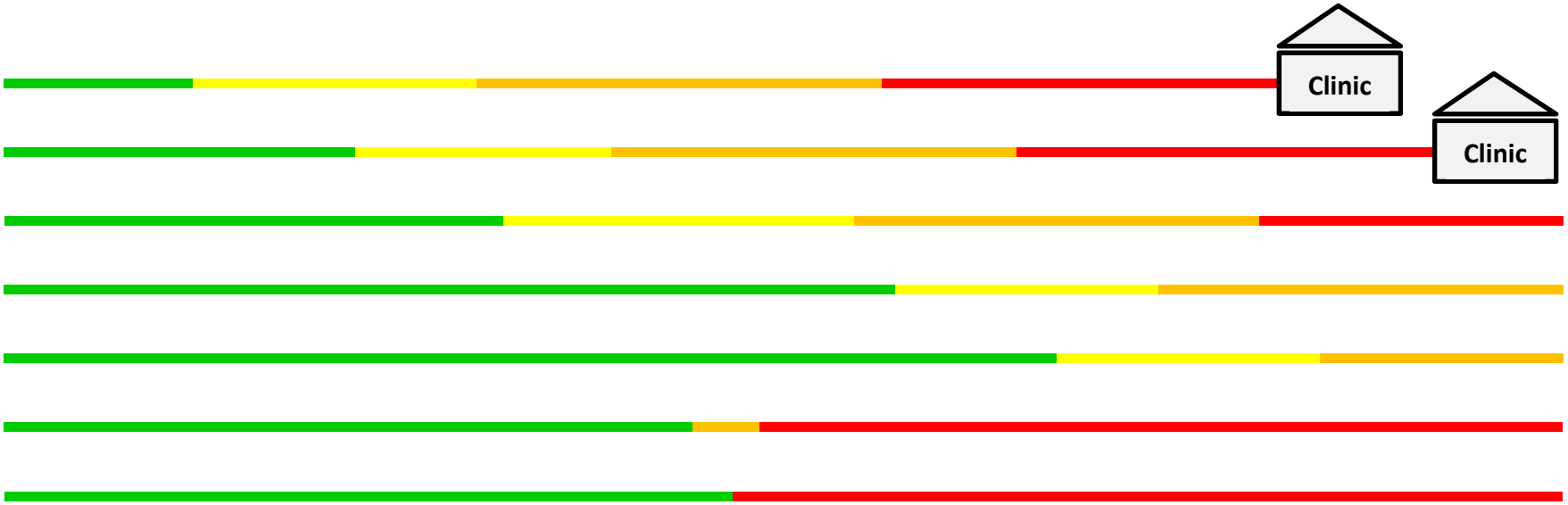
How could screening impact on transmission?



