



Facilitating investment in obesity care and prevention: A Societal Cost-Benefit Analysis for the Netherlands

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Introduction

Excess body weight (EBW), is a major and growing public health concern. In 2022, over 2.5 billion adults worldwide were overweight, of whom 890 million were living with obesity ¹. In the Netherlands, the prevalence of EBW reflects this global trend, currently 50% of adults is overweight, and forecasts show that by 2050 this figure will grow to 64% ^{2,3}. Weight classes are defined based on body mass index (BMI). Someone with a BMI ≥ 25 kg/m² is considered as overweight, and above BMI of 30 kg/m² it is classified as obesity, subdivided into classes 1 to 3 as BMI increases ⁴.

The implications of EBW are multifaceted. At an individual level, EBW is associated with an increased risk of numerous chronic diseases and reduced mental wellbeing ^{5,6}. At a societal level this results into major economic consequences such as healthcare costs and indirect costs due to reduced productivity from absenteeism and presenteeism ⁷. Despite the recognition of obesity as a disease, policy in the Netherlands remains ineffective in reversing this trend ⁸.

This study therefore aims to identify (cost-)effective investment opportunities that can improve public health and reduce the societal burden associated with EBW. Through a societal cost-benefit analysis, the goal is to support and facilitate public investments in EBW care and prevention. Ideally, a funding strategy could be identified, using the hypothetical financial savings generated from reducing EBW related costs, enabling long-term (re)investment in health improvement (see **Figure 1**).

