Relevance and Implementation of HEP Packages

October 16, 2019
ADDIS ABABA, ETHIOPIA

OUTLINE

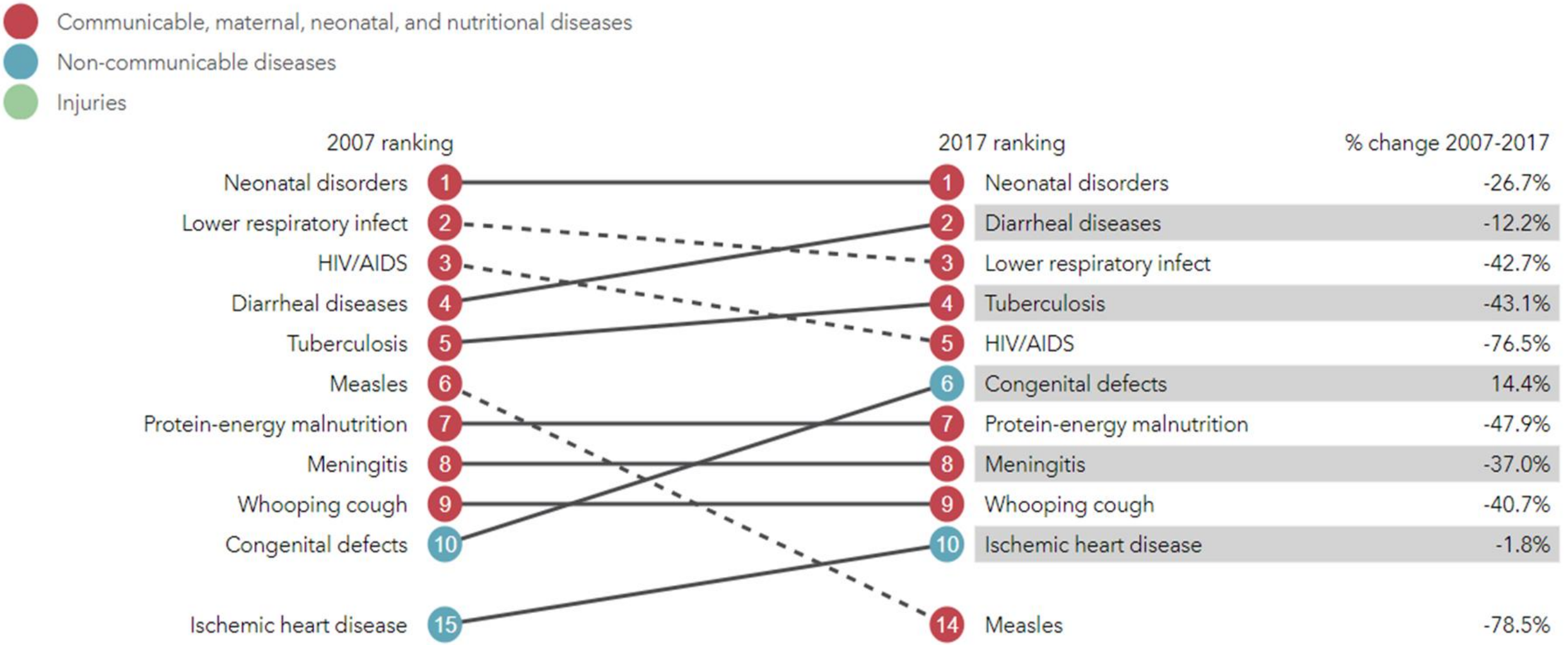
- Findings
  - Relevance of packages and service delivery modalities
  - Implementation of HEP
- Conclusion
- Recommendation

Relevance of packages and service delivery modalities

- Are HEP packages related to major causes of morbidity and mortality?
- Do we have evidence that HEP packages can address major cause of morbidity and mortality?
- Have we done enough on each package?
- Is HEP meeting communities' expectations?
- Are HEP implementation modalities still important and acceptable?
- Is providing services through HEP cost-effective?

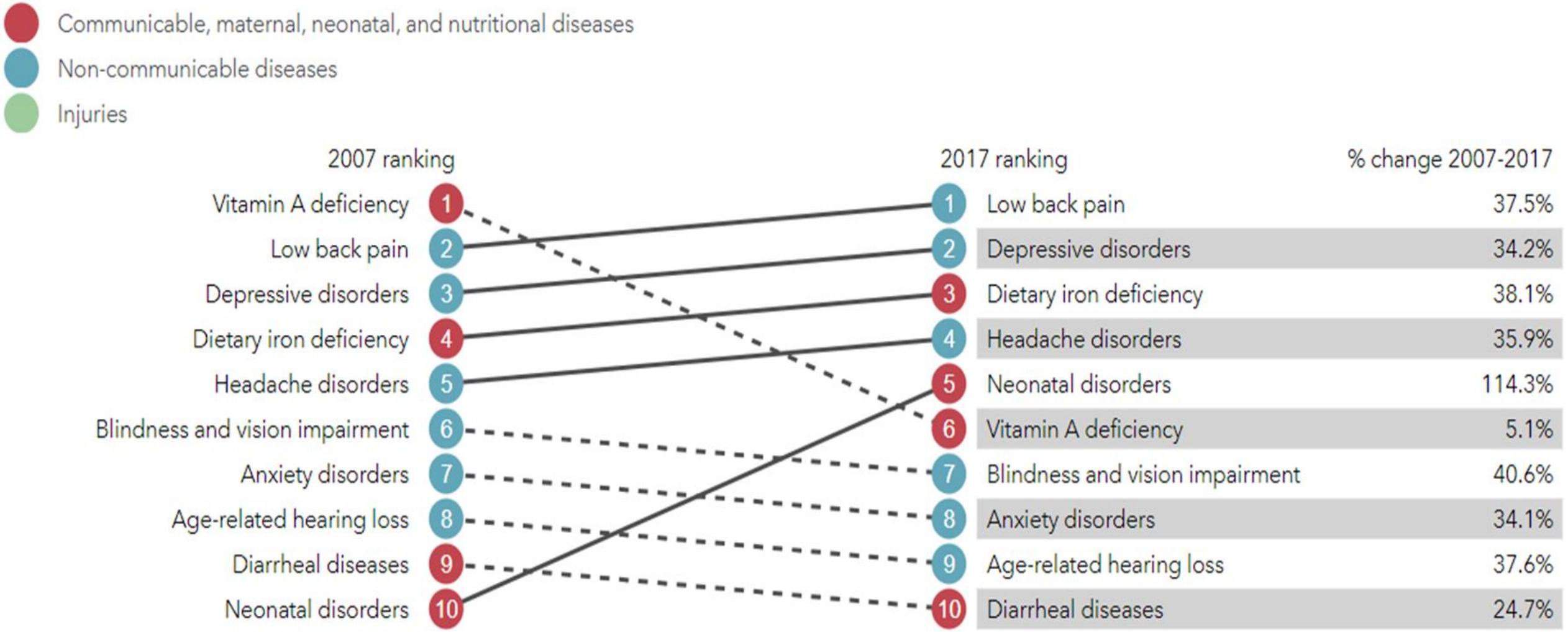
Major causes of premature deaths in Ethiopia

http://www.healthdata.org/ethiopia



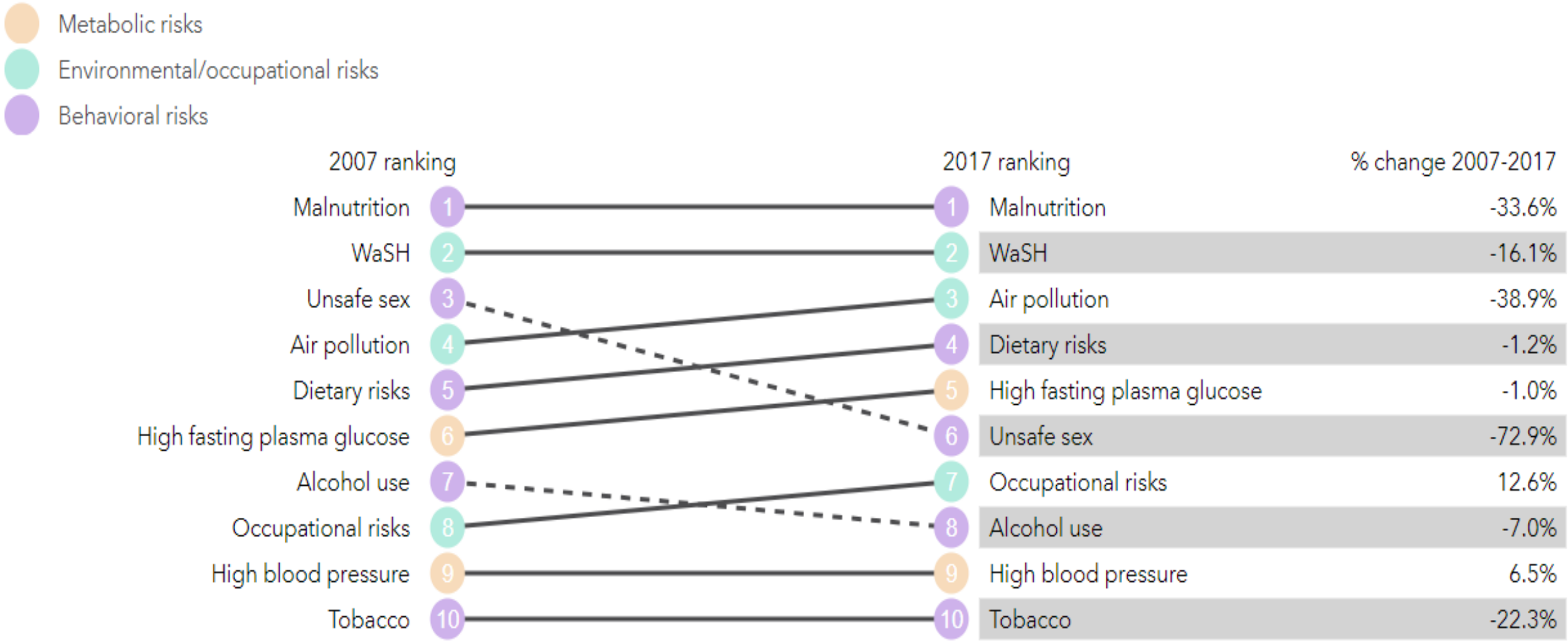
Major causes of disability in Ethiopia

http://www.healthdata.org/ethiopia



Factors driving most deaths and disabilities

http://www.healthdata.org/ethiopia



Relevance of HEP packages in addressing burden of disease

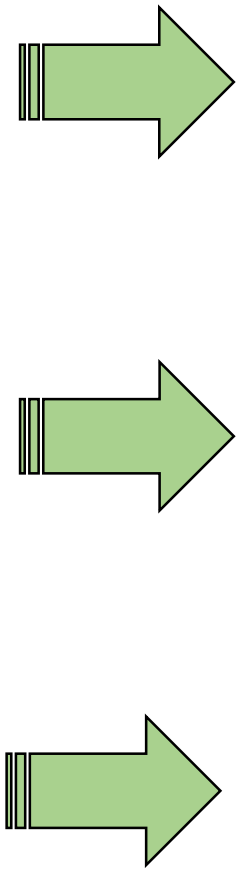
- Currently, CMNNDs constitute 60% of the total disability adjusted life years (DALYs) lost

- The 2017 Global Burden of Disease (GBD) study shows NCDs contributed to 33% of the total DALYs lost for Ethiopia

