

Improving TB case detection in children at community level

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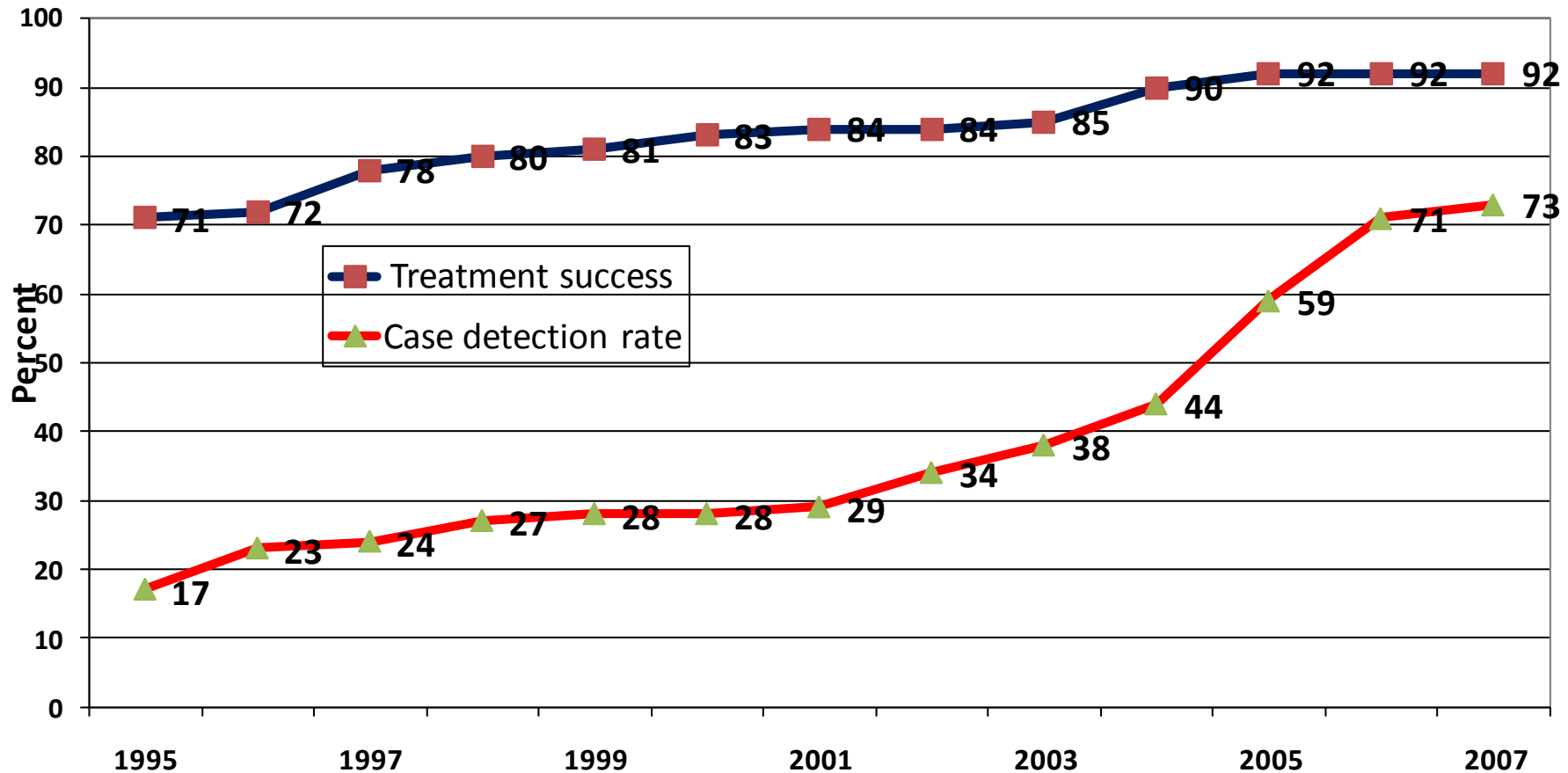


Stop TB Symposium
**“Meeting the unmet needs of women and children for
TB prevention, diagnosis and care: expanding our horizons”**
Lille, 26 October 2011

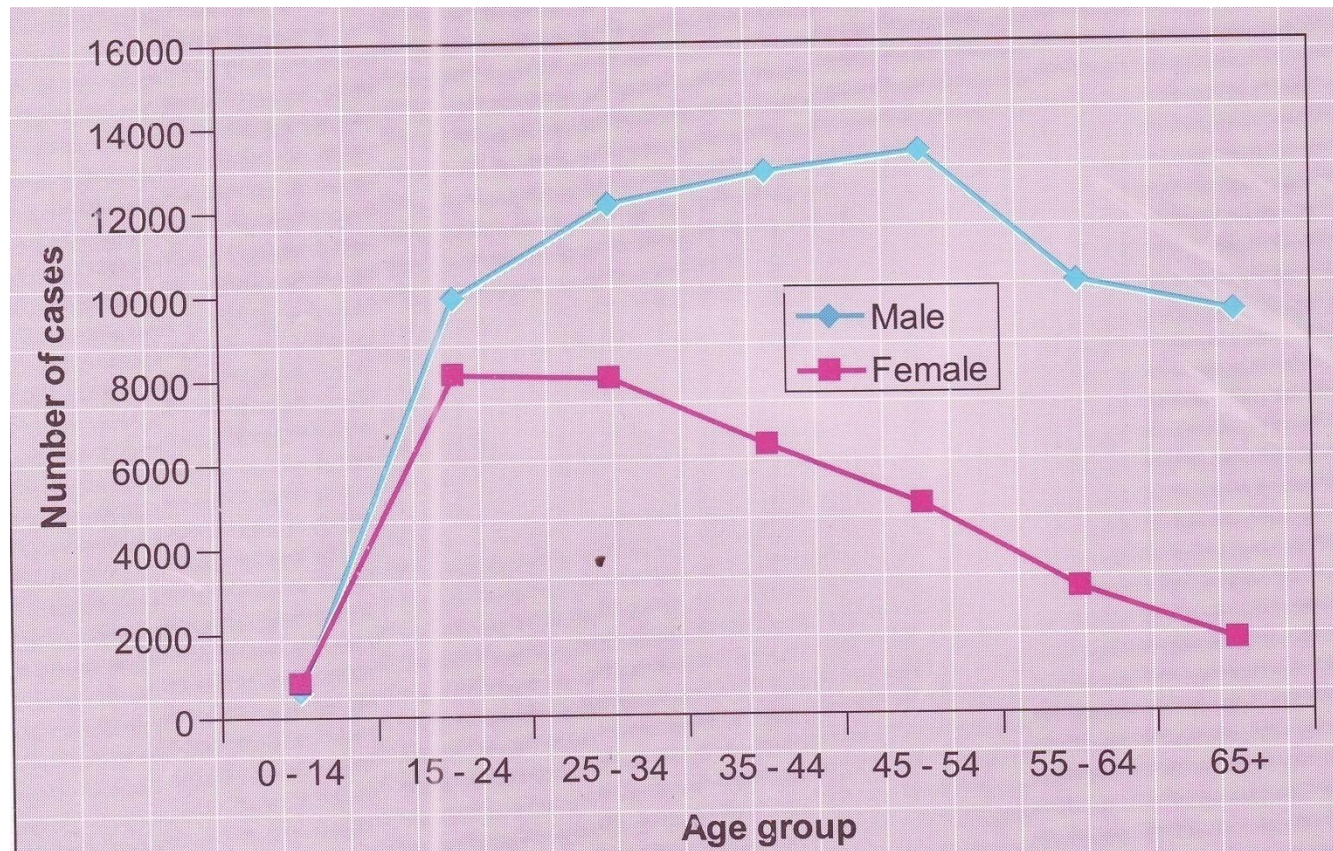
Acknowledgements

- Dr. Abdul Hamid Salim, Dr. Aung and Priojit Nandi of Damien Foundation Bangladesh
- NTP Bangladesh
- Erwin Cooreman, WHO Bangladesh
- Iftia Jerin and Farhana Sharmin, CWCH