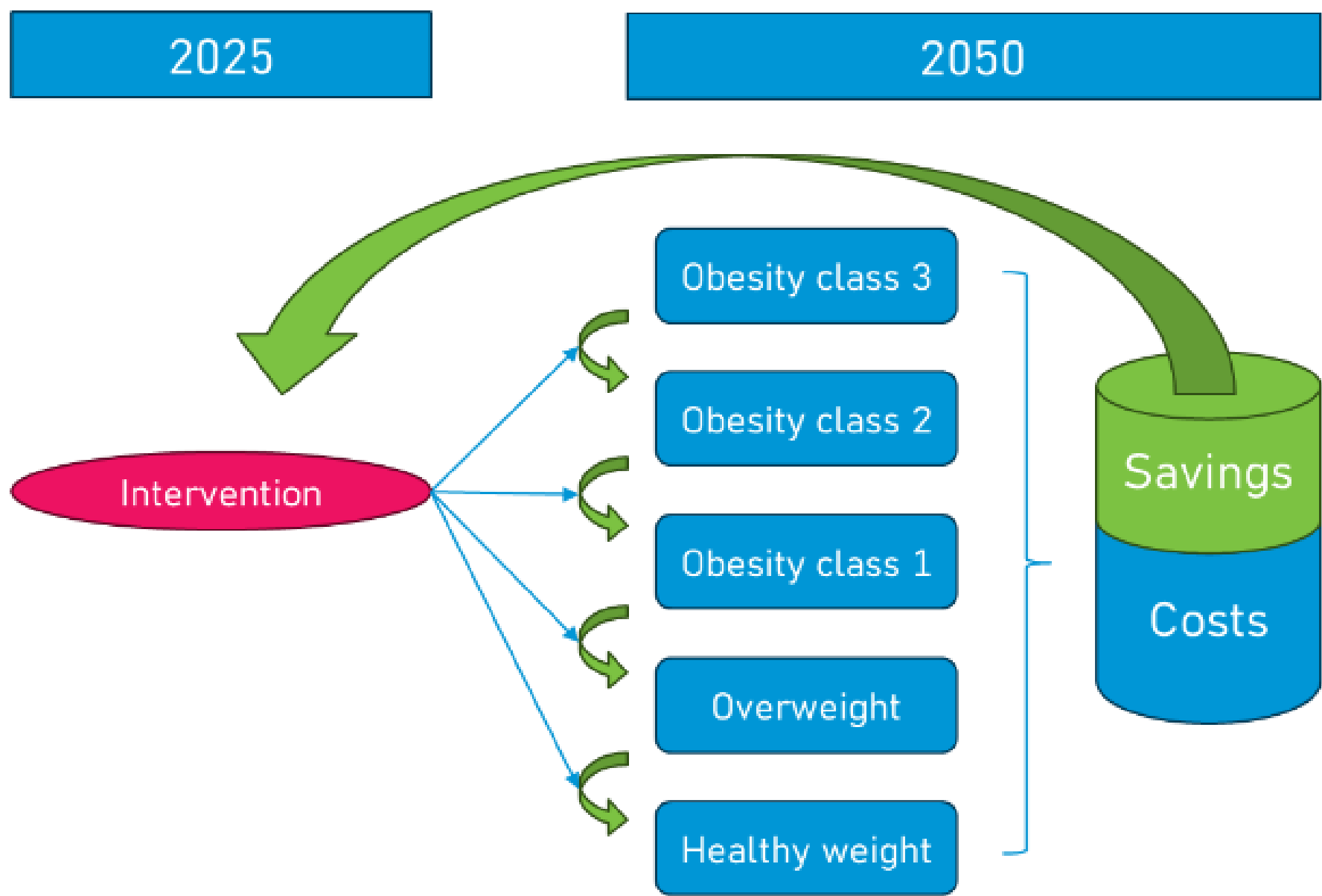


Figure 1. Potential investment opportunities due to the reduction of EBW

Methods

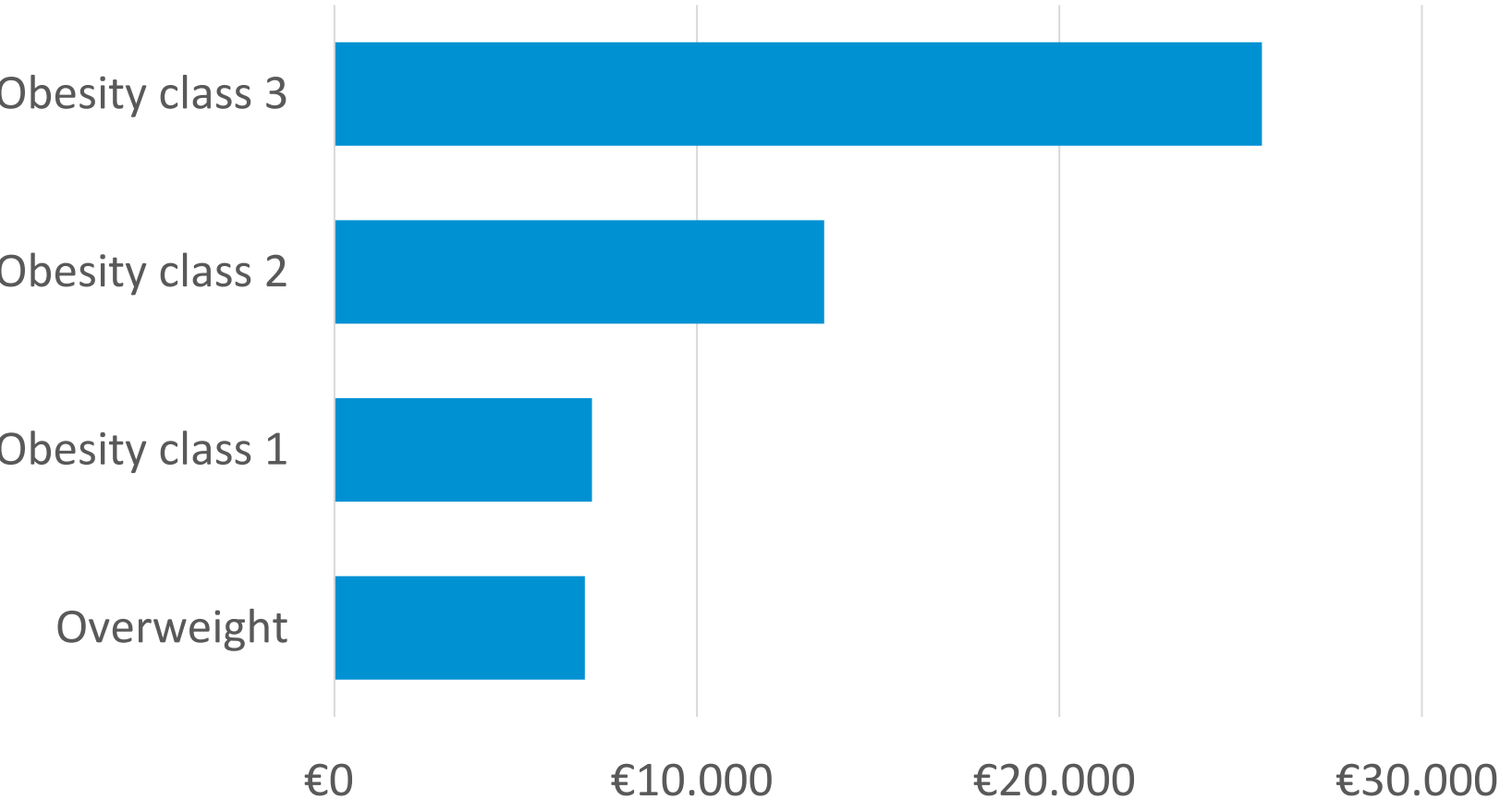


Figure 2. Estimated costs per person per year, per weight class.

