CURE

(Capacity Upgrades on Reaching Elimination)

TB Project in Cambodia

Korean National Tuberculosis Association

Stop TB Partnership TB REACH hosted by UNOPS

Community Chest of Korea

01 Background

Jan. 2020 ~ Dec. 2021
(screening: 110 days)

Stop TB Partnership
TB REACH
hosted by UNOPS

Community Chest of Korea

Korean National Tuberculosis Association + Siem Reap PHD, CENAT/NTP

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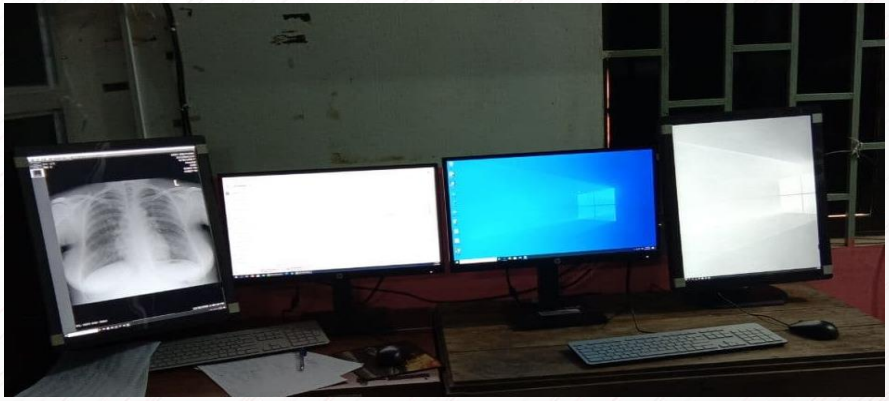
02 Program Planning

1 Ultra-portable x-ray device

1 CAD solution (offline)

4 GeneXpert machines



2 Special Monitors for reading digital x-ray images

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02 Program Planning (cont.)

