

Understanding and Improving Quality of Care w/ preliminary results from the QuTUB project

PRESENTED BY

- JISHNU DAS (WORLD BANK; CENTER FOR POLICY RESEARCH) &
- MADHUKAR PAI (MCGILL UNIVERSITY) &
- ADA KWAN (UC BERKELEY, WORLD BANK)

BASED ON THE QUTUB PROJECT LED BY DAS AND PAI (CORE TEAM INCLUDES BENJAMIN DANIELS)



WORLD BANK GROUP



Centre
international
de TB McGill



McGill
International
TB Centre



Grand Challenges Canada®
Grands Défis Canada



JOHNS HOPKINS
UNIVERSITY

BILL & MELINDA
GATES foundation

This presentation

Part 1. Global insights on quality of care (Jishnu)

A CASE STUDY ON TUBERCULOSIS

Part 2. What have we learned about existing quality? (Madhu)

1. Quality of TB care
2. QuTUB Project: Baseline findings in urban India

Part 3. What have we learned about improving quality? (Ada)

1. QuTUB Project: Year-over-year findings during PPIA pilots
2. Mechanisms of impact?

Healthcare: the biggest sector of world economy

1. Now more than 10% of the GWP
 - a. Global economy: \$78 trillion
 - b. Healthcare spending: \$7.5 trillion
2. Growing rapidly
 - a. Will reach \$18 trillion in two decades
3. But healthcare spending does not always pay off

Quality as catalyst



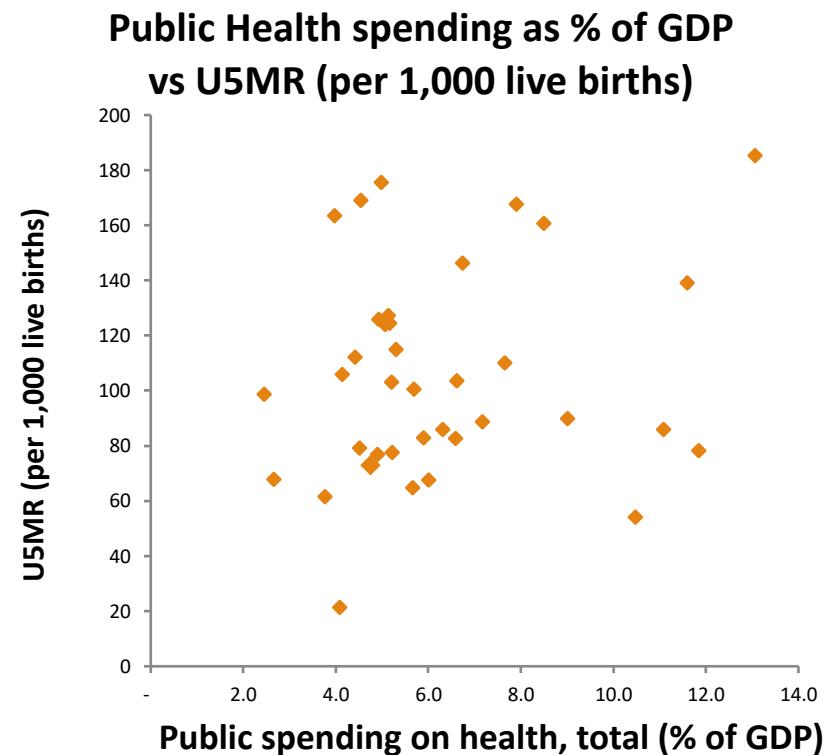
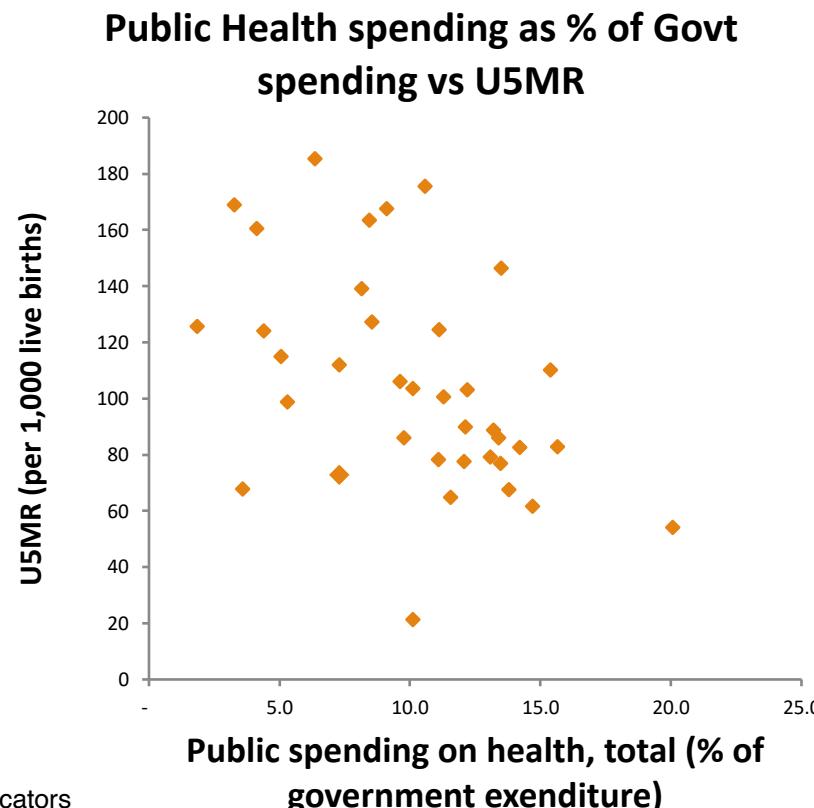
Care that is **safe**:
Does not harm
patients

Care that is **effective**:
Consistent with best
professional
knowledge

Care that is **patient-
centered**: Meets the
needs of the patients

Focus on Quality of Care (the VALUE in “Value For Medicine”)

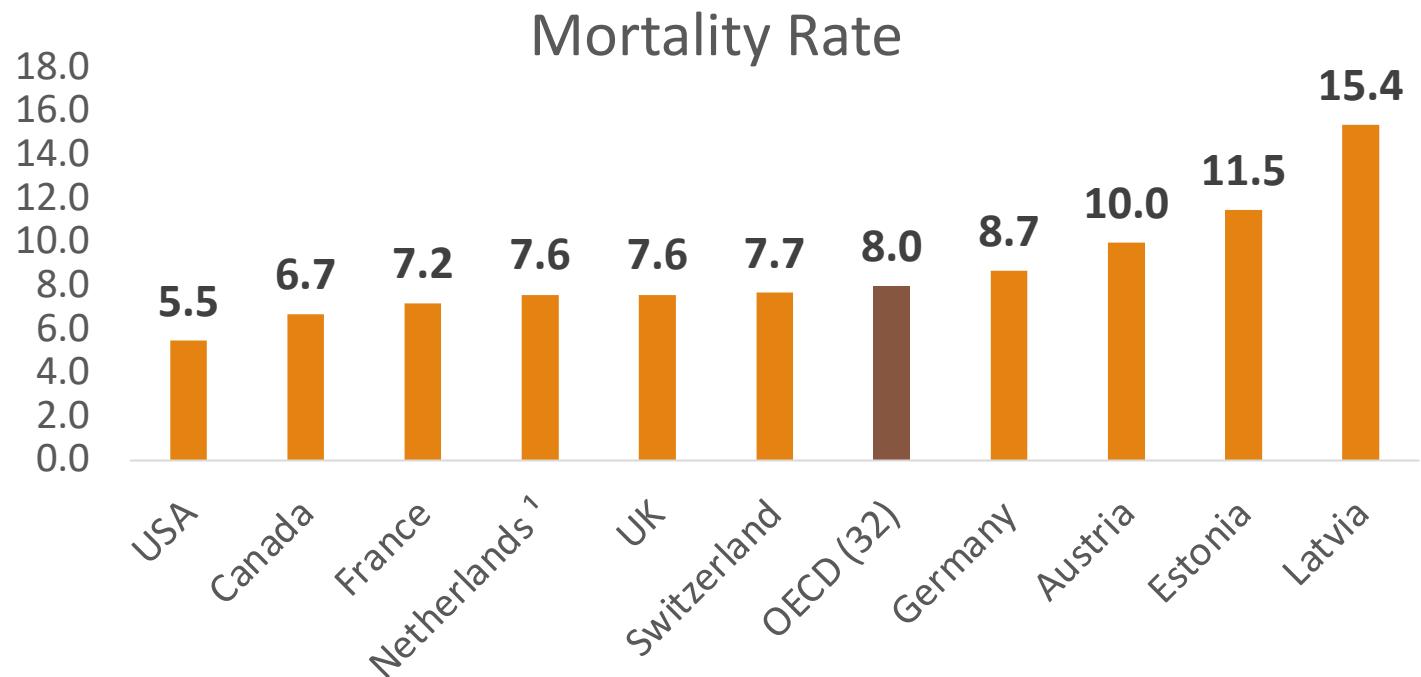
Weak relationship between spending and health outcomes suggest an unfinished quality agenda



Source: World Development Indicators

Quality is a Global Problem

In UK, 11% of patients injured during hospitalization of which a third led to meaningful disability or death



What do we know so far?

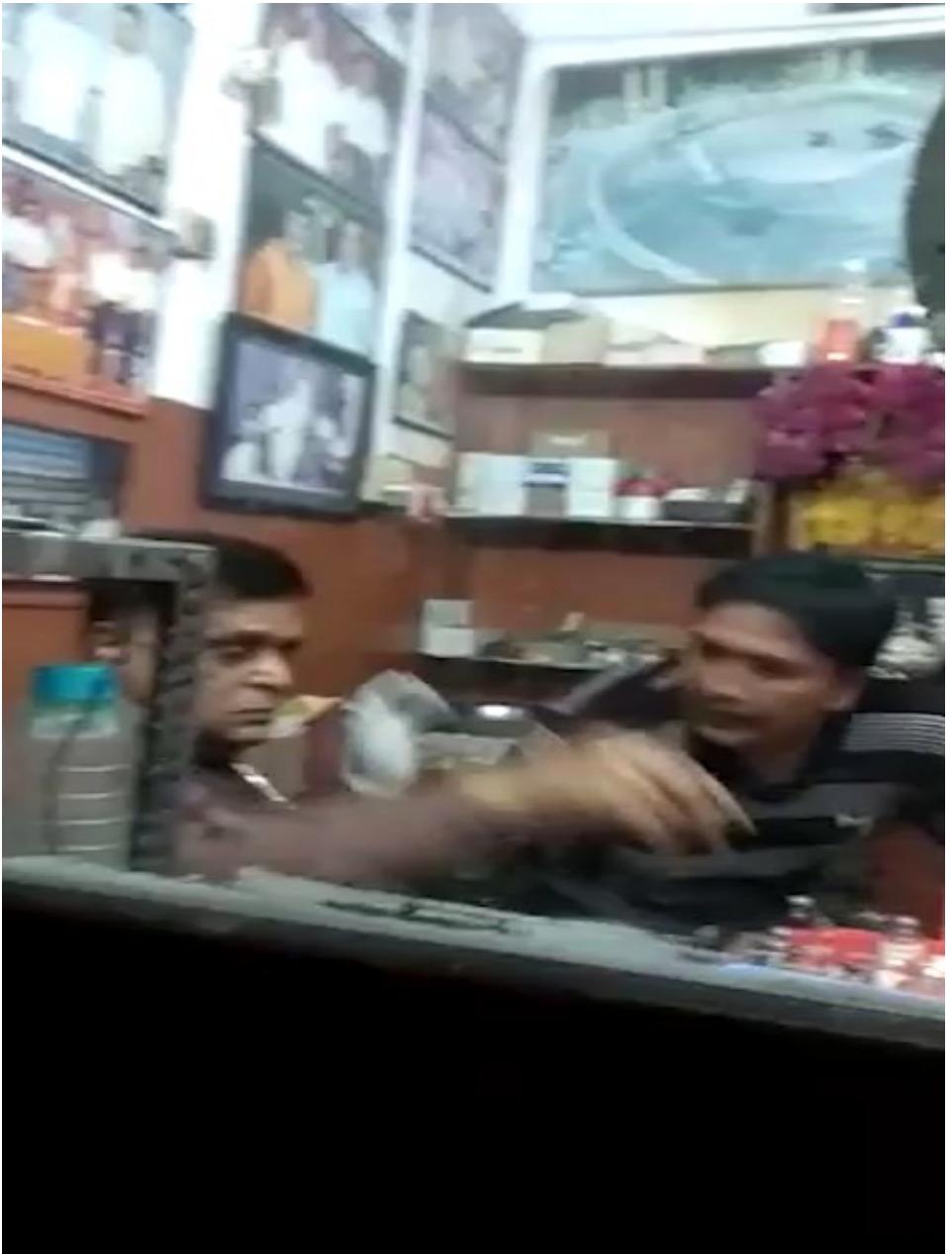
1. Without quality, access may be irrelevant
2. Qualifications do not equal clinical knowledge
3. Clinical knowledge often fails to translate into clinical practice

UNIVERSAL HEALTH COVERAGE

Rethinking assumptions about delivery of healthcare: implications for universal health coverage

Simply providing more resources for universal coverage is not enough to improve health, argue **Jishnu Das and colleagues**. We also need to ensure good quality of care

