



# Zero TB Cities: Karachi Update

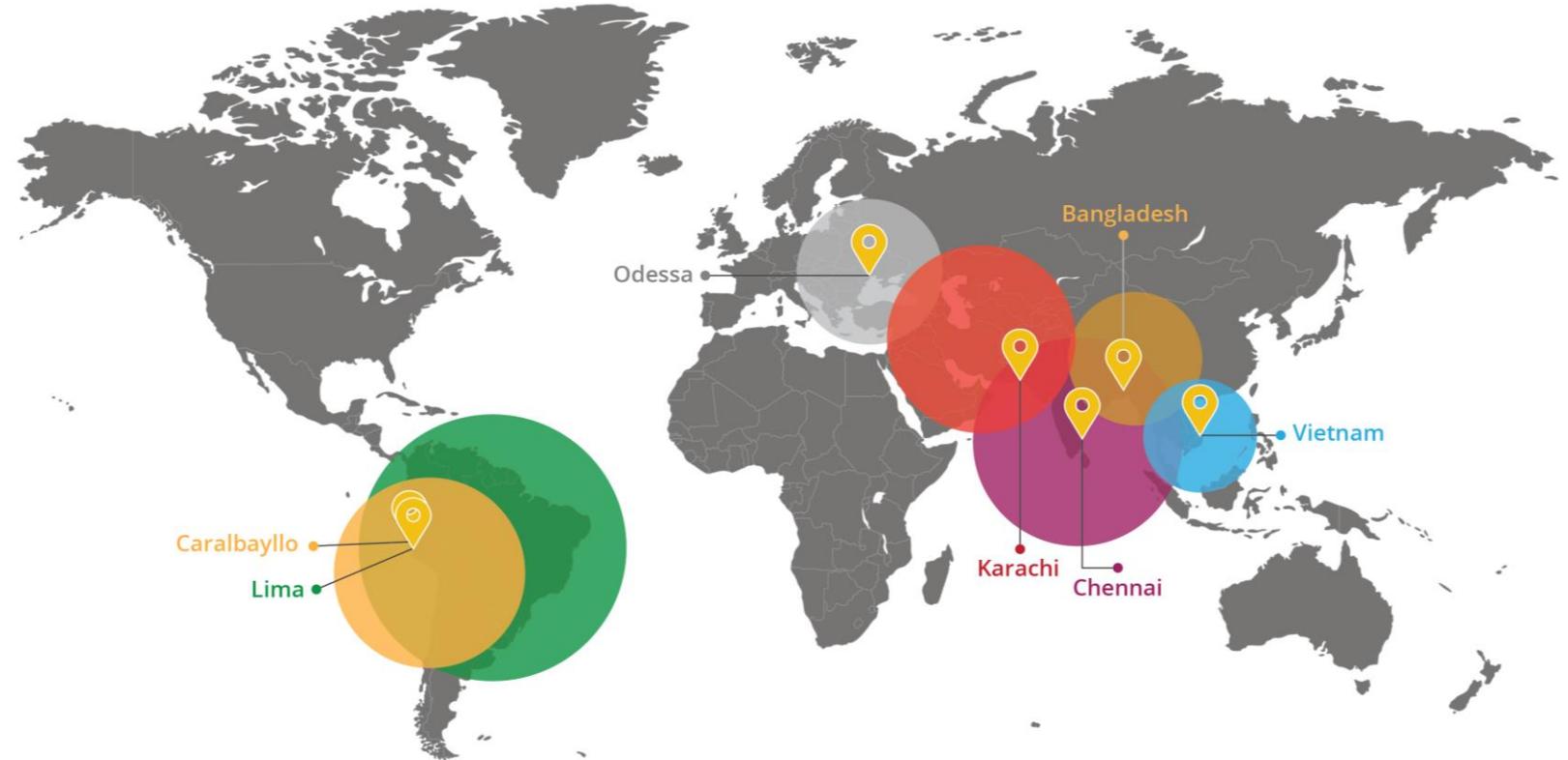
Aamir Khan MD, PhD  
Executive Director, IRD





**Zero TB CITIES** is a global initiative targeted at creating “islands of elimination” with strong local ownership in high burden settings

Zero TB implements evidence-based **Search, Treat & Prevent** approaches from around the world shown to be successful in controlling TB



