

# High Burden to High Impact Response element 2:

Use of strategic information to drive impact



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Institutionalizing iCCM in HBHI countries  
Addis Ababa, 25<sup>th</sup> July 2019

Global **Malaria** Programme



**World Health  
Organization**



- **Introduce HBHI Response Element 2 (HBHI-R2) – use of strategic information to drive impact**
- **Describe the 5 work areas of HBHI Response Element 2**
- **Present status update on HBHI-R2**
- **Describe an analytical process for iCCM targeting and prioritization**

# High Burden to High Impact : Response elements



The approach aims to reaffirm commitment and refocus to accelerate progress towards GTS goals through 4 response elements



**Political will** to reduce malaria deaths



**Strategic information** to drive impact



**Better guidance**, policies and strategies



A **coordinated** national malaria **response**



1 Burkina Faso, Cameroon, DRC, Ghana, India, Mali, Mozambique, Niger, Nigeria, Tanzania, Uganda

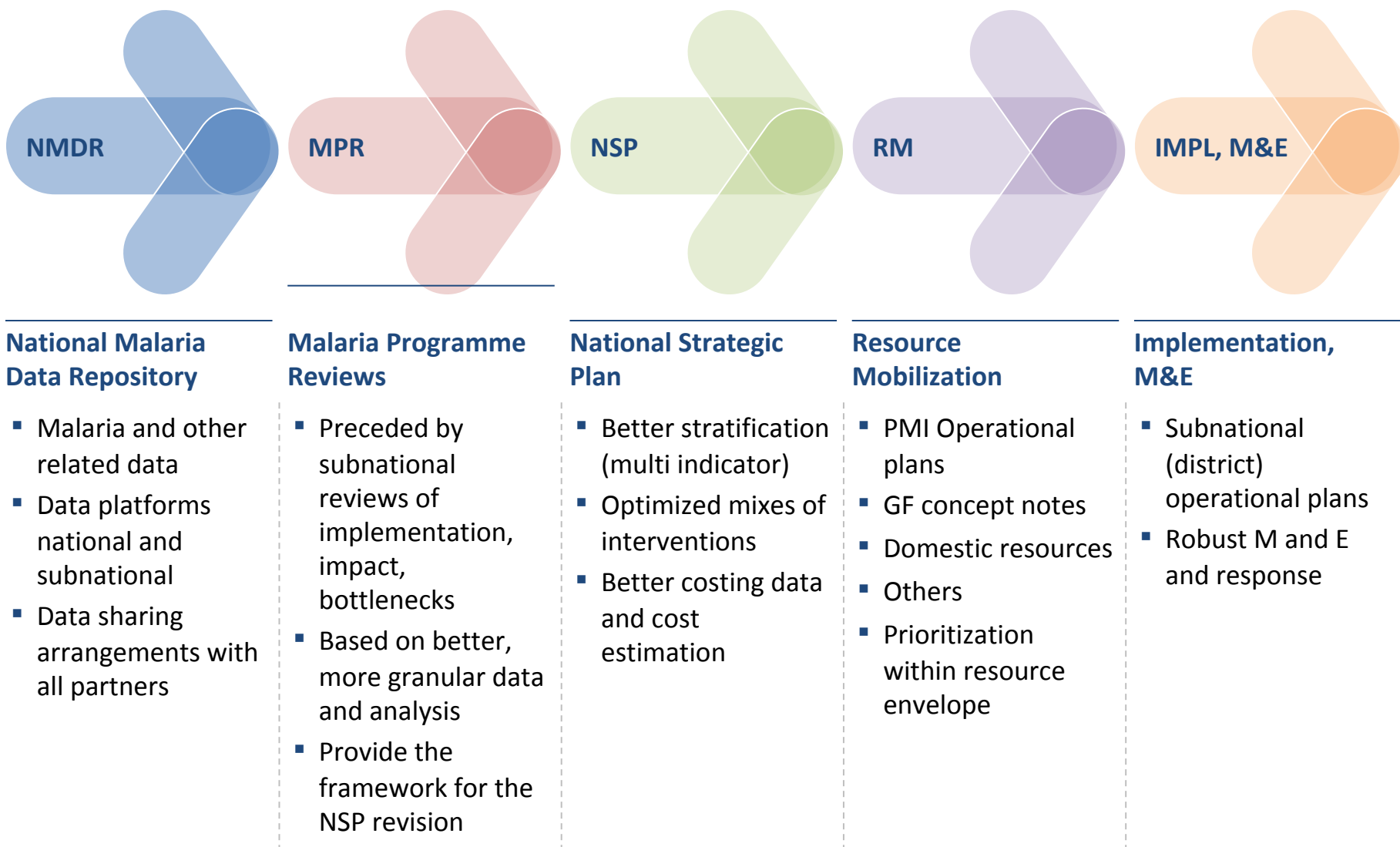
# Response element II covers 5 key areas



