

# High TB NAAT volumes, a strategy for ending TB by 2030: KwaZulu-Natal perspective

**TB Testing Intensity and Declining Incidence**

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# Rationale

“For millennia, our ancestors have suffered and died of tuberculosis, without knowing what it was, what caused it, or how to stop it. Today, we have knowledge and tools they could only have dreamed of.....”

The question is, are we adequately using the tools they could have dreamt of to stop TB ?

This presentation will analyze the high TB testing volumes in KZN and determine if this intervention contributes in preventing, controlling and ending TB by 2030.

## Tuberculosis profile: Global

### *2022 WHO estimates*

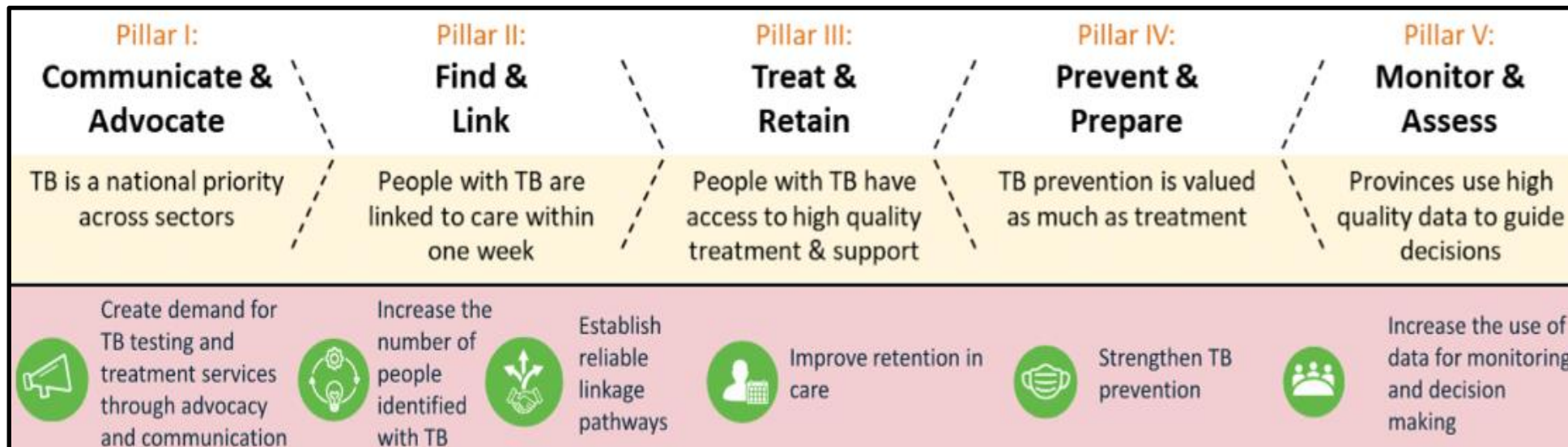
- Total TB incidence 10.6 million people (133 per 100 000 population)
  - increased from 10.3 million in 2021 and 10 million in 2020
  - incidence rate increased by 1.9% (per 100 000 population per year) between 2020 and 2022.
  - net reduction in the TB incidence rate between 2015 and 2022 was 8.7%, far from the WHO End TB Strategy milestone of a 50% reduction by 2025
- Highest TB burden is in adult men; estimated at 5.8 million cases, women at 3.5 million cases and children at 1.3 million.
- An estimated 1.13 million TB deaths occurred among HIV-negative people
  - 176 000 deaths among people living with HIV
  - 52% of the HIV negative people who died from TB were men, 32% were women and 16% were children
  - 47% of the HIV positive people who died from TB were men, 35% women and 18% children
  - MDR/RR-TB caused an estimated 160 000 deaths in 2022

## Tuberculosis profile: National

### *2022 WHO estimates*

- South Africa (SA) is one of the 30 high burden TB countries in the world and accounts for about 3% of the global TB cases
  - 280 000 people had TB, a slight decrease compared to 304 000 in 2021,
  - incidence rate estimated at 468 per 100 000 population per year
  - 11 000 people fell ill with MDR/RR-TB in 2022
- 54 000 died of TB deaths compared to 56 000 in 2021
  - 57% of deaths occurred among people living with HIV
- 80% of the population of South Africa is infected with TB bacteria, the vast majority of whom have latent TB rather than active TB disease
  - the highest (88%) prevalence of latent TB found among people in the age group 30-39 years
  - 305 350 people started on Preventative therapy during 2021, 5.6% less than the 321 610 reported in 2021.

## Recovery plan 3.0: Framework



### Pillar II: Activities

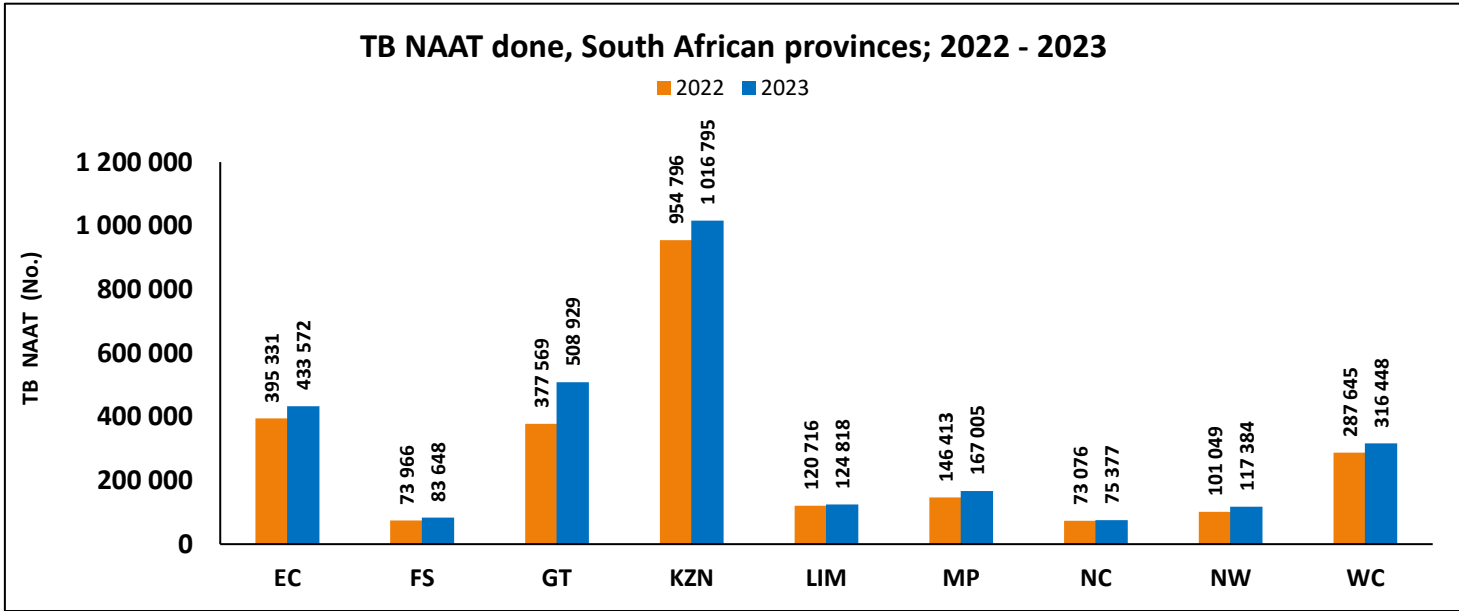
#### Find;

