ILL-HEALTH OF CHILDREN IN THE SOUTHERN RURAL LAO PDR:
A three-year longitudinal study

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Junko Okumura, Pharmacist, MPH, PhD
Institute of Tropical Medicine, Nagasaki University

Co-researchers: Futoshi Nishimoto, Tiengkham Pongvongsa, Satoshi Kaneko, Miki Miyoshi, Sengchanh Kounnavong

Background & Aims

- In 2012, infant mortality rate in Xepon area based on HDSS (Health and Demographic Surveillance System) was 65/1000 live births. This was much higher than the national average (34/1000 live births).

- This study aims: 1) to investigate whether unacceptable gaps exist or not, 2) to investigate causal risk factors which might be associated with child illness and death of under 5 years old children, and 3) ultimately to recommend some effective approach to promote child health in the target area.
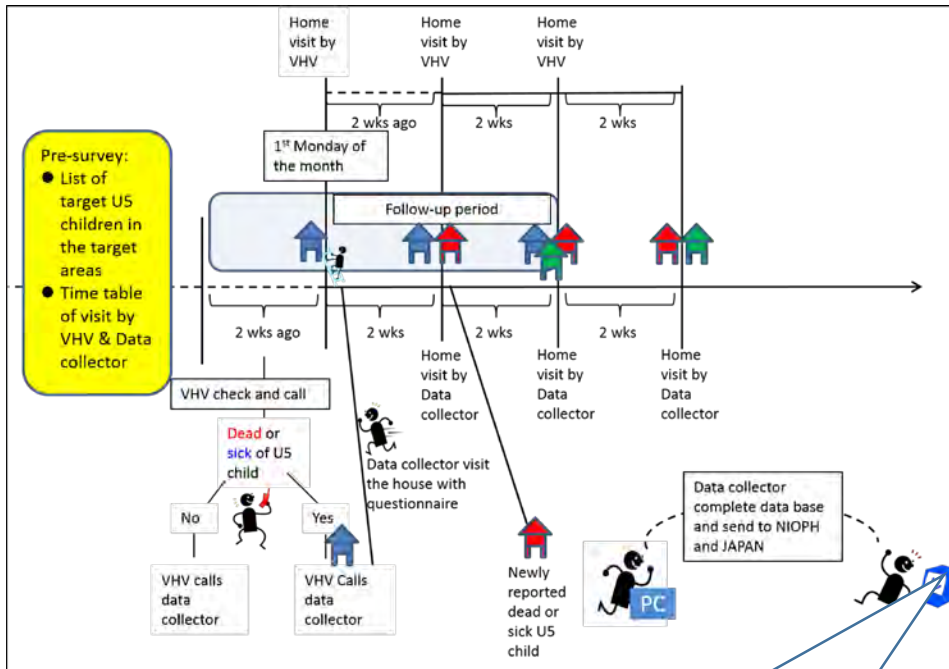
Methods

Fig. 1. Data collection

Before June 2015:
Data were collected by using printed questionnaires.
Since June 2015: Data were collected using an application based on an Android mobile phone called Open Data Kit (ODK) Collect.

Chronology of activities:

Nov. 2013
- Received approval from the Ethical Committees of Health Research in Lao PDR
- Initiation training for data collection
- Establishing data collecting system by VHVs

May. 2014
- 3 villages of relatively poor access to health care services were added.
- Basic data collection for the new 3 villages
- Aggressive training and feedback through workshop with VHVs

Jun. 2014
- Anthropometric measurements were added
- Providing a fund to support MCH activities (mainly EPI) in the 7 villages

