



**NATIONAL INSTITUTE FOR  
OCCUPATIONAL HEALTH**

Division of the National Health Laboratory Service



# **TB TREATMENT OUTCOMES IN THE MINING INDUSTRY**

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# National Institute for Occupational Health (NIOH)

- South Africa's major centre for occupational & environmental health & safety (OEHS) providing:
  - Knowledge generation & development,
  - Teaching & training, and
  - OEHS services
- In order to improve and maintain the health of the South African workforce

# TB Burden

- TB a major cause of morbidity and mortality globally.
- WHO report 2016:
  - 10.4 m new TB cases globally in 2015
  - Global incidence 142 per 100 000
  - 1.4 m deaths
  - SA TB incidence rate 834 per 100 000
  - TB incidence SA mines 2500 – 3000 per 100 000 (World Bank)

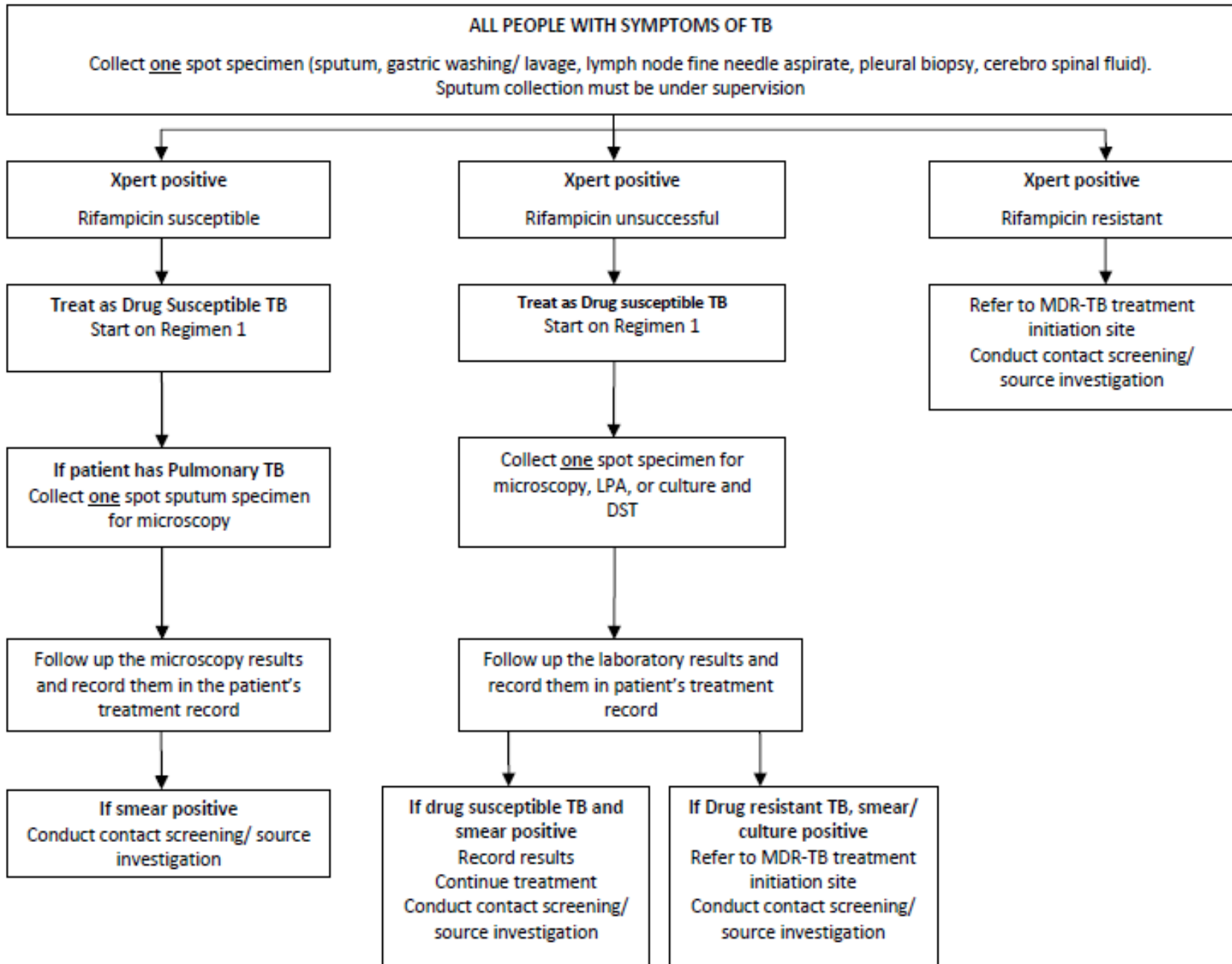
# Risk Factors

- HIV
- Silica dust & Silicosis
- Age
- Smoking
- Alcohol
- Migration
- S-E-S
- Other medical conditions DM