- Conduct 3 million TB NAATs
- Accelerate implementation of TUTT
- Scale up DCXR

#### Link;

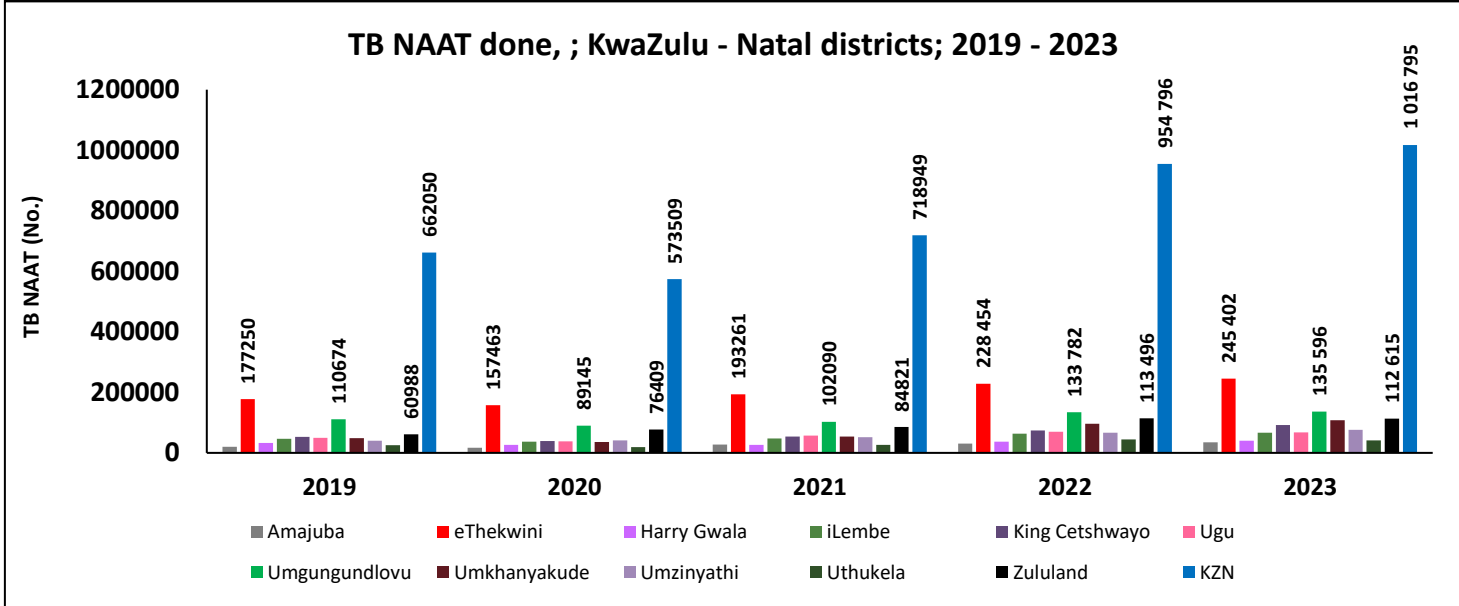
- Increase TB SMS notification
- Strengthen hospital-PHC TB referrals
- Notify 221K TB patients

# TB Nucleic Acid Amplification Tests (NAAT)



SA,

KZN highest TB testing province between 2022 and 2023, the increase of tests in 2023 might be associated to the rollout of the universal TB testing for key population regardless of TB symptoms.



KZN,

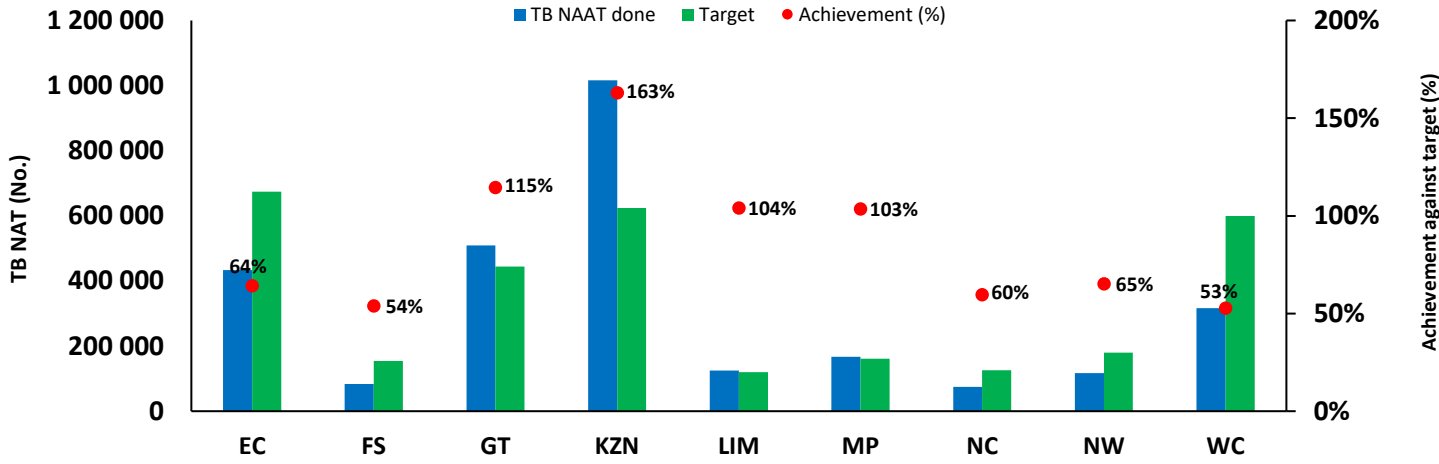
Numbers dropped in 2020  
Testing increased from 2021 to 2023  
3/11 highest testing districts

- eThekwini
- uMgungundlovu
- Zululand



# TB NAAT done against target

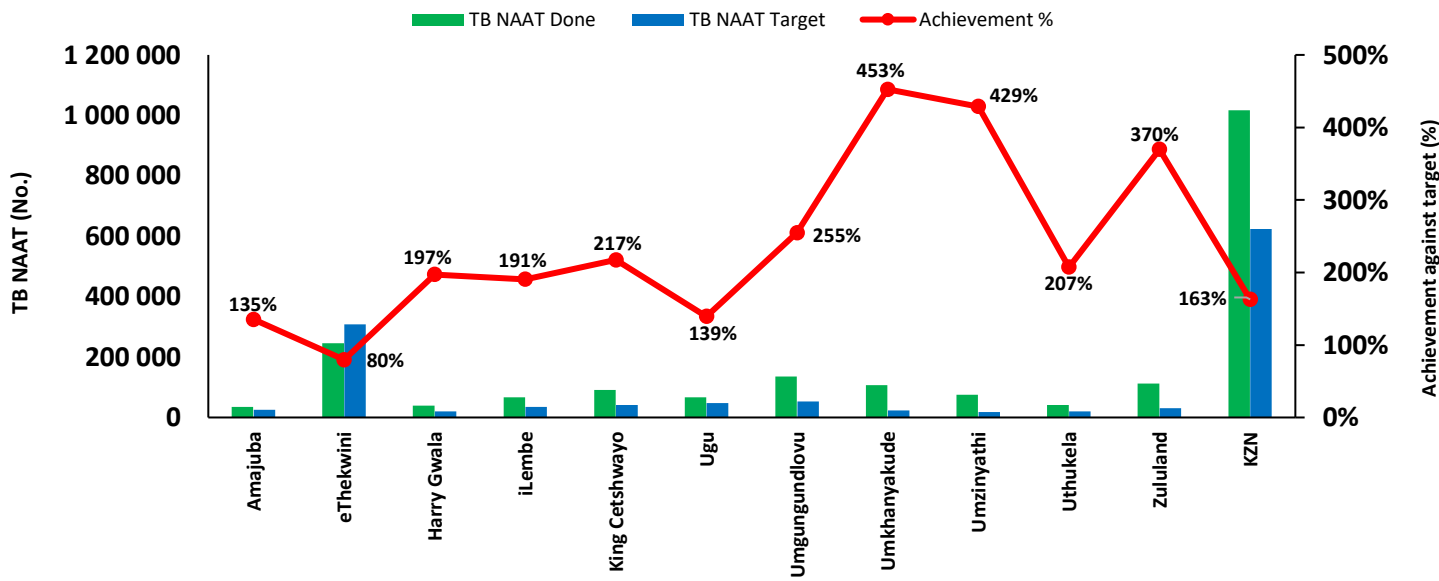
**TB NAAT done, South African provinces; 2023**



