

# AMP CAMPAIGN DIGITIZATION MEETING

*Nairobi, May 11<sup>th</sup>, 2023*

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Malaria, Bill & Melinda Gates Foundation



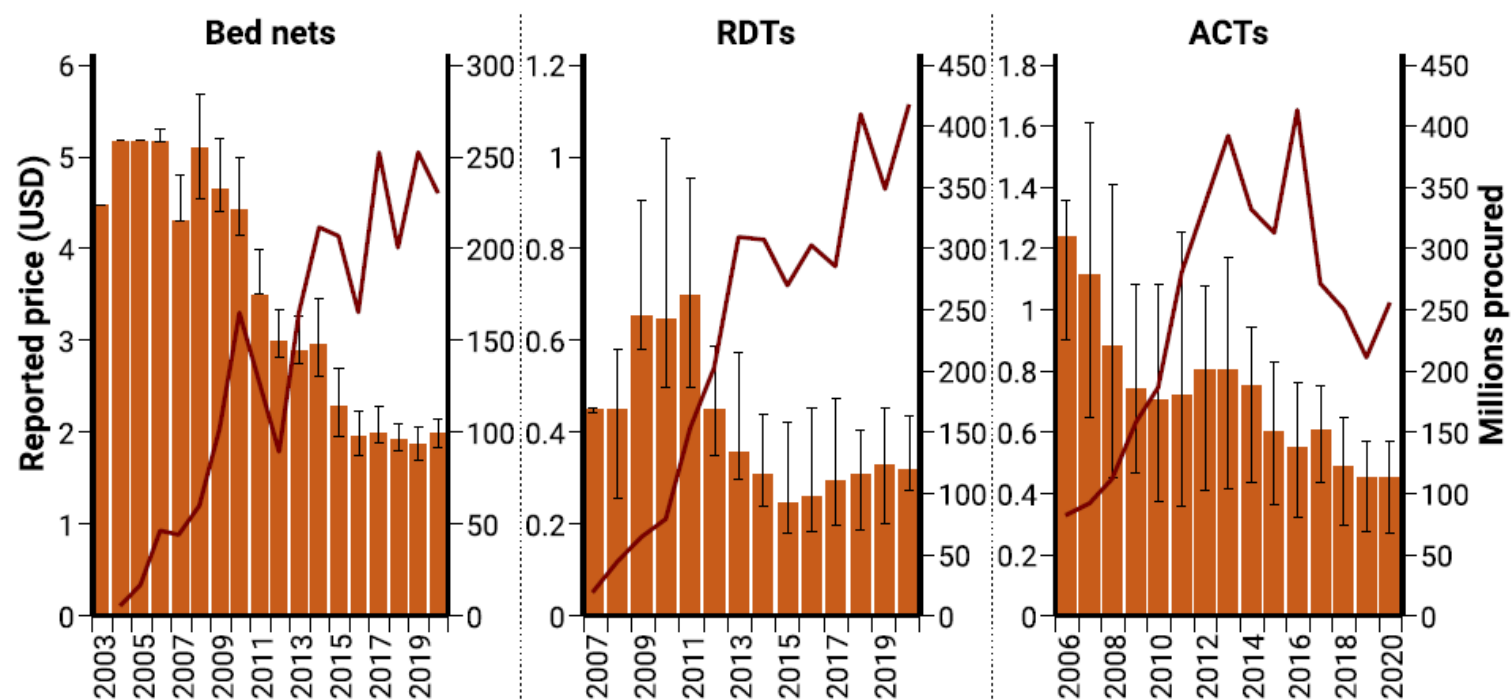
**Why are we here?**

# Importance of of bed nets in our fight against malaria

- Levels of commodity use and treatment coverage for Malaria -

SCIENCE TRANSLATIONAL MEDICINE | REVIEW

**Fig. 3. Volumes and prices of some key malaria commodities.** Brown bars are median prices reported in the Global Fund Price and Quality Reporting database, and error bars depict 25th and 75th percentiles. ACT prices were calculated according to the number of treatments per product pack. Dark brown lines depict volumes procured in millions for bed nets (13, 14), rapid diagnostic tests (RDTs) (1), and ACTs (1, 17). ACT volumes refer to the number procured by the public sector and private sector procurement through the Affordable Medicines Facility for malaria.