## Zero TB Cities and districts – Current, new and potential:

**Almaty, Kazakhstan\*\***

**Balti, Moldova**

**Chennai, India**

**Dhaka, Bangladesh\***

**Geissen, Germany**

**Hai Phong, Vietnam**

**Hanoi, Vietnam**

**Ho Chi Mihn City, Vietnam**

**Indore, India\*\***

**Karachi, Pakistan**

**Kathmandu, Nepal\*\***

**Kano, Nigeria\*\***

**Kisumu, Kenya**

**Lagos, Nigeria\*\***

**Lima (Carabayllo), Peru**

**Manila, Philippines\*\***

**Melbourne, Australia\*\***

**Mexicali, Mexico**

**Mtata, South Africa\*\***

**Mumbai, India\*\***

**Muscat, Oman\*\***

**Odessa, Ukraine**

**Pattaya, Thailand\*\***

**Peshawar, Pakistan**

**Quetta, Pakistan\*\***

**Shenzhen, China\***

**Sofia, Bulgaria\*\***

**Tbilisi, Georgia\*\***

**Ulaanbaatar, Mongolia**

**Vladimir, Moscow**

\* First of multiple cities planned

\*\* Discussions of alignment underway



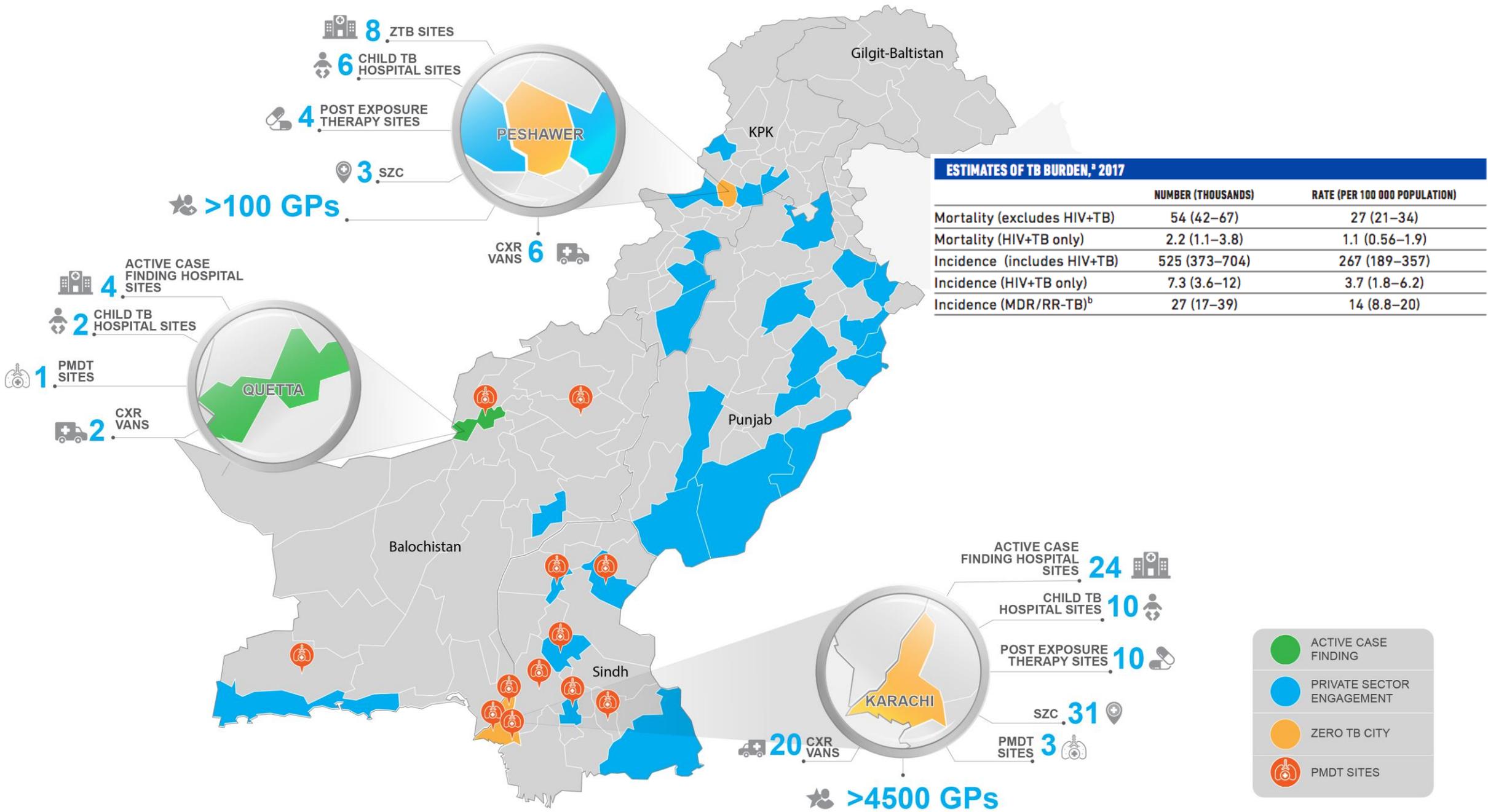
# Pakistan's Zero TB Initiative

Global Fund Support

2016-2017 USD 40m – Zero TB Karachi +32 districts

2018-2020 USD 40m – Zero TB Karachi, Peshawar, Quetta + 32 districts





8 ZTB SITES

6 CHILD TB HOSPITAL SITES

4 POST EXPOSURE THERAPY SITES

3 SZC

>100 GPs

6 CXR VANS

4 ACTIVE CASE FINDING HOSPITAL SITES

2 CHILD TB HOSPITAL SITES

1 PMDT SITES

2 CXR VANS

24 ACTIVE CASE FINDING HOSPITAL SITES

10 CHILD TB HOSPITAL SITES

10 POST EXPOSURE THERAPY SITES

31 SZC

3 PMDT SITES

20 CXR VANS

>4500 GPs

- ACTIVE CASE FINDING
- PRIVATE SECTOR ENGAGEMENT
- ZERO TB CITY
- PMDT SITES



2 Zero TB  
Cities /  
22 districts

~1200  
staff

> 3 million  
symptom  
screened

>950,000  
CXR  
screened

>61,000  
Cases  
notified

55 mobile  
x-ray vans





COMMUNITY ENGAGEMENT







**100+**  
Dedicated Field & Medical Personnel across all sites







Aao TB Mitao

August 9 · 🌐

Spread the word !

Do not take 2 weeks of cough lightly !

Visiting your nearest public and private hospital or Sehatmand Zindagi Centre today for free TB testing and Treatment!

#AaoTBMitao #TB



Aao TB Mitao

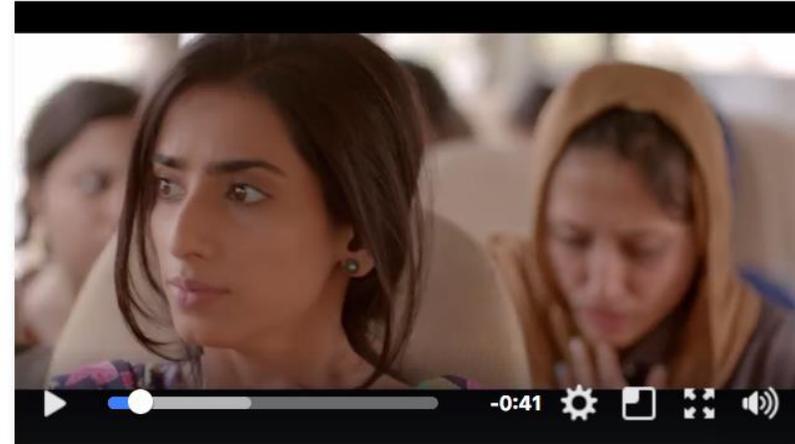
August 9 · 🌐

Spread the word !

Give treatment to people fighting TB - instead of punishment!

Do not take 2 weeks of cough lightly !

Visiting your nearest public and private hospital or Sehatmand Zindagi Centre today for free TB testing and Treatment! ... [See More](#)



Aao TB Mitao

August 9 · 🌐

Spread the word !

Do not take 2 weeks' of coughing lightly!

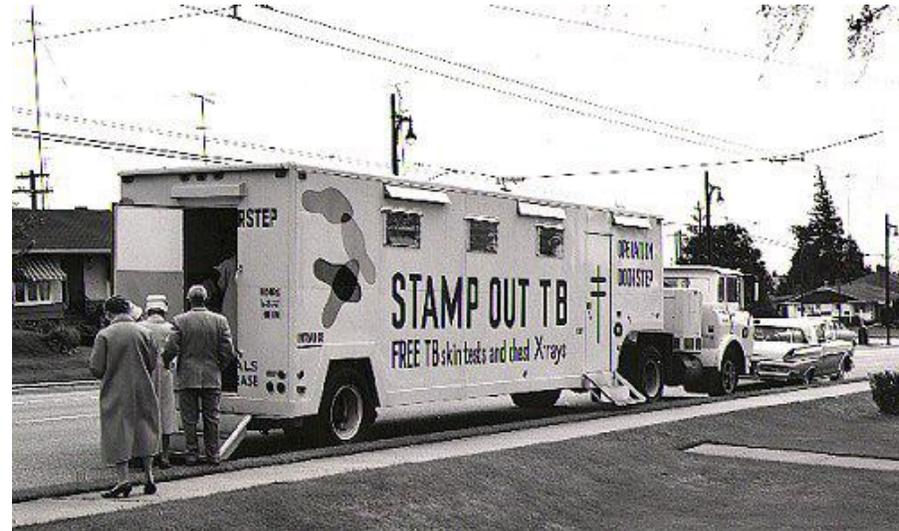
Visit your nearest public, private hospital or Sehatmand Zindagi Centre for free TB testing and treatment in Karachi, Pakistan !

