



# HOW CAN MALARIA COMMUNITY WORKERS BE A CENTERPIECE OF A SUSTAINABLE AND INTEGRATED APPROACH?

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# SHOULD COMMUNITY WORKERS BE THE CENTERPIECE OF COMMUNITY-BASED INTEGRATED HEALTHCARE?

## HOW?

## WHY INTEGRATION AT COMMUNITY LEVEL?

What is the main problem to get quality health care in remote communities?



# No health services in remote communities



# Health services in remote communities (in Myanmar)

Small communities ( ~ 500 people)

No official health care system

Doctors/nurses/midwives don't go there

Referral can take hours / days and the patient is sick

Often no phone / internet



***Inequality in access to health care is worst in remote communities....!***

# What do people do - in most remote communities - when they are ill?

## Informal Health Care providers (*Quacks*)

Address most complaints, provide treatment

No formal training / guidelines

High antibiotic use, injections

Quacks; poor quality, ... but probably save many lives !

Because there is nothing else



***What do people do in most remote communities when they are ill?***

## **Quack & Malaria**

**Patients present with fever**

**Malaria has no specific symptoms**

**Usually no RDT, diagnosis difficult**

**Fever → try an AB or a “cocktail”?**

**..... Transmission continues**



## What do we need?

Early diagnosis and treatment in the community

Introduction of community-based health workers

- Train
- Equip
- Monitor and support (mobile medical team)
- Provide an incentive

Early diagnosis and treatment → stop transmission

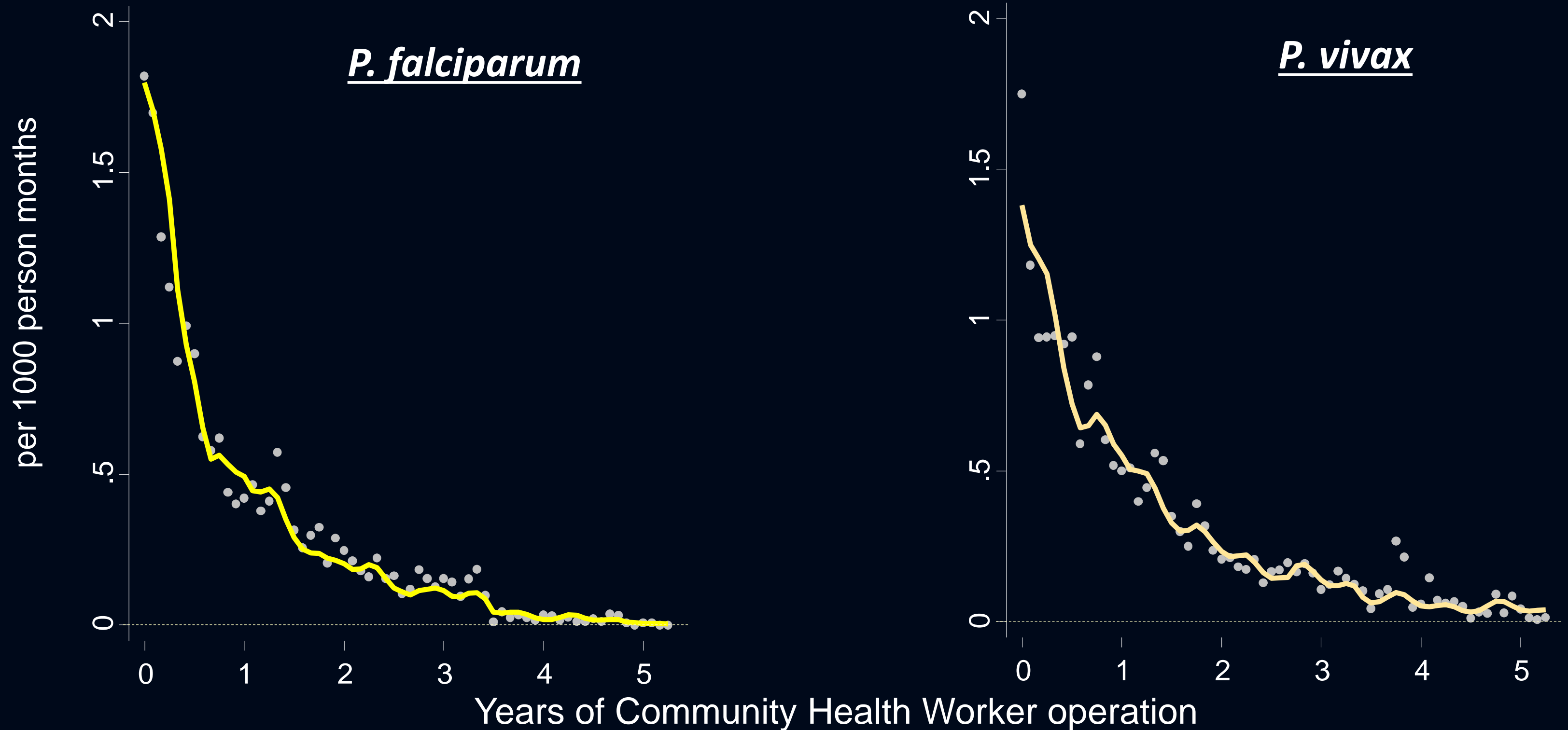
*What was the result?*





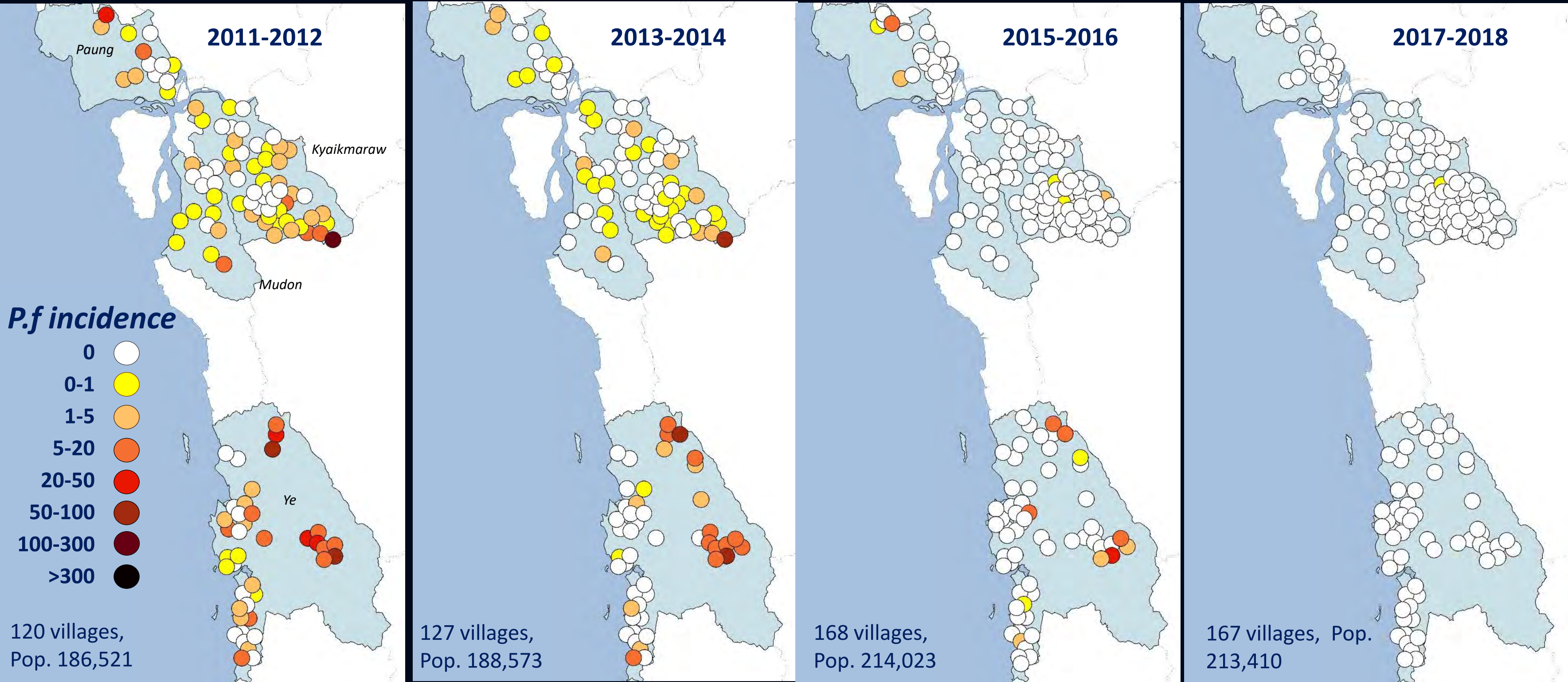
# Malaria incidence reduced; *P.f.* 70% and *P.v.* 64% per year

1,335 CHWs; 571,286 RDTs (2012-2016)



# *P.f* RDT incidence rate after introduction of CHW

167 villages in Mon state, based on >250,000 RDTs



52,591 RDT, 1,282 *Pf*+ (2.4%)

64,371 RDT, 420 *Pf*+ (0.7%)

88,278 RDT, 86 *Pf*+ (0.1%)

54,961 RDT, 1 *Pf*+ (<0.01%)

**Can malaria-CHW uptake be sustained when malaria is low? RDT (+) rate <0.1%**

Feedback from the community

*My child had fever, I visited the CHW who did a test*

*“Malaria (-)” and she sent us home ....!*

*We went to the quack*

The patient’s problem is not addressed.....

Patients return to quack? Transmission might return!

*What do people need?*



# What do people need?

The people need care for Patients instead of care for Malaria

There is no official health care in remote communities

They need an integrated health care package

Which diseases?

