

Swiss TPH



Swiss Tropical and Public Health Institute
Schweizerisches Tropen- und Public Health-Institut
Institut Tropical et de Santé Publique Suisse

From “Surveillance-Response” to “surveillance as intervention”

How surveillance-response develops global public health

Marcel Tanner

Swiss Tropical & Public Health Institute

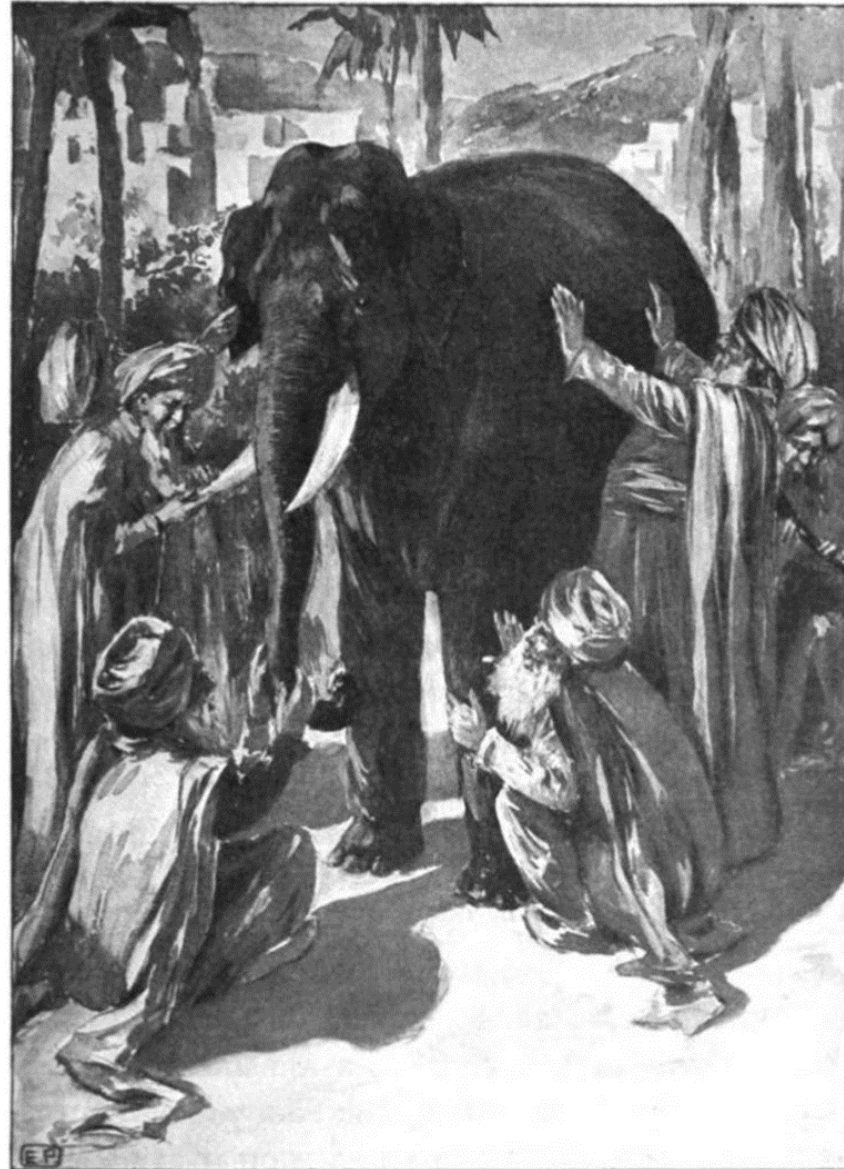
Swiss Academy of Arts and Sciences

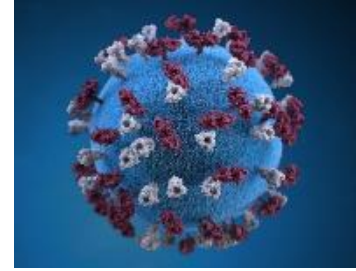
Hepatitis Symposium 2024

Berne, 2 December 2024

Content

1. The challenges of elimination
2. What we learn (ought to learn) from the pandemic, previous major outbreaks and major disease elimination efforts (malaria as example) for global public health
3. *The past lies ahead of us* and Outlooks