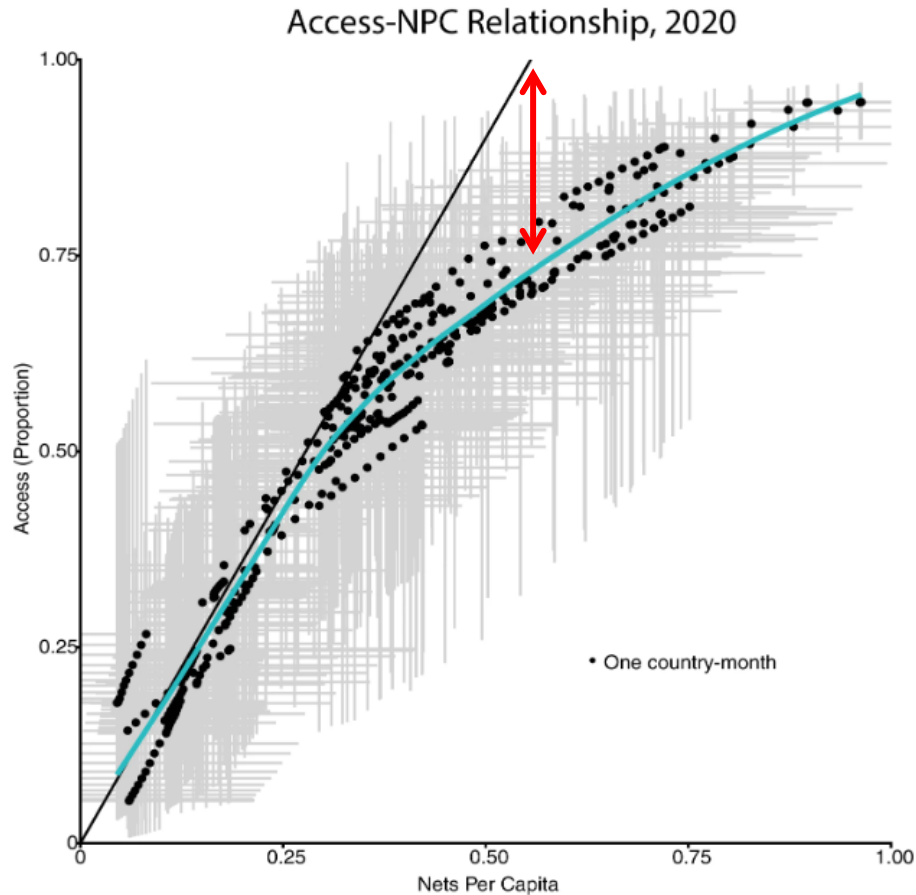


Source: Cohen JM, Okumu F, Moonen B. The fight against malaria: Diminishing gains and growing challenges. [Sci Transl Med. 2022 Jun 29](#)

# Evidence of substantial misallocation of nets at higher coverage levels

Fig. 4: Relationship between access and nets-per-capita (NPC) in 2020.

From: [Maps and metrics of insecticide-treated net access, use, and nets-per-capita in Africa from 2000-2020](#)