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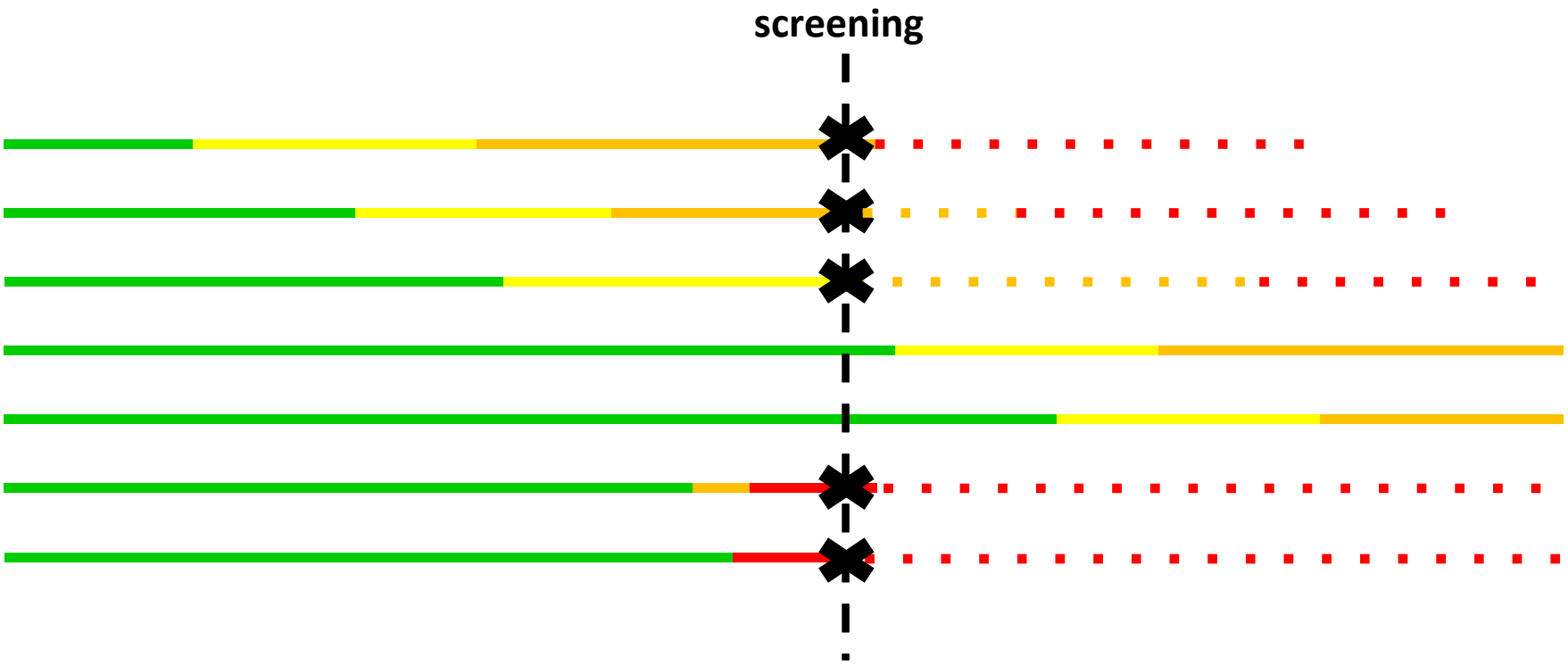

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STATE OF THE ART

STATE OF THE ART SERIES
Active case finding/screening
Series Editor: Martien Borgdorff, *Guest Editor*: Knut Lönnroth
NUMBER 2 IN THE SERIES

The benefits to communities and individuals of screening for active tuberculosis disease: a systematic review

K. Kranzer,* H. Afnan-Holmes,* K. Tomlin,* J. E. Golub,† A. E. Shapiro,† A. Schaap,‡ E. L. Corbett,‡ K. Lönnroth,§ J. R. Glynn*

*Department of Infectious Disease Epidemiology, London School of Hygiene & Tropical Medicine, London, UK; †Johns Hopkins School of Medicine, Baltimore, Maryland, USA; ‡Department of Clinical Research, London School of Hygiene & Tropical Medicine, London, UK; §Stop TB Department, World Health Organization, Geneva, Switzerland

Impact of case finding on transmission

DETECTB

Intervention: Community randomised trial of two different case-finding interventions (mobile vans or door-door). **No control group without an intervention**

Outcome: TB prevalence in the communities before and after the intervention, as assessed by prevalence surveys

Result: **40% reduction in TB prevalence over 3 years**.