## Key area / output

## Specific objective

- | Key area / output  | Specific objective  |
|--|---|
| <b>a National malaria data repositories:</b> Functioning national malaria data repositories with programme tracking dashboards   | <ul style="list-style-type: none"><li>Centrally assembled and structured existing sub-national geocoded data incl. Demography, administrative data, health system, epidemiology, entomology, efficacy, commodities distribution, intervention coverage, funding (external and domestic), human resources, partnership landscape, documents library, etc.</li></ul>                        |
| <b>b Progress review:</b> Country-level malaria situation analysis and review of malaria programs to understand progress and bottlenecks   | <ul style="list-style-type: none"><li>Analysis and review of malaria related data sub-nationally to understand the drivers of progress, the bottlenecks and recommendations for way forward.</li><li>Note: The analysis should ideally build on the data assembled through the repository, but in some instances may be done in parallel in preparation of the NSP development.</li></ul> |
| <b>c Analysis of stratification, intervention mixes and prioritization:</b> Data analysis for stratification, optimal intervention mixes and prioritization for NSP development and implementation | <ul style="list-style-type: none"><li>Analysis of country data to develop sub-national malaria stratification maps and optimum intervention mixes to enhance efficient targeting of resources</li><li>Revision and costing of the NSP, among other considerations, based on stratification maps and intervention mixes</li></ul>  |
| <b>d Sub-national operational plans:</b> Sub-national operational plans linked to sub-national health plans  | <ul style="list-style-type: none"><li>Sub-national operational plans based on the agreed reprioritization and M&amp;E framework for implementation</li></ul>  |
| <b>e Monitoring and evaluation:</b> Ongoing national and sub-national monitoring and evaluation of programmatic activities (incl. data systems) and impact   | <ul style="list-style-type: none"><li>Adequate NMCP Surveillance, Monitoring and Evaluation Staff</li><li>High quality malaria-related data</li><li>Adequate SM&amp;E processes incl. a fully functioning SM&amp;E and operational research TWG</li></ul>   |





Burkina Faso	Cameroon	DR Congo	Ghana	Mali	Mozambique	Niger	Nigeria	Tanzania	Uganda

HBHI Initiation

## WHO HBHI supporting materials

1. National data repository structure, indicators, data elements and data templates
2. DHIS2 modules and installation package for national malaria data repository
3. Subnational epidemiological progress review concept note and data templates
4. A concept note and slides on stratification and intervention mix analysis
5. Surveillance system assessment tools (in development)
6. A manual for the analysis of national malaria programme data (including stratification and intervention mix analysis)



# A) National Malaria Data Repository

## Routine data



**Routine outpatient and inpatient data**



**Routine Interventions**

- Case management
- Routine vector control
- IPTp



**Stocks**

- LMIS
- Stock-outs

## Non-routine data



**Survey data**

- Prevalence
- Intervention Coverage
- Treatment seeking



**Entomological data**

- Vector occurrence
- Insecticide resistance



**Drug resistance / Efficacy**



**Funding**

- Government
- External



**Human resources/ Training**

- Health workforce



**Partnership sessions**



**Commodities procurement and supply**



**Climate**

- Temperature
- Rainfall
- Transmission season



**Document library**

- Guidelines
- SoPs
- Operational plans

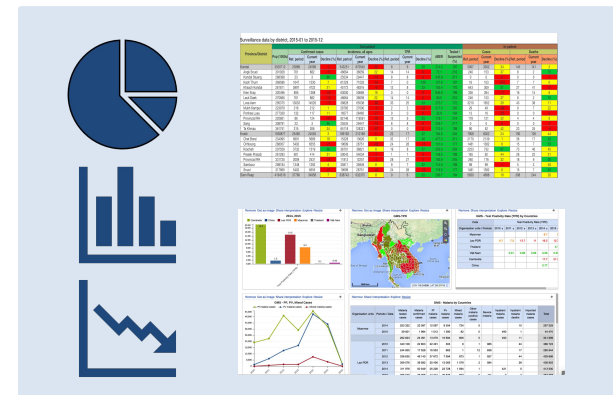


**Master list**

- Health facilities
- CHW
- Geo-coded
- Shapefiles



**NMDR**



- ✓ Trigger actions sub-nationally
- ✓ Re-orient NMCP strategies
- ✓ Support M&E, MPRs, etc

# HBHI RE2 – country status update



	Burkina Faso	Cameroon	DR Congo	Ghana	Mali	Mozambique	Niger	Nigeria	Tanzania	Uganda
<b>National malaria data repositories: Functioning national malaria data repositories with programme tracking dashboards</b>										
<b>Consensus: meeting to discuss structure and work plan</b>	In progress	In progress	Not discussed/started	Completed	Not discussed/started	In progress	Not discussed/started	Completed	Completed	Completed
<b>Hosting: HMIS, other servers</b>	Not discussed/started	Not discussed/started	Not discussed/started	Completed	Not discussed/started	In progress	Not discussed/started	Completed	Completed	Completed
<b>Phase 1: linking with HMIS instance</b>	Not discussed/started	Not discussed/started	Not discussed/started	Completed	Not discussed/started	In progress	Not discussed/started	Completed	Completed	Completed
<b>Phase 2: uploading non-routine data</b>	Not discussed/started	Not discussed/started	Not discussed/started	In progress	Not discussed/started	Planned	Not discussed/started	Planned	In progress	Planned
<b>Phase 3: subnational installation</b>	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Planned	Not discussed/started	Not discussed/started	Planned	Not discussed/started
<b>Phase 4: subnational training</b>	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started
<b>Phase 5: sustainability mechanism (budget in grants)</b>	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started	Not discussed/started

