

## Appendix Table 3. National Health Index: Weighting factors by disease group and weighting in the work disability index

### Disease groups of the morbidity index

The **total weighting** of a disease group in the overall morbidity index is obtained by summing its perspective-specific weights, which are calculated using the formula:  $0.25 \times$  (the share of the given phenomenon covered by the individual disease group (e.g. lost years of life) / the total share of that phenomenon covered jointly by all seven disease groups under consideration).

Coverage within a phenomenon refers to the combined share of all disease groups considered in that phenomenon (e.g. lost years of life in the age range 0–80 years)

Disease group	<b>Mortality:</b> Proportion of PYLLs due to disease group (%)	<b>Mortality:</b> Weight in the total index (%)	<b>Work disability:</b> Proportion of pensions due to disease group (%)	<b>Work disability:</b> Weight in the total index (%)	<b>Health-related quality of life loss:</b> Weight in the total index (%)	<b>Health and social care utilization costs:</b> Proportion of costs associated with disease group (%)	<b>Health and social care utilization costs:</b> Weight in the total index (%)	<b>Overall weighting</b> across all four domains
Cancers	29,2	<b>9,3</b>	2,9	<b>1,1</b>	<b>0,0</b>	6,3	<b>2,8</b>	<b>13,1</b>
Coronary disease	10,8	<b>3,4</b>	0,9	<b>0,3</b>	<b>1,2</b>	1,0	<b>0,5</b>	<b>5,4</b>
Cerebrovascular diseases	3,5	<b>1,1</b>	2,0	<b>0,7</b>	<b>3,2</b>	4,7	<b>2,1</b>	<b>7,1</b>
Musculoskeletal disorders	0,3	<b>0,1</b>	20,1	<b>6,8</b>	<b>3,5</b>	4,9	<b>2,2</b>	<b>12,7</b>
Mental health disorders	9,7	<b>3,1</b>	40,2	<b>13,7</b>	<b>5,7</b>	13,0	<b>6,0</b>	<b>28,4</b>
Accidents	9,5	<b>3,0</b>	3,3	<b>1,1</b>	<b>0,5</b>	6,6	<b>3,0</b>	<b>7,6</b>
Memory disorders	2,7	<b>0,8</b>	1,2	<b>0,4</b>	<b>0,0</b>	12,9	<b>5,8</b>	<b>7,1</b>
Respiratory diseases	1,9	<b>0,6</b>	0,8	<b>0,3</b>	<b>3,2</b>	0,9	<b>0,4</b>	<b>4,6</b>
Diabetes	1,5	<b>0,5</b>	1,0	<b>0,3</b>	<b>3,7</b>	3,3	<b>1,5</b>	<b>5,9</b>
Alcohol-related diseases	9,6	<b>3,0</b>	1,2	<b>0,4</b>	<b>3,9</b>	1,7	<b>0,8</b>	<b>8,2</b>
<b>Coverage (%) of the overall weighting domain</b>	<b>78,7</b>	-	<b>73,7</b>	-	-	<b>55,3</b>	-	-
<b>Weight in the total index (%)</b>	-	<b>25,0</b>	-	<b>25,0</b>	<b>25,0</b>	-	<b>25,0</b>	<b>100</b>

## Data and methods used in the estimation of the weights:

For each of the four weighting domains, disease-specific weights are estimated using data among the total Finnish population mainly from the year 2019. This is to prevent the COVID-19 pandemic from influencing the weighting.

**Mortality:** Disease-specific weighting according to mortality is based on the share of potential years of life lost (PYLL) due to the disease out of the total number of all-cause years of life lost among the population aged 0 to 80 years. The years of life lost were estimated using the PYLL index method. Estimation was based on Causes of Deaths Register data from 2019, and the statistical underlying cause of death was used to classify deaths according to morbidities and other conditions. The choice of the upper limit of 80 years was based on the life expectancy in Finland. The PYLL index gives emphasis on deaths that occurred at a young age.

**Work disability:** Weighting according to disease-related work disability is based on data on work disability pensions recipients in 2019. In calculating the weights, data on earnings-related disability pensions and national pensions granted by Kela were used. All individuals who had received work disability pensions granted as part or full-time and permanent or fixed term were considered. Weights were determined according to the share of population with work disability pension granted due to the disease in question among the total population granted work disability pensions.

**Health-related quality of life loss:** For each disease group, loss in health-related quality of life was estimated using data from the National FinHealth 2017 Study population survey. Respondents' quality of life was measured using the the EUROHIS-QOL 8-item index. (1) In linear regression models, health-related quality of life was explained by respondents' morbidity background obtained from the survey and the Care Register for Health Care. Models were adjusted by age, sex, marital status and education. (2) Disease-specific weights for the overall morbidity index were obtained by dividing the disease-specific estimate of the regression coefficient by the sum of these estimates and multiplying it by 25.

**Health and social care utilization costs:** The health and social care utilization costs associated with the care and treatment of diseases were estimated using a comprehensive dataset developed for the needs-adjusted healthcare and social welfare funding model. (3) The dataset comprises data on the service utilisation of the entire population in 2019 observed in the Care Registers for Health Care and is combined with cost information, mainly based on national average unit costs. The dataset was complemented by data on prescription medicine purchases, costs of Kela reimbursed rehabilitation and data on Kela reimbursed private healthcare services usage costs. The purpose of this was to account for costs related to disease treatment that are not well-covered by the Care Register for Health Care.

The costs associated with morbidities were estimated using a regression model in which the individual-level observed utilisation costs were explained by morbidity background. Factors related to age, sex and socioeconomic position were included as adjusting variables. The disease classification described in Holster et al (3) was applied in the regression analysis.

## Sources

1 Korpilahti, U. TOIMIA Functioning measures: EUROHIS-Qol 8-item index. Finnish Institute for Health and Welfare, 2024. TOIMIA Functioning Measures Database. Terveystieto, Duodecim Oy. (Accessed 29.4.2024). Available at: <https://www.terveysportti.fi/apps/dtk/tmi/article/tmm00135?toc=307489>

2 Jääskeläinen et al. 2023, unpublished manuscript.

3 Holster, T., Haula, T. and Korajoki, M. 2022. Sote-rahoituksen tarvevakiointi: päivitys 2022. Terveyden ja hyvinvoinnin laitos. THL työpaperi 26/2022. Helsinki.

## Work disability index

The index describes the work disability of the working-age population in municipalities and regions in relation to the national level. Three different groups have been taken into account in the index:

- Recipients of disability pension in December.
- Persons who have received sickness allowance for a period of at least 3 months during the year.
- Persons who have been granted a decision on vocational rehabilitation during the year.

The weight given to recipients of partial disability pension and a decision on vocational rehabilitation is 0.5.