Corbett 2010

Impact of case finding on transmission

ZAMSTAR

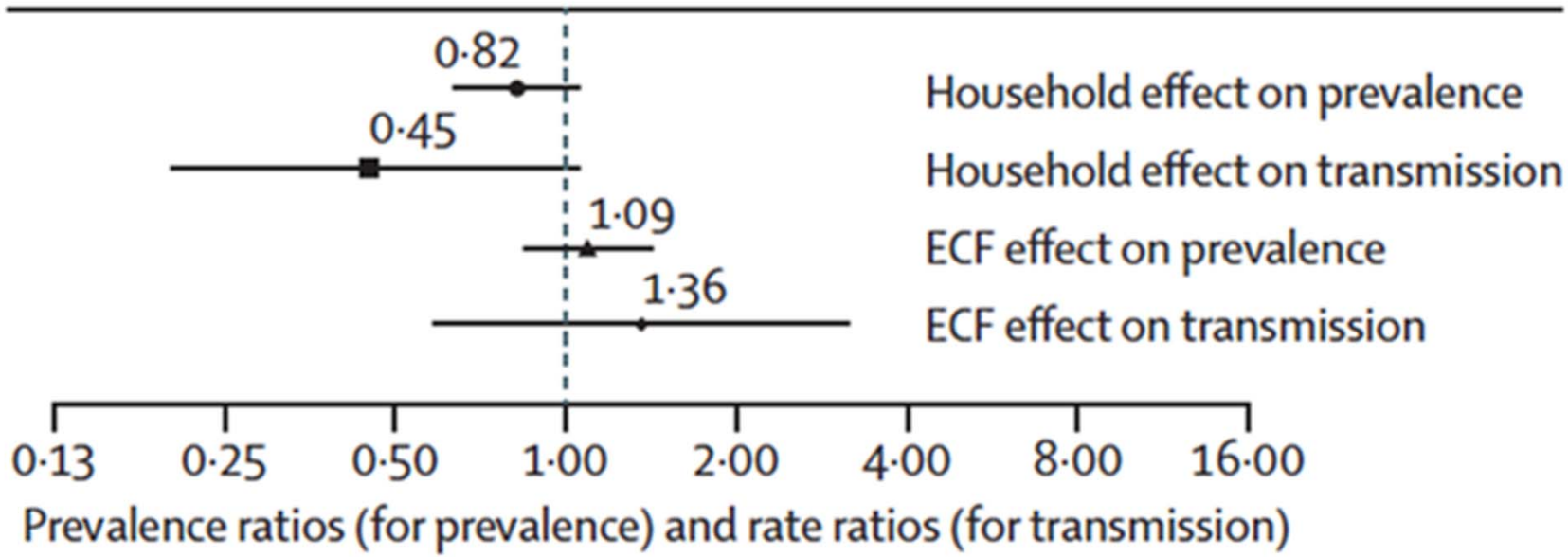
Study design: 2x2 factorial design with two different interventions and a control

Interventions:
Enhanced case-finding: community mobilisation and easy access to sputum collection points, aiming to return results within 48 hours
Household: households of TB patients were visited for education and screening about TB/HIV, IPT for HIV positive household members

Outcomes: TB prevalence from surveys, and *M. tuberculosis* infection incidence, assessed from tuberculin conversion in children