Malaria + Diseases that are common / relevant for the villagers



**This will help to Eliminate malaria !**

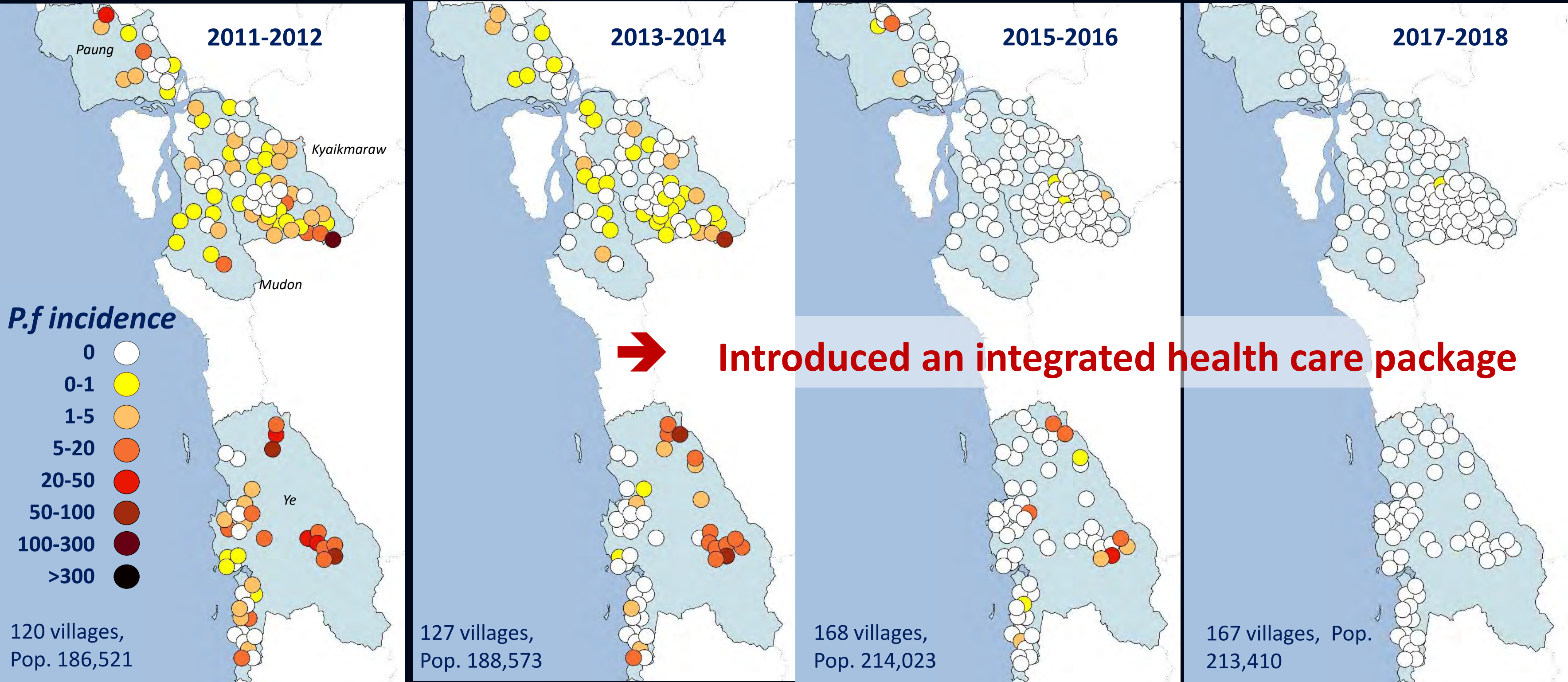
**Test everybody with fever for malaria**

**+**

**Address the problems of the patients with an integrated health care package  
(diagnosis and treatment for both children and adults)**

# *P.f* RDT incidence rate after introduction of CHW

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Which diseases should be addressed?

...and which diseases don't need to / cannot be addressed?

Common and most relevant diseases

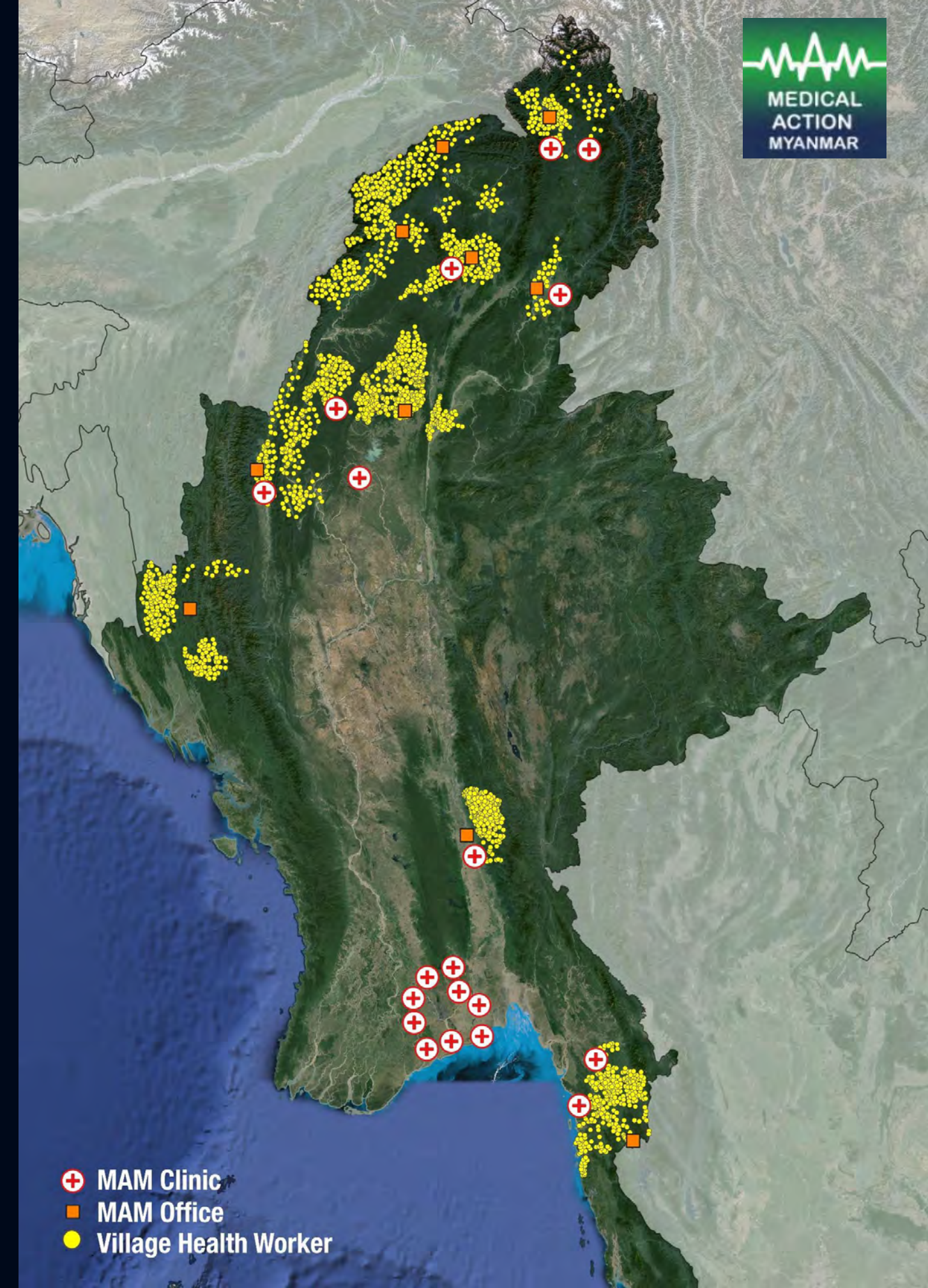
**Address the needs of the people...**

Depends on several factors; epidemiology, diagnostics, treatment, finance, politics,

# Which diseases?

1. Malaria
2. Fever & Acute common infections
  - Respiratory Tract Inf and Diarrhoea
3. TB
4. HIV, HCV
5. Reproductive Health (Post-partum haemorrhage)
6. Malnutrition
  - Rickets
7. Hospital referrals
8. NCD
9. ....

.... Malaria was easy to diagnose and treat







# Integration of malaria and additional healthcare services

## *What do we need?*

1. Tools for the CHW to make a diagnosis
2. Clear and simple protocols
3. Regular teaching and quality monitoring
  - Classroom
  - On-the-job
4. Support to refer severe patients to hospitals



# Training and monitoring of CHW by mobile medical team

*labour intensive !*

Including a mobile clinic in the evening

MD and CHW seeing patients together

MD will initiate chronic diseases to be followed up by CHW

- Train to identify diseases
- Train to identify severe patients for referral
- Follow up chronic patients; TB, HIV, NCD, Maln, ...