Jun. 2015
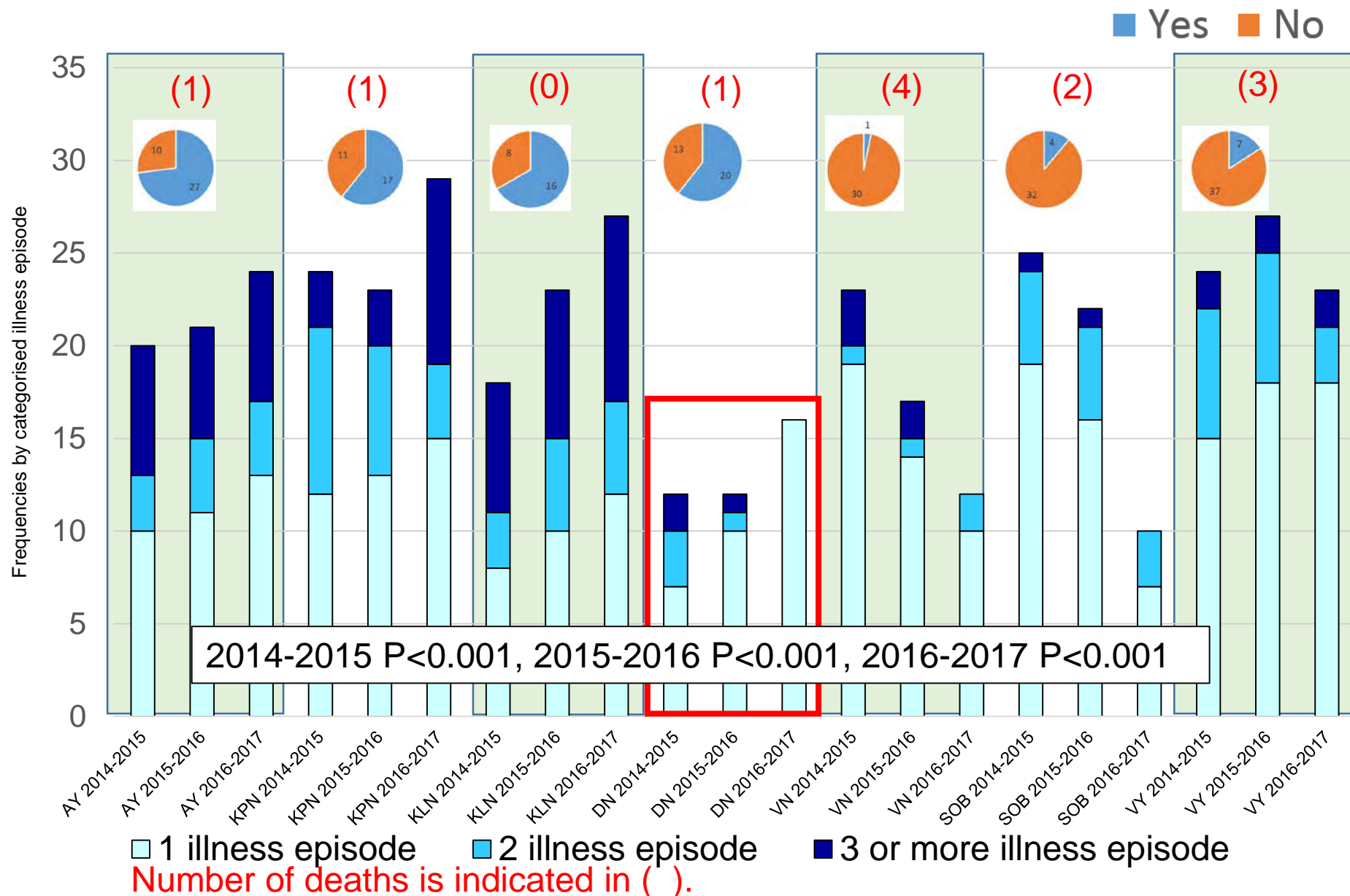- Establishing data collecting system with Android mobile phone

Aug. 2017

Tab. 1. Characteristics of care givers (n = 226)