[thebmj](#) | BMJ 2018;361:k1716 | doi: 10.1136/bmj.k1716



Understanding the extent of the problem

Understanding the extent of the problem

An average interaction



3.89 minutes



2.89 questions



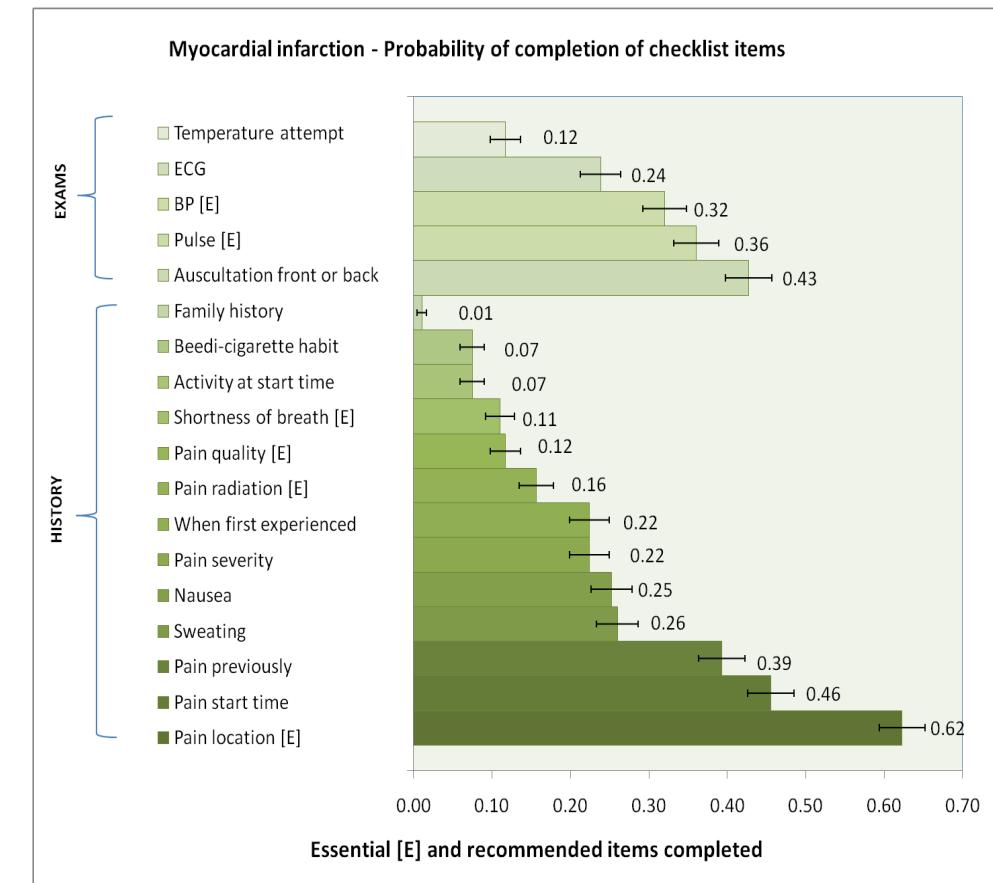
1.46 exams



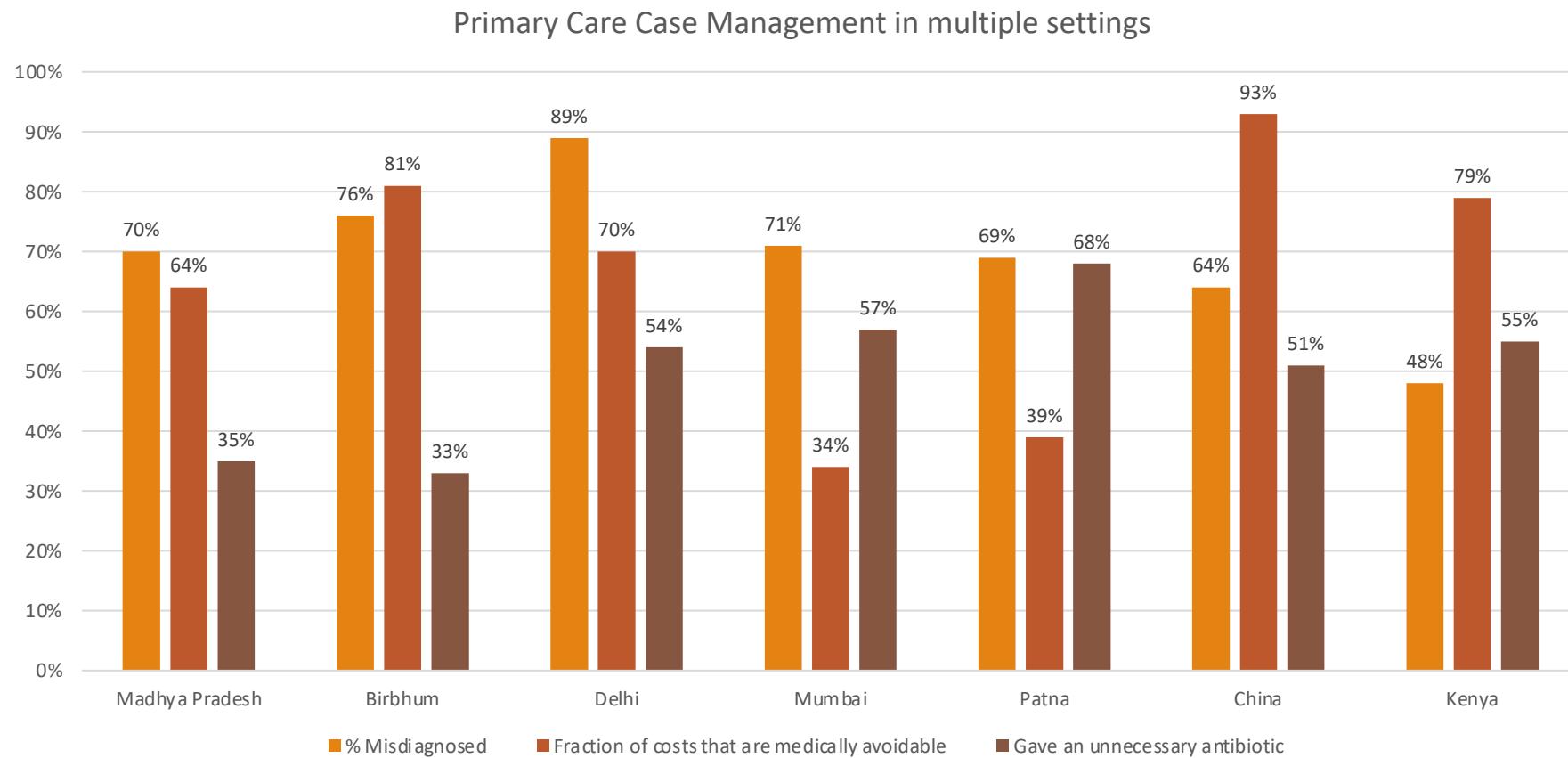
2.34 medicines



Rs. 31



Understanding the extent of the problem



Three examples of what we were getting wrong

Assumption 1: Medical training guarantees medical competence.

Fact 1: Large variation in medical competence within and across countries

- a. Nurses in Kenya are more medically knowledgeable than fully trained doctors in Madagascar
- b. Among doctors in India, the least knowledgeable 20% cannot correctly diagnose and treat diarrhea or TB

Assumption 2: Doctors are over-worked

Fact 2: True in some urban hospitals, but in rural areas most healthcare providers spend no more than 40 minutes a day seeing patients

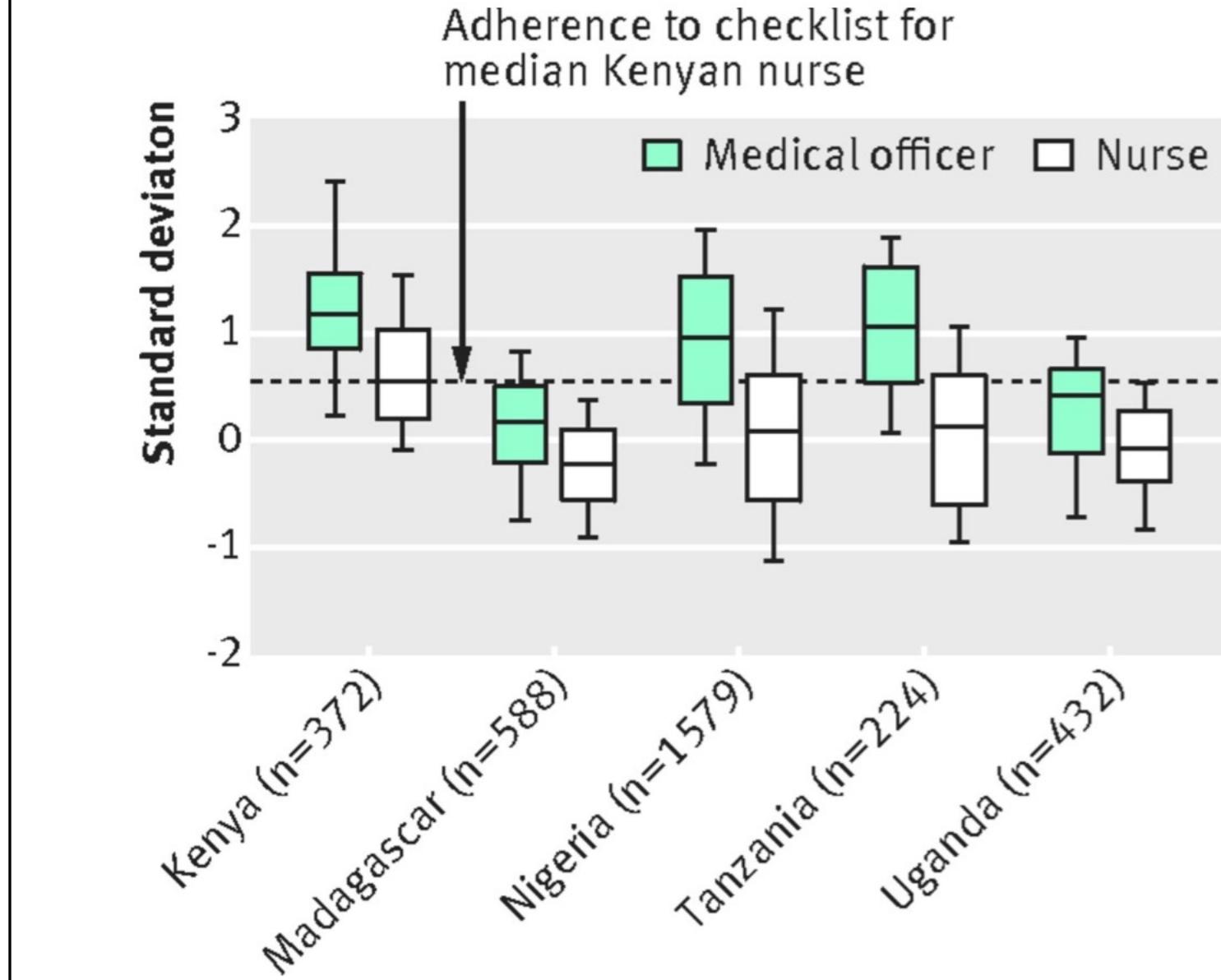
- a. Vietnam, Cambodia, India, China, Kenya, Nigeria (1 patient a day), Paraguay

Assumption 3: Doctors practice at the frontier of their knowledge

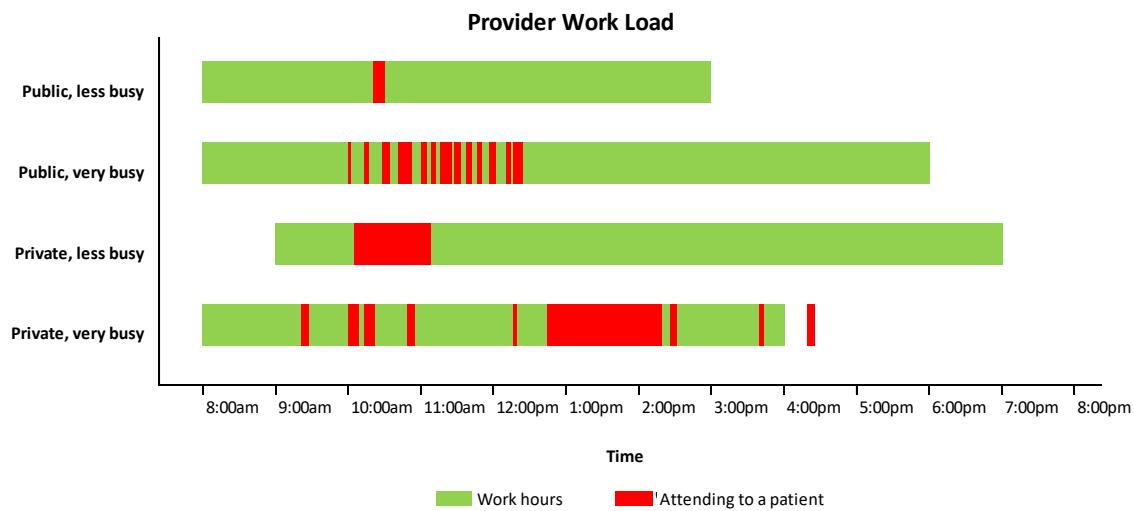
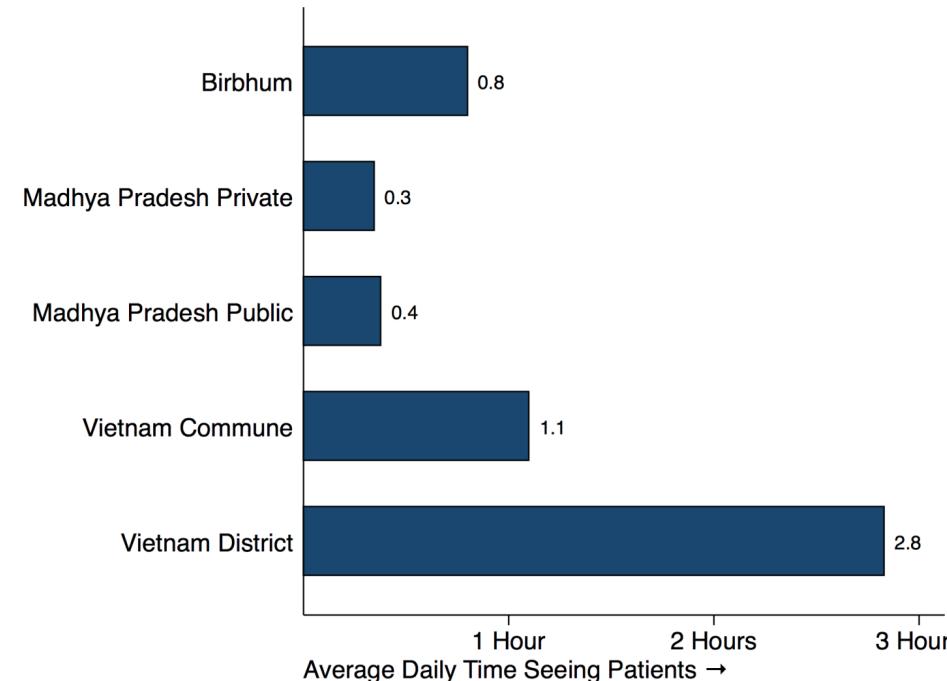
Fact 3: Large “know-do” gap between the knowledge and practice of healthcare providers

