

KINGDOM OF CAMBODIA

NATION RELIGION KING



MINISTRY OF HEALTH

Report Early Warning Indicators 2011



Surveillance unit

National center for HIV/AIDS, Dermatology and STDs

Report

Early Warning Indicators 2011

1. Introduction

HIV prevalence among general population in Cambodia has been declining from 1.2% in 2003 to 0.8% in 2010. At the end of quarter 3, 2011, there were already 41287 adults, and 4360 pediatrics on ART. Preventing the occurrence of HIV DR, NCHADS has implemented programs such as; HIV DR Threshold survey, monitoring of HIV DR among patient receiving ART and the collection of early warning indicators from ART sites. The monitoring of EWIs has been started since 2008 and since then the data have been collected annually. In 2008, data were collected from 16 sites, 41 sites in 2009, 35 sites in 2010 and 31 sites were collected in 2011.

After many years of implementation of EWI, data have been used to provide feedback to ART sites and to inform relevant units at NCHADS to help improving the performance of each ART site including appointment keeping and ARV drugs management.

2. Objectives

The objectives of the EWI collection for HIV DR are:

- To collect the early warning indicators for HIV DR for NCHADS and Universal Access.
- To assess the extent to which ART programs are functioning to optimize the prevention of HIV drug resistance.
- To disseminate the findings to all ART site and all stakeholders.
- To identify barriers and provide support to improve the performance of OI/ART services at each ART site.

3. Methods

The methods for collecting data related to Early Warning Indicators and the formula for calculating indicators was based on the draft of Standard operating procedure developed by NCHADS. The detail document can be found on surveillance unit at NCHADS.

The ART sites included in to the study have changed from one round to another round. In principle, the selection of the ART was primarily based on the past performance of the ART site. That is, the sites will be included into the next round if their results from the previous round of EWI were not satisfied. In addition, the Surveillance unit also plans to conduct the EWI in all OI/ART clinics in Cambodia.

3.1. List of EWI collected

NCHADS has defined 9 EWI for HIV DR:

1. Percentage of months in which there were no ARV drug stock outages
2. Percentage of months no expired ARV drug was found at ART site
3. Storage conditions of ARV drugs
4. Percentage of patients started on a standard recommended first line ART regimen
5. Percentage of patients who are not lost to follow up at 12 months after ART initiation
6. Percentage of patients who are still on first line ART regimen 12 months after ART initiation
7. Proportion of patients who kept all appointments

In addition, there are additional two indicators that are still too difficult to collect. For example; (8) the proportion of patients who picked up their ARV drugs regularly and (9) the proportion of patients who have good adherence to treatment

Since the last 2 indicators are not available, the indicator 7 we used as a proxy for adherence of ART. Therefore, only 7 indicators are routine collected from ART sites in Cambodia.

3.2. ART sites of EWI data collection

In 2011, EWI data have been collected from 31 ART sites from 17 provinces for adults. Those ART is listed in the table below:

Table 1: List of ART site for adult patient selected in 2011.

No.	Province	ART Site
1.	Kampong Cham province (KCM)	- Memot Referral Hospital (RH) - Tbong Kmom Referral Hospital - Chheng Prey Referral Hospital - Provincial Hospital
2.	Svay Rieng province (SVR)	- Provincial Hospital - Romea Hek Referral Hospital
3.	Kampot province (KPT)	- Provincial Hospital - Kampong Trach Referral Hospital
4.	Kampong Speu Province (KSP)	- Provincial Hospital - Oudong Referral Hospital
5.	Battambang province (BTB)	- Provincial Hospital - Tmor Kol Referral Hospital - Military 5 Referral hospital
6.	Prah Vihear Province (PVH)	-Provincial Hospital
7.	Kampong Thom (KTM)	-Provincial Hospital
8.	Prah Sihanouk Province (SHV)	-Provincial Hospital
9.	Banteay Mean Chey province (BMC)	- Tmor Pork Referral Hospital - Poi Pet Health centre
10.	Koh Kong Province (KHK)	- Provincial Hospital - Sre Ambel Referral Hospital
11.	Kratie Province (KRT)	- Kratie Provincial Hospital
12.	Pailin Provincial Hospital (PLN)	- Provincial Hospital
13.	Prey Veng province (PVG).	- Pear Raing Referral Hospital - Neak Loeung Referral Hospital - Provincial Hospital
14.	Kandal province (KDL)	- Koh Thom Referral Hospital
15.	Siem Reap province (SRP)	- Provincial Hospital - Krolanh Referral Hospital -Sonikum Referral Hospital
16.	Oudor Meanchey province (OMC)	- Provincial Hospital
17.	Kampong Chhnang (KCN)	- Provincial Hospital