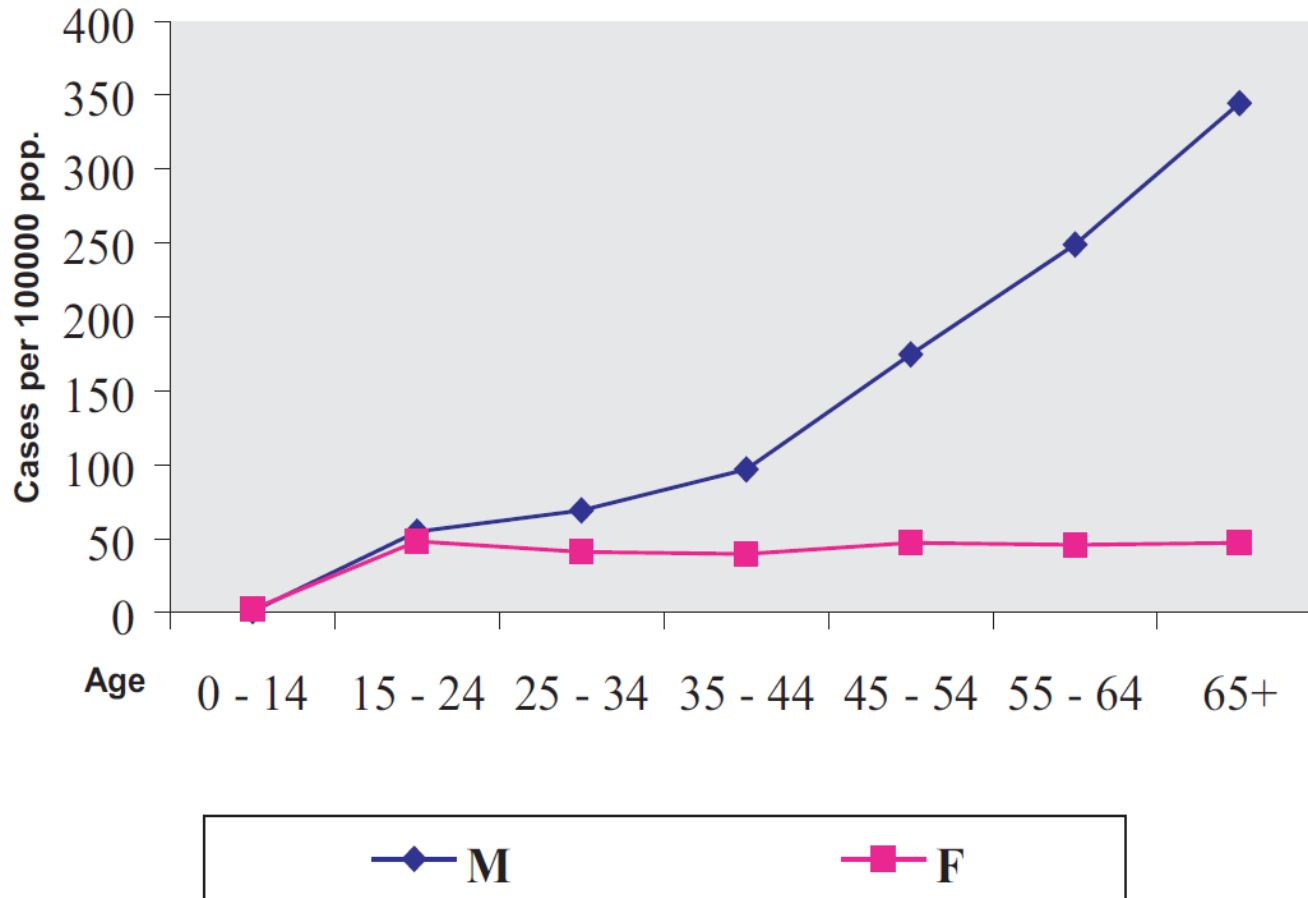
Trends of national case detection and treatment success rate, NTP Bangladesh