#AaoTBMitao





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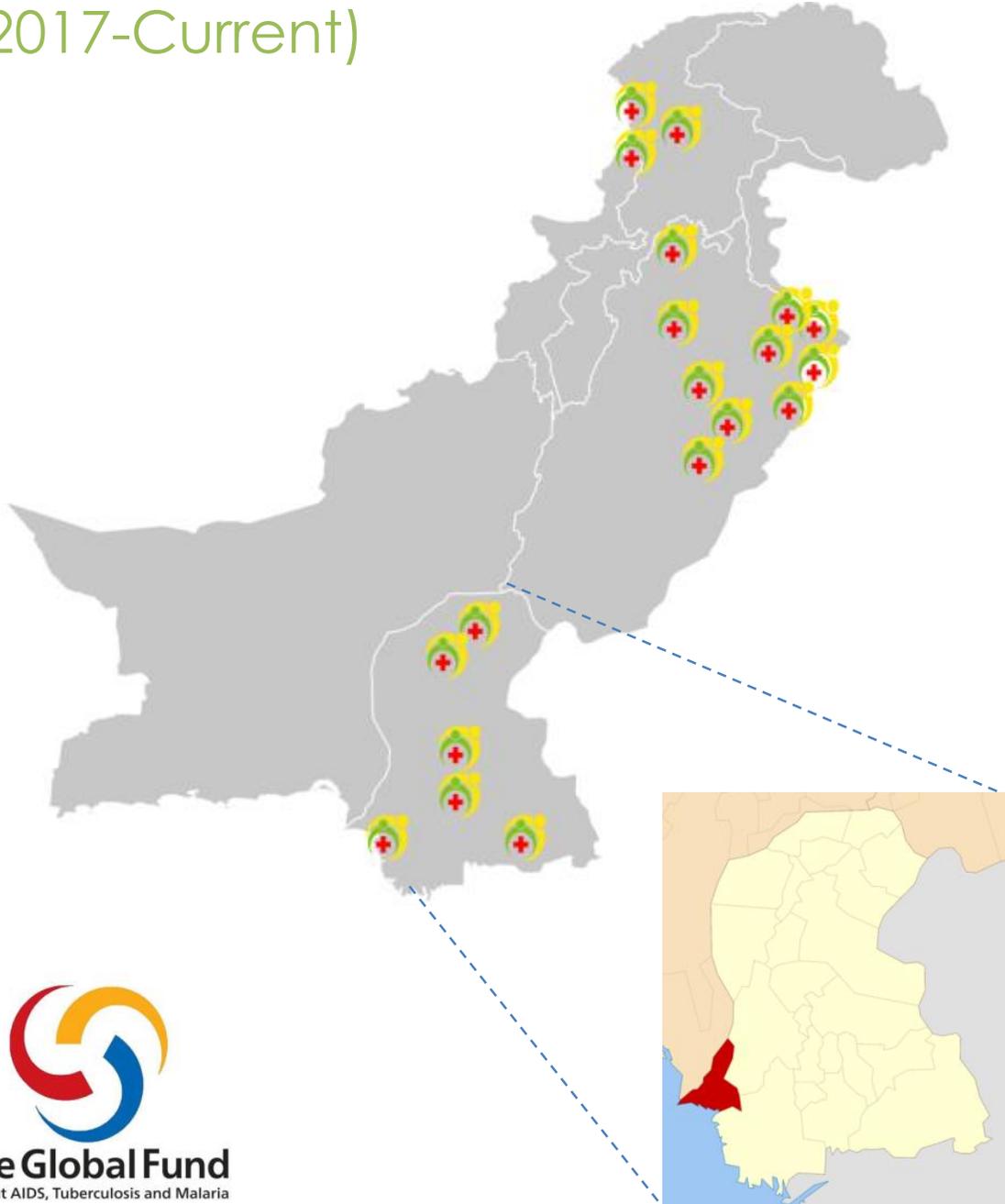








