



Swiss Tropical Institute
Institut Tropical Suisse
Schweizerisches Tropeninstitut

Achieving and maintaining high LLIN coverage

Christian Lengeler

Swiss Tropical Institute
Basel, Switzerland



RBM / WIN strategic framework (2005)

“The first priority is to accelerate achieving and exceeding the RBM and MDG targets using substantial public subsidies to guarantee access to ITNs for the most vulnerable (“catch-up”). The parallel second priority is to be able to move seamlessly over time to a means of sustaining high coverage, even if large-scale subsidies are no longer available (“keep-up”).

*The goal is **rapid, sustained, equitable, and effective coverage** of the most vulnerable population.*

*A national **ITN partners task force** or similar coordinating mechanism engaging a variety of public, private and NGO partners can help government to facilitate negotiation, coordination and complementarity in this scaling-up process.”*

“Catch-up” versus “Keep-up”

- Free ITN/LLIN distribution campaigns aimed at U5 children have achieved moderate to high coverage rates within a short period of time (usually 50-60%). Hence, they fulfill the immediate needs for “catching-up” in ITN usage.
- However, on their own they are unable to maintain high net usage levels because (1) more women get pregnant and more children are born, and (2) LLIN (especially polyester nets) have a finite useful life.
- Getting a net during a campaign is not a guarantee for use... there is a need for ongoing promotion.
-
- Hence, there is also a strong need for “keep-up” programmes to maintain and further boost net usage levels.
- Such programmes can attempt this through the integration of ITN delivery into routine health services or other mechanisms such as vouchers linked to commercial sector distribution.
- Currently, there is a consensus that both “catch-up” and “keep-up” strategies are required in each country.



Struggling to find the balance...
 Immediate free access to all
 vs
 long-term sustainability

Free distribution to vulnerable groups for rapid increase in coverage

Catch-up



Continuous provision via operationally sustainable strategies

Keep-up

How to ensure complementarity and not antagonism?

Teklehaimanot, Curtis and Sachs; Lancet, June 21st 2007
Malaria control needs mass distribution of insecticidal bednets

Long-lasting insecticidal bednets (LLINs) are one of the major ways to control malaria, and they are widely accepted by mal and is

Lengeler and deSavigny; Lancet Sept 22nd, 2007
Programme diversity is key to the success of insecticide-treated bednets

Am. J. Trop. Med. Hyg., 77(Suppl 6), 2007, pp. 222-226
 Copyright © 2007 by The American Society of Tropical Medicine and Hygiene

In to
 Kenya
 mort
 insect


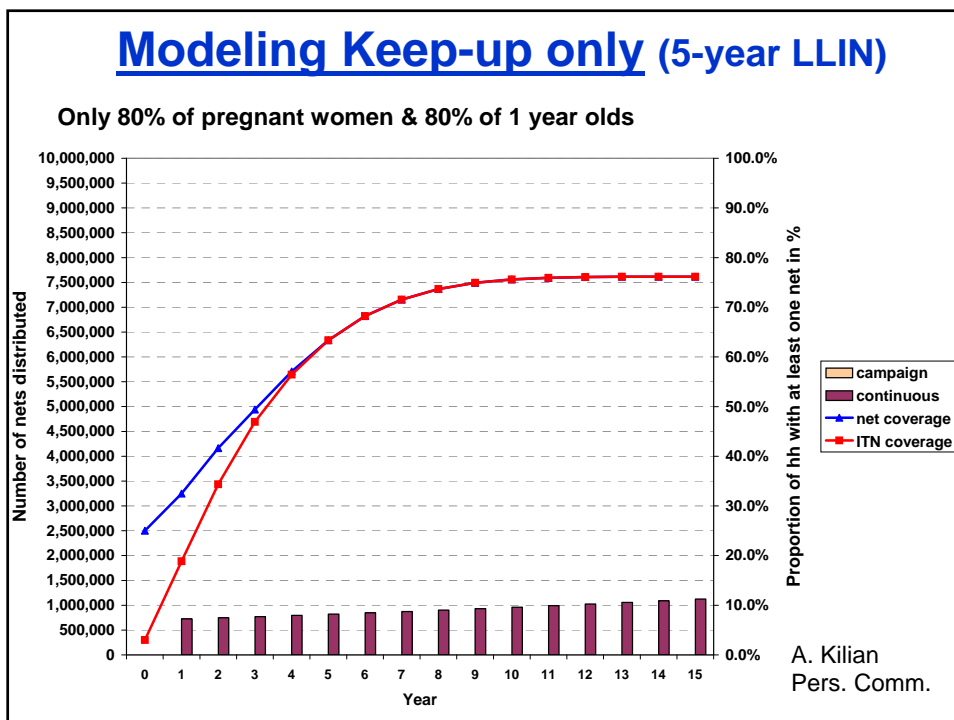
Quick Wins Versus Sustainability: Options for the Upscaling of Insecticide-Treated Nets

