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What needs to change for Australia to be on track to reach our hepatitis B elimination targets?

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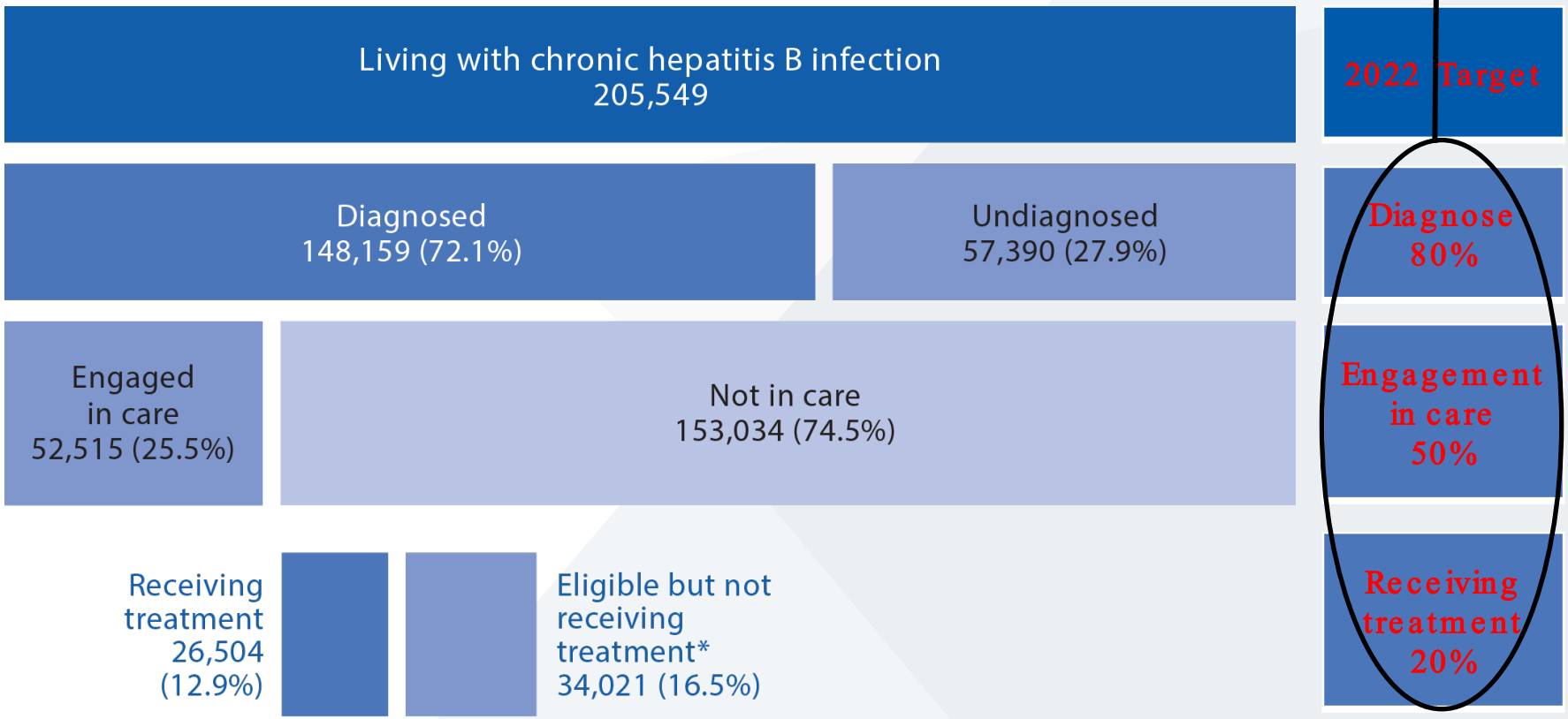
The Royal Melbourne Hospital

A joint venture between The University of Melbourne and The Royal Melbourne Hospital

