

Risk factors of mortality in patients treated for life-threatening conditions related to advanced HIV disease in Patna, Bihar



P. Gurung¹, H. Mohan Kumar¹, S. Murali², N. Hart³, A.P. Cavaleheiro⁴, S. Sang⁵

¹Doctors Without Borders India, New Delhi, India; ²Doctors Without Borders India, Patna, India; ³Médecins Sans Frontières (MSF), New Delhi, India; ⁴MSF, London, UK; ⁵MSF, Amsterdam, Netherlands

INTRODUCTION

- Since 2019, MSF operates 50-bedded advanced HIV ward in Patna, Bihar state of India
- In Bihar, 1/3 of the population suffer poverty and 1/5th face historical social marginalization
- Stigma and exclusion of PLHIV from care is related to incidence of AHD and associated mortality (Nair et al, 2019)

MSF INTERVENTION

- Comprehensive secondary level medical care, including high dependency unit and palliative care at GGSB district hospital
- Identification, referral and transfer of patients with AHD in 8/40 ART centers in Bihar
- Post discharge link to medical care and social support

METHODS

- Retrospective analysis of routine clinical data of 2019-2024
- Description of variables for central tendency
- Generation of mortality risk model by testing associations of demographic, social and clinical data, with outcome (in patient mortality and 3 months post discharge mortality)

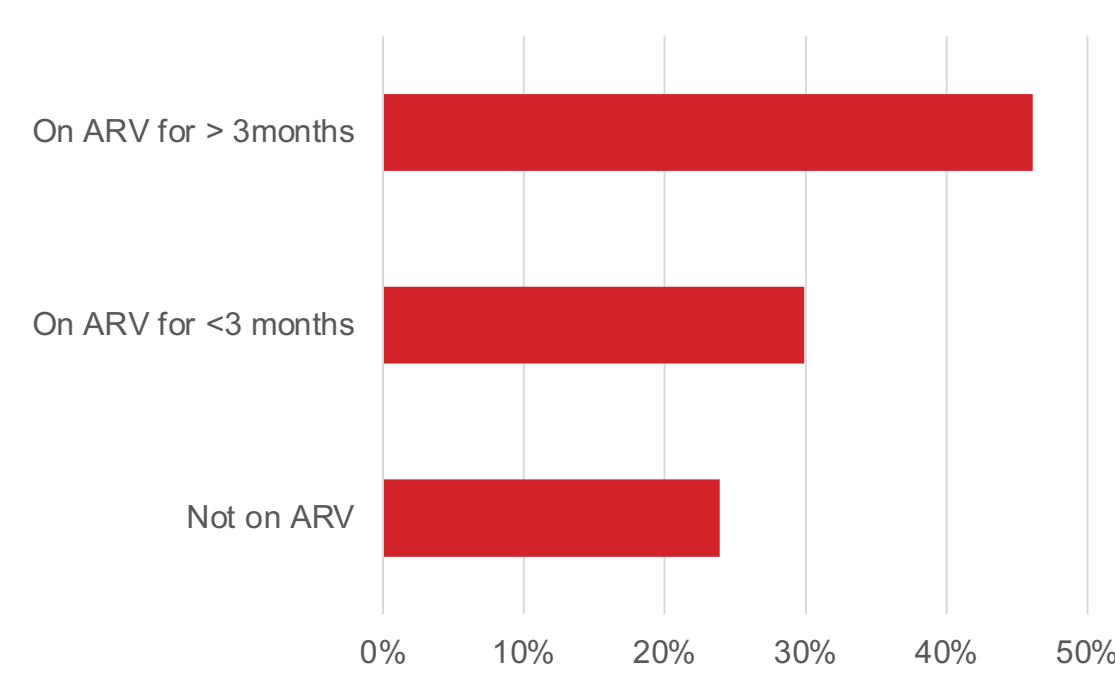
This study aims to elicit demographic, social and clinical risk factors of mortality in patients treated for AHD and adapt interventions to reduce mortality, where possible

