# RESEARCH

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# Forecasting total and cause-specific health expenditures for 116 health conditions in Norway, 2022–2050

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### Abstract

**Background** This study forecasts total and cause-specific health expenditures in Norway to 2050 and quantifies the contribution of four key drivers—total population growth, population aging, changes in disease prevalence, and cost per case—on future health care spending.

**Methods** We forecast spending for 116 health conditions in Norway from 2022 to 2050, using historical and forecasted data of population growth, disease prevalence, gross domestic product (GDP), health spending, and residual factors. Our analysis included a reference scenario that forecasted disease-specific health spending; two alternative scenarios examining the effects of alternative unit cost developments; and a scenario examining the consequences of improved behavioral and metabolic risk factors.

**Results** Health spending increased from 10.6% (95% uncertainty interval, 10.2–11.1) of GDP in 2022 to 14.3% (13.0–15.7) in 2050 in the reference scenario. Among the top aggregate causes of Norwegian health spending in 2022, the spending for neurological disorders rose the most, from 1.7% (1.6–1.8) to 2.7% (2.3–3.1) of GDP, surpassing mental and substance use disorders which rose from 2.2% (2.1–2.3) to 2.4% (2.2–2.6) of GDP. Of the 116 single conditions analyzed, dementias accounted for the highest spending in 2022. This expenditure was forecasted to increase considerably from 1.1% (1.09–1.2) to 1.9% (1.6–2.2) of GDP by 2050, largely due to population aging. Spending on other old-age-related conditions like falls, stroke, and diabetes, was also forecasted to increase. Increased population, aging, and spending per case contributed to increased future spending. Reduced behavioral and metabolic risks were forecasted to increase the number of elderly persons and reduce age-specific disease prevalence but had little impact on forecasted health spending.

**Conclusions** Health spending growth was forecasted regardless of the scenario, and Norway needs to plan for this. However, policymakers can curb total spending growth, while maintaining health care quality and output, by ensuring more efficient allocation and effective use of resources. While the overall impact of behavioral and metabolic risk reductions on total healthcare spending was modest, reducing risk factors is needed if countries aim to achieve a healthier, longer-living population.

Keywords Health expenditures, Forecasting, Health policy, Behavioral risk factors, Aging

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#### Background

In most developed countries the healthcare systems are under increasing pressure due to an aging population, rising expectations for healthcare quality, and costly improvements by technology [1–4]. Norway is no exception [5]. While many measures have been proposed to face these pressures, there is a lack of evidence regarding which levers are most effective in improving system performance. Forecasts of health expenditures can provide estimates of the economic consequences of such measures. Traditional models for forecasting health expenditures are typically based on demographic forecasts, macroeconomic indicators on economic development, and measures of technological progress [2-4]. However, there is a scarcity of models capturing developments in disease-specific expenditures, with Australia as a notable exception [6]. This study utilizes detailed administrative register data from Norway to forecast disease-specific expenditures by introducing a model that integrates new epidemiological forecasts with disease-specific spending studies, forecasted gross domestic product (GDP), and technological development. Doing so enables the estimation of future health spending for 116 health conditions.

Norway consistently ranks top or near the top in health system performance among high-income countries [1, 7]. The Norwegian population is healthy, with a 2021 life expectancy of 83.3 years and a healthy life expectancy (HALE) at birth of 71.4 years. In comparison, the average life expectancy and HALE in countries that are part of the Organisation for Economic Co-operation and Development (OECD) are 79.2 and 67.7 years, respectively [1, 8]. While Norway do not face fiscal space constraints to the extent that many other developed countries do, there is room for improving efficiency in the way its health budget is allocated across different cost categories and thus improve its sectoral performance in the longer term [5]. Several measures have been discussed, including more efficient use of personnel, geographical consolidation, and the implementation of new cost-effective technologies [5, 9, 10]. Other strategies, such as reductions in health risk factors and managing patient expectations, have also been mentioned [5]. Yet, the relative implications of these measures largely remain unknown.

The objectives of the present study were to (1) forecast Norway's health expenditures by diseases and injuries from 2022 to 2050 by integrating disease prevalence with demographic and non-demographic factors for 116 diseases and injuries, (2) to explore alternative scenarios for how healthcare spending is affected by changes in GDP per capita and residual spending growth, (3) to explore how healthcare spending is affected by a gradual elimination of a selection of important risk factors, and (4) to decompose future healthcare spending by its main drivers, for each health condition.

#### Methods

This paper estimates health spending from 2022 to 2050 for 116 health conditions identified and categorized by the Norwegian Health Spending Project and the Institute for Health Metrics and Evaluations [11, 12]. All the data sources used in this study and references are listed in Additional file 1: Supplemental Table 1 [11, 13–21].

In our framework, the drivers of disease-specific health spending can be divided into three categories. The first category represents the population's need for health services by population size, age distribution, and the prevalence of health conditions. The second driver accounts for how changes in GDP per capita affect both the demand for healthcare and the supply of key services (e.g., increased wages for healthcare workers). The final driver represents excess residual growth, which is the growth in health spending, adjusted for need variables and GDP per capita growth. This residual growth reflects how relative prices, frequency of treatment (partially because of increased demand for health care), and technological progress increase health spending. Estimates by C. De la Maisonneuve and JO Martins [22] also suggest that factors like policy changes and institutional shifts are partially captured by including residual growth [22-24].