[Based on ongoing research]

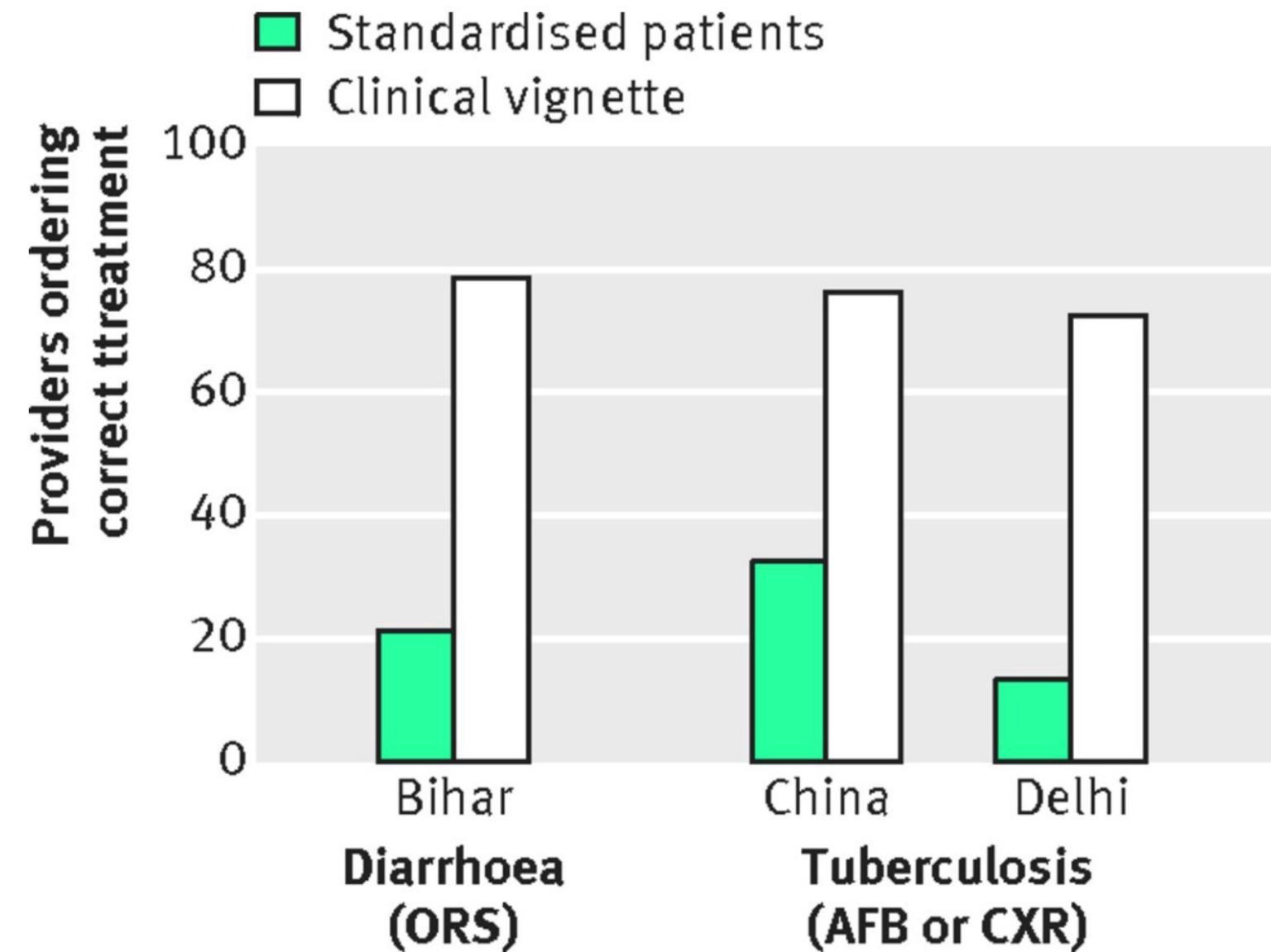
Qualifications ≠ clinical knowledge



Health care providers are *under worked*



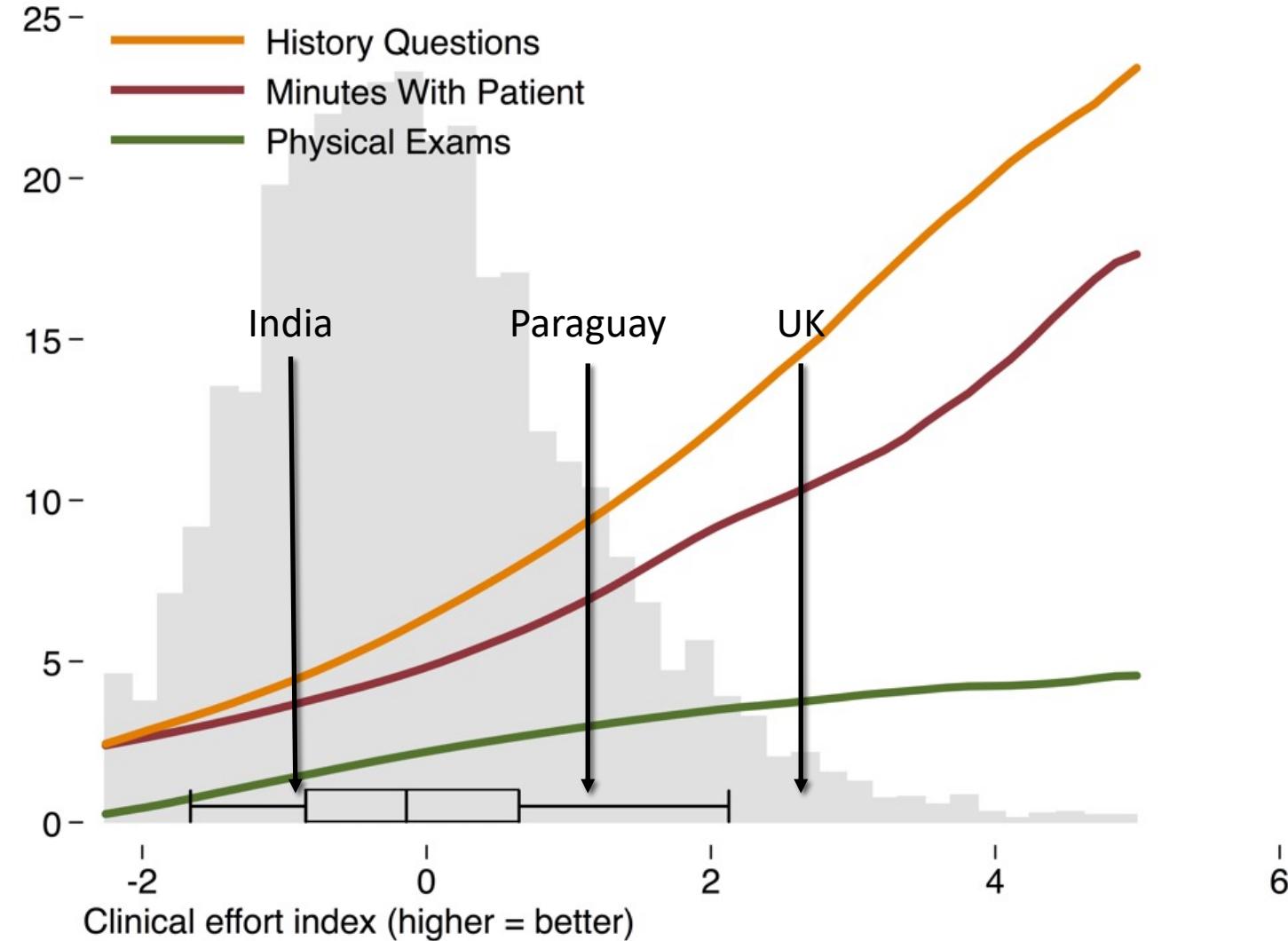
Clinical knowledge ≠ clinical practice



Observations: Effort is low but variable

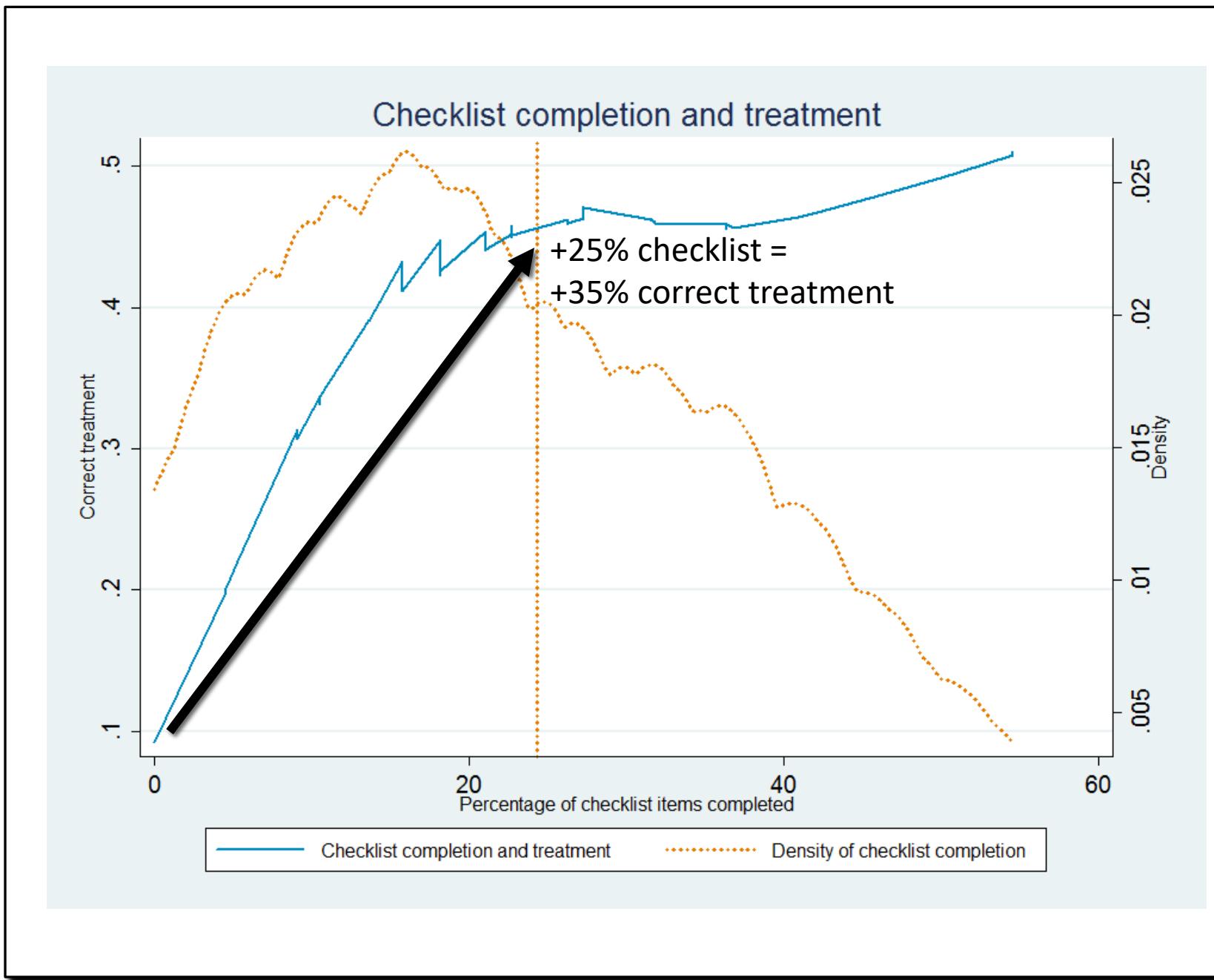
Two major findings:

- 1) Low *average* effort, roughly correlated with national income.
- 2) High *variation*: The best providers in Vietnam (shown), for example, would be average in Paraguay, but the worst would be average in India.



Observations: Effort predicts quality

In standardized patient studies, small changes in time and effort spent per patient translate to significant differences in quality of care.