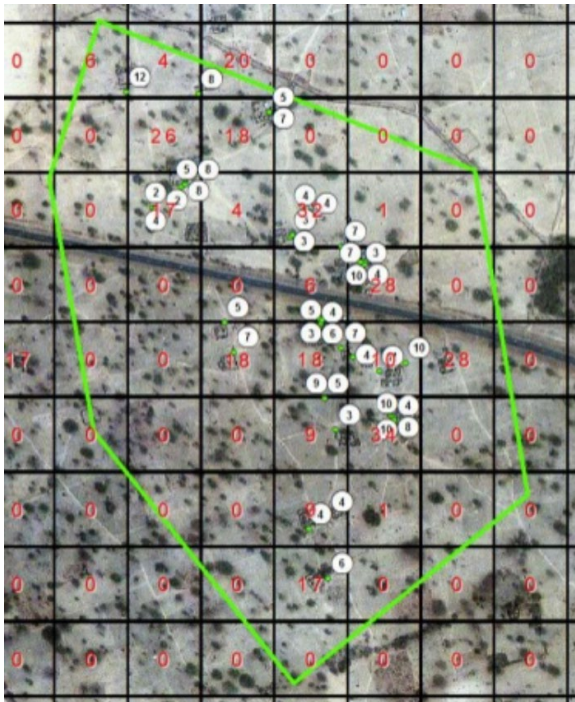
Each dot represents a modeled country month, with black dots indicating mean values and gray bars indicating 95% confidence intervals for each metric. The solid line has a slope of 1.8, showing the relationship between NPC and access presumed by population based net procurement decisions. The blue curve shows a Loess fit through the estimated points. The expected linear relationship between NPC and access holds well at low coverage levels, but the true relationship tapers off at NPC values greater than 0.25 and access over 0.5. This plateauing of access despite high numbers of nets distributed per capita suggests inefficiencies or redundancies in net distribution at these coverage levels, such that those who should be receiving nets are still left without access.

- Nets Per Capita (NPC) and access are highly correlated metrics, but their relationship features important nonlinearities
- WHO recommends that countries procure one net per 1.8 people at risk (0.56 NPC)
- The tacit assumption is that ITN access will scale linearly with the number of nets distributed. This assumption only holds at low coverage levels.
- At NPC levels above ~0.25, the relationship between NPC and access begins to plateau. Attaining coverage levels of 0.55 NPC corresponds to ITN access well below 75%, instead of the predicted value of 100%.
- **Can the malaria community afford to continue like this?**
- **How fair and equitable is this?**

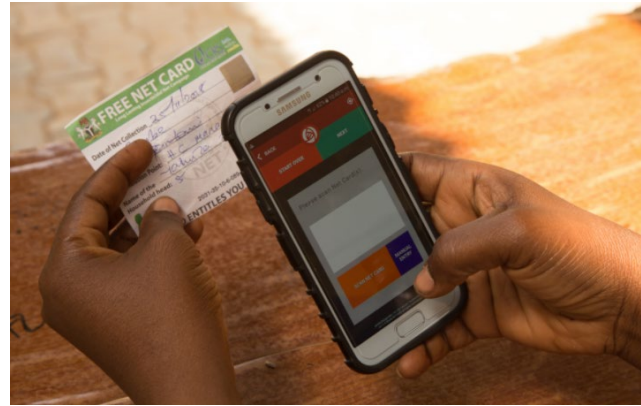
*Note: The results shown here represent modeled estimates, but this relationship is also evident in the survey data alone (Supplementary [Fig. 2.6](#))*

# Benefits of digitization have long been recognized, and efforts to digitize components of campaign are ongoing across several disease areas

