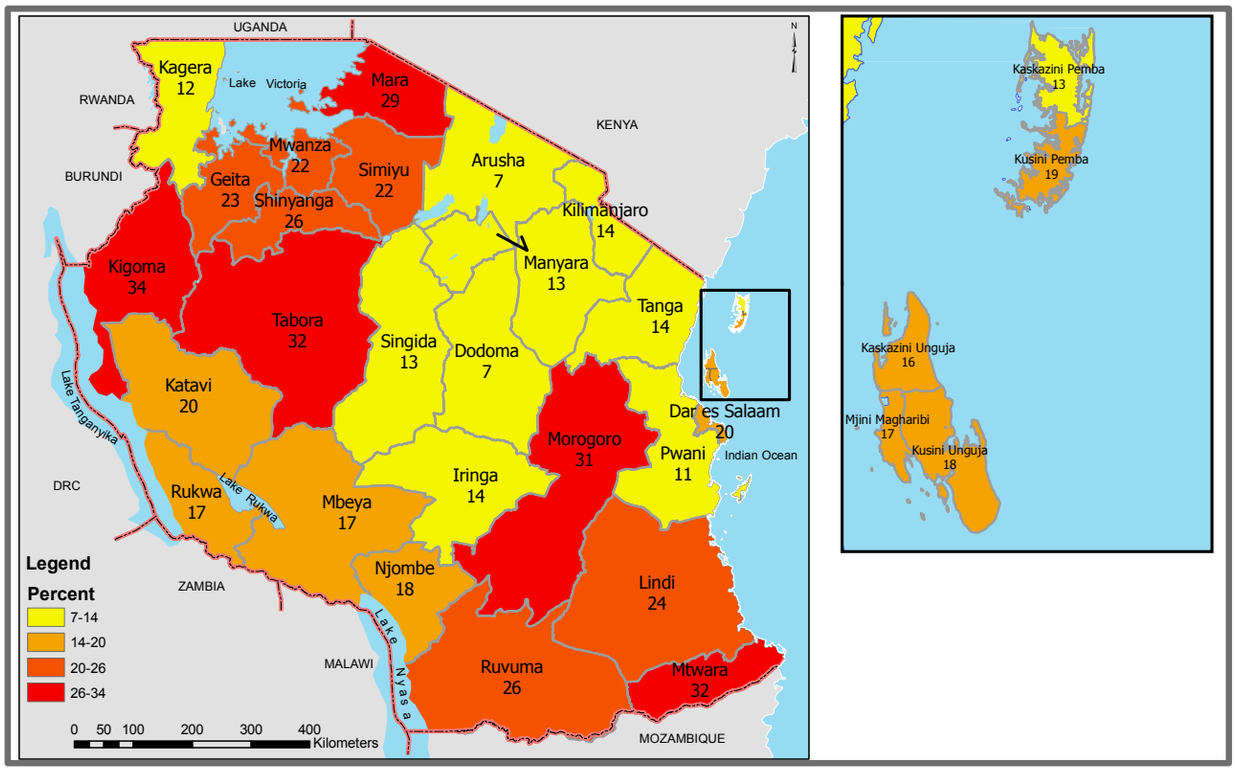
6.2 Trends in IPTp Coverage



While the majority of pregnant women (60 percent) are taking at least one dose of SP/Fansidar during ANC visits, this rate has not changed much over the last four years. Far fewer pregnant women, only 32 percent, received the full IPTp with two doses of IPTp during ANC visits. This rate also has not changed much in the last four years.

7.0 Malaria Case Management

Percentage of Children Under Age 5 With Fever in Two Weeks Before the Survey



Nationwide, one in five children had a fever, a common symptom of malaria, in the two weeks before the survey. Among these children, 77 percent received some type of advice or treatment. Only 25 percent of the children had blood drawn for testing. Testing was highest in Eastern Zone where more than half of children had blood drawn and lowest in Southwest Highlands and Lake Zones. Testing was much more common in urban (61 percent) than rural areas (17 percent), probably reflecting the availability of rapid diagnostic tests (RDTs). In 2009, the Government of Tanzania recommended routine use of malaria rapid diagnostic tests (RDT) in health care facilities before providing malaria treatment. By May 2012 when fieldwork for the 2011-12 THMIS was completed, RDTs had been made available in 19 of 25 regions in Mainland Tanzania.