Source: GBD 2017

Relevance of packages to disease burden

- **Hygiene & environmental sanitation**
  - Safe excreta disposal
  - Safe solid waste disposal
  - Food hygiene
  - Healthy home environment
  - Arthropods & rodent control
  - Personal hygiene
- **Disease prevention and control**
  - HIV/AIDS
  - TB
  - Malaria
  - First Aid
- **Family health services**
  - MCH
  - Family planning
  - Immunization
  - Adolescent RH
  - Nutrition
- **Health education and communication – cross-cutting**



- Enteric infectious diseases **(18%)**
- Infectious disease other than enteric **(18%)**
- Injuries, violence & accidents **(8%)**
- Maternal and neonatal disorders **(18%)**
- Nutritional disorders **(5%)**

Relevance of packages to disease burden …

- The recently added packages allow addressing the increasing burden of NCDs and mental health issues.
  - NCDs currently account for 33% of DALYs lost in Ethiopia

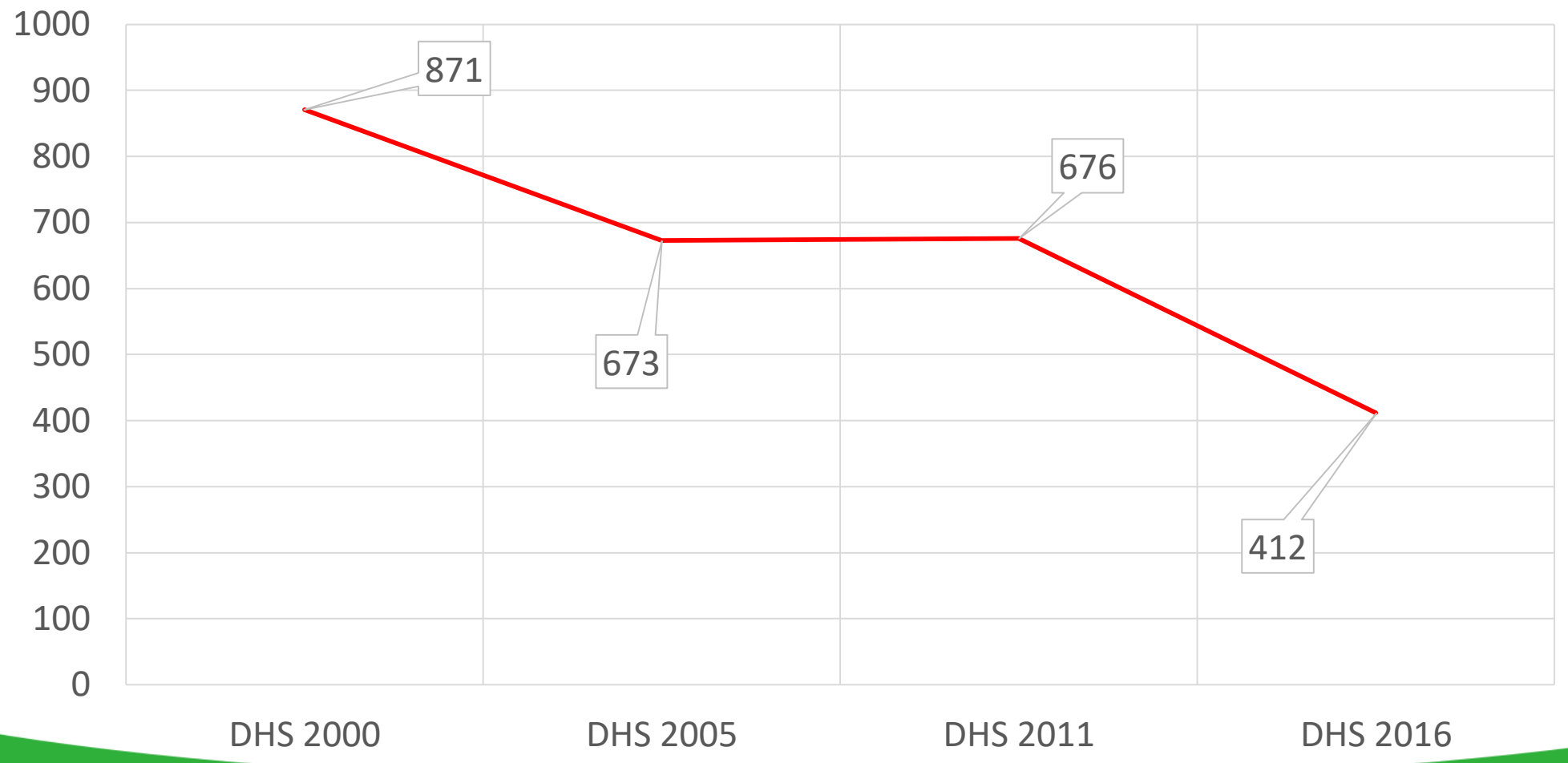
Effectiveness of HEP

- Trends in Health Indicators
- Impact of HEP/HEP Components on Health Outcomes - Meta analyses
- Association of intensity of HEP implementation with health outcomes

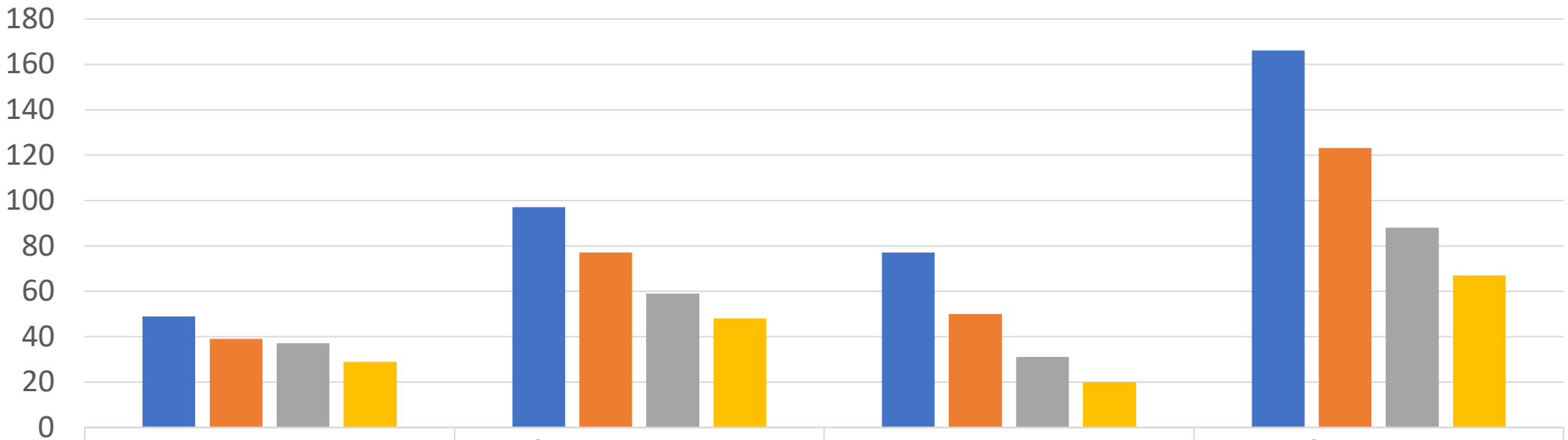
Trends in health outcomes

- Ethiopia has continuously improved health outcomes since the introduction of HEP.

Trends … Maternal Mortality Ratio

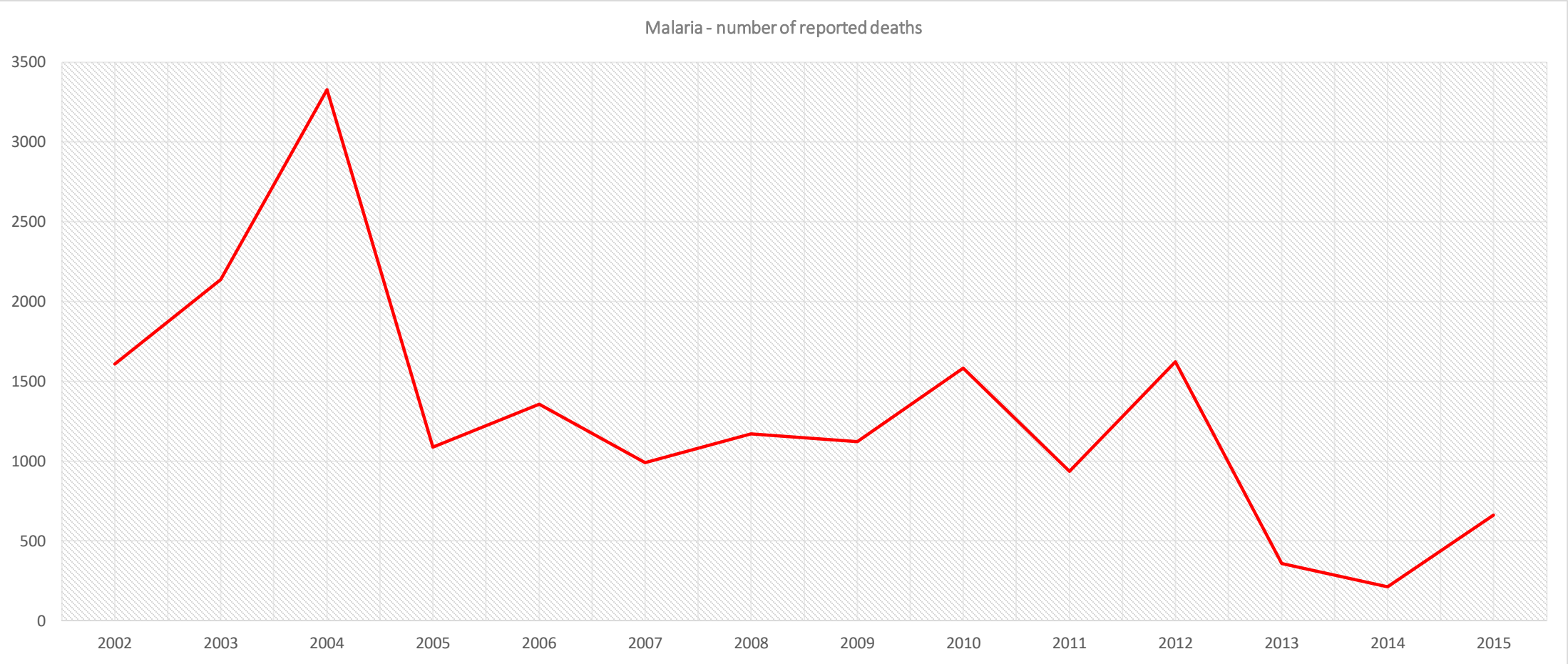


Trends … Childhood mortality

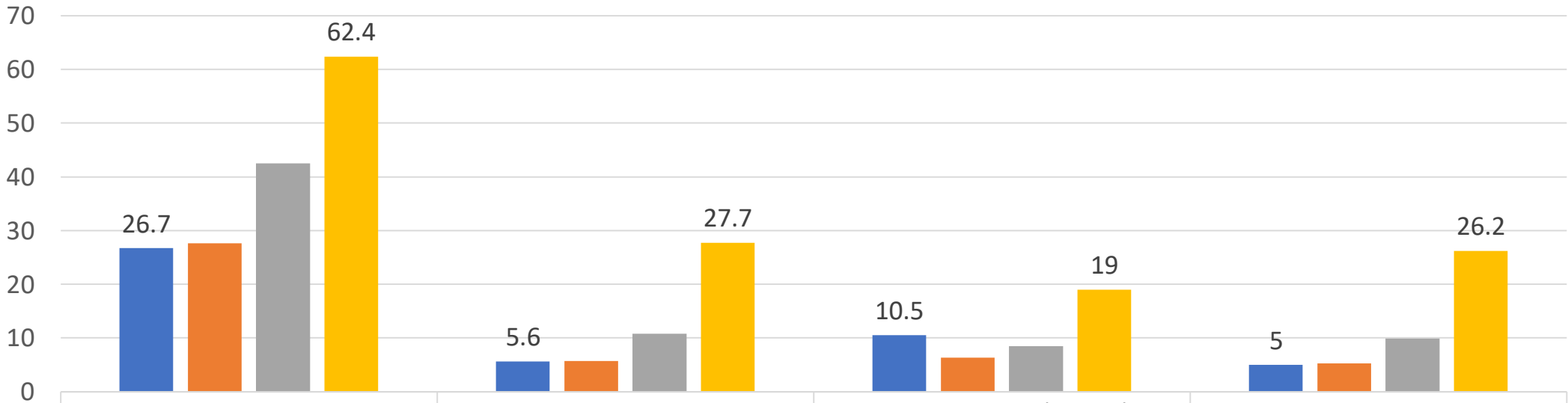


	Neonatal mortality rate	Infant mortality rate	Child mortality rate	Under-five mortality rate
DHS 2000	49	97	77	166
DHS 2005	39	77	50	123
DHS 2011	37	59	31	88
DHS 2016	29	48	20	67