In addition EWI from pediatric OI/ART site were also conducted. In 2011, EWI data were collected from 20 ART pediatric sites of 15 provinces:

Table 2: List of ART site for pediatric patient selected in 2011.

No.	Province	ART Site
1.	Kampong Cham province (KCM)	- Tbong Kmom Referral Hospital - Provincial Hospital
2.	Svay Rieng province (SVR)	- Provincial Hospital - Romea Hek Referral Hospital
3.	Kampot province (KPT)	- Provincial Hospital -Kampong Trach Referral Hospital
4.	Kampong Speu Province (KSP)	- Provincial Hospital
5.	Battambang province (BTB)	- Provincial Hospital
6.	Prah Vihear Province (PVH)	-Provincial Hospital
7.	Kampong Thom (KTM)	-Provincial Hospital
8.	Prah Sihanouk Province (SHV)	-Provincial Hospital
9.	Koh Kong Province (KHK)	- Provincial Hospital
10.	Kratie Province (KRT)	- Kratie Provincial Hospital
11.	Pailin Provincial Hospital (PLN)	- Provincial Hospital
12.	Prey Veng province (PVG).	- Pear Raing Referral Hospital - Neak Loeung Referral Hospital - Provincial Hospital
13.	Kandal province (KDL)	- Koh Thom Referral Hospital
14.	Oudor Meanchey province (OMC)	- Provincial Hospital
15.	Kampong Chhnang (KCN)	- Provincial Hospital

3.3. EWI data collection procedure

The purpose of HIV DR EWI is to assess the extent to which ART programs are functioning to optimize prevention of HIV drug resistance. There are 7 main indicators to be collected in Cambodia. The summary of guidelines for collecting each indicator are presented below:

Indicator 1: Percentage of months in which there were no ARV drug stock outages

This indicator is measured by using ARV Stock Reports and interviewing pharmacist during ART site visits. A stock-out is when any essential ARV drugs is not available at an ART site. It will not be considered as a stock out in case when one essential ARV drug is out of stock, but its alternative drug is still available, thus there is no interruption on the treatment for patients.

Indicator 2: Percentage of months no expired ARV drug was found at ART site

This indicator is measured by inspecting ARV pharmacy during ART site visits and also drug records. In addition, an interview with a responsible pharmacist is also conducted in order to identify a period that might have problem with expired drug.

Any ARV drug which is not yet expired at the time when a patient receive the drug, but it will be expired before the next appointment date will be considered as 'expired drug'. In contrast, the presence of expired drug in the pharmacy does not automatically mean 'using expired drug' if there is evidence showing that those drugs are no longer in use.

Indicator 3: Storage conditions of ARV drugs

If ARV drugs are stored in good conditions, the score is "good"

If ARV drugs are stored in poor conditions, the score is "poor"

Good storage conditions is defined as drug is stored in a room temperature (the pharmacy equipped with fan and/or air conditioner) away from excess heat and moisture.

Indicator 4, 5, 6, 7:

The sample size needed for Indicator 4, 5, 6 and 7 will be determined based on the total number of new patients started ART in the sites in the previous year. Example, if the data collection is conducted in 2009, the total number of new ARV

patients initiating in 2008 will be used to decide on number of ART patients needed for each indicator.

Indicator 4: only a sample of most recent patients will be selected.

Indicator 5, 6, 7: new ART patients who started ART at least 15 months prior to the survey date.

Table 3: Number of adult patient records selected from ART sites.