SA,

4/9 provinces achieved >100% of target  
KZN highest at 163% target achieved

**TB NAAT done vs. target, ; KwaZulu - Natal districts; 2023**



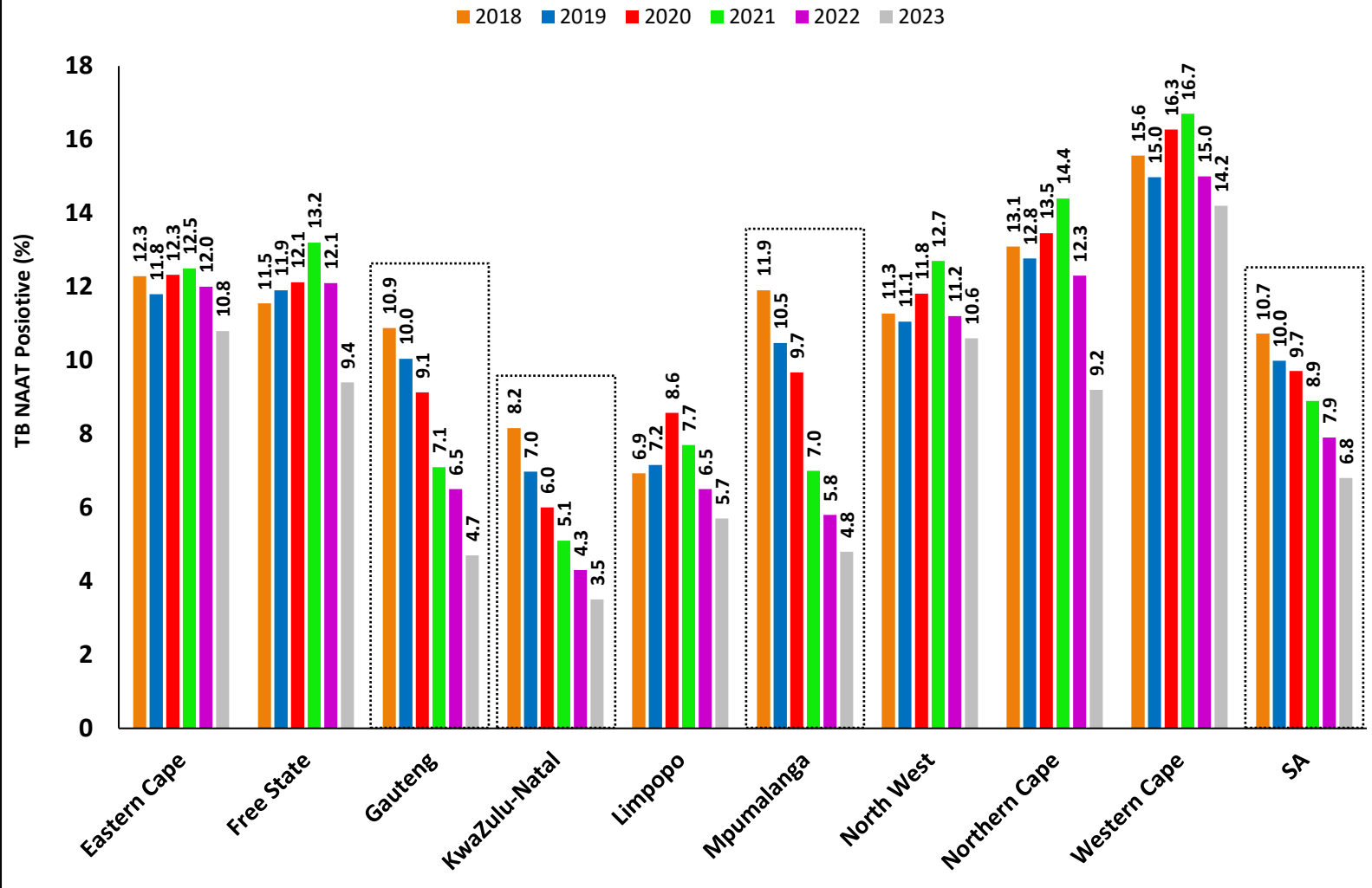
KZN,

10/11 districts achieved >90% of target  
uMkhanyakhude and Umzinyathi achieved >400%  
eThekweni was lowest at 80% of the target



# TB NAAT testing positive

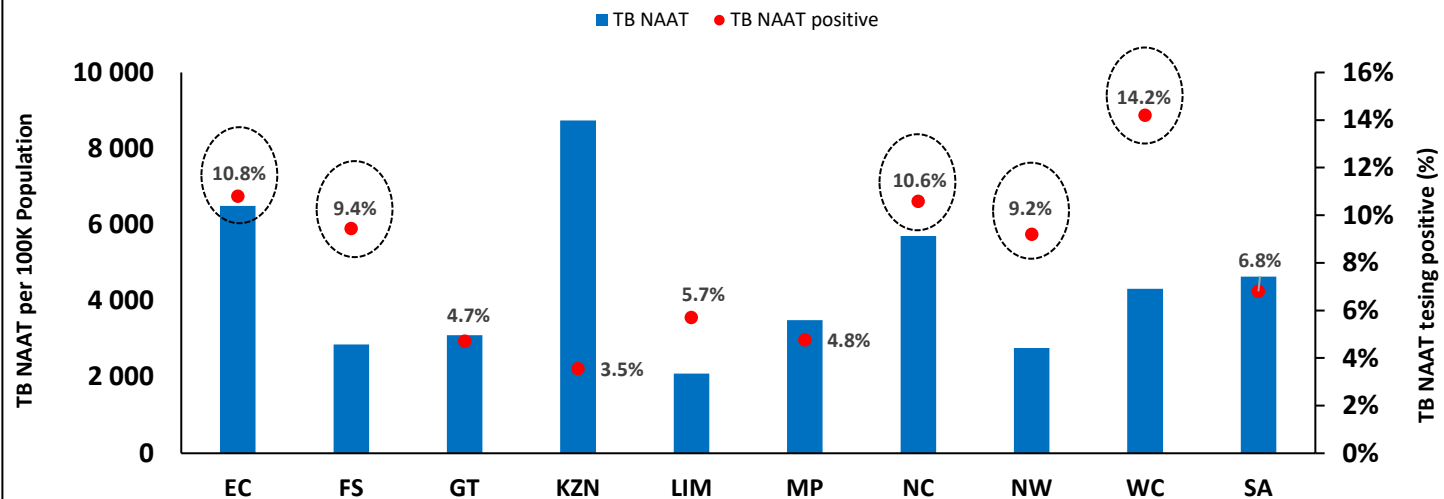
TB NAAT testing positive, South African provinces; 2019 - 2023



Declining positivity trend,  
 SA,  
 dropped from 10.7 - 6.8% between 2019 and 2022  
 KZN,  
 dropped from 8.2 - 3.5%  
 MP: 11,9 - 4,8%  
 GP: 10,9 - 4,7%