Notification of new smear positive pulmonary TB by age and sex at NTP 2006



Damien Foundation smear +ve TB case notification by age and sex in 2009



5 month old baby boy with cough, fever and breathlessness



Exclusively breastfed but severely malnourished



died of previously missed miliary TB

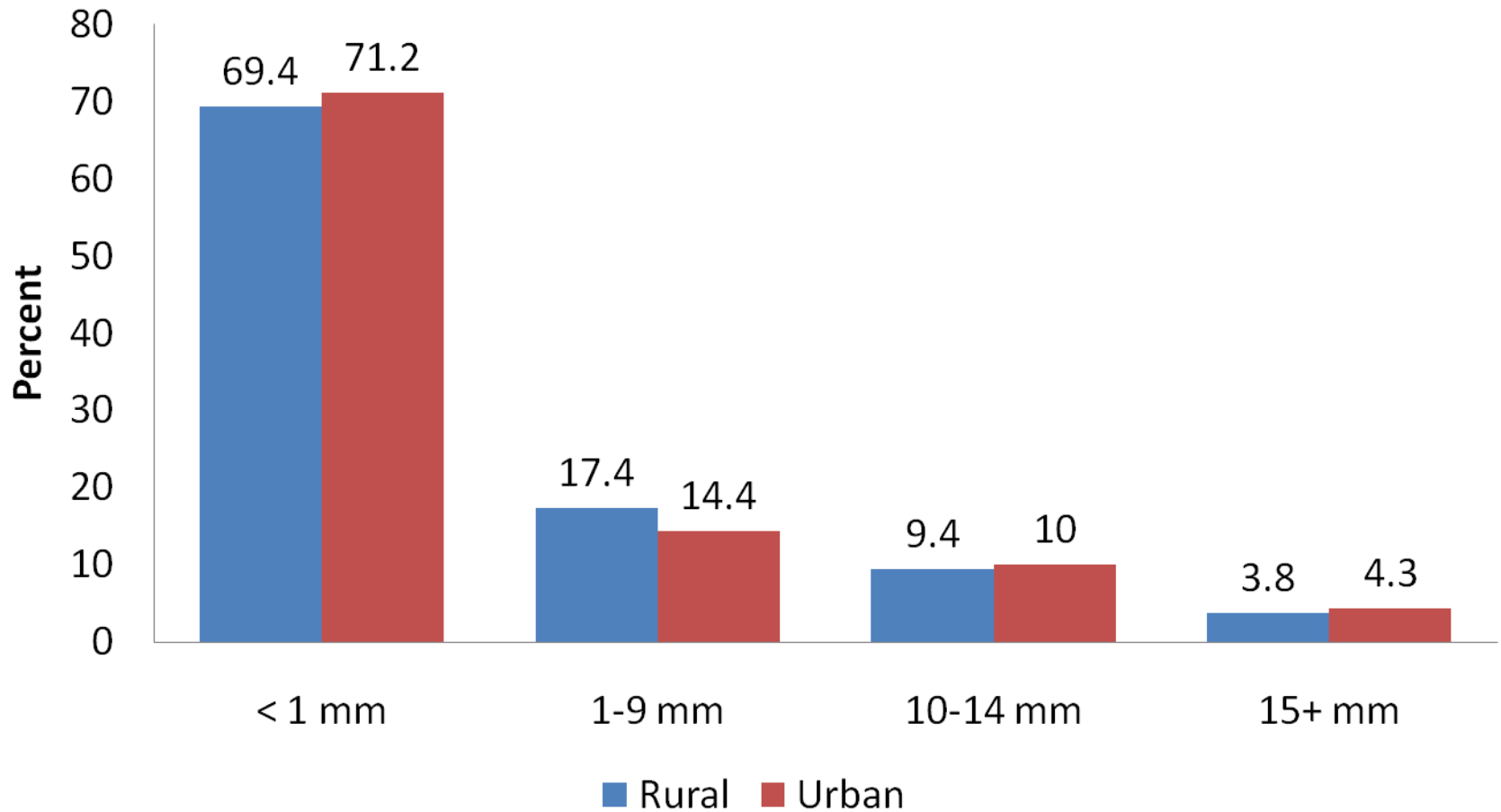


**So how much childhood TB is there in
Bangladesh?**

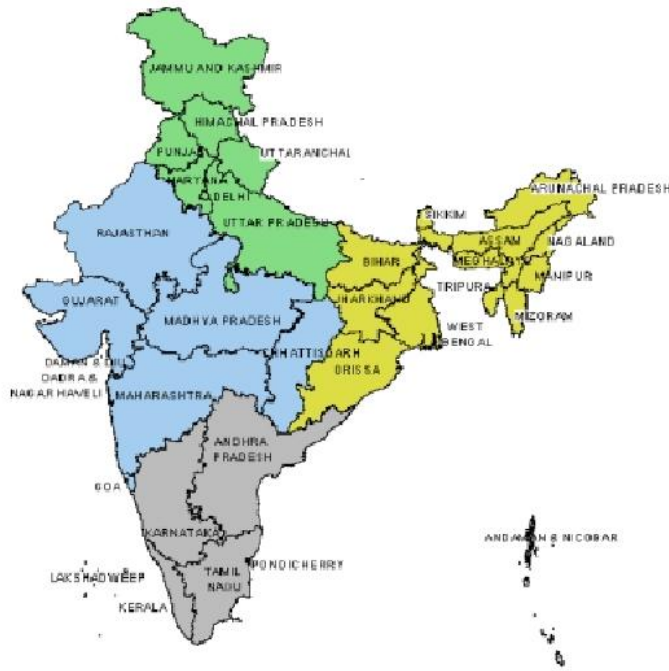


Bangladesh tuberculin survey 2007-09

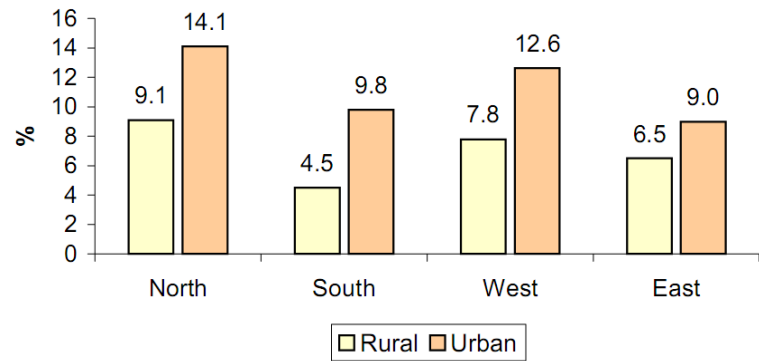
5-14 year olds (n=17,585)



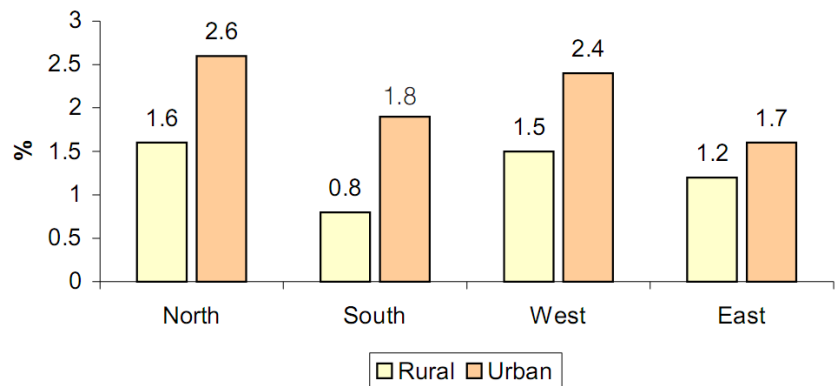
Childhood TB in INDIA 2000-2003 (n=85,208)



Prevalence of infection among children 1-9 years of age by zone and stratum



Annual Risk of Tuberculous infection (ARTI) by zone and stratum



Incidence of childhood TB (0-14 years) per 100,000 children per year

	NTP 2007 (n=48,608,812)	Damien 2008 (n=9,400,000)	Madhupur 2008-09 (n=153,427)
All types	9	6	52*
SS +ve	2	3	7
SS -ve			39
Extrapulmonary			6

*Damien Foundation Annual Report 2009



Potentially in Bangladesh.....

$$\frac{52 \times 48,608,812}{100,000} = \underline{25,277}$$

0-14 year olds can be diagnosed with TB annually

Whereas currently the NTP is diagnosing a mere

$$\frac{9 \times 48,608,812}{100,000} = \underline{4,375} \text{ children a year}$$

Barriers to child TB detection

- Lack of family centered contact tracing (*contact tracing with chemoprophylaxis only in 23% of DOTS centres*)
- Lack of guidelines in the field about systematic screening and referral of children suspected to have TB
- Lack of trained personnel (doctors and paramedics) who can diagnose and treat children with TB according to WHO guidelines

A community based intervention to **increase referral of children with suspected TB **and case detection** at microscopy centres at the upazila level**

General objective

To increase **case referral** and **detection rates** of children with TB (suspected or actual) in Microscopy Centres by training **paramedics** and **doctors** in screening/referral and diagnosis

Methods

Study Design

Cluster randomised control trial

Study sites

18 intervention and 18 controlled Damien Foundation (DF) supported Microscopy Centres and their respective upazila health centres

Distribution of study microscopy centres

DISTRICT	Intervention	Control
Tangail	2	2
Jamalpur	2	2
Mymemsingh	2	2
Kishoreganj	2	2
Netrakona	2	2
Rajshahi	1	1
Naogaon	1	2
C. Nawabganj	1	1
Faridpur	1	1
Gopalganj	1	1
Rajbari	1	
Madaripur	1	1
Shariatpur	1	1