Introduction

Cascade of care in 2022

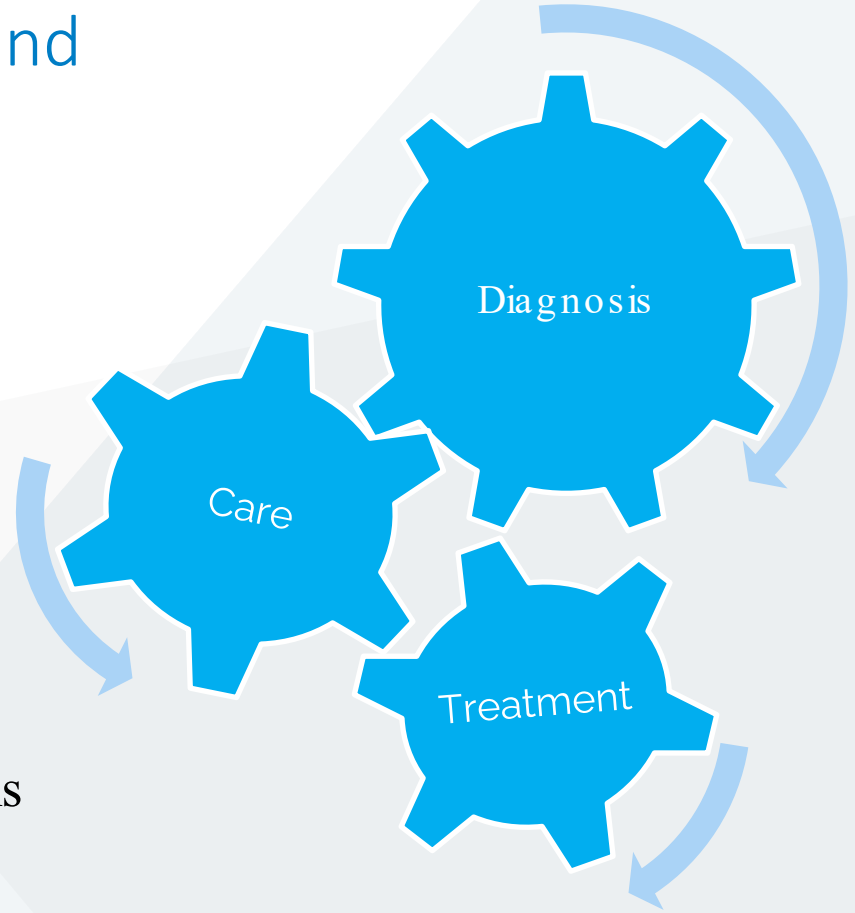


Background

We have presented this for several years now and we are still not on track

➔Significant progress must be made

➔To achieve this, we need detailed evaluation on where we currently stand

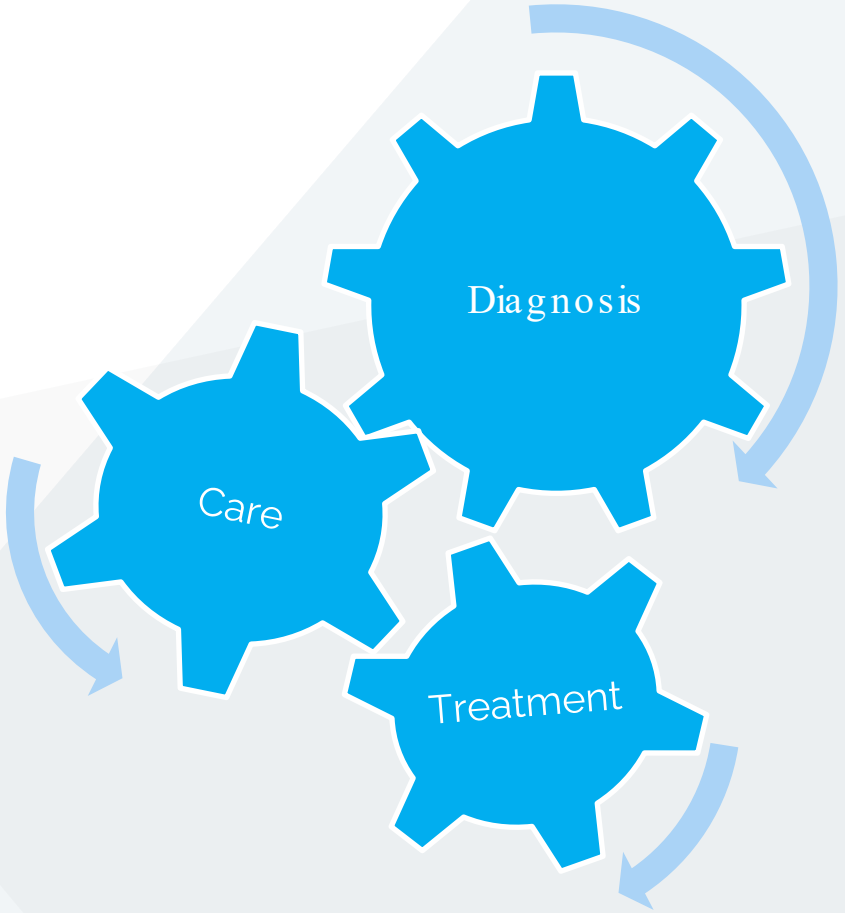


What we usually present: The cascade of care as a snapshot of a single year and this does not reflect the history of care

Aims

What is different in this presentation: focus on the trend for cascade of care and history of engagement in care from 2016 to 2022

Use our model to generate different future scenarios when we hypothetically improve the cascade of care



Methods_Model

Model component	Source of estimates	Input
Number of CHB cases (PLWCHB)	Mathematical model	Migration, Census, prevalence by country, vaccination
Mortality		

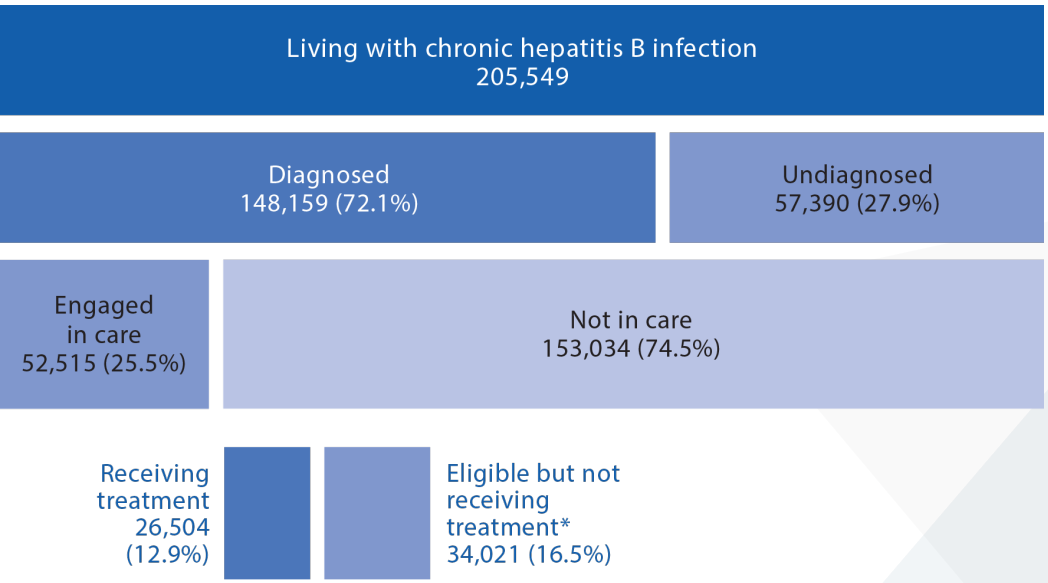
- Incorporates natural history, demographics distribution, immunisation coverage, prevalence by country of birth and migration
- Accounts for age distribution of migrants (and therefore hepatitis B prevalence)

