

# Decreasing Treatment Delay in Tuberculosis in Guinea Bissau: A longitudinal cohort study

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# TUBERCULOSIS IN BISSAU

- **DSS population 102.000 (urban)**
- **Estimated TB incidence rate of the study area is 470/100,000\***
- **TB-surveillance since 1996**
- **All patients with a confirmed TB-diagnosis are registered**



\*Gustafson et al. 2004



# DEFINITIONS

The total treatment delay

Initial  
symptoms

First  
Contact

Diagnosis

Treatment  
start



# OBJECTIVES

- **To describe the background factors that influence total treatment delay in the diagnosis of tuberculosis.**
- **To measure the time dependent changes in total treatment delay during the study period.**
- **To investigate the effect of treatment delay on clinical severity of TB at diagnosis and the influence on mortality at follow up.**



# INCLUSION AND FOLLOW UP

- **Inclusion after diagnosis at local health centers and the TB-referral hospital in Bissau.**
- **Structured questionnaire including information on TB symptoms and disease anamnesis etc.**
- **Clinical examination at 2 and 4 months after diagnosis and at the end of treatment. (6 or 8 months)**
- **Mortality follow up at 12 months and 24 months**



# BANDIM TB-SCORE

- **Newly developed tool to measure clinical severity**
- **Based on both symptoms and medical examination**
- **Detects changes in clinical severity**
- **Predictor for mortality at follow up\***



\*Wejse et al. 2008



# INCLUSION

Flow chart of studied TB-cases	Not Included	Number of TB Cases
New Tuberculosis-cases in the study period		1424
Not included due to age<15 years	58	1366
Refused to participate	364	1002
Incomplete information on initial symptoms	12	990
Extrapulmonary TB	17	973



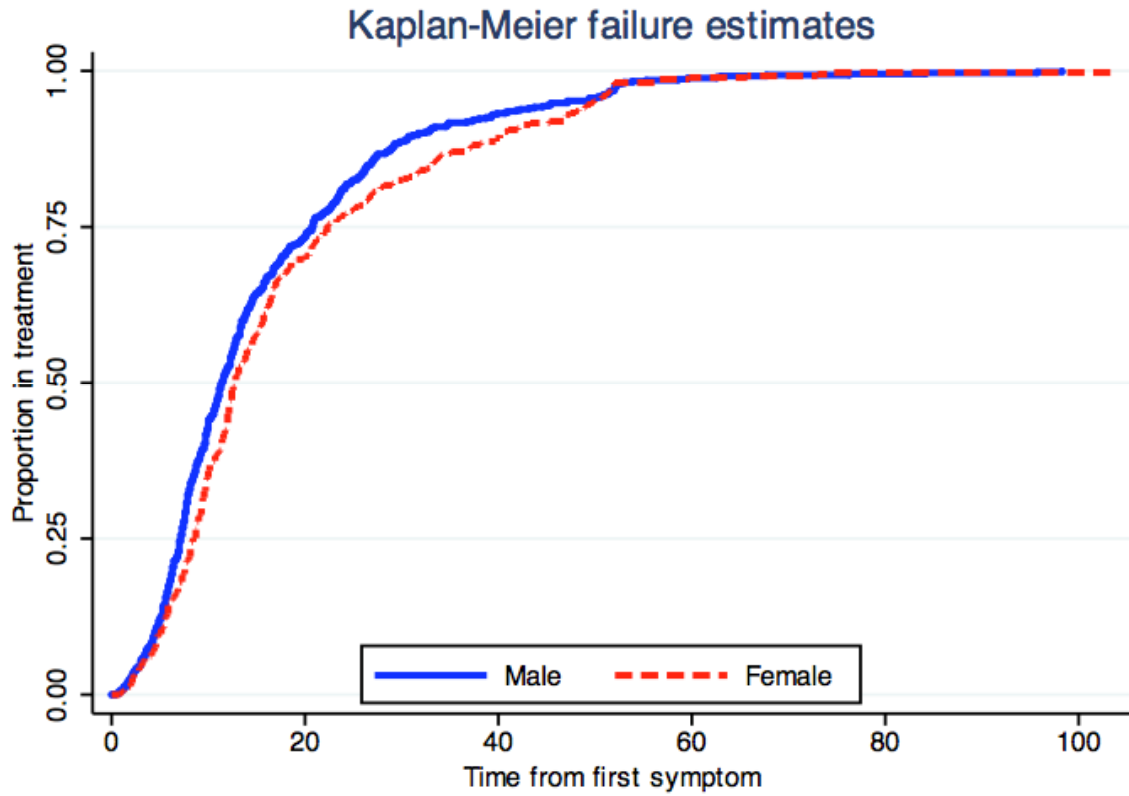
# PATIENT CHARACTERISTICS

- **Included cases had a mean age of 35.7 years and 62% were male patients**
- **Non-included patients were older ( $p=0.00$ ) and more often visitors in the study area ( $p=0.03$ ).**
- **No significant difference in gender**
- **The overall median treatment delay was 12.1 weeks**