Study population

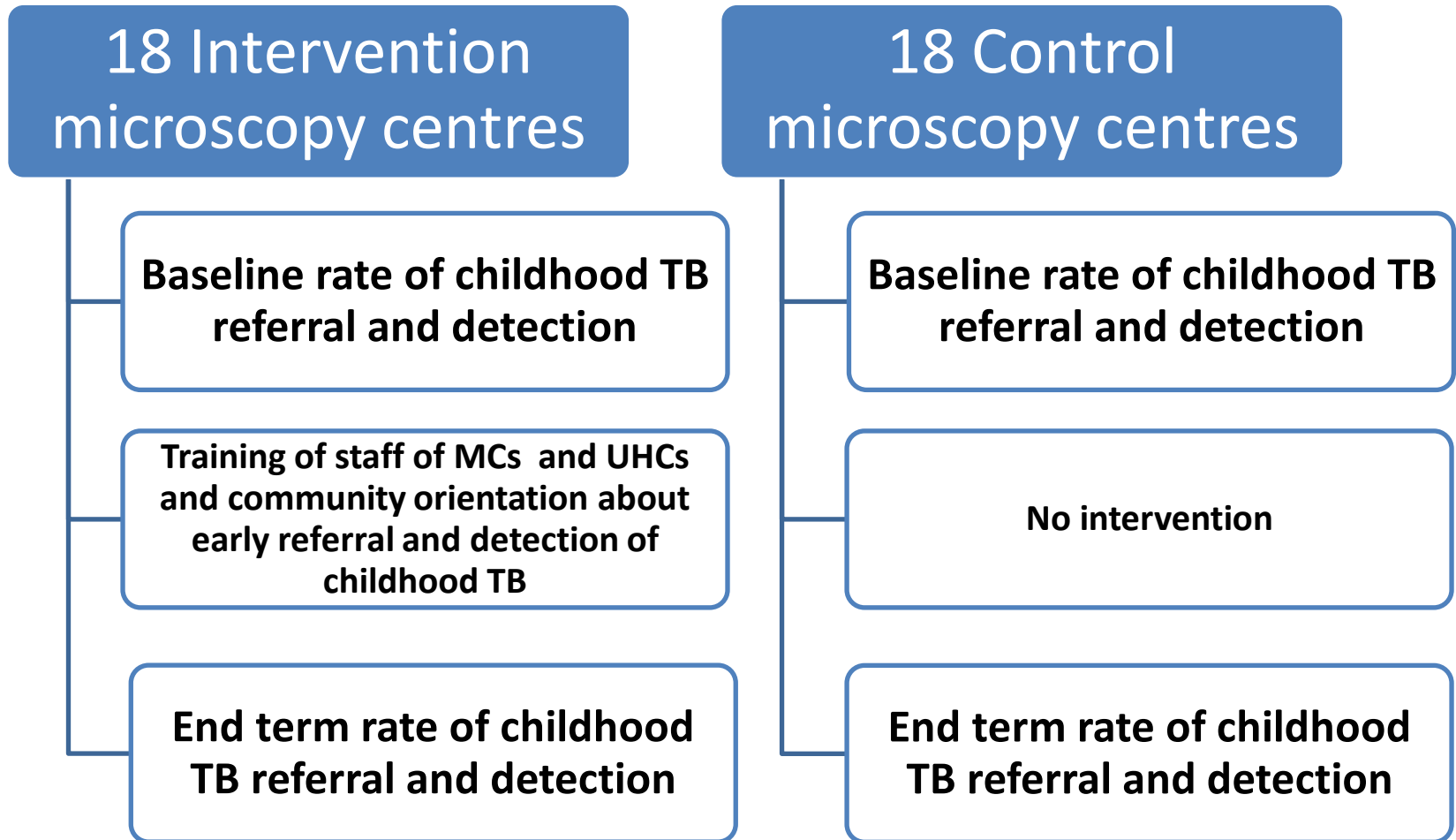
All children aged <15 years attending study Microscopy Centres

- either referred as suspected TB
- or brought from contact tracing

Hypothesis

12 months of intervention would result in case detection among referred children increasing from 4% to 8%

Methodological framework



Pre-intervention activities

- Field visits to DF microscopy centres, adjacent upazila health complexes and their catchment areas to assess how child TB was referred and diagnosed
 - No guidelines available to field staff or doctors
 - No training of field staff or doctors
 - Very few detections from hundreds of children tested with sputum microscopy
- Discussions with Damien management and field staff on what intervention would improve child TB detection

Microscopy centre field staff trained

- Using the 1996 WHO child TB score chart (Keith Edwards)
- Administering the Mantoux Test
- Weighing of child and interpreting how malnourished
- Referring the child to the doctor when needed
- Conducting health education sessions at UHCs, FWCs and RDs with messages on childhood TB, using child TB Flip Chart.
- Filling out our research questionnaires

Doctors trained and oriented on child TB

- Epidemiology
- Diagnosis
- Case scenarios
- Treatment as per NTP guidelines

Childhood TB activities in the community

In the short term

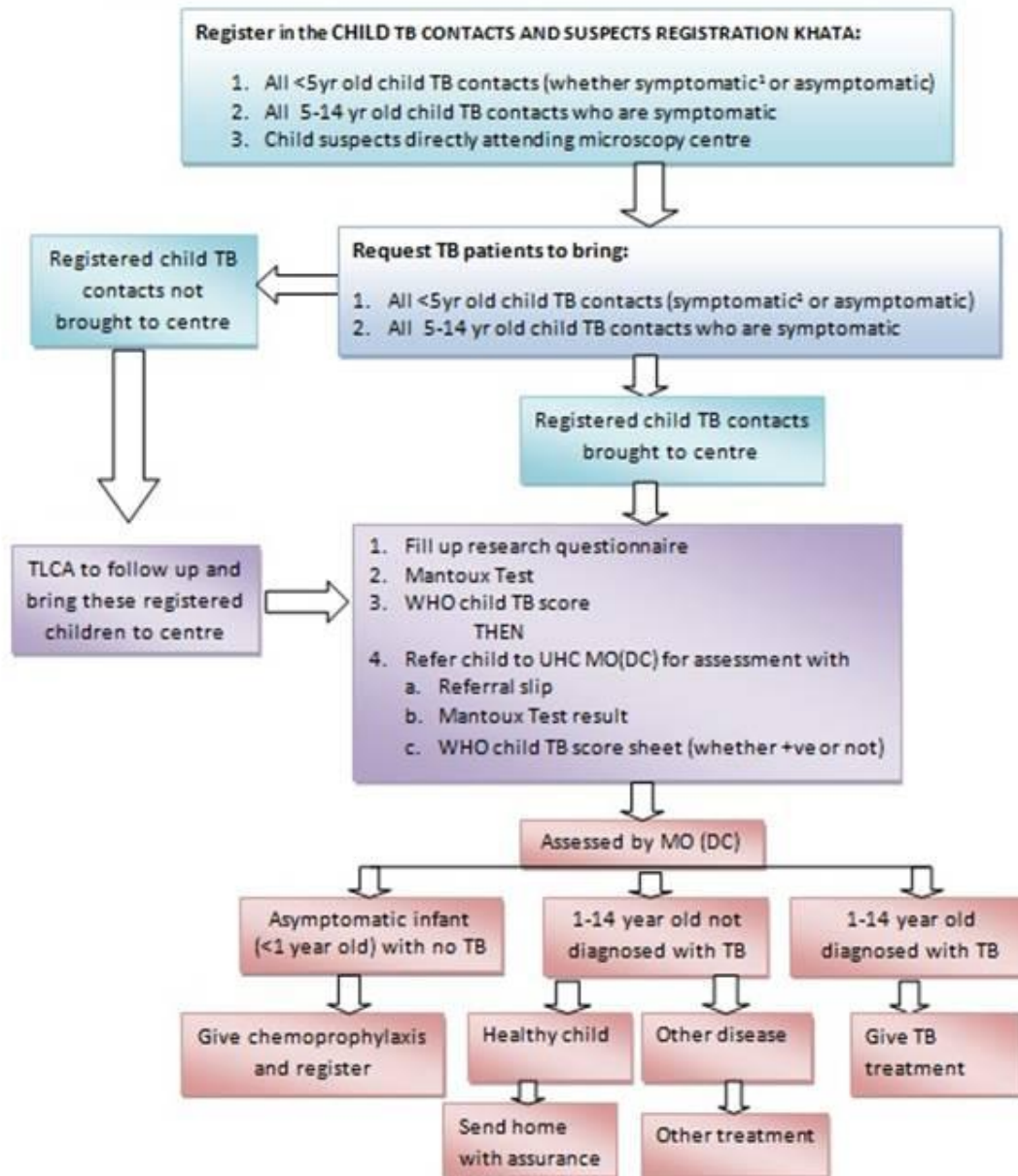
- UHC monthly meetings: Health assistants and other field staff given handbills on childhood TB
- Posters and handbills distributed to FDPs
- Childhood TB discussed at TB club and village doctor meetings