Observations: Quality varies within provider

In a recent *AER* study, *the same providers* provide much higher quality care with *the same SPs* when they move from their public practice to their private practice.

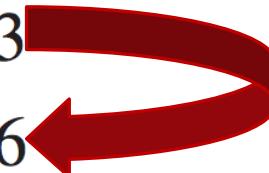
Quality and Accountability in Health Care Delivery: Audit-Study Evidence from Primary Care in India[†]

By JISHNU DAS, ALAKA HILLA, AAKASH MOHPAL,
AND KARTHIK MURALIDHARAN*

Correct treatment
(1=Yes)
(7)

Panel A. SP and case fixed effects

Is a private provider	0.151 (0.061)
R^2	0.274
Observations	201
Mean of public	0.373
Mean of private	0.566



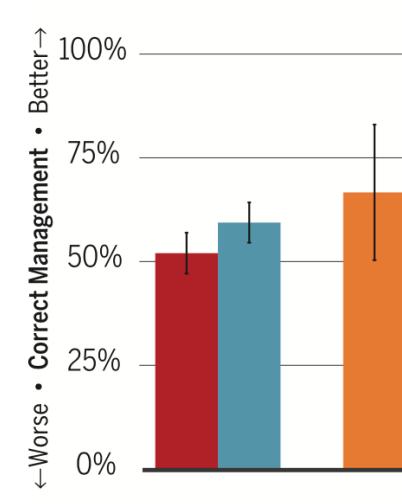
Observations: Knowledge can improve

In a randomized training program in rural West Bengal, India, an evaluation showed that nine months of basic training improved performance of *uneducated* providers to a similar level as the public sector.

The impact of training informal health care providers in India: A randomized controlled trial

Jishnu Das, Abhijit Chowdhury, Reshmaan Hussam, Abhijit V. Banerjee*

Despite 56% mean attendance, trained informal providers correctly managed more cases, closing half the gap with the public sector.

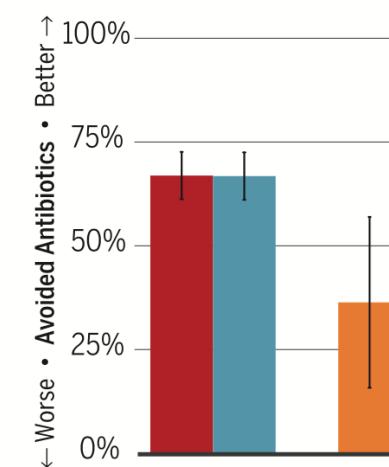
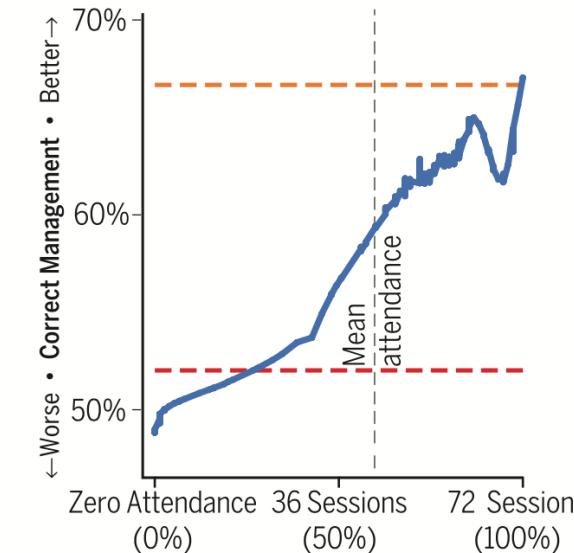


■ Control: Untrained Informal

■ Trained Informal

■ Benchmark: Public Sector

Providers who completed the full training course correctly managed cases as often as public-sector doctors.



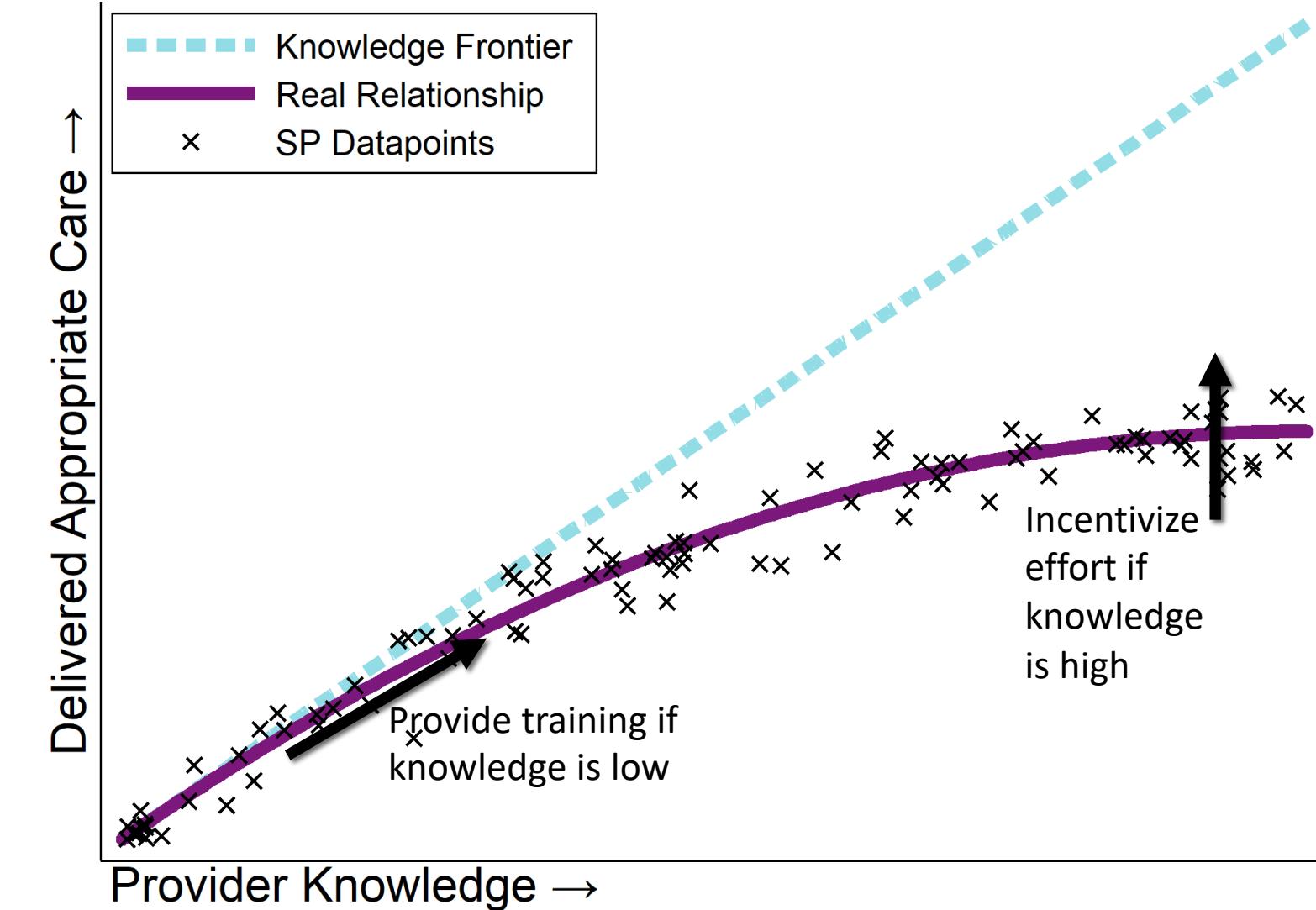
Little known about changing providers' behavior

- 1. Private sector provides majority of primary care in LMIC worldwide**
 - a. No clear strategy for how to work with the sector and no clear evidence on strategies such as SFOs that have been widely advocated
 - b. For TB, widely believed (but not known for sure) that the private sector is a major source of care in India
- 2. Behavior change equally hard: Most published research targeting provider practice from advanced economies, but high-quality data is very sparse**
 - a. A recent review (Baker et al. 2015) found just 32 studies suitable for meta-analysis
- 3. We identified 23 high-quality (randomized) studies on provider behavior change interventions in LMICs from a major database**
 - a. Of these, 12 are *public-sector studies*, and 9 of these focus on maternal or infant care; the other three are small-scale studies ($N < 100$) with broad objectives
 - b. Of the remaining 11 *private-sector studies*, 9 focus on family planning, maternal mortality, and infant care and mortality; the other two are HIV/AIDS awareness and disease notification
- 4. No formalized knowledge about provider-targeted quality of care interventions for adult disease**

Theory from Observations

Measuring knowledge allows us to determine where providers are and how their behavior might be improved

- *If knowledge is low, training can yield large benefits.*
- *If knowledge is high, incentives can yield large benefits.*



Part 2

What have we learned about existing quality for TB?

LESSONS FROM A LARGE-SCALE STUDY IN URBAN INDIA

SP studies in 4 countries show that most primary care providers do not manage TB well



Use of standardised patients to assess quality of tuberculosis care: a pilot, cross-sectional study

Jishnu Das, Ada Kwan, Benjamin Daniels, Srinath Satyanarayana, Ramnath Subbaraman, Sofi Bergkvist, Ranendra K Das, Veena Das, Madhukar Pai



Use of standardised patients to assess antibiotic dispensing for tuberculosis by pharmacies in urban India: a cross-sectional study

Srinath Satyanarayana, Ada Kwan, Benjamin Daniels, Ramnath Subbaraman, Andrew McDowell, Sofi Bergkvist, Ranendra K Das, Veena Das, Jishnu Das*, Madhukar Pai*



Research

BMJ Global Health

Use of standardised patients to assess quality of healthcare in Nairobi, Kenya: a pilot, cross-sectional study with international comparisons

Benjamin Daniels,¹ Amy Dolinger,¹ Guadalupe Bedoya,¹ Khama Rogo,² Ana Goicoechea,³ Jorge Coarasa,² Francis Wafula,^{2,4} Njeri Mwaura,² Redemptar Kimeu,⁵ Jishnu Das^{1,6}



International Journal of Environmental Research and Public Health

Article

Measuring Quality Gaps in TB Screening in South Africa Using Standardised Patient Analysis

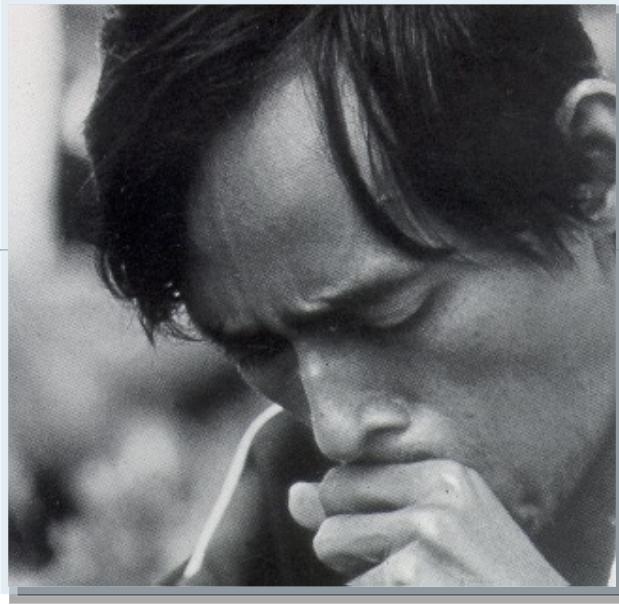
Carmen S. Christian^{1,2,*}, Ulf-G. Gerdtham^{3,4}, Dumisani Hompashe^{2,5}, Anja Smith² and Ronelle Burger²



RESEARCH ARTICLE

Tuberculosis detection and the challenges of integrated care in rural China: A cross-sectional standardized patient study

Sean Sylvia¹, Hao Xue², Chengchao Zhou^{3,*}, Yaojiang Shi², Hongmei Yi⁴, Huan Zhou⁵, Scott Rozelle⁶, Madhukar Pai⁷, Jishnu Das⁸



Simulated patient: Classic case of suspected TB

(2-3 weeks of productive cough, fever,
weight loss – “presumed TB”)

Results from 4 countries – providers

Setting - Sector	% Correctly Managed	% Referred
Delhi, India – private sector	21%	10%
Mumbai, India – private sector	37%	15%
Patna, India – private sector	33%	10%
Nairobi, Kenya – public & private	33 – 40% Public: 79% asked for sputum test Private: 36% asked for sputum test	4% - 10%
Rural China (3 provinces) - public	28%, village clinics 38%, township centers 90%, county hospitals	28%, village clinics 18%, township centers 5%, county hospitals
South Africa – public (Western & Eastern Cape)	43% got TB and HIV tests 84% got sputum TB tests	

Das et al. (2015); Kwan et al. (under review); Daniels et al. (2017); Sylvia et al. (2017); Christian et al. (2018)