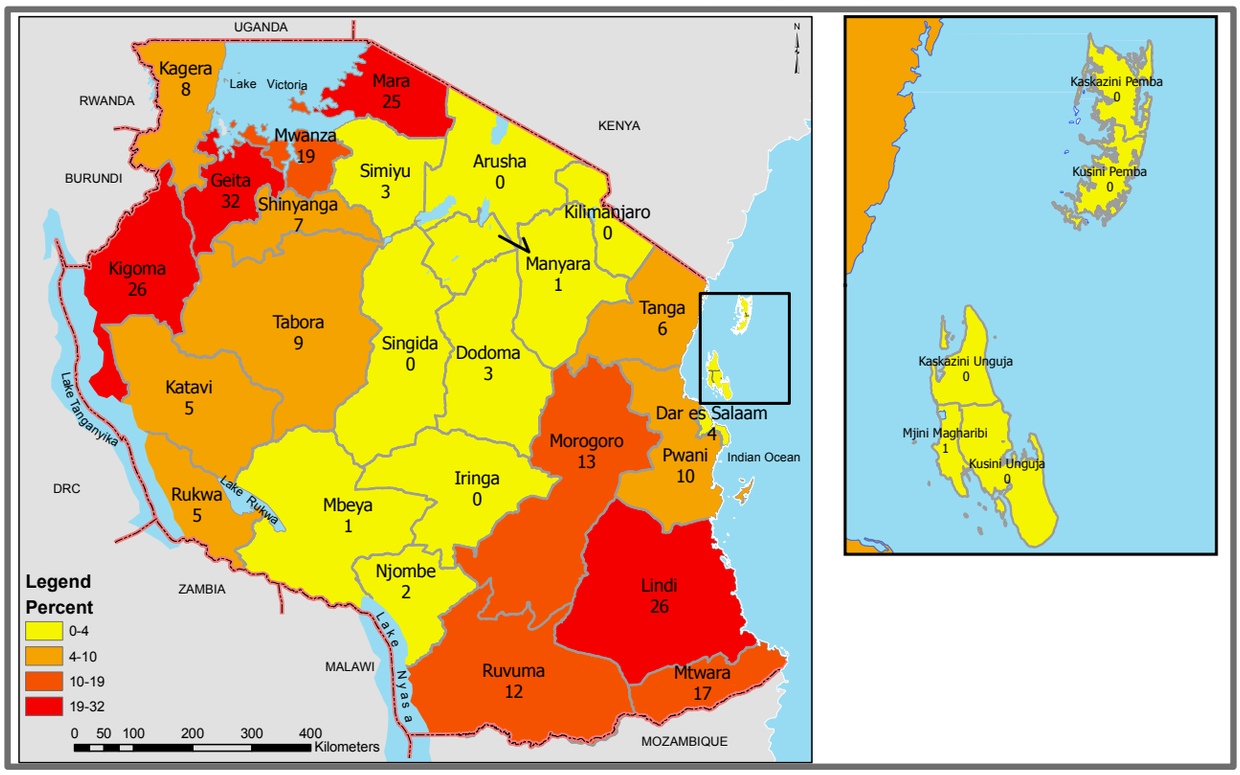
Early treatment of malaria reduces the chances of severe disease and death. Just over half of the children with fever, took some type of antimalarial drug. Artemisinin combined therapy (ACT) is the recommended treatment for malaria. Only 33 percent of children with fever were treated with ACT Use of ACT was highest in Eastern (42 percent) and Western (41 percent) zones and lowest in Central (21 percent) and Southwest Highlands (23 percent).

The World Health Organization (WHO) and the MoHSW recommend that children receive ACT within 24 hours of the first symptoms. According to the THMIS, however, only 21 percent of children with fever took ACT on the same day or the day after they became ill. About one in five children with fever were treated with an antimalarial other than ACT. These other therapies are not effective, and

the Ministry of Health and Social Welfare (MoHSW) has banned their use in Tanzania.