Christian Lengeler,* Mark Grabowsky, David McGuire, and Don deSavigny
 Swiss Tropical Institute, Basel, Switzerland; The Global Fund Academy for Educational Development

Watch this space!

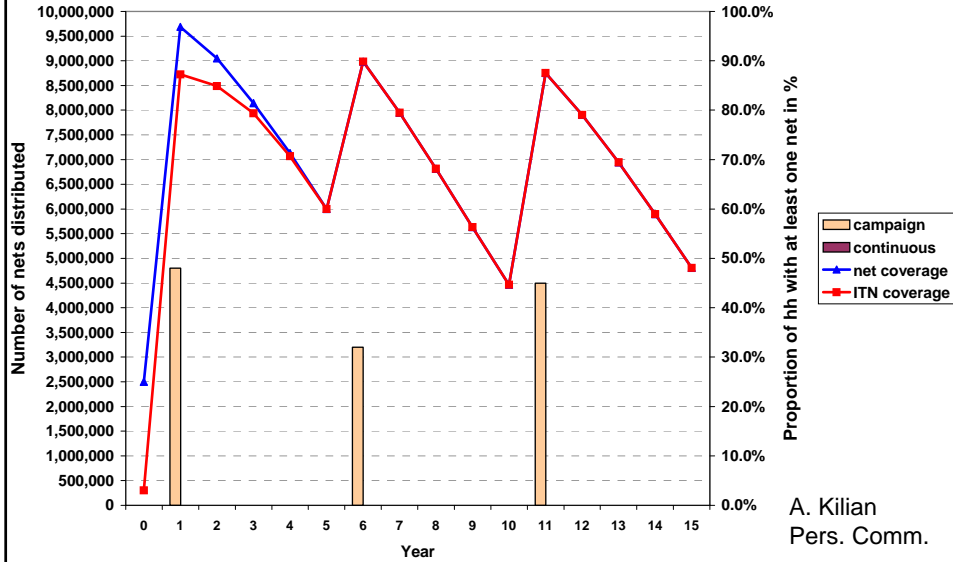
SPIEGEL ONLINE INTERNATIONAL
 January 03, 2008 Print | E-Mail | Feedback | Share
 CAUGHT IN A TANGLE Font: [] []
Mosquito Nets versus Malaria
 Africa's best hope to fight malaria is the wide distribution of mosquito-repelling bed nets. But who best serves that need: the public sector or private interests?

NEWSFOCUS
Battling Over Bed Nets
 A collision of big thinking and logistical realities has sparked an intense debate over how best to deliver bed nets to combat malaria in Africa
 Science Oct 26 2007

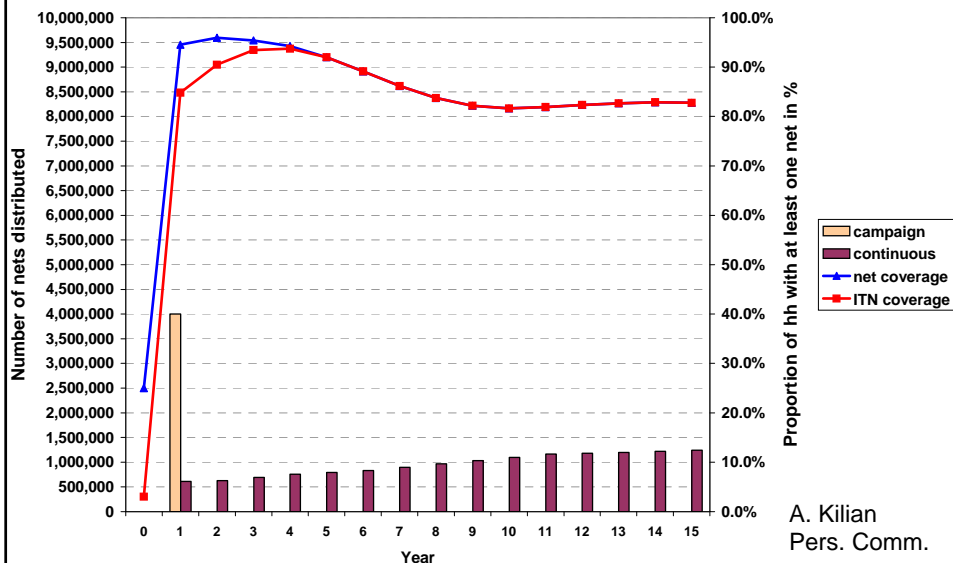
Modeling Catch-up only (5-year LLIN)

