



HIV Drug Resistance Surveillance: Early Warning Indicators 2008–2009

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Background

- HIV prevalence among general population in Cambodia has been declining from 1.2% in 2003 to 0.9% in 2006
- Despite HIV/AIDS epidemic started in 1990, antiretroviral treatment (ART) provision was initiated in 2001
- At the end of quarter 3, 2009, there were already about 36,077 patients (3,499 children) on ART at 52 OI/ART facilities

Background (Con't.)

- In 2006, Cambodia started implementing strategies to minimize the emergence of HIV drug resistance including;
 - The continuous supply of WHO pre-qualified ARV drug
 - ART provision using evidence-based standard highly active ART
 - Adherence support
 - Removal barriers to continuous access to ART
 - Prevention program to reduce HIV transmission from person on ART

Rationale

- Because of high mutation rate of HIV, it is expected that some degree of HIV Drug Resistance (HIV DR) will occur among person on ART
- The degree of transmission of resistant strains depends on many factors;
 - Degree of treatment success on a population
 - Degree of Success of prevention program
 - Degree of Success of ART program effort
- In 2003, one study from Pasteur Institute of Cambodia: of 144 newly infected ARV naïve people, 4.9% had drug resistance mutations to ARV drugs.

Objectives

- To update activities related to HIV DR
- To provide feedback of the finding on EWI among 41 ART site visited in 2008-2009
- To present the finding from Rapid Assessment on the appointment keeping among Children receiving ARV

HIV DR surveillance system

HIV DR surveillance typically includes 3 components;

- Monitoring of early warning indicators (EWIs)
 - Started in 2006 (data from 16 sites were collected)
 - In 2009: (data from 25 sites were collected)
- Surveillance of primary HIV DR transmission through threshold survey of recently infected people
 - In progress (53 HIV+ specimen out of 70 were collected)
 - 39 HIV+ specimen were sent to Canada lab for sequencing
- Monitoring of secondary HIV DR occurring among patients on ART at sentinel sites
 - In the preparation stage (conducted by Research Unit, NCHADS)

Early Warning Indicator

- From 2008 to 2009, 41 ART sites, in which 25 sites has pediatric service, has been visited
- Two regional feedback sessions have been conducted in Phnom Penh and Kampong Cham
- Base on the feedback of the visit in 2008, a Rapid Assessment was initiated in 2009 to examine factors associated with appointment keeping rate among children on ARV



Sources of EWI at ART site

- Data are collected from
 - ARV patient register
 - ARV patient records
 - Computer database (if available)
 - Pharmacy records
 - Inspection of the storage condition in the pharmacy
 - Interview with clinicians
 - Interview with patients who are on ARV



Findings

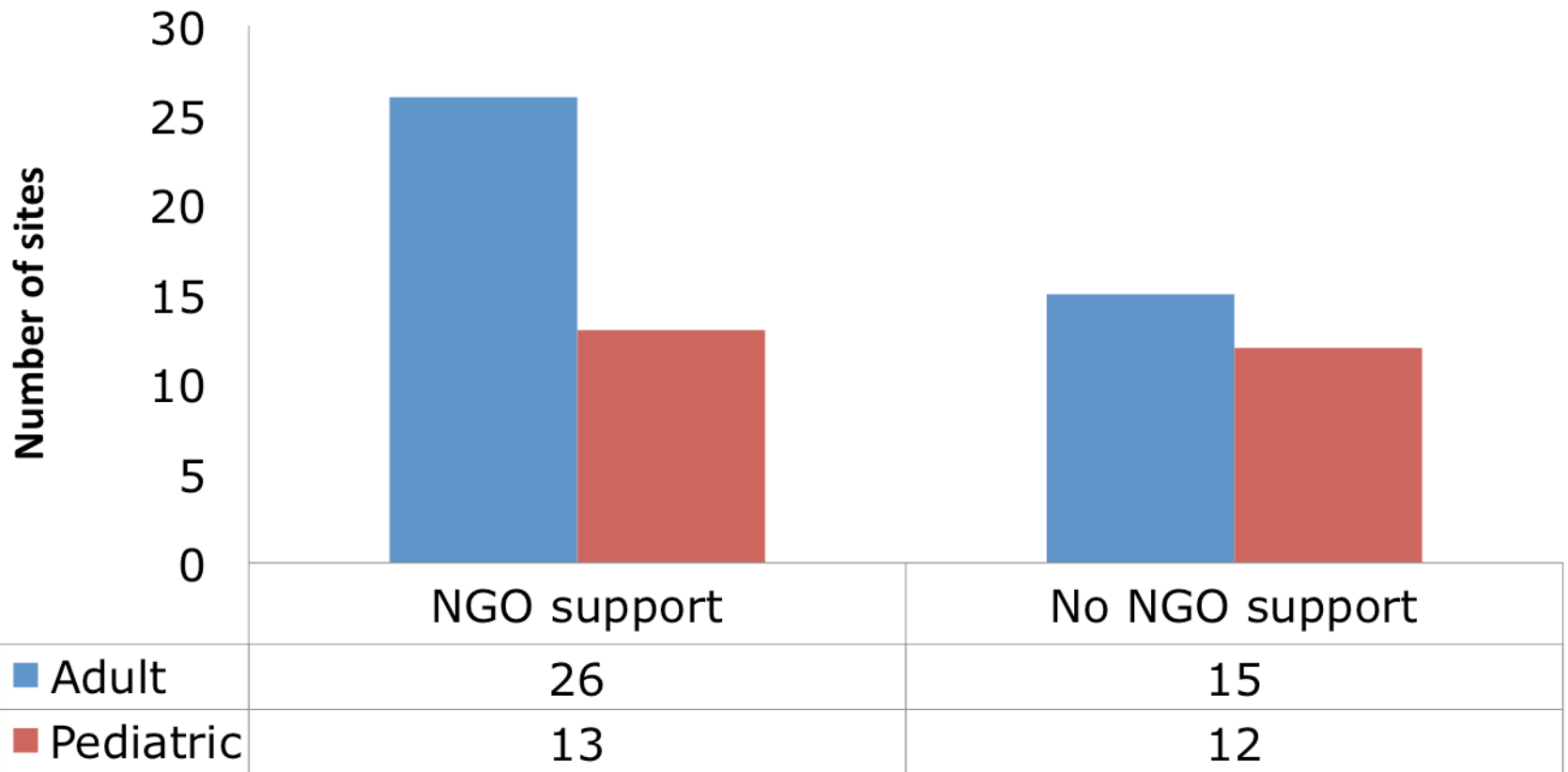
Characteristics of selected sites (1)