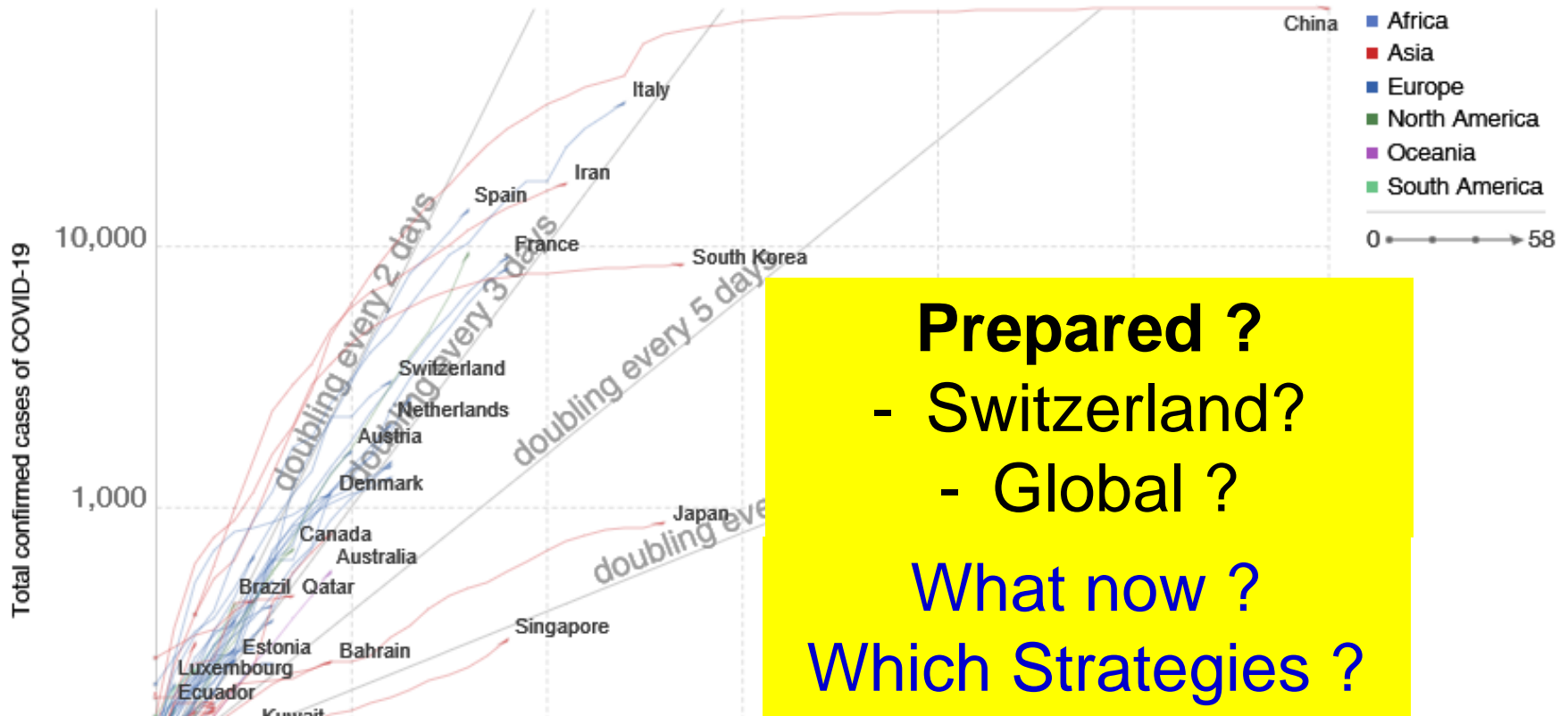


Total confirmed cases of COVID-19

The starting point for each country is the day that country had reached 100 confirmed cases.

This allows us to compare the trajectory of confirmed cases between countries.

The number of confirmed cases is lower than the number of total cases. The main reason for this is limited testing.



Prepared ?
- Switzerland?
- Global ?
What now ?
Which Strategies ?

Forecasting – Surveillance – adequate, tested preparedness

1400 pathogens: 800 in animals and humans

Emerging global challenges impacting health Emerging and re-emerging diseases



Neglected diseases
Neglected people
Neglected health and social systems

Malaria elimination/eradication: Where we come from 2007...

Parameter	Africa	Americas	Asia	Europe	Australia Oceania	TOTAL
Total no. of countries	57	55	52	50	23	237
No. non-malarious 1950	5	16	5	10	20	56
No. malarious 1950	52	39	47	40	3	181
No. freed from malaria	4	19	22	40	1	86
No. still malarious 2007	48	20	25	0	2	95

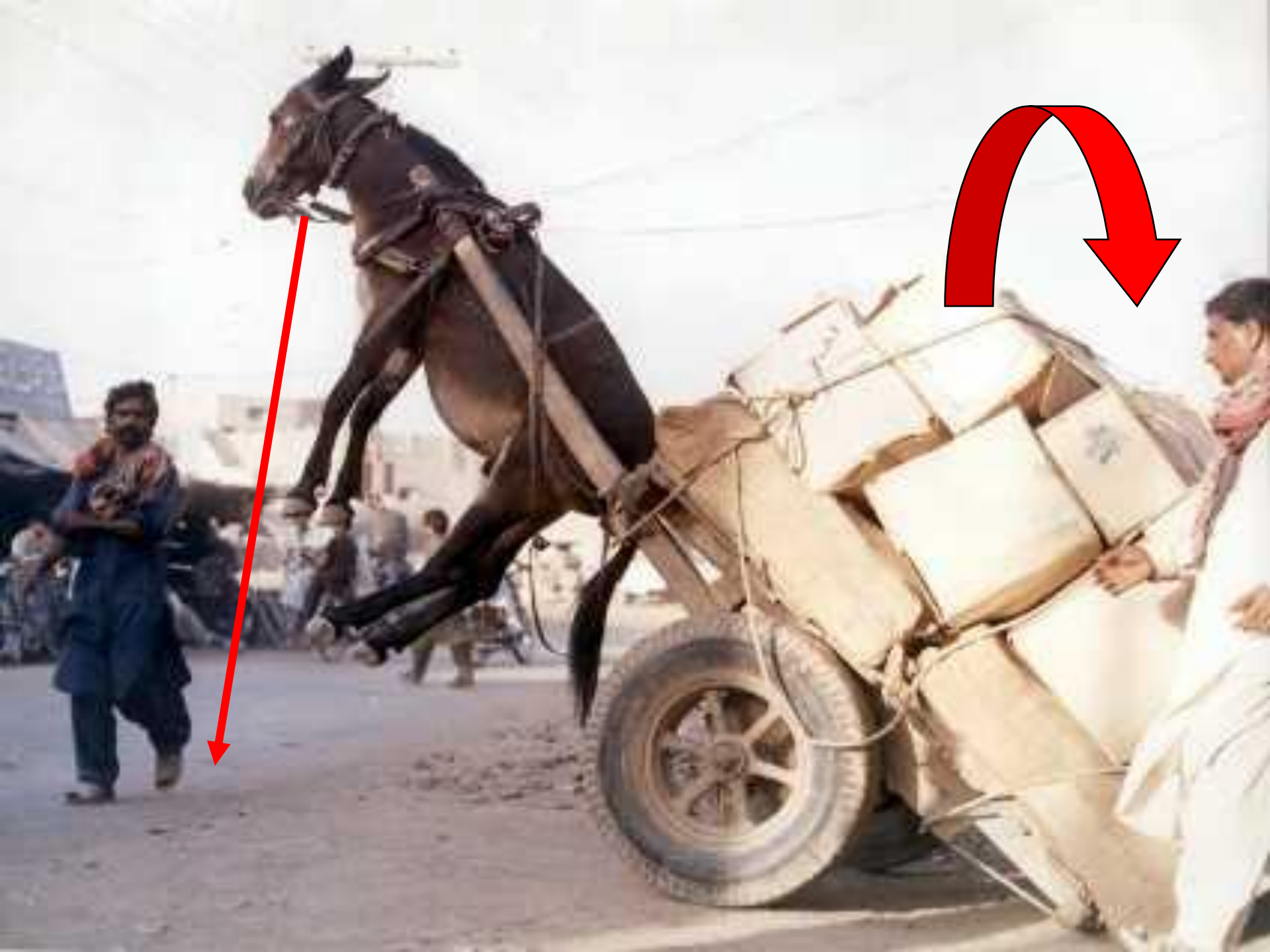
2007 – per year:
 2100 Mio exposed
 300-500 Mio infected
 100-150 Mio diseased
 3 Mio deaths
 90% sub-Saharan Africa