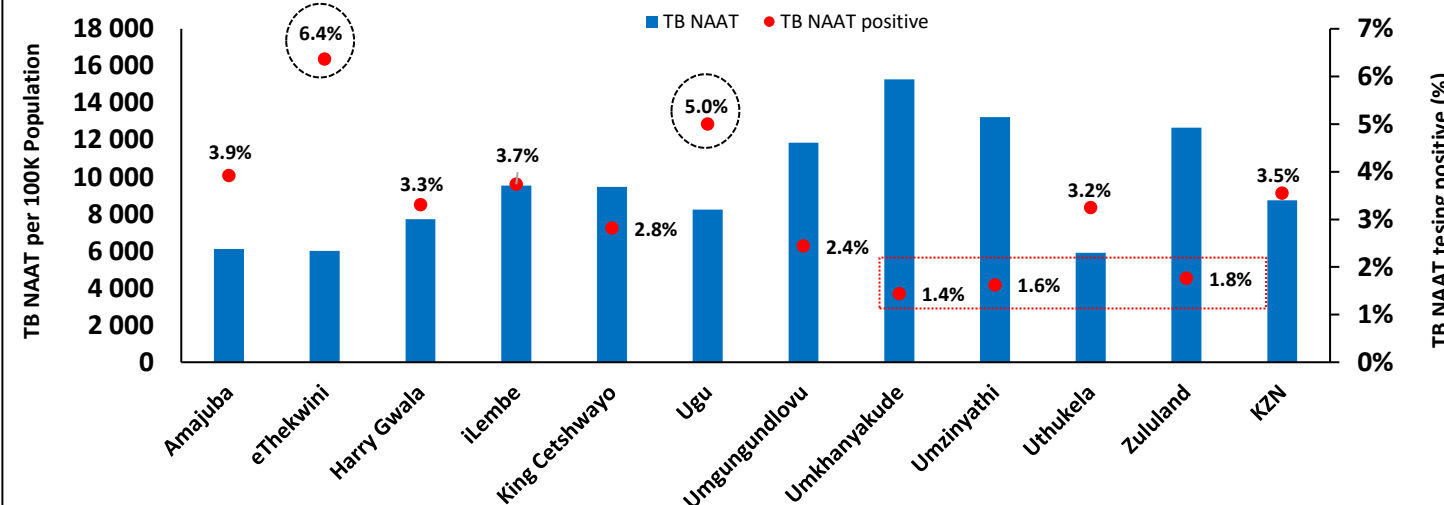
TUTT rollout increased the testing figures but did not contribute to improved TB testing positivity yields.

**TB NAAT testing positive, South African provinces; 2023**



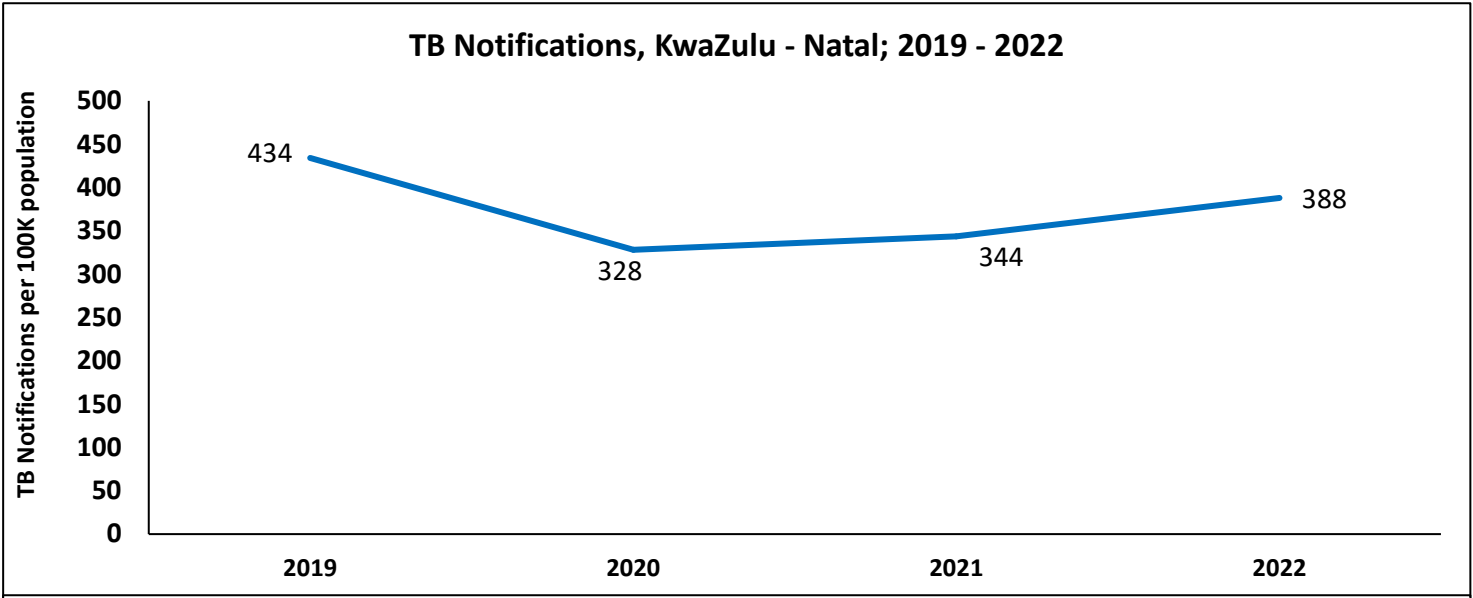
SA,  
5/9 provinces achieved >9% positivity yield  
WC highest at 14.2%  
KZN lowest at 3.5%

**TB NAAT testing positive, ; KwaZulu - Natal districts; 2023**



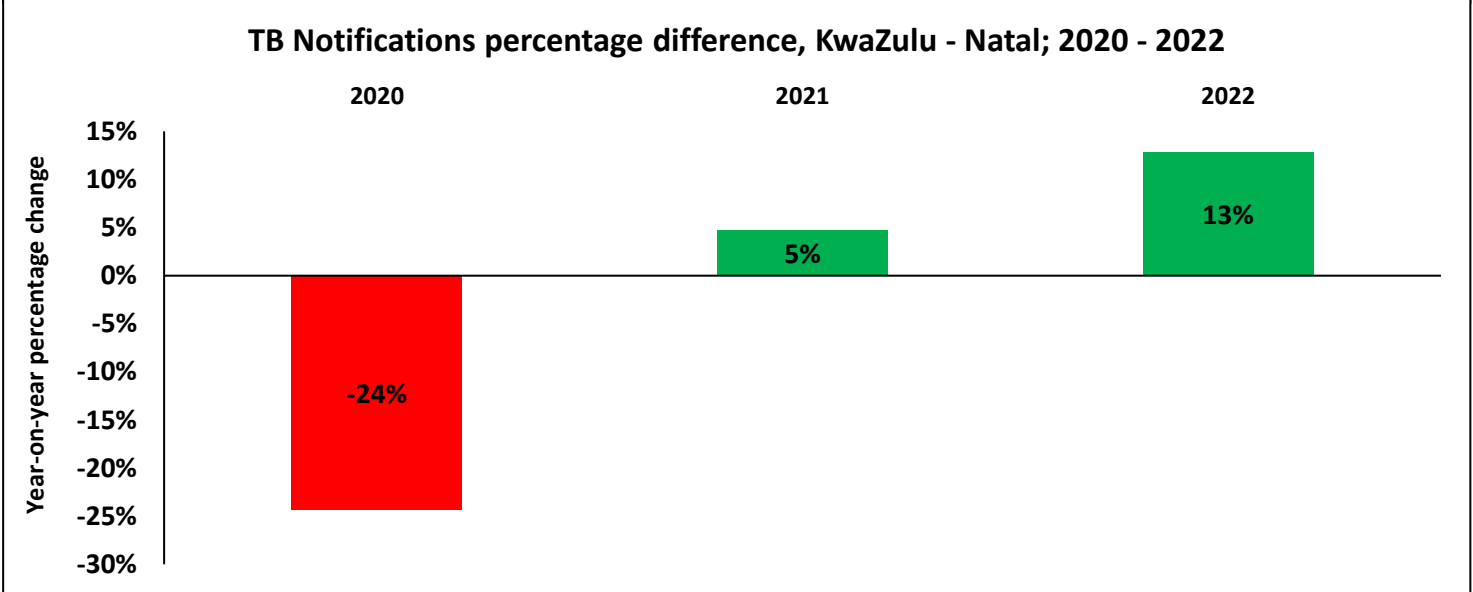
KZN,  
2/11 districts achieved  $\geq$ 5%  
eThekweni highest at 6.4%  
uMkhanyakude, uMzinyathi and Zululand lowest at <2%

# DS-TB Notification



TB notifications dropped from 434 to 388 per 100K population between 2019 and 2022