# THE TREATMENT DELAY



# FACTORS AFFECTING TREATMENT DELAY

Factor	Attribute	Univariant HR*	p	Multivariant HR*	p
Gender	Female	0.87[0.76;0.99]	0.032	0.92[0.80;1.06]	0.269
Age	More than 45 years	0.72[0.62;0.84]	0.000	0.87[0.73;1.05]	0.141
Civil Status	Ever been married	0.76[0.67;0.87]	0.000	0.97[0.83;1.13]	0.675
Education	0-6 years	0.65[0.57;0.74]	0.000	0.79[0.67;0.92]	0.000
Sputum	No positive smear	0.84[0.73;0.96]	0.008	0.84[0.73;0.97]	0.015
Residence	Guest	0.71[0.61;0.82]	0.000	0.89[0.75;1.06]	0.204
Religion	Traditional	0.73[0.63;0.84]	0.000	0.86[0.73;1.02]	0.088
Ethnical Group	Balanta	0.80[0.67;0.96]	0.016	0.90[0.74;1.09]	0.297



\*Cox regression analysis. HR<1 indicates a higher risk of treatment delay



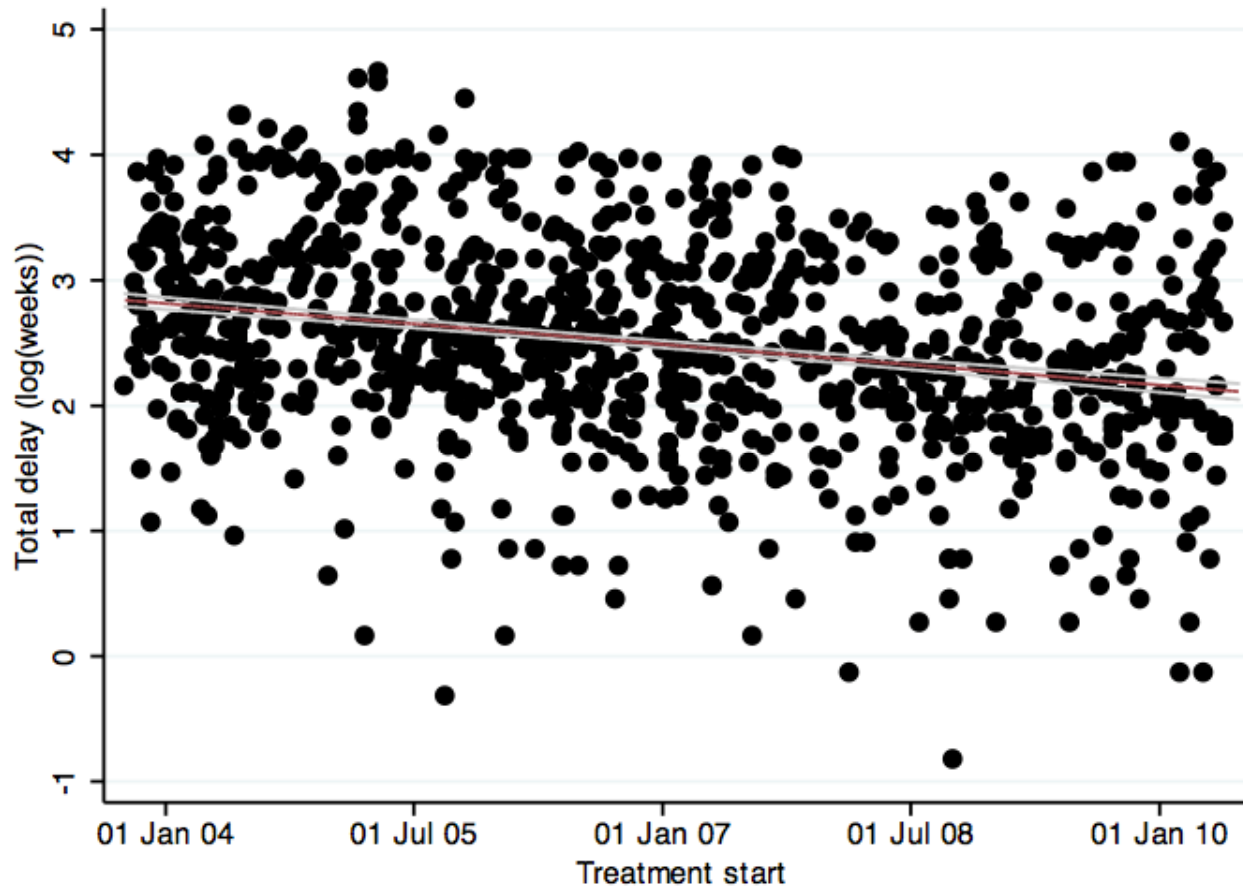
# OTHER FACTORS

**No influence on total treatment delay in univariant analysis:**

- **HIV-status**
- **BMI**
- **Employment**
- **Smoking-status**



# TREATMENT DELAY OVER TIME



# TREATMENT DELAY OVER TIME

- **In a linear regression model total treatment delay decreased with 10% pr. year from 2003 to 2010.**
- **The change was different between residents in the area and guests.**
- **Many things have changed in Guinea Bissau since 2003. Better health care? TB-campaigns? etc.**