MALARIA

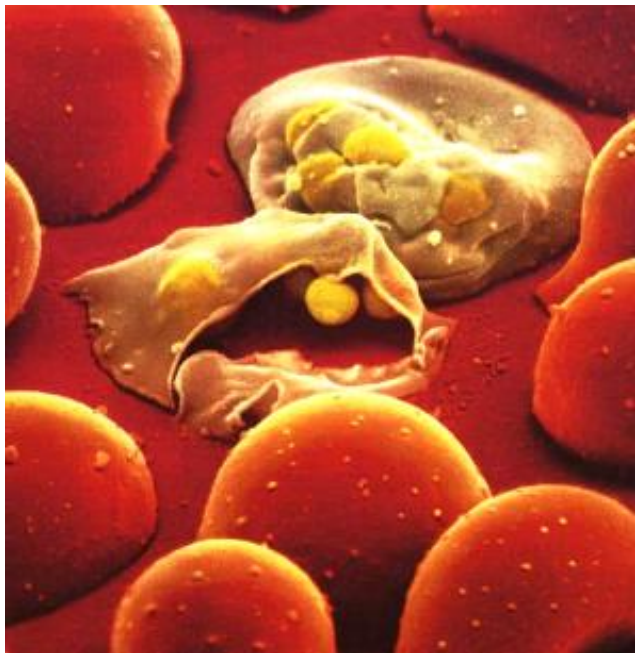
Did They Really Say ... Eradication?

The malaria world is all abuzz about a call by Bill and Melinda Gates to wipe the scourge from the planet. Even if it proves unfeasible, their idea could have a big impact



Key determinants: Combine diseases and health systems to reach R&D agenda and translation

Intervening in complex systems



e.g, “Malaria systems”



“Health systems”

Basis for malaria elimination/eradication

ACTION AND INVESTMENT TO DEFEAT MALARIA 2016-2030 (AIM)

For a Malaria-Free World



2008: GMAP → 2015: AIM

Global technical strategy for malaria 2016–2030

Pillar 1

Ensure universal access to malaria prevention, diagnosis and treatment

Pillar 2

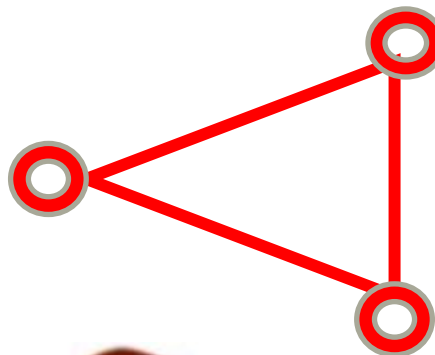
Accelerate efforts towards elimination and attainment of malaria-free status

Pillar 3

Transform malaria surveillance into a core intervention

Supporting element 1. Harnessing innovation and expanding research

Supporting element 2. Strengthening the enabling environment



malERA
Malaria Eradication Research Agenda

3 pillars of the Global Technical Strategy of WHO/GMP

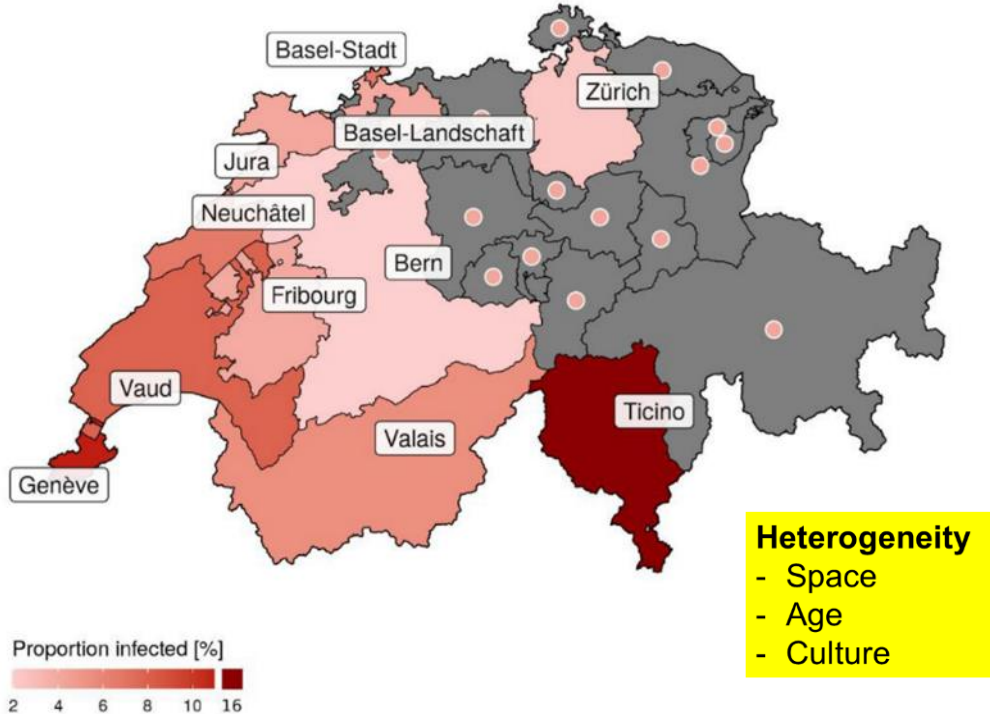
- Ensure universal access to malaria prevention, diagnosis and treatment and vector control
- Accelerate elimination efforts
- Transform surveillance as a core intervention, i.e.:
“surveillance as an intervention”