Not discussed/started
Planned
In progress
Completed



# B) Improved progress reviews



To analyze **sub-nationally**:

1. Health and malaria expenditure, health system status with focus on access to care.
2. Malaria intervention distributions, coverage and use
3. Other key determinants of progress in malaria morbidity and all cause U5 mortality.
4. Trends in parasite prevalence, malaria incidence, malaria inpatients, all cause under 5 mortality
5. **Impact of interventions**
6. Challenges and bottlenecks

# B) Improved progress reviews – impact evaluations

Three methodological approaches:

## A. **Rapid Impact Assessments (RIA):**

- Pre-post comparisons
- Risk factor evaluation through regression analysis
- Dose-response analysis

## B. **MERG Impact Evaluation Framework**

- Ecological study designs
- District-level analysis of factors associated with the incidence of outpatient malaria cases and inpatient malaria deaths measured through HMIS
- Analysis of cross-sectional datasets to assess the association of ITN exposure and other malaria control measures with malaria health outcomes using exact matching and propensity score matching
- Survival analysis of survey datasets with complete birth histories to assess the effect of ITN exposure and other malaria control measures and child survival

## A. **Mathematical Modeling**

- To simulate the impact, from baseline up to the current time, of the scale-up of different malaria control interventions on national level trends in prevalence and incidence
- Uses data to calibrate the model

# HBHI RE2 – country status update



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## Progress review: Country-level malaria situation analysis and review of malaria programs to understand progress and bottlenecks

Consensus: meeting to discuss structure and work plan									
Phase 1: national data assembly and overview analysis									
Phase 2: subnational data assembly									
Phase 3: subnational progress review (as part of MTRs, MPR or other processes)									
Phase 4: impact evaluation (including rapid impact evaluation)									
Phase 5: within country dissemination and consensus on next steps									

Not discussed/started

Planned

In progress

Completed

# C) Stratification - purpose



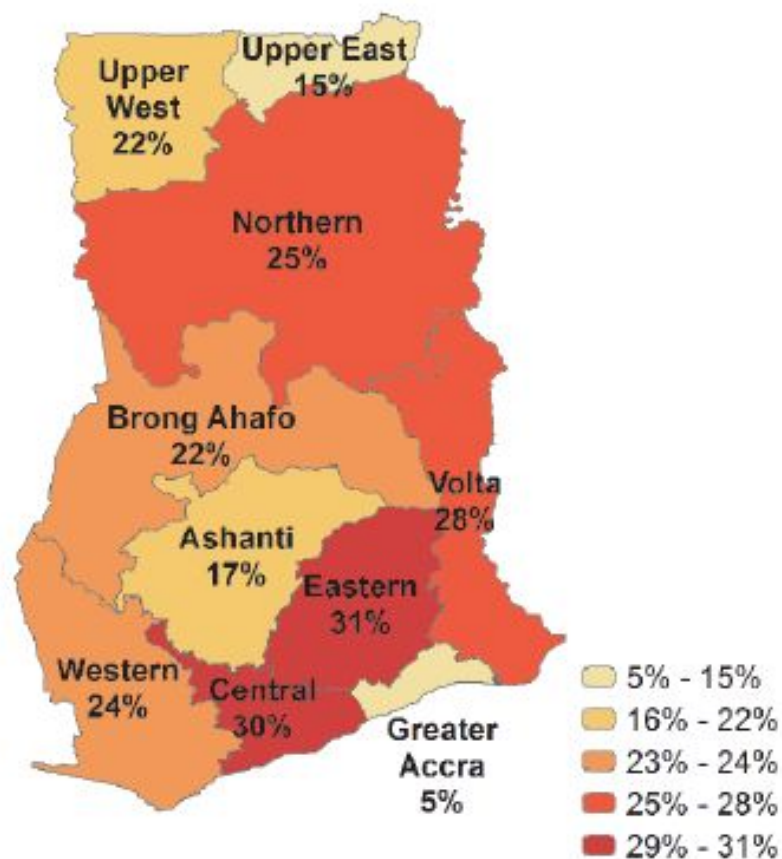
- Tracking progress against malaria and evaluating the impact of interventions
- Identifying and targeting the best mix of interventions for national strategic planning
- Efficient prioritization and quantification of resources, implementation of interventions to optimize impact of available resources
- Communicating to stakeholders