Ayles 2013

Impact of case finding on transmission



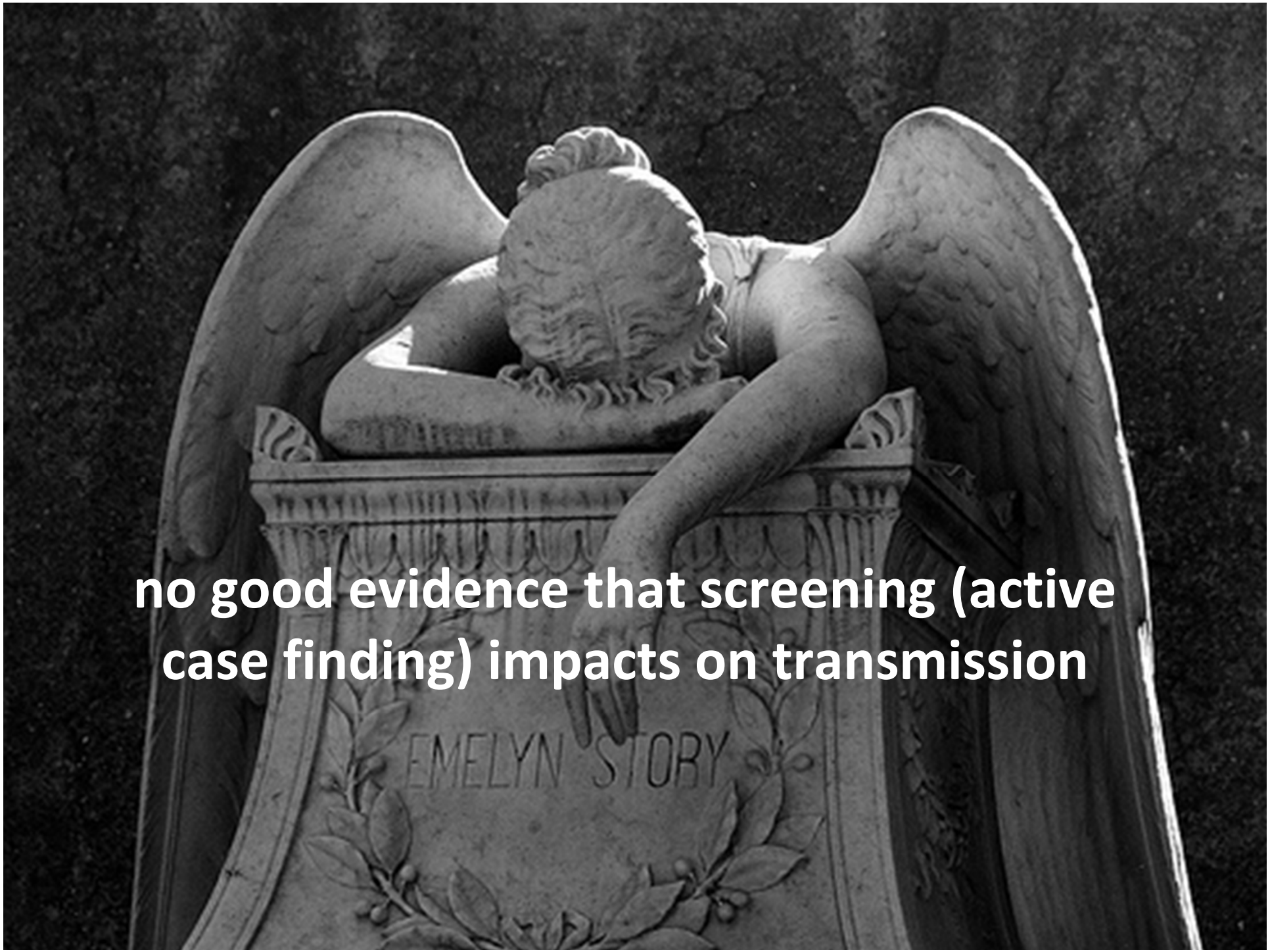
Summary effects of trials intervention on culture-positive tuberculosis and transmission of tuberculous infection

Impact of case finding on transmission

Cambodia 2000: Natural experiment, 2 years post prevalence survey incident TB disease among individuals screened for TB as part of the National TB prevalence survey was compared to individuals not screened for TB. The standardized TB notification ratio was 0.38 (95%CI: 0.27-0.52), showing a **two-thirds reduction in notifications in the study areas**.

US 1985: programme of mandatory screening and mandatory prophylaxis and treatment for those wanting to use homeless shelters, **trends in TB in the whole district fell by almost 90% over 10 years**, notifications of TB state-wide, or in other areas shown were much lower, but showed no such fall.