Key is to tailor to local situation:
GTS → national strategy → NMCPs

More on Access...Heterogeneity

Communities

Health Systems



- Who is at risk?
- Who is vulnerable?
- Who is resilient?

- Utilization and surveillance of systems' functions and structures
- Pluralism - Models of service provision

Creative listening

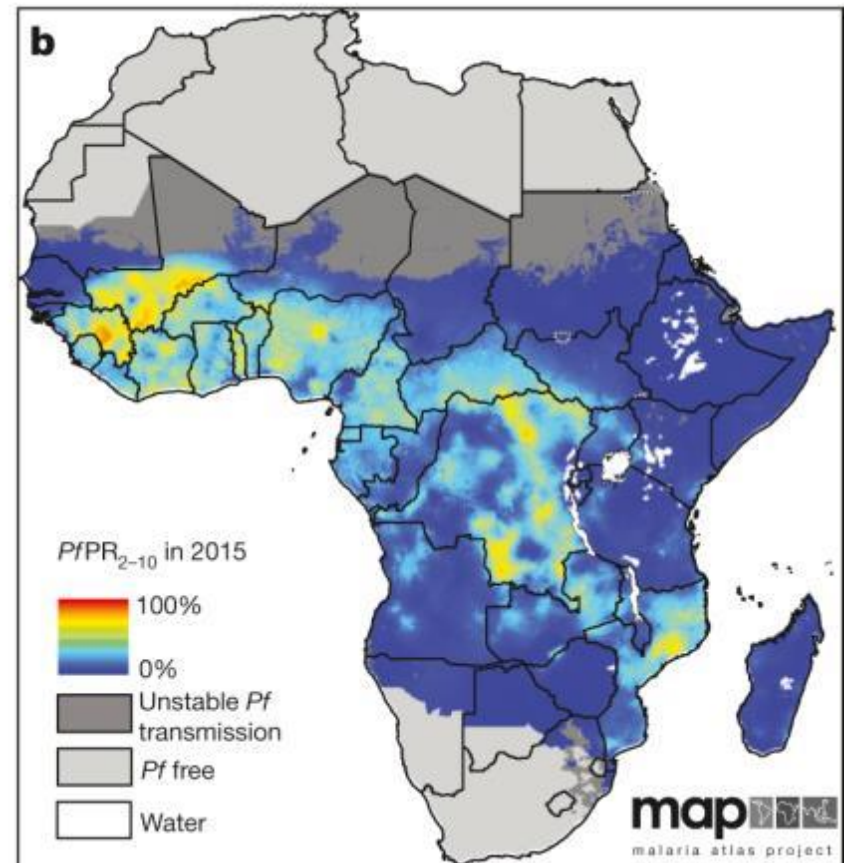
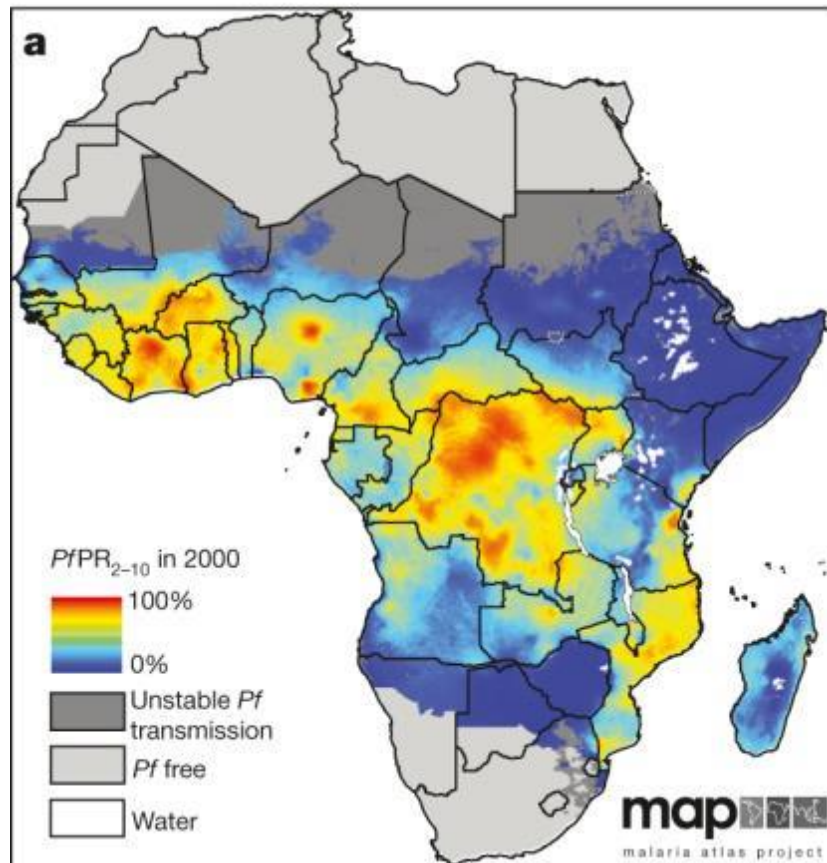
Communion > Propaganda, Information

What we aim at...