Trends … Number of reported deaths from malaria



Trends … Service utilization – Maternal Health



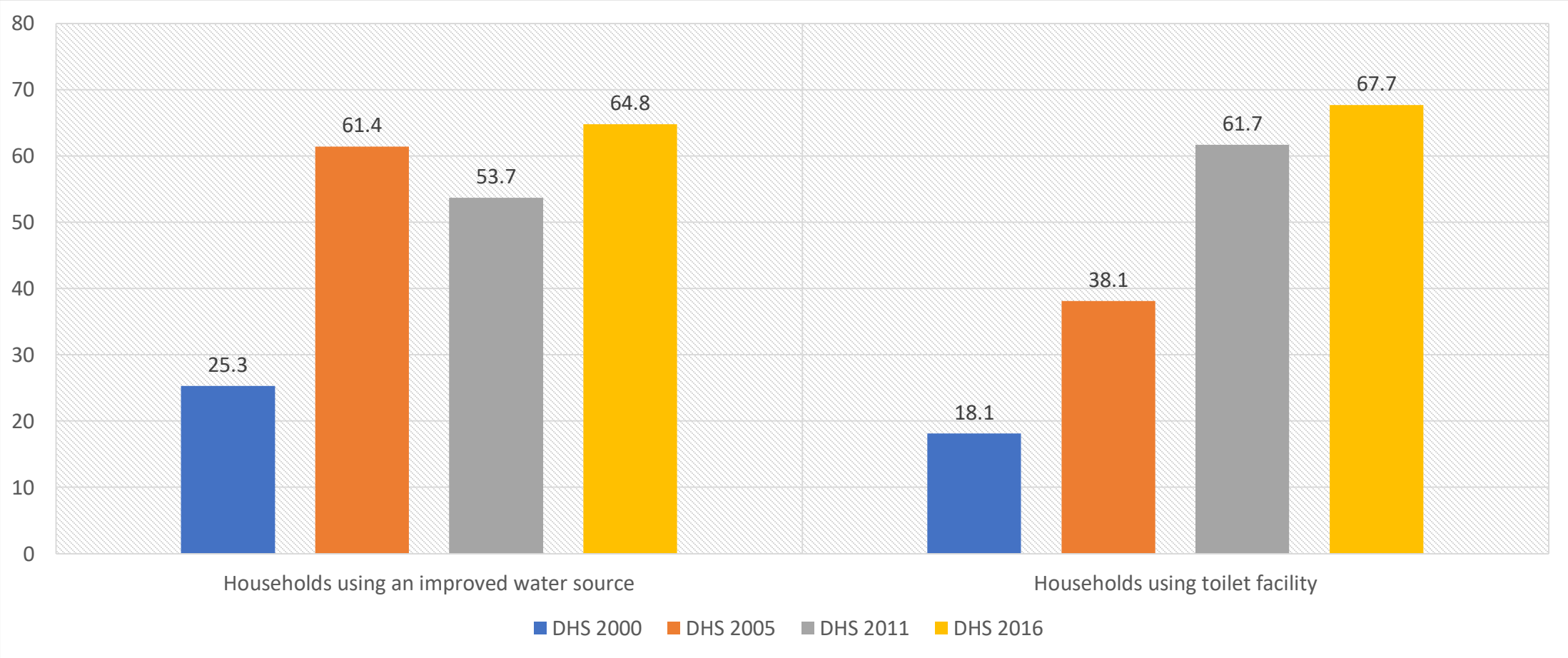
	Antenatal care	Skilled birth attendance	Postnatal care (2 days)	Facility delivery
DHS 2000	26.7	5.6	10.5	5
DHS 2005	27.6	5.7	6.3	5.3
DHS 2011	42.5	10.8	8.5	9.9
DHS 2016	62.4	27.7	19	26.2

DHS 2000 DHS 2005 DHS 2011 DHS 2016

Trends … Service utilization – Family planning

	2000	2005	2011	2016
Married women currently using any method of contraception	8.1	14.7	28.6	35.9
Desire for more children: Have another soon	22.3	16.1	16.9	17.5
Unmet need for family planning	36.6	36.1	26.3	22.3
Demand for family planning satisfied by modern methods	14.2	27.4	49.8	60.6
Total fertility rate 15-49	5.5	5.4	4.8	4.6
Mean ideal number of children for all women	5.3	4.5	4.3	4.5

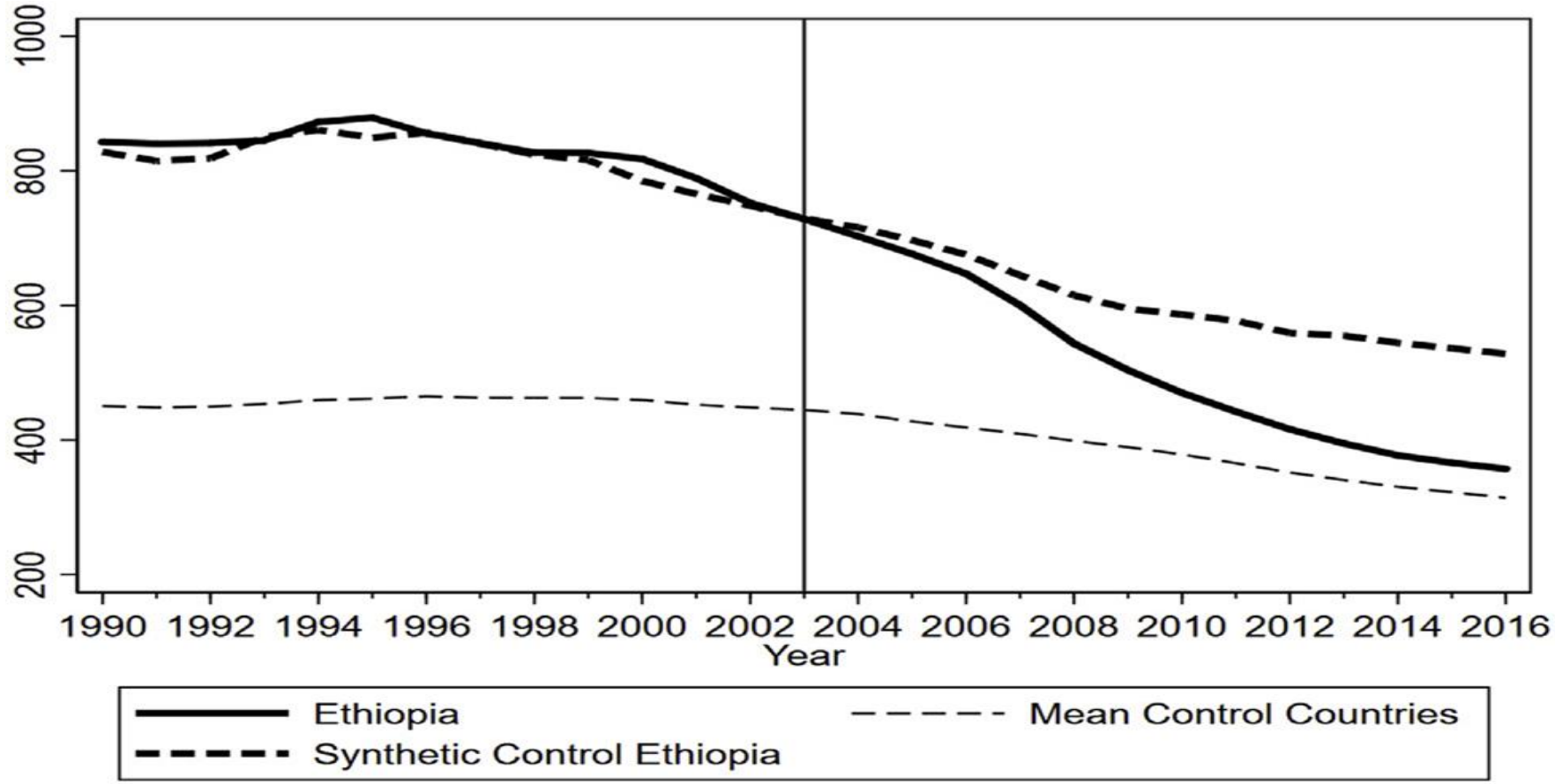
Trends … WASH


80
70
60
50
40
30
20
10
0
25.3
61.4
53.7
64.8
18.1
38.1
61.7
67.7
Households using an improved water source
Households using toilet facility
DHS 2000
DHS 2005
DHS 2011
DHS 2016

CONTRIBUTION OF HEP – SR & MA results

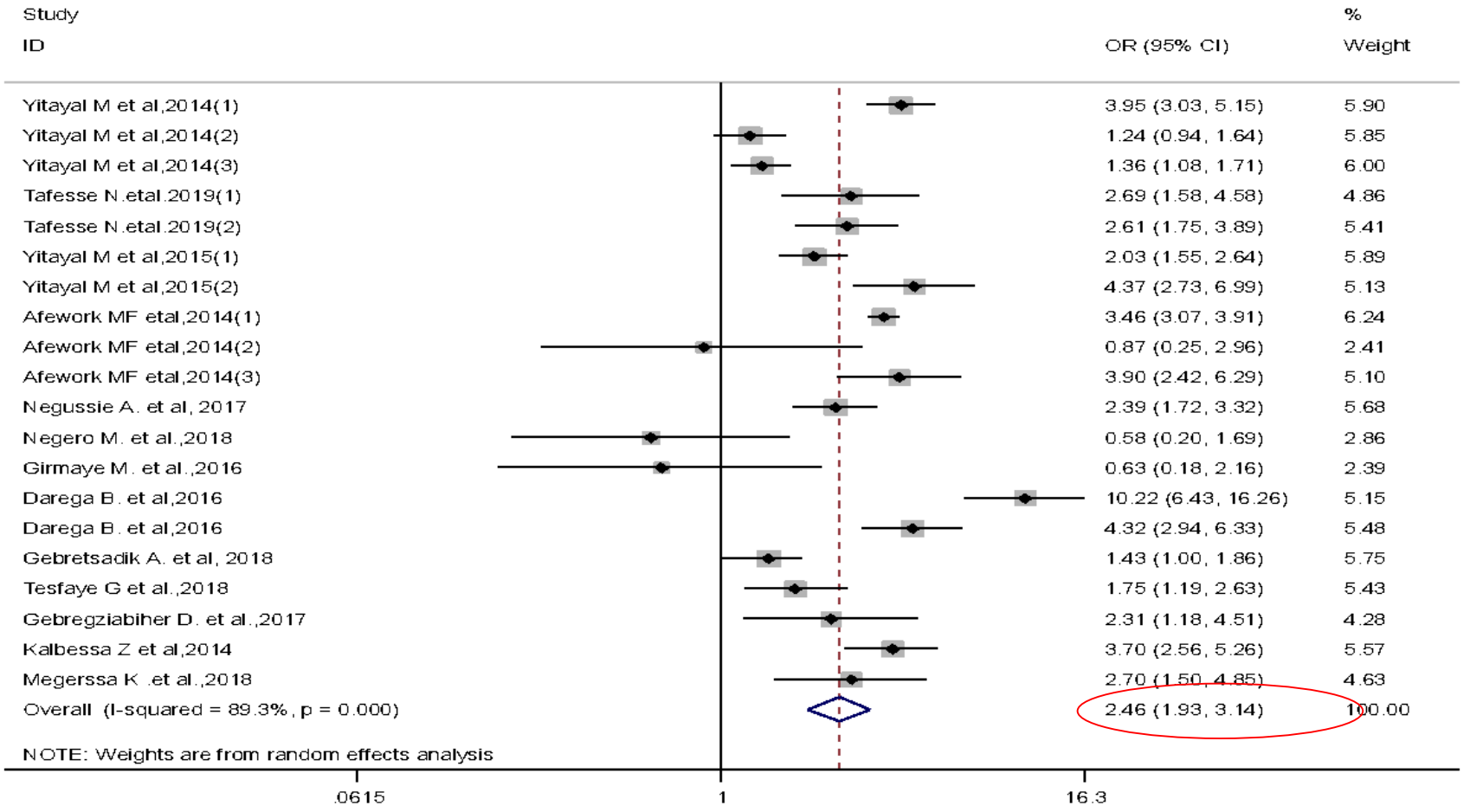
- HEP has contributed for:
  - reduction of maternal and early child mortality
  - increase in health seeking behavior among mothers and as a result improved service utilization