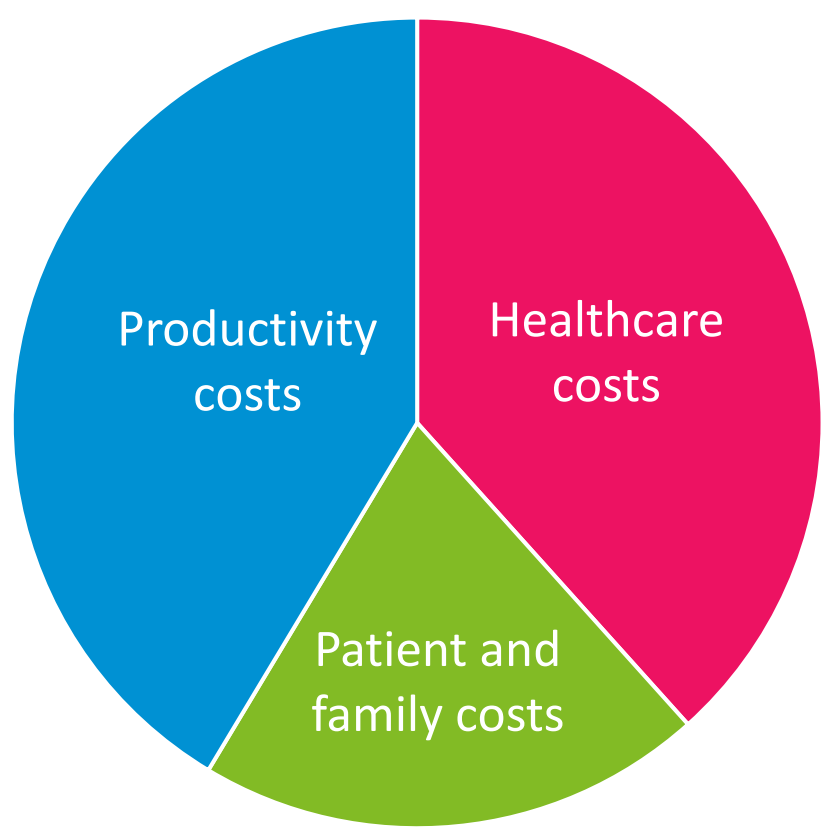


Figure 3. Cost distribution of societal costs associated with EBW.

A prospective model was developed in Microsoft Excel®, to estimate the distribution of the Dutch population between weight classes from 2025 to 2050, using a one-year cycle length. The model incorporates population projections from Dutch National Statistics and age-specific historical EBW rates and obesity rates from the Dutch National Institute for Public Health and the Environment (RIVM)^{3,9,10}. Linear extrapolation was applied to historical trends to forecast future prevalence rates, which were combined with the projected population numbers to estimate the number of individuals in each weight class over time. Six scenarios were compared by adjusting weight class distributions:

1. Baseline scenario: no intervention
2. Hypothetical scenarios:
 - 2.1: Flattening the rising curve of EBW, remaining at the levels of 2025
 - 2.2: Returning to 1995 prevalence levels by 2040 as proposed by the Dutch National Prevention Agreement¹¹
 - 2.3 Returning to 1995 prevalence levels by 2050
3. Policy intervention scenarios:
 - 3.1: Implementation of the ‘Healthy Schools’ program¹²
 - 3.2: Introduction of a national sugar tax¹³
 - 3.3: Reimbursement of weight loss medications¹⁴

Finally, weight class-specific cost estimates from a Dutch obesity-related cost-of-illness study were applied to the projected population figures⁷. This enabled a comparative evaluation of the societal costs and benefits associated with each intervention scenario. **Figure 2** presents the estimated costs per person in a specific weight class; **Figure 3** illustrates the components of the relevant costs categories.