Results from 4 Indian cities – pharmacies

Lancet Case 1

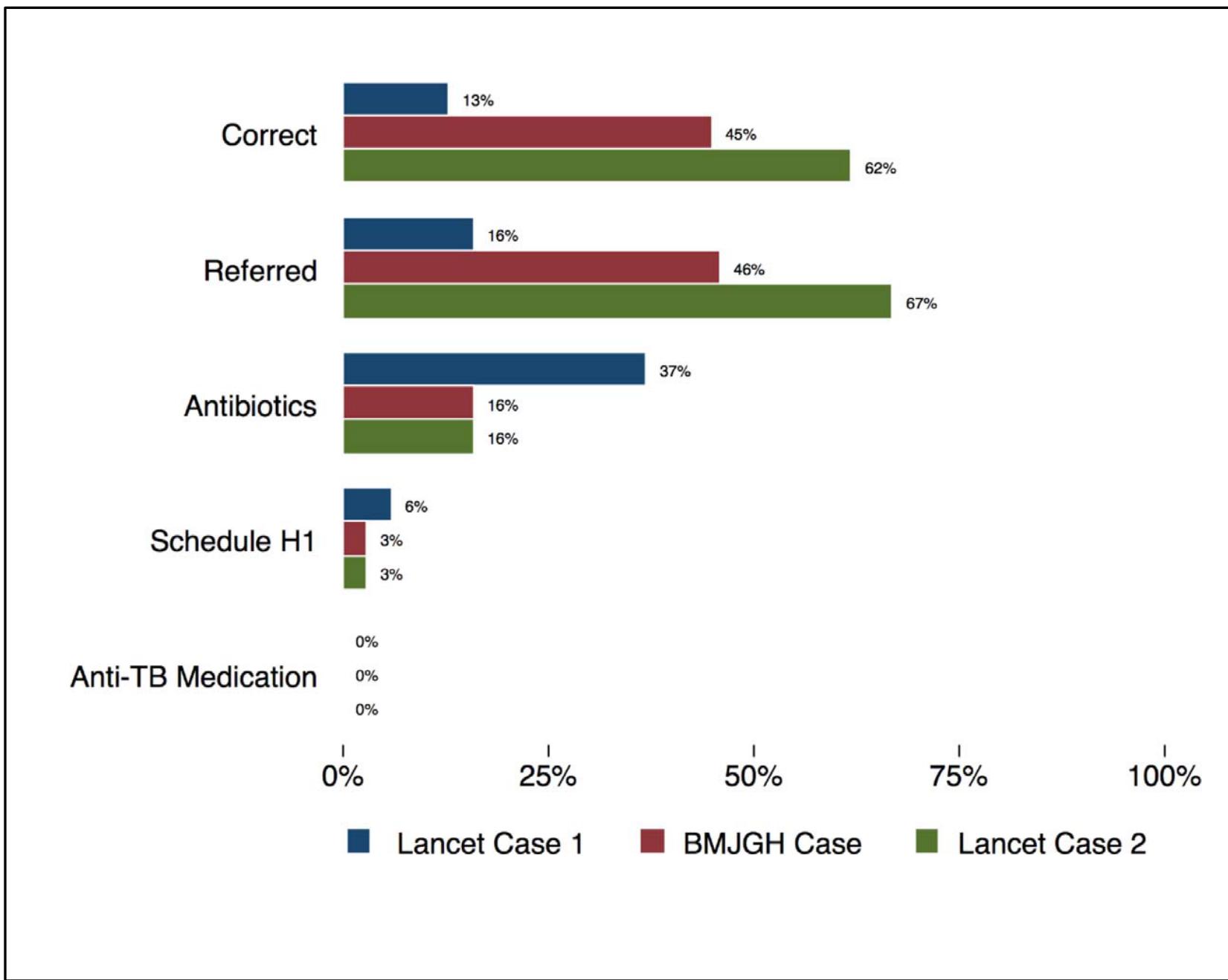
2-3 weeks cough and fever

BMJGH Case

3-4 weeks cough and fever

Lancet Case 2

Microbiologically confirmed case of TB



QuTUB project in India: A massive SP study used for quality surveillance

The largest standardized patient study ever conducted

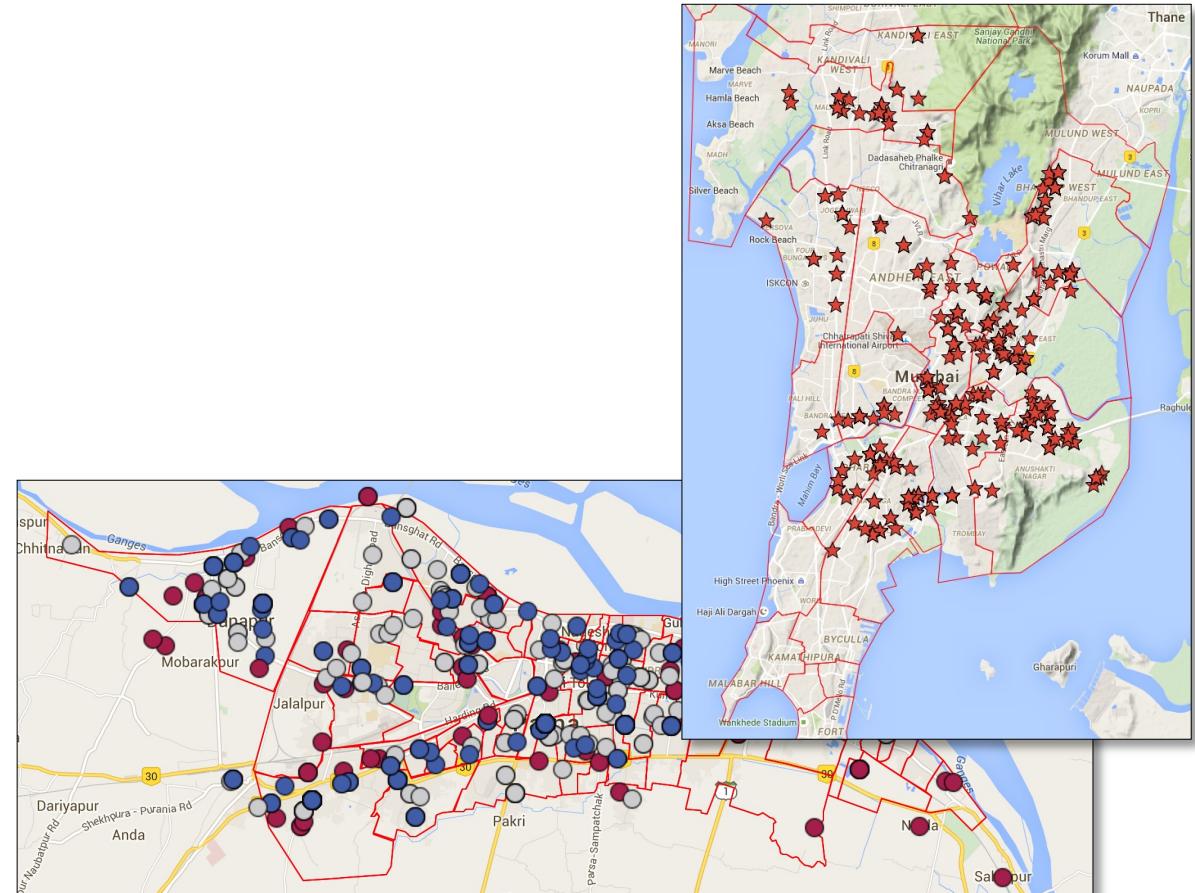
- 5,000+ SP interactions (so far) with health providers in private health sector
- Round 1 in 2014-2015
- Round 2 in 2015-2017
- Round 3 in 2018-2019

Two **major urban areas** (state capitals) in India: Patna and Mumbai, sites of pilot “PPIA” programs funded by BMGF to improve private TB care

Partnership allowed us to **representatively map and sample** private-sector providers from across both cities.

Sampling design:

- “MBBS+” (providers with minimum of medical BA)
- “Non-MBBS” (providers without medical BA, including AYUSH)
- PPIA: providers who were part of the TB programs
- Non-PPIA providers, including some randomly selected to be recruited into the program at a later stage



Patna and Mumbai – Private Care Market Structure

Patna

1,475 Formal (MBBS or Higher) of which:	1,176 Informal (no allopathic degree) of which:
144 hospitals	247 AYUSH (indigenous medicine)
681 stand-alone clinics	356 BAMS (bachelor of Ayurveda)
191 nursing homes	566 “informal” (no degree or certification)
395 outpatient clinics	

Mumbai

3,592 AYUSH (indigenous medicine) Studied in 4 selected wards	1,844 hospitals (multiple certified MBBS providers, often with connected laboratory or chemist) Studied citywide	1,709 Standalone Formal (MBBS or higher) Studied only if identified as a TB treatment center or the private practice of a hospital physician	644 Informal (no degree qualifications) Not included in study
---	--	--	---

Four TB standardized patient cases

1. Case 1: Naïve TB Suspect

- a. The SP presents with two weeks' cough and fever.

2. Case 2: Suspected TB with Abnormal Chest X-Ray

- a. The SP presents with with two weeks' cough and fever
- b. The SP took a course of antibiotics and shows the blister pack
- c. The SP took an X-ray test and shows this to the provider if asked (it is abnormal)

3. Case 3: TB Case with Positive Sputum Report

- a. The SP presents with with two weeks' cough and fever
- b. The SP had a sputum test done at a government hospital and shows this if asked (it is MTB-positive)

4. Case 4: Multi-Drug Resistance (MDR) Suspect Case

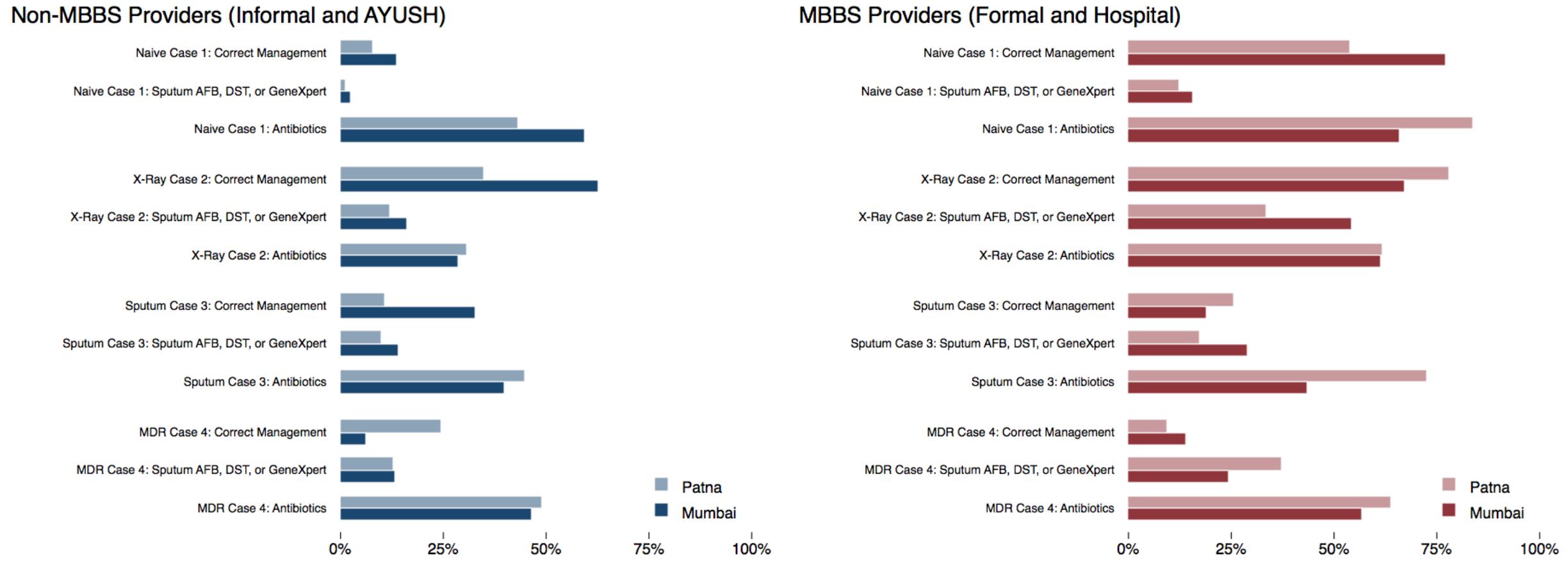
- a. The SP presents with with two weeks' cough and fever
- b. The SP had TB in the past, but stopped taking the medicines when he felt better (until now)

Lenient measure of correct management

Our definitions never penalize providers for unnecessary or harmful actions, such as prescribing an incorrect treatment regimen.