The lowest drop was observed during 2020 at 328 per 100K population



Between 2019 and 2020 the numbers dropped by 24%

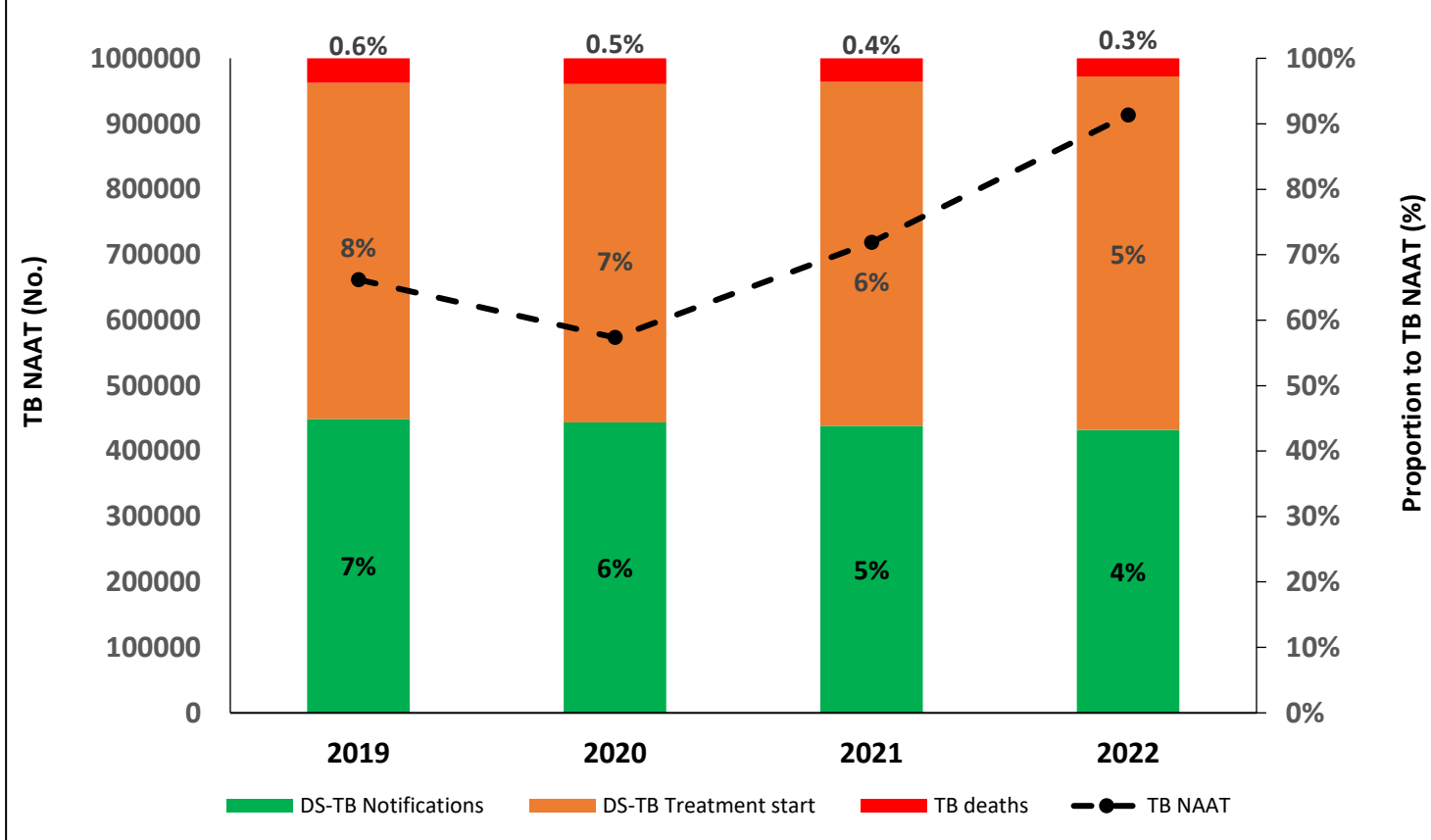
Year-on year between 2020 and 2021 increased by 5%

Between 2021 and 2022 increased by 13%

Between 2020 and 2022 the number increased by 18%

# Proportions tested positive, started on treatment and died; KwaZulu - Natal, 2019 - 2022

**Proportions tested positive, started on treatment and died;  
KwaZulu - Natal, 2019 - 2022**

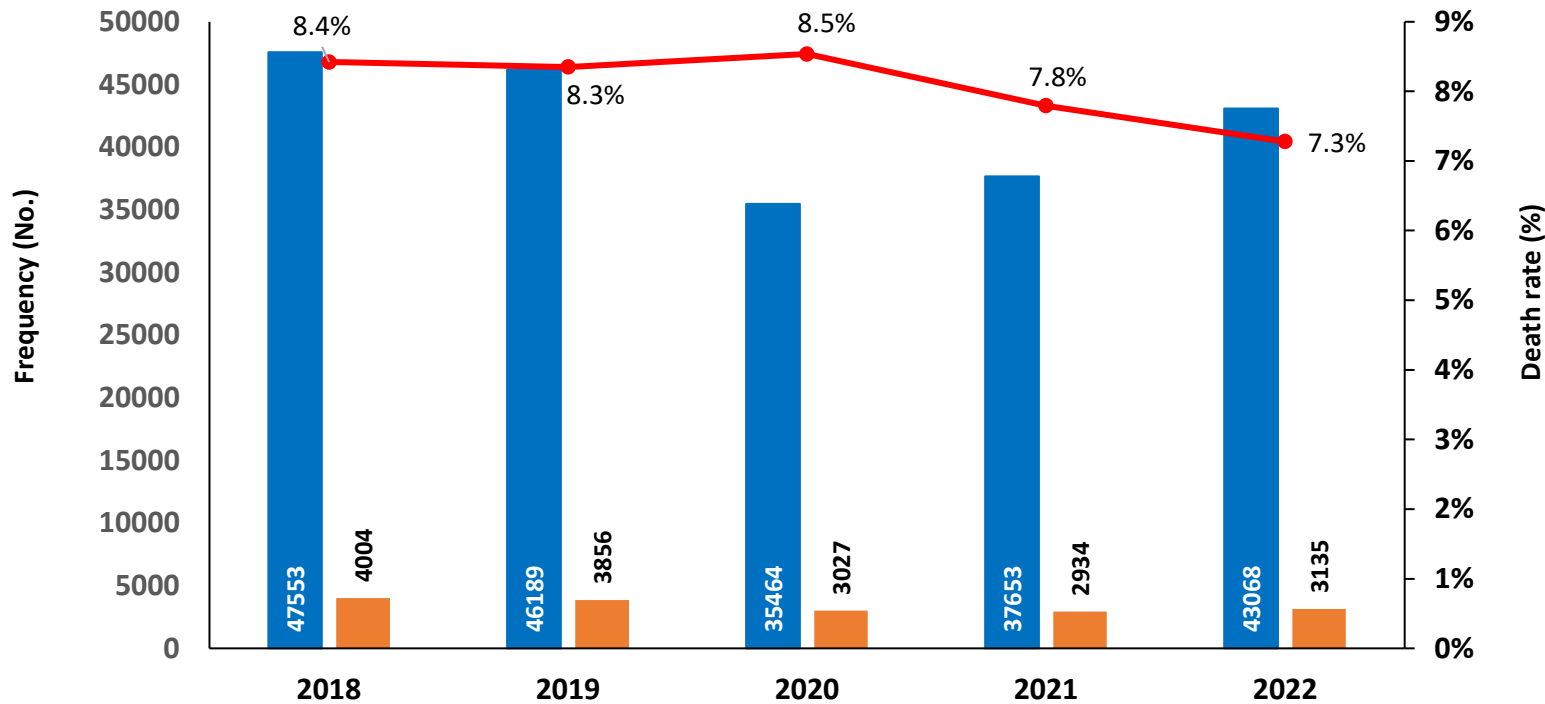


- Notification proportions decreased (7% - 4%) with increasing TB NAAT
- Treatment start proportions decreased (8% - 5%)
- TB deaths decreased (0.6% - 0.3%) between 2019 and 2022