Results

Figure 4 shows the projected distribution of the Dutch population across weight categories from 2025 to 2050, revealing not only a continued rise in EBW but also a shift toward more severe obesity classes. **Figure 5** allows for a comparison between the forecasted EBW rates under the current prognosis and scenario 2.2, which models a return to 1995 prevalence levels by 2040, and keeping rates constant until 2050. In this figure, the yellow-shaded area represents the reduction in EBW achieved under this scenario. By subtracting scenario 2.2 of the null-alternative with weight class-specific cost inputs, the model provides insight into the reduced societal economic burden that could be achieved by this scenario.

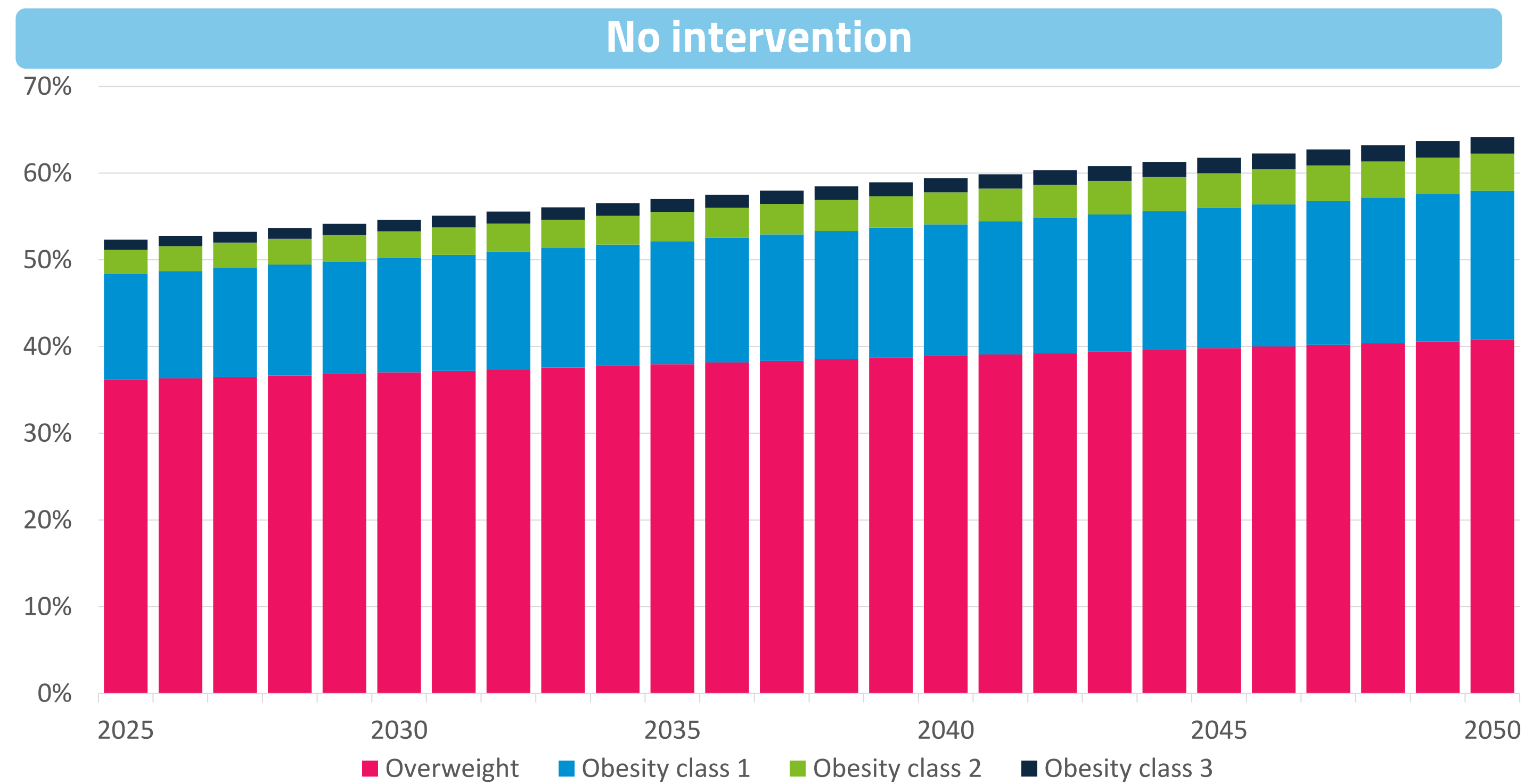


Figure 4. Projected distribution of weight classes in the Netherlands over time under the no-intervention scenario.