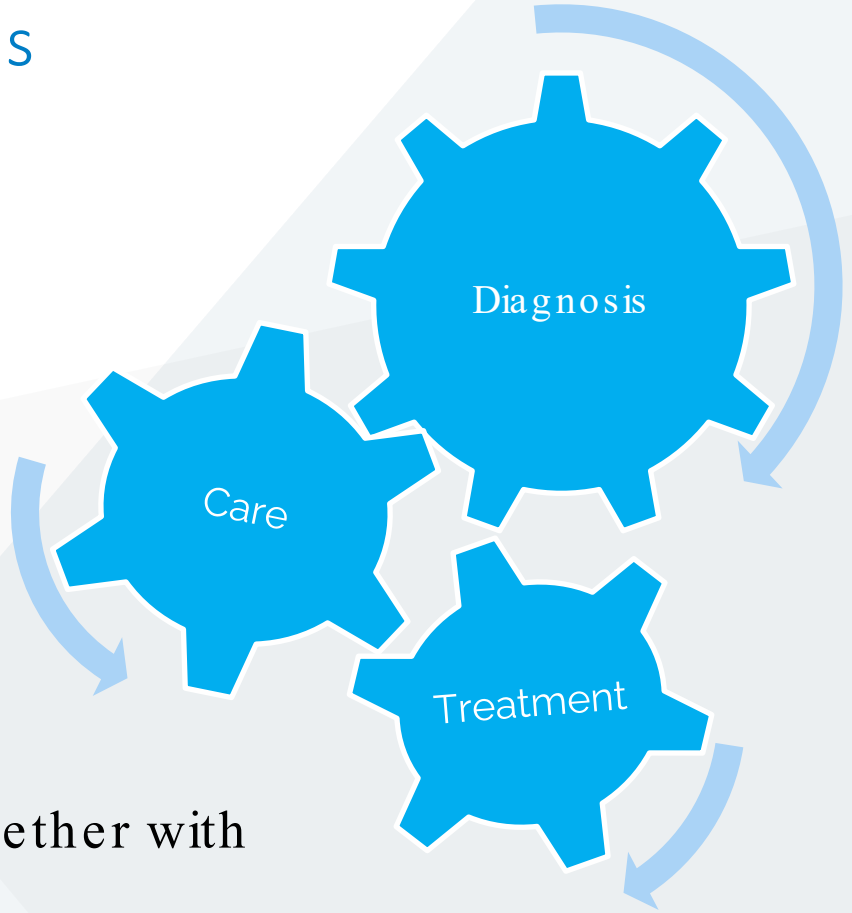
Methods_Cascade of care

Data component	Source of estimates	Input
Diagnosis	Notifiable Diseases Surveillance System	Notifications of Hepatitis B
Care and Treatment	Medicare data	Records of MBS and PBS service provision
	PLWCHB used to generate uptake measures	

- Data do not include those ineligible for Medicare or services outside of Medicare

Methods





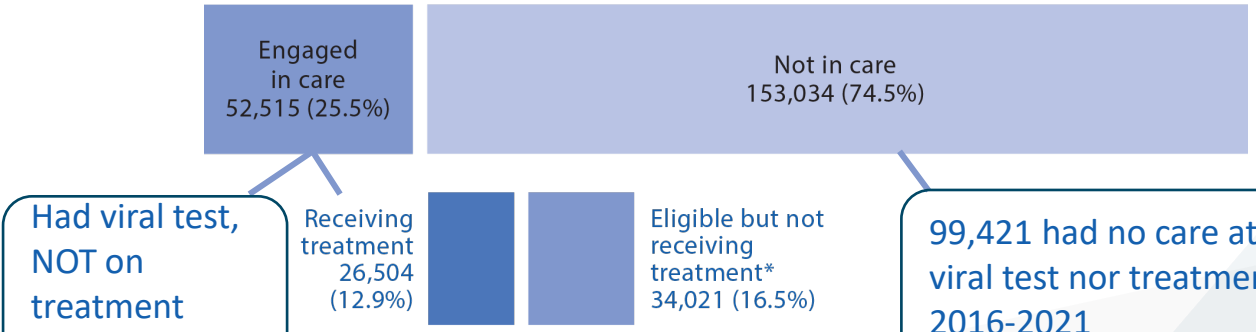
With different data sources being used, together with the model, we can:

- generate outputs: PLWCHB, cascade, attributable mortality
- forecast the future based on trend from cascade of care in recent years
- adjust inputs to analyse different scenarios in the future

Cascade in 2022_Diagnosis

- For the first time we have incorporated diagnosis into our model
- This is done by calibrating the age-structured diagnosis model state to notifications from Notifiable Diseases Surveillance System
- This enables analysis of future scenarios that we were not able to do so before

Cascade in 2022_Engagement in care



Had viral test, NOT on treatment 26,011 (12.6%)

Only 15,309 (7.4%) also had viral test during 2020-2021

Measure used as a snapshot is an overestimate of true uptake of ongoing, guideline based care