IMPACT OF HEP ON MATERNAL MORTALITY



Matthias Rieger, et al., 2019

EVIDENCES FROM SR AND MA (ON MATERNAL HEALTHCARE UTILIZATION)



- Exposure to HEP components were associated with better maternal health service utilization.

EVIDENCES FROM HOUSEHOLD DATA

- Exposure to HEP is associated with better household level behavior (implementing packages at HH level)
  - Home visit, outreach and model family training in agrarian,
  - Home visit and HP visit in pastoralist

Association between exposure to HEP and HH level adoption of desired behaviors

	Agrarian settings			Pastoralist settings		
	Mean Difference	95% CI		Mean Difference	95% CI	
		LL	UL		LL	UL
Had home visit during last one year	6.35*	4.78	7.91	5.56*	2.37	8.75
Had HP visit during last one year	1.20	-0.15	2.55	2.74*	0.07	5.41
Received HEP service through outreach	3.03*	1.27	4.80	-4.00	-9.84	1.83
Model family training						
Not aware about training	Ref			Ref		
Aware but not enrolled	4.57*	2.86	6.28	-1.03	-7.15	5.10
Enrolled but not completed	6.96*	1.13	12.78	7.40	-4.10	18.89
Completed training	11.75*	7.86	15.63	2.76	-7.49	13.02
Potential confounders accounted for: age of woman, education, wealth quintile						
* P value < 0.05						

Have we done enough on these packages?

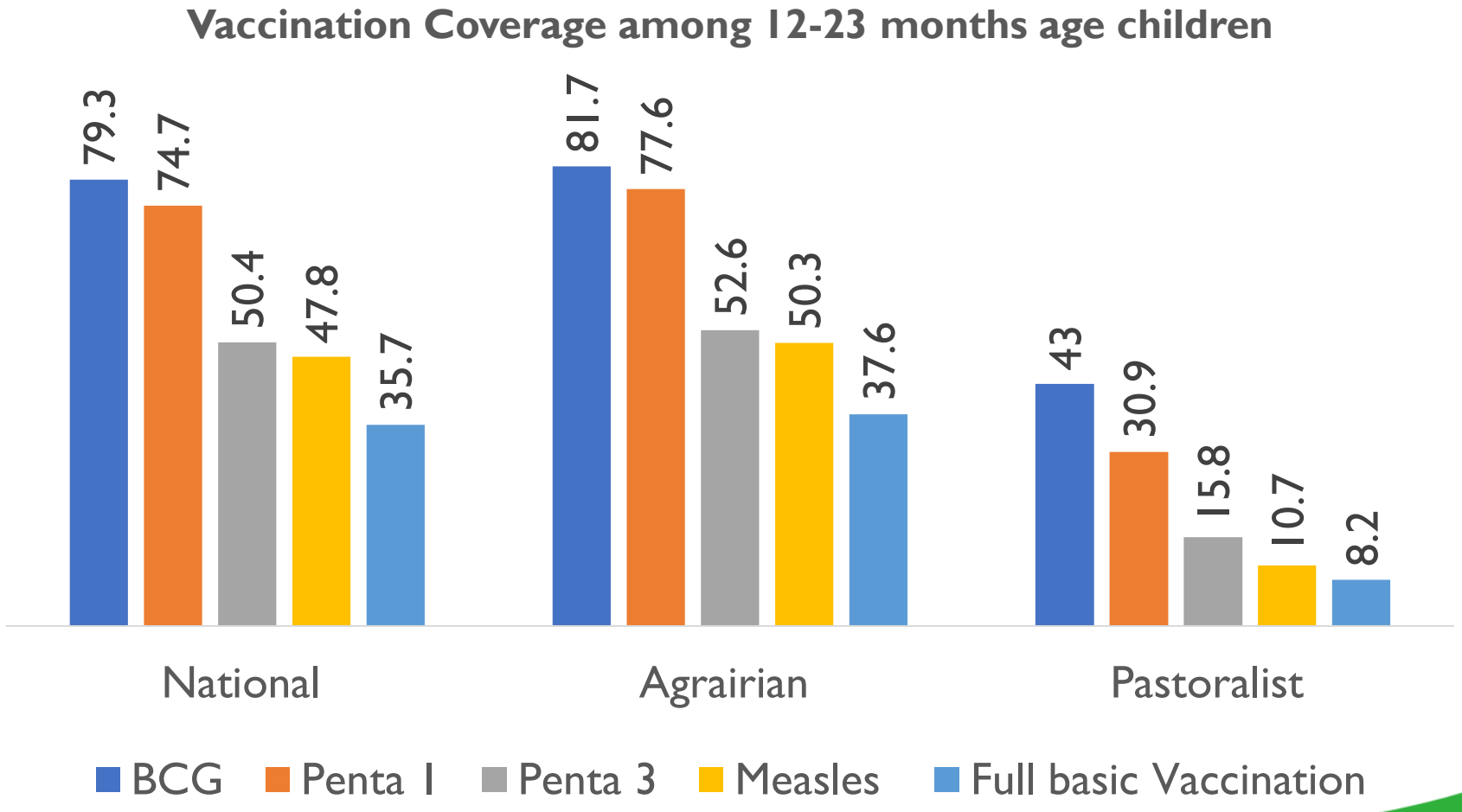
Coverage of family health services

- Low uptake of family health services
  - CPR and ANC-I have better uptake
  - PNC service has the lowest uptake
- High regional variation on all service uptake indicators

MHS	HEP Assessment finding		HSTP (2020) Target
	National estimates	Regional variability (Range)	
CPR	46.6%	(0.0%, 55.3%)	55%
LARC	11.2%	(0.0%, 21.7%)	50%
Unmet need for FP	22.5%	(9.7%, 34.5%)	10%
ANC1	85.7%	(9.9%, 94.4%)	95%
ANC4	48.3%	(1.2%, 72.1%)	95%
Facility delivery	54.9%	(7.3%, 80.2%)	90%
PNC	25.5%	(0.4%, 60.1%)	95%

Child Vaccination

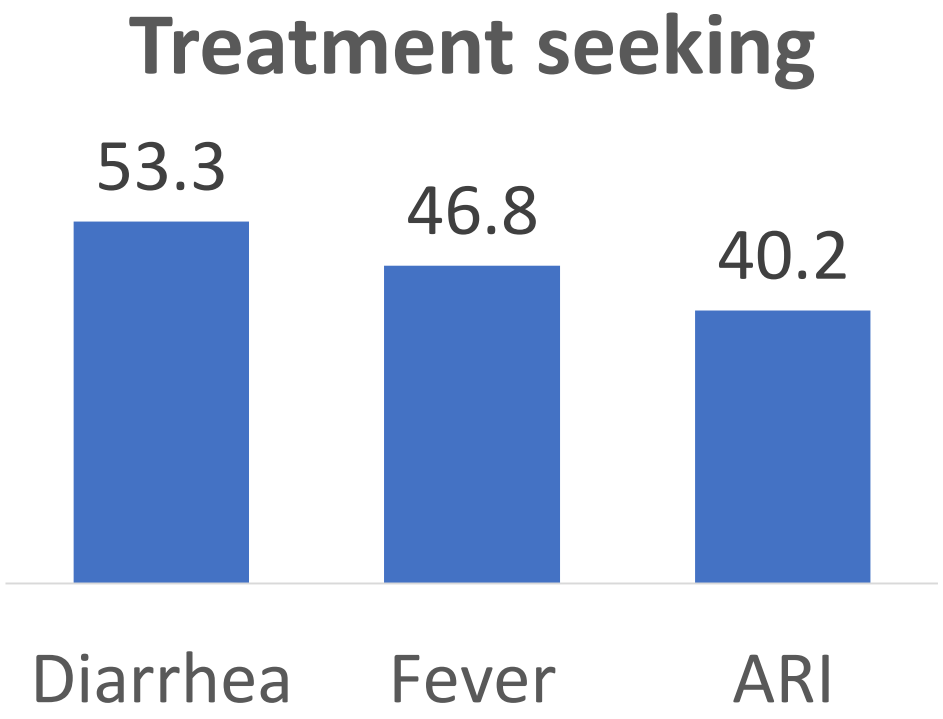
- Uptake of basic vaccines was low is low.
- Wide disparities by livelihood.



Treatment seeking for childhood illnesses

- Occurrence of illnesses within two weeks
  - Diarrhea 10.6%
  - ARI 17.6%
  - Fever 19.6%

- More than half of mothers with a sick child didn't seek modern treatment.