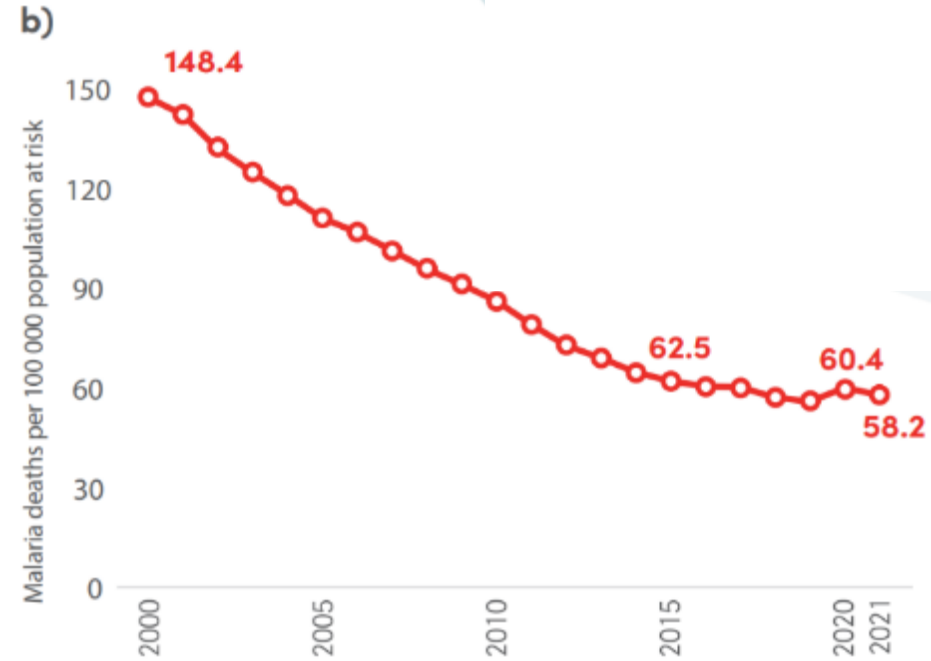
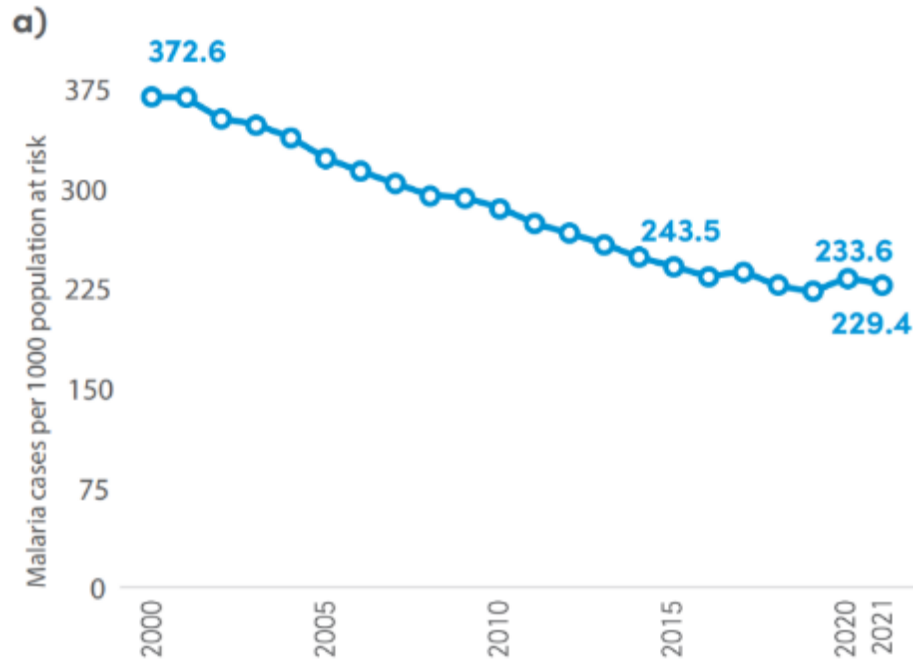
**Vaccine – again not as magic bullet, but
An essential part of integrated control**

**Combination of approaches
tailored to:
Socio-cultural and socio-
ecological and economic situation
Link ecosystems with
public health approaches**