Ultra-portable X-ray

- MINE 2.7 full kit
- Accessories
- Installation and Training
- 5 yrs warranty

CAD

- Lunit INSIGHT
- Offline

Total 59,600 USD

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02 CXR & CAD in the field

02 Program Planning (cont.)

MOU with NTP and **Siem Reap PHD**

CATA Screening Field Visit

Launching Ceremony

02 Program Planning (cont.)

Training

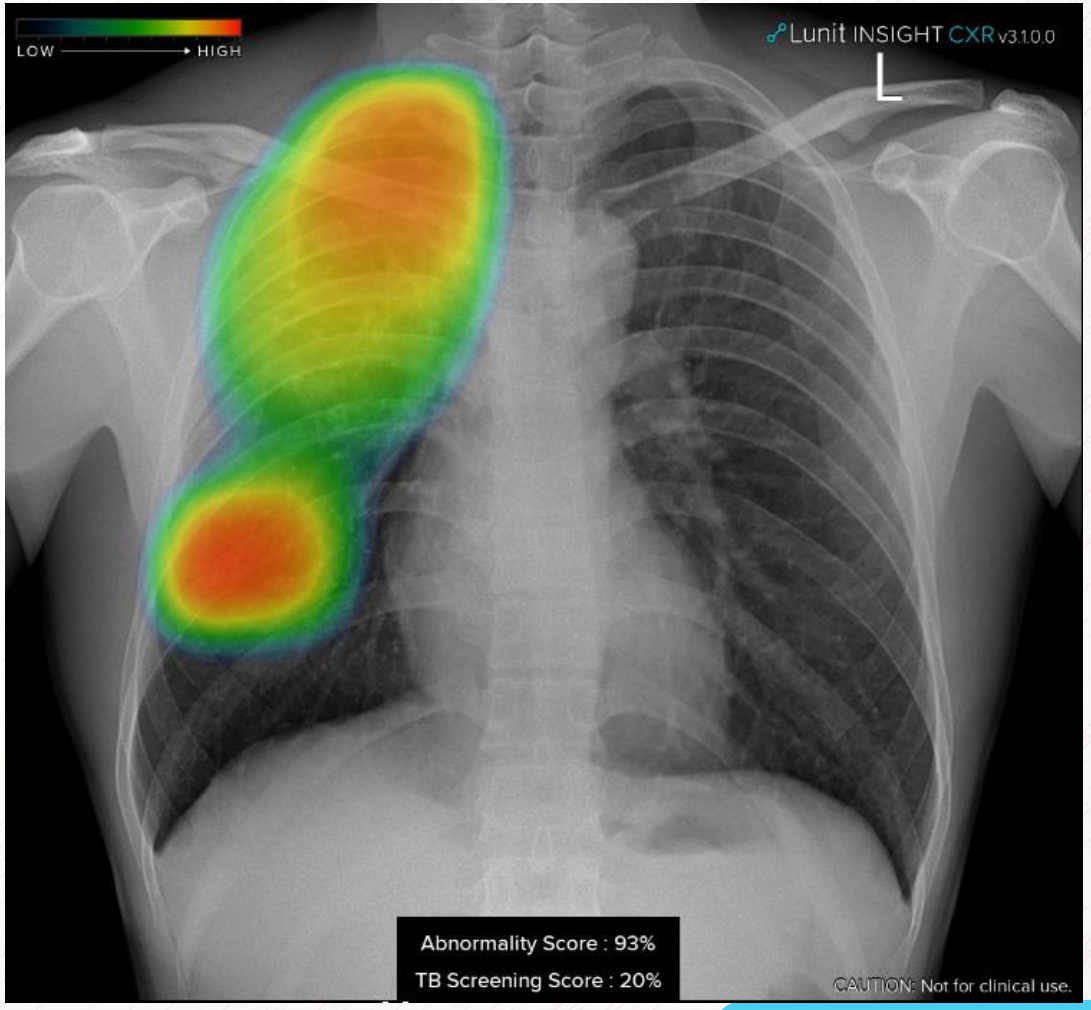


Preliminary test / Pilot




03 Threshold Score Selection

- Threshold Score: 15 for TB Score
- 30% of presumptive TB cases
- Xpert capacity per day



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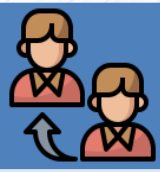
04 Mobile Screening Process on spot

1	2	3	4	5	6	7
						
REGISTRATION	**INTERVIEW**	**X-RAY TEST**	**X-RAY READING**	**Bacteriological TEST**	**DATA SHARING**	**REFERRAL**
Check basic informatizon of participants like name, address, age and etc.	Interview all clients 15 years old and above for symptom screening	Take digital chest X-ray (DXR) of all interviewed clients	Distinguish "Presumptive TB" by (CAD)	GeneXpert RIF/MTB Test of Presumptive TB cases selected by TB symptoms and CAD	All data sent to ACRH physicians on daily basis	Submit "Daily TB PATIENT REFERRAL LIST" to the Health Center
1) 1 Head of Community 2) 1 VHSH	1) Receptionist 2) 1 Health Center Staff	Rad Technician		1) Lab Technician 2) 1 Health Center Staff	Receptionist	Data Manager

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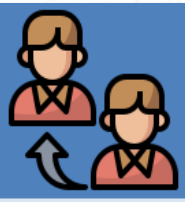
04 Process after mobile screening

8	9	10	11	12	13
					
CXR REREADING	**SPECIMEN COLLECTION**	**Bacteriological TEST**	**REFERRAL**	**TREATMENT**	**CHECK RESULTS**
Physicians from ACRH read all clients' CXR again on the daily basis and make a clinical/final diagonosis.	The additional sputa/cases which CAD misses are collected by the mobile team.	GeneXpert RIF/MTB Test of Presumptive TB cases found by ACRH physicians	Submit "Extra TB Patient and Other Diseases Referral List" to the Health Center	Register TB Patients according to national guideline by national institution	Data Manager will collect Tx results of patients found by the project
4 physicians from ACRH	Mobile Team	Lab Technician	1) Data Manager 2) Receptionist	Health Center / DOTS	Data Manager