# C) Stratification



**Mapping** = Visualization of data on a map

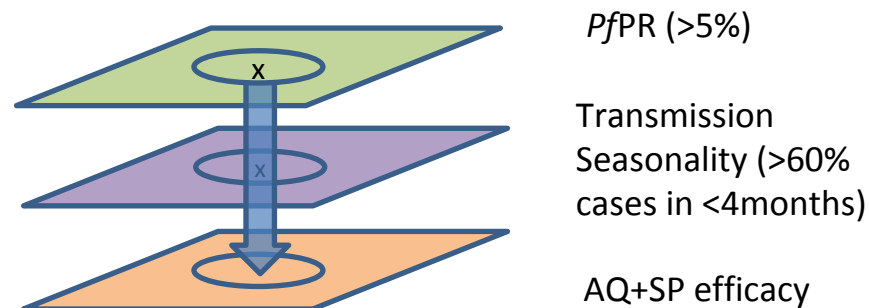
\*Geospatial interpolation may be required to obtain district-level estimates



PfPR 6-59 months (MIS, 2016)

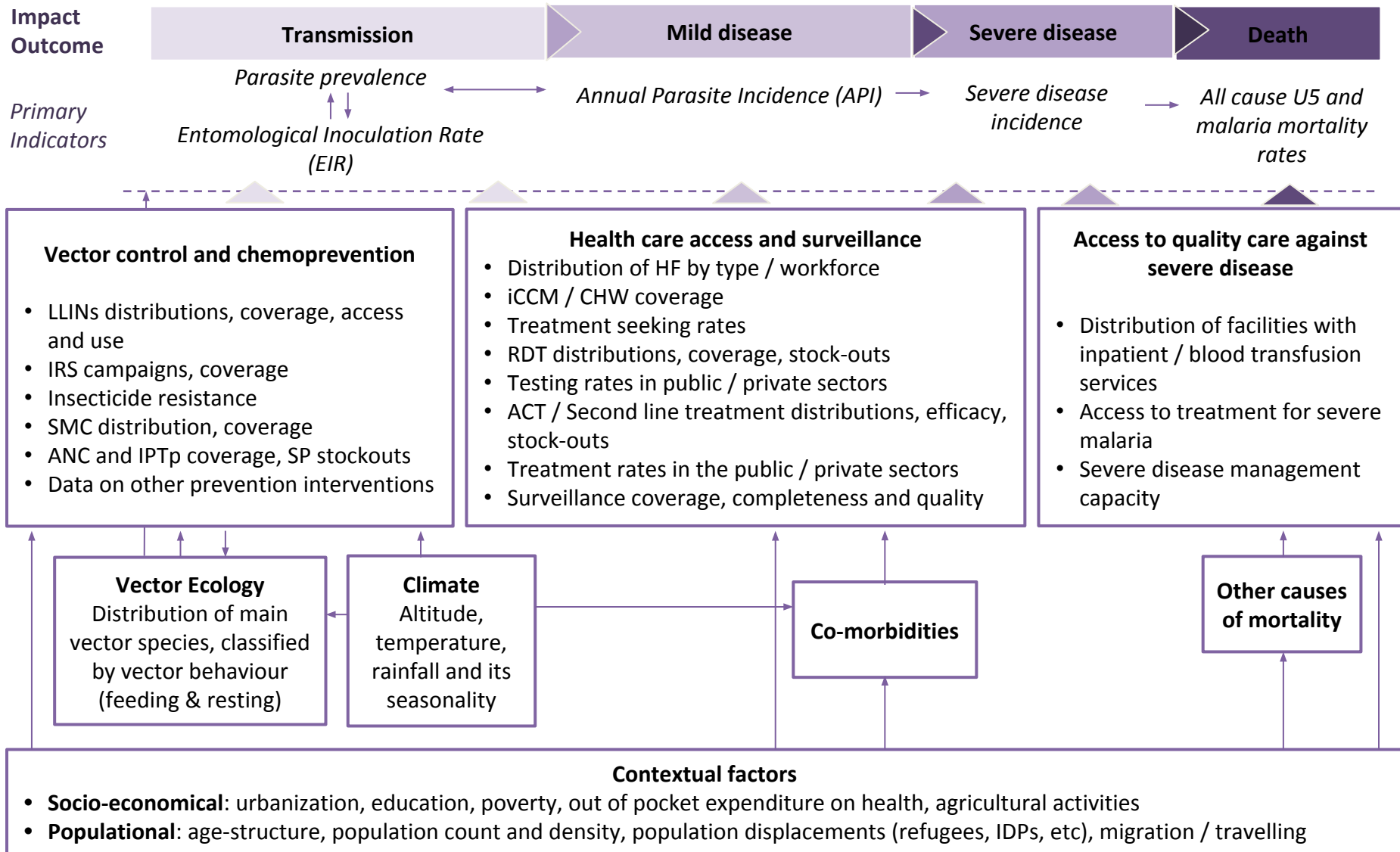
**Stratification** = ordering of single/multiple variables to answer specific question(s) or make a decision. E.g. malaria endemicity in an area; or where to target a specific intervention?

