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Factors associated with favorable treatment outcomes amongst GeneXpert-Diagnosed Rifampicin-Resistant TB Patients in Mpumalanga Province from 2018 to 2022

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PRESENTATION OUTLINE

- Introduction
- Methods
- Results
- Discussions
- Limitations
- Conclusions
- Acknowledgments
- References

INTRODUCTION

- Globally, an estimated 410 000 people developed rifampicin-resistant or multidrug-resistant TB (RR-TB/MDR-TB) in 2022
 - ~3.8% of the new TB cases (10.6 million)
- Approximately 63% were successfully treated.
- 160 000 deaths

- South Africa was among the top 30 High TB burden countries in the world
- Estimated MDR/RR-TB patients = 11000.

- Drug-resistant TB remains a threat to the global TB elimination efforts
 - Prolonged treatment
 - Expensive
 - Poorer outcomes



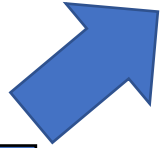
- Ending TB by 2035 → Management of drug-resistant TB patients is important → evaluation of outcomes
- Documented predictors of drug-resistant TB treatment outcomes
 - Age
 - Education level
 - Previous TB infection
 - BMI
 - Treatment duration
 - Positive smear microscopy result
 - HIV-coinfection and ART initiation
 - Hypertension
 - Culture conversion in the first four months of treatment.
- Identifying predictors can help in strengthening the programmatic management of drug-resistant TB



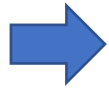
Aim
To Assess factors associated with Favorable treatment outcomes Among GeneXpert-diagnosed Rifampicin Resistant TB patients in Mpumalanga province from 2018-2022.

METHODS

RR-TB line list
2018-2022



Electronic Drug-
Resistant TB register



Complete data set
(diagnosed patients
& outcomes)



Logistic regression analysis

- Favorable/unfavorable treatment outcome
- P-values <0.05 = significant

METHODS

Exclusions

- Diagnosed patients not linked to treatment register
- Duplicates
- Patients still on treatment at time of analysis

Outcomes

Cured	}	Favorable outcomes
Treatment Completed		
Died	}	Unfavorable outcomes
Treatment Failure		
Loss to Follow-up		

Factors

- Gender
- Age
- District
- Regimen type
- HIV status
- Time-to-treatment initiation
- Year of diagnosis
- Previous DR TB
- Pre-treatment smear positive result