# Social Enterprise Scale-up in Pakistan (2017-Current)



61

Newly designed & branded centers in 27 districts and 3 Provinces

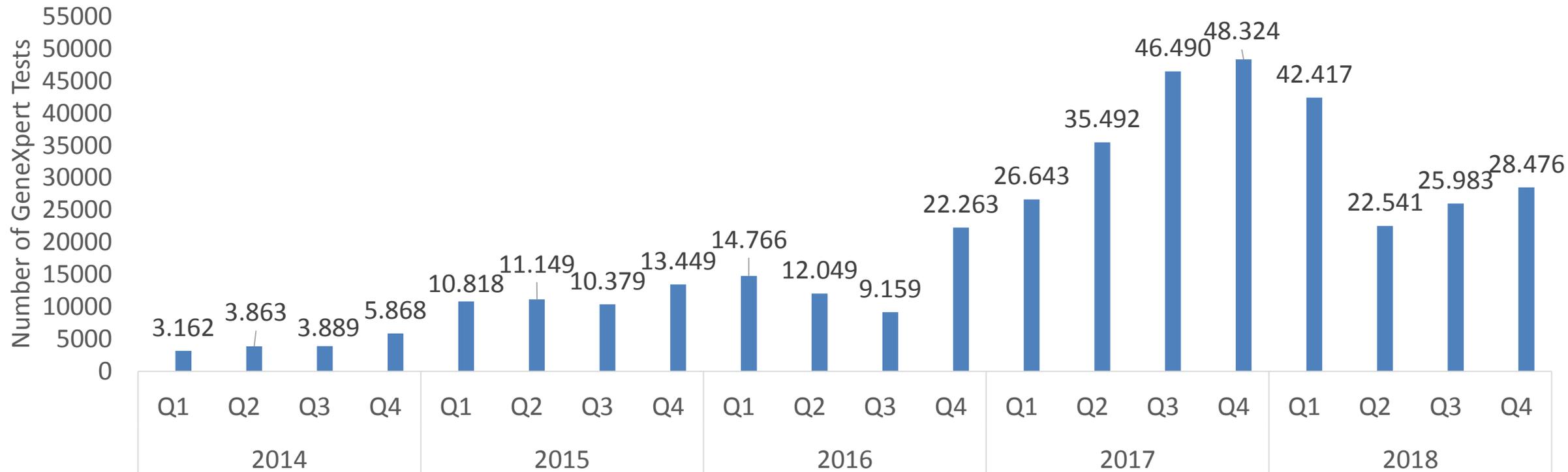
28

Additional centers setup as part of Zero TB Karachi



# GeneXpert Cartridge Use

## Karachi Zero TB sites 2014 - 2018

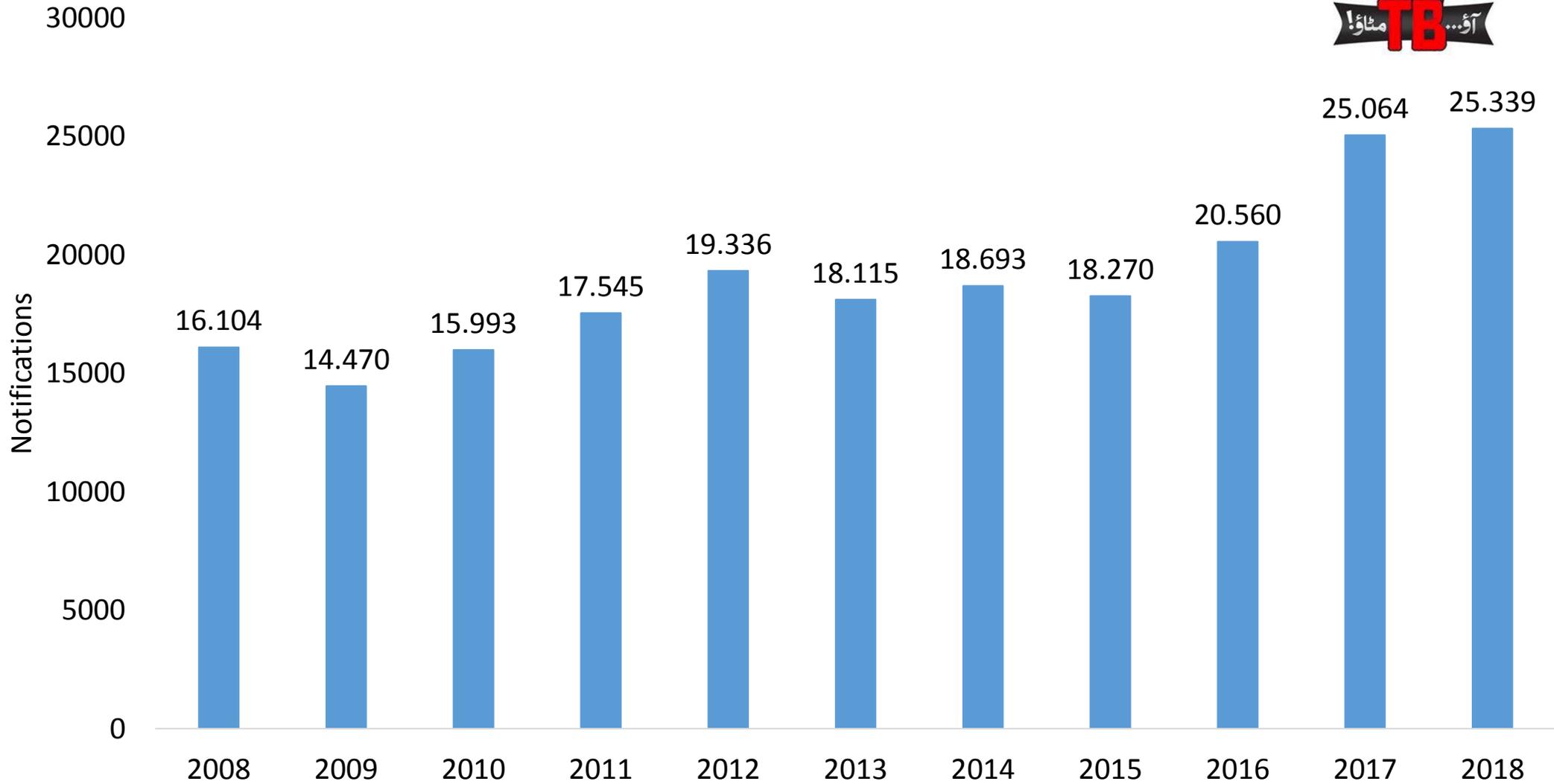


## Comparing Case Finding Approaches for Adults (Karachi) (Jan 2018 – Dec 2018)

	Chest X-ray / CAD4TB Screening (CAD > 70)					Other Case-finding models	
Cascade	Indus (Hospitals)	Indus (Community)	CHS (Community)	Indus+CHS* (Jail)	Indus+CHS* (Factory)	CHS (GPs)	Indus (Contacts)
Screened	197,346	86,622	111,909	10,071	10,221	41,276	5,069
Presumptive	17,839	6,147	9,584	597	686	5,174	-
B+ve (Rif+ Included)	1,708	396	172	23	5	57	16
Cases	2,332	475	669	106	13	283	49
Yield from presumptive	13%	8%	7%	18%	2%	6%	-
Yield from screened	1.2 %	0.5 %	0.6 %	1 %	0.1 %	0.7 %	1 %
NNS	85	182	167	95	786	146	103

# Karachi: All Forms TB Notifications

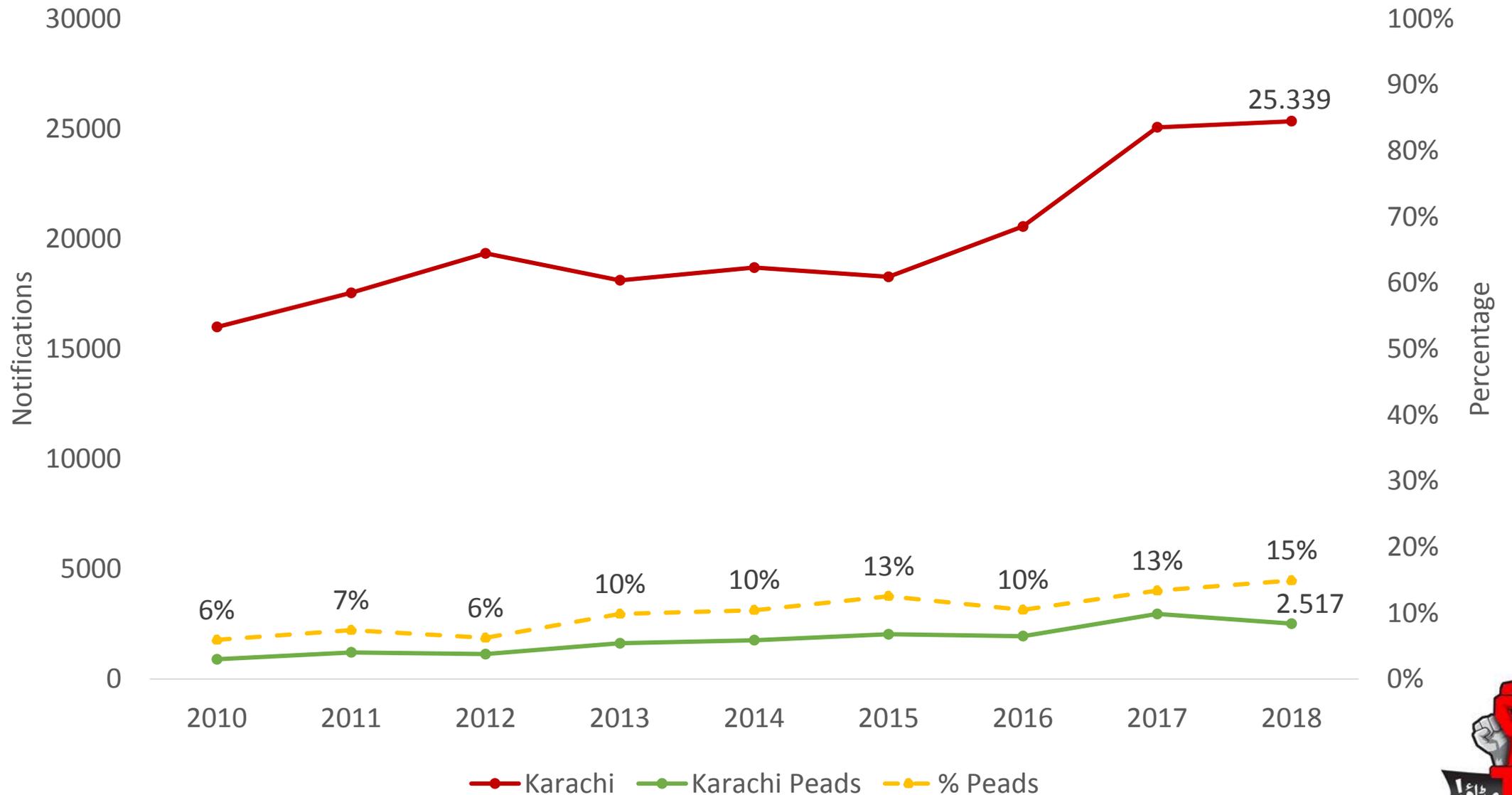
2008 – 2018\*



\*Q4 2018 numbers are self counted from TB03 registers

# Zero TB Karachi: Childhood TB as a Proportion of All Forms Case Notifications

## 2010 – 2018



\*Q4 2018 numbers are self counted from TB03 registers

# Karachi, Lahore, Peshawar: Childhood TB Program

July 1, 2016 – June 30, 2018



## Zero TB Karachi

## Lahore

## Zero TB Peshawar

Screened

212,132

81,705

36,966

Presumptive

13,631  
(6%)

3,997  
(5%)

2,909  
(8%)

TB Diagnosed

1,568  
(12%)

758  
(19%)

297  
(14%)



# Zero TB Karachi Post Exposure Therapy among Household Contacts

October 2016 – June 2018



## Drug Susceptible TB

7,917

CONTACTS  
EVALUATED

1,701

## Drug Resistant TB

165

DIAGNOSED  
WITH TB

10

3,440

STARTED  
PREVENTATIVE  
TREATMENT

738

1,348

COMPLETED  
PREVENTATIVE  
TREATMENT

349

(2%)

(44%)

(39%)

(1%)

(44%)

(47%)