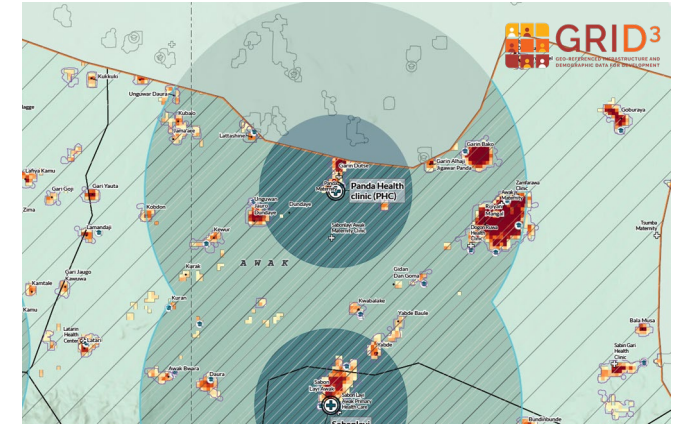
Polio campaigns



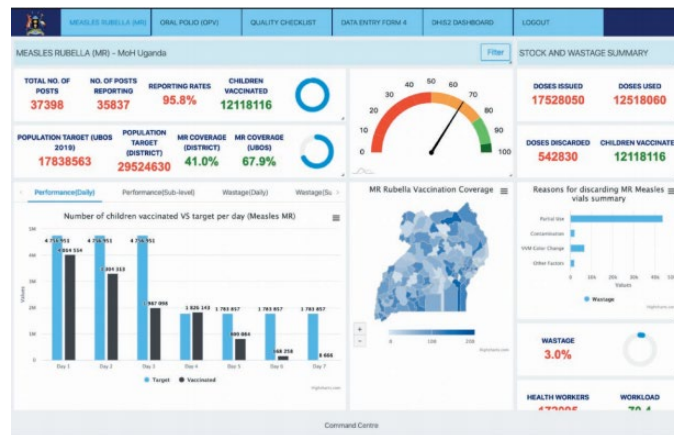
LLIN campaigns



COVAX Support



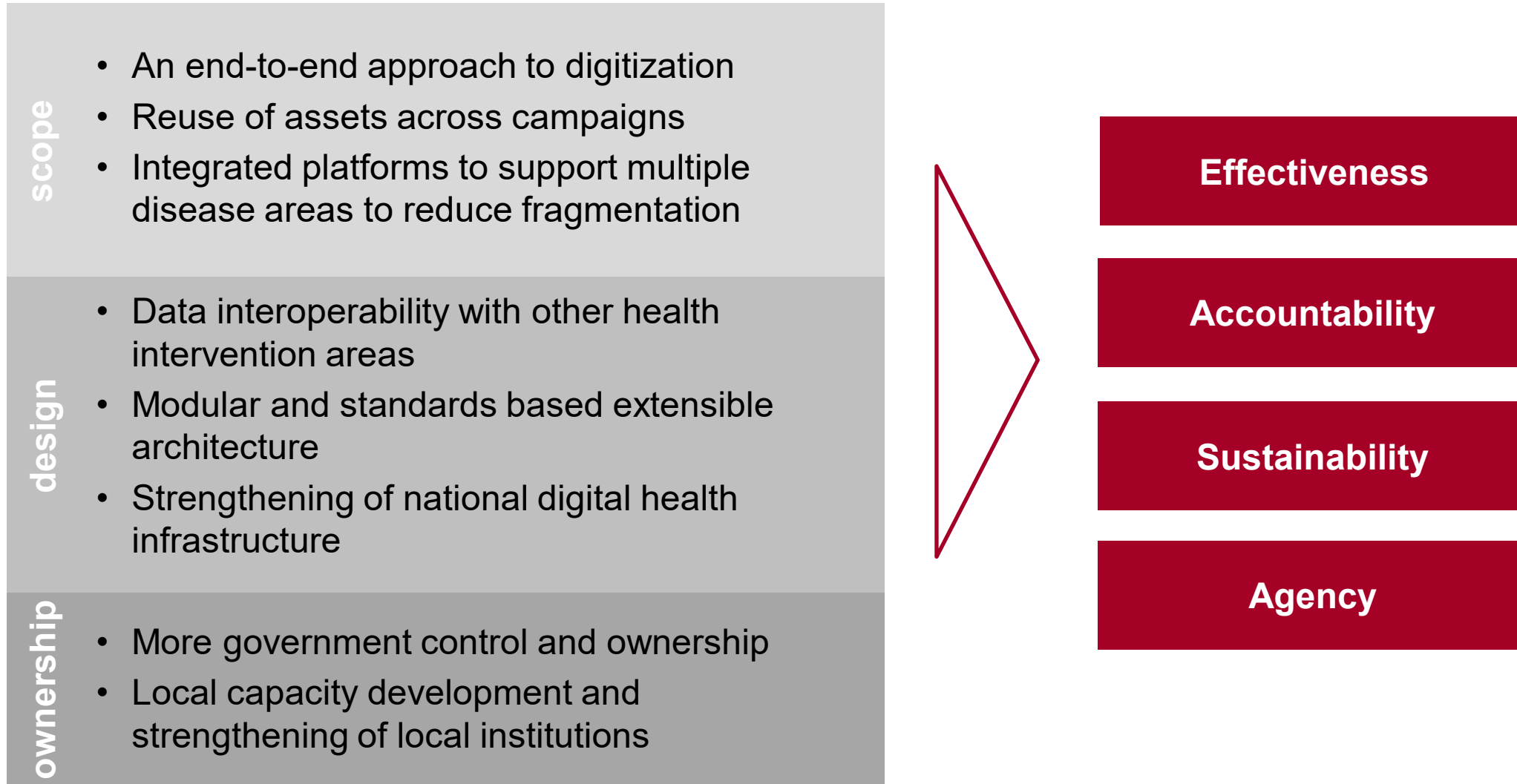
Measles-rubella immunization



IRS campaigns



# Campaign digitization is not new, but many opportunities still exist...





**What should make us optimistic?**



## What should make us optimistic?

- 1. Benin 2020 and beyond**
2. Acceleration in use of digital systems during COVID



# Insecticide Treated Nets distribution in Benin, 2020

Aikpon et al. *Malar J* (2020) 19:431  
<https://doi.org/10.1186/s12936-020-03508-x>