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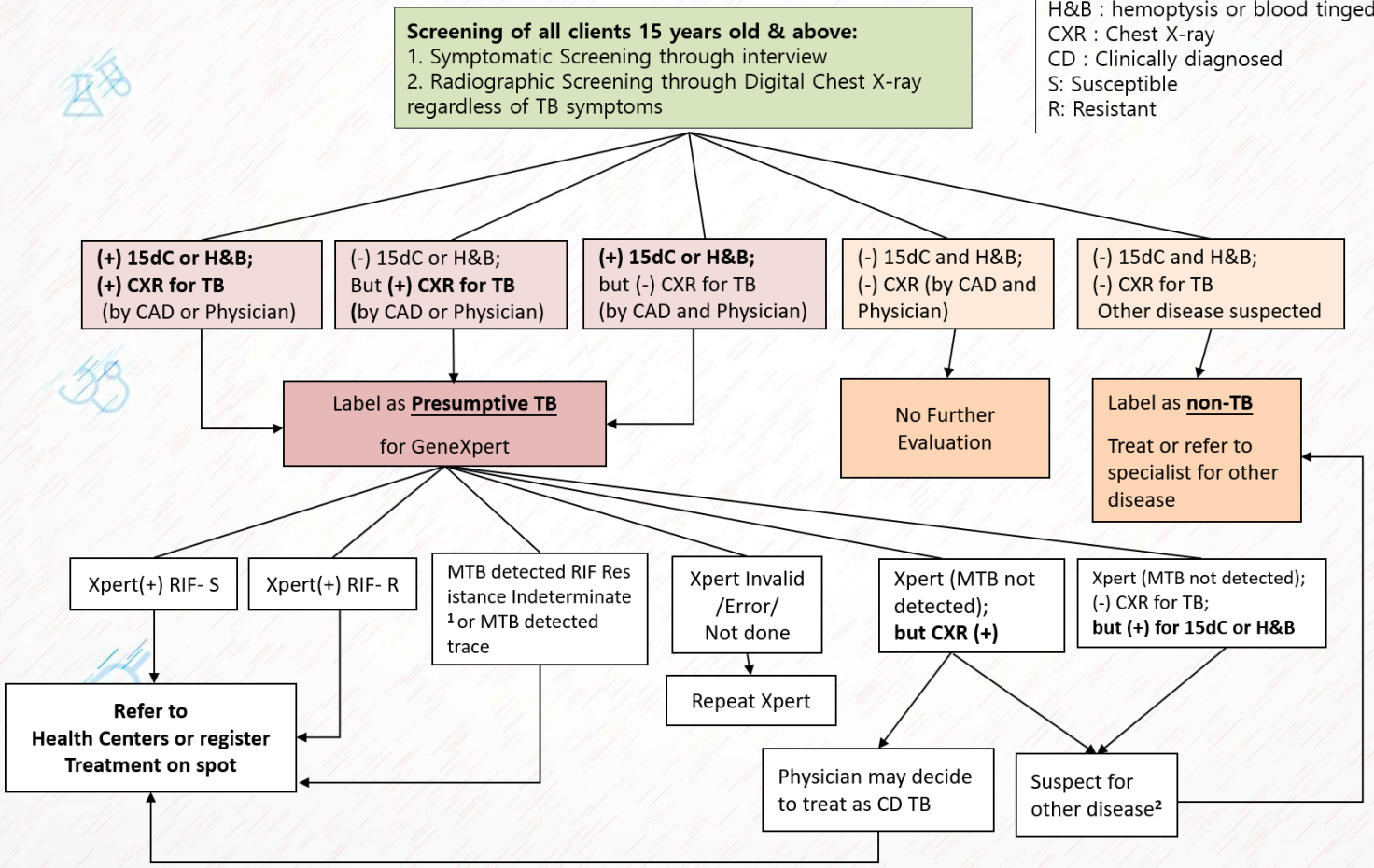
05 Screening Algorithm

15dC : ≥ 15days of cough
H&B : hemoptysis or blood tinged sputum
CXR : Chest X-ray
CD : Clinically diagnosed
S: Susceptible
R: Resistant



Note 1 : For RIF Resistance Indeterminate Genexpert results, no need to repeat the test in terms of the Cambodian national guideline.