No.	Name of adult sites visited in 2011	Number of patients to be sample for Indicator 4, 5, 6 and 7 in 2011
1	Memut RH	55
2	Tbong Khmum RH	100
3	Choeung Prey RH	75
4	Kampong Cham Hospital	130
5	Svay Rieng Hospital	100
6	Romeas Heak RH	18
7	Kampong Trach RH	100
8	Kampot Hospital	100
9	Kampong Speu Hospital	75
10	Oudong RH	47
11	Military region Nb.5	20
12	Battambang Hospital	136
13	Tmorkol RH	75
14	Preas Vihear Hospital	20
15	Kampong Thom Hospital	100
16	Sihanouk Ville Hospital	130
17	Poi Pet RH	130
18	Tamor Pouk RH	40
19	Pear Ring RH	18
20	Nak Loeung RH	130
21	Prey Veng Hospital	100
22	Kratie Hospital	40
23	Pailin Hospital	71
24	Sre Ambel RH	26
25	Koh Kong Hospital	75
26	Siem Reap Hospital	180
27	Krorlanh RH	24
28	Sonikum RH	75
29	Koh Thom RH	51
30	Odor Meanchey Hospital	51
31	Kg. Chhnang Hospital	72

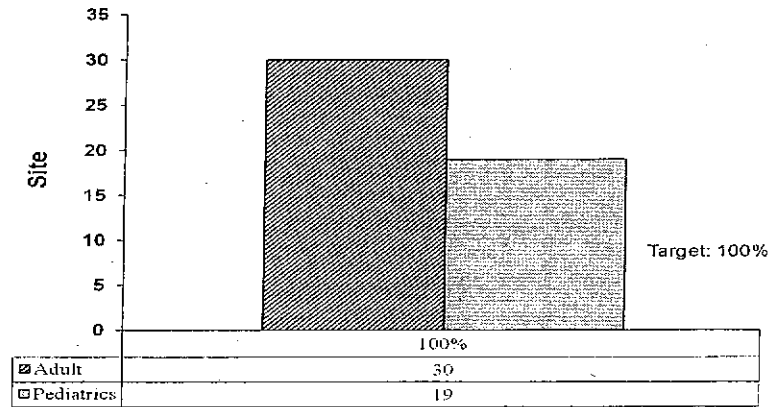
Table 4: Number of pediatric patient records collected in 2011.

	Name of pediatric sites visited in 2011	Number of patients to be sample for Indicator 4, 5, 6 and 7 in 2011
1	Romeas Heak	N/A
2	Svay Rieng Hospital	100
3	Kampong Trach	N/A
4	Kampot	26 (Take all)
5	Kampong Speu	16 (Take all)
6	Preas Vihear	N/A
7	Kampong Thom	15 (Take all)
8	Battambang	41 (Take all)
9	Sihanouk Ville	25 (Take all)
10	Pear Ring	2 (Take all)
11	Prey Veng	10 (Take all)
12	Neak Loeung	17 (Take all)
13	Kratie	40 (Take all)
14	Pailin	6 (Take all)
15	Tbong Khmum	10 (Take all)
16	Kampong Cham Hospital	19 (Take all)
17	Koh Kong	6 (Take all)
18	Odor Meanchey	2 (Take all)
19	Koh Thom RH	6 (Take all)
20	kg. chhnang	11 (Take all)

4. Results

Indicator 1: percentage of months in which there was no ARV drugs stock outages.

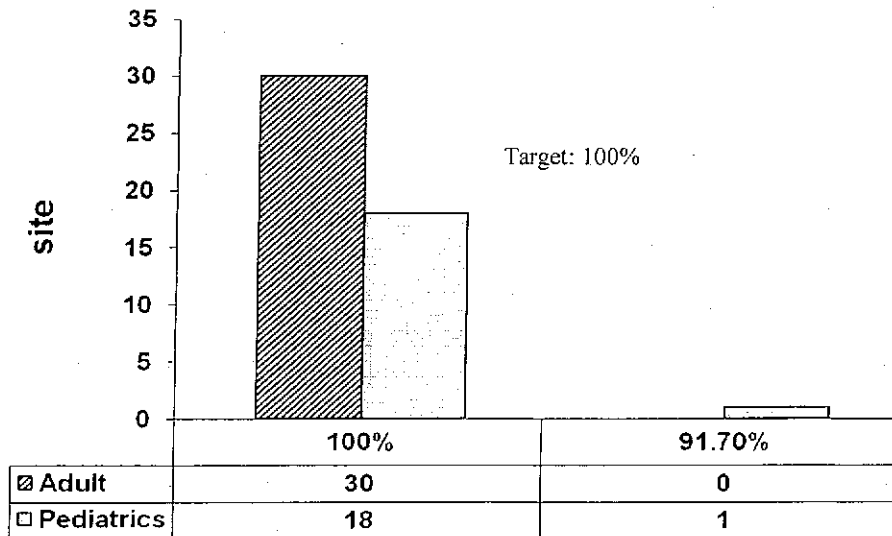
EWI #1: Percentage of months in which there were no ARV drug stock out



★ Pailin: No drug record.