Malaria Journal

RESEARCH

Open Access



## Digitalized mass distribution campaign of insecticide-treated nets (ITNs) in the particular context of Covid-19 pandemic in Benin: challenges and lessons learned

Rock Aikpon<sup>1\*</sup>, Cyriaque Affoukou<sup>1</sup>, Benjamin Hounpkatin<sup>2</sup>, Dieu-Donné Eclou<sup>3</sup>, Yves Cyaka<sup>4</sup>, Elijah Egwu<sup>5</sup>, Narcisse Agbessi<sup>1</sup>, Filémon Tokponnon<sup>6</sup>, Sahidou Salifou<sup>7</sup>, Lamidhi Salami<sup>2</sup> and Aurore Ogouyemi Hounto<sup>1</sup>

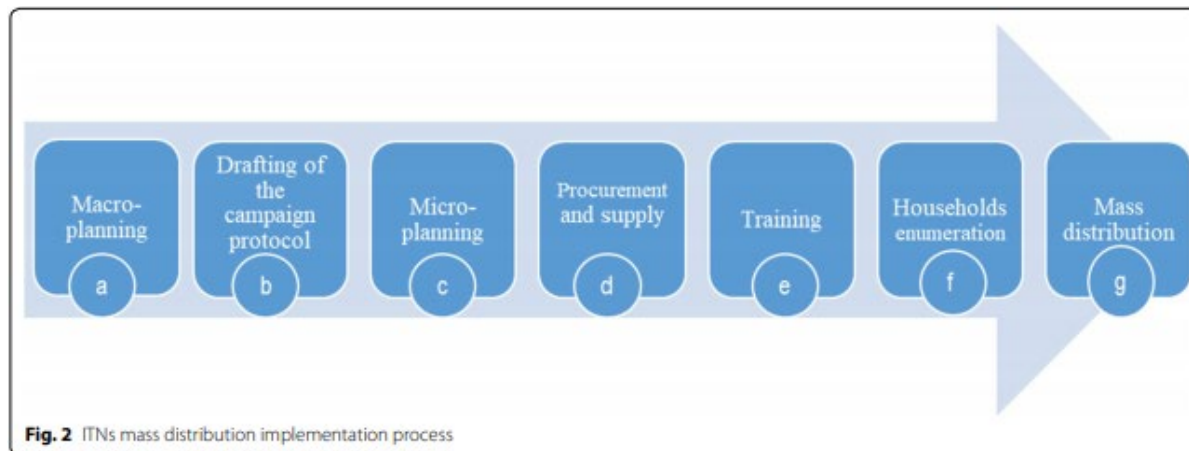
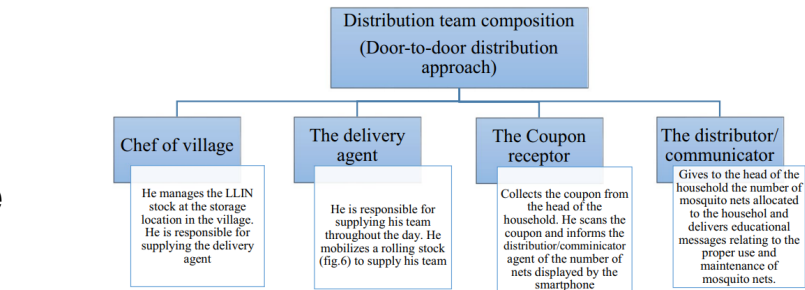