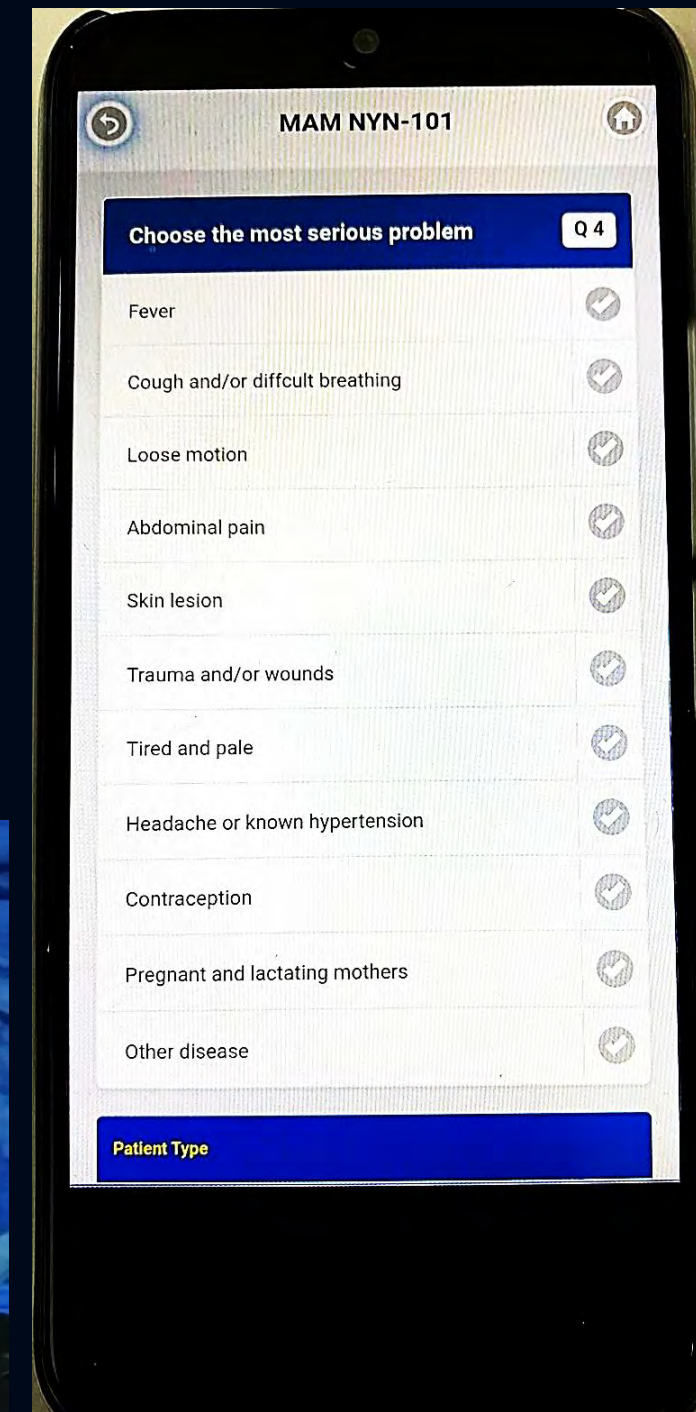


MAM mobile medical team

# Community-Based Health App

An offline application to help making a diagnosis and treatment

- Step by step choosing signs and symptoms
- Videos and pictures included as visual aids
  1. Improve diagnosis and treatment of common diseases
  2. Timely emergency referral
  3. Data collection for analysis



1 question  
per page

Choose the  
age category

Medical Action Myanmar

Regular Visit Age Group Q 2


0 - under 1 month	<input type="checkbox"/>
1 - under 12 months	<input type="checkbox"/>
1 - 4 years	<input type="checkbox"/>
5 - 9 years	<input checked="" type="checkbox"/>
10 - 14 years	<input type="checkbox"/>
15 years and above	<input type="checkbox"/>

Patient Type  
New Patient

Check the  
danger signs

If present,  
follow the  
instruction

Check for danger signs  
(If the child is ill plus one of the following below) Q 3

Unable to drink for 1 day	<input type="checkbox"/>
Child has convulsions 	<input checked="" type="checkbox"/>
Vomits everything for 1 day	<input type="checkbox"/>
Abnormally sleepy/difficult to wake	<input type="checkbox"/>
None of the above	<input type="checkbox"/>

Patient Type  
New Patient

Regular Visit Age Group  
5 - 9 years

# Step by step questions will lead to a diagnosis

Does the patient have fever?

Q 6

Yes - Fever



No fever



Does the child have fast breathing?

Q 9

Breathing rates > 30/min



Normal breathing



How long has the fever been present?

Q 6

≥ 1 month



< 1 month



Does the child have chest indrawing?

Q 10

Chest indrawing



Watch video



No chest indrawing



How long has the cough been present?

Q 8

≥ 2 weeks



< 2 weeks



... and finally you will come to a diagnosis and suggestions for management

The child has pneumonia

Stimulate fluid intake

Give paracetamol as follows:

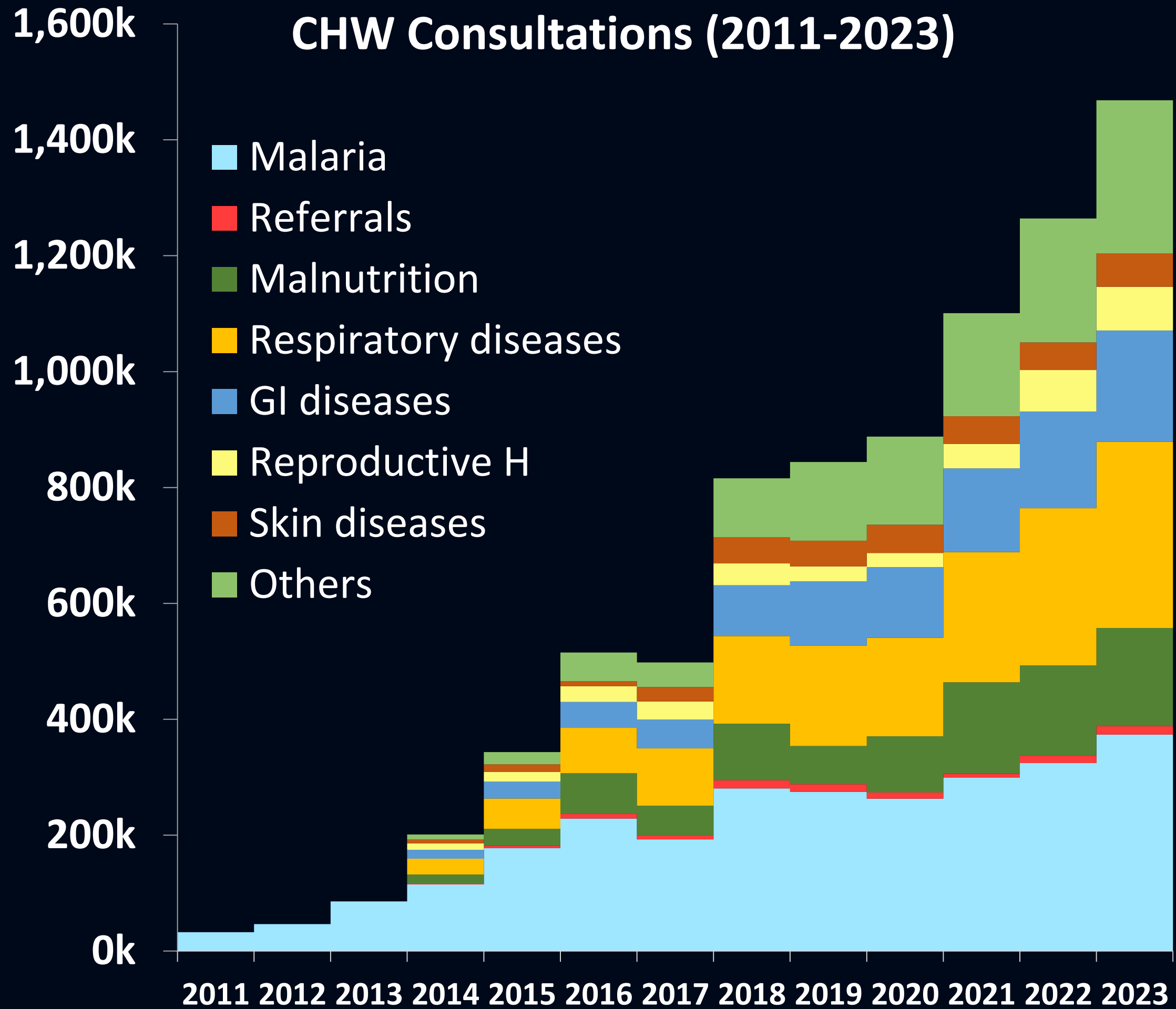
Body weight (kg)	Paracetamol	Times/day
15 – 34	1	3 times
≥ 35	2	3 times

Contact MAM medical doctor to get antibiotic (amoxicillin) or advise patient to visit nearest MOHS or private health staff to get amoxicillin.