	Adult sites (n=41)		Pediatric sites (n=25)	
	<i>Urban (21)</i>	<i>Rural (20)</i>	<i>Urban (18)</i>	<i>Rural (7)</i>
Median number of OI/ARV patients served per day (range)	25 (5-130)	20 (3-60)	10 (1-40)	4 (1-40)
Median number of staff at the ART site	9 (5-32)	9(3-18)	5(3-18)	4(1-10)
Median number of clinicians at the site	3 (2-7)	3 (1-6)	2 (1-4)	2(1-4)
Median ratio of total patients to 1 clinician per day	8.3 (1-35)	6.7 (1-22.5)	5 (0.5-12.5)	1.5 (1-13.3)
Median ratio of patients to 1 supporting staff per day	3.8 (0.2-32.5)	3.3 (0.5-9)	2.8 (0.5-7)	1.4 (0.3-20)
Median days in a week ART site opens	5 (2-5)	4.5(3-5)	5(1-5)	4 (2-5)

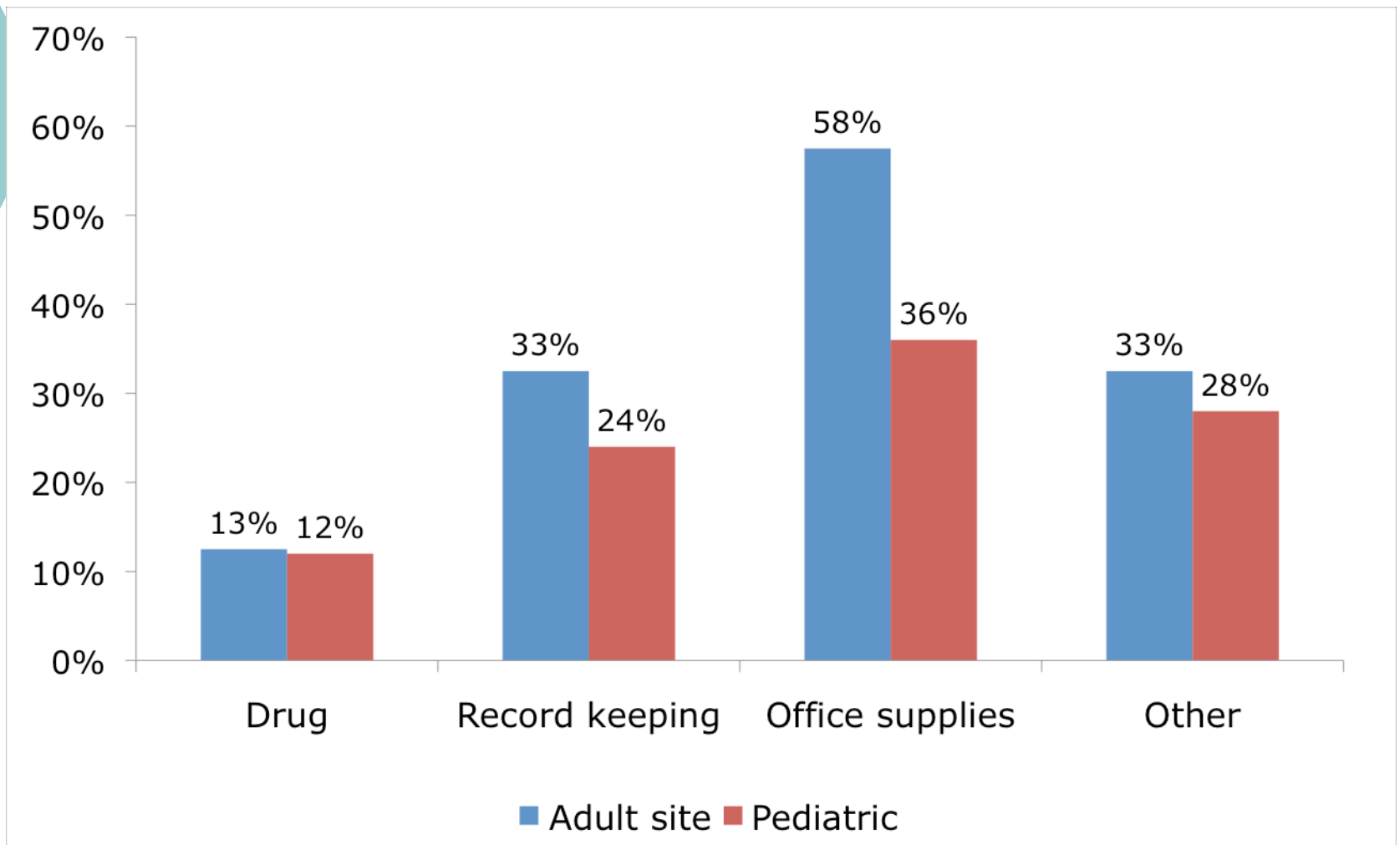
Characteristics of selected ART sites (2)

	Adult sites (n=41)		Pediatric sites (n=25)	
	<i>Urban (21)</i>	<i>Rural (20)</i>	<i>Urban (18)</i>	<i>Rural (7)</i>
Median % of staff receiving any kind of incentive	85%	78%	80%	40%
Median No. volunteers working at the site	4 (0–6)	3 (2–8)	2(0–6)	1(0–4)
Median No. staff working in the pharmacy	2 (1–5)	1 (1–5)	1 (1–5)	1(1–5)
Median No.HBC team working with the site	3(0–16)	4 (2–10)	3	3
Percentage of site with separate pharmacy	76%	80%	72%	85%