8.0 Malaria Prevalence in Children

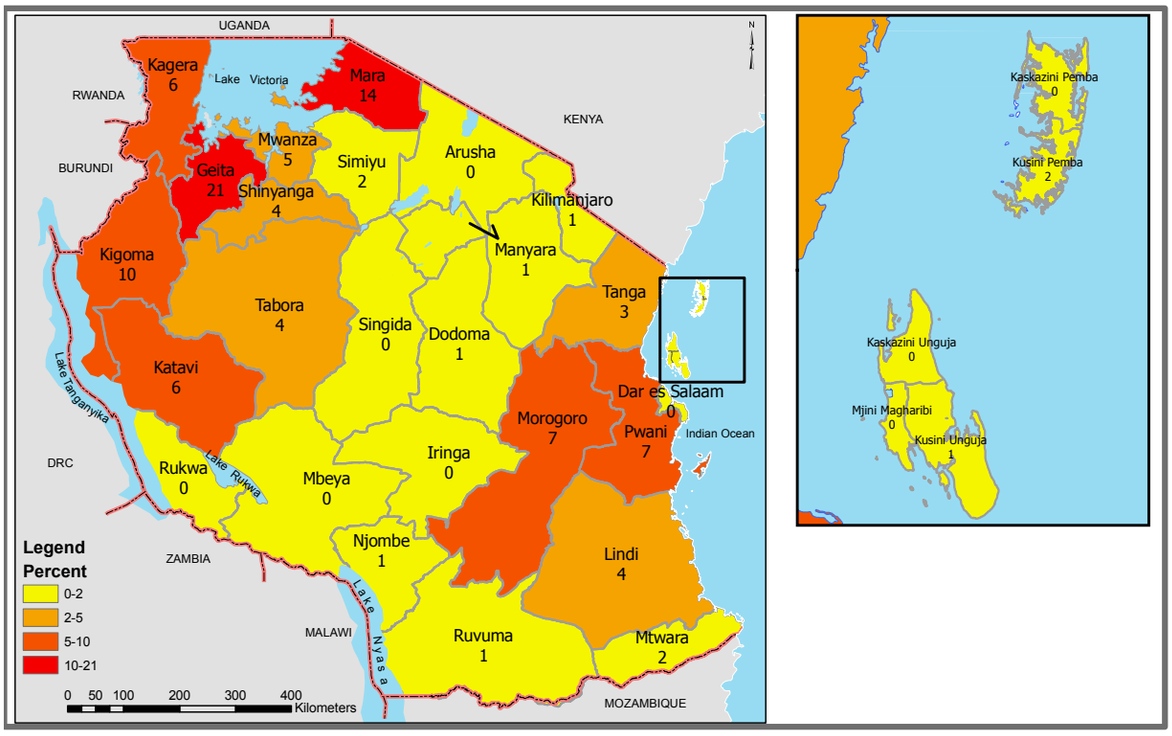
Prevalence of Malaria in Children Age 6-59 Months According to Rapid Diagnosistic Test (RDT)



In 2011-12, nine percent of children tested positive for malaria parasites by RDTs. Rural children are more likely than urban children to test positive for malaria (10 percent in rural areas compared with 3 percent in urban areas). In 2007-08 THMIS, almost 18 percent of children 6-59 months tested positive for malaria parasites. This 50 percent drop from 2007-08 to 2011-12 in malaria prevalence is very encouraging and along with the increase in ITN usage, suggest that Tanzania is making progress against malaria

In 2011-12 THMIS, 10 percent of children age 6-59 months in Mainland Tanzania tested positive for malaria compared to less than 1 percent of children in Zanzibar. There are large variations in malaria prevalence among children across regions in Mainland Tanzania. The highest malaria prevalence among children is found in Geita region (32 percent), followed by Lindi and Kigoma (26 percent each).