Population 10 million 25% nets, 3% ITN at start, 12.5 million LLIN distributed



Modeling Catch-up with Keep-up

Population 10 million 25% nets, 3% ITN at start, 18.3 million LLIN distributed



Recent experience in Kenya and Tanzania

Channel	Kenya % nets obtained through channel (Noor <i>et al.</i> 2007)	Tanzania % nets obtained through channel (estimation)
Mass distribution to U5	44 %	5 % (planned 2008)
Continuous distribution through clinics	42 %	30 % (via voucher)
Commercial sector	10 %	60 %
Other	4 %	5 %
Coverage in children	67 %	40 %

Dr. A. Kochi, WHO GMP, Nairobi August 2007: "The debate is over, mass distributions is the way to go"

- **Both Catch-up and Keep-up strategies are required**
- **For Keep-up, multiplicity of channels is best!**
- **Need for careful planning to create integrated and synergistic activities (national ITN coordination mechanism)**
- **Keep-up ITN programmes must be made robust operationally to last decades**
- **Effective malaria control is not possible without vector control and LLINs are probably the best solution in most highly endemic settings**

ITNs: Current main implementation models

Public sector

1. Free distribution of ITNs in the frame of vaccination campaigns (Ghana, Togo, Zambia, Niger, Mozambique, Kenya, Rwanda) or separate mass campaigns (Zanzibar, Ethiopia).
2. Free distribution of ITNs through health facilities and community groups (Eritrea).

Commercial / mixed

-
3. A comprehensive market approach (NETMARK project in Senegal, Mali, Ghana Nigeria, Mozambique, Uganda, Zambia, Ethiopia) – with and without subsidies.
 4. Social marketing (Malawi, Kenya) – with subsidized ANC sales, with and without product distribution.
 5. Integrated (Tanzania): commercial sector distribution, social marketing with no product distribution and vouchers for pregnant women and infants at measles vaccination

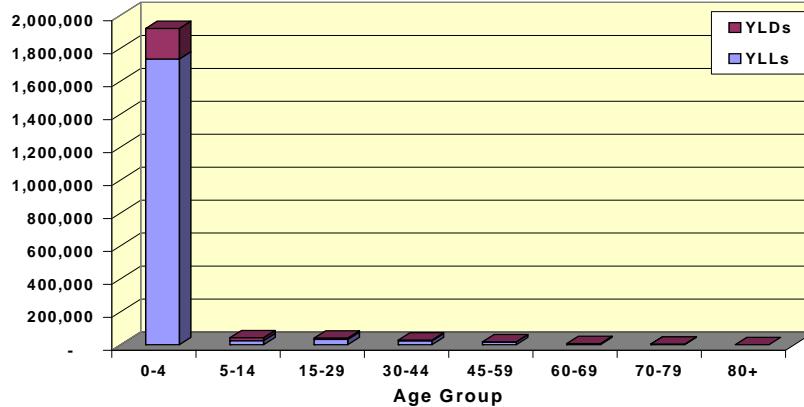
Average annual economic cost for ITN and IRS programmes. Conventional ITNs (2005 USD). Yukich *et al.* 2007

ITN program	Average cost per ITN distributed	Average cost per TNY	Cost per death averted	Cost per DALY averted
Eritrea	4.74	1.43	1,722	52
Malawi	3.36	3.04	1,222	37
Tanzania	4.80	2.17	1,745	53
Senegal	8.05	6.05	2,926	89
Togo	3.23	3.23	1,174	36
IRS program	Cost per person protected (whole population)	Cost per under-five child protected	Cost per death averted	Cost per DALY averted
KwaZulu-Natal	3.27	23.96	4,357	132
Mozambique	3.90	21.63	3,933	119