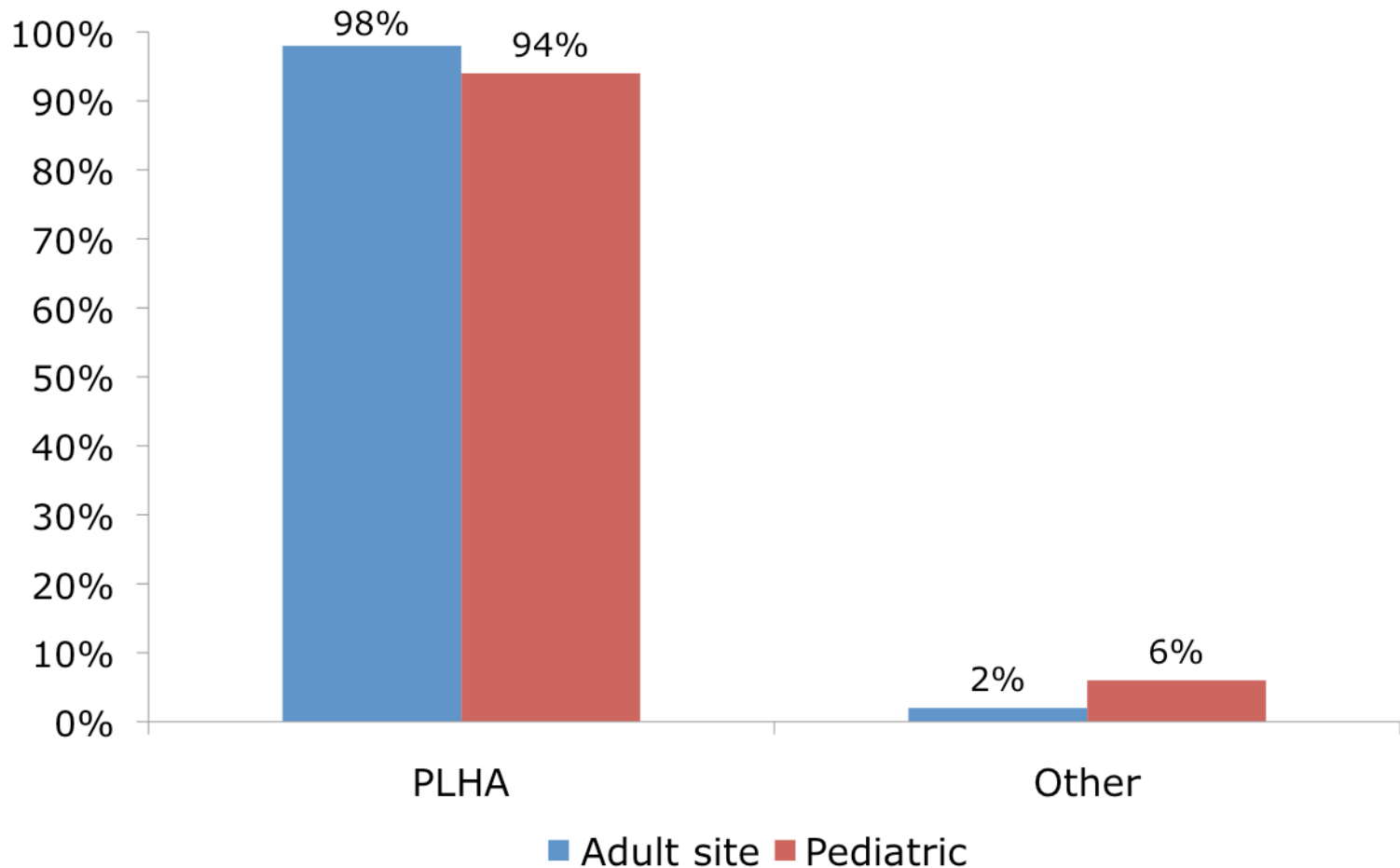
Any Kind of NGO support



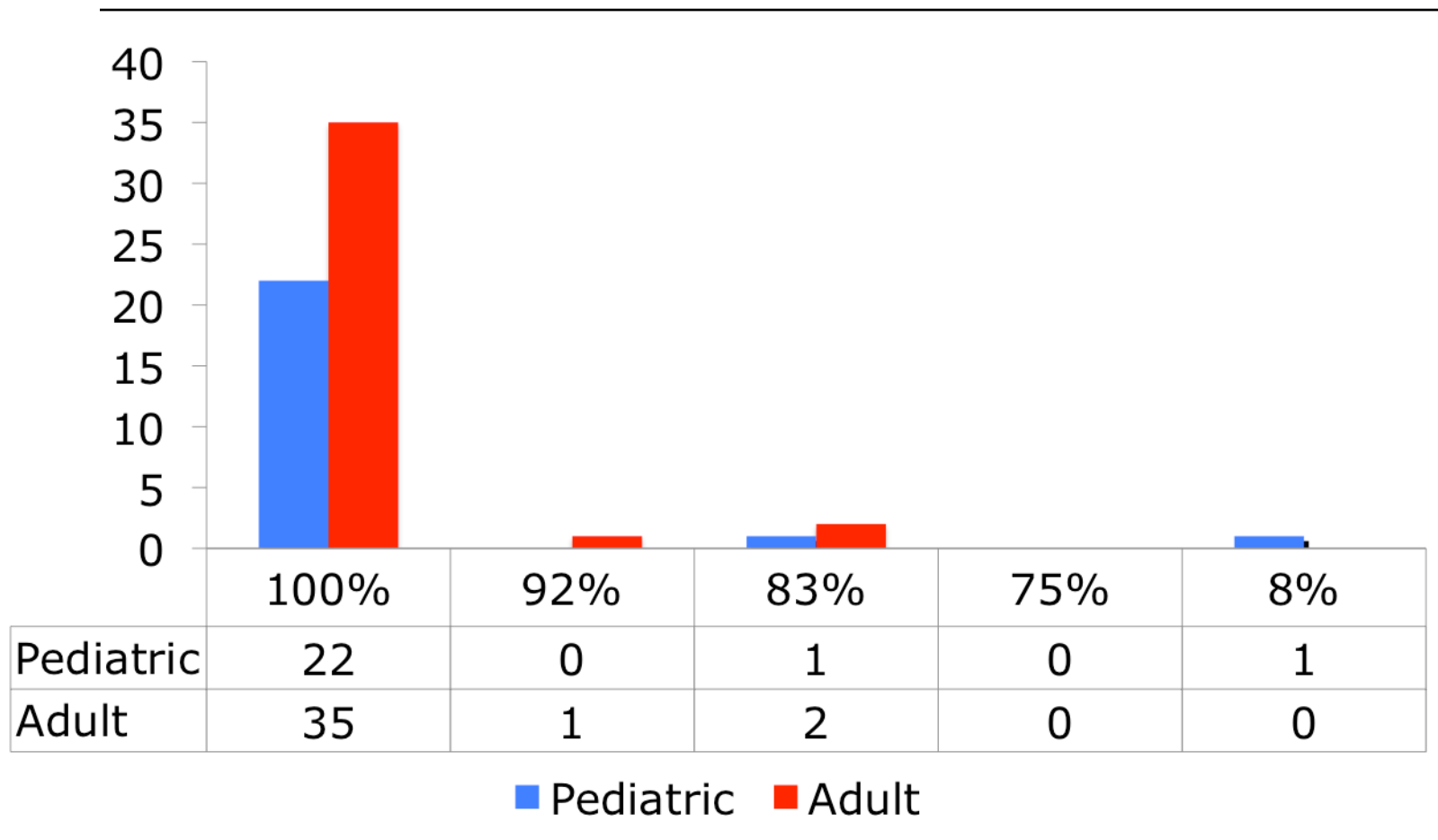
Services supported by NGOs



Volunteers working at the site

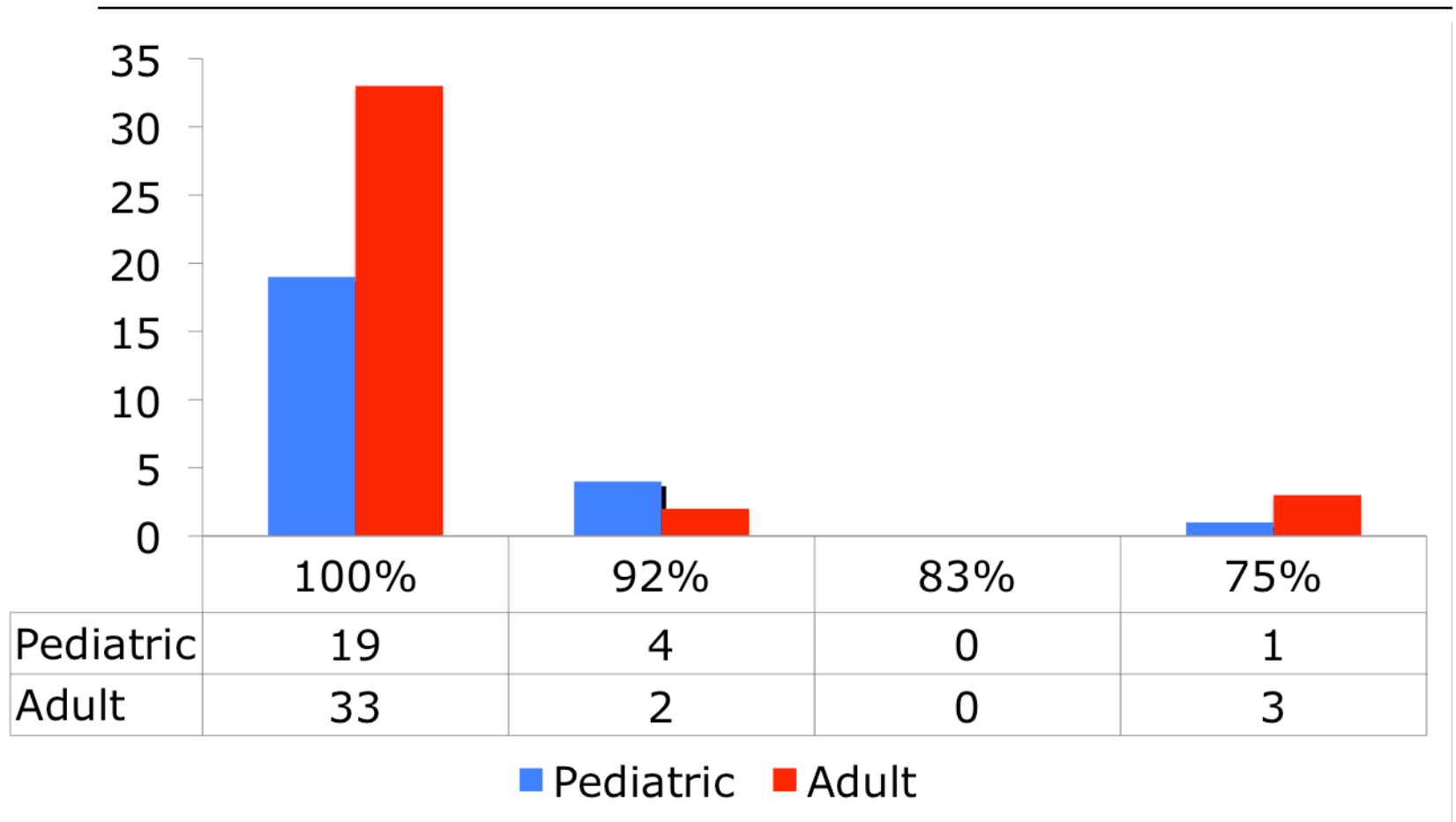