Prevalence of Malaria in Children Age 6-59 Months According to Microscopy

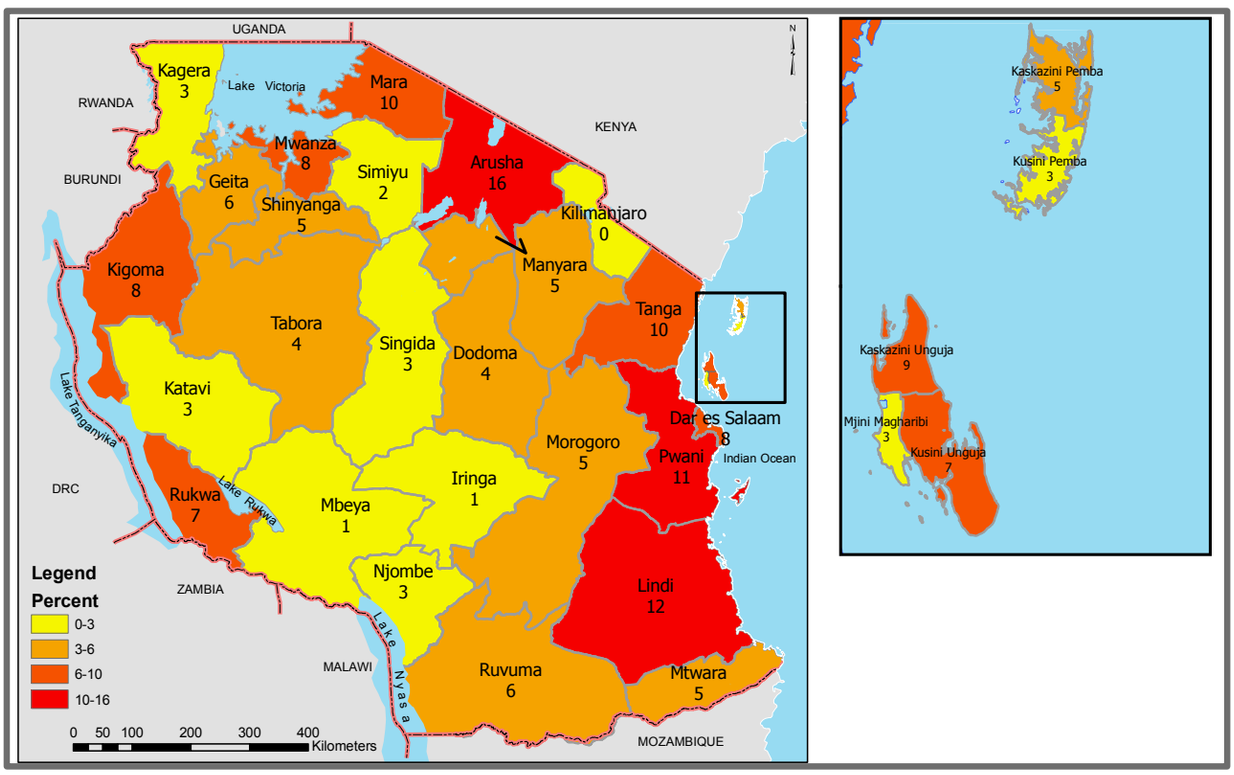


The overall prevalence of malaria in young children in Tanzania as measured by microscopy is 4 percent. As was the case with the RDT testing, malaria prevalence as measured by microscopy increases with age (2 percent among children age 6-8 months and 5 percent among children age 48-59 months), and rural children are more likely than urban children to test positive for malaria (5 percent compared with one percent). Malaria prevalence among children diagnosed using the microscopy follows almost the same pattern as that using RDTs. The highest malaria prevalence among children is found in Geita region (21 percent), followed by Mara (14 percent), whereas regions with the lowest malaria prevalence among children are found in Arusha, Mbeya, Singida and Iringa (less than one percent each).

The difference in malaria prevalence observed between RDT and microscopy are not unexpected. Microscopic analysis of blood smears for malaria parasites has long been considered the gold standard of malaria diagnosis, when performed under optimal conditions, it is highly sensitive. For example when a thick smear is read by an experienced microscopist, the detection limit is approximately 50 parasites per microlitre of blood. Under field conditions, thick smears are difficult to make. Moreover, extended exposure to heat and humidity naturally autofix the blood sample to the slides to be more difficult to read. These factors can lower the sensitivity of microscopy. In comparison with microscopy, RDTs have the advantage of being quick and easy to use in the field, but they can be less sensitive than microscopy performed under optimal conditions. RDTs also detect recently resolved malaria infections leading to false positive test results and lowering the specificity of RDTs, i.e. RDTs detect malaria proteins (not the malaria parasite itself), which can remain in blood up to one month after the parasites have been eliminated by treatment with antimalarials.