RESULTS

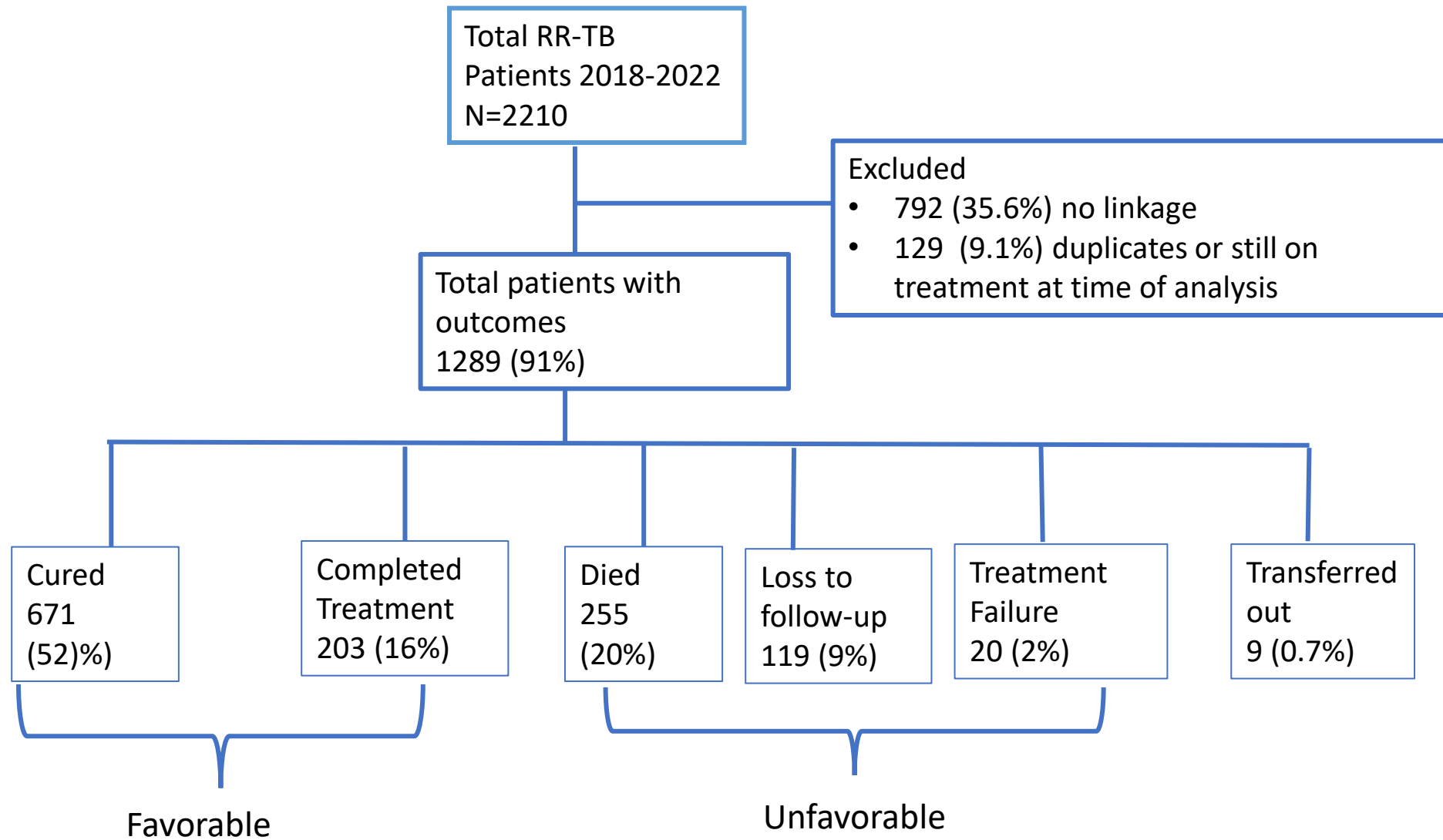


Figure 1: Rifampicin Resistant TB Patients diagnosed on the GeneXpert, Mpumalanga Province, 2018-2022

Table 1: Characteristics of rifampicin-resistant TB patients, Mpumalanga Province, 2018-2022

		N-1289	%
Gender	Male	720	56
	Female	569	44
Age group	<5	8	1
	5-14	24	2
	15-24	156	12
	25-34	362	28
	35-44	406	31
	45-54	193	15
	55+	140	11
District	Ehlanzeni	700	54
	Gert Sibande	318	25
	Nkangala	271	21
Regimen type	Individualized	240	19
	short regimen (9-11Months)	1049	81
			0
HIV status	Negative	286	22
	Positive	973	75
	Unknown	30	2
Time-to-Treatment	0-5 days	137	11
	6-14 days	688	53
	15-30 days	314	24
	than 30 days	150	12