EWI #1: Percentage of months in which there were no ARV drug stock out



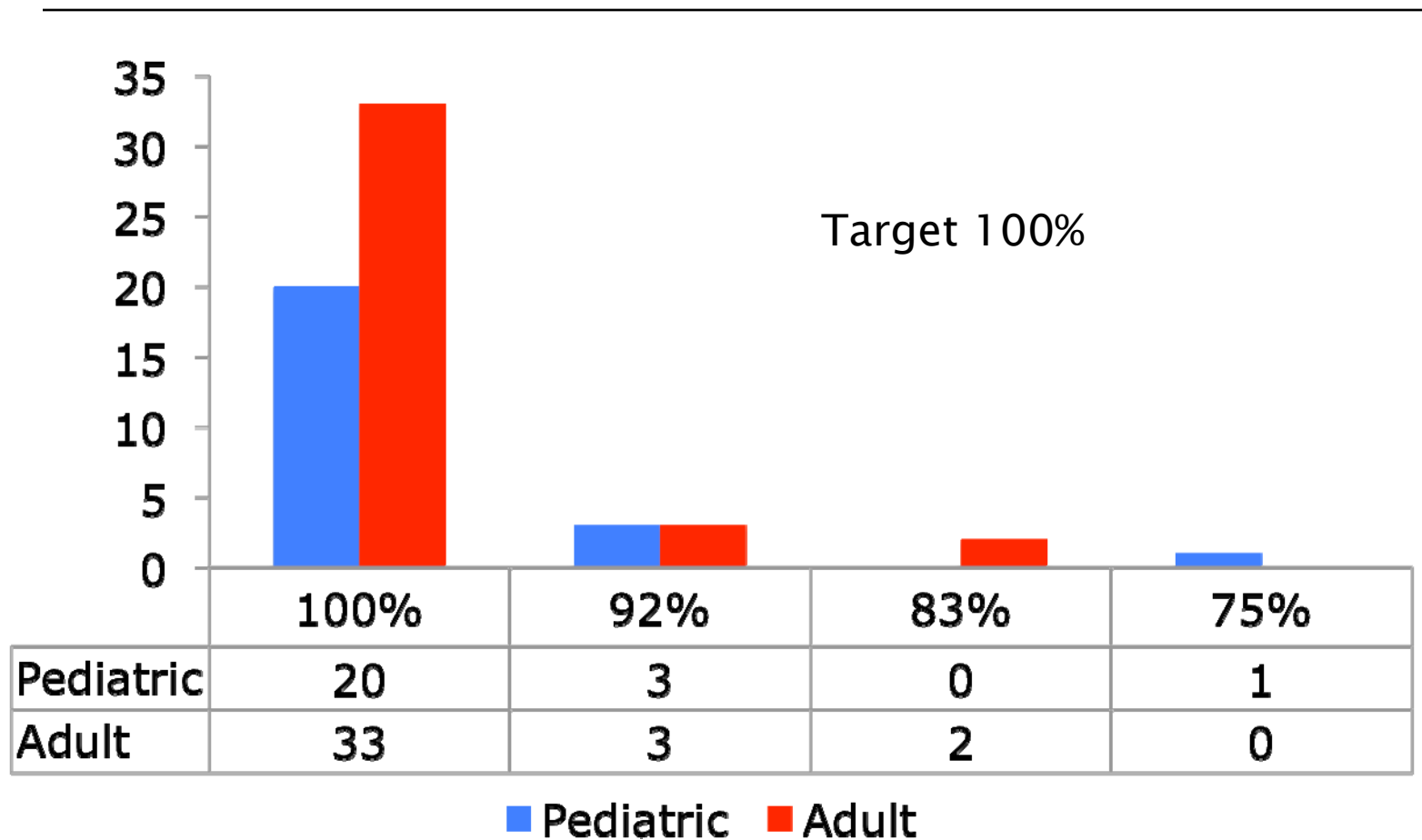
Note: No access to pharmacy data at ART in Kompong Cham province & Pear rang
 * Splitting a larger dose tablet to