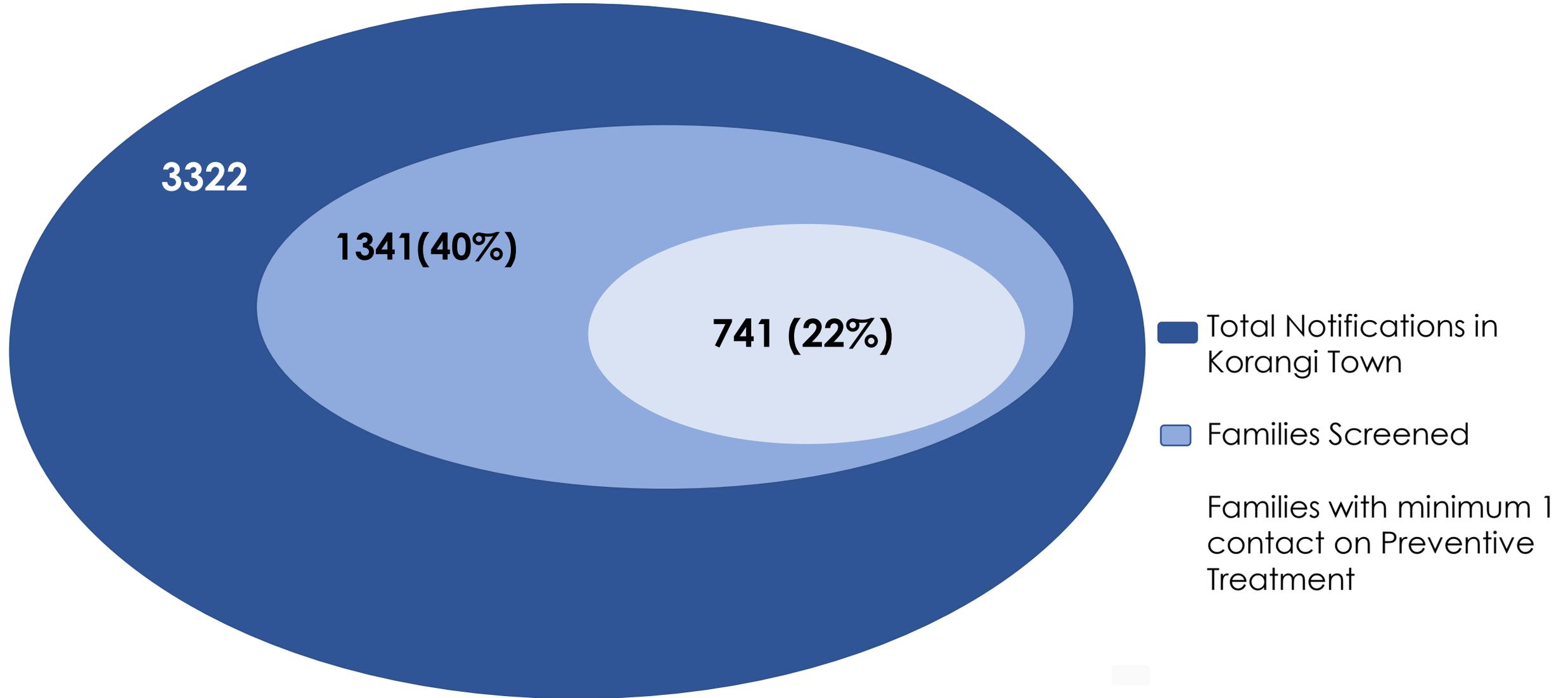
# Post Exposure Treatment Outcomes

Oct 2016 – Feb 2018

Indicators	6 Months INH		3HP		Grand Total	
	N	%	N	%	N	%
Started on Treatment	875		1589		2464	
Outcome Available	875	100	1369	86	2244	91%
Treatment Completed	423	48	974	61	1397	57%
Not Completed Tx	442	51	382	24	825	33%
PET Stopped by Doctor	2	0.2	9	0.6	11	0.4
Shifted to another city	4	0.4	4	0.3	8	0.3
Diagnosed with Disease after Started on Tx	4	0.4	0	-	4	0.2
Treatment Completion Rate		48%		71%		62%

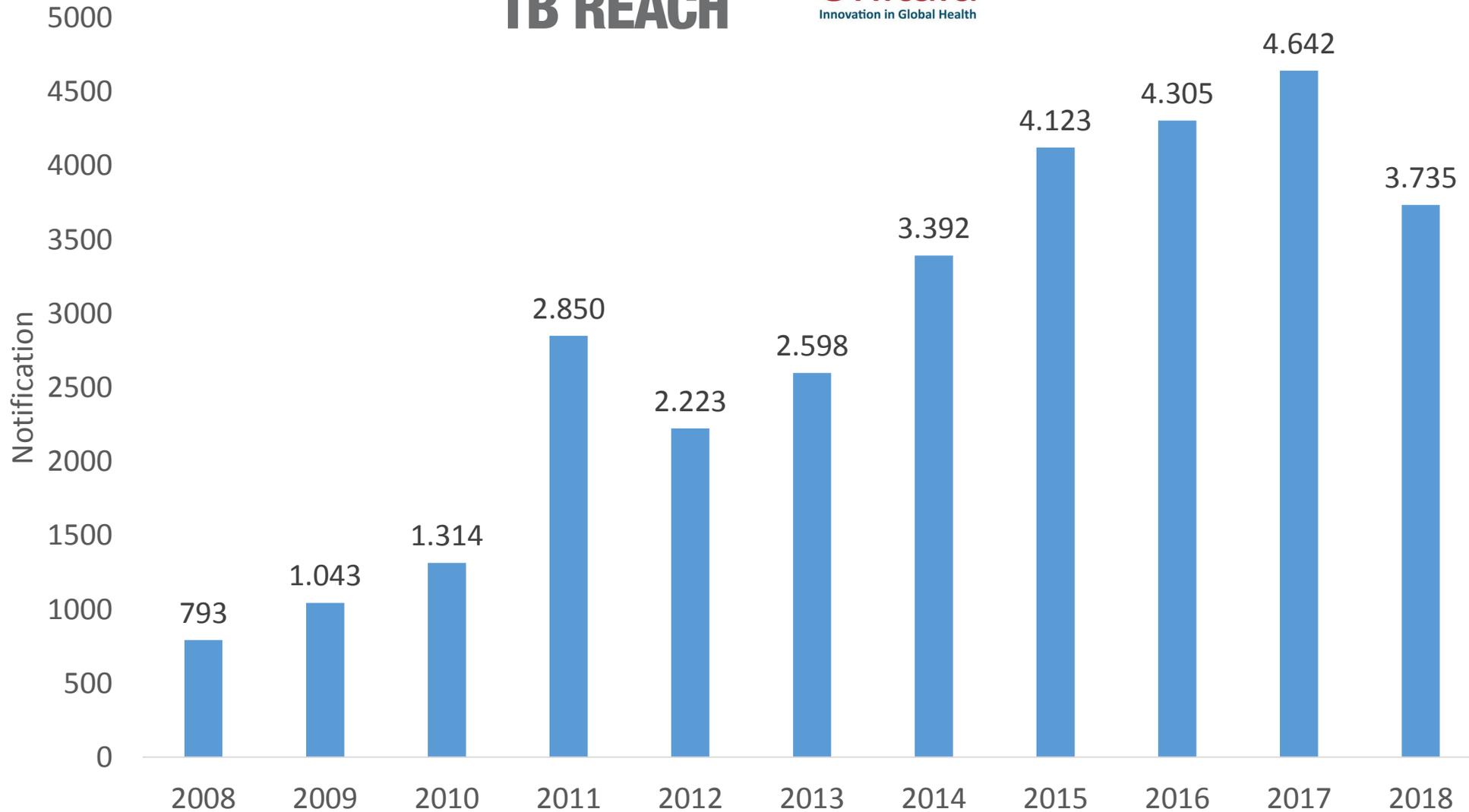


# Preventive Treatment Coverage in Korangi 2018



# Korangi Town: All Ages All Forms Notifications

2010 – Q4\* 2018



**20% decrease in notifications reported from Korangi Town**

*Korangi Town includes 5 BMUs: Indus Hospital, SZC Korangi, SGH Korangi, Sindh Anti TB Association, and Baldia Maternity Home*