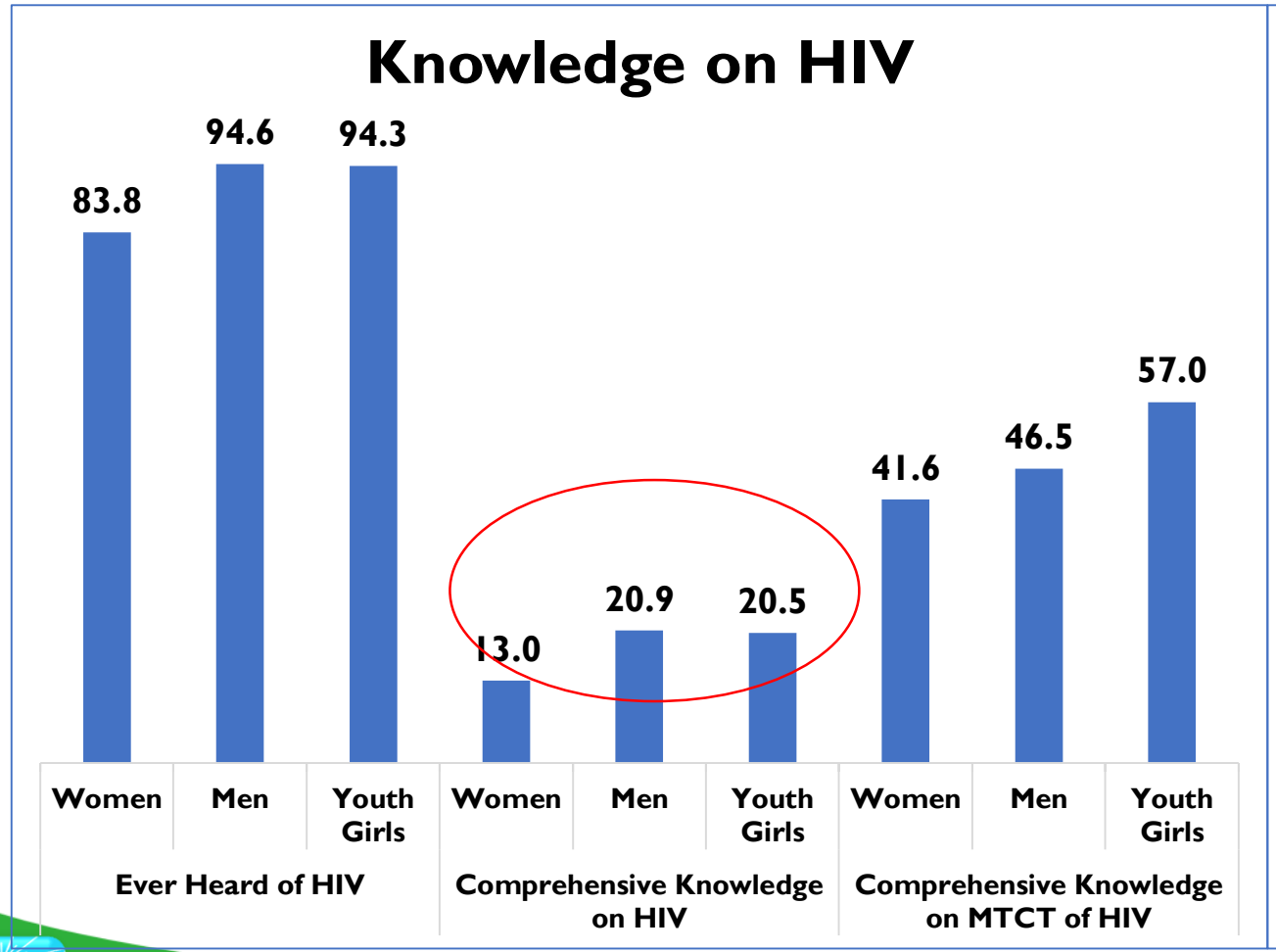


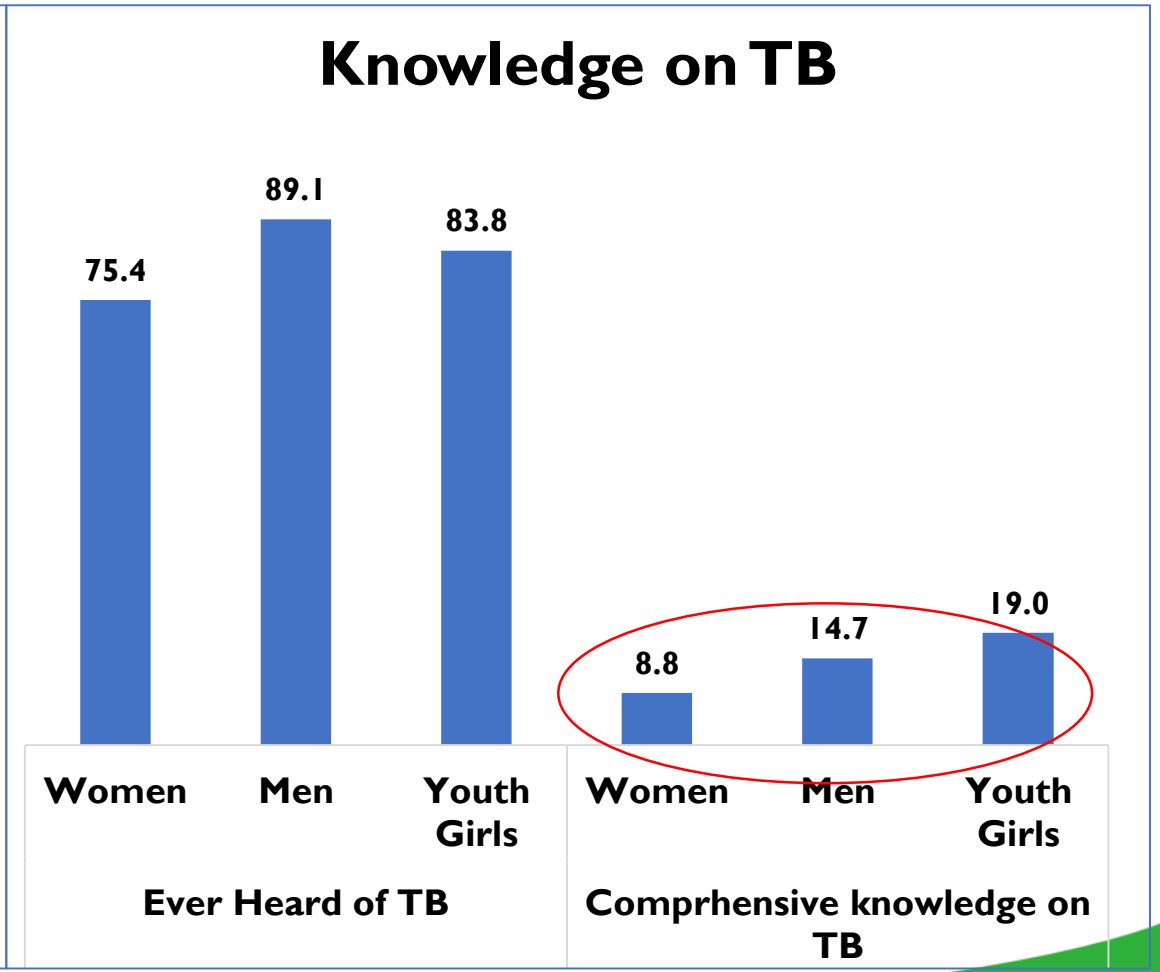
Hygiene and sanitation

- Open defecation (no latrine) 28.5%
- Handwashing facilities 6.7%
- Solid waste disposal facility 10.7%
- Liquid waste disposal facility 10.8%
- Handwashing at critical times 11.6%

Disease prevention and control

HH members have high awareness about TB/HIV but lack comprehensive knowledge.





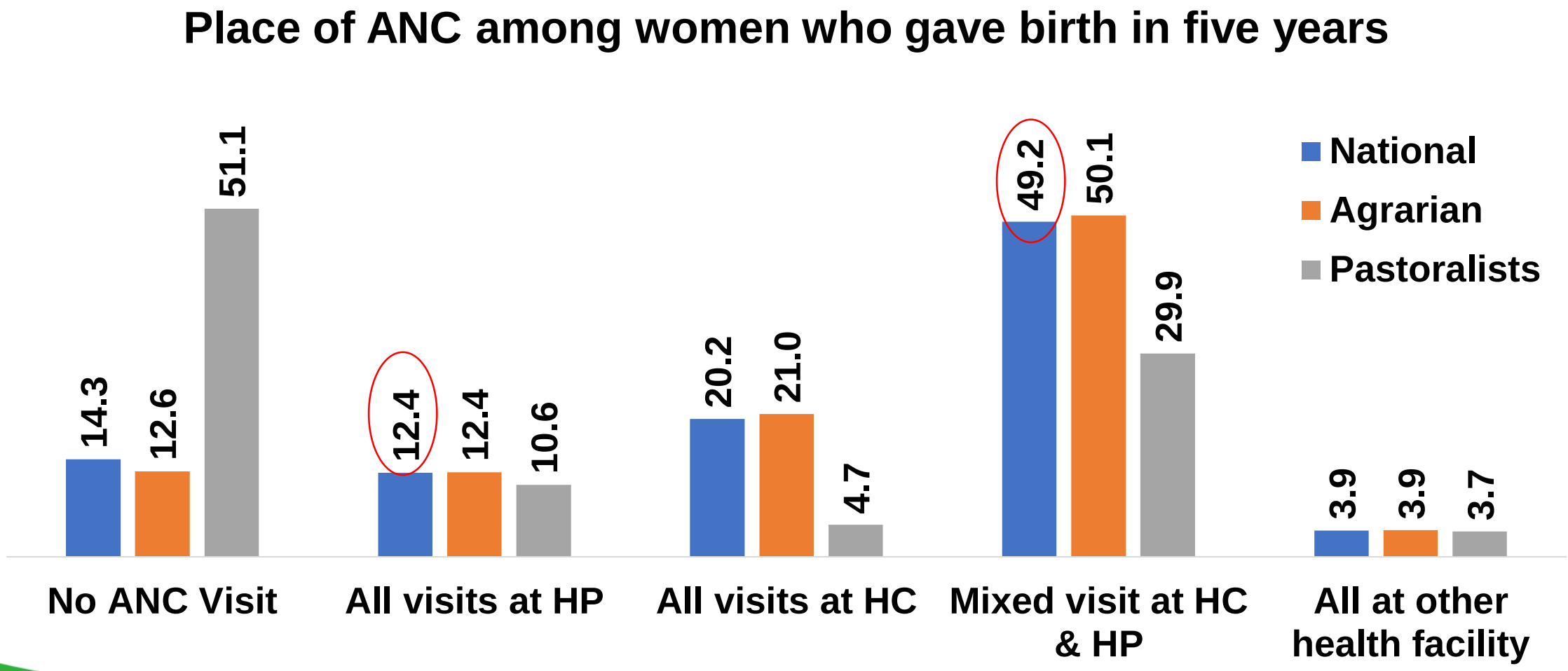
What was the role of HEP on these services?

Role of HEP in service provision

- HEP has been source of information as well as services for substantial proportion of service users.

- There is increasing involvement in provision of clinical/curative services.

ANC service providers

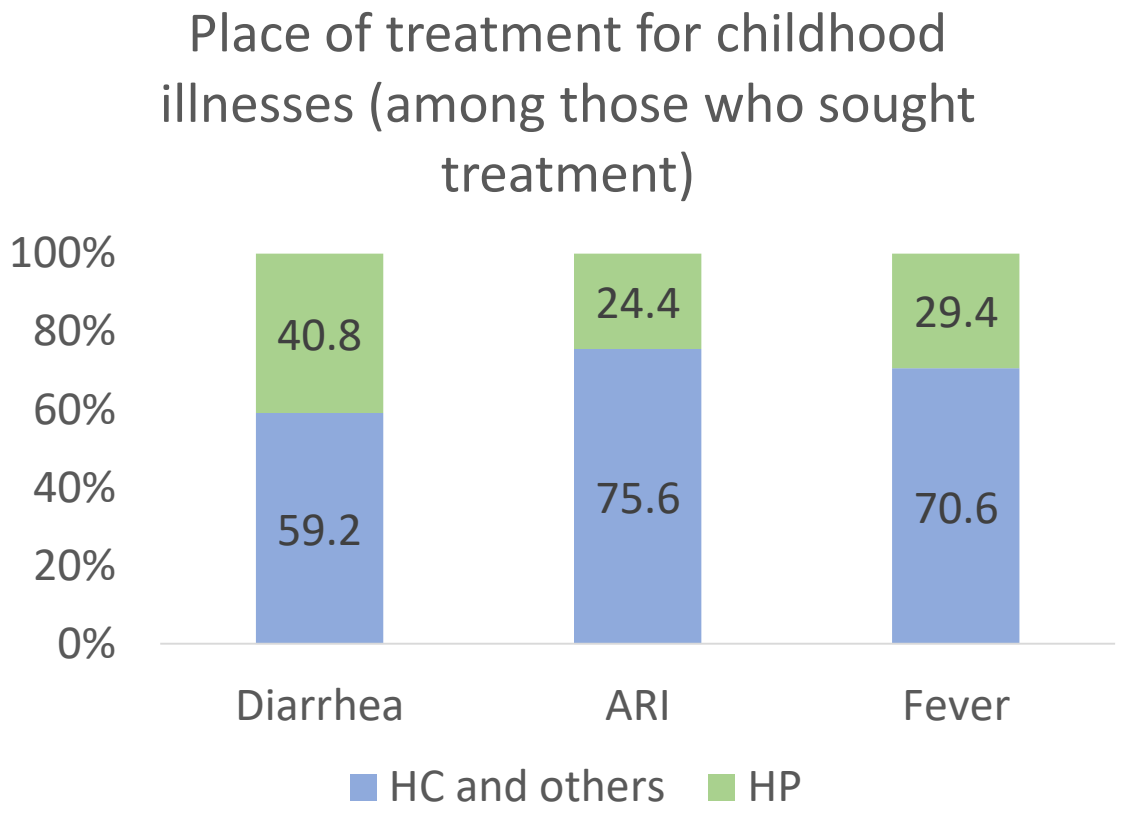


HEP has been an important source of other family health services

- Family planning users
  - 57% from HEP
  - HEWs are the commonest source of information about FP for women
- Women who received TT vaccine
  - 45% at least one dose from HP/HEWs
- Delivery service
  - 4% of total deliveries attended at HP
- PNC service users
  - 43.2% got their care from HEWs
- Almost the only source of services related to hygiene and environmental sanitation and health education on several topics