Note 2 : List of clients with other diseases or exceptional cases should be reported to health centers.

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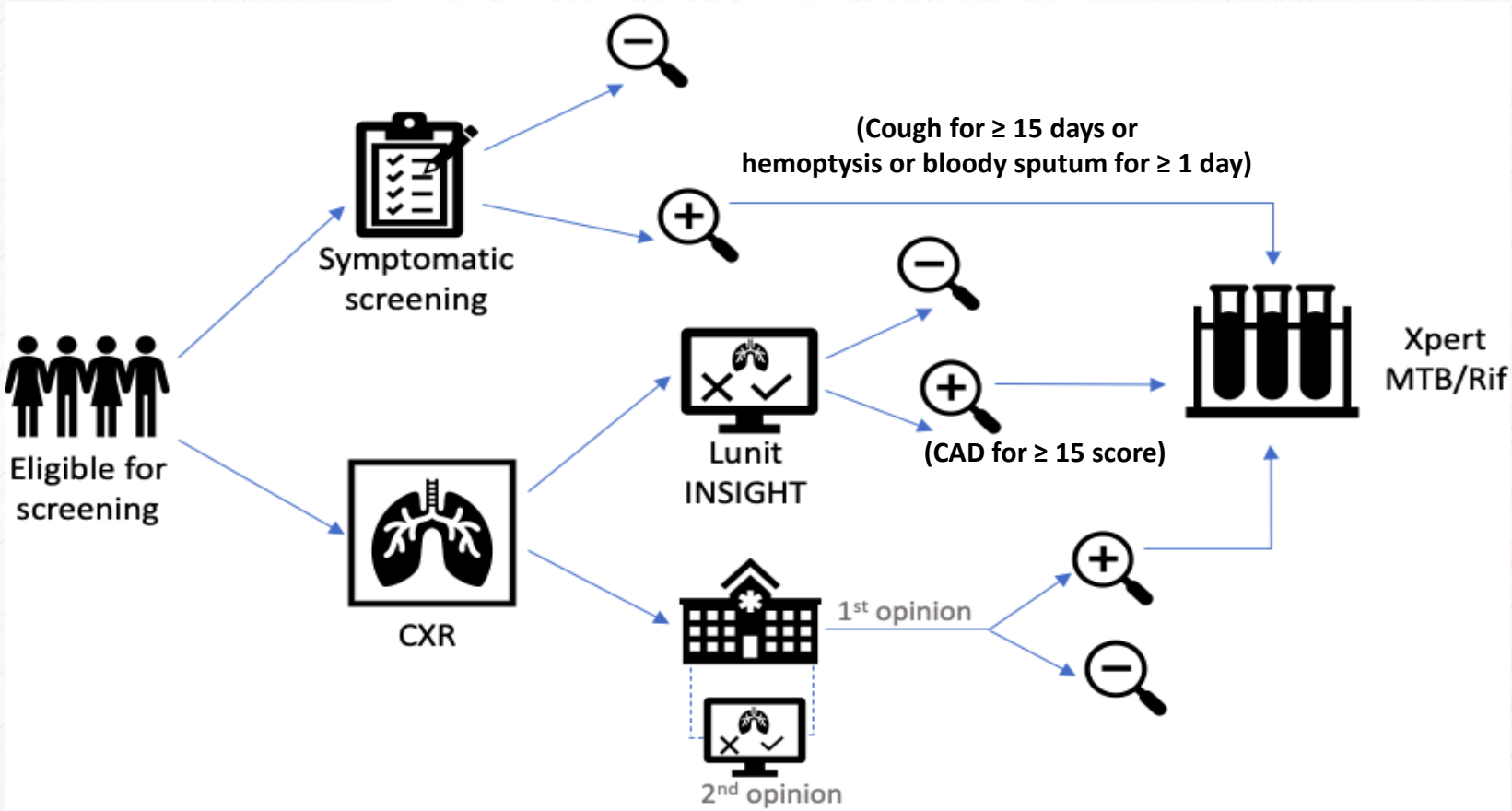
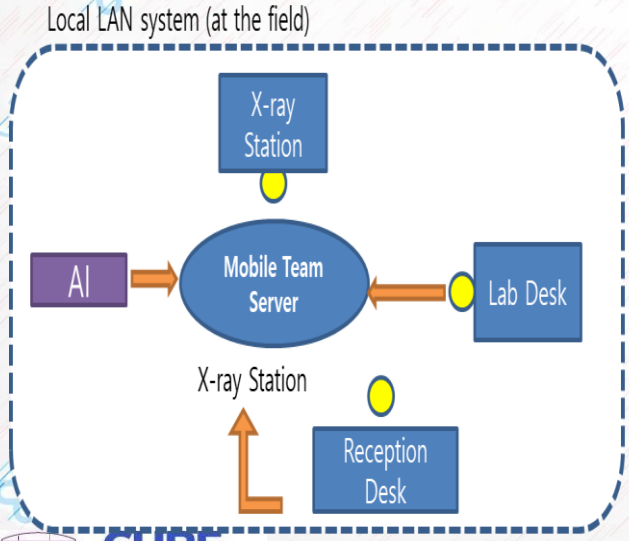
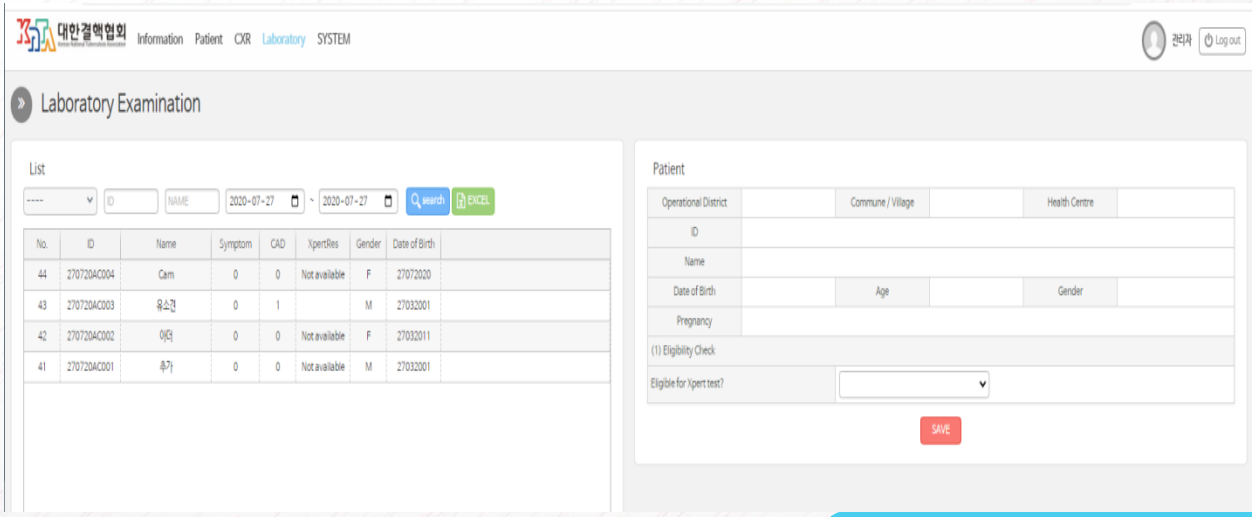
05 Algorithm for Xpert MTB/Rif



06 Data Management

- Developed the electronic local data management system to use without access to the internet in the field.
- Only persons allowed to log into the system could manage data.
- Not integrated with the HIS, but only the TB patients' list was reported to the designated HCs.