9.0 Anaemia in Children

Prevalence of Malaria in Children Age 6-59 Months with Anaemia (haemoglobin <0.8g/dl)

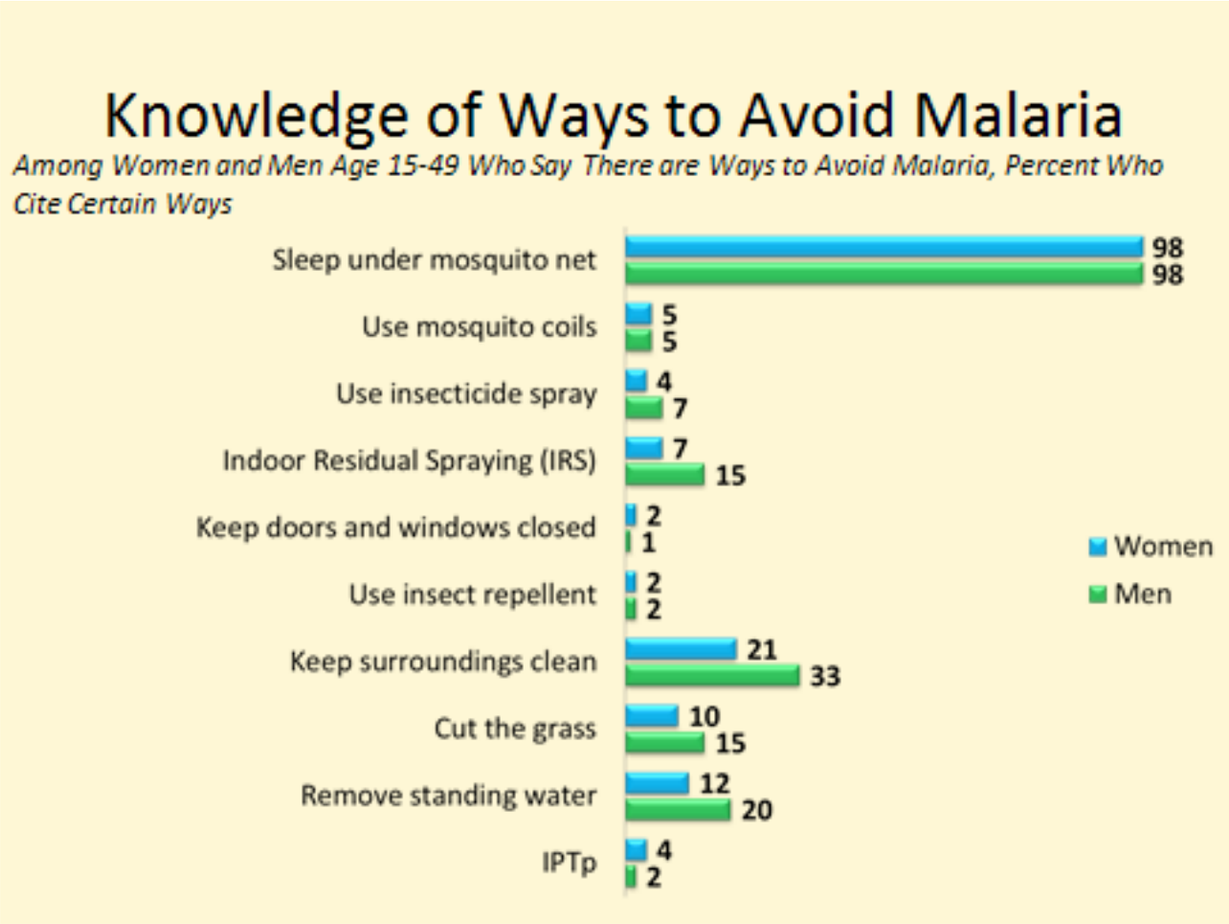


Moderate to severe anemia interferes with children's healthy growth and development and also reduces their ability to fight infection. The 2011-12 THMIS tested children's haemoglobin levels using the HemoCue system to determine anaemia prevalence. Nationwide, 6 percent of children ages 6-59 months suffer from moderate to severe anemia. Prevalence is highest in Arusha (16 percent) and Lindi (12 percent) and lowest in Kilimanjaro (less than one). Anaemia prevalence decreases with age, 9 percent among children age 6-8 months and 3 percent among children age 48-59 months. Severe anaemia among children age 6-59 months did not differ markedly by urban-rural residence. The percentage of severely anaemic children age 6-59 months in the 2011-12 THMIS is less than that reported in the 2007-08 THMIS (6 percent and 8 percent, respectively).