# DS-TB deaths trends

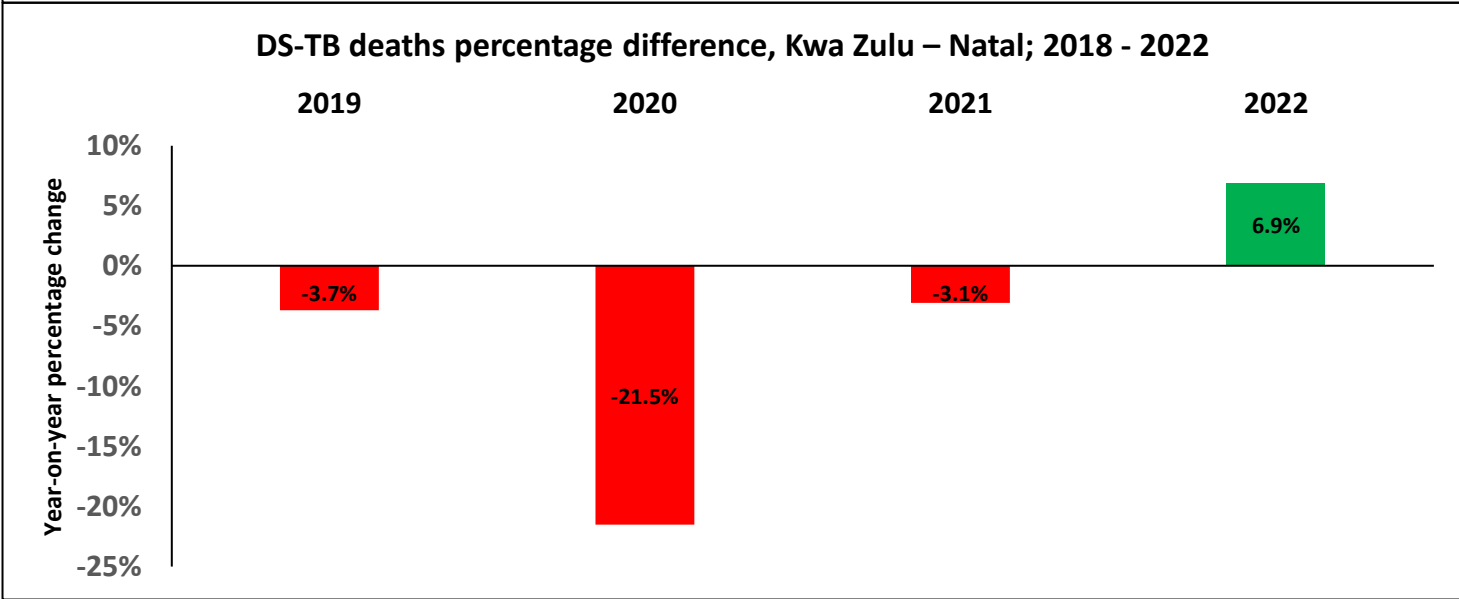
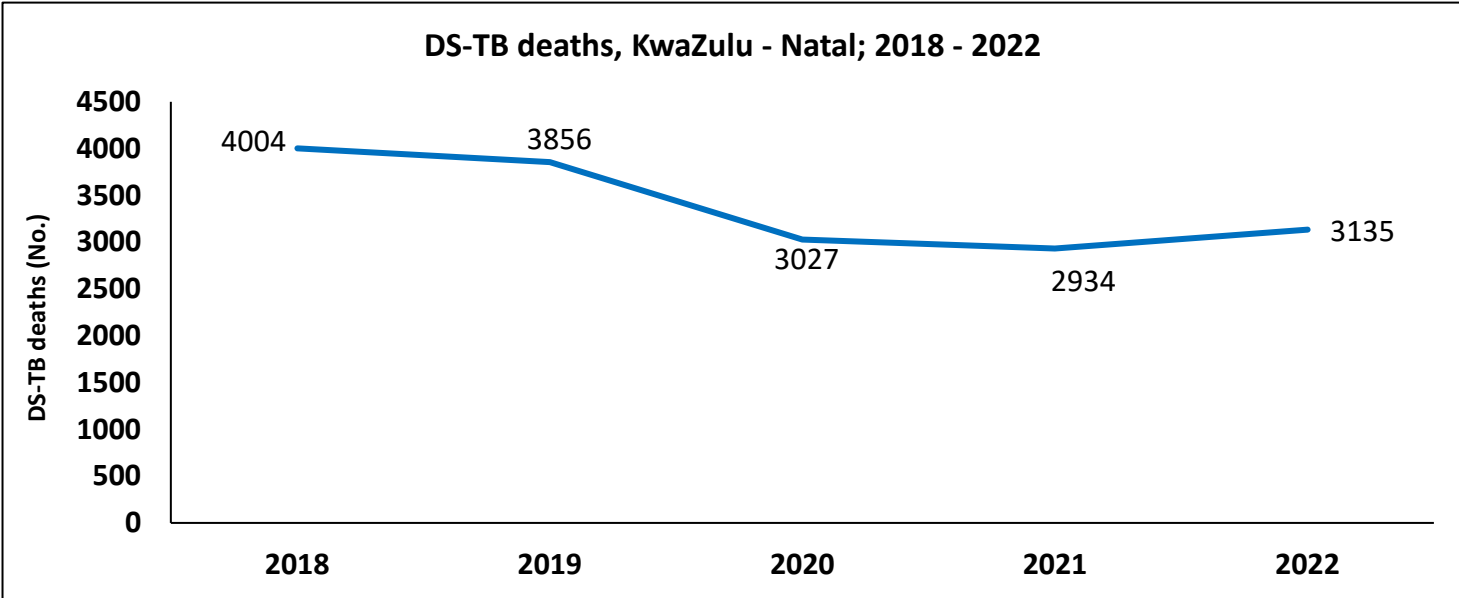
**DS-TB Death trends, KwaZulu-Natal, 2018-2022**

■ DS-TB treatment start ■ DS-TB client death ● Death rate



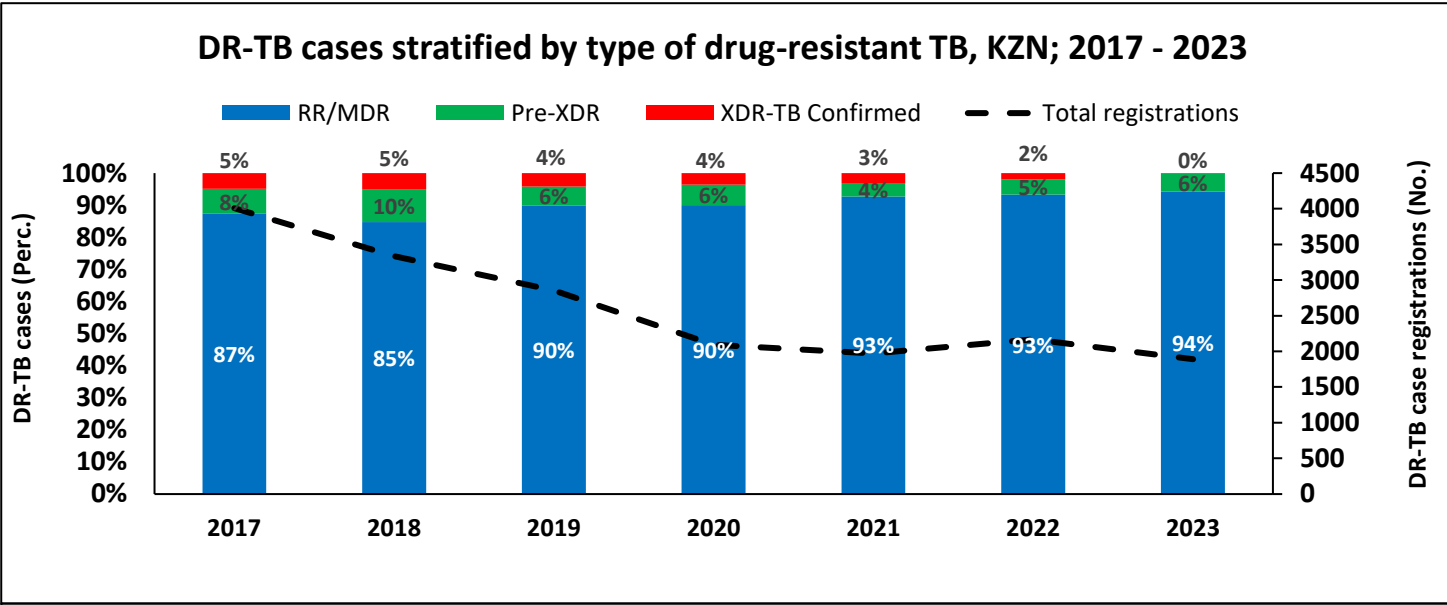
- Number of deaths decreased from 4004 to 3135 between 2018 and 2022
- Death rate decreased from 8.4% to 7.3%  
highest 8.5% (2020)  
lowest 7.3% (2022)