Body weight (kg)	Paracetamol	Times/day
15 – 34	1	3 times
≥ 35	2	3 times

Monitor respiratory rate

# CHW Consultations (2011-2023)





# Malnutrition test with a MUAC



**Treat in the community or refer if severe / no improvement**

**15 years old boy, completely immobile at the time of diagnosis**



**After 6 months**



**and after 2 years treatment**

**Nutritional rickets**

**MD makes the diagnosis and starts treatment in the community**

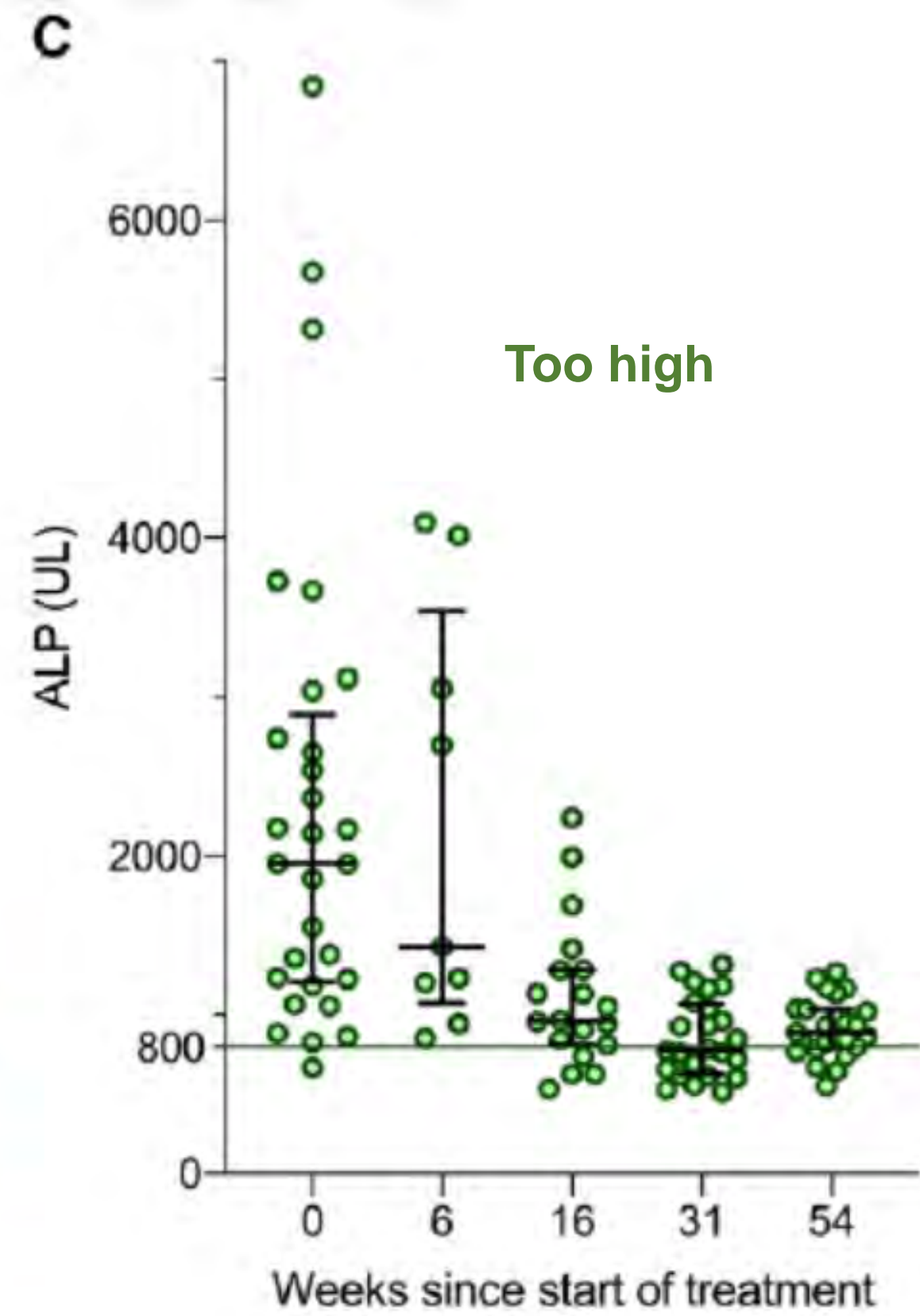
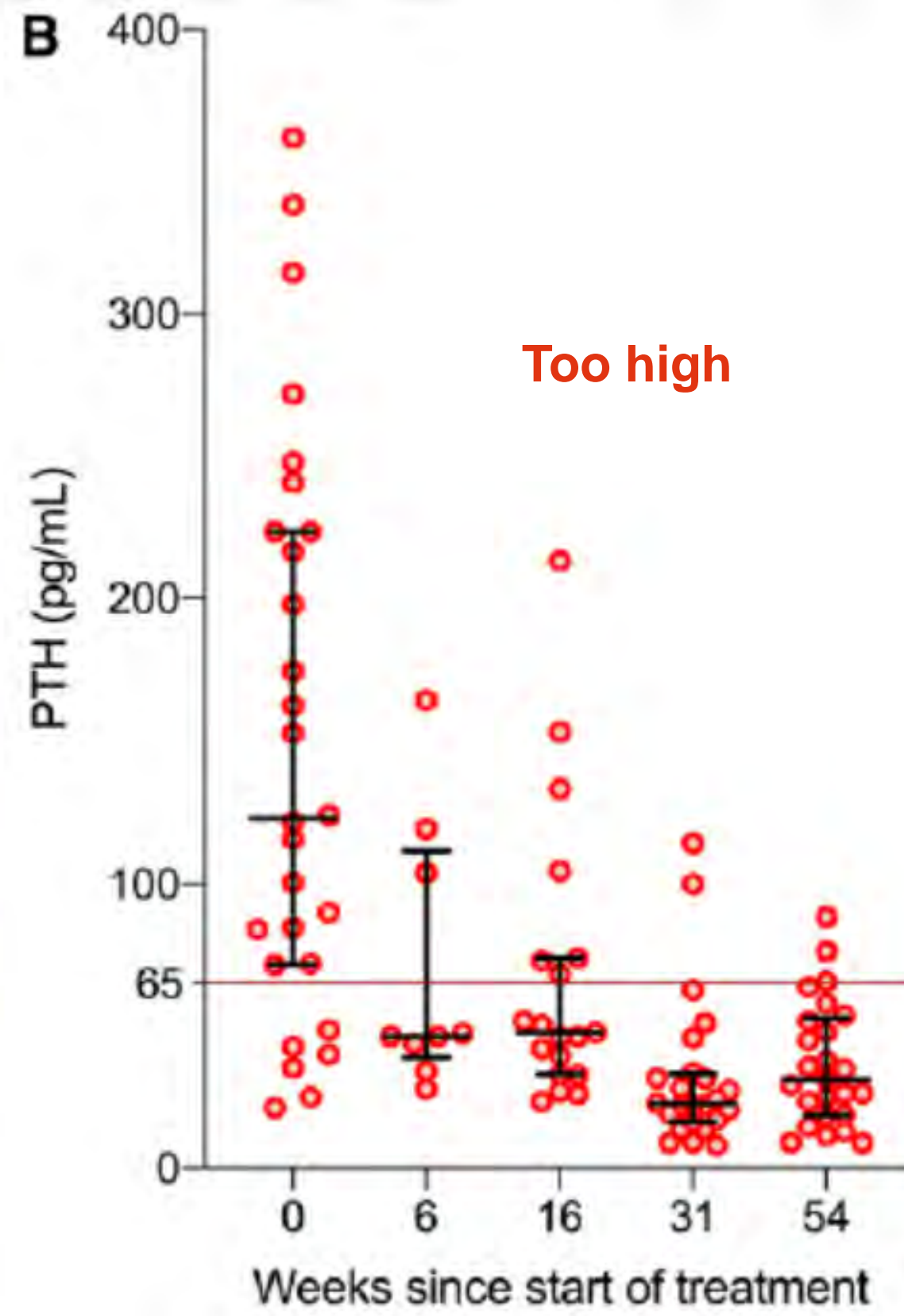
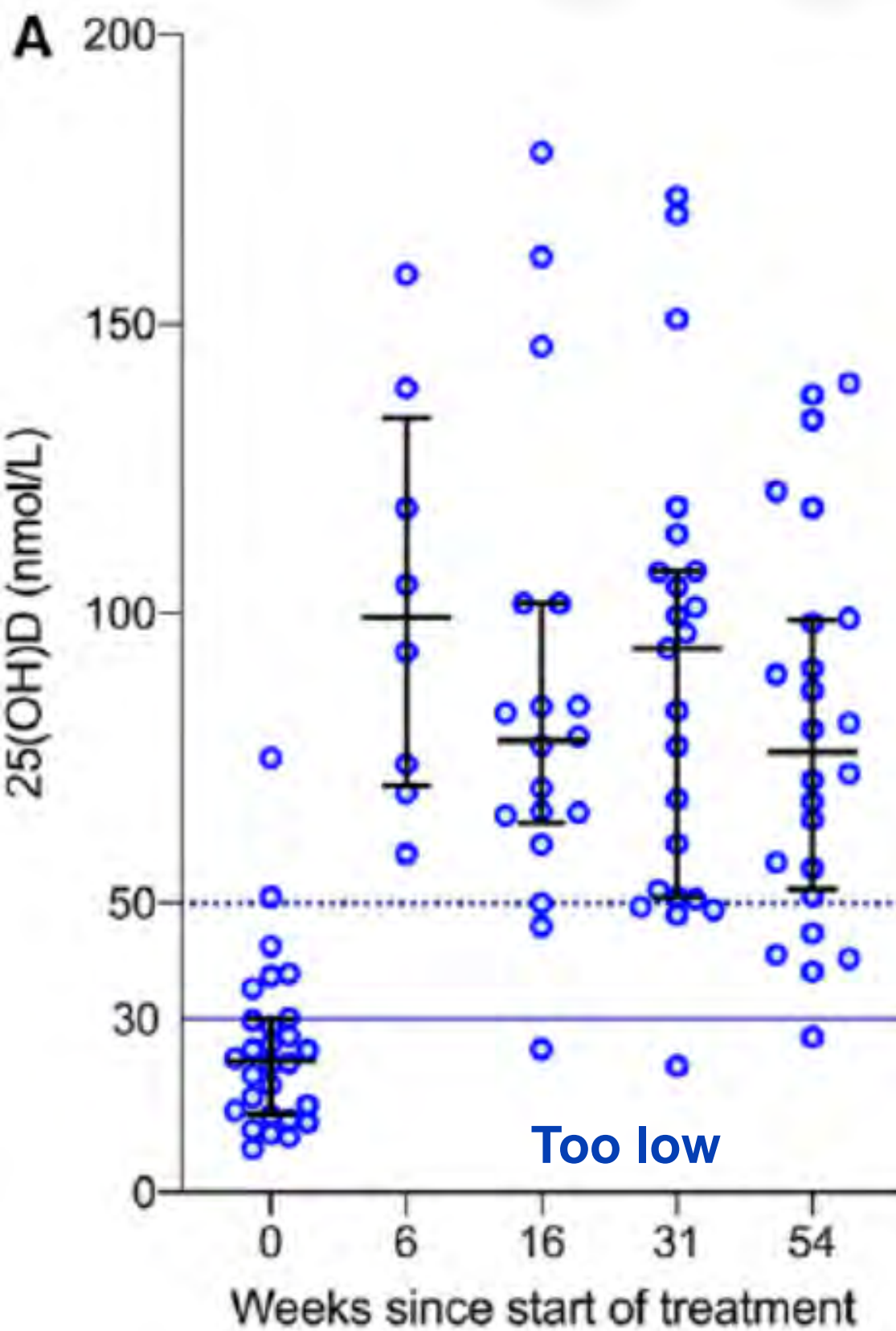
**Follow up by CHW**

# Rickets

Rickets is hidden in the most remote communities. Children often not mobile, at home.  
490 children identified and on treatment (+/- 2 years) by CHWs in Naga region



# Children tested for Vit D, PTH and ALP Before and after treatment with Vit D and calcium





**A 41 year old man who was never treated for rickets.**

**He can barely walk and uses an animal bone to prevent his tibia bone from breaking.**

# Team Leader giving on the job training of blood glucose testing at village in Hpakant Township



# Referral Support to nearest hospital (that can deal with the problem!)

1. Support transportation and investigation costs
2. For severe, treatable conditions
3. Life or disability saving or to decrease suffering
4. Transport cost can be high
5. Important support for CHW