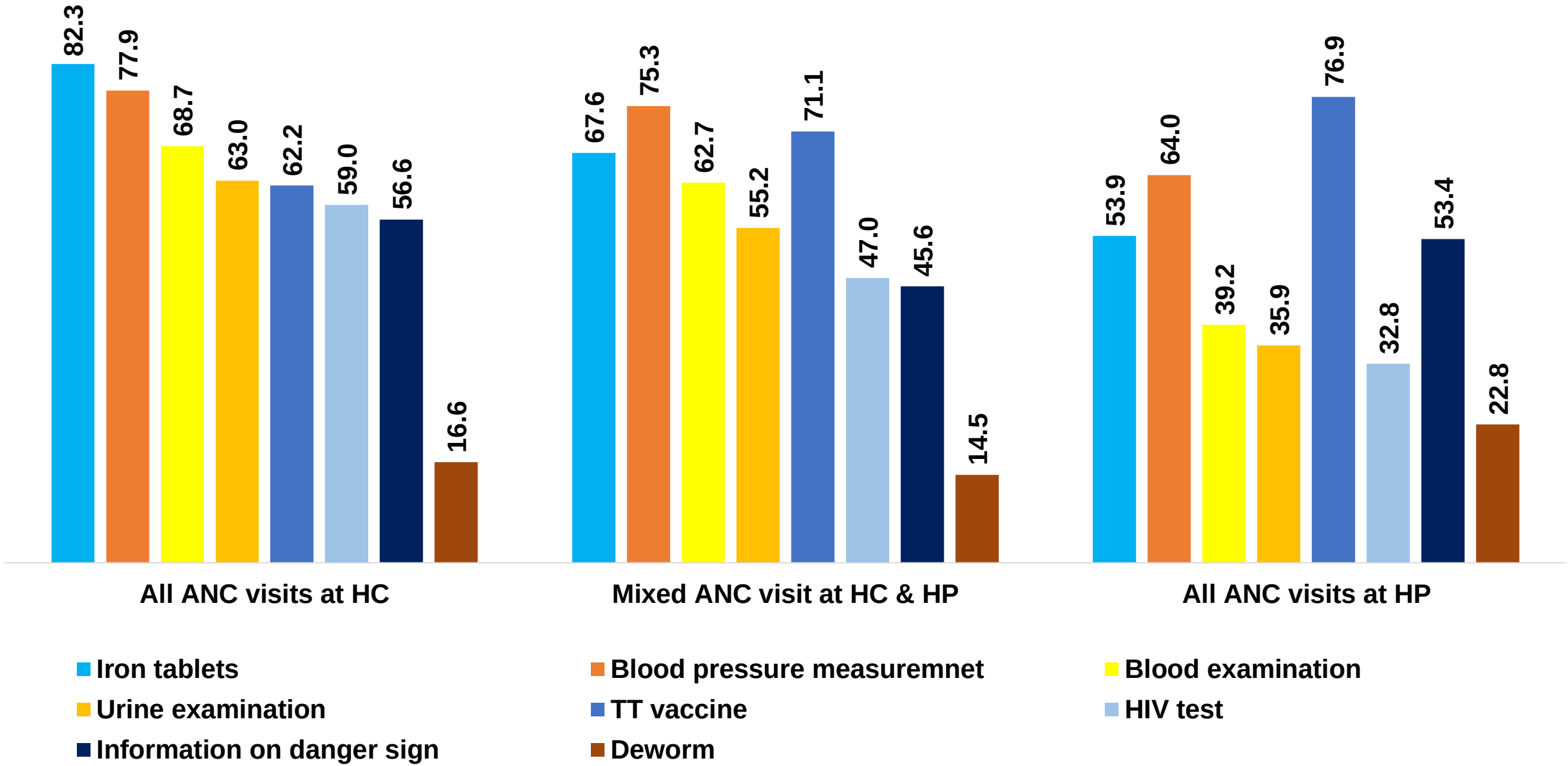
HPs/HEWs were first place of help seeking for childhood illnesses

- HP/HEW was first point of contact for more than a quarter of mothers who sought treatment for a sick child:
  - 40.8% for diarrhea
  - 24.4% for ARI
  - 29.4% for fever



What was the implication of providing clinical services by the current HEWs on quality of care?

Proportion of women who received components of ANC by source of ANC



Quality of vaccination services

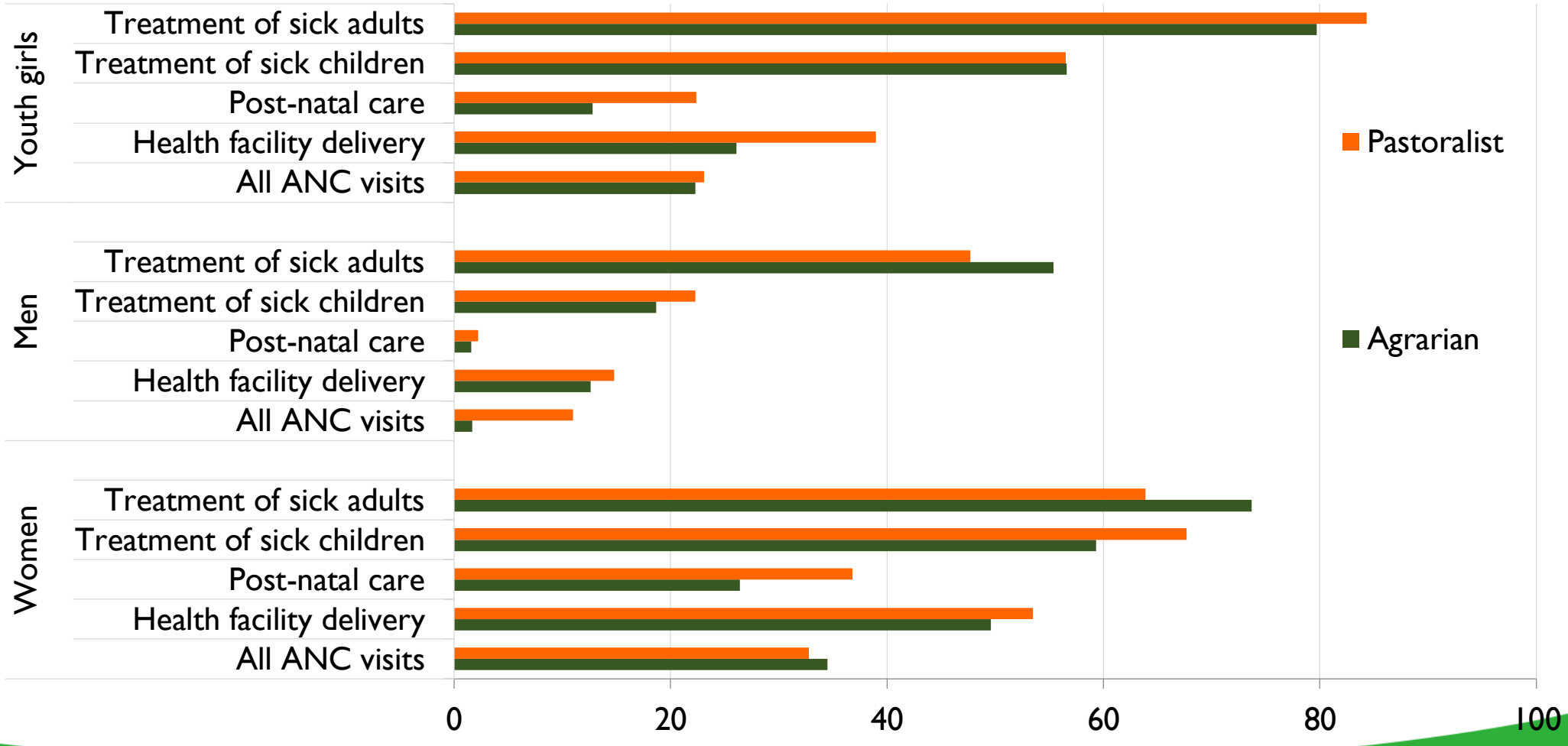
- Quality of vaccination services is sub-optimal
  - 11.6% of children who took BCG vaccine do not have BCG scar.
  - Vaccine coverage discrepancy was more than acceptable level
    - Penta 1 & Penta 3: 74.7% & 50.4%, Discrepancy = 24.3%
    - BCG & measles: 79.3% & 47.8%, Discrepancy = 31.5%

Do HEP packages meet expectations of communities?

Perception of communities about relevance of current packages

- All activities of HEWs were reported as important by all categories of FGDs (men, women, WDAs) among community members
- No service was considered as "not important"
- Health managers and HEWs also believe in the importance of all the packages
- However, there is expectation for additional clinical services among community members.

Percent of household members who recommended additional services at health post



Communities' perception of clinical services provided by HEWs

- HEWs are in general trusted by the community
- However, trust is dependent on service type
  - HEWs are not considered as capable of providing curative services
- Bypassing HPs is very common for different categories of services.

Relevance of service delivery modalities

- The nature of services provided through HEP (clinical, community-based, targeting healthy clients…) demand all the three modalities
- Health seeking behavior of rural communities is sub-optimal.
  - Demand creation through community/home to home visits is required to increase coverage of essential services.
- There is high community acceptance and approval for HEP service delivery through home visits, health post visits, and outreach sessions.
- Female HEWs are recommended for home visits; however, limiting HEWs to only female gender was criticized for difficulties in relation to:
  - Reaching all segments of the population within a kebele (distance, barriers, security)
  - Achieving behavioral change at HH level without involving men
  - Absenteeism related to maternity leave

How cost-effective was service provision through HEP?