# DS-TB deaths...

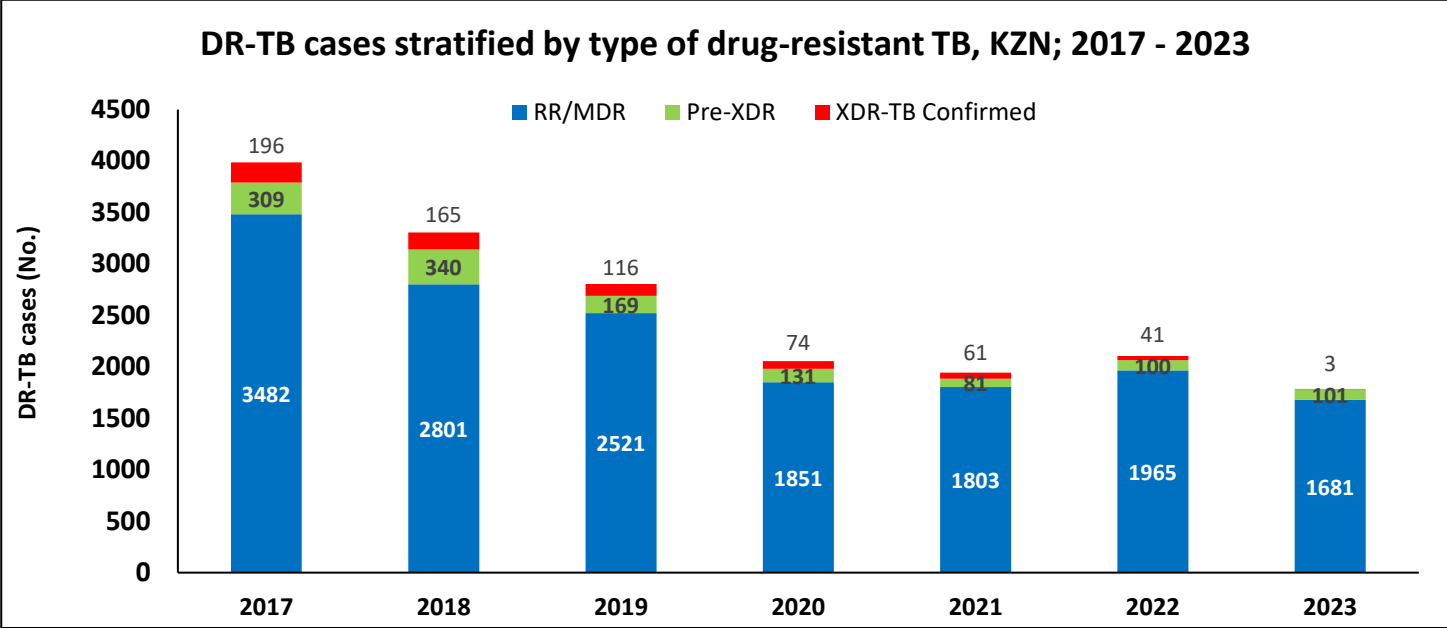


- Number of deaths decreased from 4004 to 3135 between 2018 and 2022
- 3.7% between 2018 - 2019
- 21.5% (2019 - 2020)
- 3.1% (2020 - 2021)
- increased by 6.9% between 2021 - 2022
- Overall from 2018 - 2022, TB deaths decreased by 22%

# DR-TB resistant types



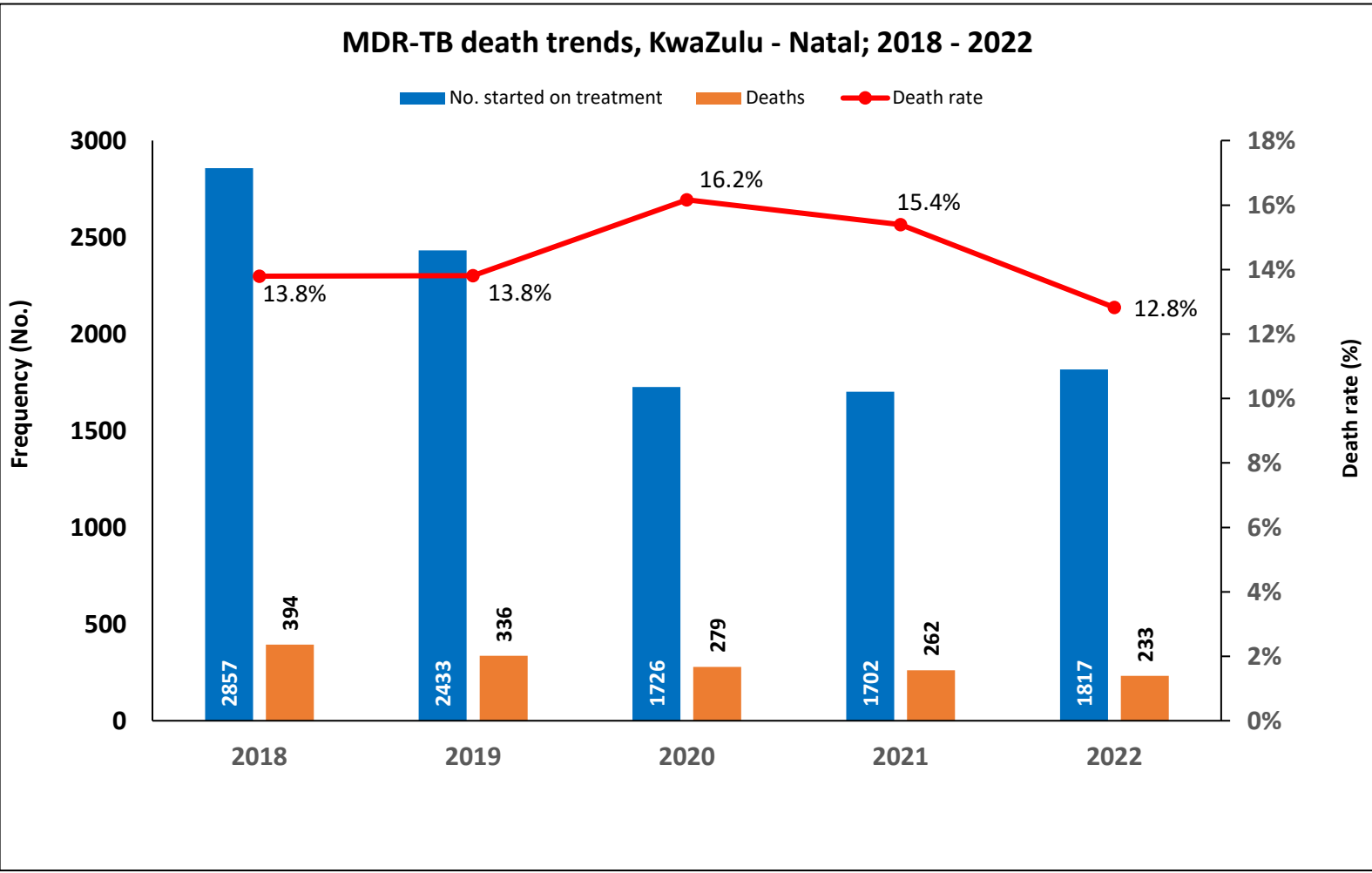
- Drug-resistant TB type (proportions):
  - 85-94% RR/MDR
  - 10-6% Pre-XDR
  - 5-0.1% XDR



- Drug-resistant TB type (absolute numbers):
  - RR/MDR
    - dropped from 3482 to 1681 (-52%)
  - Pre-XDR
    - dropped from 309 to 101 (-67%)
  - XDR
    - dropped from 196 to 41 (-79%)

\*In April 2023 Pre-XDR-TB and XDR-TB were separated according to WHO definition.