Frequency and Distribution of patient characteristics

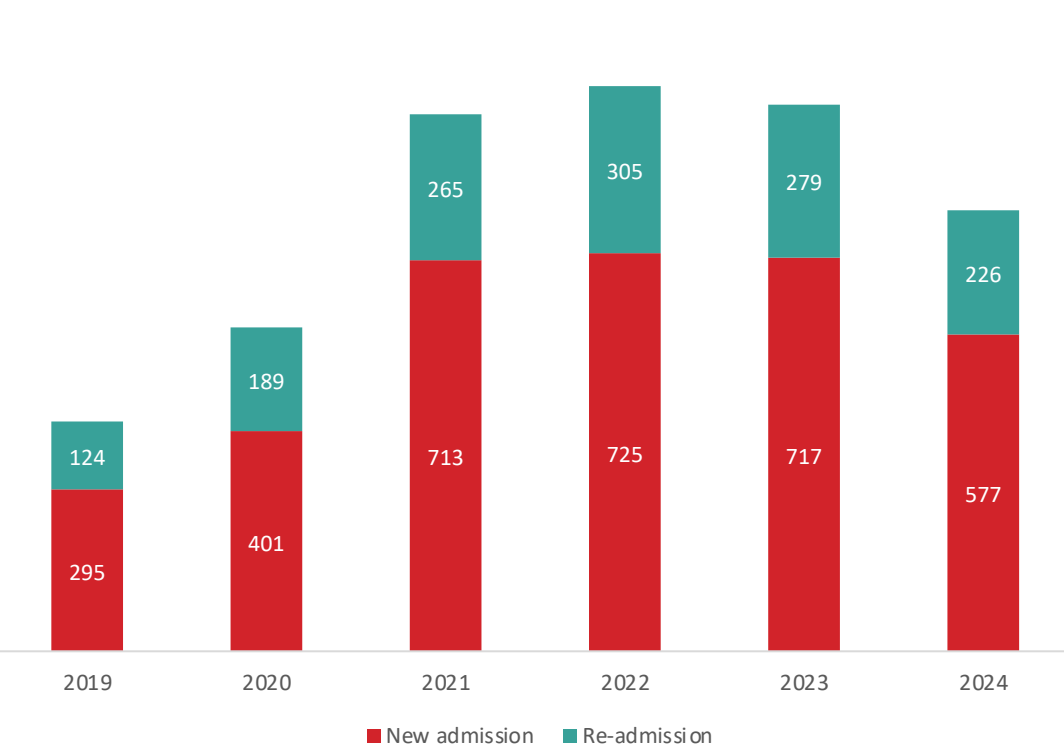
- 76% Males (n=2594)
- 80% Poverty (n= 2772)
- 42% Unemployed (n=1455)
- 53% MSF-present district (n=1834)
- 49% Severely malnourished (n=2009)
- 33% ARV naïve (n=1140)

Age in years, mean (SD)	38.18 (12.78)
CD 4 count, median (IQR)	98 (1, 1646)
Hospitalization days, median (IQR)	7 (0, 80)
Patients with 1 conditions, %	20.08%
Patients with 2 conditions %	28.16%
Patients with 3 conditions %	33.64%
Patients with 4 conditions %	7.66%