Childhood TB activities in the community

In the longer term

- Quarterly monitoring meetings at CS office oriented to childhood TB.
- Child TB messages given at meetings in schools, madrassas, girl guide and boy scout meetings as well as meetings with Ansars and VDPs.
- Micro credit and NNP NGO workers motivated through orientation sessions
- Direct sessions with mothers from NGO groups
- All doctors (including private practitioners) orientated with childhood TB.
- New messages on childhood TB given at Jumua prayers.
- Folk songs, popular theatre and miking used to transmit messages

CHILD TB CONTACTS AND SUSPECTS FLOW CHART AT MICROSCOPYCENTRE



¹ "Symptomatic" means fever, persistent cough for more than 3 weeks, weight loss and loss of playfulness

² "Asymptomatic" means means no fever, no persistent cough for more than 3 weeks, no weight loss and no loss of playfulness



Training at Jalchatra, Tangail

**Training session for DF TLCAs,
TLCOs and FC**



**Practical session for Mantoux
Test**



**Practical session for questionnaire
fill up**



Training session for DF medical officers and government MODC

Mantoux Test



WHO child TB score chart

Score chart for the diagnosis of TB in children						
SCORE IF FEATURE PRESENT						
Feature	0	1	2	3	4	Score
General						
duration of illness (weeks)	<2	2 - 4		>4		
nutrition (%weight for age)	>80	60 - 80		<60		
family history of TB	none	reported by family		proved sputum positive		
tuberculin test				positive		
malnutrition				not improving after 4 weeks		
unexplained fever and night sweats			no response to malaria treatment			
local						
				lymph nodes		
				joint or bone swelling		
				abdominal mass or ascites		
				C.N.S. signs, and usually abnormal C.S.F. findings		
					angle deformity of spine	
TOTAL SCORE						

Child TB poster



**আপনার শিশু কি যক্ষ্মা রোগে
ভুগছে ?**

তিন সপ্তাহের বেশী সময় ধরে কাশি ও জ্বর থাকা ▶ 

 ◀ ওজন দিনে দিনে কমে যাওয়া

 গলায় গুটির মতো ফুলে যাওয়া ▶ 

◀ পিঠের হাড় বেঁকে যাওয়া

শিশুর যক্ষ্মা হলে উপরের যে কোন লক্ষণ দেখা দিতে পারে
বিনামূল্যে যক্ষ্মা পরীক্ষা ও চিকিৎসার জন্য আজই
নিকটস্থ উপজেলা স্বাস্থ্য কমপ্লেক্সে যোগাযোগ করুন।





Child TB Hand bill



যক্ষ্মা শুধু
বড়দের
অসুখ না

প্রতিবছর বাংলাদেশে:

কমপক্ষে ৩৭ হাজার শিশু যক্ষ্মা রোগে আক্রান্ত হয় এবং
১২ হাজার শিশু যক্ষ্মা রোগে মারা যায়

বড় যক্ষ্মা রোগীর সংস্পর্শে আসলে
ছোট শিশুদের শতকরা ৫০ ভাগই এ রোগে আক্রান্ত হয়

শিশুদের যক্ষ্মার লক্ষণ:

- তিন সপ্তাহের বেশী ধীরে ধীরে বাড়ছে এরকম কাশি
- ৩ মাস ধরে শিশুর ওজন বাড়ছে না
- শিশু আগের মতো খেলাধুলা করছে না এবং
ধীরে ধীরে নিস্তেজ হয়ে যাচ্ছে
- সাধারণত বড় যক্ষ্মা রোগীর সাথে শিশুটি সংস্পর্শে এসেছে

শিশুদের যক্ষ্মা বিভিন্ন ধরনের হতে পারে:

- কাশি ● গলায় বড় গুটলি
- গিড়ায় গিড়ায় ব্যথা বা ফুলে যাওয়া ● পেটে পানি আসা
- অজ্ঞান বা অচেতন হয়ে যাওয়া
- বিনা কারণে জ্বর এবং রাতে ঘাম হওয়া

উপরের লক্ষণগুলো দেখা দেওয়া মাত্র শিশুকে নিকটস্থ ডাক্তারের কাছে নিয়ে যাবেন।



নারী ও শিশু স্বাস্থ্য কেন্দ্র

কেরন, ইয়ারপুর, সাভার, ঢাকা- ১৩৪১।
টেলিফোনঃ ৭৭৯-০৪৫৫, ০১৭১৩ ১৪৪২৬৭



শিশুদের যক্ষ্মাও ভাল হয়



চিকিৎসার আগে



চিকিৎসার পরে

শিশু যক্ষ্মার পরিণতি:

যদি যক্ষ্মা দেরীতে ধরা পড়ে

তাহলে হয়তো শিশু মারাও যেতে পারে

যদি যক্ষ্মা তাড়াতাড়ি ধরা পড়ে

তাহলে শিশুকে চিকিৎসা দিয়ে সুস্থ করা সম্ভব

শিশু যক্ষ্মার প্রতিরোধ:

