

Effect of mortality in cost-effectiveness modeling of disease-modifying treatment for Alzheimer’s disease

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Conclusion

Different hypothetical assumptions around how DMT affects mortality were modeled. The model demonstrates that DMT has a modest effect on life years gained, but the increased DMT cost from staying in the mild disease stage has a major influence on the cost-effectiveness of DMT.

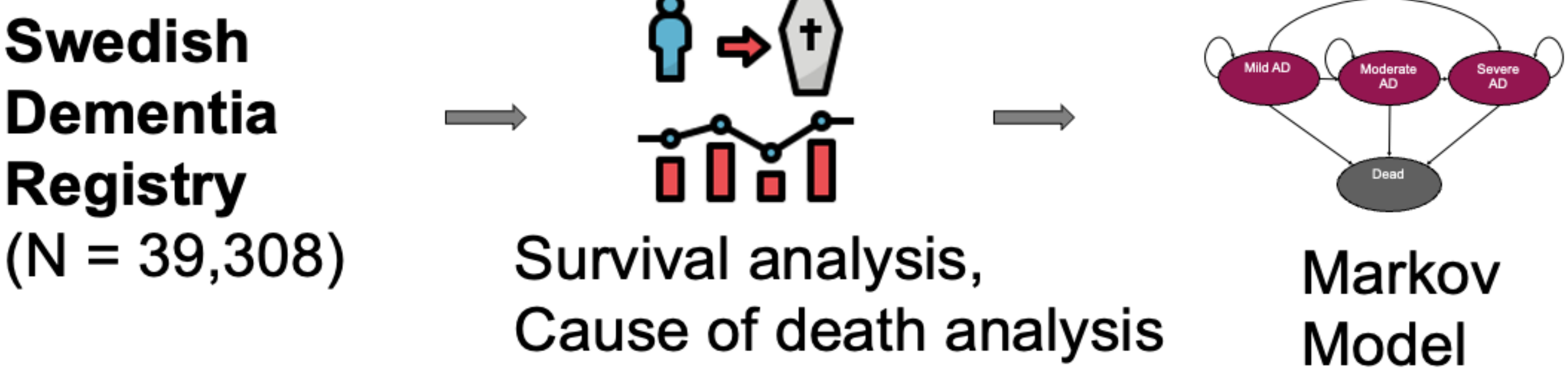
Introduction

The number of Alzheimer’s disease (AD) and other dementias is estimated to double in the next two decades with a subsequent increase in economic burden to society.¹ Disease-modifying treatments (DMT) are being actively developed with the hope to slow down the disease progression and change the disease trajectory. It is unclear if slowing disease progression with DMT also leads to a reduction in mortality.

Study aim

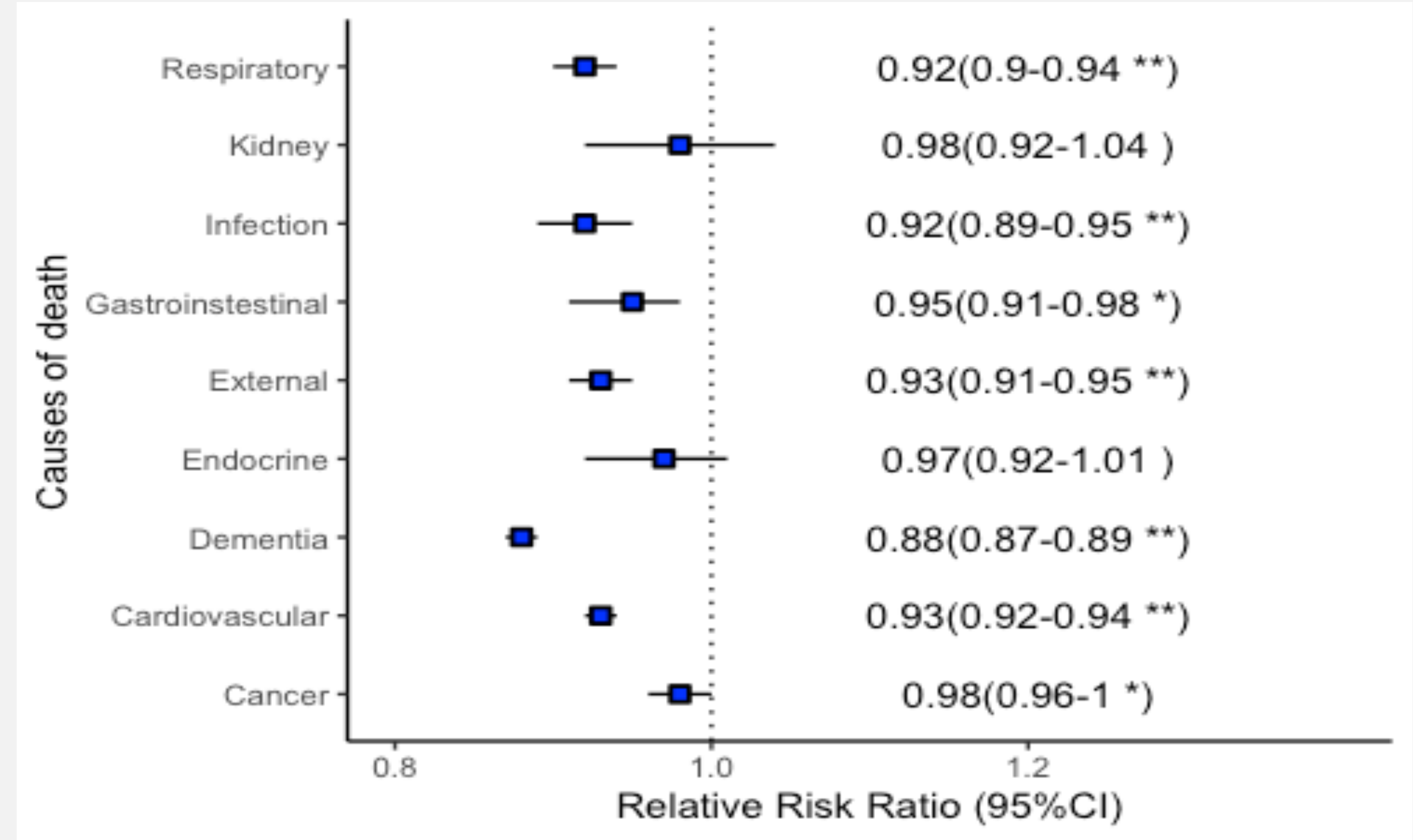
To examine (1) the magnitude of mortality attributed to AD, and (2) the effect of mortality in cost-effectiveness modeling of a hypothetical DMT in AD.