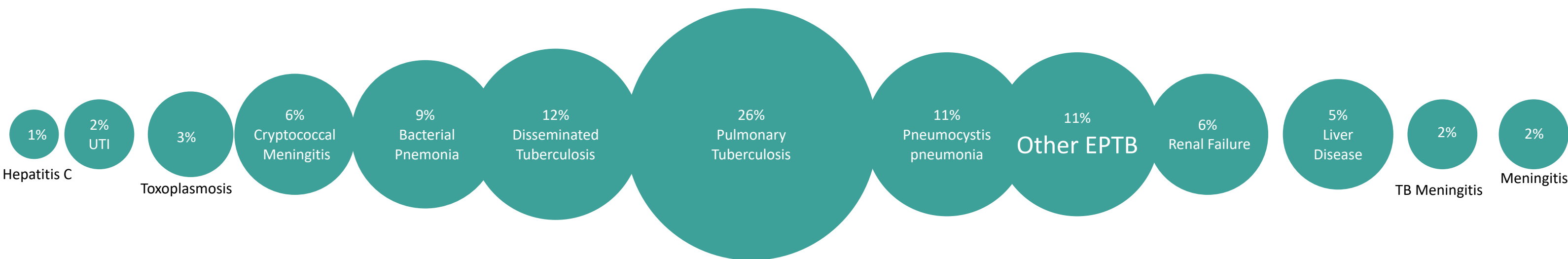
Duration of ART at admission



Admission trend April 19 - Oct 24



Proportion of patients by number of conditions n= 4816



While medical conditions were associated with in-patient mortality, unemployment was additionally associated with post discharge mortality

DISCUSSION

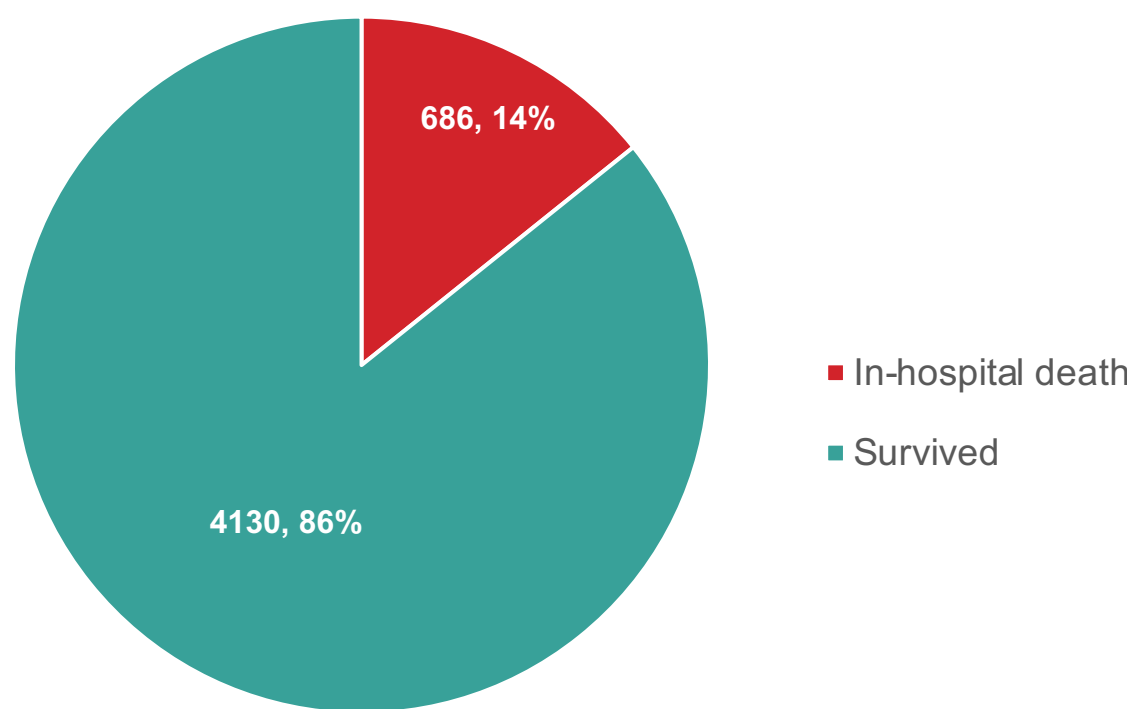
- SAM, greater than 1 co-morbidity and not being in the diagnostic and referral pathway was associated with in-patient mortality
- Patients with Meningitis and more so Cryptococcal Meningitis had highest risk of in-patient mortality
- Having a multi-drug resistance organism was also associated with risk of in-patient mortality although not all patients were tested for drug resistance
- Patients being unemployed (proxy for poverty), suffering multiple co-morbidities and malnourishment had higher risk of 3 month post discharge mortality,
- One third of treated patients died, either during hospitalization or within 3 months of discharge