10.0 Behavior Change and Communication

Behaviour change communication (BCC) and information education and communication (IEC) are essential to implementing the National Malaria Control Programme's (NMCP) technical strategies. Effective communication not only promotes positive behaviour for prevention and control of malaria, but also creates demand, whereby communities can make informed choices that will result in improved health and more effective services.

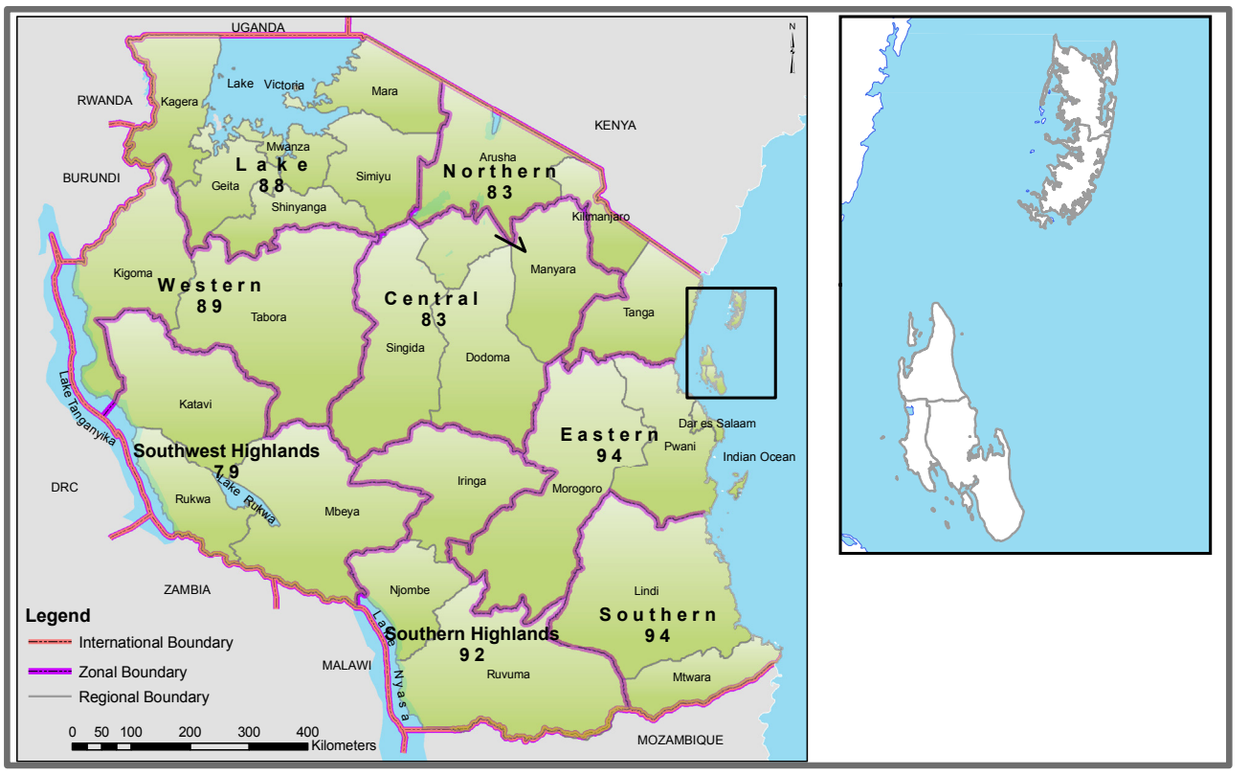
Knowledge of Ways to Avoid Malaria



While almost all women and men know that sleeping under a mosquito net prevents malaria transmission, far fewer identified other ways to avoid the disease. Only 7 percent of women and 15 percent of men cited IRS as a prevention method, and less than 5 percent of both women and men mentioned IPTp.