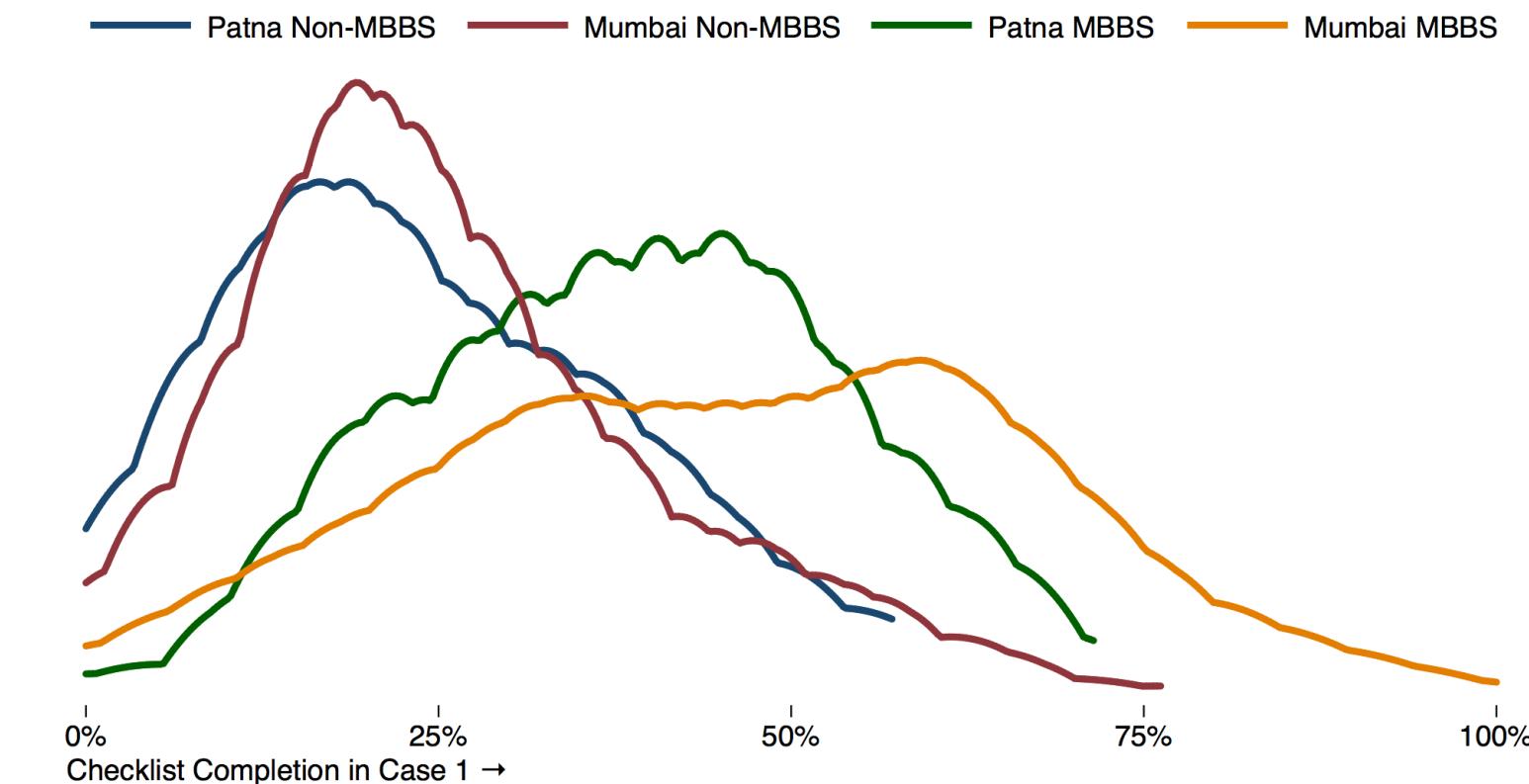
1. Case 1: Naïve TB Suspect
 - Referral, CXR, Sputum AFB, GeneXpert, Sputum Culture, Other DST
2. Case 2: Suspected TB with Abnormal Chest X-Ray
 - Referral, CXR, Sputum AFB, GeneXpert, Sputum Culture, Other DST
3. Case 3: TB Case with Positive Sputum Report
 - Referral or initiation on TB treatment (HRZE)
4. Case 4: Multi-Drug Resistance (MDR) Suspect Case
 - Referral, GeneXpert, or Sputum Culture / DST

Baseline Results: Average provider quality is low



But, there are “good” and “bad” providers

The curves show the relative distribution of each provider type: there are many that are far from the “average” in each group!



Part 3

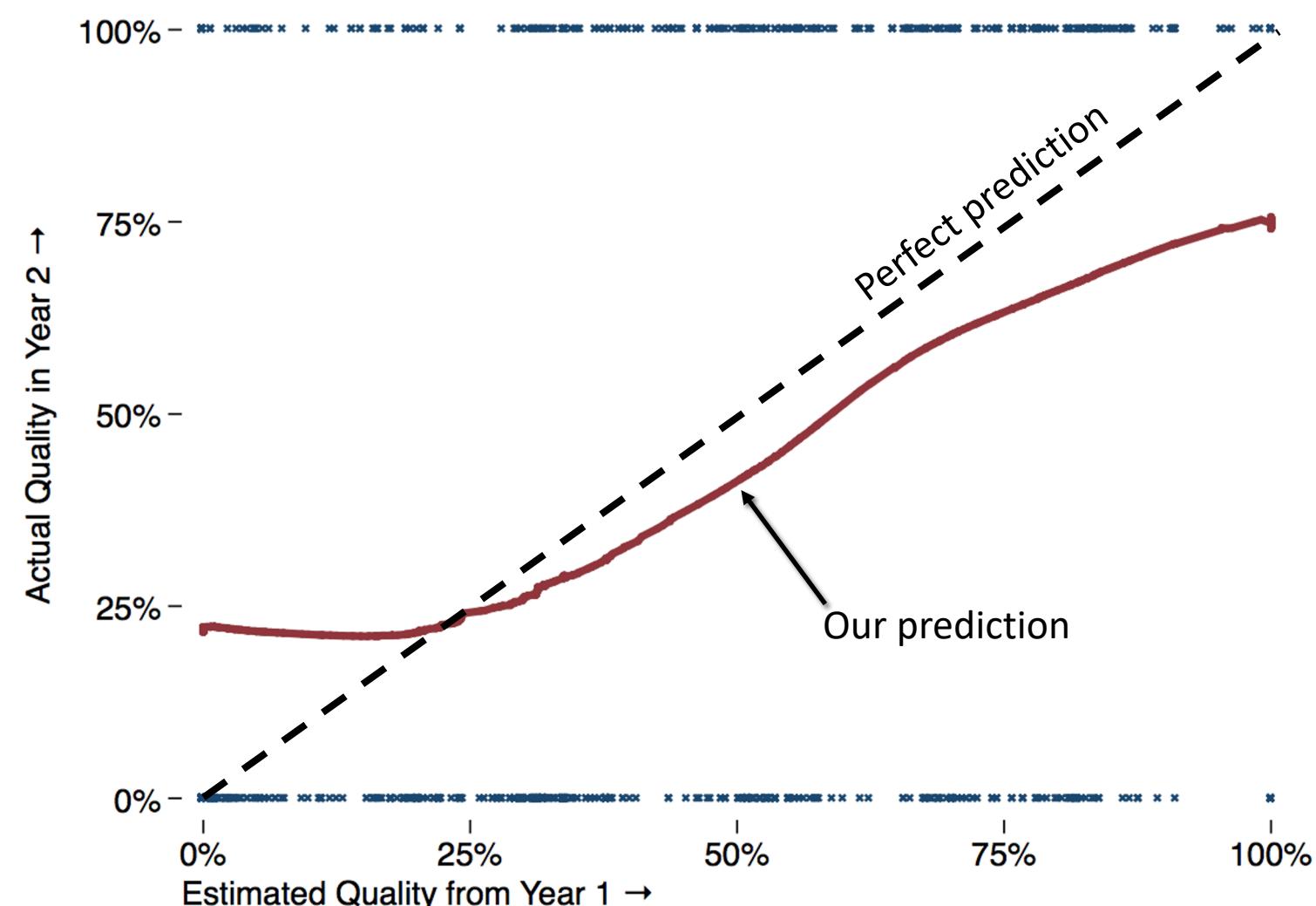
What have we learned about improving quality?

LESSONS FROM A LARGE-SCALE STUDY IN URBAN INDIA

Validation: Providers are consistent

In Year 2, we visited many
of the same providers
again.

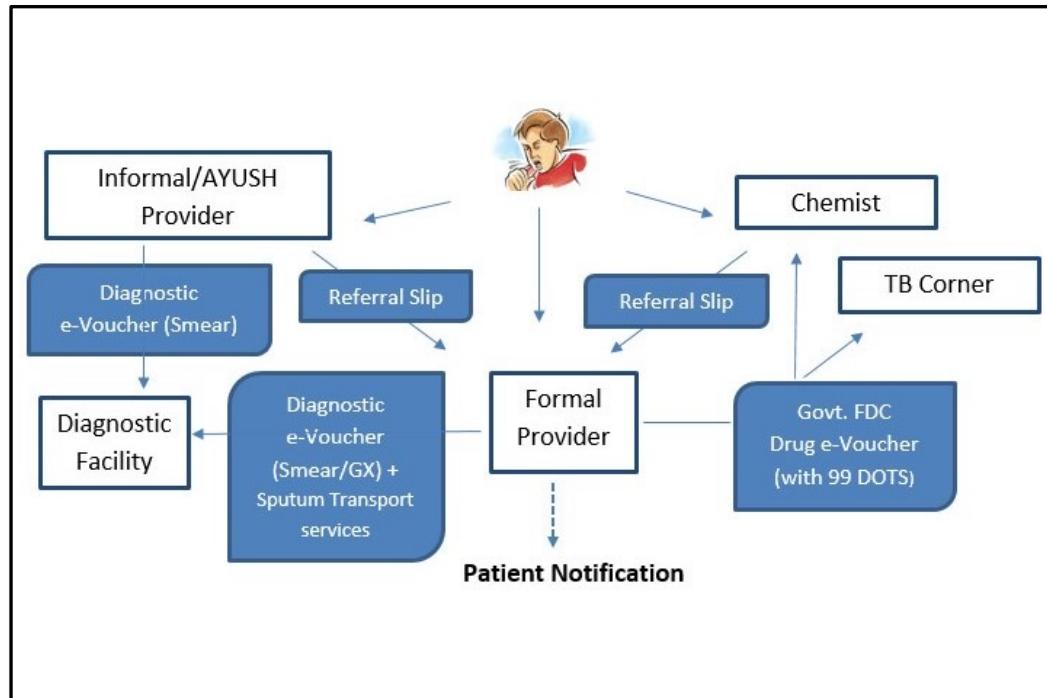
We were successfully able
to *predict* their behavior
using only the quality
measured in Year 1.



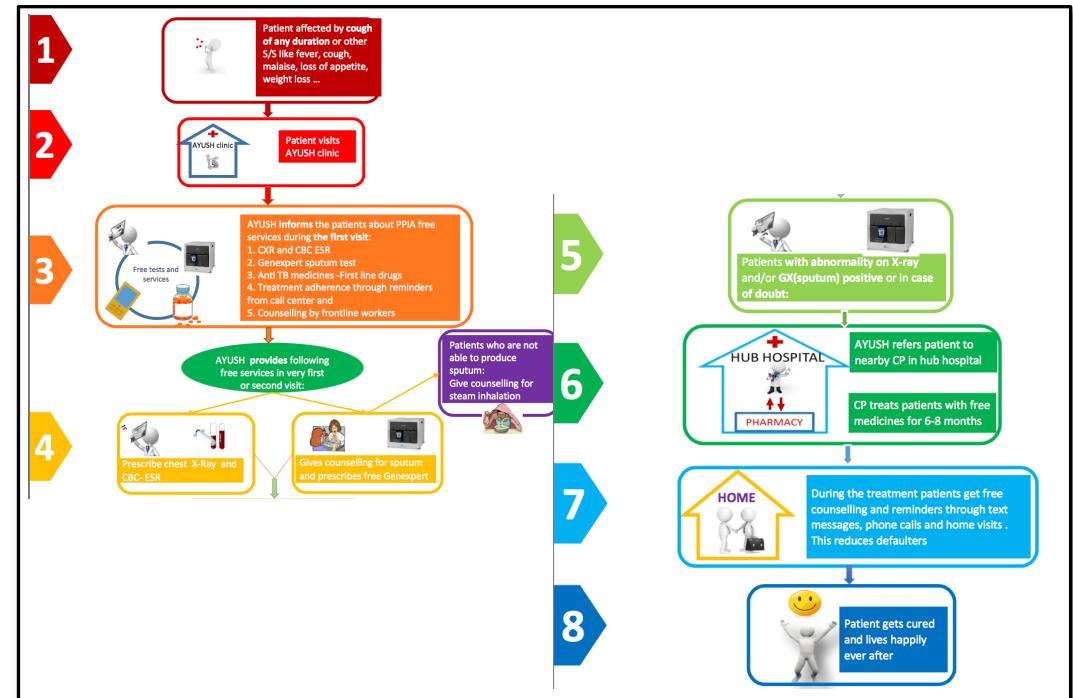
Source: QuTUB Project Data, Patna and Mumbai, 2015-2017

But something had changed: PPIA programs were hard at work!