get smaller dose is considered as inappropriate use

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



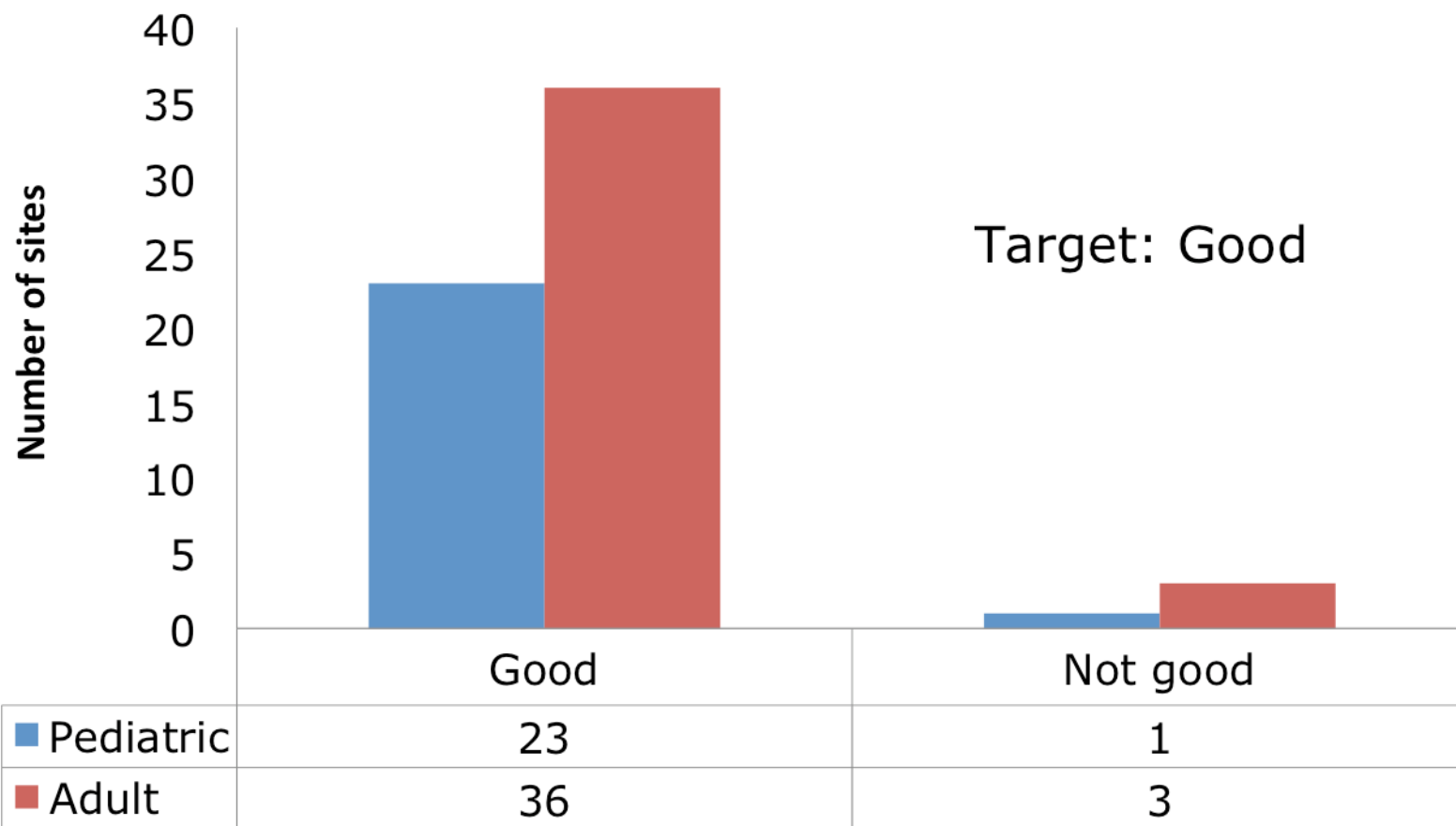
Note: No access to pharmacy data at ART in Kompong Cham and Pear rang