# TREATMENT DELAY AND TBSCORE

Group	Percentile	Delay (weeks)	TB-score	p
Short	0-25%	0-7.6	5.7[5.4;5.9]	(ref)
Medium	25-50%	7.6-12.1	6.3[5.9;6.7]	0.001
Long	50-75%	12.1-21.1	6.8[6.4;7.2]	0.000
Very long	75%-	21.1-	6.7[6.3;7.1]	0.000

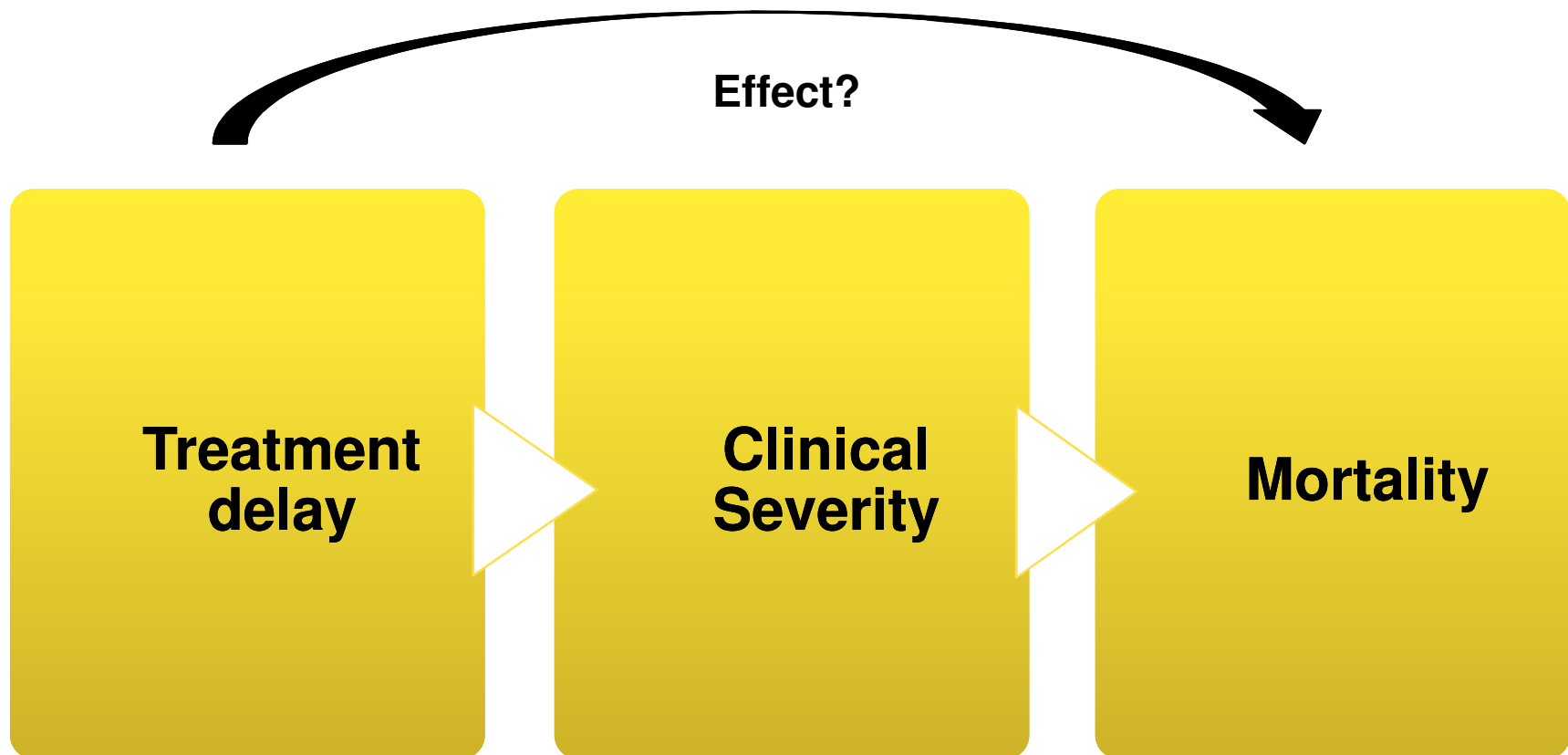


# TREATMENT DELAY AND SURVIVAL

Group	Percentile	Delay (weeks)	HR	p
Short	0-25%	0-7.6	1.00	(ref)
Medium	25-50%	7.6-12.1	0.98[0.62;1.55]	0.934
Long	50-75%	12.1-21.1	1.09[0.70;1.69]	0.718
Very long	75%-	21.1-	1.42[0.93;2.16]	0.102



# TREATMENT DELAY AND SURVIVAL





# CONCLUSION

- **Different background factors increase the risk of total treatment delay including education and TB smear status**
- **Since 2003 there has been a noteworthy fall in the total delay to treatment for TB-patients in Bissau.**
- **Bandim TB-score increases when treatment delay is long and treatment delay may also have a direct effect on mortality**



# QUESTIONS?

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