*Is the district X eligible for SMC?*



**Outcome:** List/map of districts *eligible / not eligible* for SMC throughout the country

# C) Stratification – the malaria framework



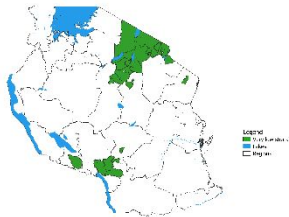
# C) Establish the criteria for intervention targeting



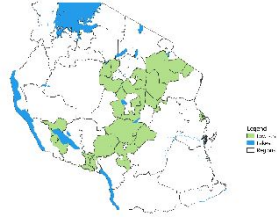
- Criteria for intervention targeting based on WHO recommendations

Intervention Type	Targeting criteria
Pyrethroid-only nets	All malaria-endemic settings
Pyrethroid-PBO nets	Instead of pyrethroid-only LLINs where the principal malaria vector(s) exhibit pyrethroid resistance that is: a) confirmed, b) of intermediate level, and c) conferred (at least in part) by a monooxygenase-based resistance mechanism, as determined by standard procedures.
Indoor residual spraying (IRS)	All malaria-endemic settings As a resistance management tool
Case management – formal health services	All malaria-endemic settings
Integrated Community Case management (iCCM)	Areas of low treatment/care access. Usually targeted to areas that outside easy access to formal health facilities.
Seasonal malaria chemoprevention (SMC)	Areas where <i>PfPR</i> >5%, 60% of the clinical malaria cases occur within max 4 months, and >90% AQ+SP efficacy.
Intermittent preventive treatment during pregnancy (IPTp)	All areas with moderate to high malaria transmission (>10% <i>PfPR</i> ) in Africa.
Intermittent preventive treatment in infants (IPTi)	Areas with 10–<50 <i>PfPR</i> and Annual Entomological Inoculation Rates $\geq 10$ , where parasite resistance to SP is not high - defined as a prevalence of the <i>Pf</i> dhps 540 mutation of $\leq 50\%$
Mass Drug Administration	In areas of very low to low transmission ( <i>PfPR</i> <10%) where there is good access to vector control and case management, and low risk of reimportation. To control epidemics.

# C) Stratification Example: Tanzania 2018



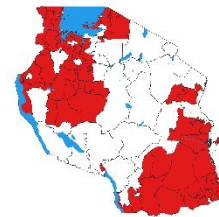
Very Low



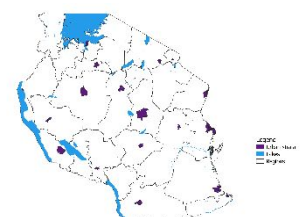
Low



Moderate & High



Urban areas / Cities



- = LLIN RCH
- + LSM in foci
- + IRS focus in foci
- + increase testing target
- + Primaquine
- + MDA (selective)
- + CBS and rACD
- + Epidemic resp
- IPTp
- MRC/SNP

- = LLIN RCH & MRC
- SNP
- + LSM targeted
- + CBS and rACD in selected areas
- + Epidemic resp

- = LLIN RCH
- = MRC
- SNP
- = LLIN SNP
- = IRS in selected districts with highest burden
- + Improve access to CM (iCCM, ADDO mRDT)
- + Preventive therapies: IPTi, IPTsc
- + MDA in emergency complex situation

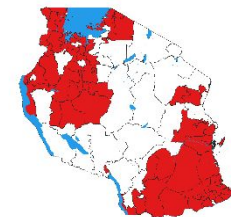
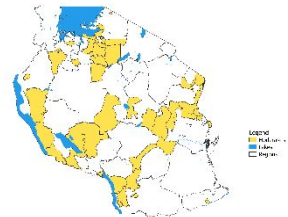
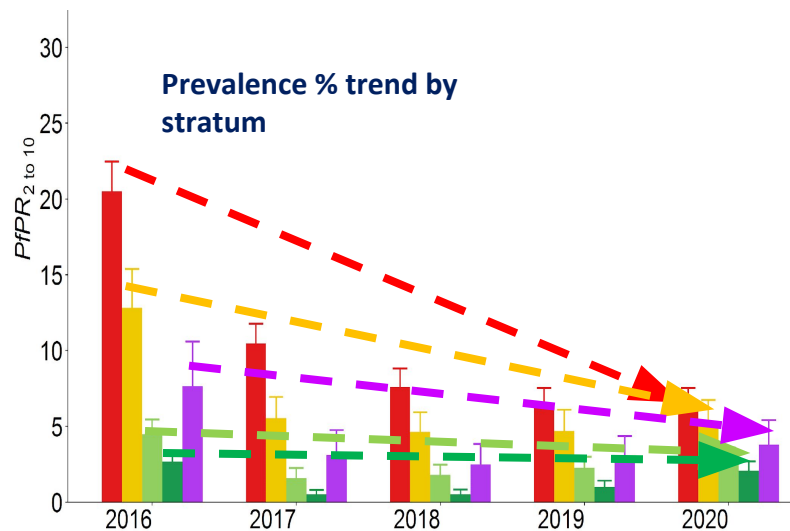
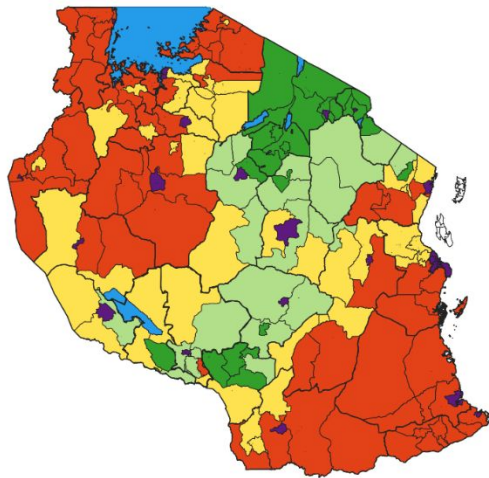
- = LLIN RCH
- + LLIN commrc.
- = LLIN Keep up in municipal C with high burden
- LLIN Keep up in municipal C with low burden
- + LSM blanket
- + Private sector CM quality improvement