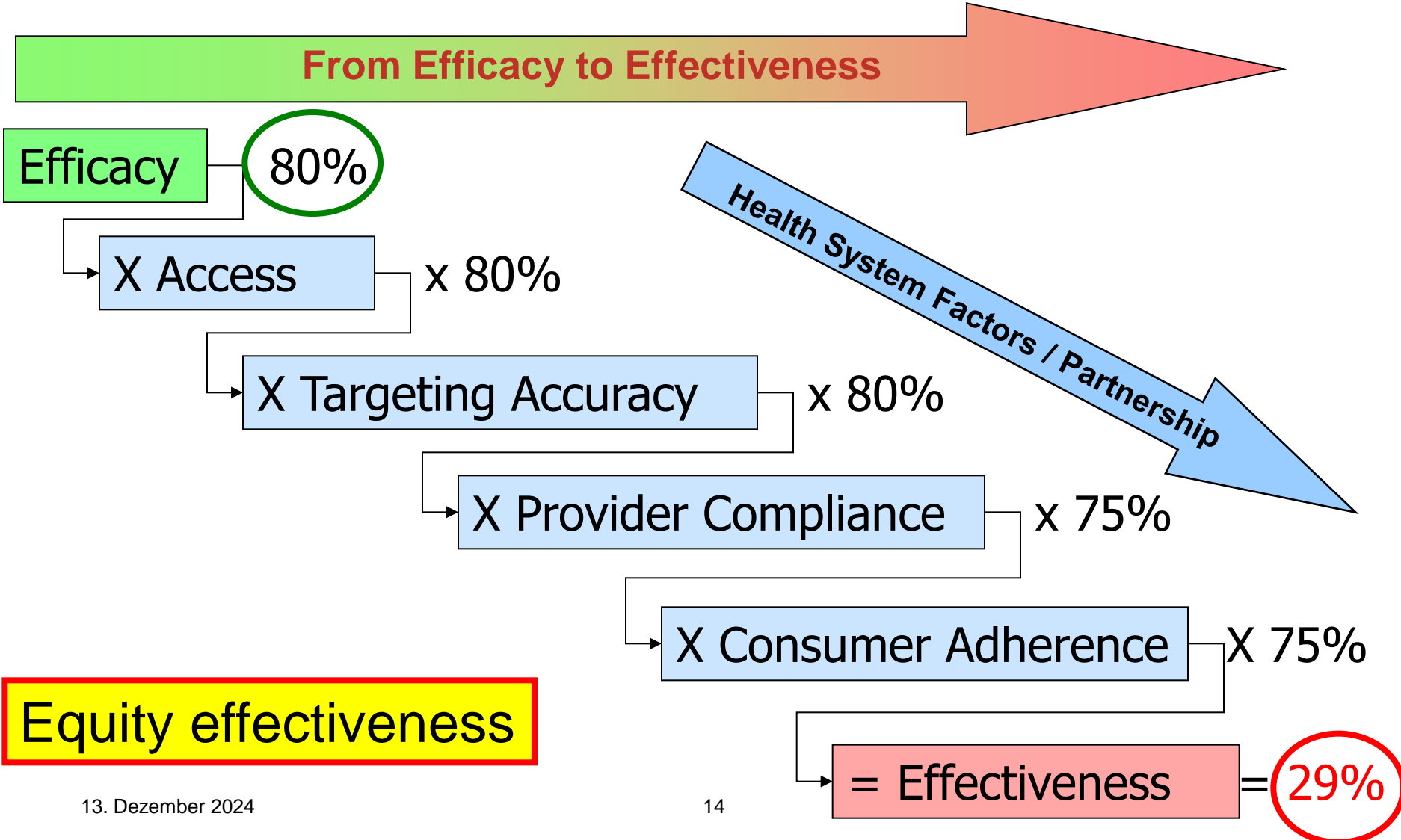
Malaria mortality: 25% decline globally, 33% decline WHO African region
Over past decade - > 1 million lives saved

Number malaria deaths worldwide, 2000-2021

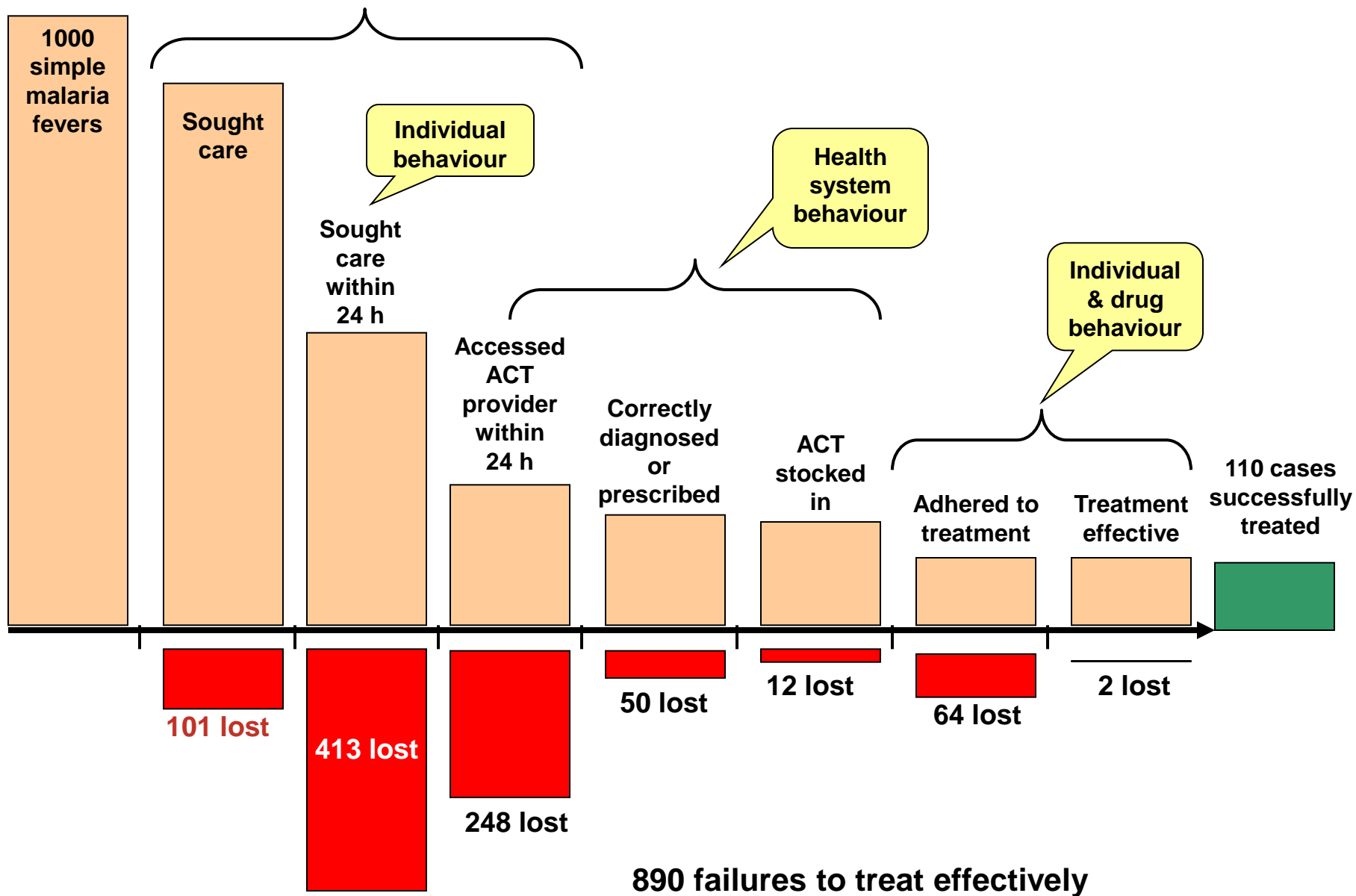


The largest annual increase of 13 million cases was observed between 2019 and 2020 during the first year of the COVID-19-pandemic

