MSF Experience with TB LAM in Kenya

Expanding Use of TB LAM Test for People with HIV Webinar
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Summary of evidence

- Adults CD4≤100
  - Sensitivity 56% (41 – 70%)
  - Specificity 90% (81- 95%)
- Adults CD4>100
  - Sensitivity 26% (16 – 46%)
  - Specificity 92% (72 – 97%)
- Adults CD4 ≤200
  - Sensitivity 49% (34 – 66%)
  - Specificity 90% (78 – 95%)
- Adults CD>200
  - Sensitivity 15% (8-27%)
  - Specificity 96% (89-99

Lawn *et al. BMC Medicine* (2017) 15:67
DOI 10.1186/s12916-017-0822-8

BMC Medicine

RESEARCH ARTICLE Open Access

Diagnostic accuracy, incremental yield and prognostic value of Determine TB-LAM for

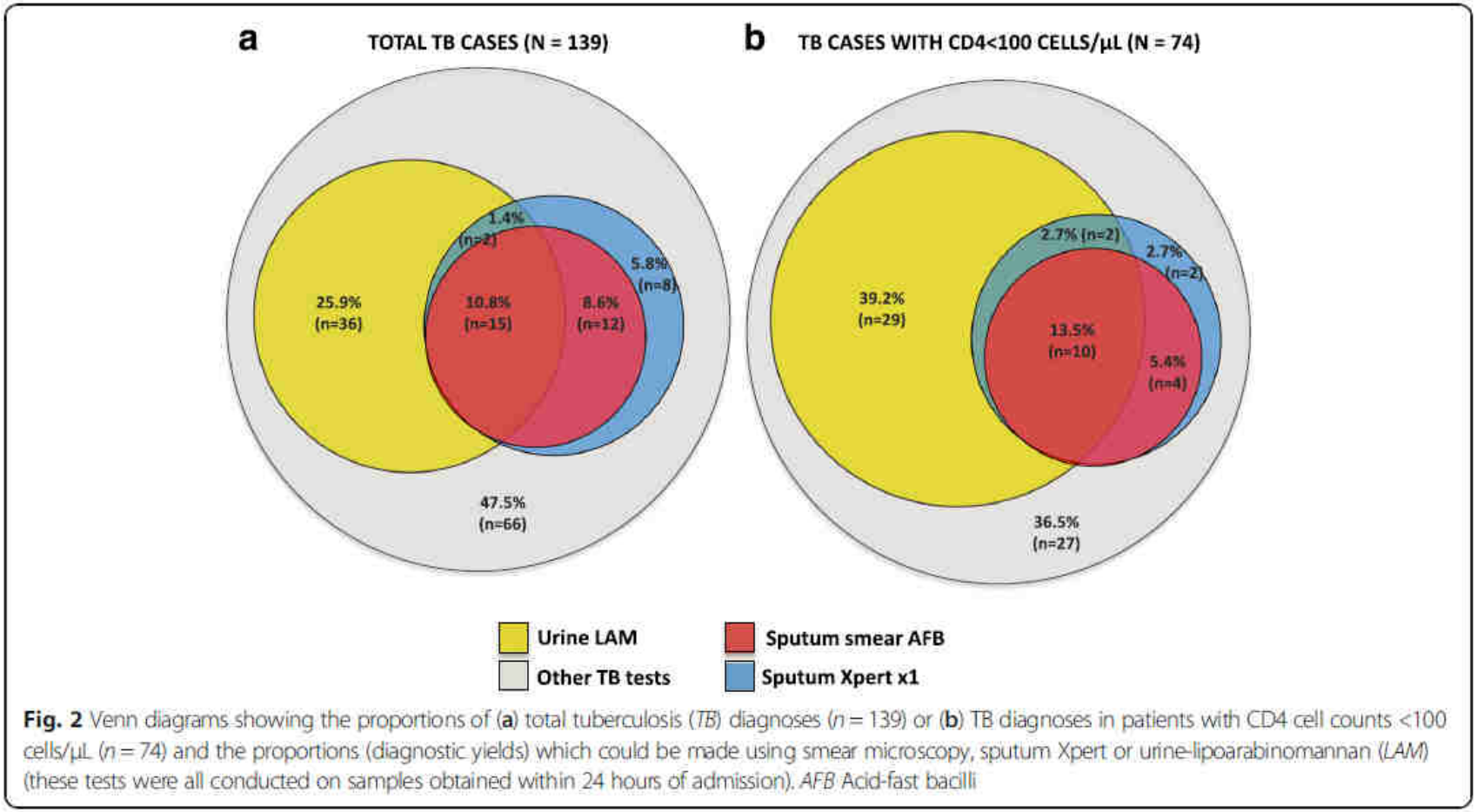


Fig. 2 Venn diagrams showing the proportions of (**a**) total tuberculosis (*TB*) diagnoses ($n = 139$) or (**b**) TB diagnoses in patients with CD4 cell counts <100 cells/µL ($n = 74$) and the proportions (diagnostic yields) which could be made using smear microscopy, sputum Xpert or urine-lipoarabinomannan (*LAM*) (these tests were all conducted on samples obtained within 24 hours of admission). *AFB* Acid-fast bacilli

Effect on mortality of point-of-care, urine-based lipoarabinomannan testing to guide tuberculosis treatment initiation in HIV-positive hospital inpatients: a pragmatic, parallel-group, multicountry, open-label, randomised controlled trial

Jonny G Peter, Lynn S Zijenah*, Duncan Chanda*, Petra Clowes*, Maia Lesosky, Phindile Gina, Nirja Mehta, Greg Calligaro, Carl J Lombard, Gerard Kadzirange, Tsitsi Bandason, Abidan Chansa, Namakando Liusha, Chacha Mangu, Bariki Mtafya, Henry Msila, Andrea Rachow, Michael Hoelscher, Peter Mwaba, Grant Theron, Keertan Dheda*