	HDSS				Non-HDSS			P-value
	AY (n=36)	KPN (n=21)	KLN (n=23)	DN (N=33)	VN (n=38)	SOB (n=31)	VY (n=44)	
Ethnicity								
Phuthai	0	0	0	26	0	0	0	P<0.001
Tri	0	0	9	0	1	0	1	
Makong	34	21	11	6	33	29	40	
Unknown	2	0	3	1	4	2	3	
Education								
None	35	14	21	4	31	26	43	P<0.001
Dropout	1	7	2	27	5	4	1	
Complete	0	0	0	2	2	1	0	
# of children ever born								
Mean	4.3	4.1	2.9	3.2	3.6	4.1	4.4	P<0.05
(95% CI)	(3.4-5.2)	(3.4-4.9)	(2.4-3.4)	(2.6-3.8)	(2.8-4.4)	(3.4-4.7)	(3.8-5.0)	
Min – Max	1 – 11	1 – 8	1 – 7	1 – 9	1 – 10	1 – 7	1 – 10	
Children ever died								
Yes	14	5	0	9	11	6	12	n.s.
No	20	16	20	22	24	23	29	
Unknown	2	0	3	2	3	2	3	

Tab. 2. Major findings on child health

	2014-2015	2015-2016	2016-2017
Number of children enrolled	302	363	422
Follow-up period	108,450 person days	126,119 person days	147,540 person days
Mean age of the children (95% CI)	3.3 yrs (3.1-3.5 yrs)	3.8 yrs (3.5-4.0 yrs)	4.9 yrs (4.7-5.2 yrs)
Total sick days	1,080 days	925 days	799 days
Total illness episodes	248	234	230
Child with at least one illness episode	147	145	141
Mean of illness duration (95%CI)	7.3 ds (6.3-8.4 ds)	6.4 ds (5.5-7.3 ds)	5.7 ds (4.8-6.6 ds)
Number of children born	51 persons	61 persons	59 persons
Number of deaths	**10**	1	**1**
U5MR	196/1000 live births	16/1000 live births	17/1000 live births

Fig. 2. Reported deaths, BCG vaccination coverage, and frequency of Illness episode per child in 3 years by Village

2014-2015 P<0.001, 2015-2016 P<0.001, 2016-2017 P<0.001

□ 1 illness episode ■ 2 illness episode ■ 3 or more illness episode
Number of deaths is indicated in ( ).

Tab. 3. Multiple logistic regression model for frequency of illness episode

N=210

Variable	Coefficient (β)	Standard Error	Wald X^2	*P* value	Odds Ratio (95% CI)	
Intercept	-1.888	0.468	-	-	-	-
Number of siblings <5yrs old	0.508	0.155	10.803	0.001	1.662	1.228 – 2.250
Giving sticky rice	0.741	0.380	3.807	0.051	2.097	0.997 – 4.414
Better access to health facility	0.759	0.382	3.951	0.047	2.136	1.011 – 4.516
Vaccinated BCG	-1.260	0.399	9.948	0.002	0.284	0.130 – 0.621

Variables input: BCG vaccination, Delivered at home, Phuthai, Ever lost child prior to the study participation, Give a baby sticky rice one week after delivery, Number of siblings of the target child/children <5yrs old, Years spent at primary school, Better access to public health facility