# C) Optimization and Impact predictions- Example: Tanzania 2018



Strata  
 high  
 moc  
 low  
 very  
 urba



Reduction in prevalence until 2019, CM and LARV not enough to reduce prevalence but enough to maintain low prevalence until 2020. In practice ITN distribution might need to be considered in specific areas.

Reduction in prevalence until 2019, CM and LSM not enough to reduce prevalence and ITN continuous needs to be considered

Annual ITNs maintaining coverage of 70% with increase in CM to 85% reduces the prevalence in moderate strata by 58%

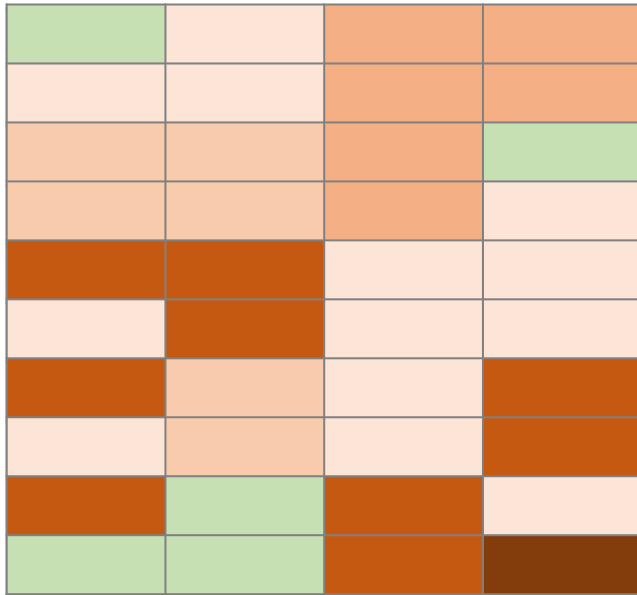
High reduction in prevalence in high strata with CM, ITNs, IRS (LAKE), IPTsc might add additional impact

With CM and LARV only prevalence is increasing in this stratum, ITN distribution need to follow epidemiological strata to achieve decrease in all urban districts

# Using routine data for stratification



Confirmed cases in public health sector per 1000 population



## Limitations of routine data:

- i) incomplete information on where patients come from
- ii) incomplete information on patients who use the private sector
- iii) uncertainties in treatment seeking rates by residence (urban vs rural), socio-economic status, transmission, seasonality
- iv) facility level variations in case definitions, diagnostic practices, reporting rates
- v) incomplete information on impact of enhanced access to care on trends – CHWs etc

# HBHI RE2 – country status update



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**Analysis of stratification, intervention mixes and prioritization:** Data analysis for stratification, optimal intervention mixes and prioritization for NSP development and implementation

Consensus: meeting to agree on stratification process and work plan									
Phase 1: subnational data assembly for stratification									
Phase 2: subnational intervention targeting and mix analysis									
Phase 3: consensus on stratification and intervention mix analysis									
Phase 4: NSP updated									
Phase 5: prioritization analysis for GF concept note and other funding mechanisms									