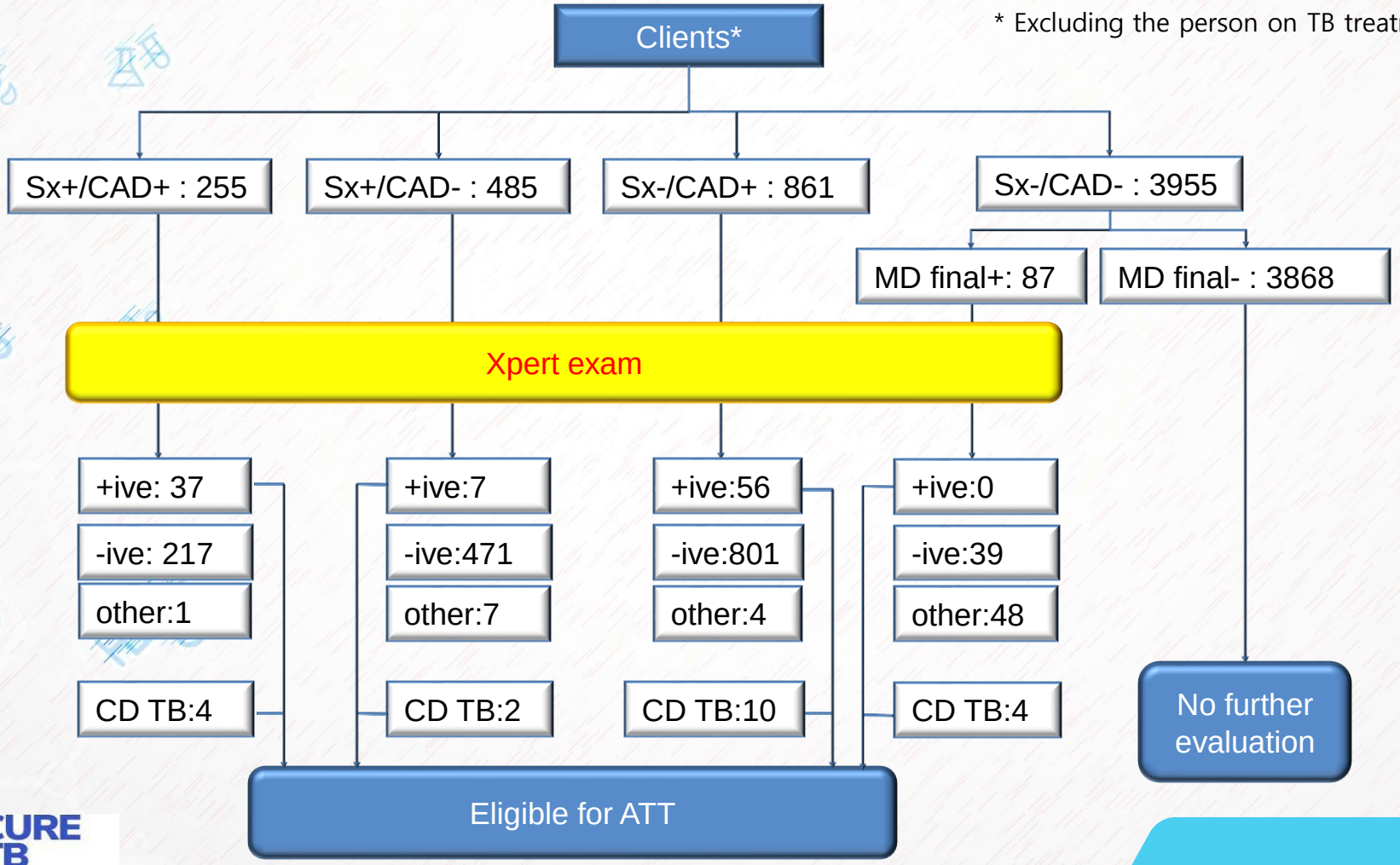


07 Results

Contents	Total	Rate(%)	Remarks
No. of Participants	5,583		
No. of CXR test	5,510	98.7	
No. of Presumptive TB	1,688	30.6	• NNS = 3
No. of Xpert test	1,630	96.6	
No. of Bac+ confirmed	100	5.9	• MTB+/Rif-: 71, MTB+ trace: 29 • New & Relapse: 93 • NNT = 16
No. of Clinical Diagnosis	20	1.2	• New & Relapse: 19
No. of All Forms of TB	120	2.1	

07 Results (cont.)

* Excluding the person on TB treatment: 27



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07 Results (cont.)