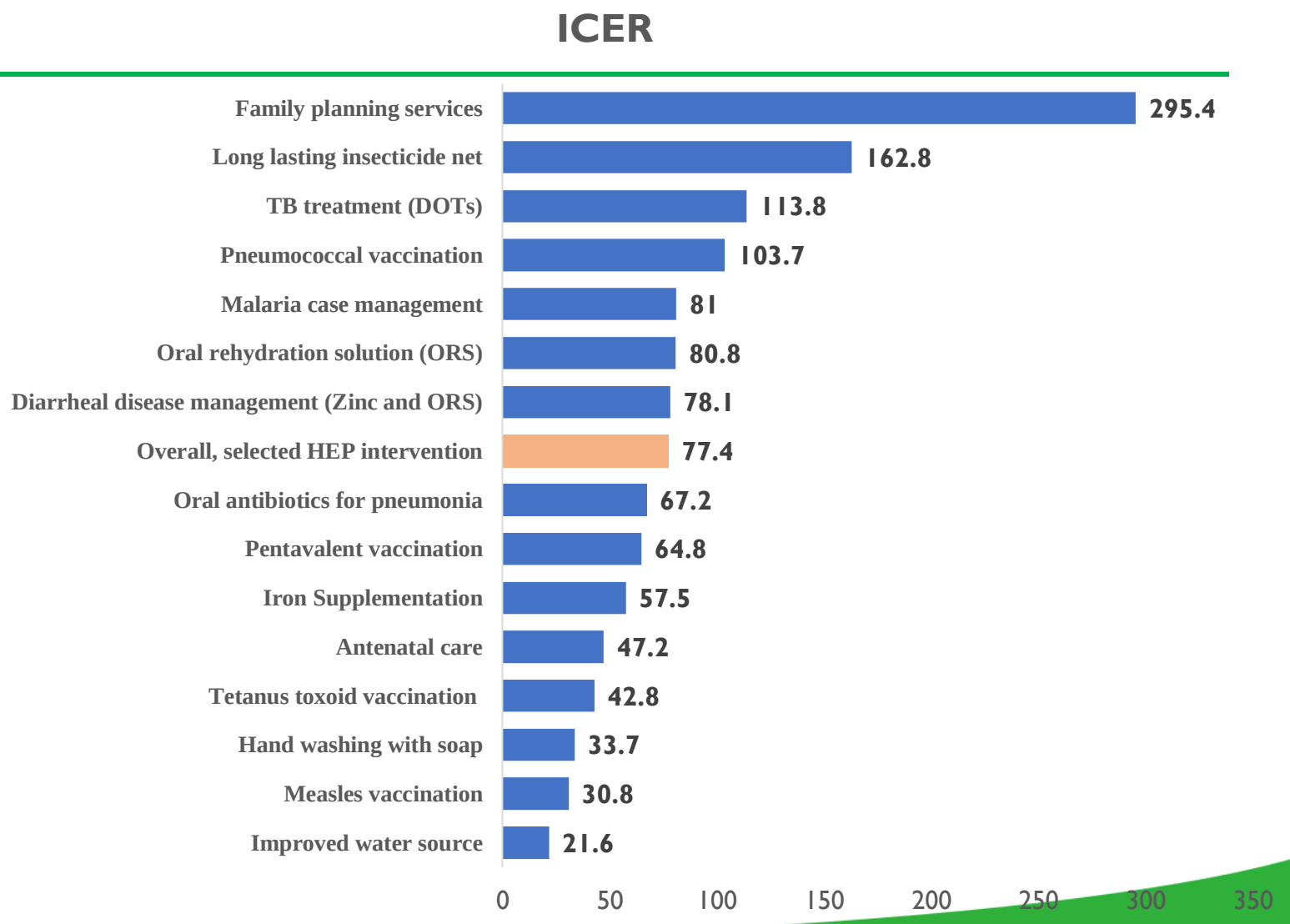
An intervention is considered **"Cost-effective" and "Very cost-effective"** if $ per Life year gained (LYG) (ICER) < 3 times and 1 times GDP per capita, respectively.

Cost-effectiveness of selected HEP interventions

Intervention	Lives saved	Life year gained	ICER
Improved water source	369.2	10,976	21.6
Measles vaccination	1,068	31,761.80	30.8
Hand washing with soap	248.1	7,376.00	33.7
Tetanus toxoid vaccination	330	9,812.20	42.8
Antenatal care	505	14,357.00	47.2
Iron Supplementation	160	4,174.00	57.5
Pentavalent vaccination	3,311	98,443.80	64.8
Oral antibiotics for pneumonia	804	23,916.50	67.2
Overall, selected HEP intervention	10,927	321,463.00	77.4
Diarrheal disease management (Zinc and ORS)	1,468	43,633.20	78.1
Oral rehydration solution (ORS)	1,301	38,690.10	80.8
Malaria case management	85	2,467.00	81
Pneumococcal vaccination	1,084	32,219.50	103.7
TB treatment (DOTs)	95	1,957.40	113.8
Long lasting insecticide treated net	67	1,936.50	162.8
Family planning services	536	14,098.80	295.4

MERQ Consultancy PLC

- All HEP interventions are very cost effective (< 1 times GDP($852.8) per capita)
- HEP has good value for money.



IMPLEMENTATION OF HEP

Accessibility of HEP services

Intensity of HEP implementation/Level of exposure to HEP services/ HH level implementation of HEP

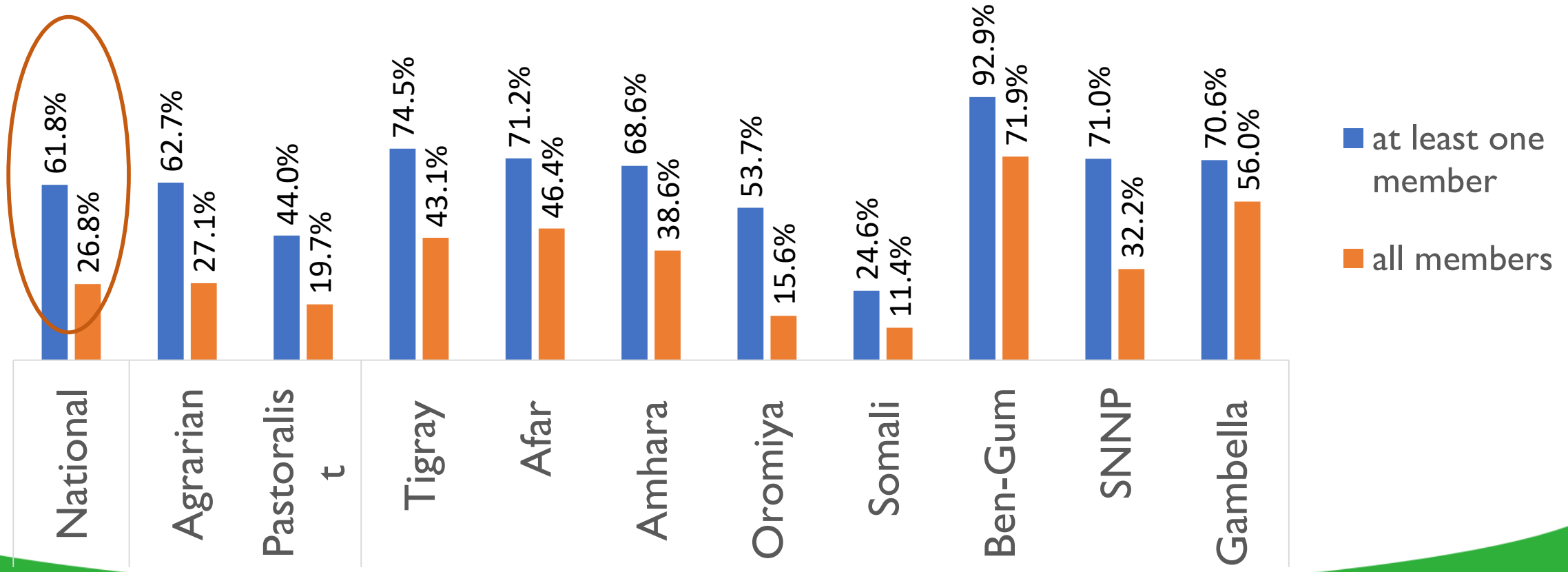
Determinants of HH level implementation of HEP

Accessibility of HEP

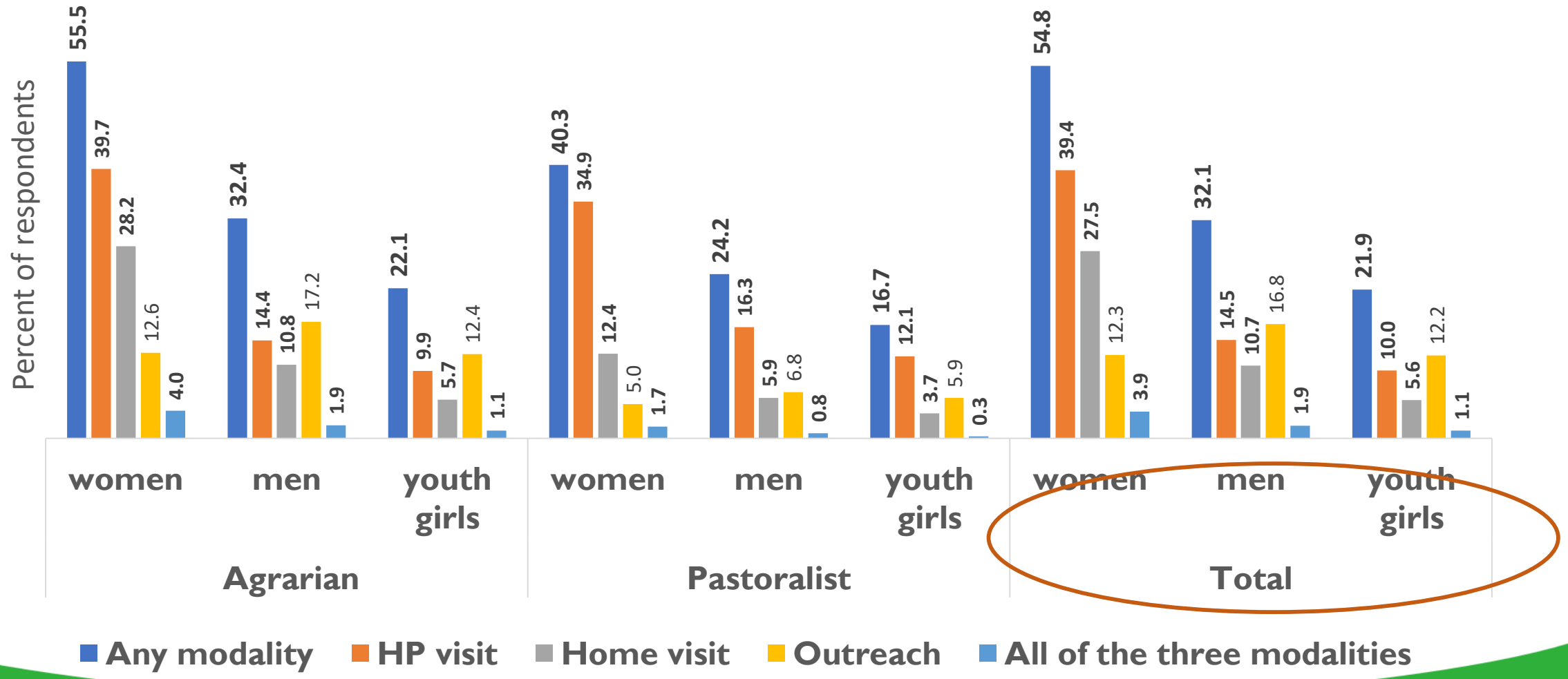
- 97.4% of kebeles have at least one HP
- Majority of households are located within 30 minutes walking distance from HP
- Most HEP packages were reported available by majority of HPs
- Awareness about available HEP services is on average 58.8%

Level of exposure of community members to HEP

Proportion of households with at least one member and all members reporting exposure to HEWs through any modality during the previous one year



Proportion of respondents who interacted with HEWs at least once during the last one year by modality of service delivery



Factors associated with HEP Implementation Intensity/ exposure of HHs to HEP

B coefficients from regression of HEP implementation intensity measures on inputs of HEP