*\*Q4 includes only self counted numbers from high volume sites in Karachi*

# Korangi Town: All Forms Notifications of 3 High Volume BMUs

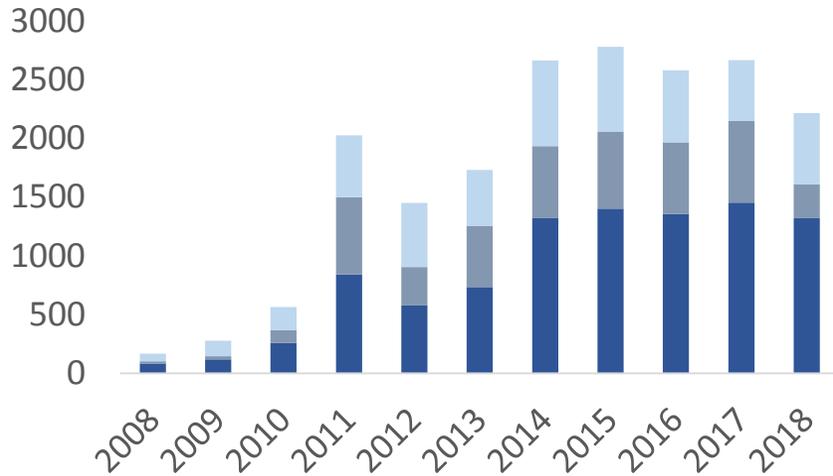
## 2008 – Q4\* 2018

- In 2018: site contributed to **59%** of Korangi's total notifications
- **17%** decrease in all forms notifications from 2017
- **9%** decrease in B+
- **59%** decrease in B-
- **17%** increase in EPTB

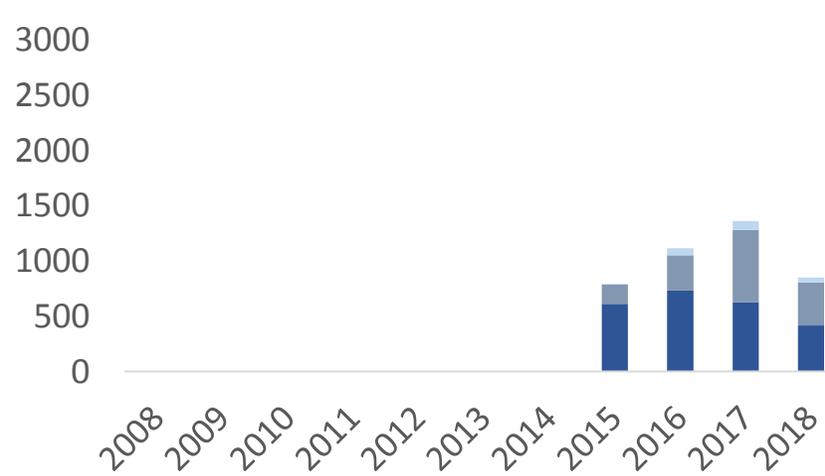
- In 2018: site contributed to **23%** of Korangi's total notifications
- **38%** decrease in notifications from 2017
- **33%** decrease in B+
- **41%** decrease in B-
- **46%** decrease in EPTB

- In 2018: site contributed to **16%** of Korangi's total notifications
- **13%** increase in notifications from 2017
- **14%** decrease in B+
- **50%** increase in B-
- **40%** increase in EPTB