99,421 had no care at all (neither viral test nor treatment) during 2016-2021

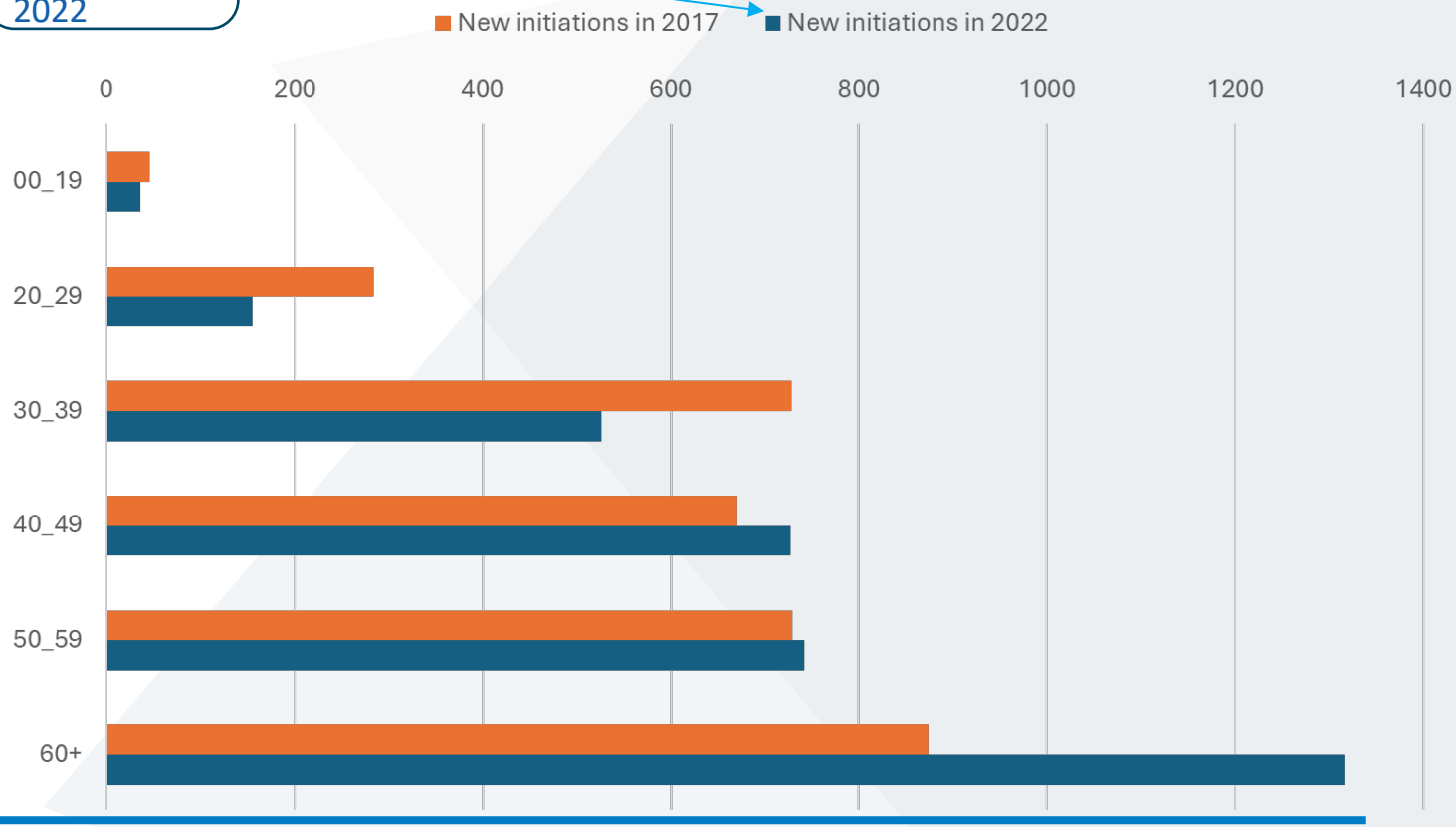
- Only half of all people received care in the past 7 years
- There is a large need for re-engagement (more than 50,000 of people engaged in care during 2016-2021 but not in 2022)
- Diagnosis may not mean good care (almost 50% diagnosed are not engaged in care)