**Average annual economic costs for ITN and IRS programmes.
LLINs with 5 years duration (2005 USD) Yukich et al. 2007**

ITN program	Average cost per LLIN distributed	Average cost per TNY	Cost per death averted	Cost per DALY averted
Eritrea	7.78	1.18	431	13
Malawi	5.05	1.79	651	20
Tanzania	5.74	1.62	588	18
Senegal	7.36	1.67	606	18
Togo	3.23	1.90	692	21
IRS program	Cost p. person protected (whole population)	Cost per under-five child protected	Cost per death averted	Cost per DALY averted
KwaZulu-Natal	3.27	23.96	4,357	132
Mozambique	3.90	21.63	3,933	119

Life years lost from malaria, Tanzania 2002
WHO BoD Initiative

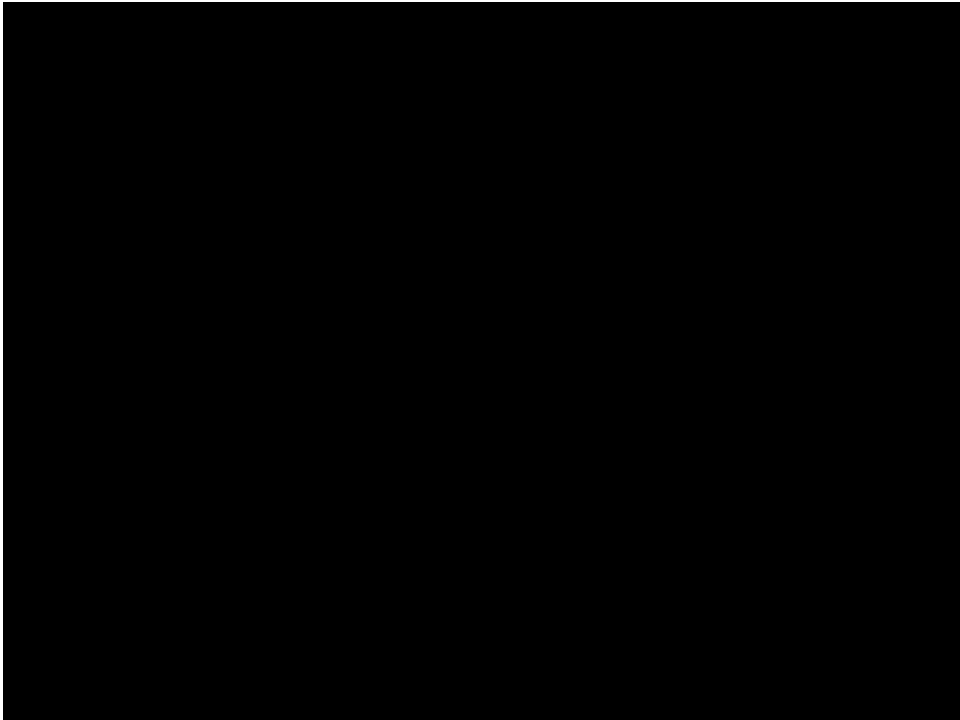


	Infants (1-11 m.)	1-4 years (12-59 m.)	1-59 m.	Over 5 years
Deaths averted per 1000 protected	31	2	8	???