EWI #2b: Percentage of months no emergency request for ARV drug was found at ART site



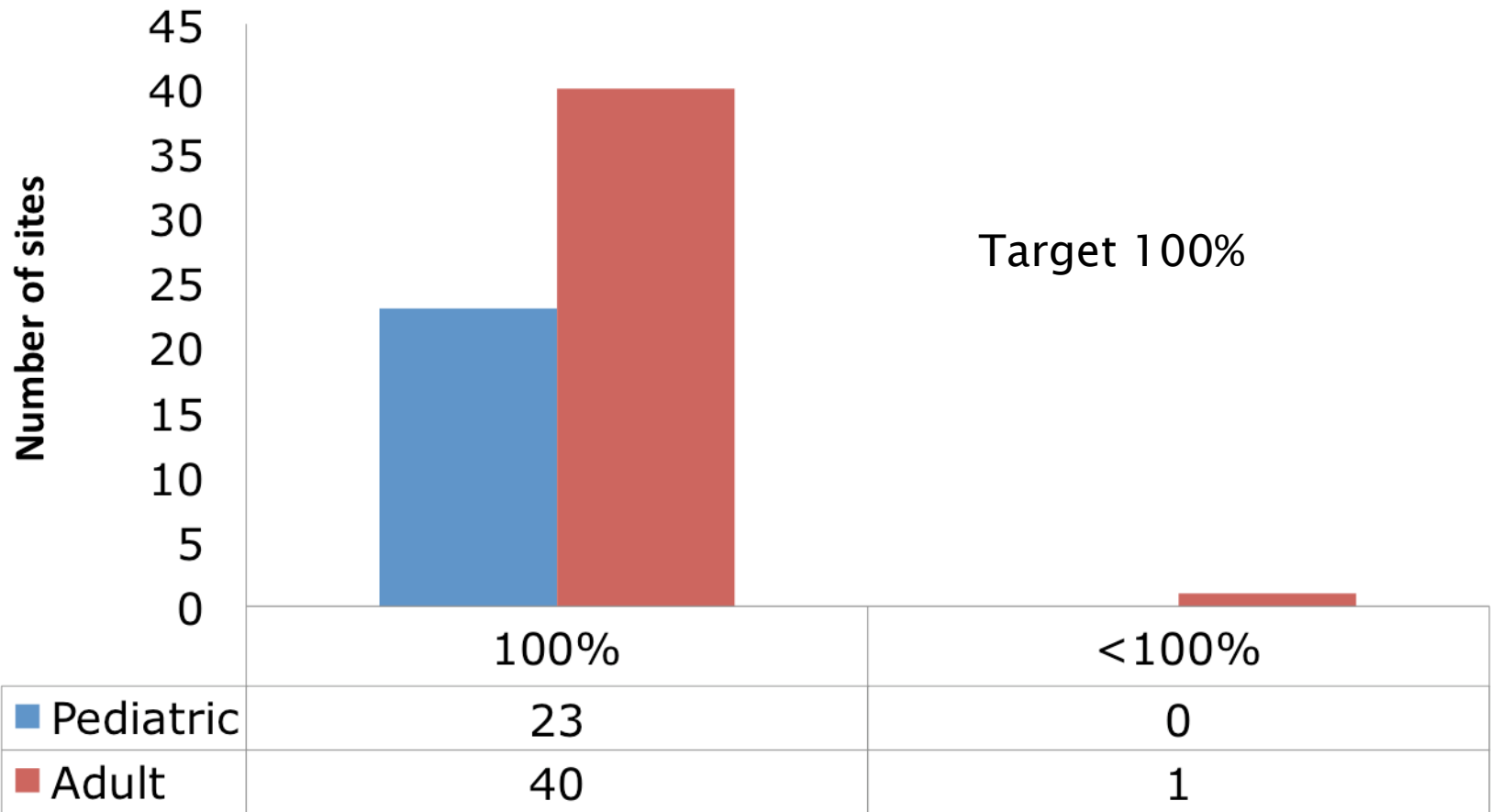
Note: No access to pharmacy data at ART in Kompong Cham & Pear rang