Treatment

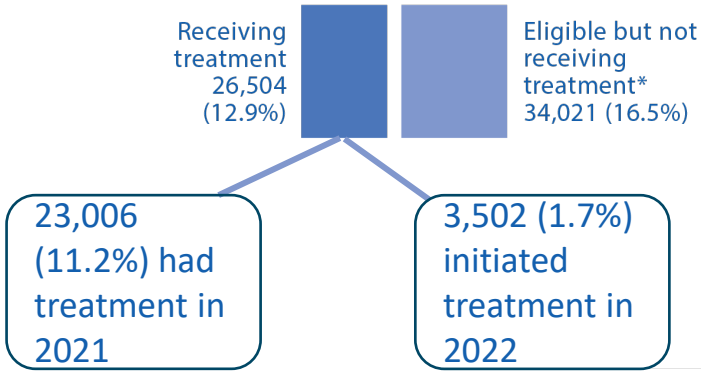
23,006 (11.2%) had treatment in 2021

3,502 (1.7%) initiated treatment in 2022

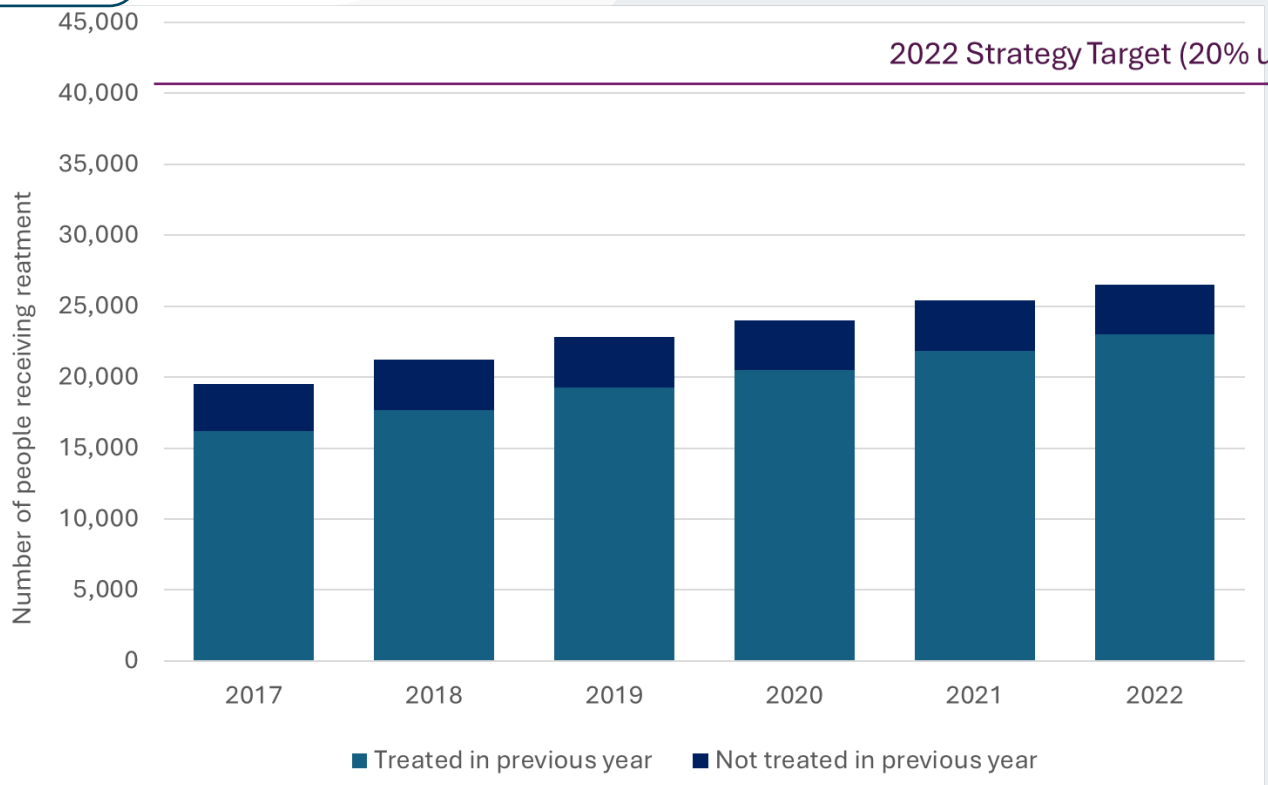
Number of people initiated treatment by age group



Cascade in 2022_Treatment



Number of people initiated treatment by initiation status



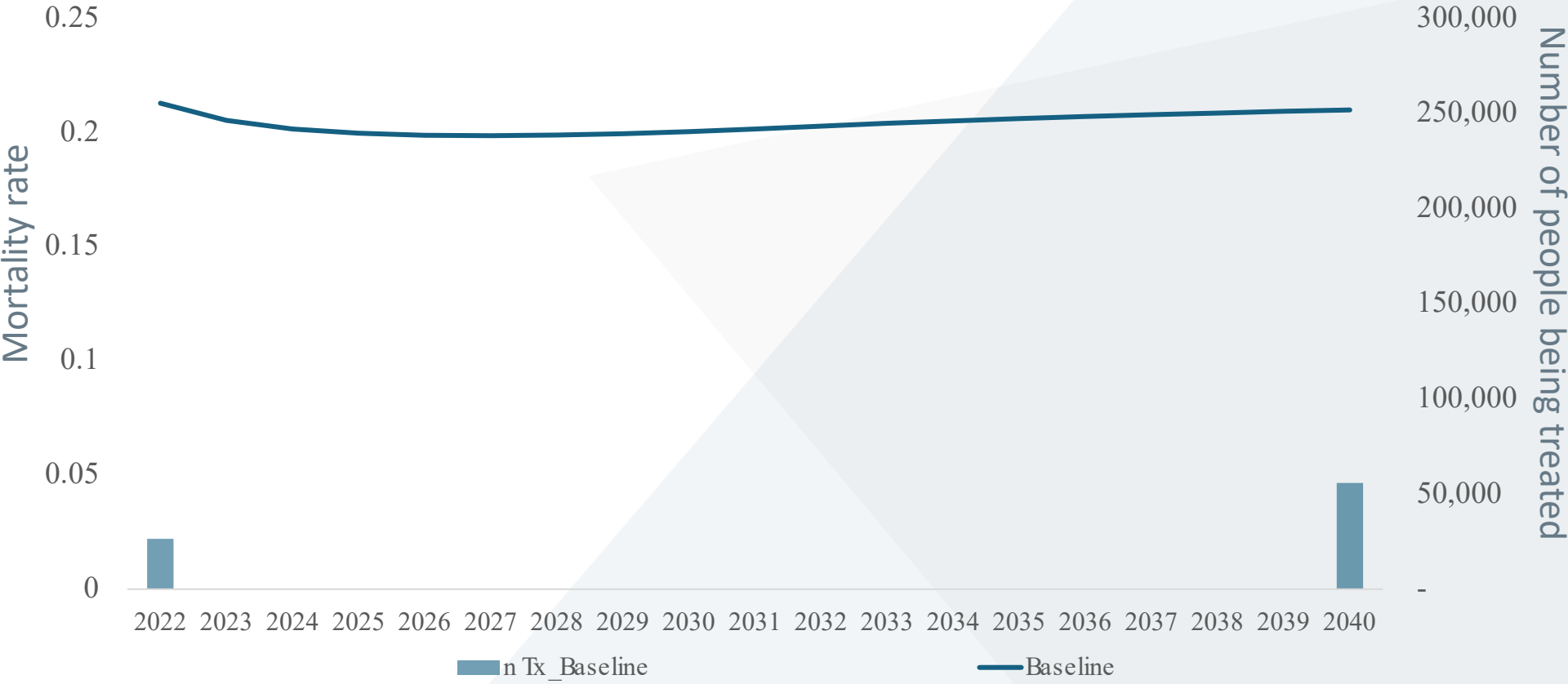
CHB-related Mortality: Treatment scenarios