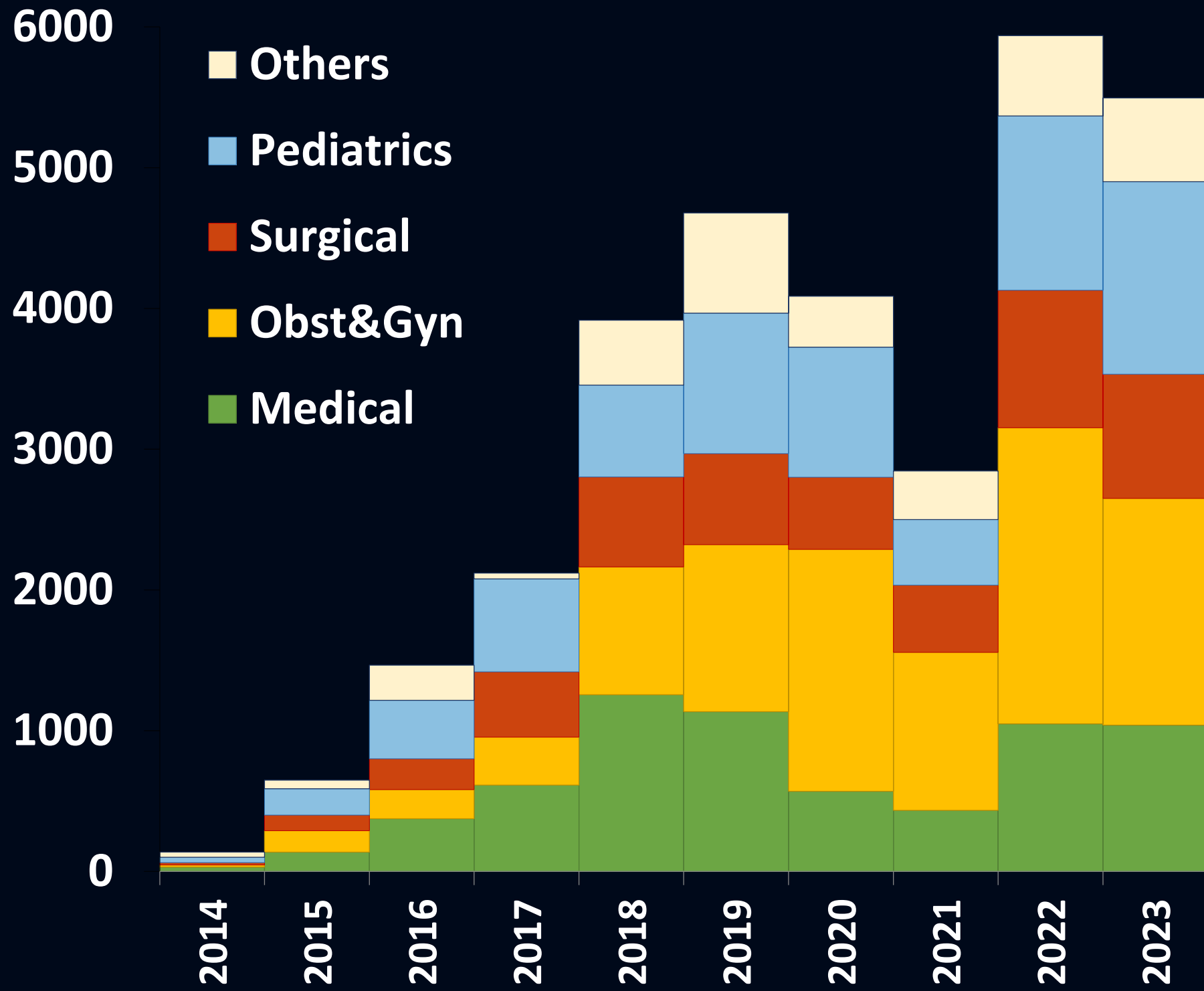


# Girl from Kale referred for abdominal surgery





# Emergency referrals



# Tuberculosis



**50,000 TB deaths in 2022 in Myanmar (WHO)**

# Tuberculosis

**Similar rationale;**

**No health care.**

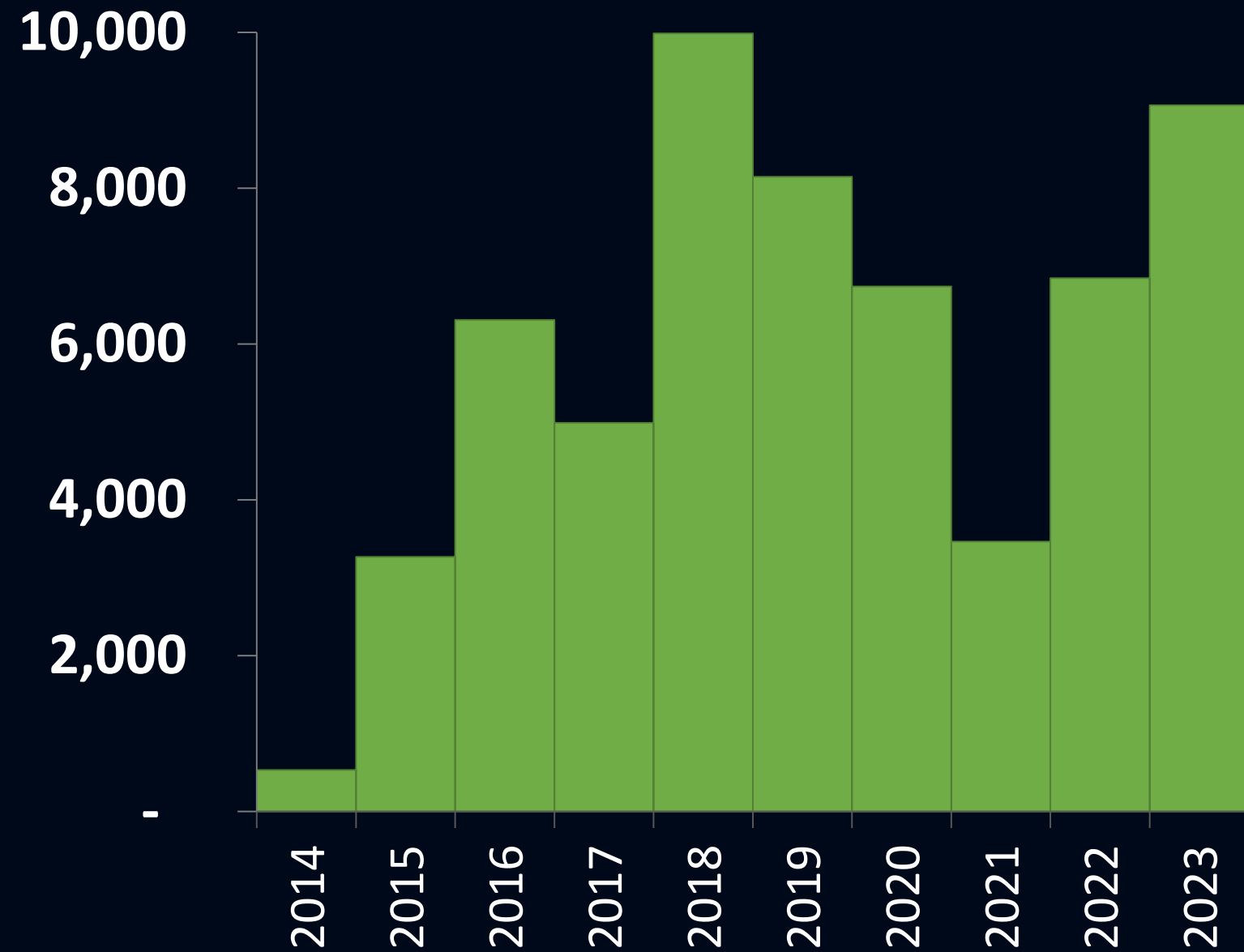
**Cough and fever. Quack has poor diagnostics.**

**Diagnosis delayed, transmission continues**

**Train CHW to recognize signs & symptoms of TB and refer presumptive TB patients to the hospital**

**Refer ALL presumptive TB patients to the hospital?**  
**But the diagnostic criteria are very weak and non-specific**

**TB referrals**



**MANY patients refused to go**  
**Many missed patients!**

# Improve the diagnosis in the community?



**TB mobile teams**





**Mobile CXR (+AI) by TB mobile teams**



**Screening in the village can make referrals more selective. Higher specificity and less missed cases (who refused referral) ... Waiting for approval from DoH.**



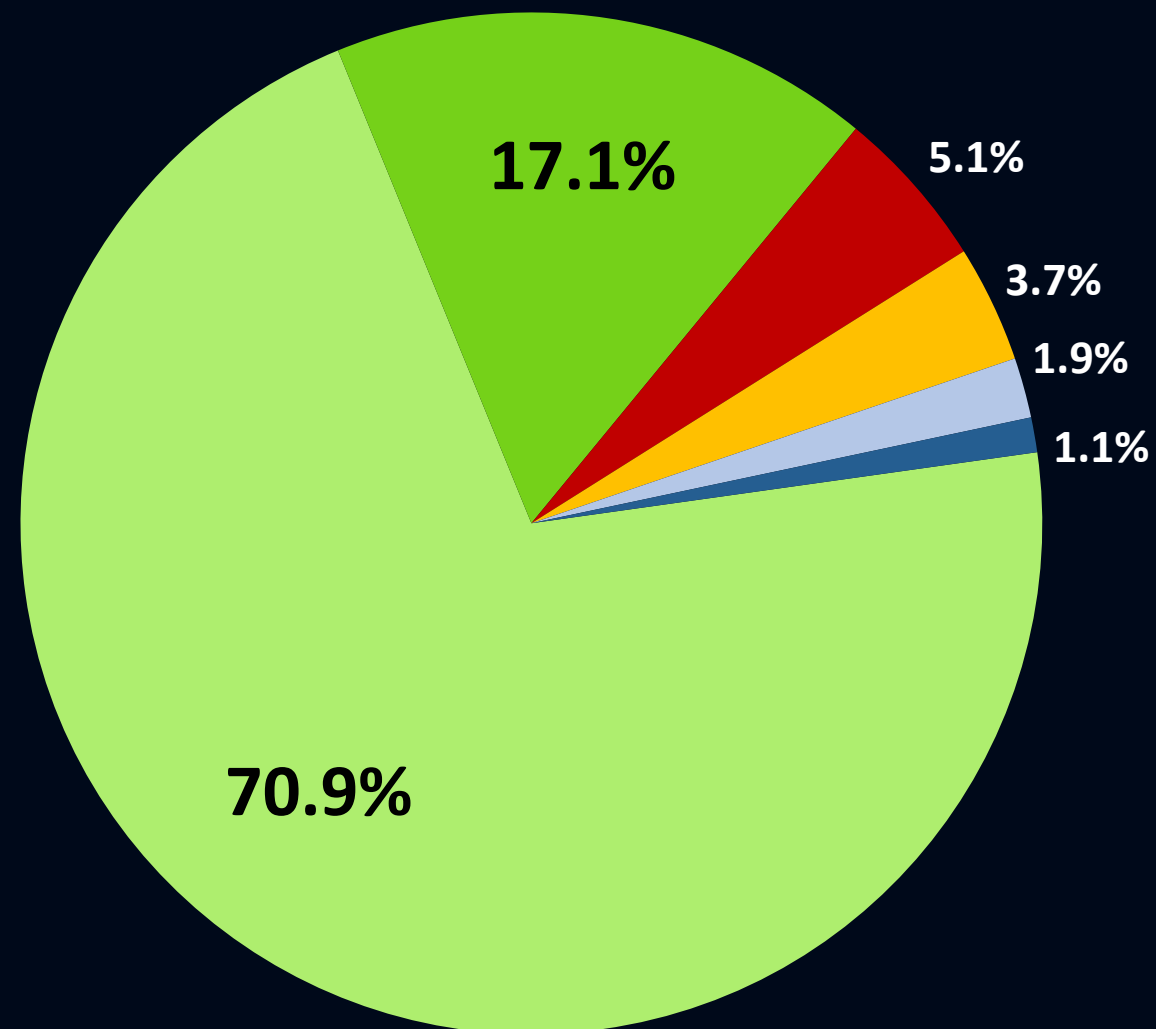
**Household screening by CHWs (compliance and contact tracing)**