Patna: World Health Partners

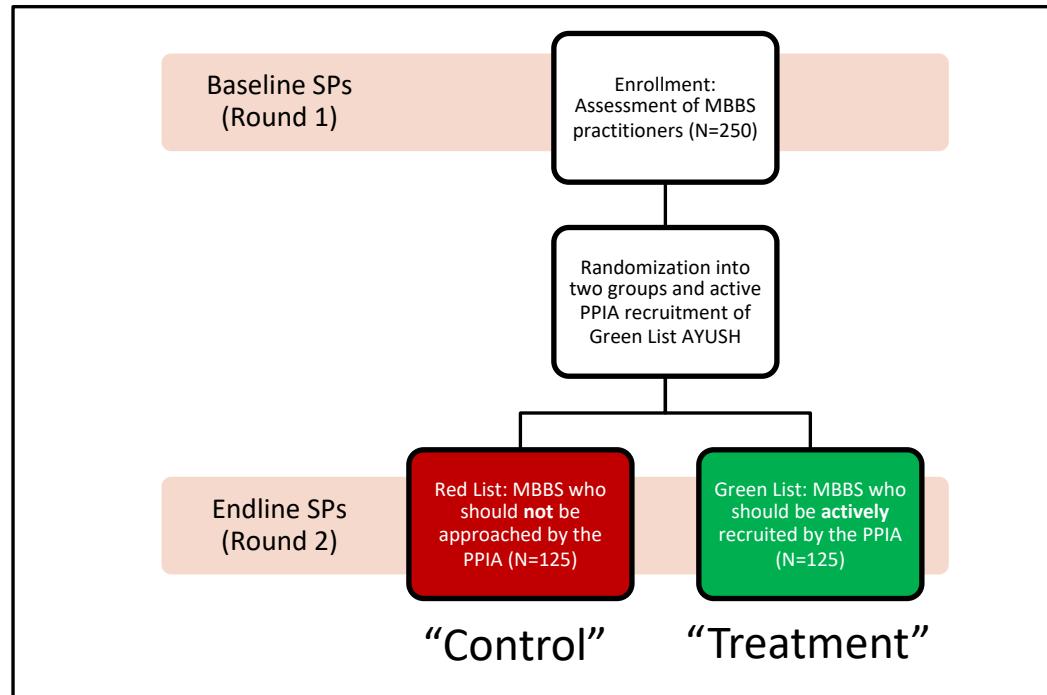


Mumbai: PATH

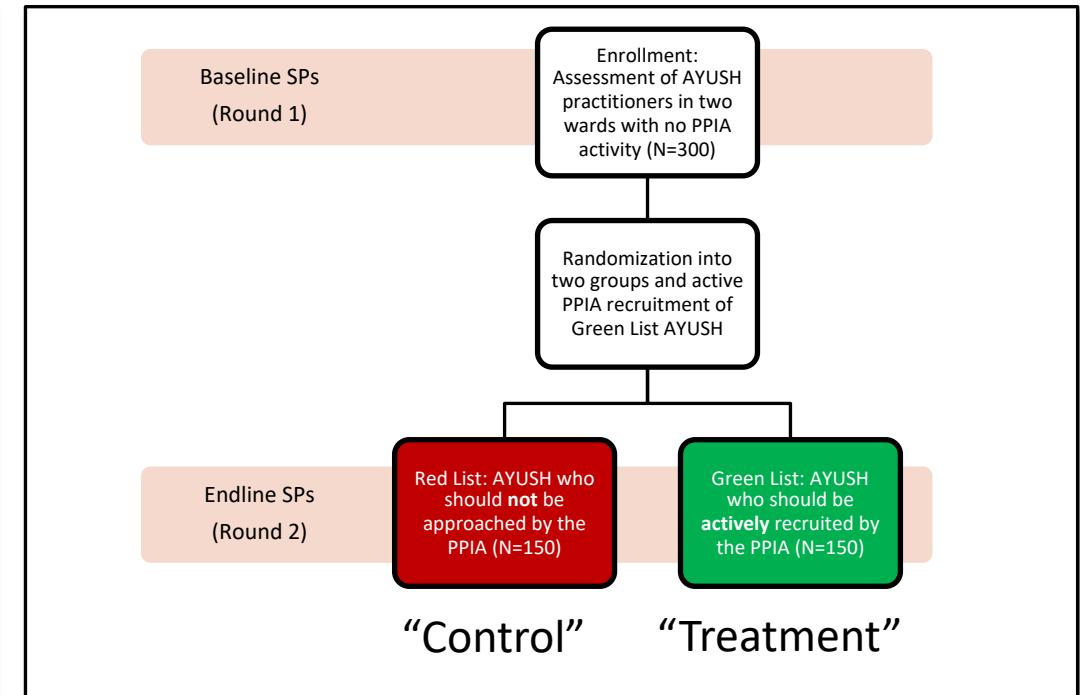


We worked with both to offer a randomized rollout by Year 2

Patna: MBBS Providers

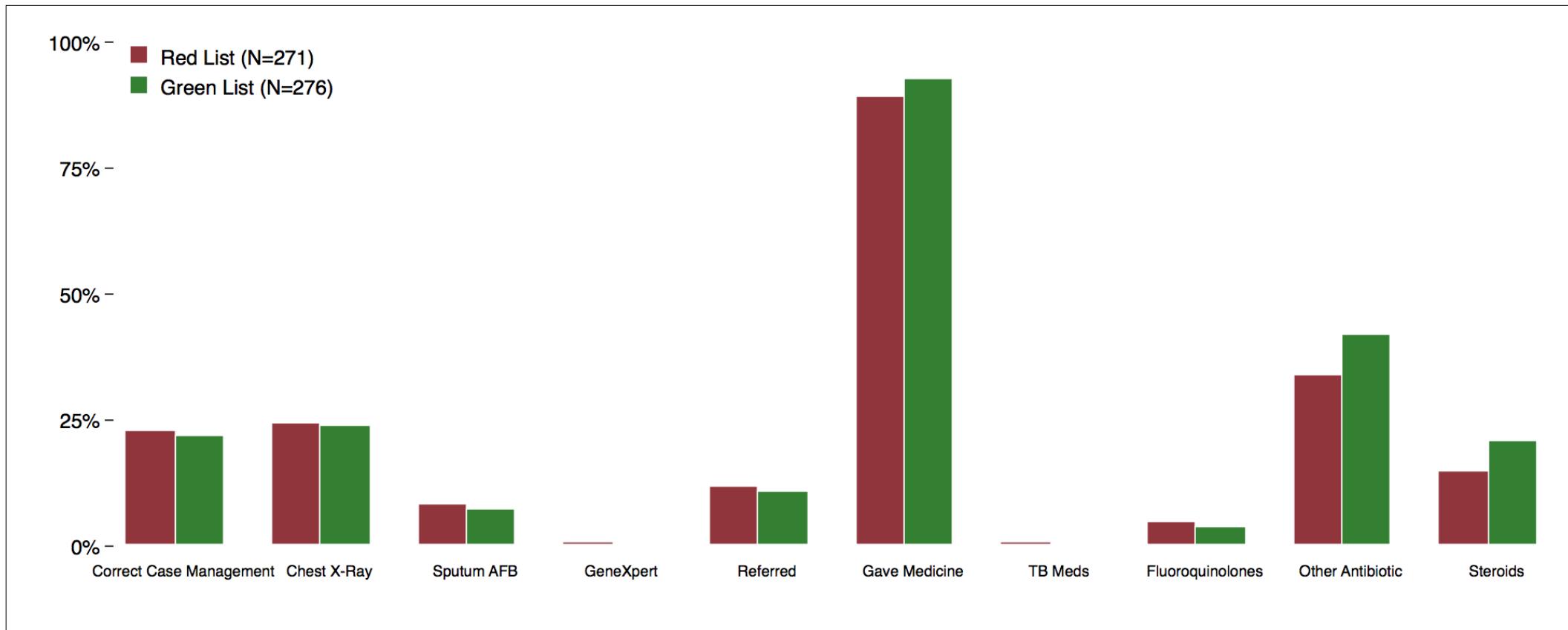


Mumbai: AYUSH (non-MBBS) providers



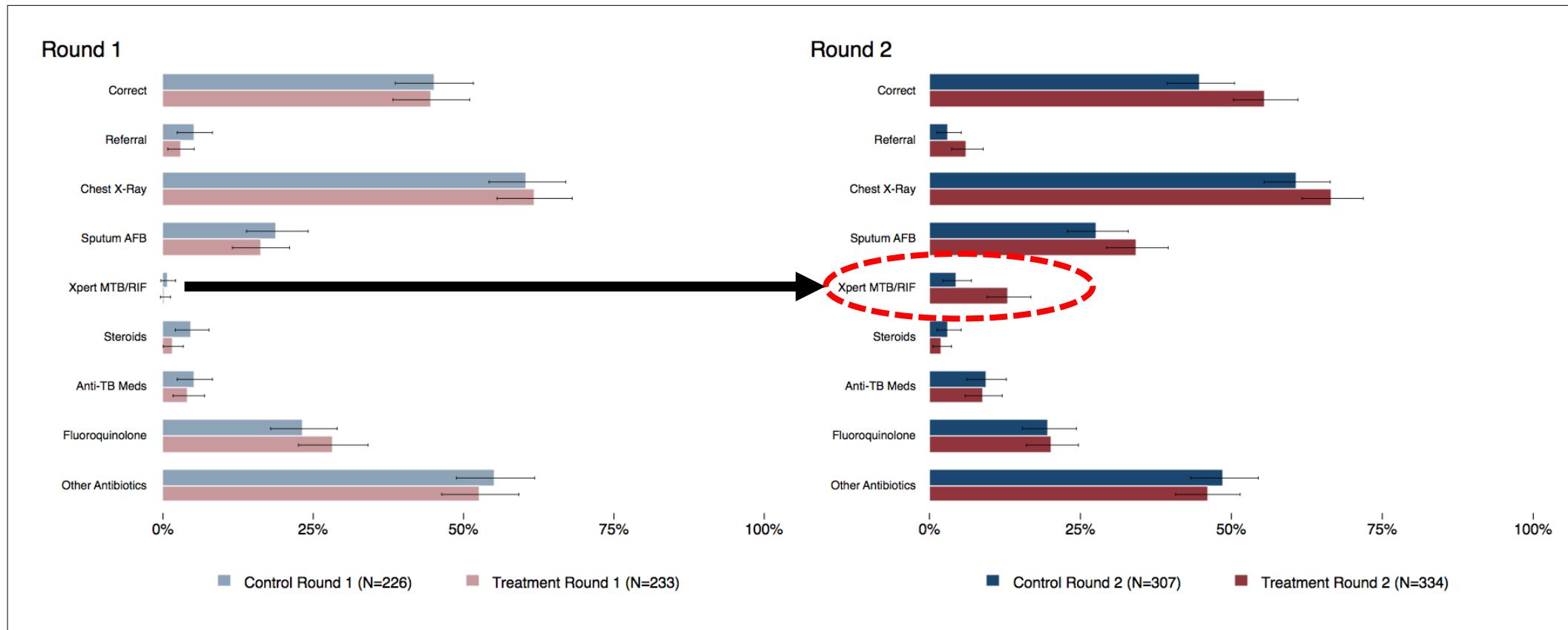
Mumbai: AYUSH PPIA Intervention

No differences observed after 1 year



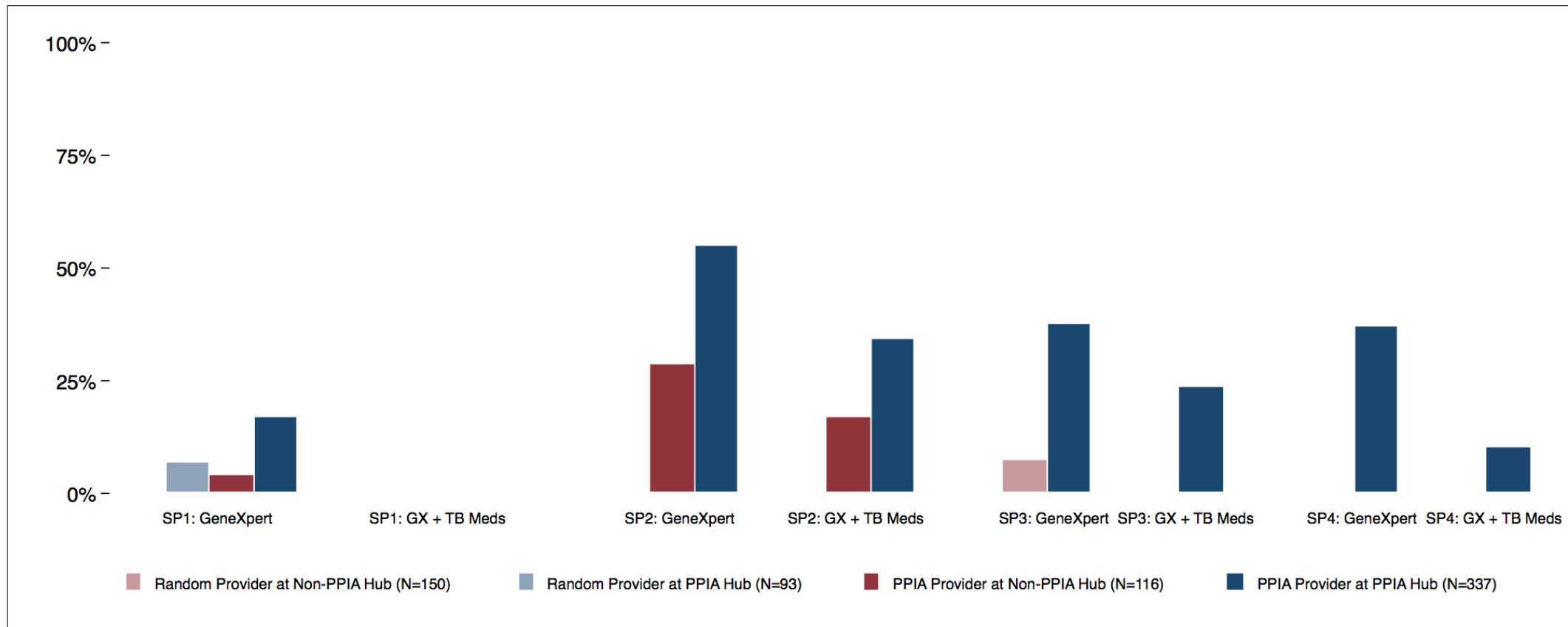
Patna: MBBS PPIA Intervention

Big differences observed after 1 year



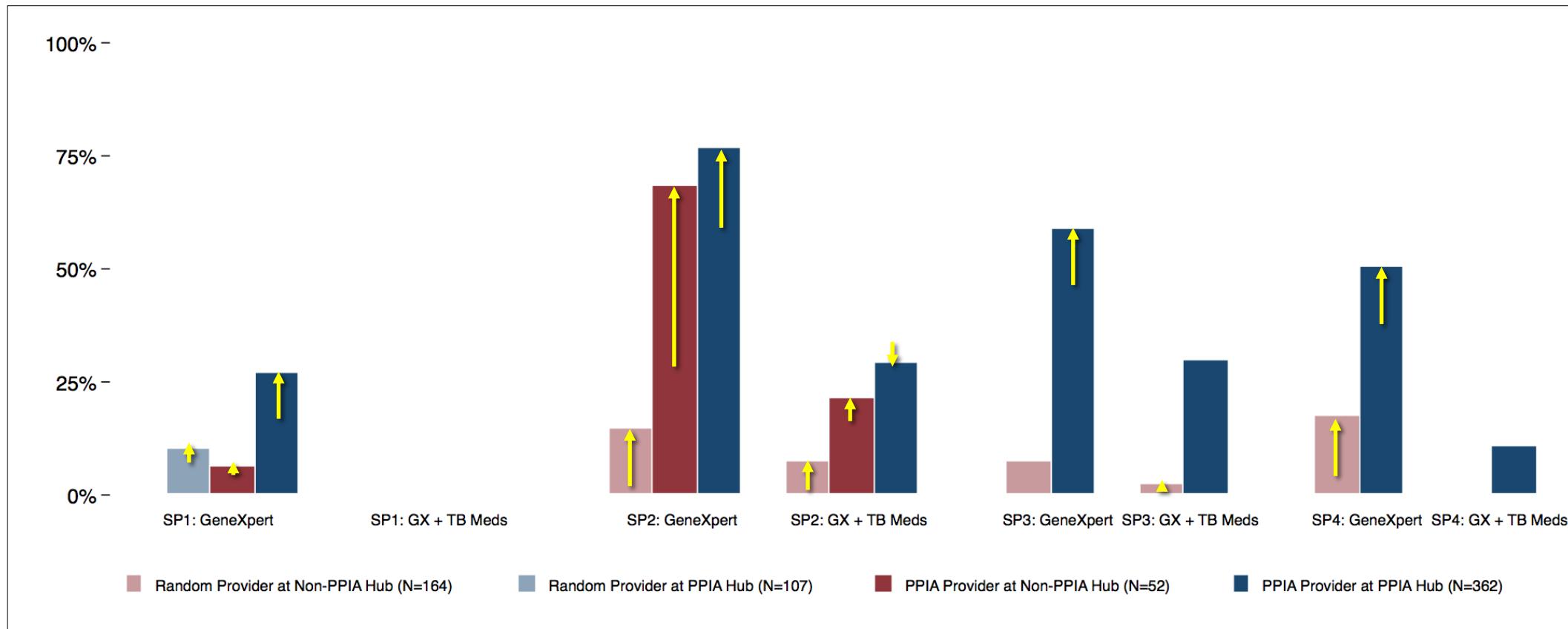
Mumbai: Hospital PPIA Intervention

Round 1: Some existing GeneXpert use



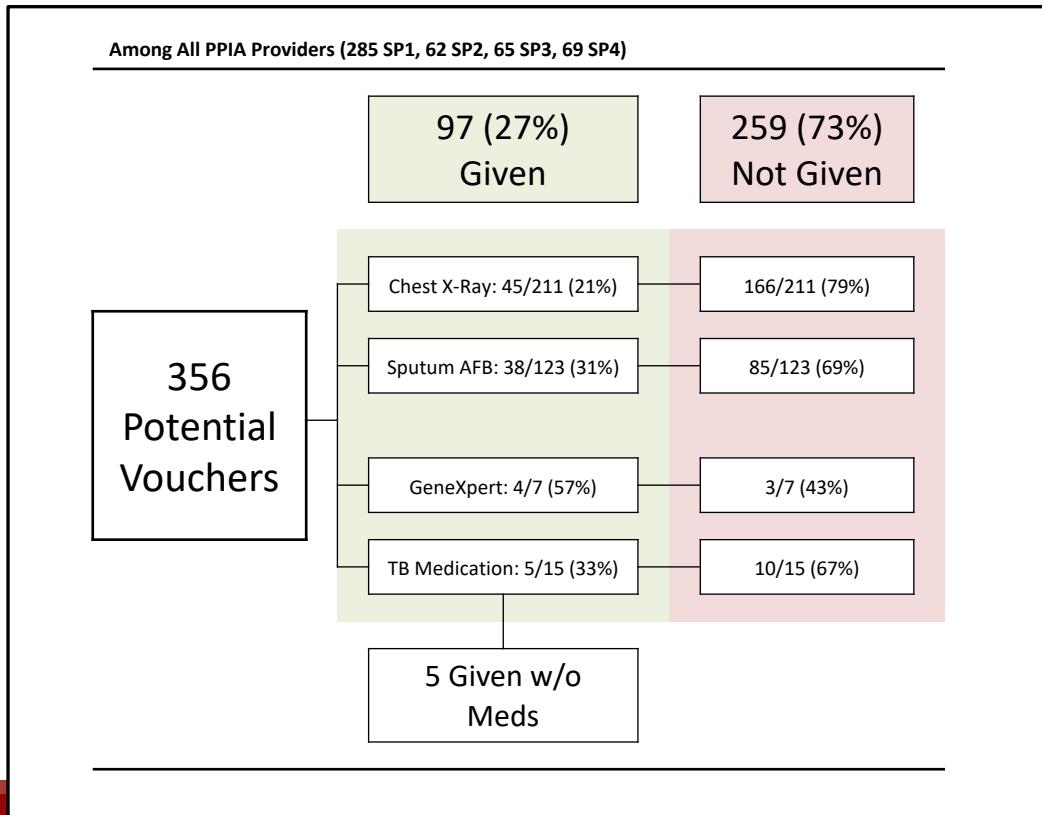
Mumbai: Hospital PPIA Intervention

Round 2: Big GX increases in PPIA docs

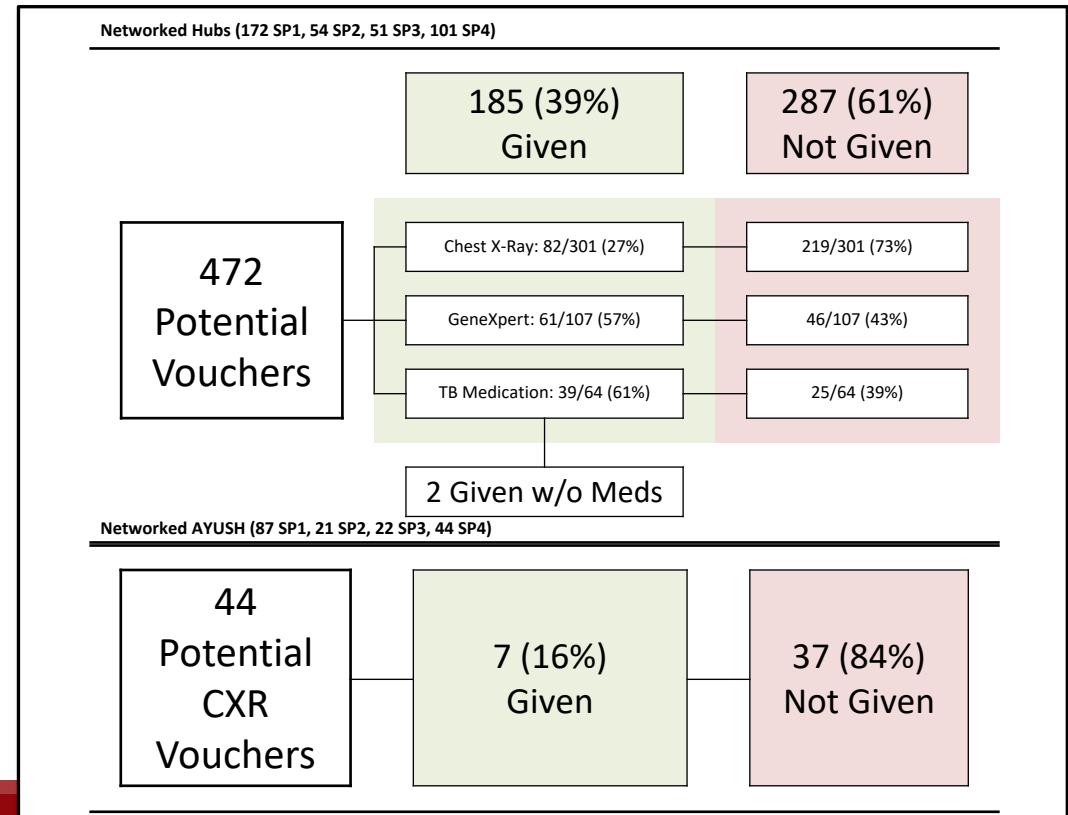


What worked? Providers don't use subsidies

Patna: Vouchers with financial incentives



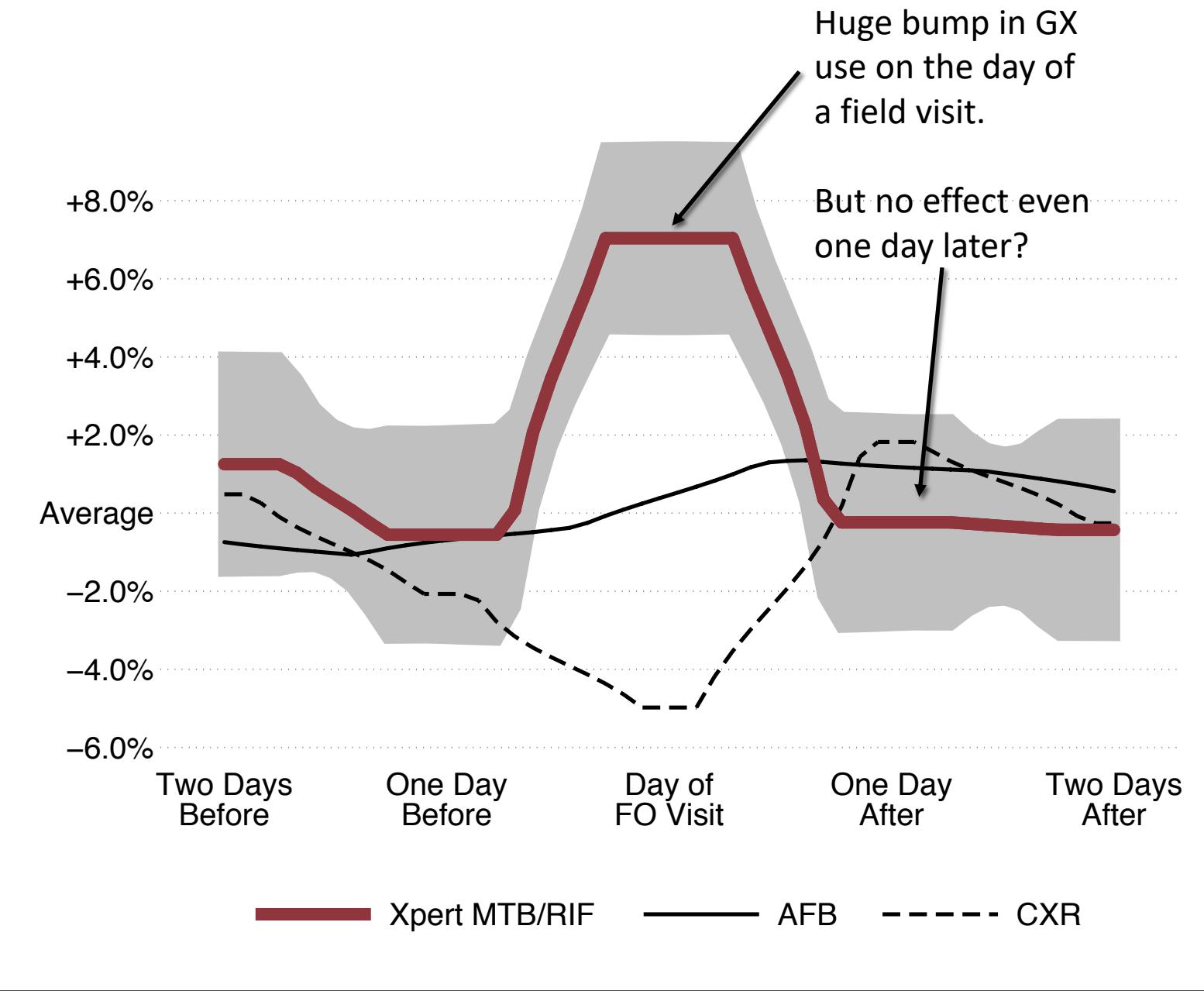
Mumbai: Vouchers without incentives



Patna: strong Field Officer presence

Use of GeneXpert testing spikes for providers on days they are visited by WHP FOs.