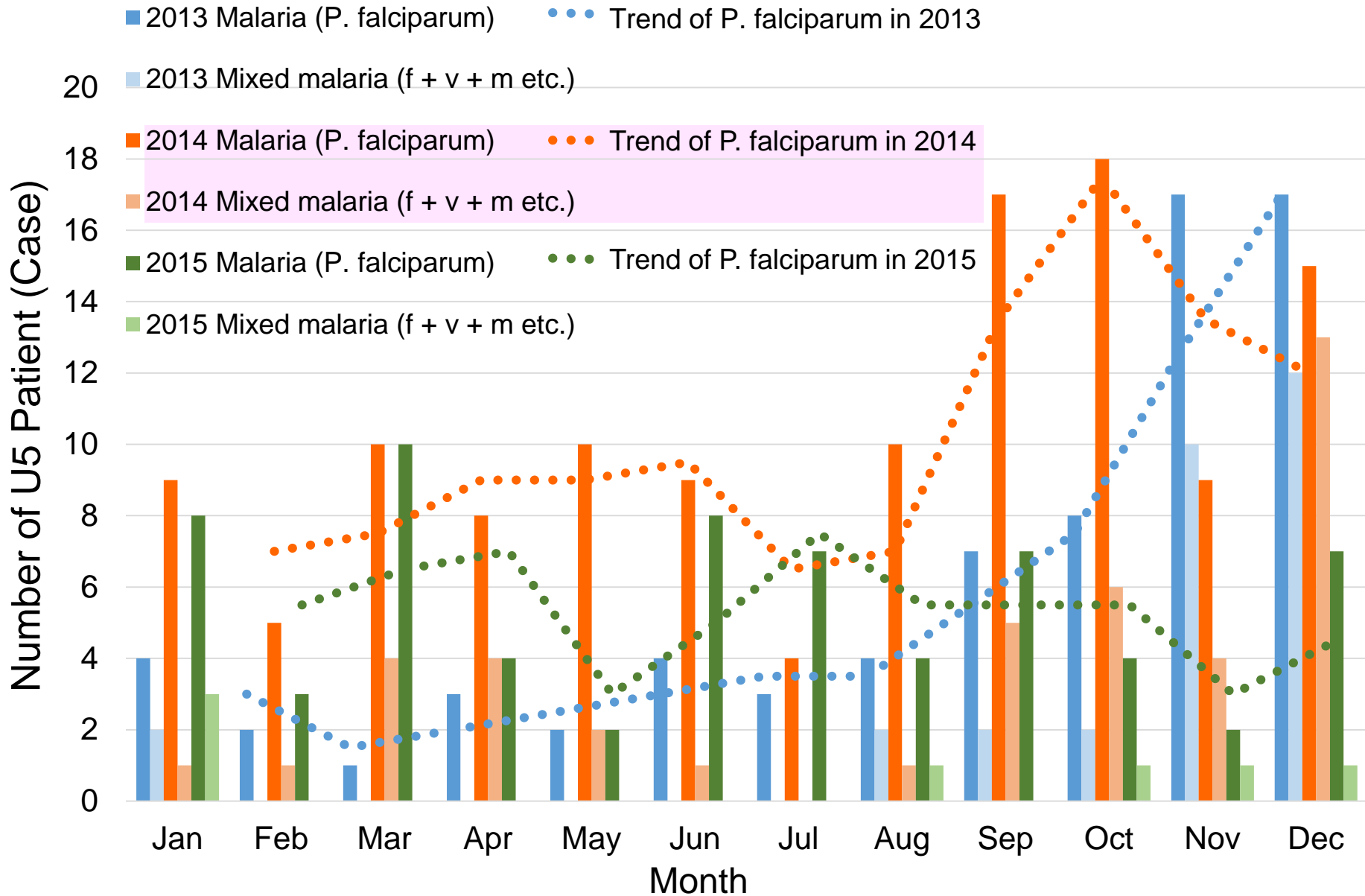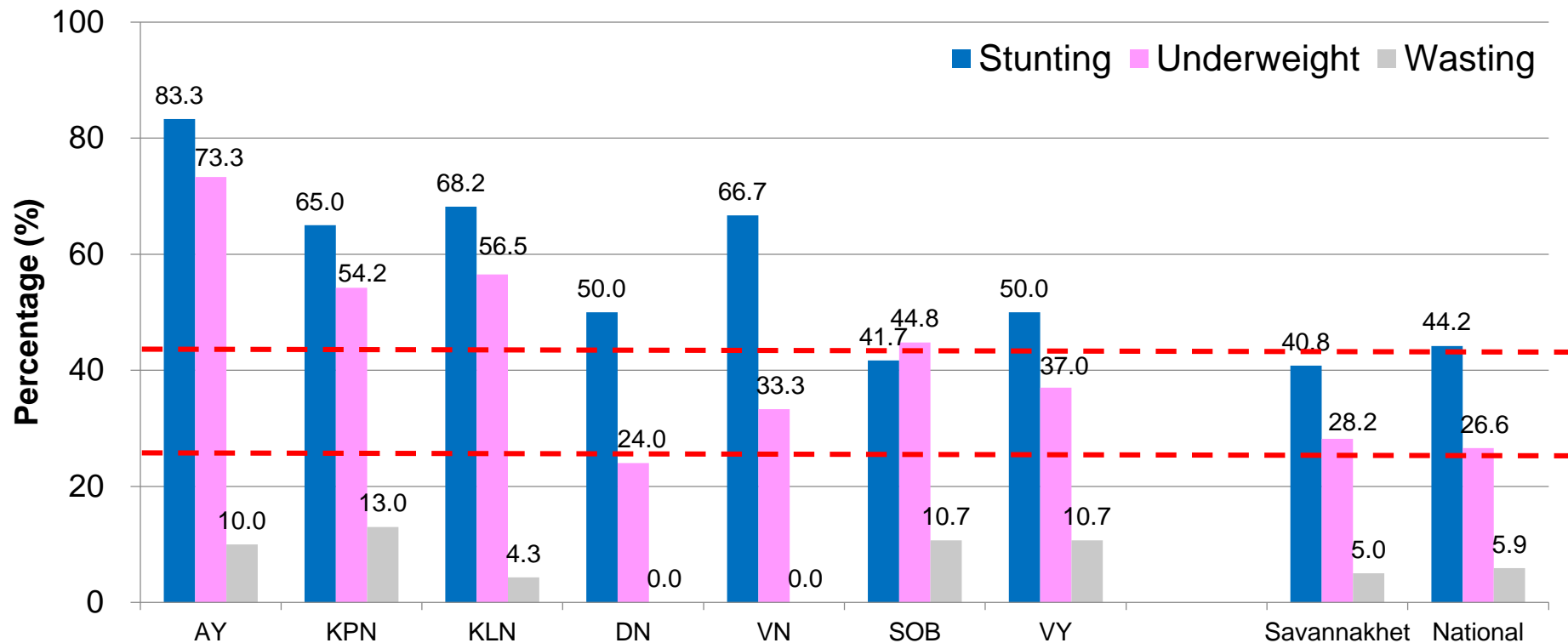Fig. 3. Malaria cases among Under-5 years-old Children at Don Savann Health Center

Fig. 4. Prevalence of undernutrition among study children by village

Mean HAZ, WAZ and WHZ of study children by village

	AY	KPN	KLN	DN	VN	SOB	VY	F-test
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	P-value
HAZ	n=30 -2.95 (1.53)	n=20 -2.41 (1.71)	n=22 -2.16 (1.81)	n=24 -1.66 (2.33)	n=21 -2.44 (1.26)	n=24 -1.43 (2.52)	n=24 -1.51 (2.06)	F-2.219 P=0.044
WAZ	n=30 -2.52 (1.14)	n=24 -1.95 (1.70)	n=23 -2.02 ((1.29)	n=25 -0.87 (1.76)	n=24 -1.83 (1.12)	n=29 -1.44 (1.84)	n=27 -1.26 (1.98)	F=3.259 P=0.005
WHZ	n=30 -1.02 (1.07)	n=23 -0.48 (1.64)	n=23 -0.83 (0.84)	n=25 0.39 (1.02)	n=24 -0.06 (1.34)	n=28 -0.52 (1.40)	n=28 0.79 (1.15)	F=4.117 P=0.001

Changing access to commodities, has it lead to **NUTRITION TRANSITION,** **IRRATIONAL USE OF MEDICINE** and …?

Thank you!