# TB treatment success rate; CHWs (88%) to Clinics (85%)

(2019-2022)

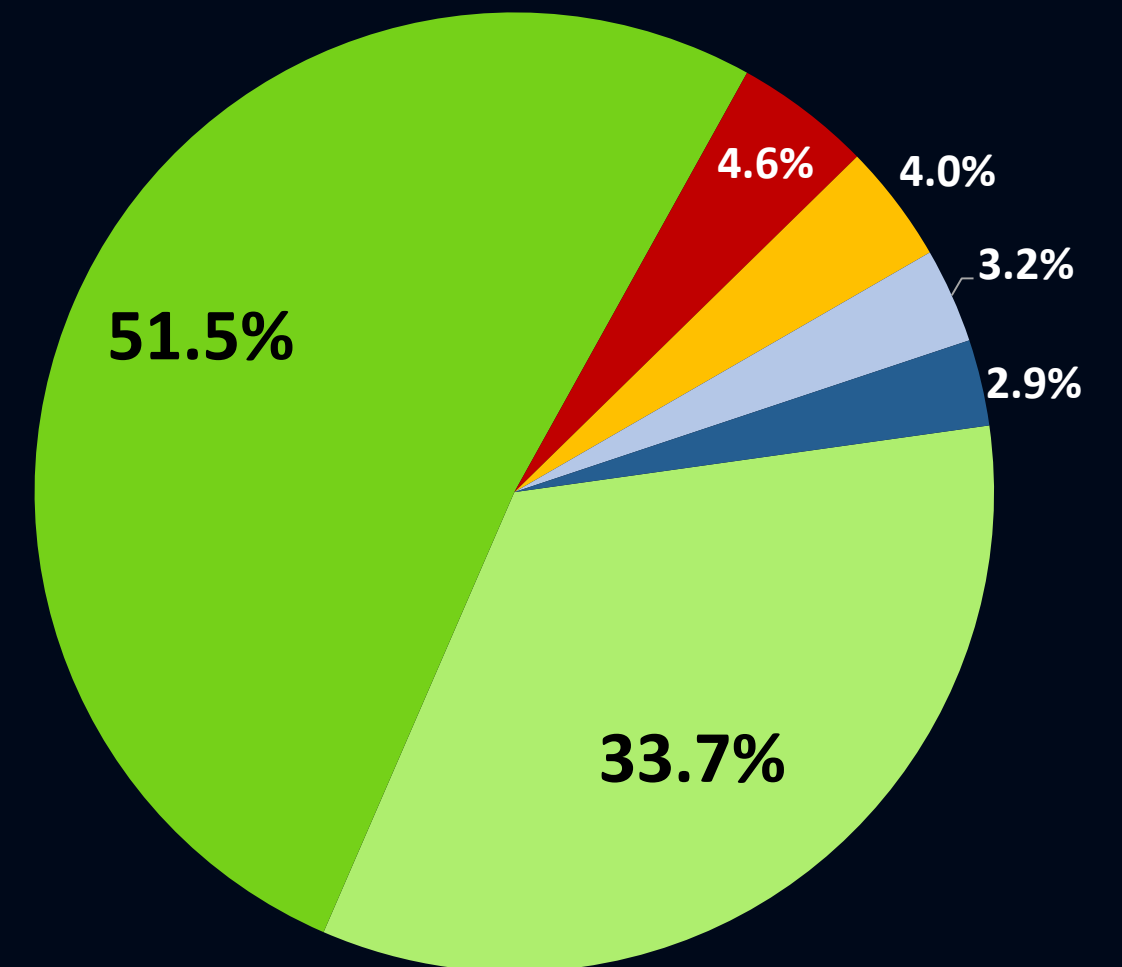
## CHW

4,298 patients



## Clinics

2,126 patients



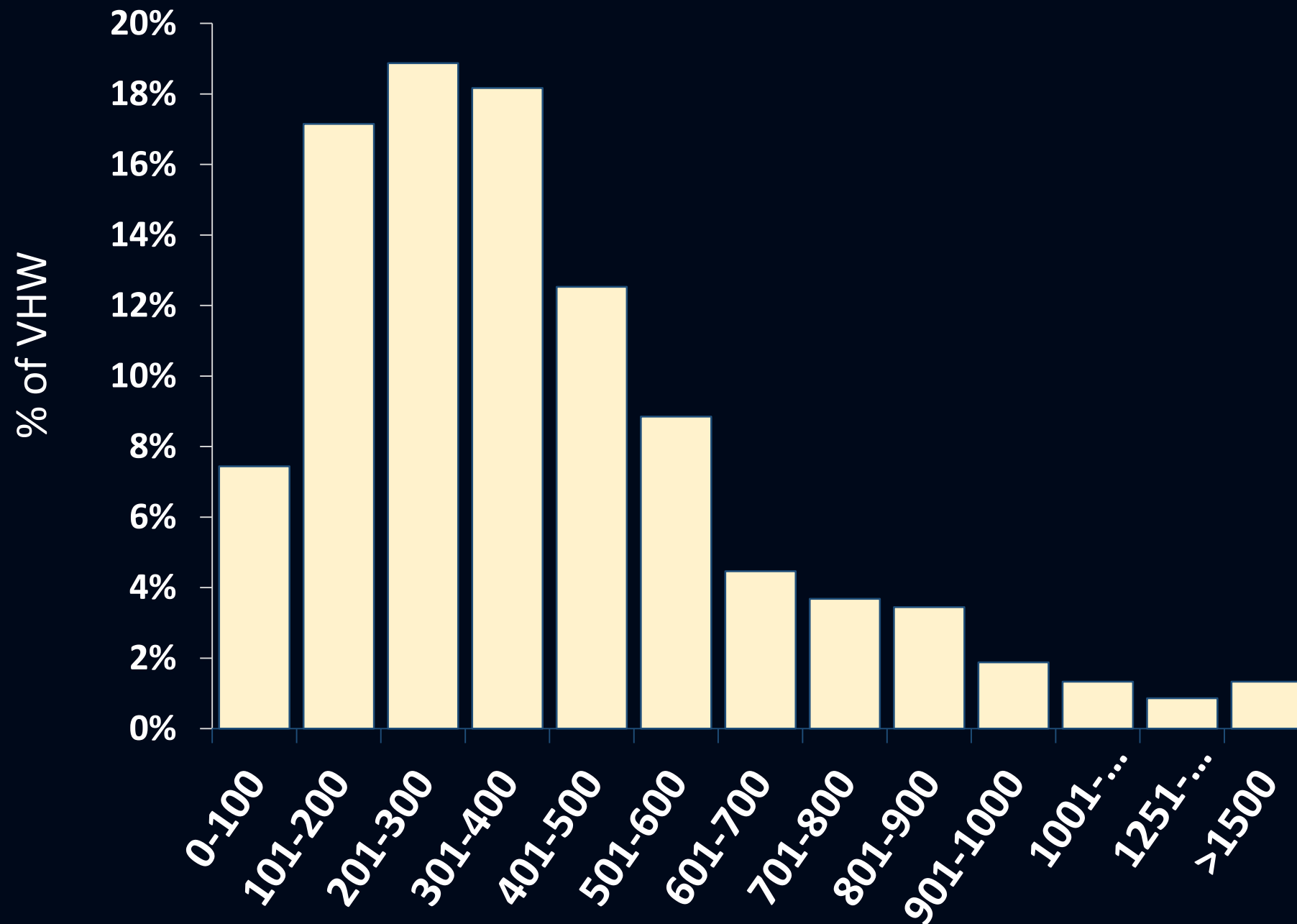
- Completed
- Cured
- Died
- Loss to FU
- Transferred Out
- Failure



PRACTICAL  
CONSIDERATIONS  
INTEGRATION

# Workload of integrated health care package (2018)

## Number of patient consultations per year



Consultations	per year	per day
10th %	114	0.3
25th %	203	0.6
<b><u>50th %</u></b>	<b><u>331</u></b>	<b><u>0.9</u></b>
75th %	508	1.4
90th %	755	2.1
<b>Average</b>	<b>402</b>	<b>1.1</b>