# MDR-TB deaths trend

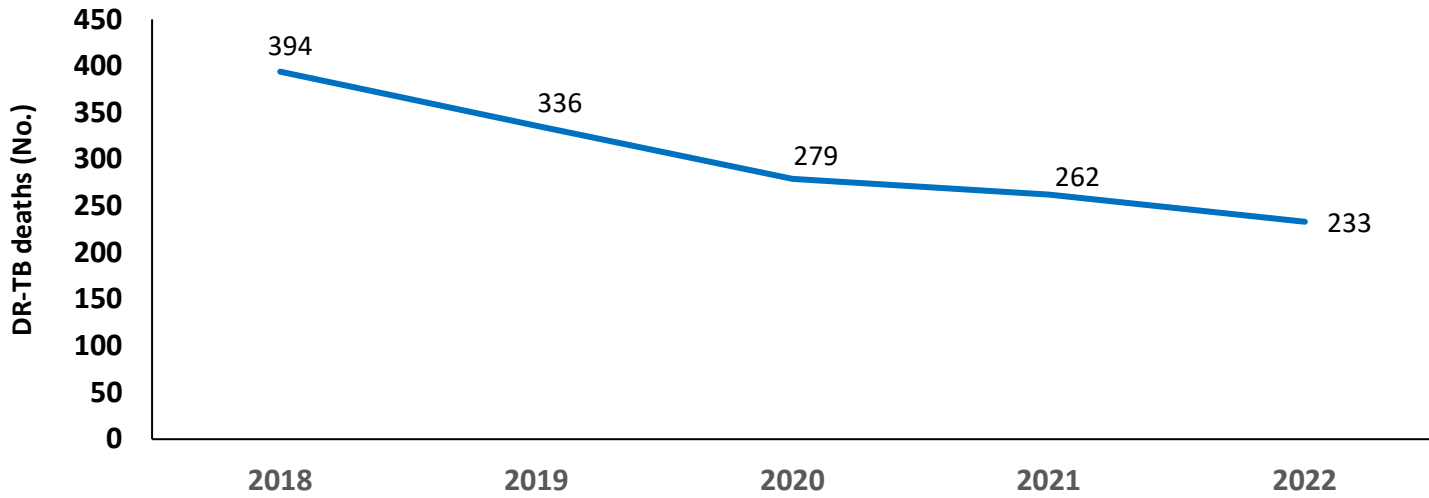


- Number of deaths decreased from 394 to 233 between 2018 and 2022
- Death rate decreased from 13.8% to 12.8%  
highest 16.2% (2020)  
lowest 12.8% (2022)



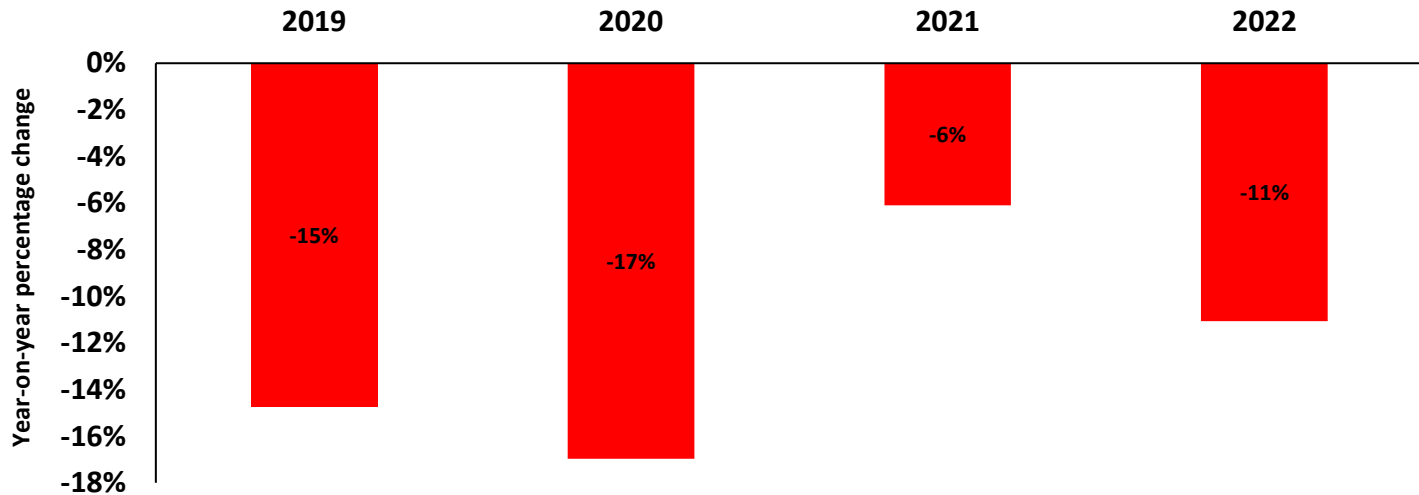
# MDR-TB deaths trend...

**MDR-TB deaths, KZN; 2018 - 2022**



- Number of deaths decreased from 394 to 233 between 2018 and 2022
- 15% between 2018 - 2019  
17% (2019 - 2020)  
6% (2020 - 2021)  
11% (2021 - 2022)

**MDR-TB deaths percentage difference, KZN; 2018 - 2022**



- Despite KZN's high TB testing volumes, the positivity yields dropped from 8.2 - 3.5% between 2018 and 2023
- Two other provinces showed similar trend, is the TB incidence on the decline ?
  - eThekweni highest at 6.4% and uMkhanyakude, uMzinyathi and Zululand lowest at <2%
- TB notification rate dropped from 434 to 388 per 100K population between 2019 and 2022
- DS-TB death rates on the decline from 8.4% - 7.3% between 2018 and 2022
  - actual number of deaths decreased from 4004 to 3135 (-22%, percentage difference)
- RR/MDR-TB death rates on the decline from 14.4% - 12.9% between 2018 and 2022
  - actual number of deaths decreased from 361 - 223 (-38%, percentage difference)
- MDR-TB death rates on the decline from 13.8% - 12.8% between 2018 and 2022
  - actual number of deaths decreased from 394 - 233 (-41%, percentage difference)
- Pre-XDR and XDR declining trends between 2017 and 2033
  - 8% - 6% (Pre-XDR), actual numbers 306 - 101 (-67%, percentage difference)
  - 5% - <1% (XDR-TB), actual number 196 3 (-98.5%, percentage difference)

# Conclusion

- High TB testing rates in KZN likely contribute to early detection and treatment of TB cases
- Decreasing positivity yields indicate a larger proportion of TB cases being identified and treated successfully
- Rigorous testing efforts may lead to earlier identification of cases, facilitate better management and control of the disease
- This strategy aligns with the global goal of ending TB by 2030 by ensuring prompt diagnosis and treatment, ultimately reducing transmission and TB burden in the population

**THANK YOU**