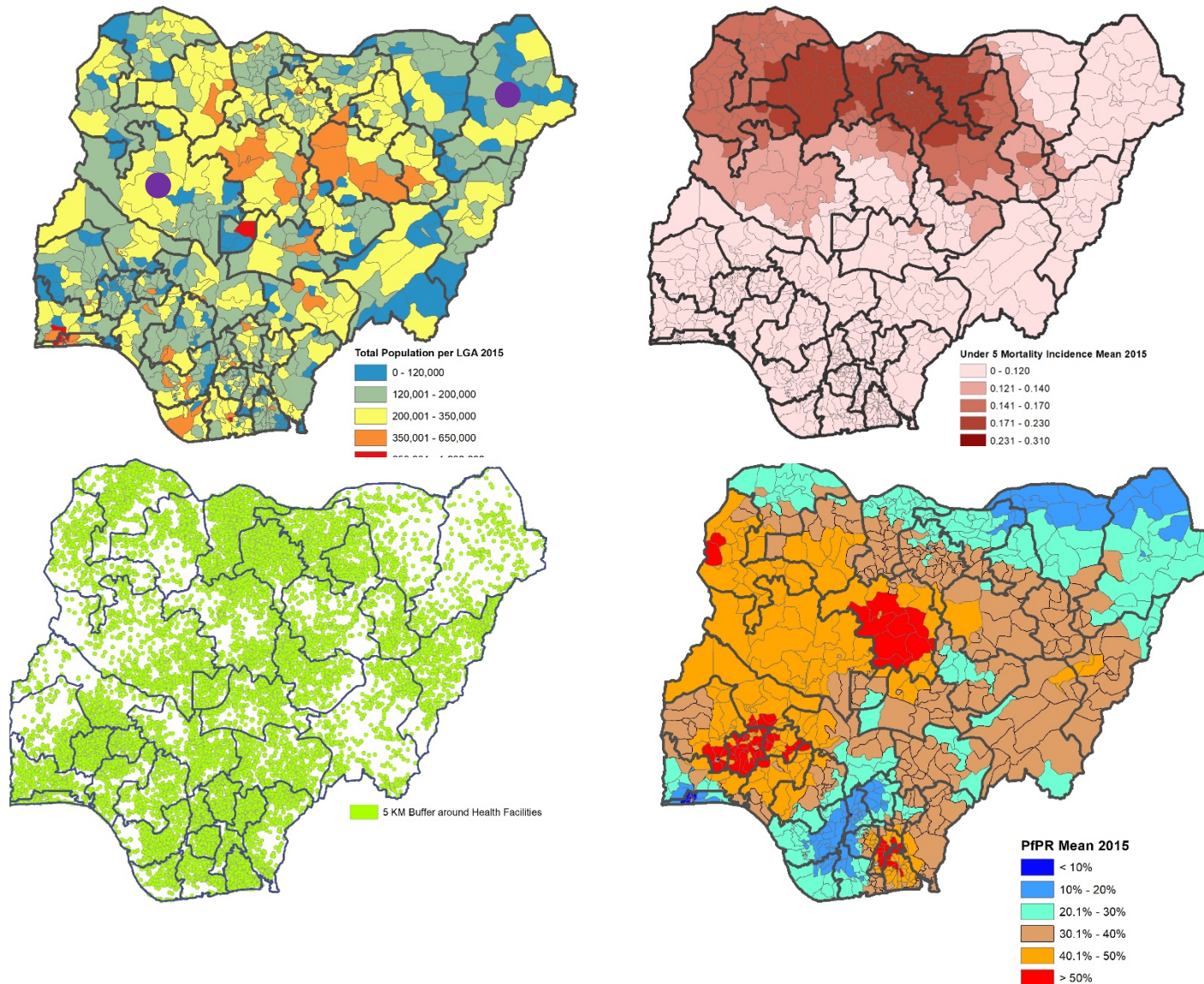
Not discussed/started

Planned

In progress

Completed

# iCCM: Targeting and prioritization







# iCCM: Targeting and prioritization

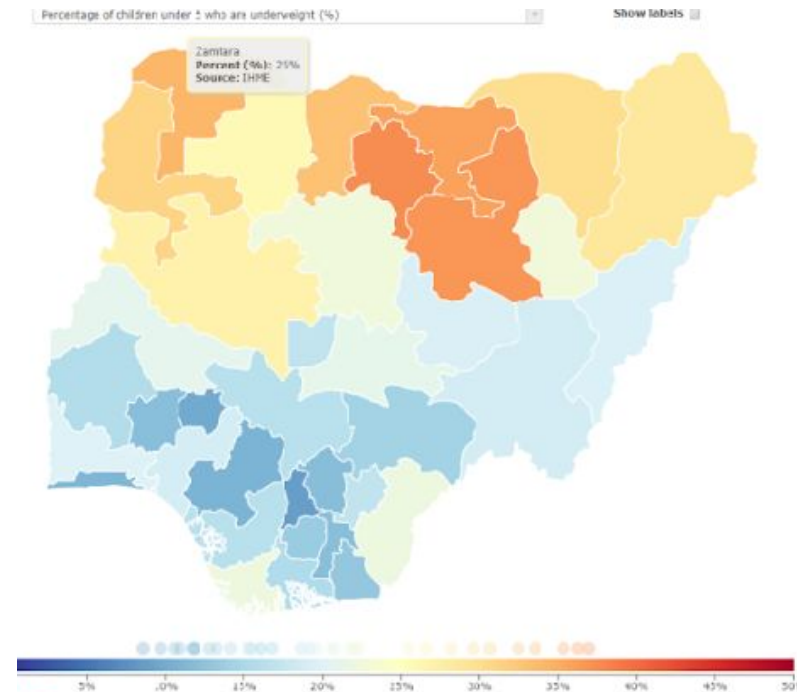
	Niger	Borno	
Population			What is the nature of co-morbidities (other high burden child health conditions)?
Mortality			What is the contribution of malaria to U5 deaths?  What proportion of deaths in U5 occur at home (number of deaths reported by HMIS/number of deaths in state or district)?
5km access to public health facility			What is the risk of infection progressing to severe disease, what is the level of determinants e.g. treatment seeking, malnutrition etc?  What is the level of poverty?
Parasite prevalence			What is the level of out of pocket expenditure on health and is it catastrophic levels?  What is the anticipated expansion of health facilities?  Presence of conflicts and other humanitarian emergencies?