**Most CHWs work  $\leq \frac{1}{2}$  hour per day**

**Additional costs to provide integrated health care?**

***Are marginal!***

**The system of CHWs, supply and monitoring already set up**

**Additional costs are minimal.**

**Incentives only for part-time**

**And the benefits are enormous**



**Worries; Poor education-level CHWs. Antibiotic over-use ?**

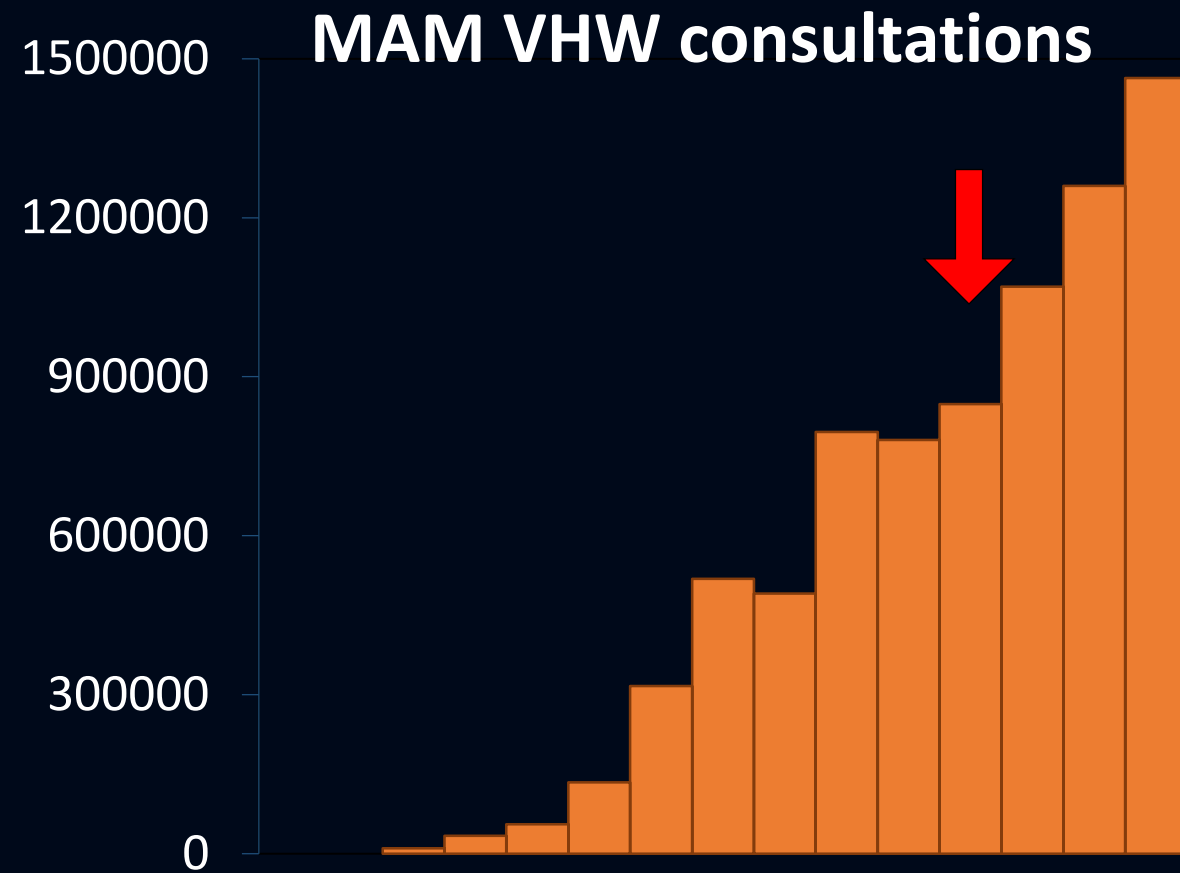
**Compared to the current situation.**

**The alternative is a Quack / Pharmacy with many ABs**

- 1. CHW are trained / Quacks not**
- 2. CHW have AB guideline / Quacks don't**
- 3. CHWs are monitored / Quacks are not**

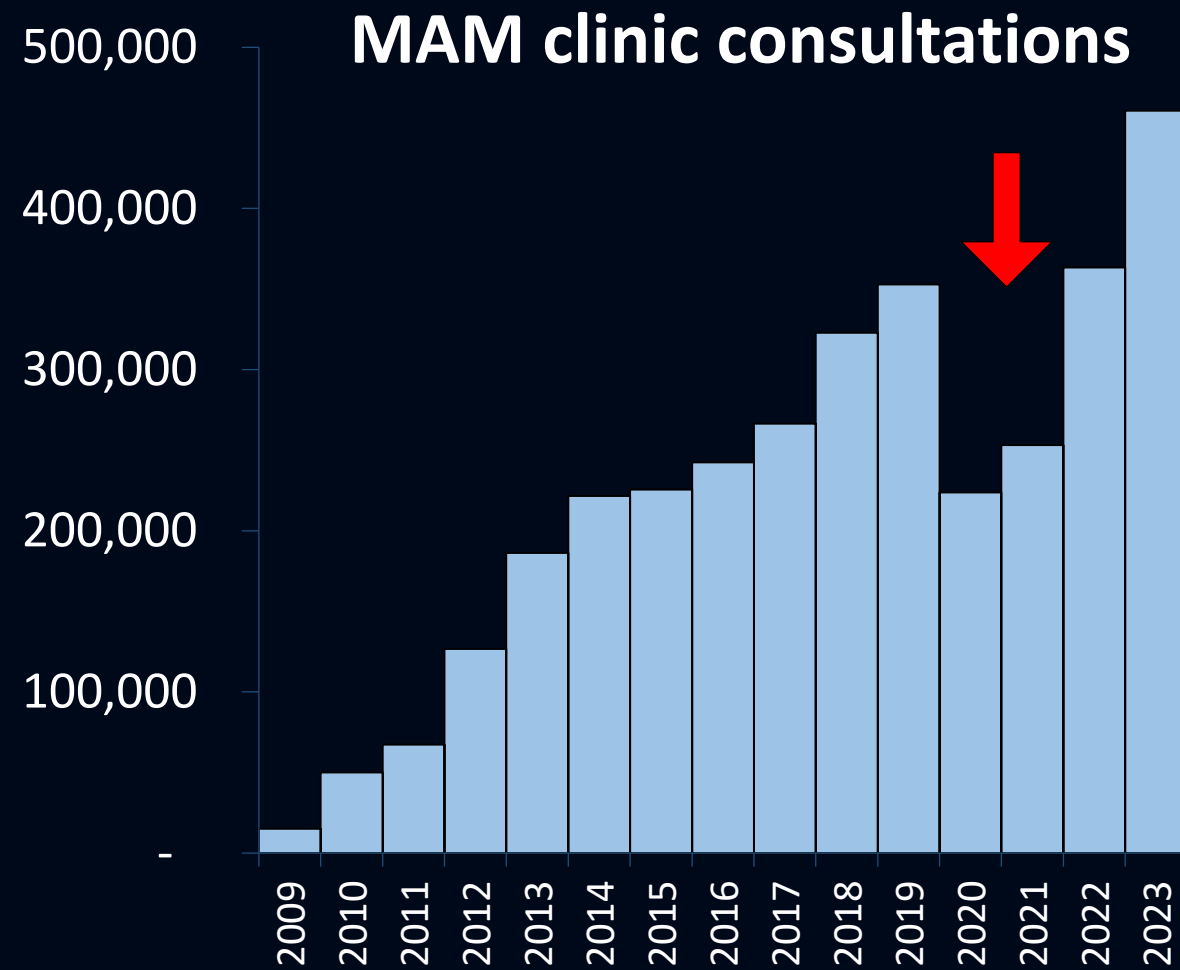
**And private practitioners prescribe much more ABs**

**Integrated health care in the community by CHW will not lead to more AB over-use**



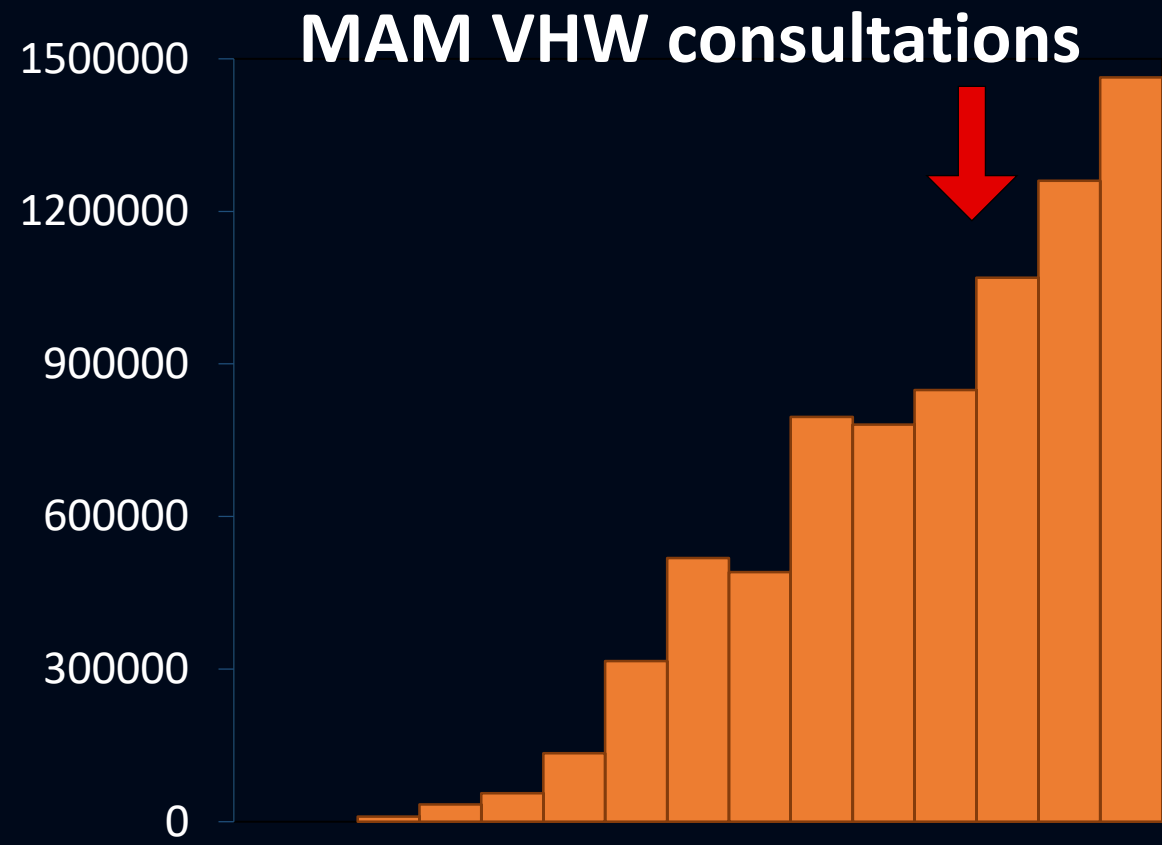
### VHWs activities

- COVID and Conflict 'resistant'
- Patients can visit in the safety of their village