Fig. 2 ITNs mass distribution implementation process

- A total of 3,175,773 households were registered corresponding to a total of 14,423,998 persons (13.55% more than initial projection)
- A total of 7,652,166 ITNs were distributed countrywide
- 94.16% (13,581,637 people) of enumerated population were protected.
- Partnership and coordination across:
  - Government of Benin, Ministry of Health and National Malaria Control Program (NMCP)
  - Global Fund, USAID and PMI, BMGF, RBM Partnership to End Malaria, Alliance for Malaria Prevention (AMP), WHO et. al.
  - Catholic Relief Services

# Insights from Insecticide Treated Nets distribution in Benin, 2020

- High **political commitment**, and partner co-ordination was key
- **KPI** shift from national/state level converge to digitally verified coverage maps
- Digital household enumeration led to creation of accurate **population database**
- **Digitization is only an enabler**, we still live in a physical world
- Digital enabled the move from fixed distribution (pilot) to door-to-door rollout
- **Whole country covered in 16 days** (during COVID) with **94% coverage**
- Many digital tools/techniques utilized: GIS information (enumeration, distribution), QR code geo located coupons for each head of household, digitally tracked training session using biometrics, WhatsApp groups, remote and real-time supervision of distribution, SMS messaging to households for reinforcing proper use of bed nets, digital payments for campaign staff, etc.
- Successful **reuse** of digitization platform, tools and assets for future campaigns: SMC (Malaria) and Oncho (NTD) campaigns
- Significant **delays in porting campaign data** to Government of Benin/MoH



Coupon d'identification du ménage  
CAMPAGNE NATIONALE POUR L'ACCÈS UNIVERSEL AUX MOUSTIQUAIRES BENIN 2020

Département: .....

ZS: .....

Commune: .....

Arrondissement: .....

Village: .....

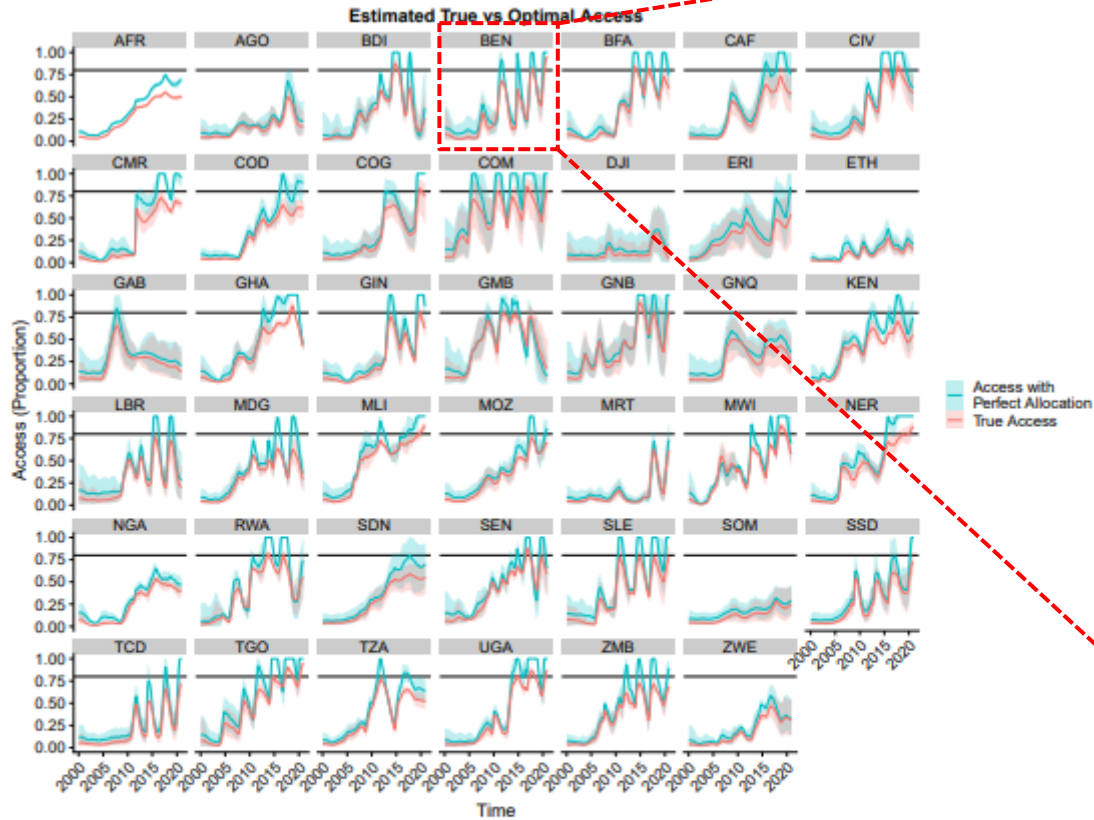
Site de distribution: .....