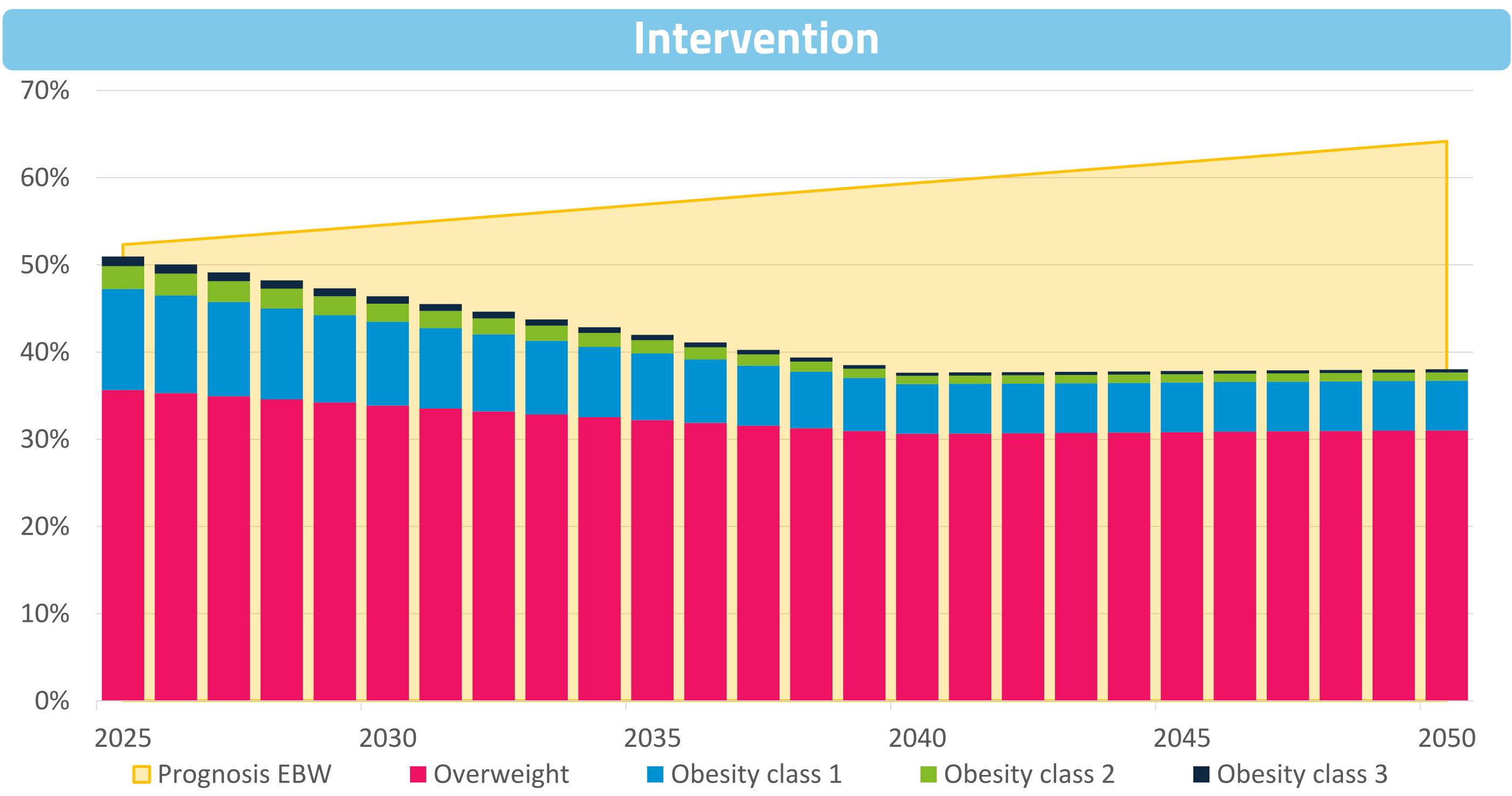


Figure 5. Projected EBW levels over time under scenario 2.2, including the forecasted no-intervention EBW levels

Conclusion

The projections indicate that without further intervention, the burden of EBW will continue to rise, driving higher healthcare and societal costs. The reduction in obesity-related costs represents not only a social return on investment with fewer chronic diseases, improved productivity, and enhanced population wellbeing, but also a potential economic gain. This societal cost-benefit analysis quantifies potential cost savings and highlights opportunities for strategic investment and reinvestment in effective EBW reduction initiatives. The developed model can enable identification of (cost-) effective investments, by assessing both the magnitude of savings and the stakeholders who benefit most from reducing EBW.

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