## Absolute poverty

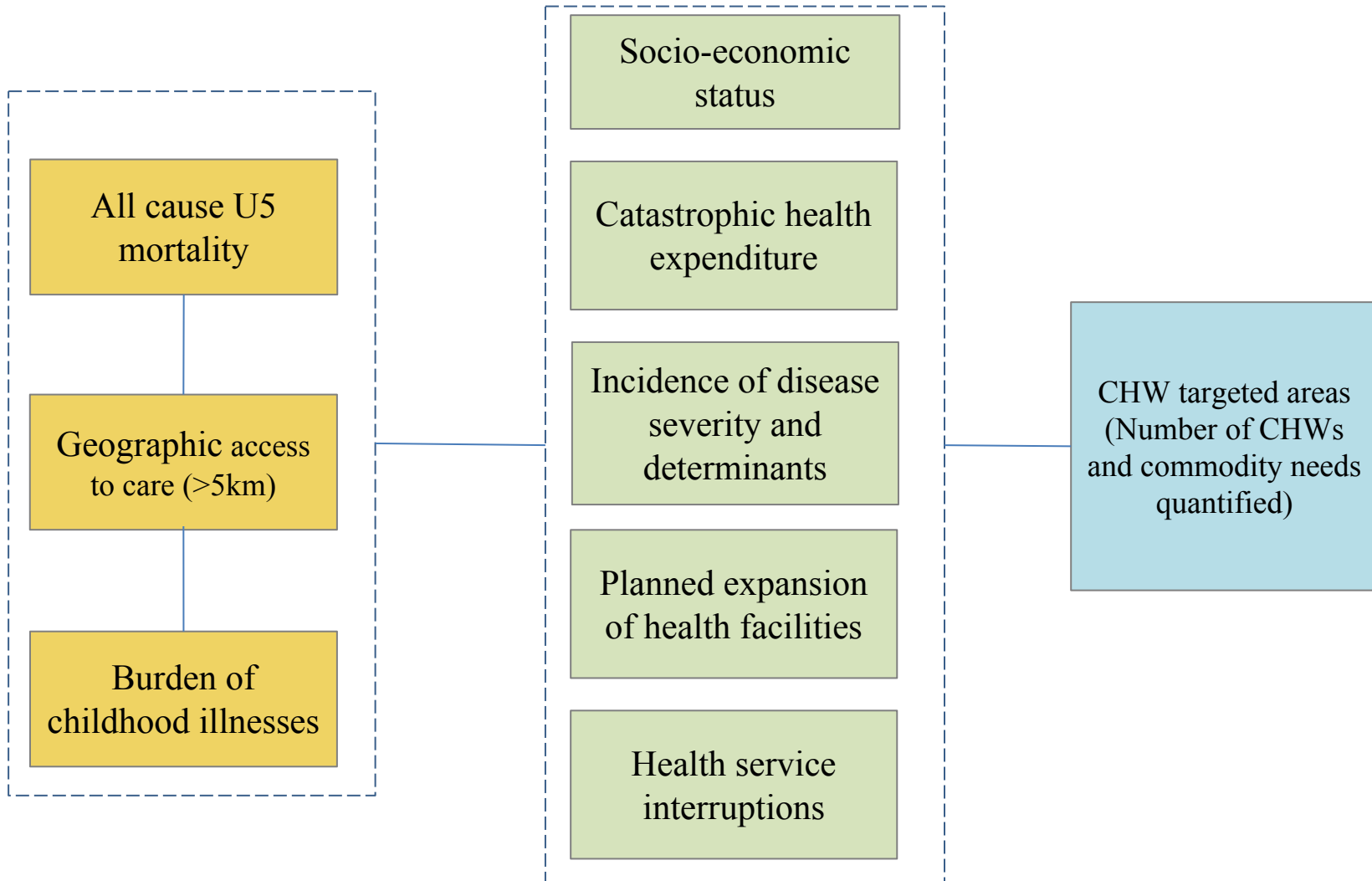


## Wasting





# iCCM: Targeting and prioritization





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**Better guidance**, policies and strategies



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