Different scenarios are explored using modelling approach:

- Baseline: following trend in cascade of care in recent years
- Treat people who are already diagnosed and eligible for treatment
- Diagnose all and treat all people who are eligible for treatment
- Diagnose and treat all people

CHB-related Mortality: Treatment scenarios

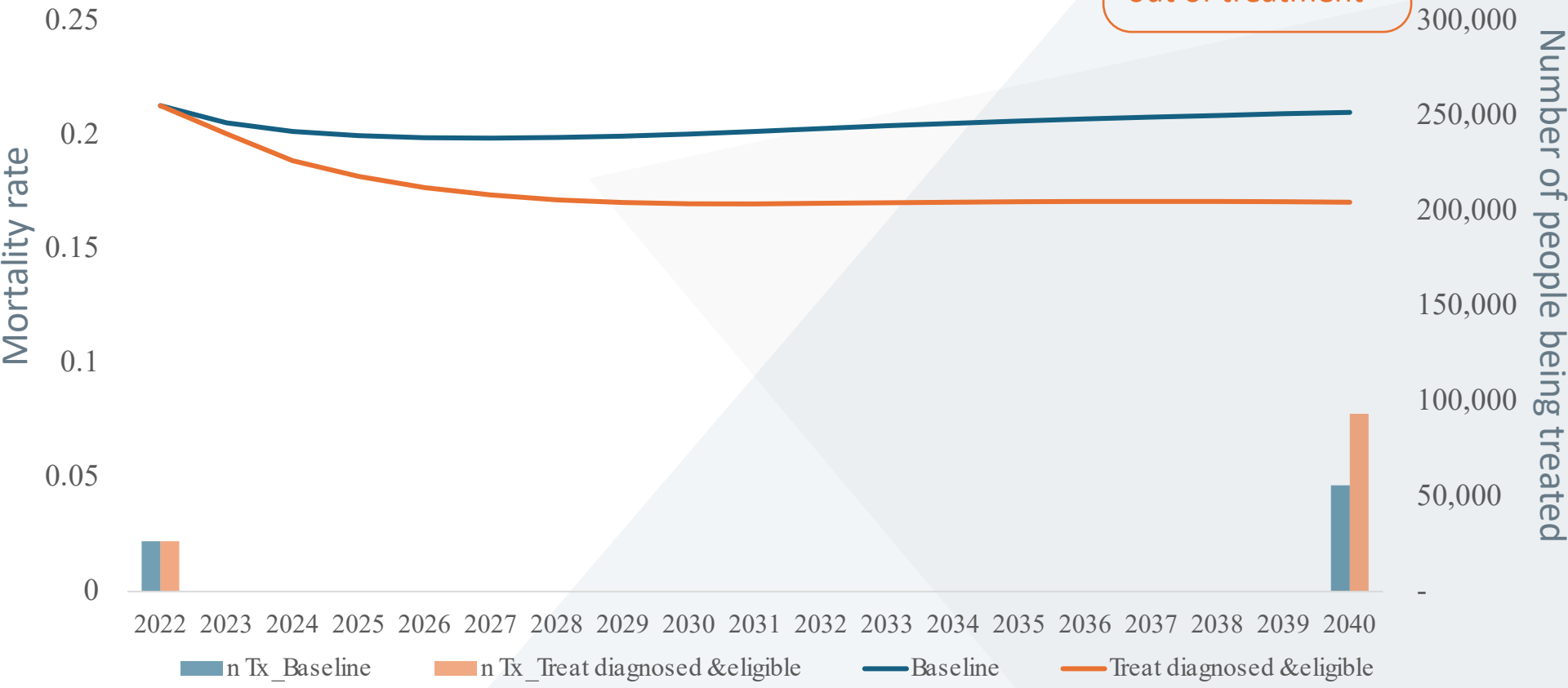
Baseline: following trend in cascade of care in recent years