LIMITATIONS

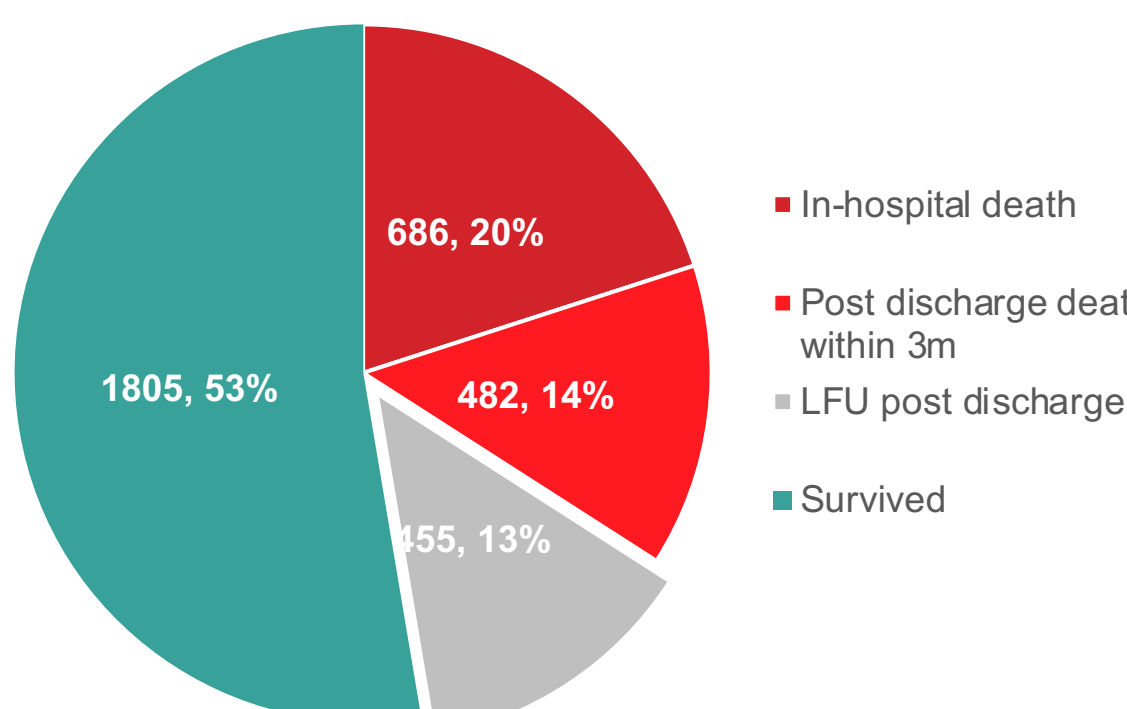
- Retrospective data: bias risk due to time related changes and missing values
- Data points limited to the provision of clinical care, rendering weaker risk models
- Association of antibiotic resistance with mortality may be over-stated as resistance testing was done on patients failing first-line treatment, although missing data was not associated with mortality