While it *looks* like this effect goes away immediately, we have some evidence that providers are “learning by doing” over time.



What did SP data show in PPIA pilot?

Probably Effective

WHP/Patna

Xpert program – Vouchers + Unihealth Lab
FOs supporting MBBS+ providers

Not Effective

CXR/AFB vouchers

Providers with little FO/CFR contact
AYUSH/Informal engagement

PATH/Mumbai

Xpert support – Vouchers + Trusted Labs
PATH CFRs at Treatment Hubs

Unknown

Drug subsidy and chemist engagement
Patient adherence support

Acknowledgements

QuTUB and ISERDD:

Jishnu Das
Madhukar Pai
Ada Kwan
Ben Daniels
Veena Das
Ranen Das
ISERDD
Srinath Satyanarayana
Ramnath Subbaraman

Vaibhav Saria
Andrew McDowell
Caroline Vadnais
Sofi Bergkvist &
ACCESS Health International
Pratyaksh Interactive Solutions
Pvt. Ltd.

Others:

PATH team
WHP team
Technical Advisory Group
Puneet Dewan
Peter Small

Thank you!

THE QUTUB PROJECT TEAM



WORLD BANK GROUP



Centre
international
de TB McGill



McGill
International
TB Centre



Grand Challenges Canada®
Grands Défis Canada



JOHNS HOPKINS
UNIVERSITY

BILL & MELINDA
GATES foundation