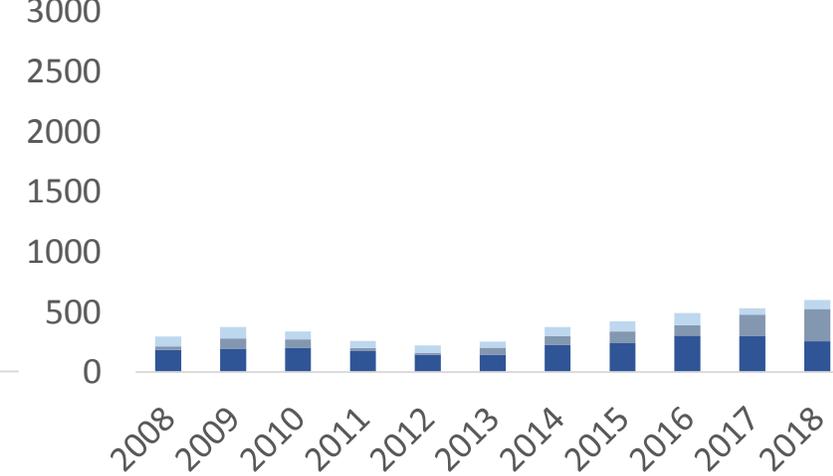
Indus Hospital: TB Type



SZC Korangi: TB Type



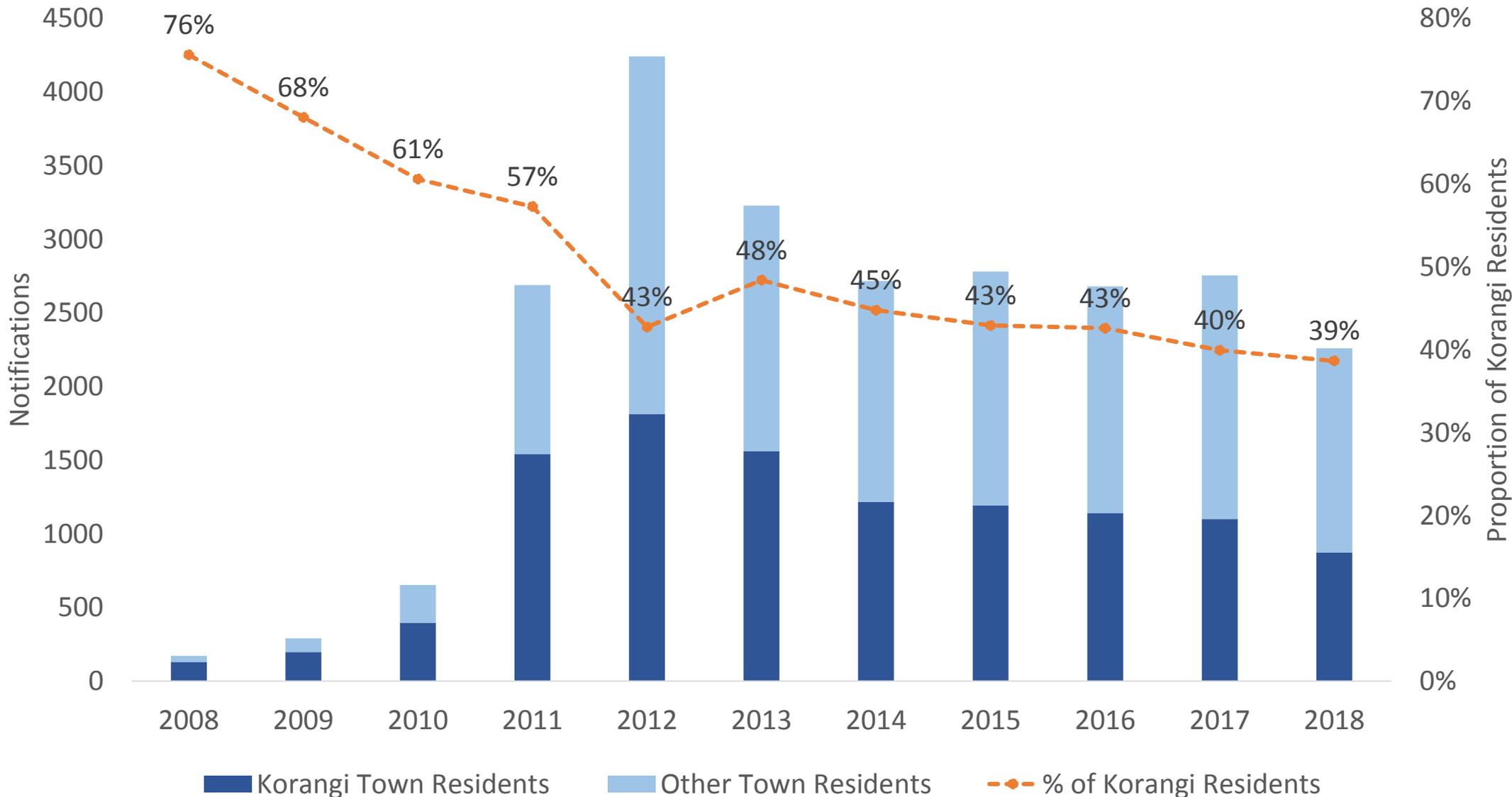
SGH Korangi: TB Type



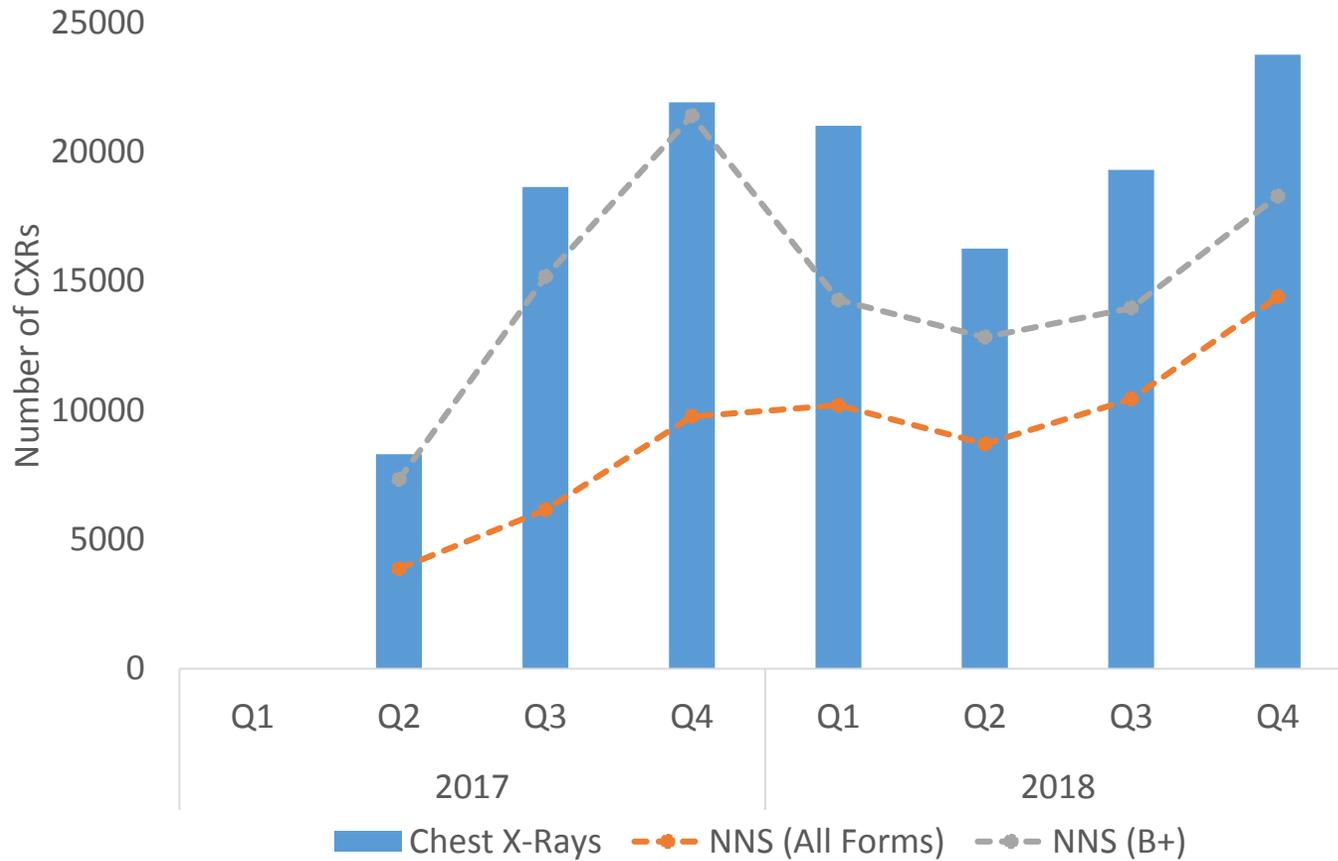
Korangi Town includes 5 BMUs: Indus Hospital, SZC Korangi, SGH Korangi, Sindh Anti TB Association, and Baldia Maternity Home  
 \*Q4 includes only self counted numbers from high volume sites in Karachi



# Indus Hospital: All Forms Notifications and Proportion of Korangi Residents 2008 – 2018



# ZeroTB Interventions in Korangi: Number of CXRs and NNS (GHD&CHS) Q1 2017 – Q4 2018



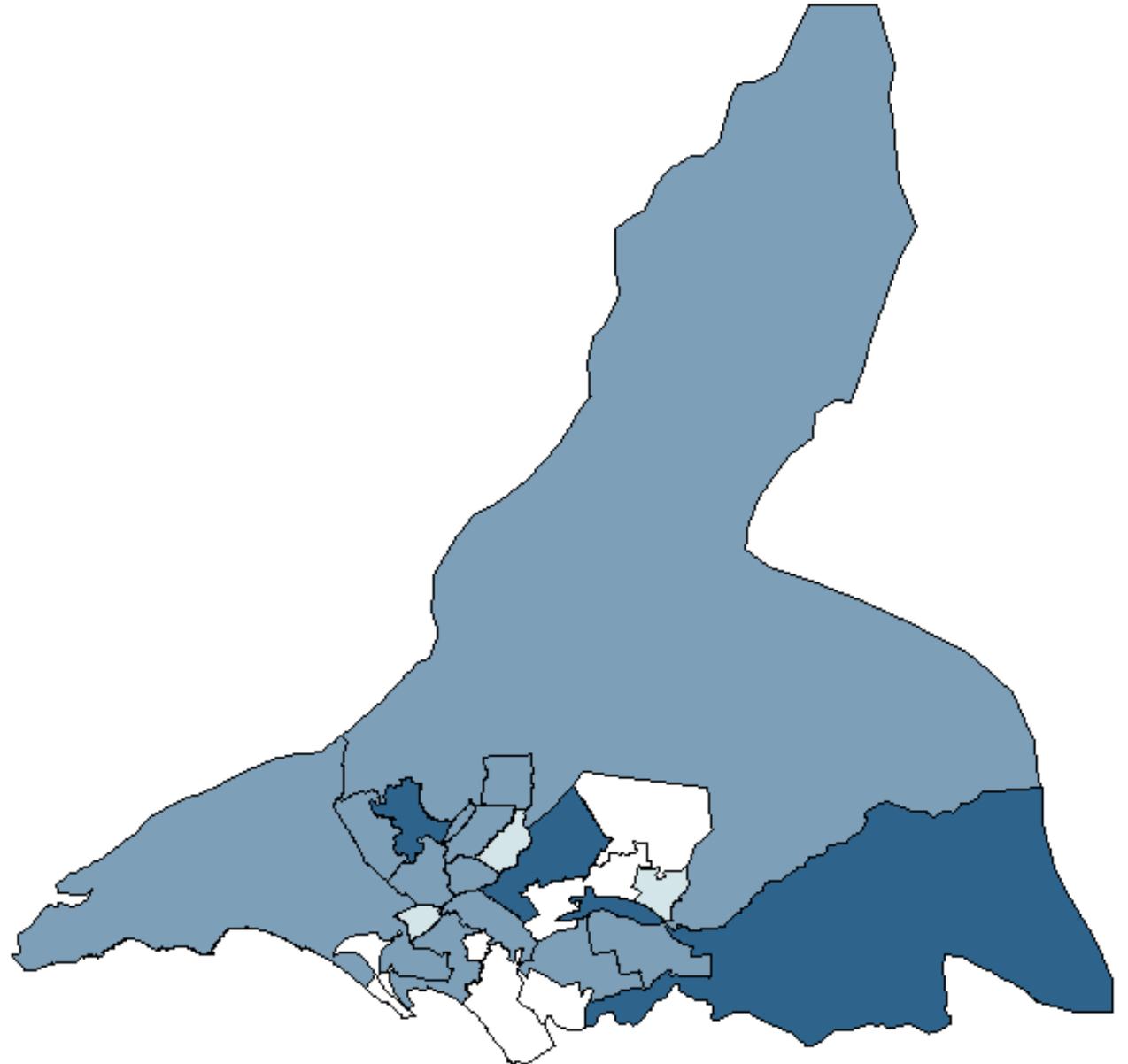
	CXR	NNS (All Forms)	NNS (B+)
2017 Q1	--	--	--
2017 Q2	8,294	25	47
2017 Q3	18,639	39	97
2017 Q4	21,909	62	137
2018 Q1	21,004	65	91
2018 Q2	16,251	56	82
2018 Q3	19,293	67	89
2018 Q4	23,749	92	117