বড় যক্ষ্মা রোগীর সংস্পর্শে আসা ১ বছরের নিচে সকল শিশুদের

(এমনকি যদি তারা সুস্থ ও হয়) যক্ষ্মা প্রতিরোধের জন্য

যক্ষ্মাপ্রতিরোধক ওষুধ খাওয়াতে হবে।

আইএনএইচ বড়ি প্রতিদিন ১টা করে ৬ মাস পর্যন্ত খাওয়াতে হবে



Child TB Flip chart



শিশুদের যক্ষ্মার লক্ষণ সমূহ



foundation
damien
BANGLADESH



























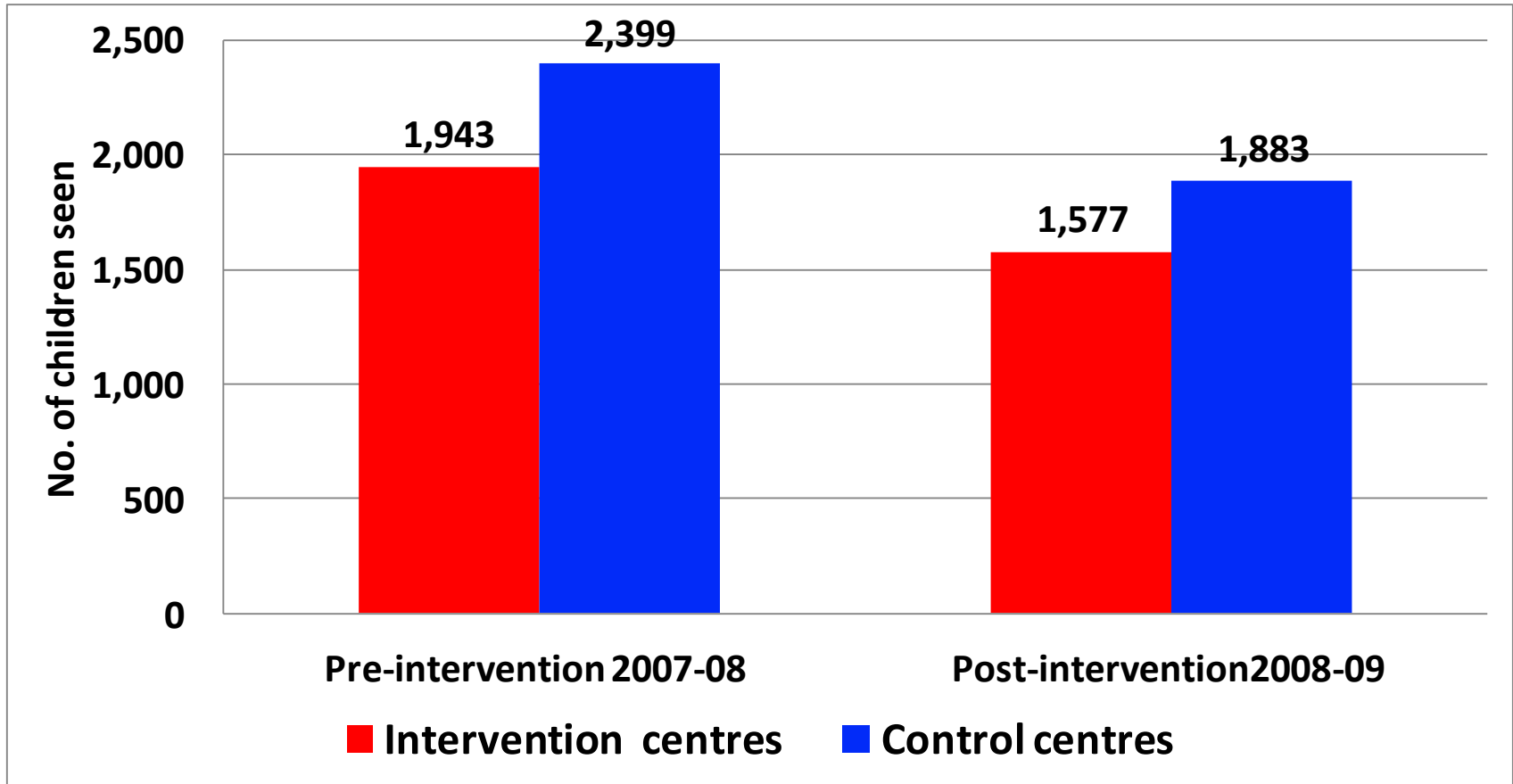




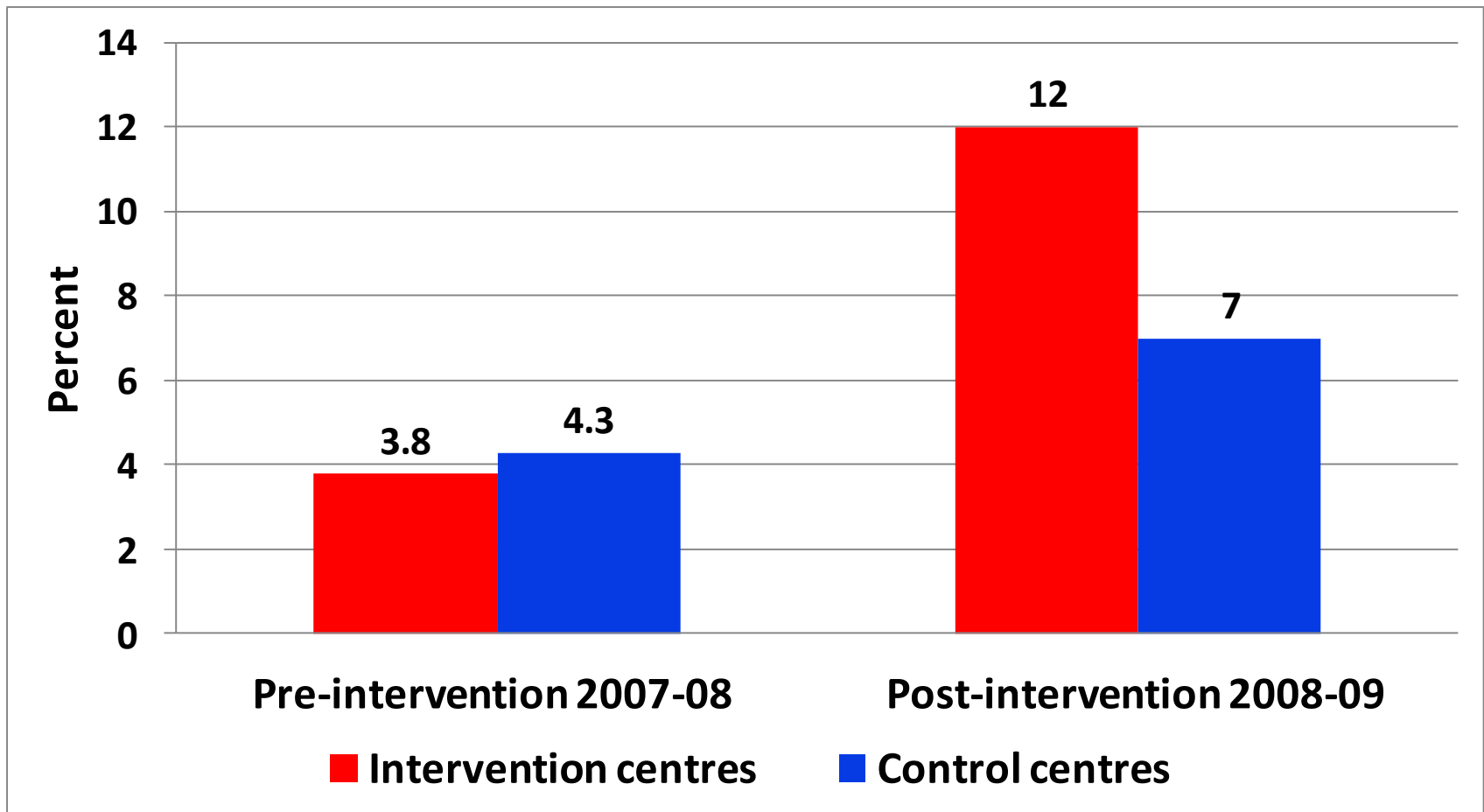


Results

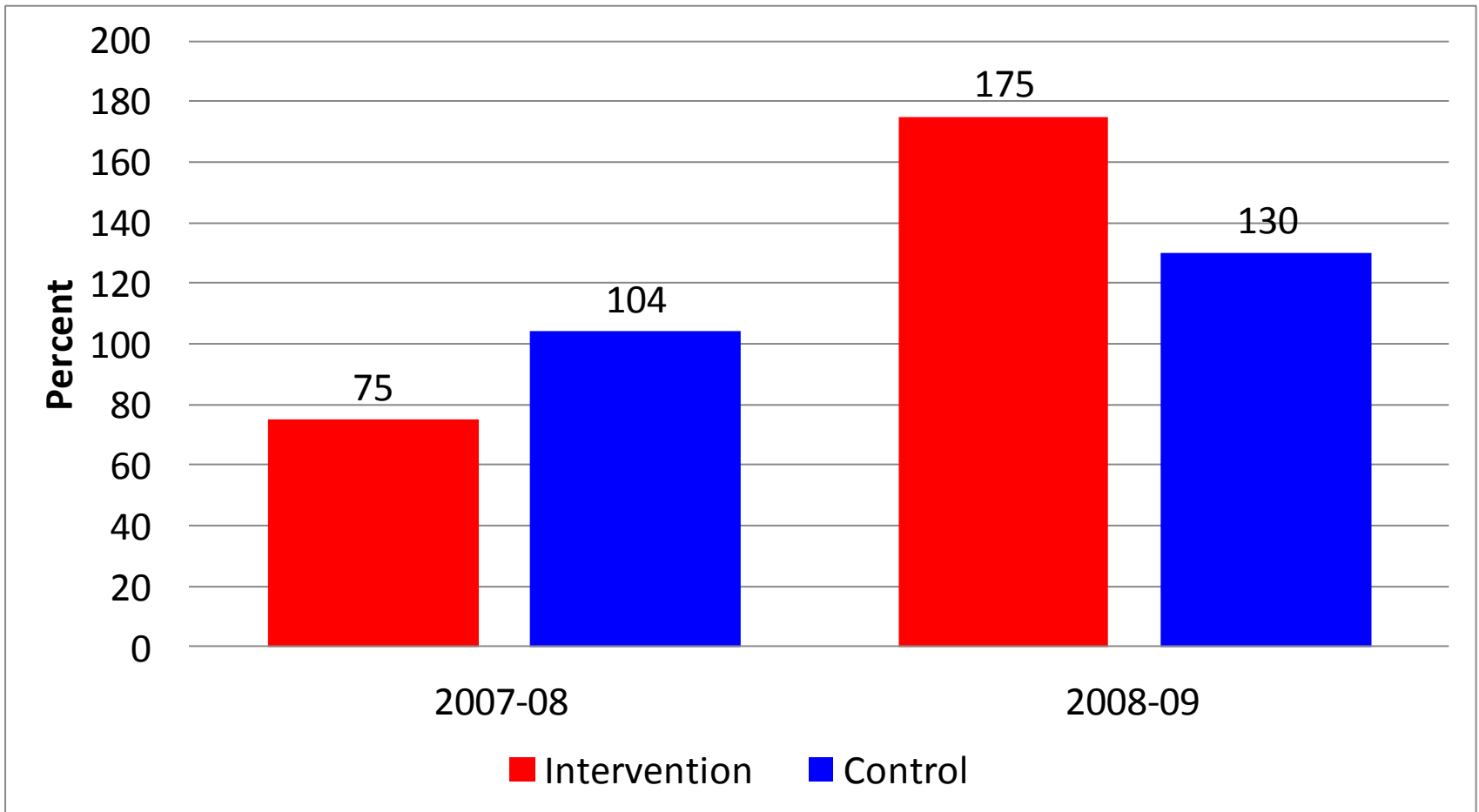
Annual child TB contacts and suspects seen in 18 + 18 study microscopy centres



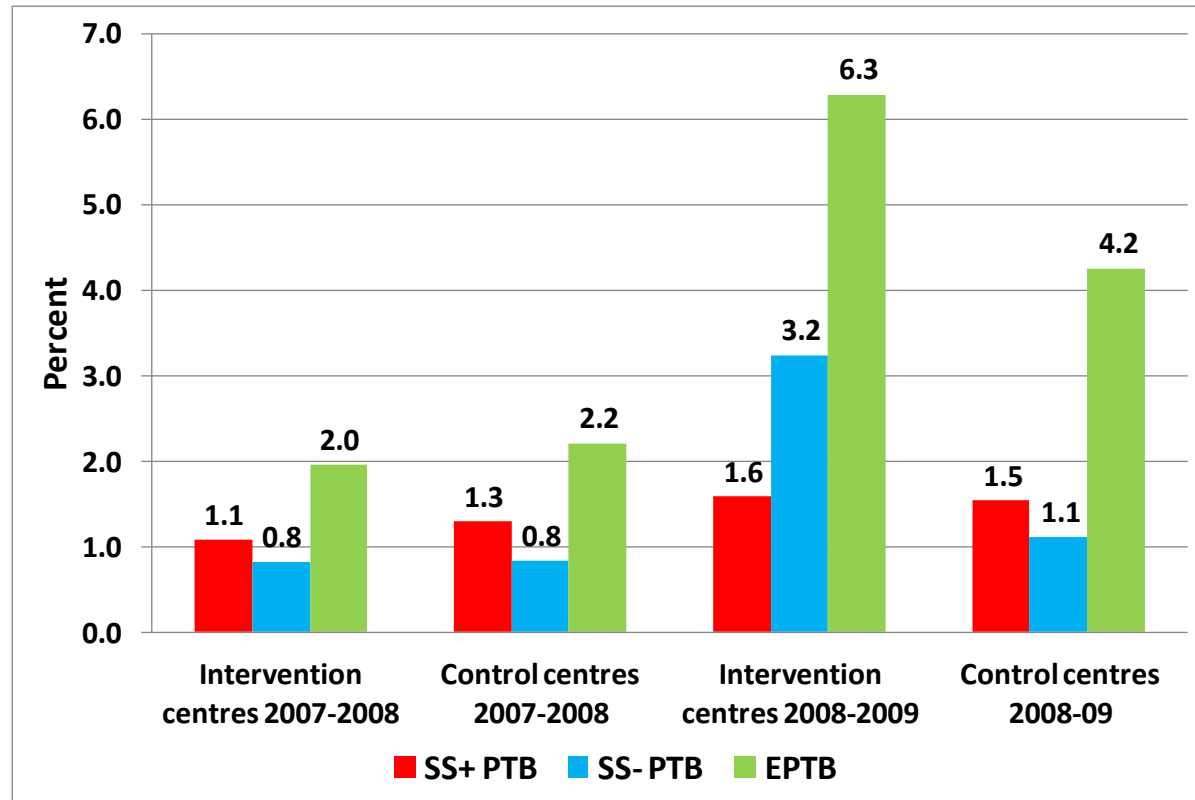
Percent diagnosed with child TB in intervention and control areas before and after intervention