EWI #3: ARV drug are in storage conditions



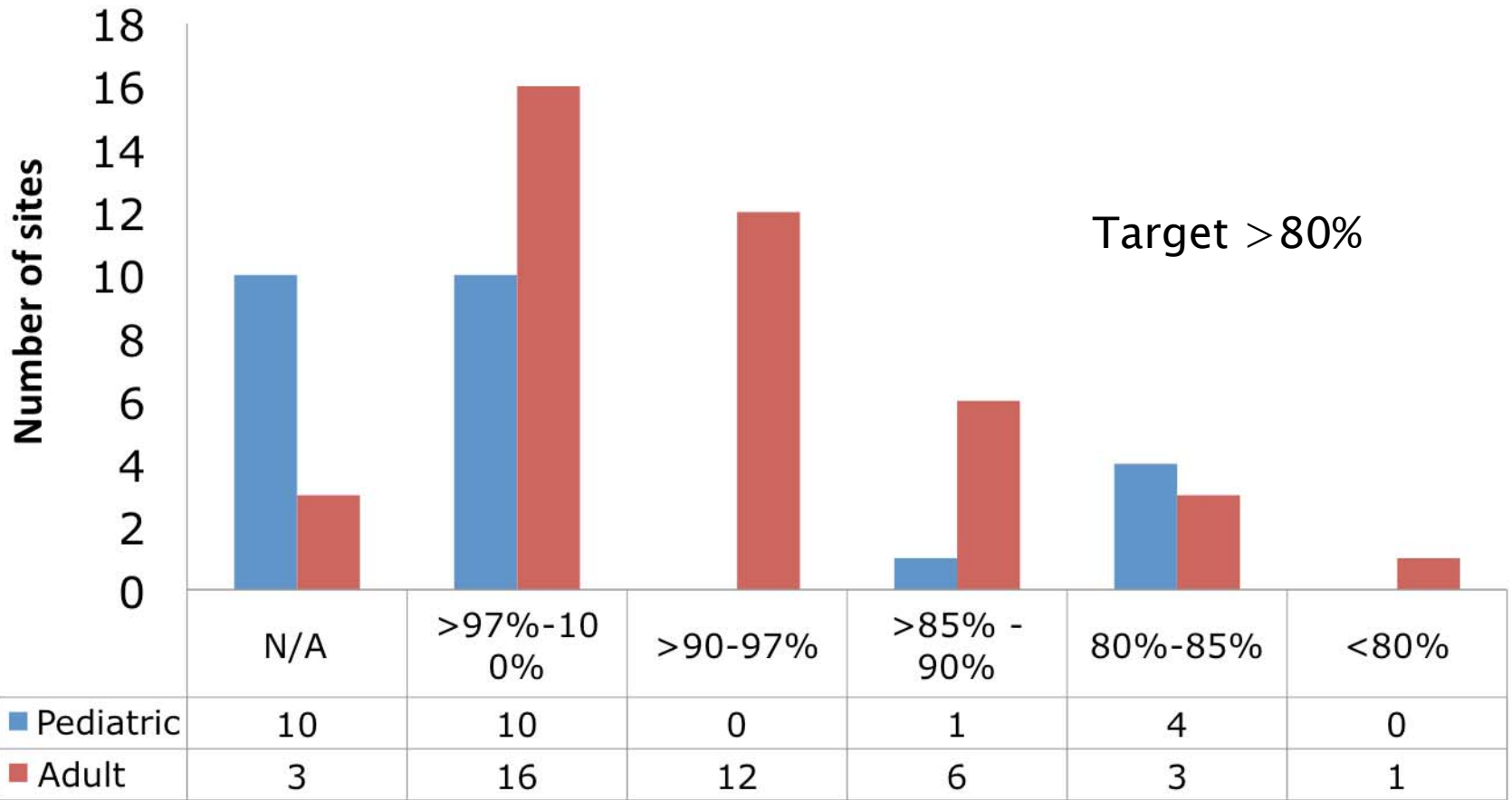
Note: No access to pharmacy data at ART in Kompong Cham & Pear rang