CHB-related Mortality: Treatment scenarios

Treat all who are already diagnosed and eligible

Assume people are not dropping out of treatment

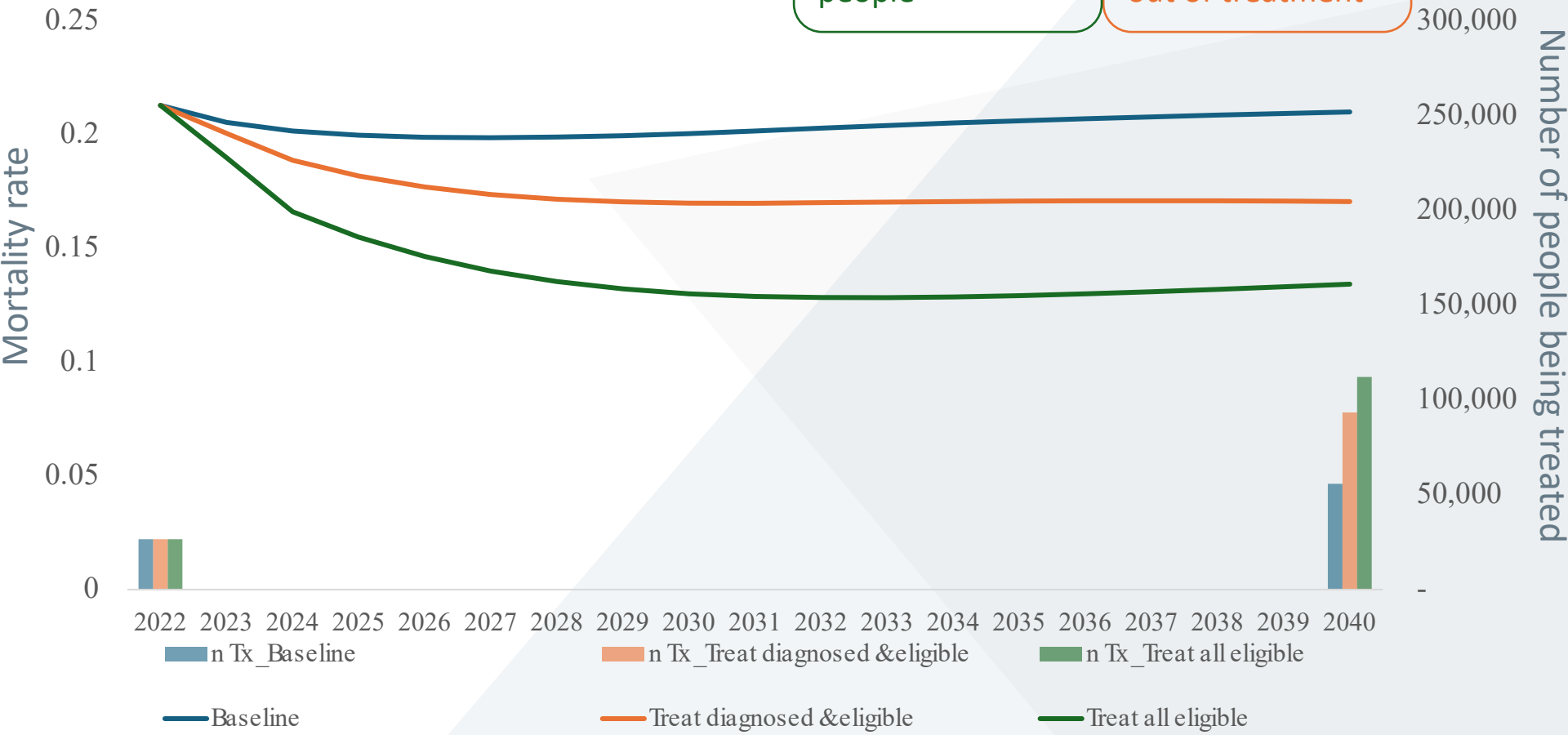


CHB-related Mortality: Treatment scenarios

Treat all people who are eligible

Assume instant diagnosis for all people

Assume people are not dropping out of treatment



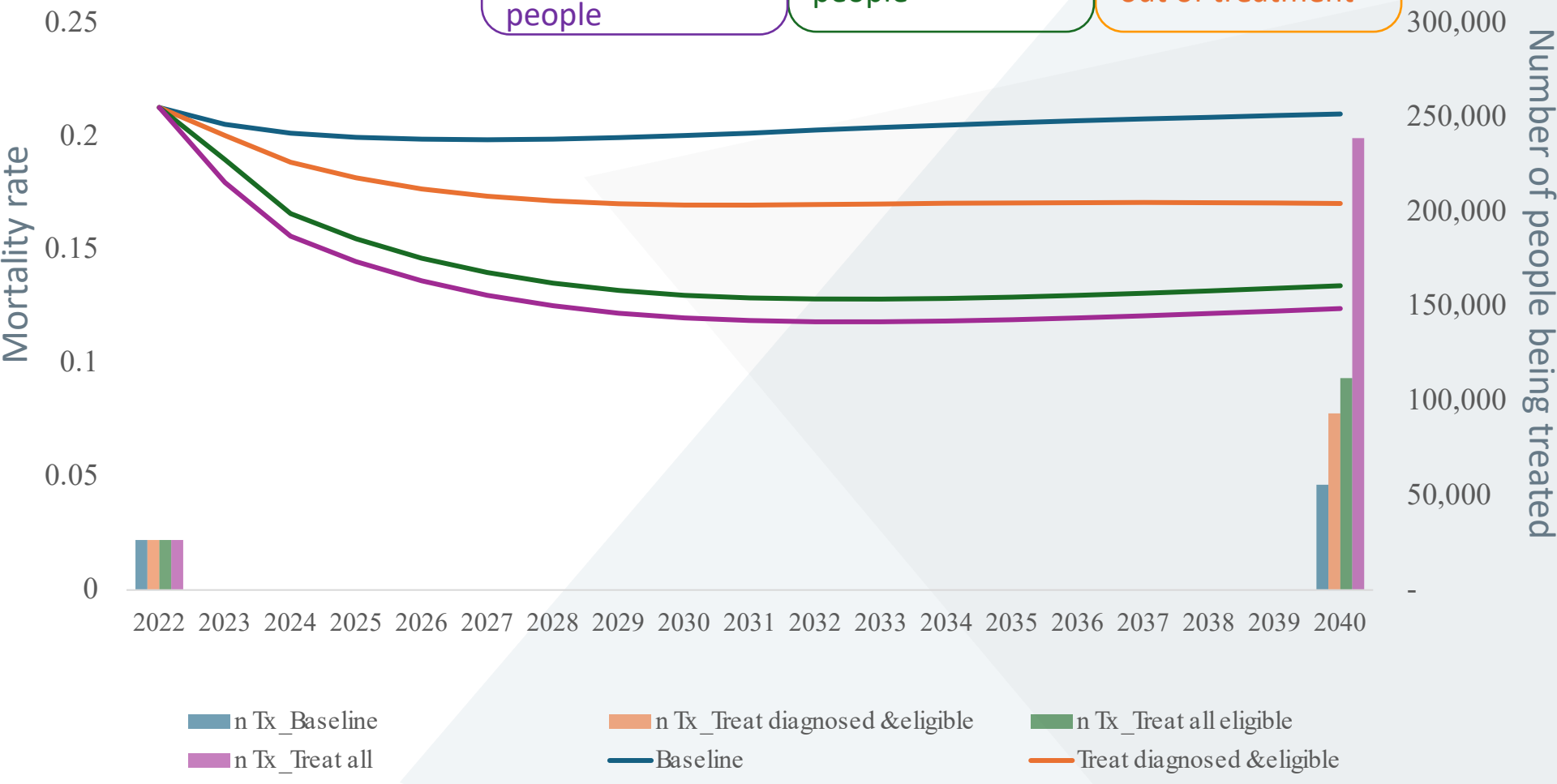
CHB-related Mortality: Treatment scenarios