*NNS: # of CXRs/# of cases*

*ZTB Interventions include GHD performed CXRs (community and facility), CHS run community camps and CHS center CXRs*

## Community Chest X-ray Screening Yield by Town

Town	Yield
Bin Qasim Town	1.23
Orangi Town	0.93
Shah Faisal Town	0.89
Gulshan Town	0.82
Baldia Town	0.70
Landhi Town	0.70
Gadap Town	0.68
S.I.T.E. Town	0.63
Jamshed Town	0.60
New Karachi Town	0.53
Saddar Town	0.52
Liaqatabad Town	0.47
Kemari Town	0.45
North Nazimabad Town	0.43
Korangi Town	0.42
Malir Town	0.37
Lyari Town	0.30
Gulberg Town	0.29

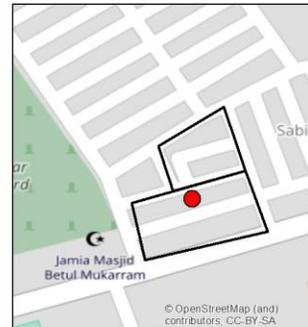


# Karachi Zero TB Transmission Survey (ZTTS) – funding at risk!

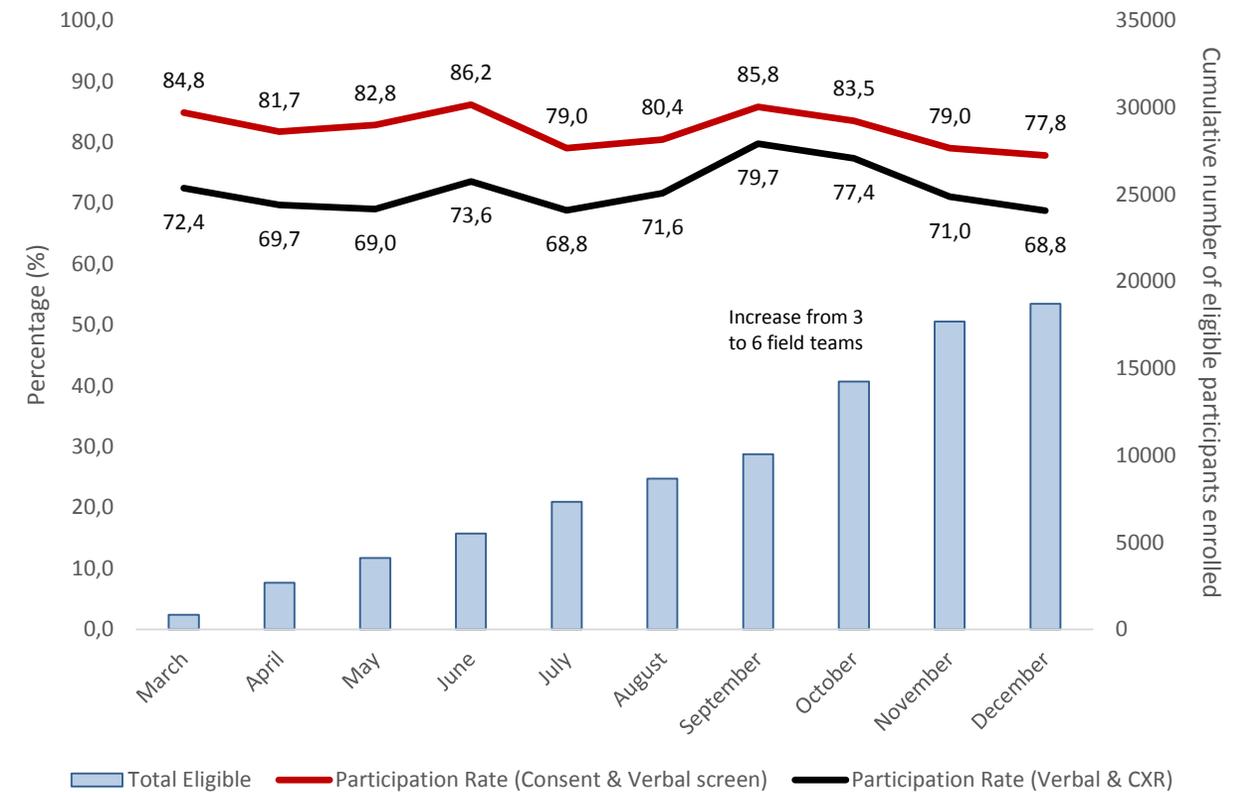
1. Estimate the prevalence of culture-confirmed (diagnosed and undiagnosed) pulmonary TB in adults in 3 districts in Karachi
2. Estimate the annual risk of *Mycobacterium tuberculosis* infection in children aged 2-4 years in 3 districts in Karachi
3. Assess the feasibility of using IGRAs on a large scale in a low-income setting



Korangi block: K013



Cumulative enrolment of eligible study participants and monthly participation rates



Enrolment Number from - 6 teams						
Month	Jan	Feb	Mar	Apr	May	June
# of Teams	6	6	6	6	6	6
Enrolment/week	1,020	1,020	1,020	1,020	1,020	1,020
Monthly Enrolment*	5,100	4,080	4,080	4,080	2,040	3,060
Enrolment in ZTTS from Jan till June (projected)					22,440	
Total Enrolment in ZTTS - March 2018 till June 2019 (projected)^					44,188	

# Adolescent & Health Leadership Course

Communication Skills



Leadership

Community based intensified case finding for disease



Self Awareness

Health



Planning



# کرن ستاره

ٹی بی اسکریننگ کیمپ (صبح 9:00 تا 2:30 دوپہر)

رہشتہ احساس کا  
صحت مند زندگی  
SEHATMAND ZINDAGI



کرن ستاره  
kiran sitara

زیر اہتمام: کمیونٹی ہیلتھ سولوشن







# I AM CHANGING LIVES

*by leading  
Karachi's war  
on TB*

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**Rabia Maniar**  
*Program Manager*



# I AM CHANGING LIVES

*by treating  
the sickest  
patients*

---

**Maria Fakhar**  
*Doctor*



# I AM CHANGING LIVES

*by designing  
mobile apps  
for health*

---

**Maimoona Kausar**  
*Software Developer*



# I AM CHANGING LIVES

*by generating  
evidence for  
what works*

---

Palwasha Khan  
*Clinical Researcher*



# Acknowledgements



National TB Control Program



# Notifications by Partner under IHN Grant

## Q4 2016 – Q3 2018

Year	PR	SR: CHS	SR: GSM	Total
2016 (only Q4)	1,256	562		1,818
2017	8,372	7,626		15,998
2018 (until Q3)	7,565	14,234	21,882	43,681
Total	17,193	22,422	21,882	61,497