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

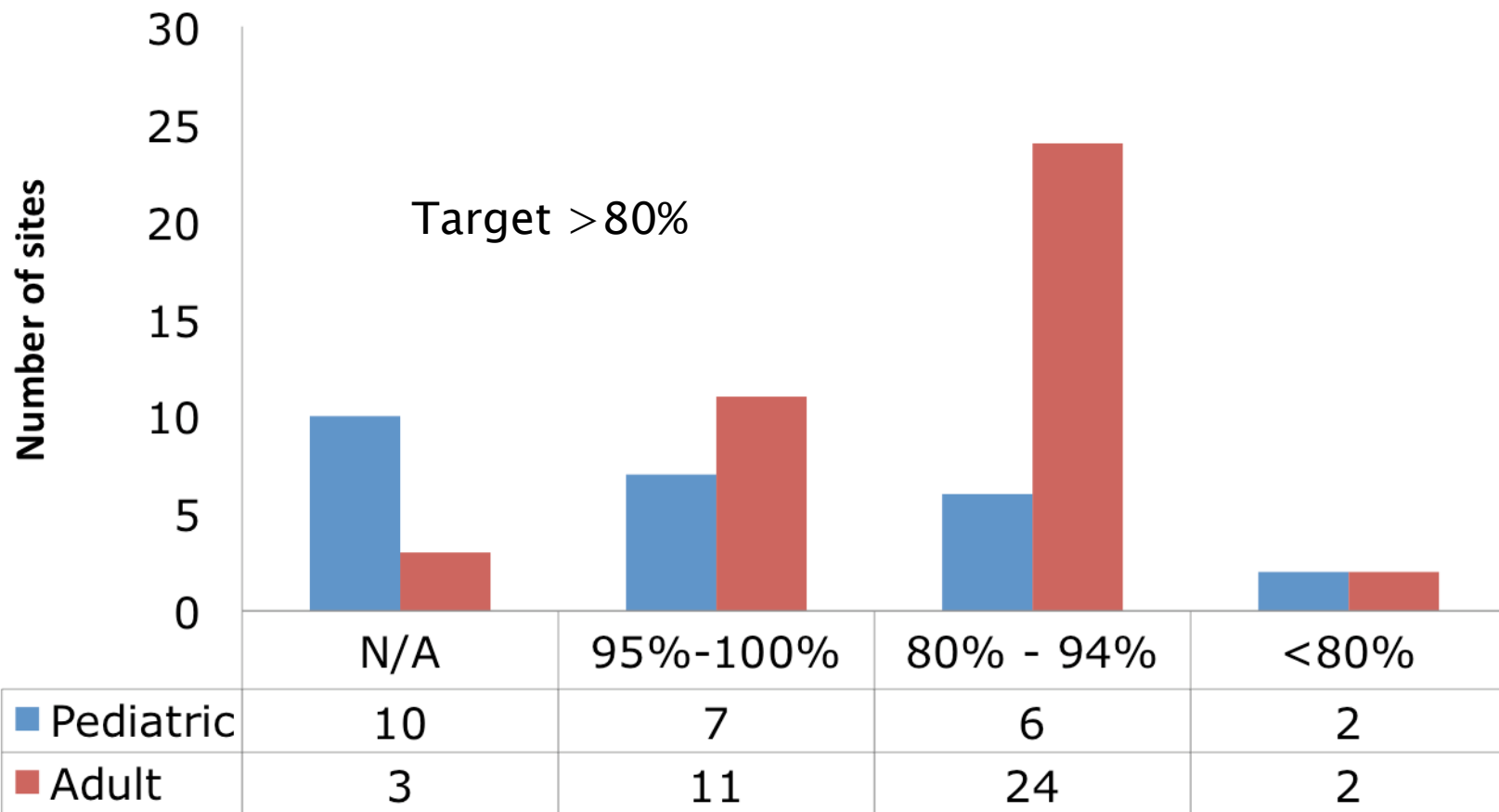


Start with second line since patient receive 2nd line from market

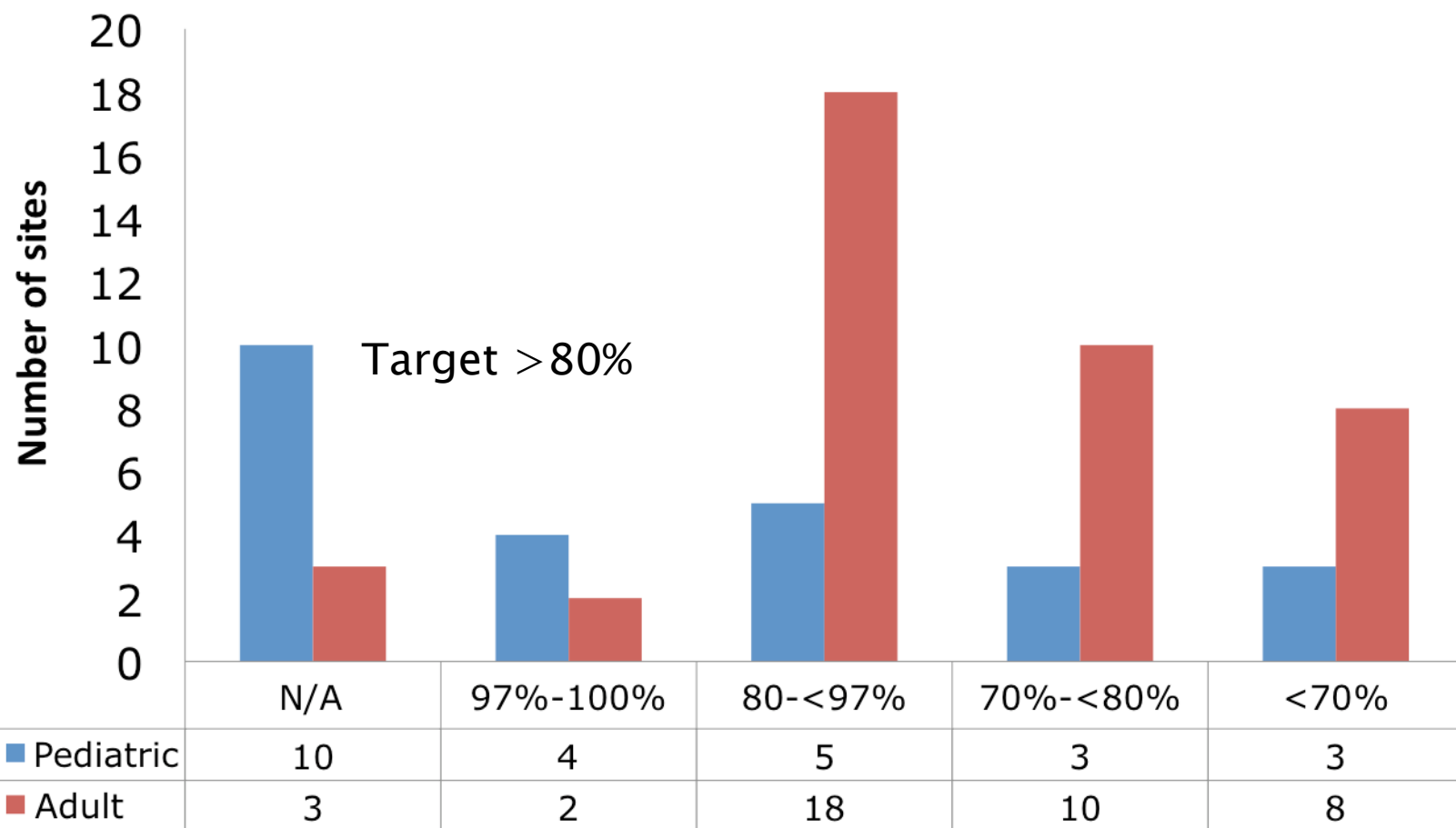
EWI #5: Percentage of patients not lost to follow up at 12 months after ART initiation



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



EWI #7: Proportion of patients who kept all appointments



Conclusions – adult sites

- Strong variation of ratio of ART patients to clinician per day
- There are still rooms for improvement in terms of drug stock out, expired drug and storage condition
- Good compliance to the national guideline on ARV regimen
- Most of the ART sites have high percentage of patients still on first line regimen at 12 months after ARV initiation
- The rates of lost to follow up at most of the sites are within an acceptable range
- Appointment keeping at some sites are below the target.

Conclusion – Pediatric sites

- There are also problems at the Pediatric sites regarding drug stock out, expired drug and storage condition
- Good performance in terms of choices of ARV regimen used at the start of the treatment
- Percentage of children still on first line regimen at 12 months after ART initiation is low at some sites
- Appointment keeping rate is lower than the target at many sites

Implications

- There have had **no eminent warning sign** related to the occurrence of HIV drug resistance all 41 sites,

However

- Poor appointment keeping rate has been observed at many ART sites
- ARV Drug management (drug supply, expired drug, storage) need to be improved
- Issues such as, using different patient registers, different codes and incompleteness of the data should be solved immediately in order to make HIV DR surveillance more feasible.



Thank You