Phillips-Howard et al. 2003

Conclusions

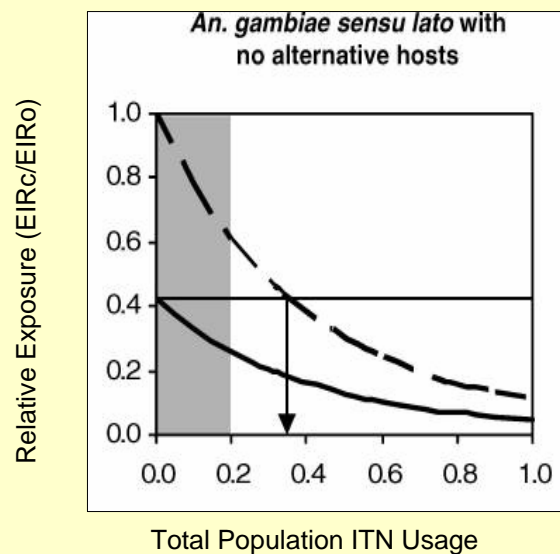
- **LLINs are a necessary intervention to reach international health targets, including the millenium development goals**
- **Robust strategies exist to upscale ITNs rapidly in all endemic countries, thanks to free distribution campaigns**
- **Operationally sustainable Keep-up strategies are also required in every country; different distribution channels are possible**
- **Substantial external funding is available and hence financial sustainability is a secondary consideration**
- **As ITN programmes are rapidly upscaled in many countries there will be a continuing discussion of the best way forward!**



Mass distribution: to the whole population or to high-risk groups only?

- Recent call by WHO to aim for total protection of population (3 LLINs per household / one LLIN for every sleeping space)
- LLINs as vector control tool rather than only as morbidity/mortality reduction tool
- In support of an elimination / eradication strategy
- But still not enough – keep-up is still required
- It is an expensive strategy and it might be wasteful. In Tanzania roughly equivalent to 50% of entire health budget. Much better other uses for that money!
- Operational and financial sustainability ???

Personal protection and the mass-effect



Source: Killeen *et al*
PLoS Med. 2007

- Incorporates dynamic loss function for two types of nets (A. Kilian)

The mathematical function was developed by Nakul Chitnis, STI

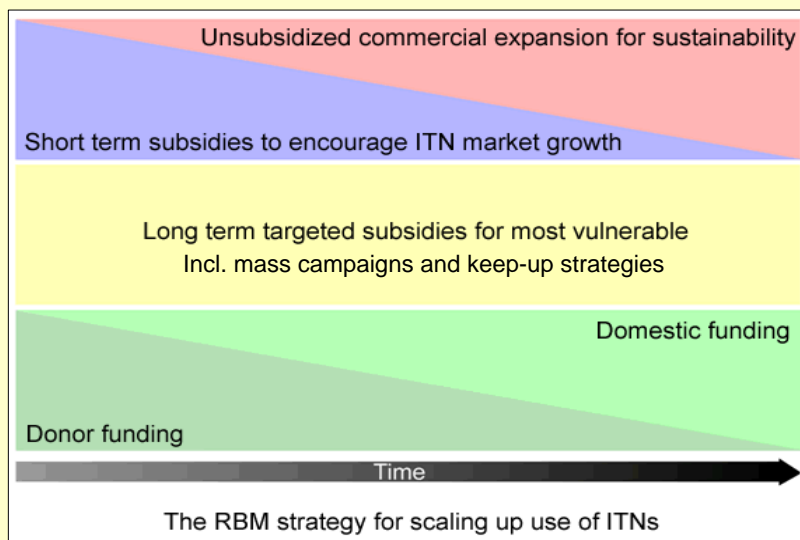
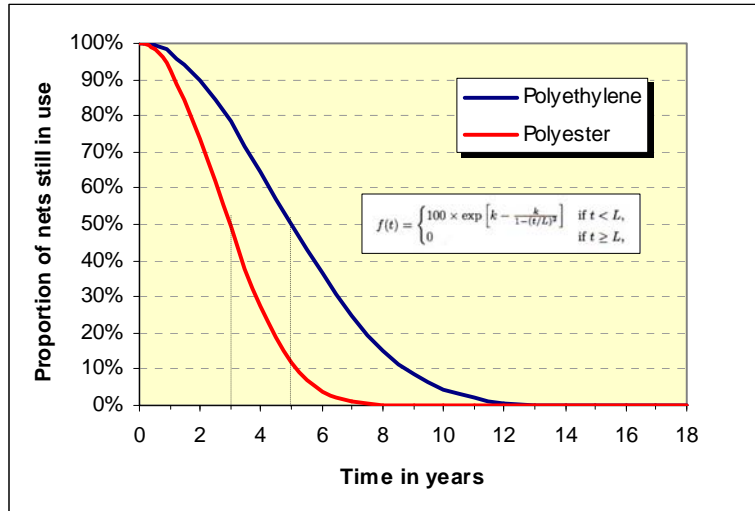


Figure 2. The RBM strategy for scaling-up use of ITNs