There were no ARV drug stock outages at all sites (adults and pediatric sites) selected in 2011.

Indicator 2: percentage of months with no expired ARV drugs at the sites.

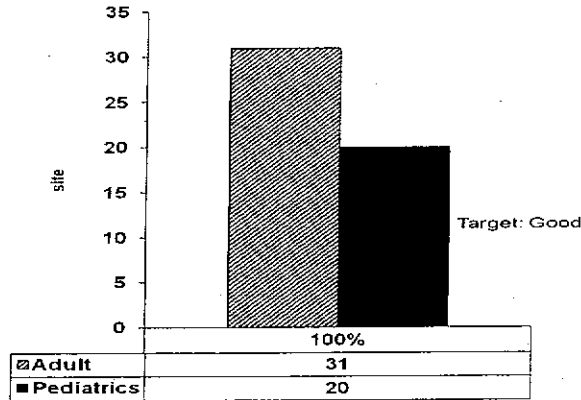


★ Pailin: No drug record.

Among adult ART site, there has been no expired ARV drugs found. Whereas, there were 91.70 per cents of months (One month with expired drug in the whole year) at pediatric sites where there were no expired ARV drugs.

Indicator 3: ARV drugs storage condition.

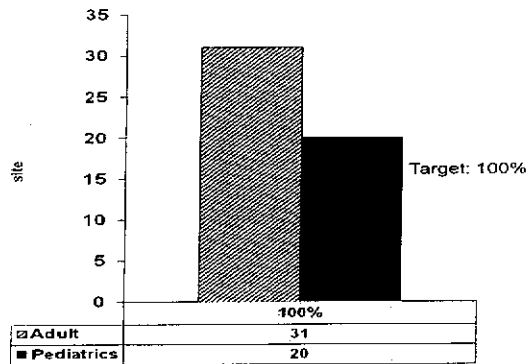
EWI #3: Storage conditions of ARV drugs



All adult and pediatric sites have good storage condition for ARV drugs.

Indicator 4: percentage of patients who started ART on a standard recommended first line regimen.

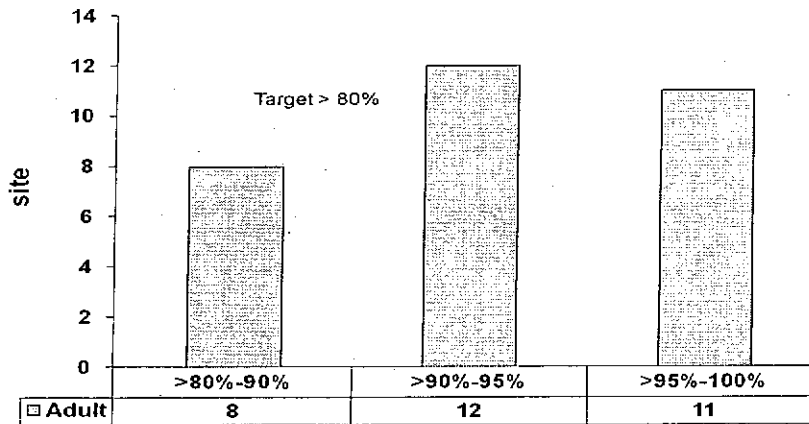
EWI #4: Percentage of patients started on standard recommended first line ART regimen



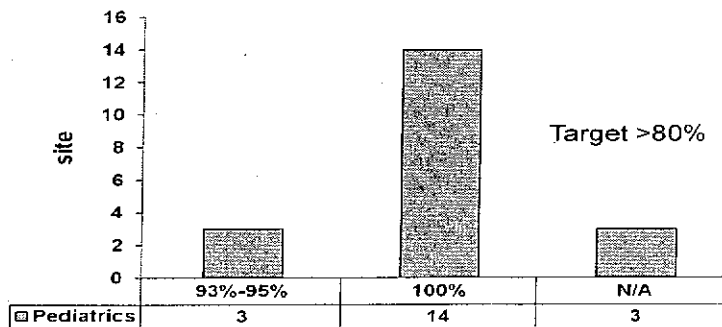
All pediatric and adult patients had started ARV with standard recommended first line regimen.