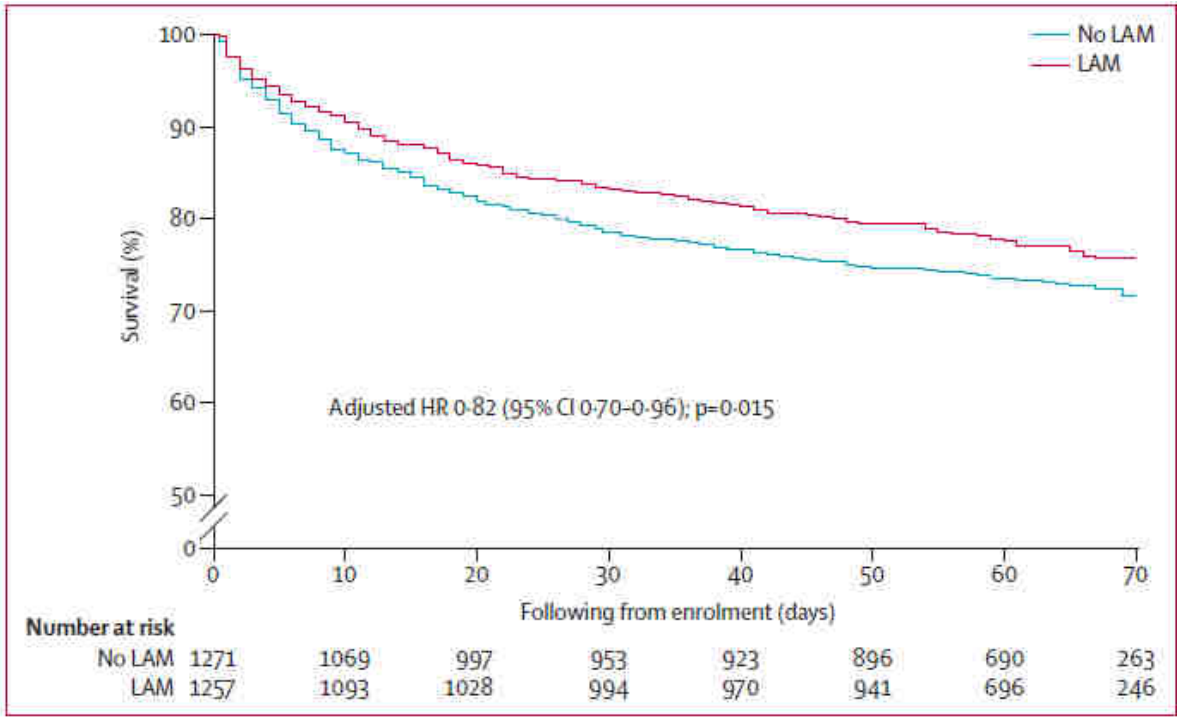


Figure 2: **Time to 8-week all-cause mortality**
HR=hazard ratio. LAM=lipoarabinomannan. Data are overall HRs and p values for study groups adjusted for country.

Where we started – LAM Study

- October 2013 and August 2015
- Included 474 HIV positive patients with symptoms of TB; inpatient and outpatient
- Looked at
  - Combining LAM in a diagnostic algorithm including Xpert/RIF
  - Sensitivity/specificity and incremental yields

Key findings from our study[1]

- Among outpatients with CD4 <200, severely ill and BMI <17
  - Sensitivity 58%; Specificity 95%
- Additional TB cases detected by LAM
  - 37% compared to clinical signs and X-ray
  - 20% compared to clinical signs and microscopy
  - 13% compared to clinical signs and xpert
- LAM positive patients had an increased risk of 2-months mortality (aOR:2.7; 95%CI:1.5-4.9)

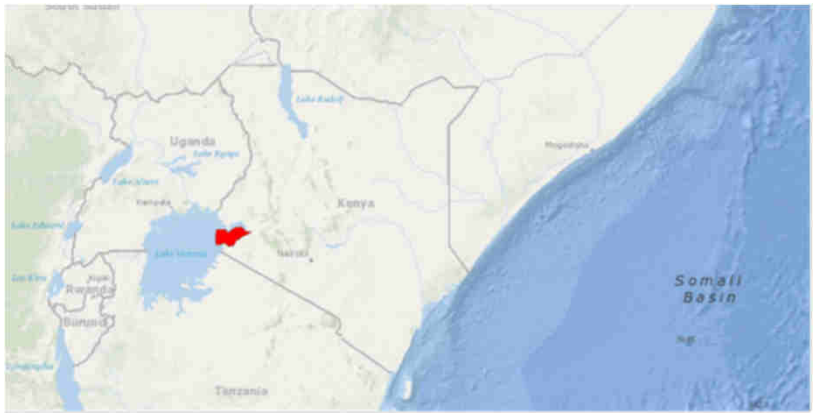
[1]Huerga et al. https://doi.org/10.1371/journal.pone.0170976