Mortality analysis

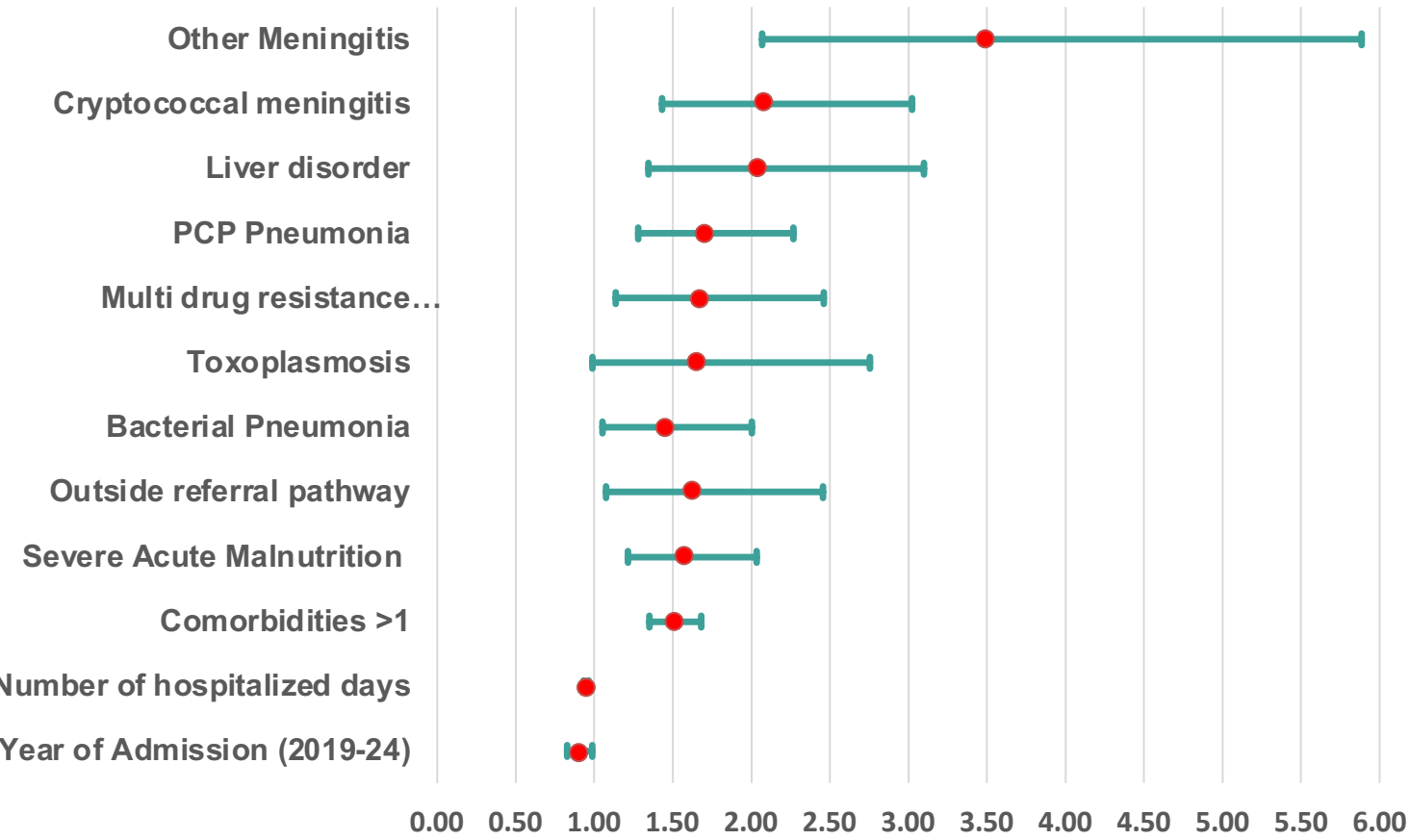
Mortality among hospitalized patients (n=4816) April 2019 - Oct 2024