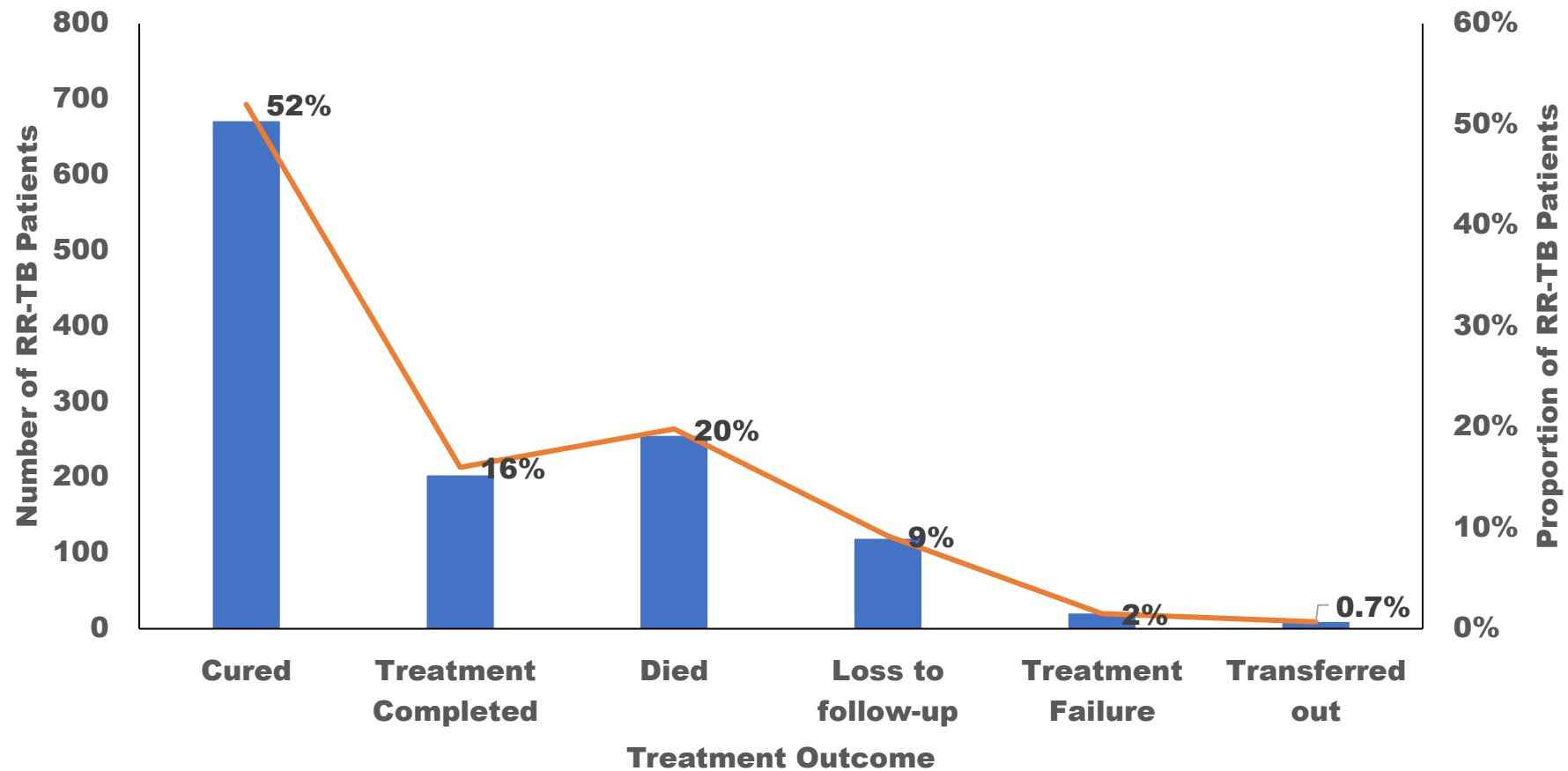


Figure 2: Treatment Outcomes among rifampicin-resistant TB patients, Mpumalanga Province, 2018-2022

Table 2: Predictors of favorable treatment outcomes among rifampicin-resistant Patients, Mpumalanga Province, 2018-2022

Characteristics	Favorable Outcomes	Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)	P value	
Age group	<5	6(75.0)	1.47(0.29-7.38)	1.34 (0.25-0.70)	0.728
	5-14	19(79.2)	1.86(0.67-5.10)	1.8 (0.64 - 5.02)	0.264
	15-24	115(73.7)	1.37(0.90-2.08)	1.3 (0.83 - 1.96)	0.261
	25-34	243(67.1)	Ref		
	35-44	273(67.2)	1.01(0.74-1.36)	1.02 (0.75 - 1.40)	0.853
	45-54	138(71.5)	1.23(0.84-1.79)	1.2 (0.81 - 1.77)	0.372
	55+	80(57.1)	0.65(0.43-0.97)	0.61 (0.39 - 0.92)	0.019
District	Ehlanzeni	498(71.1)	Ref		
	Gert Sibande	190(59.7)	0.60(0.45-0.79)	0.61 (0.46 - 0.81)	0.001
	Nkangala	186(68.6)	0.88(0.65-1.20)	0.90 (0.66 - 1.23)	0.521
Regimen type	Individualized	145(60.4)	Ref	Ref	
	short regimen (9-11Months)	729(69.5)	1.49(1.12-1.99)	1.45 (1.07 - 1.97)	0.015

DISCUSSIONS

- Predictors of favorable treatment outcomes in Mpumalanga province, 2018-2022: Age, Treatment regimen & District

1) RR-TB Patients \geq 55 years were less likely to have favorable treatment outcomes

- Older age is a risk factor for unsuccessful treatment outcomes
 - comorbidities and complex medication schedules
 - Physical deterioration
 - Poor response to treatment

2) RR-TB Patients on shorter treatment regimens (9-11 months) were more likely to have favorable treatment outcomes.

- Implemented in Mpumalanga Province in 2017
- Treatment of RR/MDR-TB with shorter regimens is associated with less loss to follow-up rates.
- Improved patient compliance and adherence

3) RR-TB patients in Gert Sibande district were less likely to have favorable outcomes

- Possibly higher LTFU and death rate when compared to Ehlanzeni and Nkangala
- Further investigation and analysis needed for each year

LIMITATIONS

- Lack of a unique Identifier to aid record linkage
 - Inconsistencies in record linkages
 - Underestimation of patients diagnosed and linked to care
 - Underestimation of success rate/favorable outcomes rate
- Use of secondary data (routinely collected data)
 - Restricted to variables on the register
 - Missing/unrecorded information
 - Comorbidities
 - Adverse events
- Some patients had not completed treatment at the time of analysis



CONCLUSION

- Patients who were younger, or were on a shorter treatment regimen or were diagnosed and/or received treatment in Ehlanzeni or Nkangala districts from 2018-2022 were more likely to have favorable treatment outcomes in Mpumalanga Province.
- Special Attention to older patients
 - Routine assessment of comorbidities
 - Dedicated monitoring
- Continued administration of shorter treatment regimens to eligible patients
 - Improve patient adherence
 - Implementation of BPaL 6-months regimen in November 2023
- Higher quality DR-TB management = improvement of treatment outcomes.
- In line with the fight to end TB by 2035

ACKNOWLEDGEMENTS

- Mpumalanga Department of Health TB Directorate
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health

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THANK YOU