Routine Implementation
Our criteria for TB LAM testing

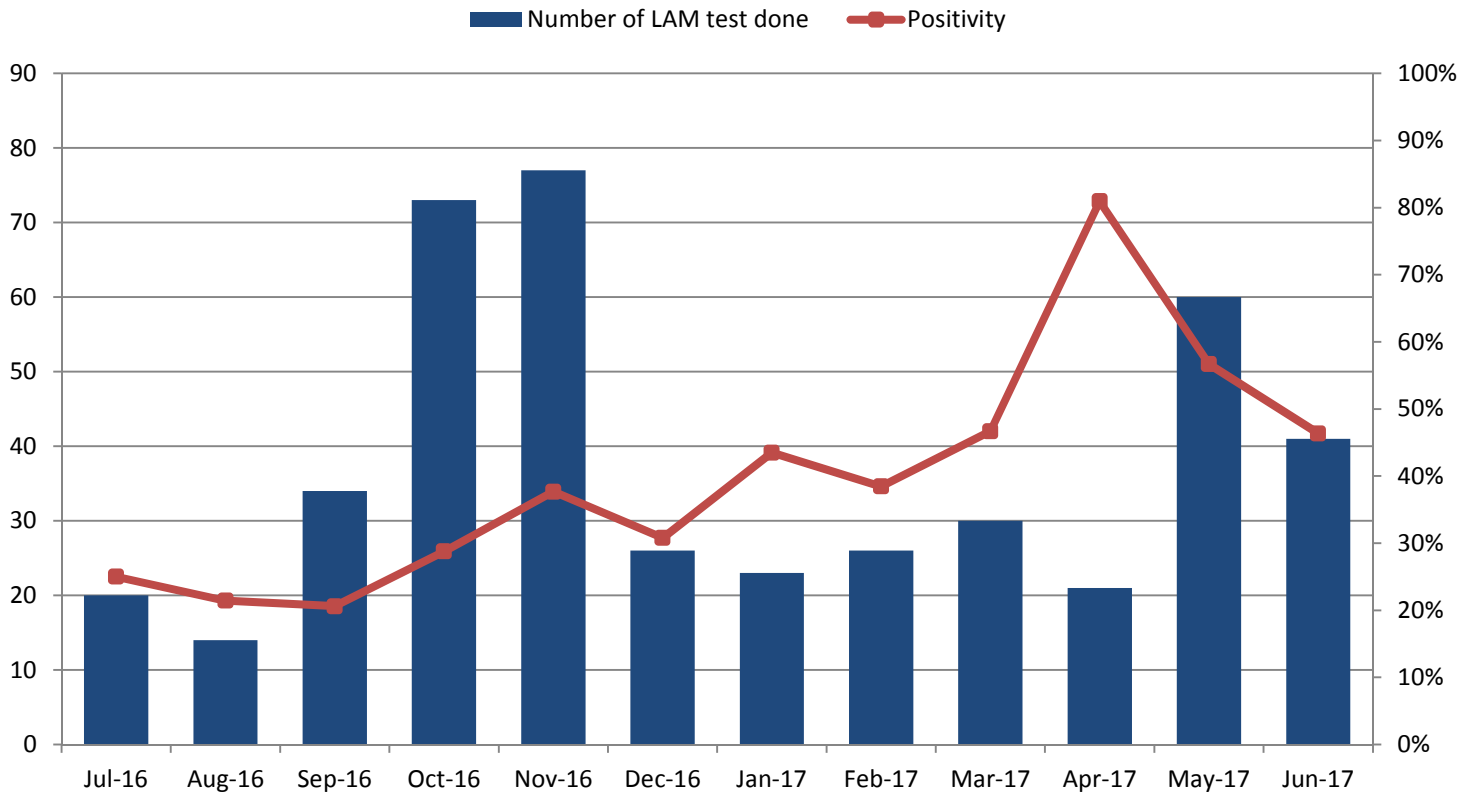
- Any seriously ill HIV +ve patient admitted in our wards
- HIV +ve patients with CD4≤200 cells/mm^3
- Any HIV +ve patients who present with stage 3 or stage 4 defining illness

Operational Setup

- Goal - to detect as much TB as possible among patients with advanced HIV
- Strategy – Point of care in the wards
- Where – Homabay County, Kenya
  - Prevalence; country 5.9%, county 26%
  - Medical ward – 49% HIV +ve; 2/3 with advanced HIV



Routine tests done and positivity (Jul-16 to Jun-17)



445 LAM tests done
40% Positivity

Lessons Learned & future plans

- Feasible to implement in such context
- Added value of diagnosing TB that would be missed by microscopy or Xpert
- Important to have a good monitoring system to ensure coverage
- Scale up to 33 decentralized facilities using a hub-and-spoke model

THANKS