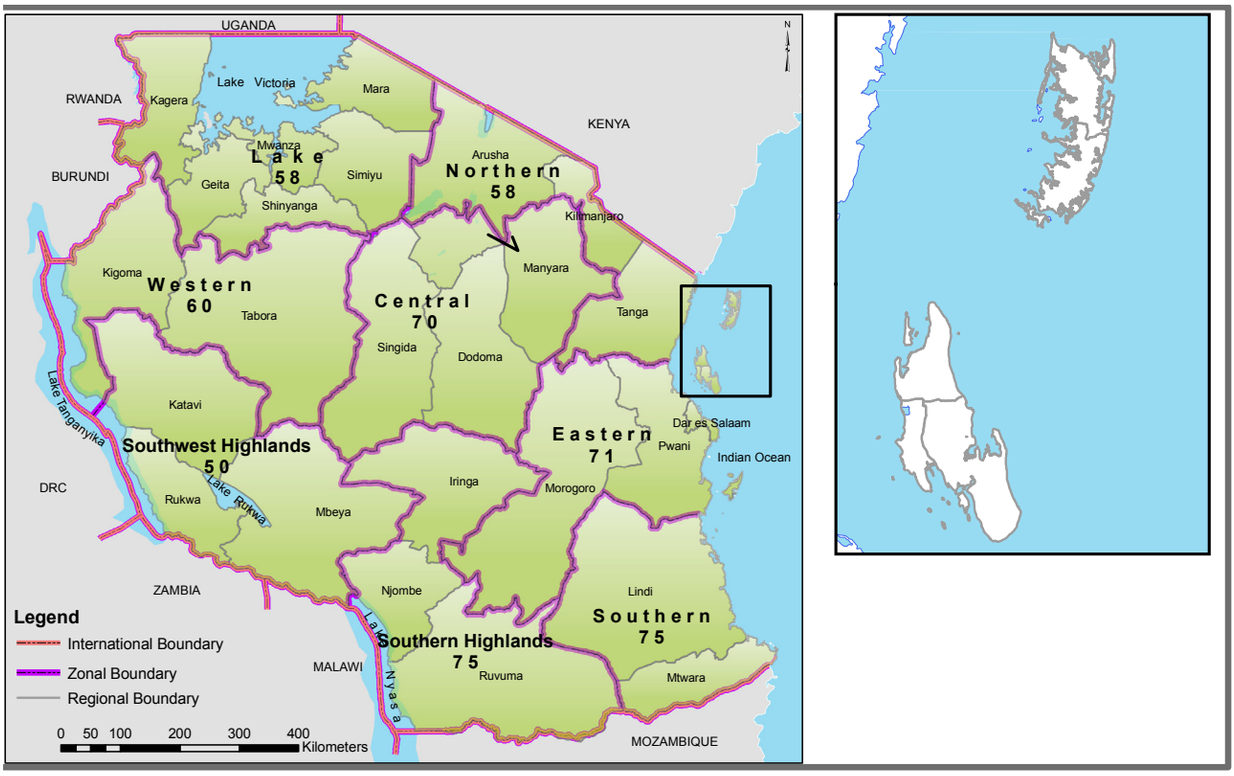
11. Hati Punguzo Programme

Percentage of Women Age 15-49 Who Live in Mainland Tanzania Who Have Heard of Hati Punguzo



Over 80 percent of women in Mainland Tanzania have heard of the Hati Punguzo program designed to provide vouchers for ITNs to pregnant women. Exposure among women is lowest in Southwest Highlands zone where less than 80 percent of pregnant women know about the program and highest in Eastern and Southern zones, each at 94 percent.