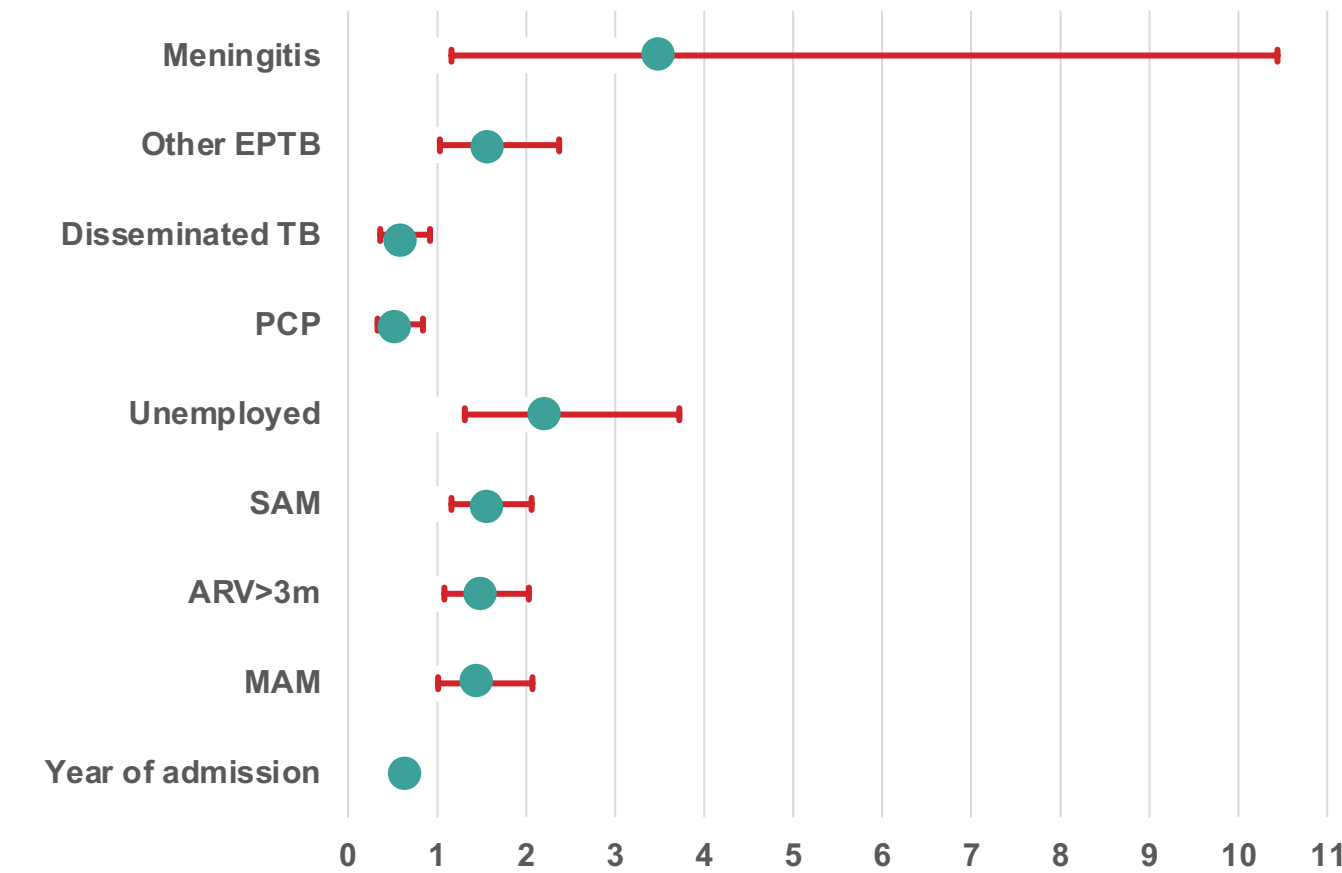
3 months - Post Discharge mortality (n=3428) Jan 2022 - Oct 2024



Adjusted Odds Ratio with 95% confidence intervals of in-patient mortality, n=3785, R² = 11.1%, p <0.001, April 2019 – Oct 2024



3 months post-discharge mortality n=2327, R² = 10%, p <0.001, Jan 2022 – Oct 2024



Beta coefficients are derived from logistic regression models. Factors are adjusted for age, gender, readmission, district category of residence, employment and socioeconomic status, duration of HIV infection, ARV experience, CD4 count closest to admission, and other co-morbidities

CONCLUSION

- Provision of patient-centric, comprehensive medical care can survive the majority of patients with life-threatening, advanced HIV disease
- Continued medical care and social support are required to avoid post-discharge death, particularly in patients with multiple comorbidities, malnourishment, and socio-economic poverty.

ABBREVIATIONS

AHD	Advanced HIV Disease
ART	Anti-Retroviral Treatment
EPTB	Extra Pulmonary Tuberculosis
GGSB	Guru Gobind Singh Hospital
HIV	Human Immunodeficiency Virus
IQR	Inter-Quartile Range
LFU	Lost to Follow up
MAM	Moderate Acute Malnutrition
MSF	Médecins Sans Frontières
PLHIV	People Living with HIV
OR	Odds Ratio
SAM	Severe Acute Malnutrition
TB	Tuberculosis
UTI	Urinary Tract Infection

ACKNOWLEDGEMENT

Patrick Keating, Epidemiology Advisor, MSF-UK, Saurab, Data Manager, DWBI-Patna Patients and staff, MSF-Patna and GGSB - Patna