Covariates	Proportion of households reached with HEP during the last one year through:		
	Home visit	**HP Visit**	**Outreach**
Population (in thousands) per HP	**-1.95***	0.01	0.63
Proportion of villages/gotes within five km from HP	0.07	0.04	0.05
Number of infrastructure/facility standards met (maximum of 8)	**2.49***	1.60	0.81
Population (in thousands) per HEW	1.32	0.44	1.05
Availability of **at least one midwife or nurse**	**11.06***	**22.37***	3.42
Availability of **at least one level IV HEW**	**9.44***	**9.50***	2.45
Number of required equipment and supplies available (out of 29 items)	**	0.44	**
Number of drugs and supplies without stockout in six months (out of 20 items)	**	0.44	**

Potential confounders accounted for: livelihood, formal education, wealth index, median age of women

** P value < 0.05*

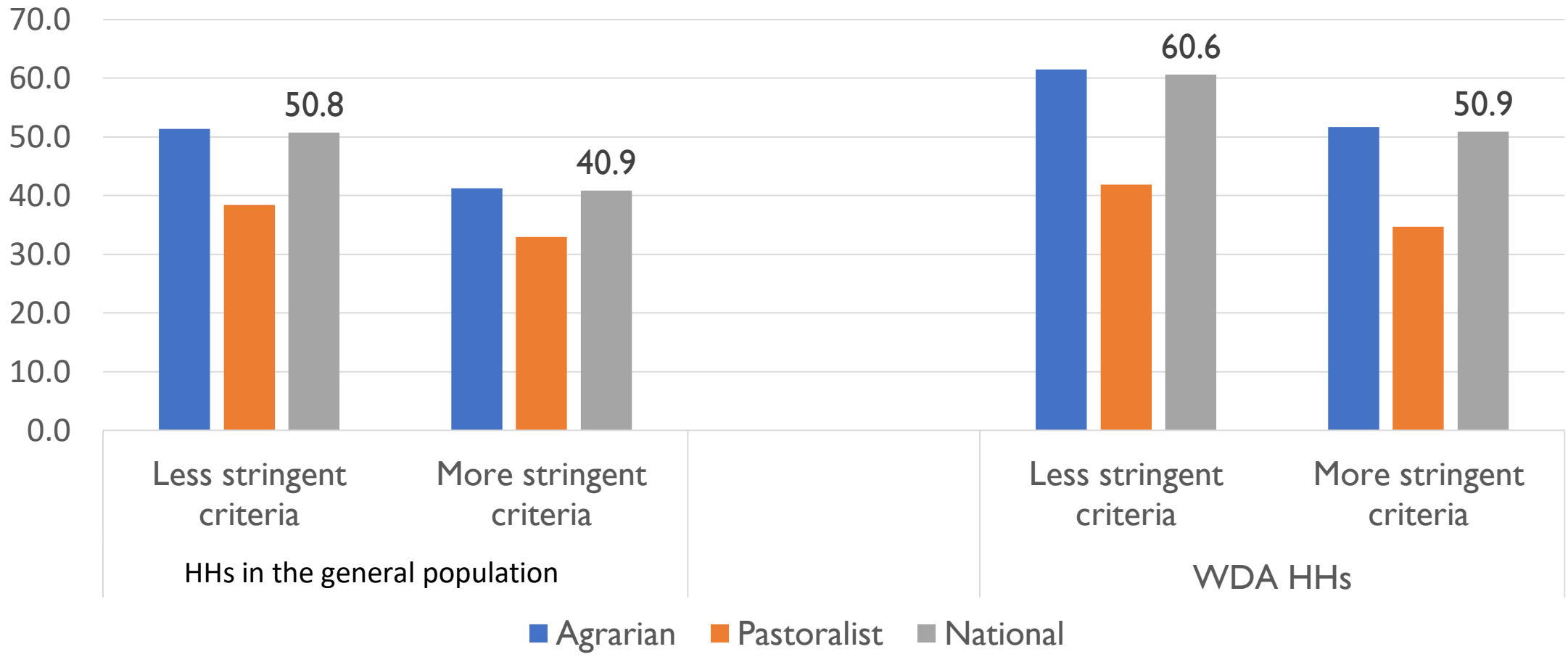
*** P value >0.1 during first step*

HH Level Implementation of HEP/ Adoption of desired HH level behavior

- Adoption of desired household behavior in terms of implementing HEP at the household level was very low. Possible reasons include:
  - Low intensity of implementation (home visit, HP visit, outreach)
  - The use of unsustainable strategies to bring about behavior change in the past

Assessment checklist	Less stringent criteria	More stringent criteria
ANC	At least one visit	At least four visits
Place of delivery	Health facility	
PNC	Within one week	
Family planning	Any method – ever use	Long acting – ever use
Child vaccination	Complete by first birthday	
Growth monitoring	For all <2 years children	
Latrine	Any type	with handwashing facility
Personal hygiene	Observed for: - Hand and face - Clothes - Shoes/sandals	
Shower		Shower room/place
Housing	Observed for cleanliness	
Solid waste disposal	Pit	
Liquid waste disposal	Pit	
Livestock		Separate from living room
Kitchen		Separate from living room
Malaria control activities		Participation of any HH member
Spray	Spray and do not paint	
ITN	Use by all HH members	

Average progress of ordinary and WDA/SMC households in implementing HEP on a more and less stringent criteria



Determinants of HH Level implementation/ adoption of HEP

- HEP related factors explained only very small portion of variation in HH Level implementation of HEP

- Factors associated with HH level implementation
  - Home visit, exposure through outreach sessions, and model family training in agrarian settings
  - Home visit and HP visit in pastoralist settings
  - HEP implementation increases with level of exposure to model family training (awareness, enrollment, completion)

Association between exposure to HEP and HH level adoption of desired behaviors

	Agrarian settings			Pastoralist settings		
	B	95% CI		B	95% CI	
		LL	UL		LL	UL
Had home visit during last one year	6.35*	4.78	7.91	5.56*	2.37	8.75
Had HP visit during last one year	1.20	-0.15	2.55	2.74*	0.07	5.41
Received HEP service through outreach	3.03*	1.27	4.80	-4.00	-9.84	1.83
Model family training						
Not aware about training	0.00			0.00		
Aware but not enrolled	4.57*	2.86	6.28	-1.03	-7.15	5.10
Enrolled but not completed	6.96*	1.13	12.78	7.40	-4.10	18.89
Completed training	11.75*	7.86	15.63	2.76	-7.49	13.02
Potential confounders accounted for: age of woman, education, wealth quintile						
* P value < 0.05						

Qualitative

- "Forced" and campaign based approaches to make households and individuals adopt desired behaviors were very often reflected as strategies used to increase coverage of services including
  - Latrine construction
  - Use of maternal health services

    Consequences
    - Latrines constructed but not used
    - Latrines not reconstructed after failure during rainy seasons
    - Failure to maintain ODF, HDF, and model family status

- Lack of follow-up to households adopting desired behaviors leads to failure to sustain HH level adoption of HPE related behaviors.

"….I have been serving as WDA leader for the last six years. In the past, we all (mothers) use to give birth at home … HEWs taught us about the importance of facility delivery. Now, we are following pregnant women within our one-to-five networks so that they give birth at health facilities …However, punishing mothers who deliver at home has become a problem for us (WDAs); we also get punished if a mother in our network delivers at home."

WDA from an FGD

Conclusion

Relevance of HEP Service Packages

- Communicable, maternal, neonatal, and nutritional disorders (CMNNDs), remain the largest disease burdens of Ethiopians over the course of the HEP implementation. There is also an increasing burden from NCDs.
- HEP packages have been relevant to the health needs of rural communities; however, there is limitation in meeting the ever growing demand for more comprehensive services at the community level.
- Recently added packages created opportunities to address the increasing burden of NCDs.
- None of the activities of HEP are adequately implemented so far to a level that allows excluding them from the future of HEP.
- More comprehensive services at HPs improves acceptance of HEWs and service uptake.
- HEP has become an important source of clinical services for rural communities. However, providing clinical services through HEP using the current workforce and infrastructure has resulted in compromised quality of care.

Relevance of service delivery modalities

- Home visits, health post visits, and outreach sessions are relevant to deliver HEP packages.
- Female HEWs are preferred service providers for home-to-home services targeting women in rural communities. Involving male HEWs will address implementation challenges.
  - reaching men
  - geographical challenges
  - violence against female HEWs
  - service interruption during maternity leave

Implementation of HEP

- HPs are physically accessible; however, HP **accessibility didn't translate into actual access** to services.
- Exposure to HEP among households is low and it is much lower in pastoralist settings. There is substantial **shift from community- or home- to health post-based services**.
- Human resource related factors are likely to be the primary drivers of intensity of HEP implementation.
  - Professional mix and level of education, rather than number of HEWs in a HP, are associated with better implementation of HEP through home and HP visits.
- HH level implementation of HEP is sub-optimal. HEP related factors explained only a small portion of variation in HH level implementation of HEP signifying lack of effectiveness of current behavior change strategies to achieve adoption of HEP at HH level.
- Campaign-based approaches and strategies involving threatening/punishment to increase implementation of HEP at household level didn't achieve sustainable results.

Recommendations

1. Service Packages

- **Maintain**
  - Keep current packages by addressing their implementation challenges
- **Modify**
  - Plan for the long term evolution of HEP
    - Phased approach to implementation of HEP at community level
    - Graduating packages upon achievement of preset criteria
  - Increase attention to health literacy either through a separate package or as part of existing packages

1. Service Packages …

- **Add**
  - Incremental expansion of packages towards more comprehensive services at HP
  - Allow packages to vary across settings
    - HEP unit in a health center
    - HEP with basic packages
    - HEP with comprehensive packages
  - Conduct an in-depth analyses of birth outcomes among births attended by HEWs.

- **Drop**
  - Avoid delivery at HP until adequate evidences are generated except with special arrangements in the areas of human resource, infrastructure and equipment.

2. Service delivery modalities

- **Maintain**
  - Static, home visit, and outreach service delivery modalities
  - Female HEWs responsible for contacting women during home visits

- **Modify**
  - Enhance the use of health post visits as entry point for health promotion and disease prevention services
  - Revise behavior change theories and strategies in a way that consider variabilities in the needs of **specific outcomes** and **cultural contexts**.
  - Increase involvement of men and youth as targets of HEP
  - The strategy for outreach modality should be designed in a way that takes maximum advantage of existing indigenous social institutions.

2. Service delivery modalities

- Add
  - Include male health workers for HEP
  - Redesign pastoralist HEP by conducting more detailed analyses of experiences in addressing health and other social needs of pastoralist communities including villagization/settlement of mobile communities, mobile health team, mapping movements of pastoralist communities, and other program specific experiences.
  - Strengthen inter-sectoral collaboration to ensure that strategies to implement HEP in pastoralist communities are integrated/coordinated with other community-based services including villagization and animal health services.
- Drop
  - Campaign-based approach to influence behaviors that need continuous communication
  - Punishment or threatening as a strategy to change behavior of households

3. Implementation

- **Maintain**
  - Universal availability of HPs at kebele level
  - Model family training as a strategy for HEP implementation
- **Modify**
  - Expand workforce at health post by number and professional mix to ensure that HEWs have adequate time for home visits and outreach sessions while at the same time health posts operate full time.
  - Keep the focus of home visits and outreach sessions to demand creation.
  - Strengthen linkage between demand creation and service provision activities by increasing availability of services at HPs and further enhancing health center – health post linkage.

3. Implementation…

- **Modify**
  - Phased approach to implementation of HEP packages – avoid unnecessary spread of HEP resources.
    - Each package that requires change at community level should be a focus area of intervention at different time periods during which intensified social and behavior change strategies will be implemented until a sustainable change is achieved.
  - Intensify focused outreach services to selected areas where men and youth can be targeted.
- **Add**
  - Flexible but regulated working days and working hours allowing HEWs to plan reaching target populations including women, men, and youth in different public gatherings including market days, religious gatherings, schools, and other events.

Thank You!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