Nom et Prénoms du chef du ménage: .....

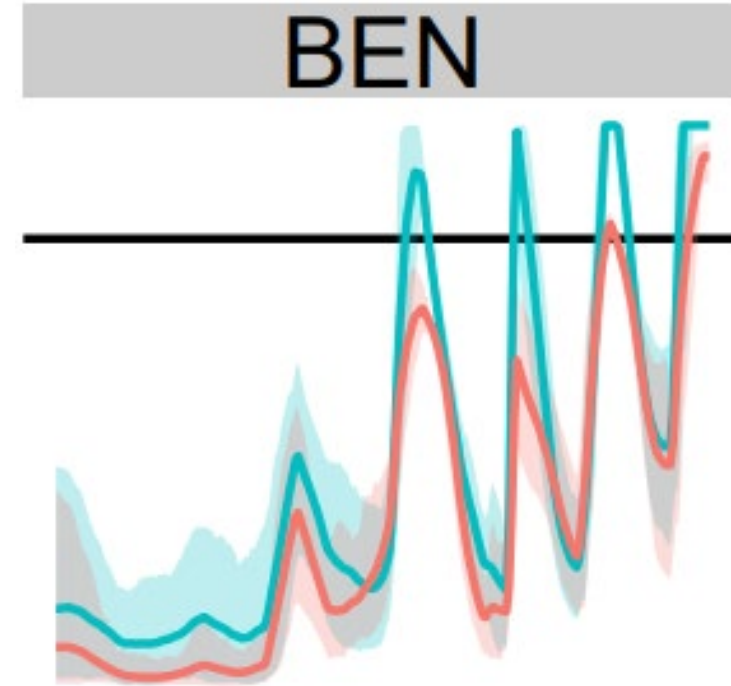
**\*Coupon à ne pas perdre\***

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# Assessing the Impact of Imperfect Allocation: Optimal vs True Access



Supplementary Figure 2.7: ITN Estimated True vs Optimal Access by Country. Estimated true access shown in red, and hypothetical access with perfect allocation shown in blue. Solid curves show mean values, and shaded areas represent 95% confidence intervals.



## 2.4.3 Assessing the Impact of Imperfect Allocation: Optimal vs True Access

Another way to assess the impact of less-than-perfect net allocation is to calculate a counterfactual “optimal access” metric based on the number of nets-per-capita,  $\min(2 * NPC, 1)$ . Plotting this value against estimates for access (Supplementary Fig. 2.7) gives an upper bound of what ITN access could look like with improved allocation.

# Cost of Digitization: Insights from ITNs distribution in Benin, 2020

- 7.65M bed nets distributed, among 3.1M households, covering a total of about 13.6M population
- 3382 devices used for the digitization effort – each device utilized for distributing over 2K nets
- Incremental cost of digitization in Benin was about **0.35 USD per household** reached  

or
- About **14 cents per bed-net distributed** i.e. about **4.3% incremental cost** to baseline per bed distributed net cost

- Evaluation conducted by Tropical Health -

**Overview**

*What were the costs of adapting paper-based tools to digital tools and implementing them for each campaign and for re-use of digital assets in subsequent campaigns?*