Indicator 5: percentage of patients on ART who are not lost to follow up during 12 months after initiation.

EWI #5: Percentage of patients not lost to follow up at 12 months after ART initiation (Adult)



EWI #5: Percentage of patients not lost to follow up at 12 months after ART initiation (Pediatrics)

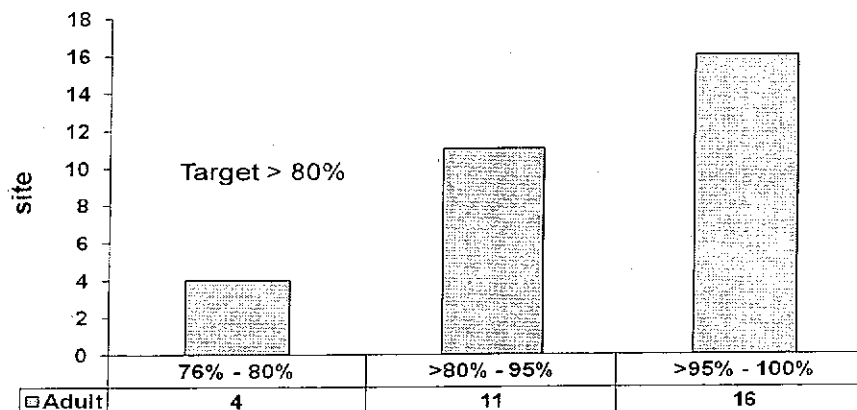


*N/A: Romeas Hek, Kampong Trach, Preah Vihear

For adult patients, on average, there were about 93 per cent of them who are not lost to follow up during 12 months after ART initiation. The proportion of not lost to follow up varied from ART sites to sites. For example: 8 ART sites has the percent of not lost to follow up between 80% - 90%. The percent of pediatric patients who are not lost to follow up during the same period of time are higher than adult patients at 99 per cent.

Indicator 6: percentage of patients still on first line regimen 12 months after ART initiation.

EWI #6: Percentage of patients still on first line regimen at 12 months after ART initiation (Adult)



Overall, 70.83 per cent of patients still on first line regimen 12 months after initiation for adult patients, whereas 95.91 per cent of pediatric patients still on first line regimen 12 months after ART initiation. By sites, there was 4 adult sites with the percentage of adult patient still on the first line regiment of 76% - 80%, 11 sites with the proportion from 80% - 95% and 16 site has the proportion of higher than 95%.

Indicator 7: percentage of patients on ART who kept all appointments

There were 78.6 per cent of patients kept all appointment for adult patients and 73.6 per cent of pediatric patients kept all appointment.

Table 5: Percent of appointment keeping among adult patient, by site

No.	Province	Sites	Sample size	Number kept all appointment in 12 month period	Percentage by site
1	KCM	Memut	55	44	80.0%
2	KCM	Provincial Hospital	130	113	86.9%
3	KCM	Tbong Khmum	100	89	89.0%
4	KCM	Choeung Prey	75	49	65.3%
5	SVR	Romeas Heak	18	14	77.8%