From efficacy to community effectiveness – be effective

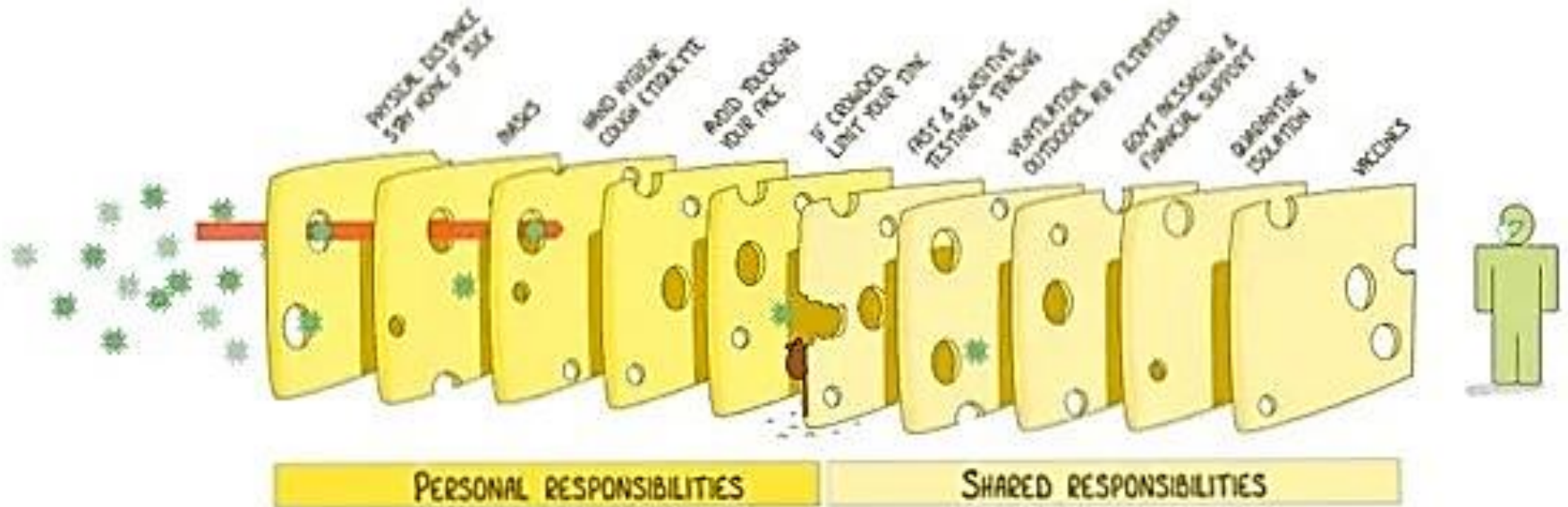


System effectiveness of ALU in Rufiji Tanzania



THE SWISS CHEESE RESPIRATORY VIRUS PANDEMIC DEFENCE

RECOGNISING THAT NO SINGLE INTERVENTION IS PERFECT AT PREVENTING SPREAD



EACH INTERVENTION (LAYER) HAS IMPERFECTIONS (HOLES).
MULTIPLE LAYERS IMPROVE SUCCESS.

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WITH THANKS TO: BOB LAMOND, BRITISH MEDICAL ASSOCIATION, 2019
INSPIRED BY THE SWISS CHEESE MODEL IN ACCOUNT OF THE 1968 HONG KONG INFLUENZA PANDEMIC
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Strategies: Surveillance – Response

- **Identify foci and chains of transmission to allow targeted and tailored action**
 - Systems are established but rapid processes with well assigned roles and responsibilities must be optimized.
 - Regional approaches possible – decentralization
 - **Public Health response packages tailored to transmission situation/setting - to avoid regional and national lockdowns**
- **Surveillance-response = Minimal Essential Data in space and time and not M&E or Best Available Data (BAD)**



Key is to tailor to local situation:

**Data Collected
But Not Used**

**Data rich
but
information
poor**

No responses



The process of obtaining the information is as important (particularly in view of subsequent and immediate public health action) as the Information itself