Method

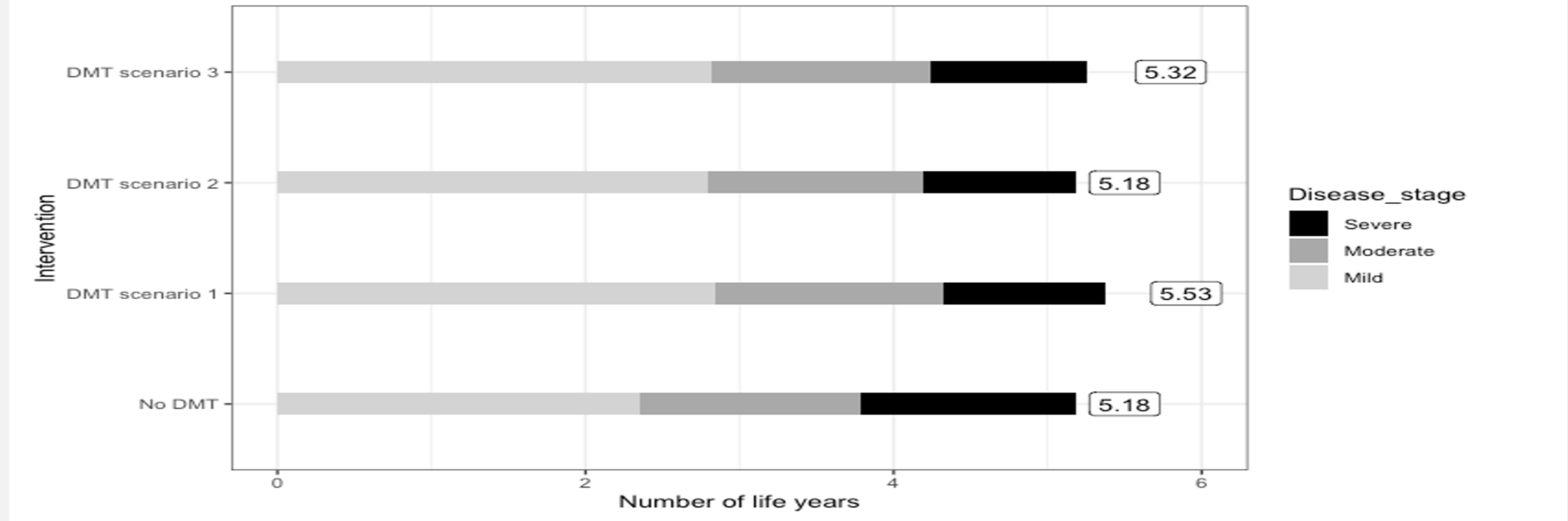


Three hypothetical scenarios of DMT effect were modeled:
(1) slowing progression with DMT leads to a corresponding reduction of mortality,
(2) no effect of DMT on mortality,
(3) slowing disease progression only affects AD-related mortality.

Association of cause-specific mortality and minimal state examination scores



Cost-effectiveness model



Intervention	Incremental cost (SEK)	Life years gained	QALYs gained	ICER per QALY (SEK)
Base case				
Routine care				
DMT scenario 1	664 877	0,35	0,4	1 672 629
DMT scenario 2	528 478	0	0,22	2 406 659
DMT scenario 3	584 209	0,14	0,29	2 005 685
Reduce DMT cost				
Routine care				
DMT scenario 1	80 862	0,35	0,4	203 424
DMT scenario 2	-21 777	0	0,22	-99 169
DMT scenario 3	20 419	0,14	0,29	70 103

With a high price of DMT, not having a mortality effect results in a higher incremental cost-effectiveness ratio (ICER) than having an indirect mortality effect, the ICER is reversed with a low DMT cost.

Reference: World Health Organization. *Global Status Report on the Public Health Response to Dementia.*; 2021.
<https://www.who.int/publications/i/item/9789240033245>

Overall mortality