6	SVR	Provincial Hospital	100	99	99.0%
7	KPT	Kampong Trach	100	82	82.0%
8	KPT	Provincial Hospital	100	76	76.0%
9	KSP	Provincial Hospital	75	68	90.7%
10	KSP	Oudong	47	34	72.3%
11	BTB	Military region Nb.5	20	18	90.0%
12	BTB	Provincial Hospital	136	124	91.2%
13	BTB	Phmorkol RH	75	51	68.0%
14	PVH	Provincial Hospital	20	10	50.0%
15	KTM	Provincial Hospital	100	81	81.0%
16	SHV	Provincial Hospital	130	91	70.0%
17	BMC	Poi Pet	130	103	79.2%
18	BMC	Tamor Pourk	40	32	80.0%
19	PVG	Pear Ring	18	12	66.7%
20	PVG	Nak Loeung	130	89	68.5%
21	PVG	Provincial Hospital	100	81	81.0%
22	KRT	Provincial Hospital	40	30	75.0%
23	PLN	Provincial Hospital	71	57	80.3%
24	KHK	Sre Ambel	26	12	46.2%
25	KHK	Provincial Hospital	75	54	72.0%
26	OMC	Provincial Hospital	51	27	52.9%
27	KDL	Koh Thom RH	51	45	88.2%
28	SRP	Provincial Hospital	180	149	82.8%
29	SRP	Krorlanh RH	24	22	91.7%
30	SRP	Sonikum RH	75	41	54.7%
31	KCN	Provincial Hospital	72	60	83.3%
Total:			2364	1857	78.6%

Table 6: Percent of appointment keeping among pediatric patient, by site

No.	Provinces	Sites	Sample size	Number kept all appointments in 12 month period	Percentage by site
1	SVR	Romeas Heak	N/A	N/A	N/A
2	SVR	Provincial Hospital	100	87	87.0%
3	KPT	Kampong Trach	N/A	N/A	N/A
4	KSP	Provincial Hospital	16	15	93.8%
5	PVH	Provincial Hospital	N/A	N/A	N/A
6	KTM	Provincial Hospital	15	6	40.0%
7	BTB	Provincial Hospital	41	38	92.7%
8	SHV	Provincial Hospital	25	20	80.0%
9	PVG	Pear Ring	2	2	100.0%
10	PVG	Nak Loung	17	12	70.6%
11	KRT	Provincial Hospital	40	4	10.0%
12	PLN	Provincial Hospital	6	2	33.3%
13	KCM	Tbong Khmum	10	8	80.0%

14	KCM	Provincial Hospital	19	16	84.2%
15	KPT	Provincial Hospital	26	22	84.6%
16	KHK	Provincial Hospital	6	5	83.3%
17	PVG	Provincial Hospital	10	6	60.0%
18	Kandal	Koh Thom RH	6	5	83.3%
19	OMC	Samrorng	2	1	50.0%
20	KCN	Provincial Hospital	11	10	90.9%
Total			352	259	73.6%

Table 7: Average appointment keeping for adult and pediatric AIDS patients

	Sample size	Number kept all appointments in 12 month period	Percentage kept all appointments
Adult	2364	1857	78.6%
Child	352	259	73.6%
Total	2716	2116	77.9%

5. Discussion

Based on the finding from EWI in 2011, there were no ARV drugs stock outages at any ART sites and all ARV were stored in a good condition. Moreover, there was no use of expired ARV drugs for adult patients documented. However, for the pediatric ART service, it has been found that, on average, there was one month of using expired ARV drugs at ART clinics in year 2011 at 1 ART sites.

As expected, all pediatric and adult patients had started ARV based the standard recommended first line regimen. The percentage of patients who were not lost to follow up for adult and pediatric patients were all above the WHO's recommended target of 80%.

The data also revealed that the percentage of adult patients who were still on first line regimen at 12 months after ART initiation were below the WHO's recommended target at many ART sites. In addition, the percentage of both adult and pediatric patients on ART who kept all appointments were generally lower than the WHO's target.

6. Recommendation

Form the EWI 2011, the low appointment keeping remains one of the main problems at ART sites for both pediatric and adult AIDS patients. This issue should be further

explored by using more robust scientific investigation and the findings could be used to develop health intervention programs to improve the appointment keeping at ART sites.

ARV drug management including, emergency request and expired drug should be minimized through the coordination between NCHADS, CMS and provincial health departments in order to speed up the ARV distribution.

In addition, the issues such as no ARV drug records, loss of patient records, incompleteness of the data, and no patient registered book should be solved immediately to ensure the completeness and quality of the data from ART sites and ultimately to make HIV drug resistance surveillance more feasible and productive.

Seen and approved

Dr. Mean Chhivun
Director of NCHADS

Date: 5 March, 2012

Prepared by



Dr. Mun Phalkun
Chief of Surveillance Unit