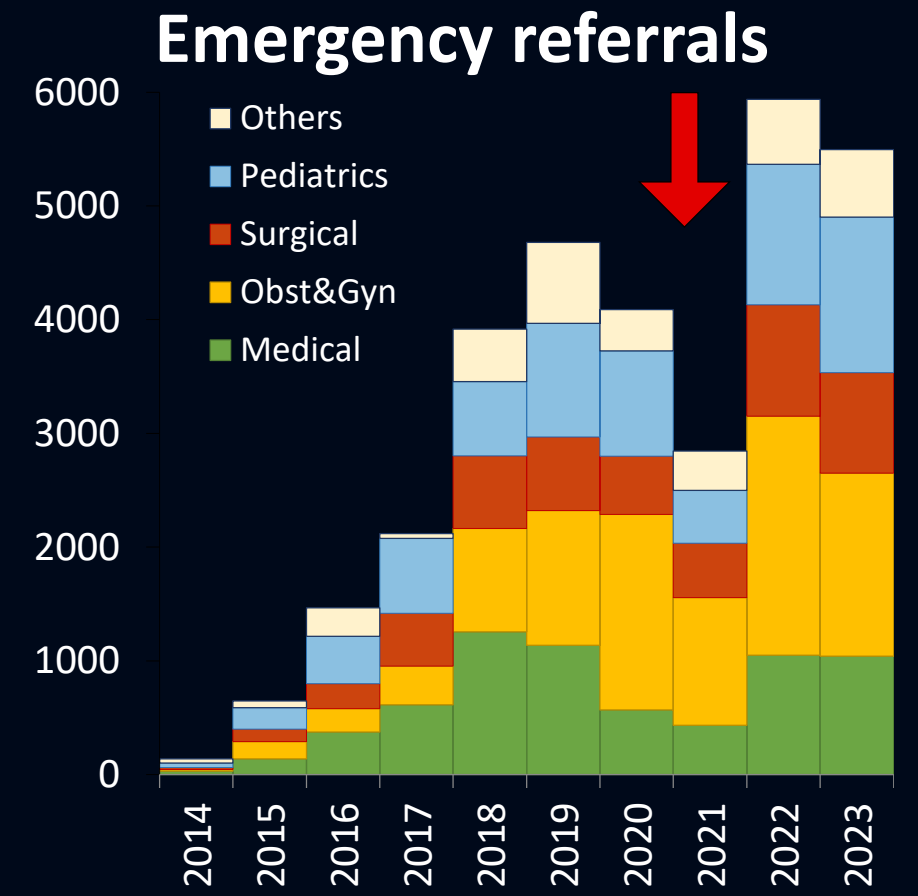
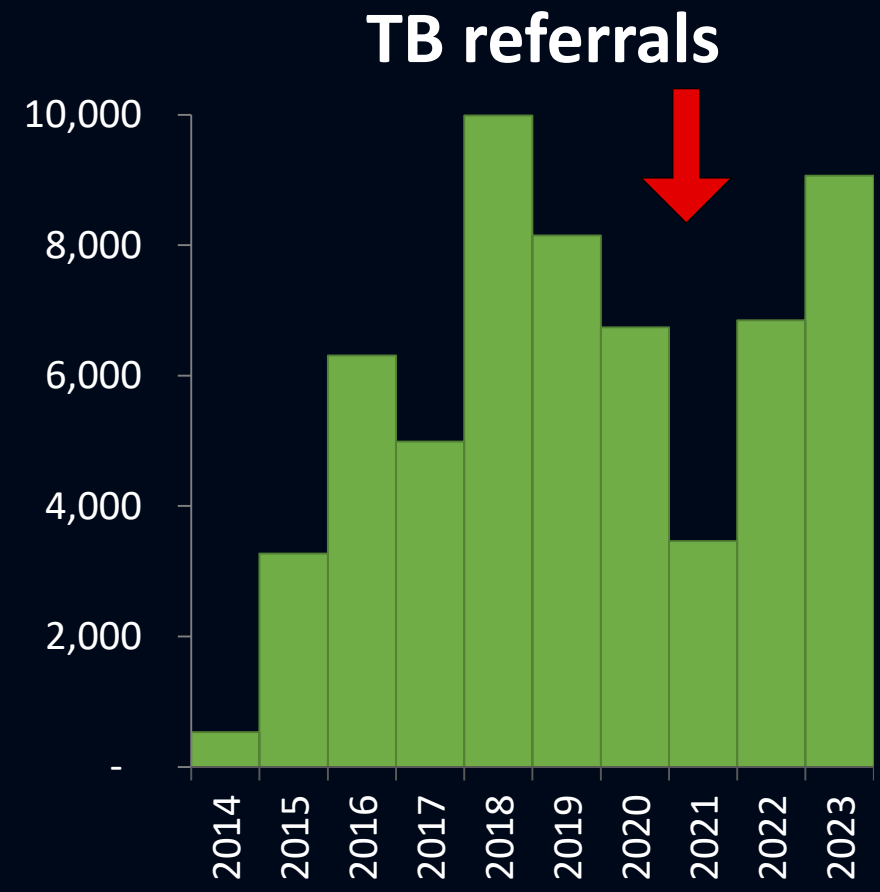
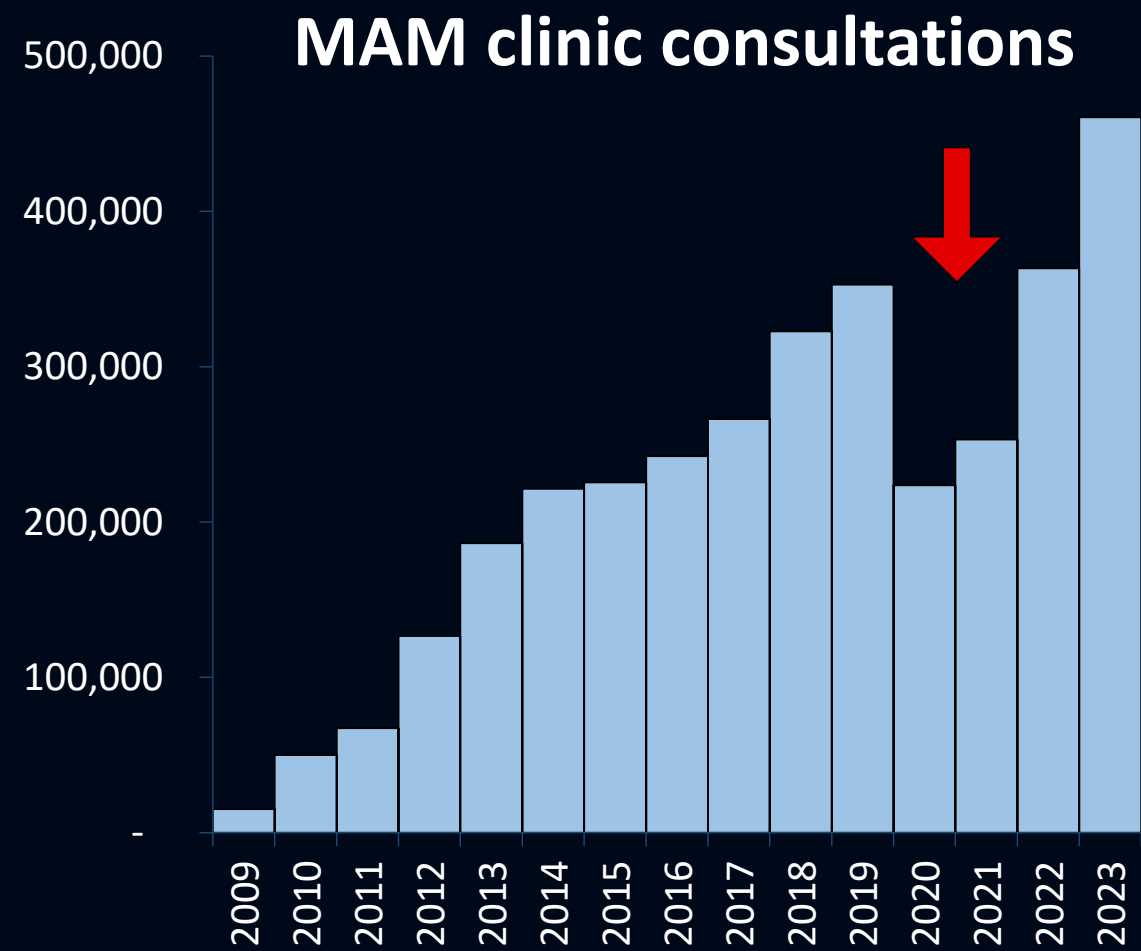


### Clinics and hospitals

- Fear of COVID
- Fear of armed conflict



**All hospital related activities down during COVID and armed conflict**



# Conclusion of community-based health care

**Malaria successful because improved access to Dx & Tx.**

**Why not improve access for other common diseases? CHW already there!**

**Sustainability of CHW network & Cost effectiveness.**

**Costs are shared with other diseases which makes it relatively cheap.**

**Integrating malaria into a broader package improves the chance to eliminate malaria.**

**And – more important – improves health and save lives**

**Very popular in the community; increased community trust**







**Road conditions in Naga**



Unpacking medical supplies for the Community Health Worker in a remote community only accessible by elephant (in the rainy season)



*Thank you !*