Contents		Bac+ confirmed TB		Total
		Positive	Negative	
CAD reading	Presumptive TB Need Sputum Exam	**93**	1,023	1,116
	Non TB No Sputum	7	**4,360**	4,367
	Total	100	5,383	5,483

Sensitivity = 93/100*100=93%, Specificity=4,360/5,383*100=80.9%

Contents		Bac+ confirmed TB		Total
		Positive	Negative	
Symptom Screening	cough>2wks or Hemoptysis Need sputum exam	**44**	688	732
	Non TB No sputum	56	**4,695**	4,751
Total		100	5,383	5,483

Sensitivity = 44/100*100=44%, Specificity=4,695/5,383*100=87.2%

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08 Success Stories

TB history of enrolled treatments			No. of All TB patients started on treatment	Treatment outcome (by Feb 2022)						
New	Relapse	Other	total	On Treatment	**cured**	**completed**	Died	Failed	Lost to follow-up	Not evaluated
93	19	8	119 (Bac+: 99)	16	**65**	**24**	3	0	7	5

89 ppl (Bac+ 73)

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09 Scaling Up

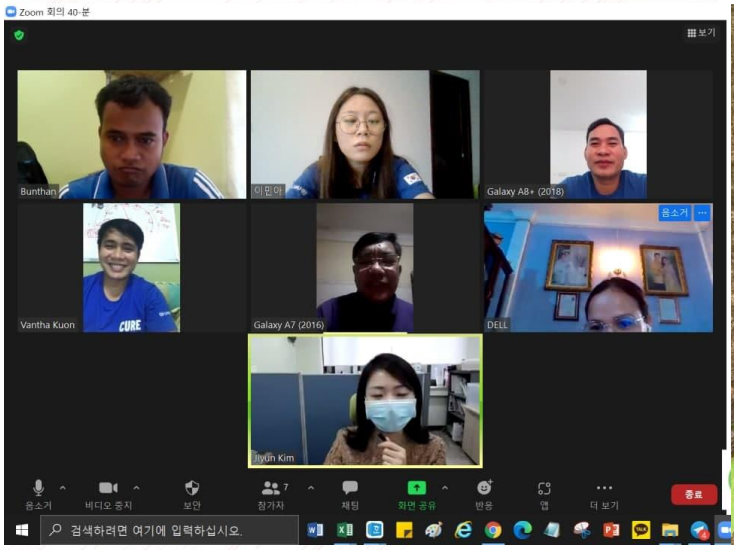
- Tried to propose a new plan to KOICA
- Donated X-ray & CAD and Xpert machines to NTP and Siem Reap PHD for national TB control
- Trained end-users at ACRH

10 Experience with the X-ray and CAD vendor(s)

X-ray	CAD
1. Very small, thin and light 2. Easy to move and use 3. Clear images 4. Possible to take 100 ppl a day	1. Fast for finding presumptive TB 2. Easy for use
1. Malfunctioned in a month, but the replacement was ready 2. Produced unclear images for the person having a big body or being overweight 3. Possible to miss the small lesion	1. The laptop was too big and heavy to carry and difficult to handle

- Difficult to connect between the X-ray and CAD vendors
- No local office for A/S

11 Challenges & Lessons learned



12 Acknowledgment

Our sincere gratitude and thanks to

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- Mr. Monyrath CHRY, CATA
- Siem Reap Provincial Hall, Angkor Chum Operational District, Health Centers, Village Health Support Group (VHSG) and TB affected communities

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THANK YOU

CURE TB PROJECT