Percentage of Women Age 15-49 in Mainland Tanzania Who had a Live Birth in the Past Five Years and Who Received a Hati Punguzo Voucher at an ANC Visit



Although knowledge of Hati Punguzo is high, only 63 percent of women in Mainland Tanzania who gave birth in the last 5 years and who received antenatal care (ANC) actually received a Hati Punguzo voucher. Only half of pregnant women in Southwest Highlands zone received Hati punguzo voucher during ANC visits whereas, three-quarter of women in Southern and Southern Highlands zones received the Hati Punguzo voucher during ANC visit.

NBS Vision

"To become a one-stop centre for official statistics and statistical services in Tanzania"

NBS Mission

"To produce quality official statistics and services that meet needs of national and international stakeholders for evidence-based planning and decision making"

For more information, comments and suggestions please contact:

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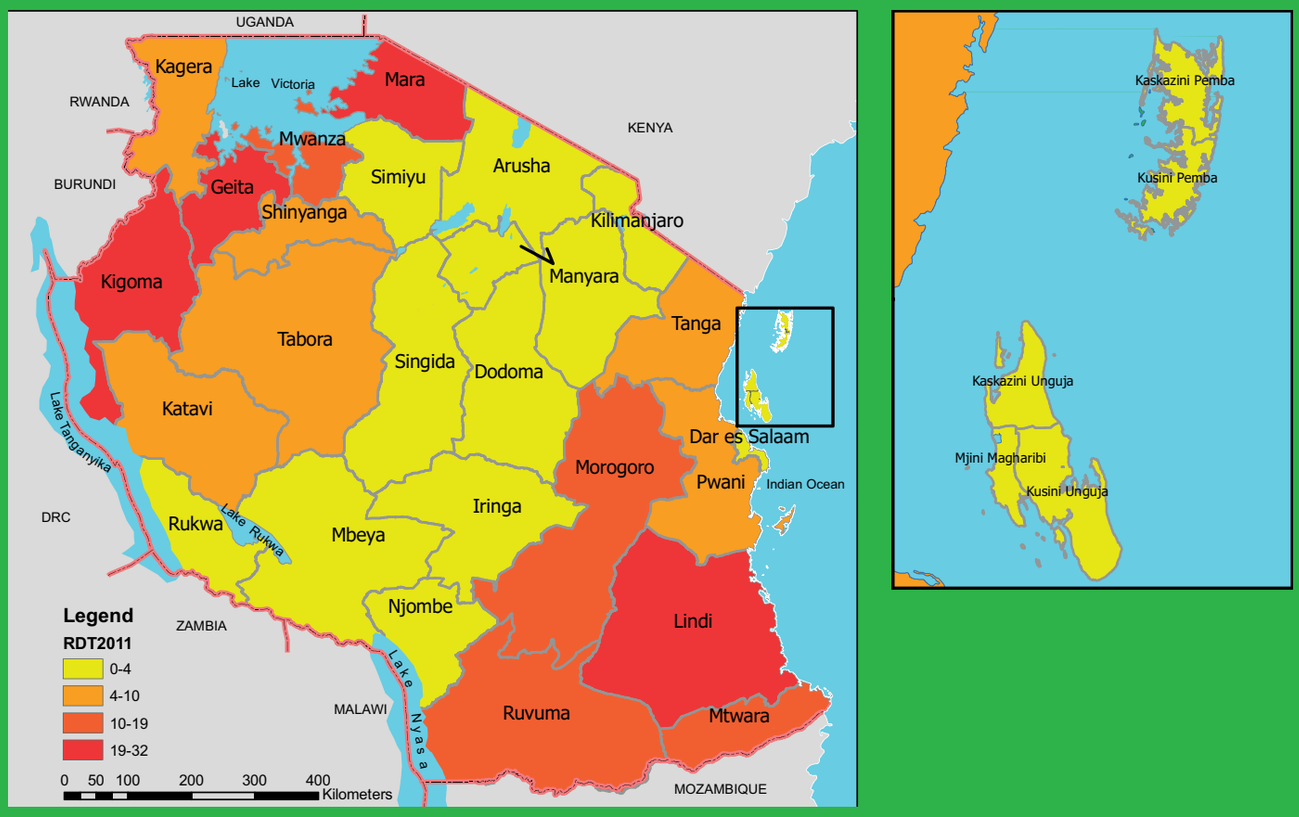

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