Treat all people

Assume **MINIMAL** treatment effect for ineligible people

Assume instant diagnosis for all people

Assume people are not dropping out of treatment



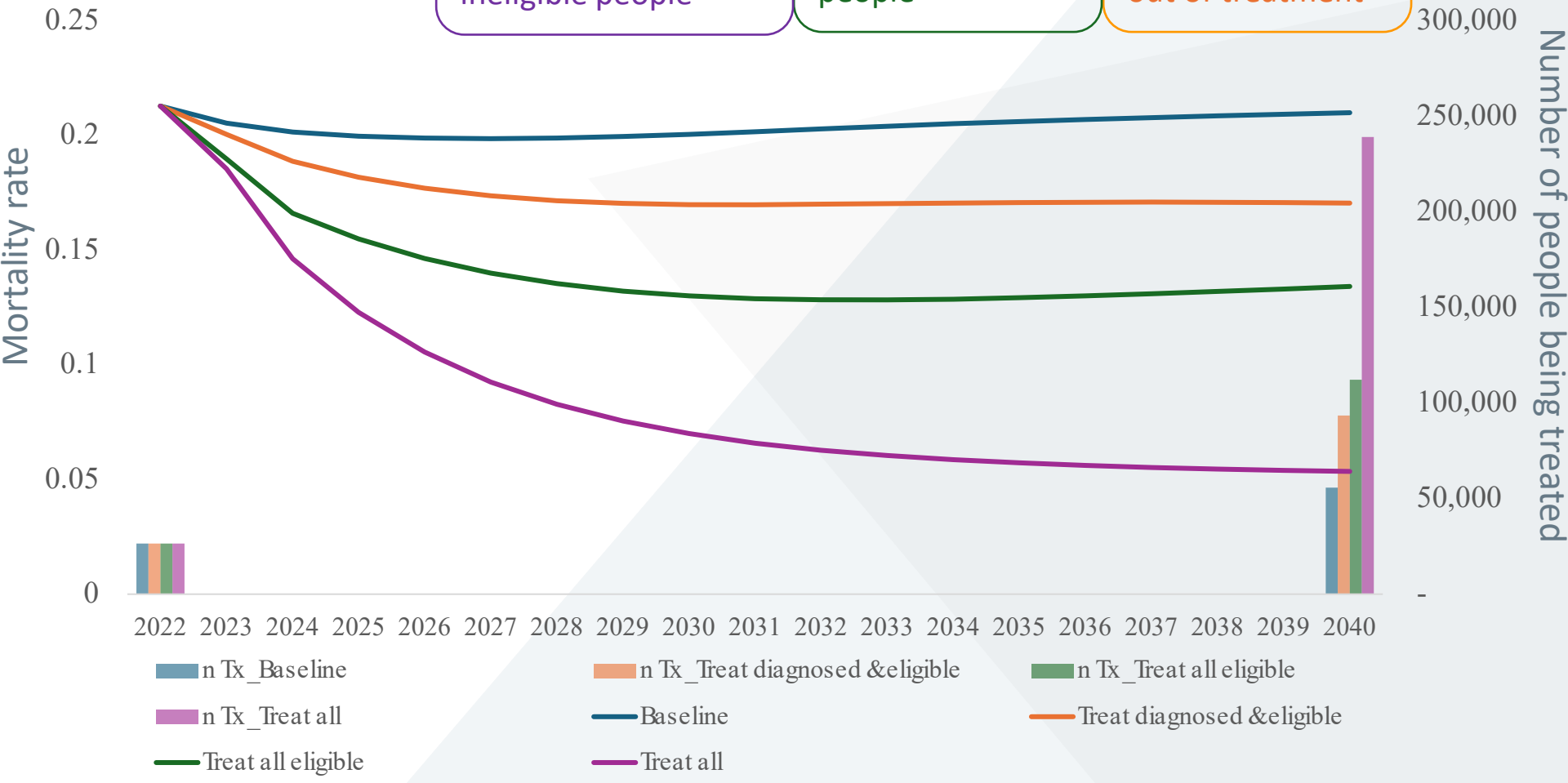
CHB-related Mortality: Treatment scenarios

Treat all people

Assume **SIGNIFICANT** treatment effect for ineligible people

Assume instant diagnosis for all people

Assume people are not dropping out of treatment



Future direction

Detailed analysis using Person-Level Integrated Data Asset (PLIDA) will be conducted, which allow us to estimate the monitoring and treatment based on country of birth, geographical regions, Indigenous status, etc.

Conclusion

There is urgent need for research into impact of treatment outside current eligibility criteria

Need to start from the beginning and start engaging people into care, rather than focusing on treatment

With thanks

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