# Bacteriologically confirmed TB

A bacteriologically confirmed TB case is one from whom a **biological specimen is positive by smear microscopy, culture or WRD (such as Xpert MTB/RIF).**

# NDOH Diagnostic Criteria



# TB OUTCOMES DEFINITIONS

Outcome	Definition
Cured	A pulmonary TB patient with bacteriologically confirmed TB at the beginning of treatment who was smear- or culture-negative in the last month of treatment and on at least one previous occasion.
Treatment completed	A TB patient who completed treatment without evidence of failure BUT with no record to show that sputum smear or culture results in the last month of treatment and on at least one previous occasion were negative, either because tests were not done or because results are unavailable.
Treatment failed	A TB patient whose sputum smear or culture is positive at month 5 or later during treatment.
Died	A TB patient who dies for any reason before starting or during the course of treatment.
Lost to follow-up	A TB patient who did not start treatment or whose treatment was interrupted for 2 consecutive months or more.
Not evaluated	A TB patient for whom no treatment outcome is assigned. This includes cases “transferred out” to another treatment unit as well as cases for whom the treatment outcome is unknown to the reporting unit.
Treatment success	The sum of <i>cured</i> and <i>treatment completed</i> .

# Treatment outcomes formula

The number of patients in a treatment outcome

× 100%

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The number of patients registered for TB treatment in the cohort



# Study Rationale

- South Africa under the leadership of NDOH (2015 – 2018) embarking on TB and HIV screening and testing programme
- Programme based
  - WHO's End TB Strategy
  - UNAIDS 90-90-90 strategy
  - SDGs
  - MHSC milestones TB
- TB Treatment outcomes track performance of TB control programme in the mining industry

# Objectives

- To determine the burden of TB in the mining industry of South Africa?
- To evaluate performance of the TB program in the mining industry using TB outcomes data from the ETR.Net

# METHODOLOGY

- A retrospective cohort study design
- *Study setting and population*
  - Mines utilising the ETR.Net in the West Rand District of Gauteng
  - Miners utilizing those facilities.

# FINDINGS

- **10 mines** on the West Rand District of GDoH ETR.Net
- Nine hundred & twelve (912) TB patients registered:
  - Average age = 43.5 years old; &
  - 865 (94.8) male

# FINDINGS [N = 912]

- Newly Patients = 771 (84.5%)
- 737 (80.8%) were PTB
- 776 (85%) access to bacteriological diagnosis pre-treatment
- 255 (28%) smear positive pre-treatment
- 581 (64%) had a gene XPERT MTB/RIF,
- 241 (26%) had TB culture

# FINDINGS

- 857/912 (94%) knew their HIV status
- 617/912 (68%) HIV positive
- 170/617 (19%) HIV+ had TB culture
- 611/617 (99.5%) on Antiretroviral Therapy

# Mining TB Treatment Outcomes

Outcome	Global (%)	South African (%)	Mines N=912 (%)
Successfully Treated	83	78	783 (86)
Failed			1 (0.1)
Died			41 (4.4)
Loss to follow-up			8 (0.9)
Not Evaluated			79 (8.6)

# TB Treatment Outcomes for the pilot

Outcome	Global (%)	South African (%)	Mines N=912 (%)
Successfully Treated	83	78	783 (86)
Cured			246 (27)
Treatment completed			537 (59)



# Individual mining houses treatment outcomes

- [HPC TB treatment outcomes.pdf](#)

# Discussion

- No denominator data, thus unable to determine disease burden
- HIV co-infection slightly higher than general population (70 vs. 61)%
- Good access to different diagnostics, (?? NB standardization)
- Overall treatment success (86%) higher than national average
- Not evaluated & deaths

# Recommendations

- Primary data with denominators
- Alignment with NTCP for diagnostics
- Investigation of Not Evaluated & deaths

**Thank you**