Some consequences for national and global level

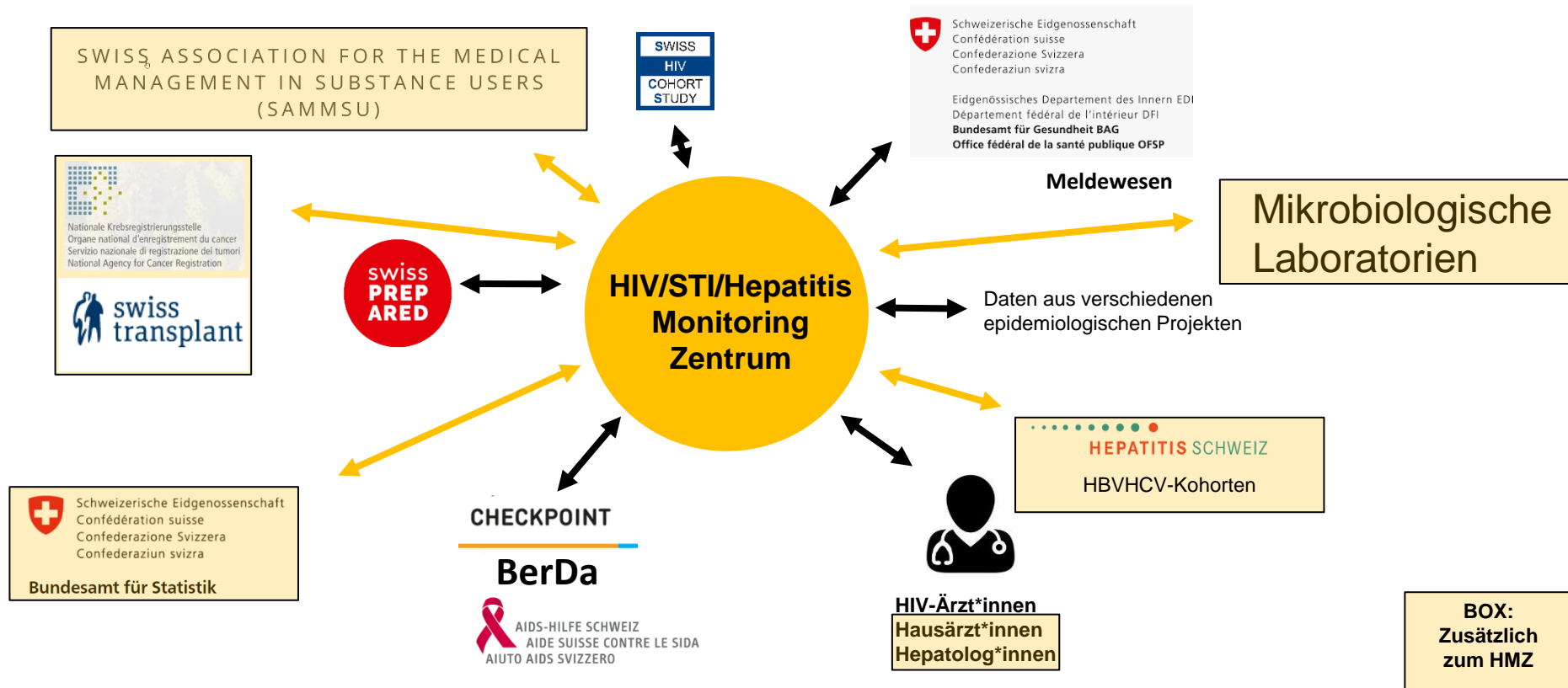
- Systematically review lessons learned from surveillance-response approaches to determine how it can be tailored to various programmatic settings as part of health systems: **Systems-based surveillance response**
- Update M&E Frameworks to include centrally transmission reduction, and develop and validate key **minimal essential data** elements (systematic review / modeling)
 - Develop and use improved, transformational diagnostic tools for use in surveillance; focusing on practical field-ready tools for detection of asymptomatic infection and also assessment of biomarkers (DNA-based methods, serology...) for capturing transmission
 - Develop methods, indicators, and shareable databases for genotyping to better track transmission
 - Develop approaches for accessing and tracking population movements and dynamics – near real-time mapping / surveillance
- Develop **health management information systems** to
 - monitor malaria infections and transmission,
 - facilitate timely local program decisions and
 - response-packages to reduce / block transmissions

Tools and Approaches:

- Adequate and accepted
- New tools: transformational



Collection, processing and communicating of essential data as basis for the elimination of HIV/STI/Hepatitis within NAPS



«Minimal essential data HIV/STI/Hepatitis»

Demographie / Soziales	Verhalten / Prävention	Gesundheitszustand / Therapie (nur Ja/Nein + Datum)	Labordaten (Resultat/Datum)
Alter	Sex mit Person(en) mit Penis und/oder Vagina	Therapie: HIV, STI, Hepatitis	Neudiagnosen: HIV (inkl. <i>recency estimate</i>) Hepatitis B/C/STIs
Person mit Penis / Person mit Vagina	PrEP	Hospitalisationen	Follow-up: HIV RNA HCV RNA, HBV DNA, HBs Ag STIs
Herkunftsland	Kondomgebrauch	Todesfälle	
Stigma	IV Drogenkonsum Hepatitis Impfung	AIDS Leberzirrhose, HCC, Lebertransplantationen	CD4 Kategorie (nur nach HIV Diagnose)

Data sources «Minimal Essential Data»

	Meldewesen Mikrobiologische Laboratorien	SHCS- Netzwerk	SwissPrEPare d	BeRDa	BA für Statistik / SAMMSU /Krebsreg./ Swisstransplant	Hepatolog*innen Hausarzt*Innen
Alter	x	x	x	x	x	x
Geschlecht	x	x	x	x	x	X
Herkunftsland	(x)	x	x			X
Stigma		x				
Partnerstatus		x	x	x		
PrEP			x			
Kondomgebrauch	x	x	x	x		
IV-Drogenkonsum	x	x	x	x		
Therapie: HIV, STI, Hepatitis		x	x			
Hospitalisationen		x	x			
Todesfälle		x	x		x	
AIDS	x	x				
HCC / Leberzirrhose / LTx					X	x
HIV Status	x	x	x	x		
HIV RNA, HCV RNA, HBV DNA	x	x	x			
STIs / Hepatitis	x	x	x			x
CD4 Zellzahl		x				

...The ethical dimension and context... a precondition...



„ ...all scientific work is incomplete...all scientific work is liable to be upset or modified by advancing knowledge. That does not confer to us a freedom to ignore the knowledge we already have, or to postpone the action that it appears to demand at a given time... “

A crisis is a productive state.
You just have to take away
the aftertaste of catastrophe

(Max Frisch)

Thank you very much!