Okada 2012, Rendleman 1999



no good evidence that screening (active case finding) impacts on transmission

Mechanism how new diagnostics could impact on transmission

• Decreased limit of detection (=improved sensitivity) >> earlier and increased case detection

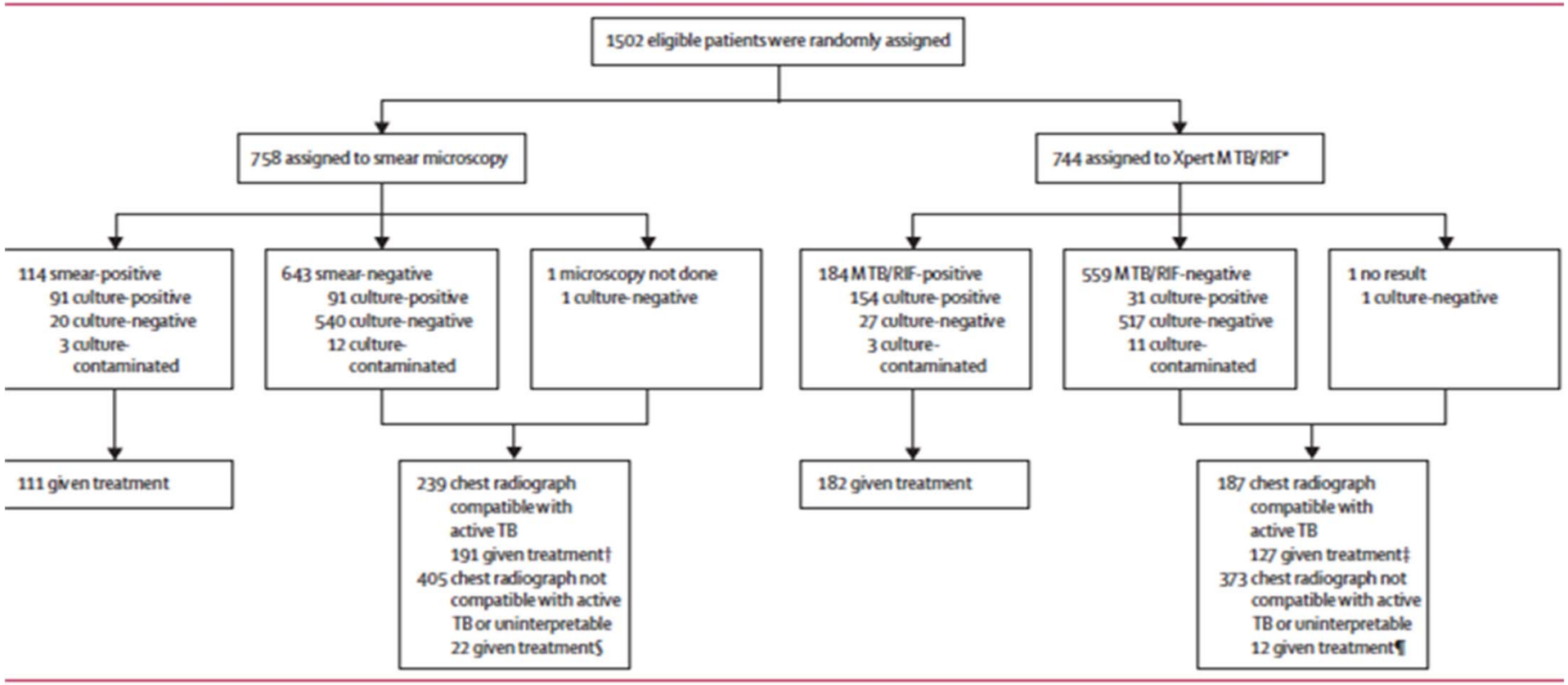
Mycobacterial culture	1-50 cfu/ml
NAT (e.g. Xpert MTB/RIF)	130 cfu/ml
Smear microscopy	5 000 – 10 000 cfu/ml

• Decreased turn around time >> decreased time to treatment and possibly decreased pre-treatment loss to follow-up

• Increased accessibility through smaller and battery driven diagnostics (i.e Xpert Omni)

• Rapid Diagnosis of RMP resistance (case finding of MRD cases)

Individual randomized trial of microscopy vs. Xpert in patients presenting with symptoms suggestive of TB



Leibniz-Gemeinschaft

Theron 2014