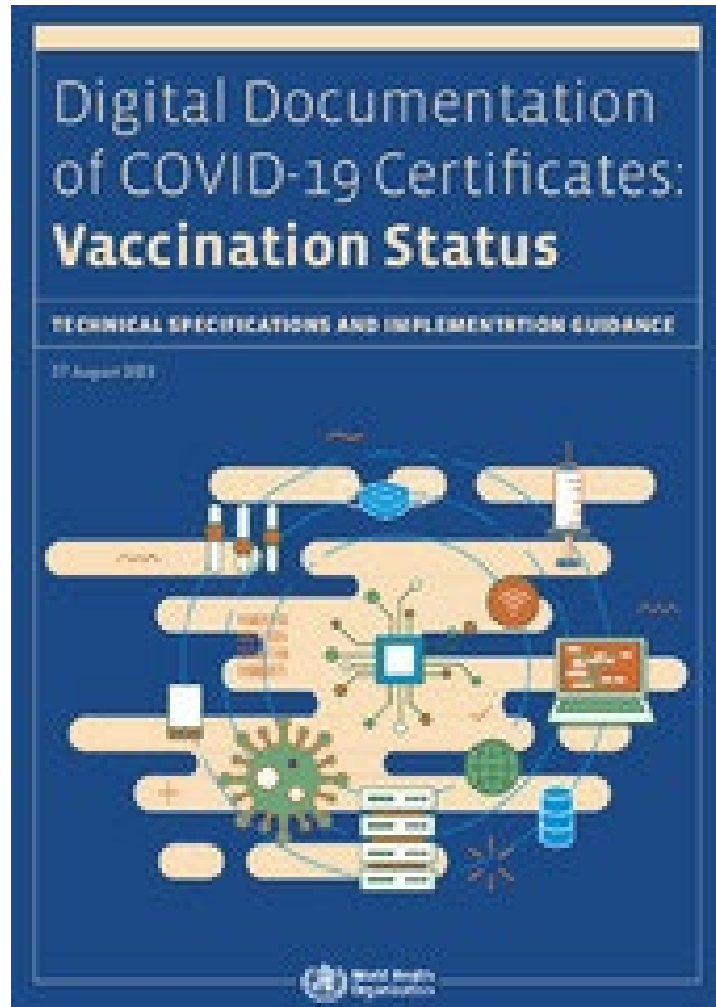
ITN Campaign Nation-wide	USD cost per household reached including ITN	USD cost per household reached excluding ITN
2017 - paper 2-phase - fixed point	8.11	1.79
2020 - digital 2-phase - door-to-door	8.28	2.14
Incremental Cost 2020 vs 2017	0.17	0.35



## What makes us optimistic?

1. Benin 2020 and beyond
2. **Acceleration in use of digital systems during COVID**

# A standards-based platform approach to COVID vaccination campaigns



## COWIN IN INDIA: THE DIGITAL BACKBONE FOR THE COVID-19 VACCINATION PROGRAM

The infographic features logos for the Digital Public Goods Alliance, DIVOC by eGov Foundation, and eGov. Foundation. It includes an illustration of a person using a smartphone displaying a certificate. The central text reads "BILLION CERTIFICATES". Below this, it states "Landmark 2 billion COVID-19 vaccination certificates issued across 5 countries" and lists the countries: India, Indonesia, Jamaica, Philippines, and Sri Lanka.

Digital Public Goods Alliance

DIVOC by eGov Foundation

eGov. FOUNDATION

**BILLION**  
CERTIFICATES

Landmark 2 billion COVID-19 vaccination certificates issued across 5 countries

India Indonesia Jamaica Philippines Sri Lanka



# **Our vision for campaign digitization**

## Campaign Digitization...

- Integrated – x-disease, not just for bed-nets and not just for malaria
- Country owned
- Platform-based approach – with a fit for purpose design
- Impactful – comprehensive (end to end) to maximize lives saved
- Low-cost design – to further boost sustainability and cost-effectiveness
- Secure and privacy preserving by design





**Thank you to the organizers!**



**amp**

The Alliance for  
Malaria Prevention

**Thank You!**