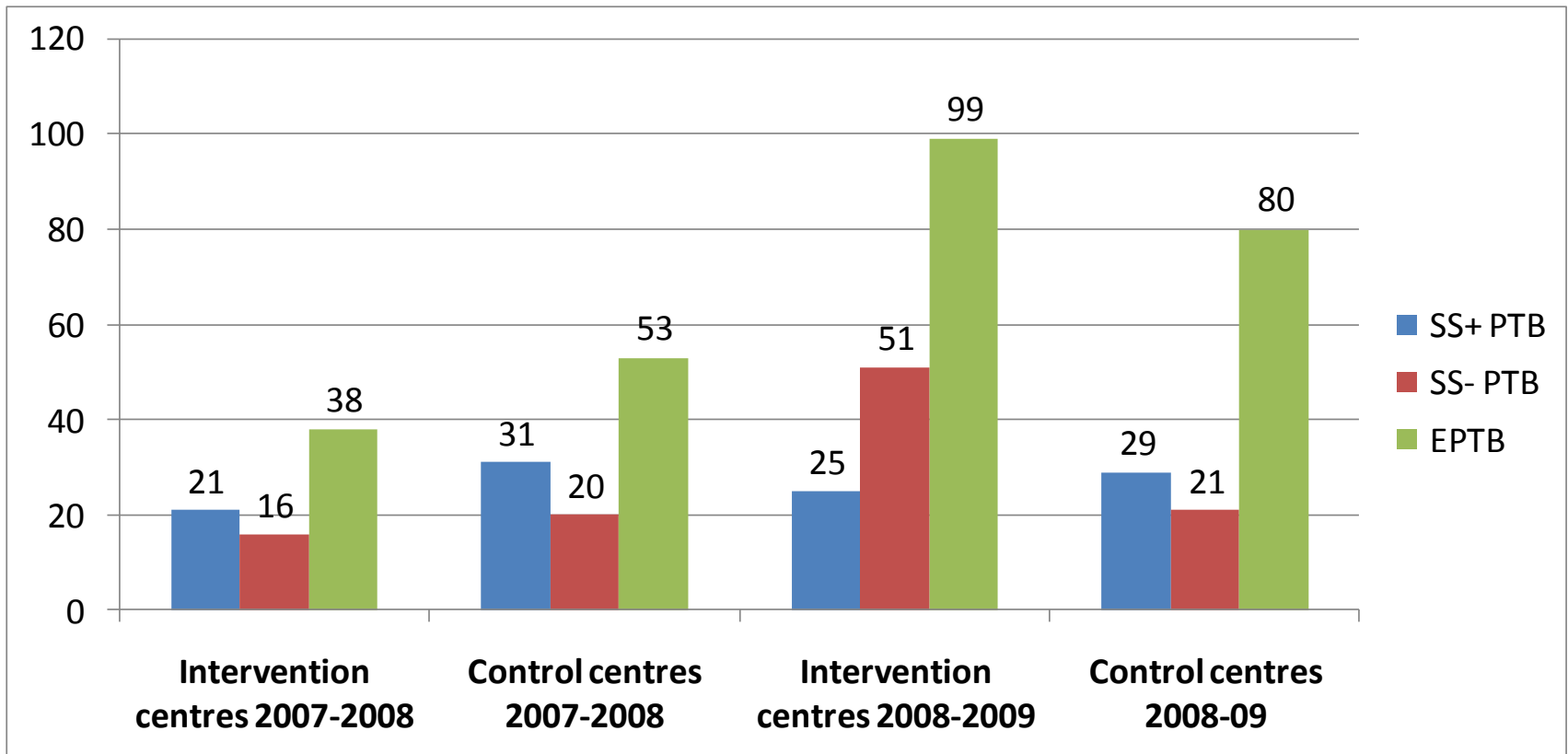
Number diagnosed with child TB in intervention and control areas before and after intervention



Type of TB (%) diagnosed in children



Type of TB diagnosed in children



Source of referral (%)

Referred by	Intervention (n= 395)	Control (n=376)	P value
Technical personnel	44	56	0.002
Non-technical personnel	56	44	

Family characteristics

	Intervention (n= 395)	Control (n= 376)	p value
Mean family members	5.6	5.6	0.940
Mean monthly income of household	6346	6042	0.403
Tube well (%)	99	98	0.537
Sanitary toilet (%)	83	79	0.140
Electricity (%)	38	34	0.231

Parental characteristics

	Intervention (n= 395)	Control (n= 376)	P value
Fathers educational qualification %			
School going	59	51	0.025
Not school going	41	50	
Fathers occupation %			
Blue collar worker	56	51	0.149
White collar worker	44	50	
Mothers educational qualification %			
School going	62	54	0.035
Not school going	39	46	
Mothers occupation %			
Housewife	93	94	0.469
Garments worker/Others	7	6	

Biological parameters

	Intervention (n= 395)	Control (n= 376)	p value
Mean age (months)	62	82	0.000
Male (%)	53	51	0.517
Mean weight for age Z score (WAZ)	-1.95	-2.00	0.595

Parent

“When my child was ill at first I went to a community agent who asked me some questions and referred me to the UHC. At the UHC DOTS corner, the paramedic Mohonlal Babu asked me many questions such as how many days my child had cough. Is there any TB patient in your family and among your neighbours? After that he gave the child an injection, measured his weight, marked his arm and said to come back three days later. After three days he took my child to the doctor who examined my child’s arm and asked some questions and examined the child properly and told me that my child had TB.”

Community agent

“Previously we had no idea about child TB but now we know about it from paramedics and materials such as handbills and posters. We need separate training on childhood TB.”



Paramedic

“Some time ago I was conducting a health education session. At that time a woman told me that a child close by had the symptoms I had mentioned. I went to the child’s house and saw that his joints were swollen. I brought this child to the TB hospital and after doing the MT he was diagnosed with TB.”

Government health centre doctor

“Mukti, a 9 y old girl , brought to me by a paramedic with a family history of contact with TB +ve patients (both father and mother) and a WHO chart score of 10 with fever and cough for 1 month along with weight loss. I examined the child and then started anti TB Drugs and now the child is improving.”

Damien Foundation doctor

“I have had training. This project is important and necessary. In study sub-districts, child TB referral and detection has increased. Children are a large part of our population and we didn't know about the incidence of child TB. This project has opened our eyes. All our staff are working hard and they are getting the fruits of their work.”



Damien Foundation doctor

“Obviously detection of child TB has increased. It was good initiative. Personally I have been benefited with this project’s training. Now TLCAs and TLCOs also know much about childhood TB from their training. In reality previously child TB was only diagnosed in medical colleges by specialists but now it’s diagnosed at the UHC. But there needs to be more focus on monitoring and on building up community awareness.”



Conclusions

- A comprehensive intervention involving existing front line TB workers can increase childhood **TB detection at upazila level**
- Referrals **have not** increased from the community but are more from **lay people**
- Overall performance of trained health personnel satisfactory
- Good response from the public to key messages on child TB

Recommendations for NTP

- Develop national child TB strategy and action plan
- SCALE UP training of microscopy centre and UHC personnel on childhood TB
- Provision of Mantoux Test and weighing scales at all microscopy centres
- Ensure chest x-rays at all government health centres
- Increase community based orientation of village doctors, community agents and health workers
- National incidence study for childhood TB

Thank you for your attention