The forecasting process can be divided into four steps. First, we estimated the association between health spending per case with GDP per capita growth and a residual growth. Second, we used forecasted GDP per capita and residual growth to estimate future disease-specific costs per case. Third, we forecasted health spending from 2022 to 2050 for each age and health condition combination based on forecasted spending per case and forecasted prevalence. Fourth, we aggregated spending for each health condition and across conditions.

Step 1: To estimate the association of GDP per capita and residual growth with health spending per case, we used national data primarily from OECD Health expenditure and financing [13] and the Institute for Health Metrics and Evaluation (IHME) on prevalence by disease [16] for the years 1990 to 2019 (Additional file 1: Supplemental Table 1). Following K. Dybczak and B. Przywara [23] and C. De la Maisonneuve and JO Martins [22] we included data from several countries (i.e., Norway, Sweden, and Denmark) in this part of the analysis to increase precision and make the model less vulnerable to random noise. We estimate the following models [3, 23, 25]:

$$\ln \text{HCE}_{c,t} = \alpha^{\text{HCE}} + \beta_1^{\text{HCE}} \ln \text{GPD}_{c,t} + \beta_2^{\text{HCE}} \text{trend}_t + X'_{c,t} \gamma^{\text{HCE}} + \gamma_c^{\text{HCE}} + \varepsilon_{c,t}^{\text{HCE}},$$
(1)

$$\ln \text{LTC}_{c,t} = \alpha^{\text{LTC}} + \beta_1^{\text{LTC}} \ln \text{GPD}_{c,t} + \beta_2^{\text{LTC}} \text{trend}_t + X'_{c,t} \gamma^{\text{LTC}} + \gamma_c^{\text{LTC}} + \varepsilon_{c,t}^{\text{LTC}},$$
(2)

where lnHCE and lnLTC are respectively the logarithms of curative health care (general practitioners; other curative outpatient care (like physiotherapists and chiropractors); specialized outpatient curative care; day patient; inpatient and prescription drugs) and long-term care (home-based care; and nursing homes) spending per prevalent case in country c, at time t. Income elasticity by lnGDP per capita was measured by  $\beta_1$ . The impact of residual growth, which primarily reflects technological advancement, on health expenditure was estimated by the  $\beta_2$ 's, which are linear trends that vary by type of care [23, 26]. Given that the forecasting model, in steps 2–4, relied on the number of prevalent cases, the term  $X_{c,t'}$ represents a vector of control variables, chosen to adjust for changing population patterns in the causes of disease and their severity. These control variables included: the proportion of the health conditions in population (noncommunicable diseases, infectious diseases, and proportion with injuries [omitted]), deaths per prevalent case, Additional file 1: Supplemental Fig. 1 [15].

A long-run growth rate in healthcare spending that exceeds GDP growth is unsustainable, both from a technical and theoretical point of view. From a technical perspective, a higher healthcare spending growth rate over time would result in healthcare consuming an unrealistically high proportion of national income, approaching the full national budget in the limit [24]. Theoretically, there are diminishing returns to investment in healthcare. Hence, at some point, other domains of governmental spending would be more welfare enhancing, leading to a tapering off of healthcare spending growth. To address this, comparable models assume that impacts of GDP per capita and technology on spending converge to some share of GDP per capita in the long run [23, 30, 33]. Convergence rules for income elasticity and residual growth were thus applied in Eq. 4, where income elasticity reflected  $\beta_1$  in the base-year, converging to unity by 2050, while  $\beta_2$  converged to zero by 2050 [22, 23].

Step 3: Health spending was then forecasted for each age and health condition combination:

$$Spending_{a,d,i,t} = TotalPop_t * \frac{AgeGroupPop_{a,t}}{TotalPop_t} * \frac{PrevalentCasesAgeGroup_{a,d,t}}{AgeGroupPop_{a,t}} * \overline{c}_{a,d,i,t}.$$
(5)

and prevalent cases per person. The primary estimation method was a Mixed Linear Model fitted using reduced maximum likelihood, allowing for country random intercepts ( $\gamma_c$ ) (see Additional file 1, Part 1 and Part 2, for a more detailed explanation of this model) [3, 23, 25–34].

Step 2: Age/health condition/type of care-specific per prevalent case spending profiles were estimated for 2022:

$$\bar{c}_{d,a,i,2022} = \frac{\text{Expenditures}_{d,a,i,2022}}{\text{PrevalentCases}_{d,a,2022}}$$
(3)

where  $\overline{c}_{d,a,i,t}$  is the spending per case of health condition *d*, in age group *a*, for type of care *i*, at time *t*. Data on disease-specific expenditures for Norway was from Kinge et al. [11] and data on cases were from the GBD 2021 Forecasting Collaborators' study [20] (Additional file 1: Supplemental Table 1). The spending per case was assumed to grow over time with the income elasticity ( $\beta_1$ ,) and residual growth ( $\beta_2$ ) from Eq. 1 and Eq. 2, and spending per prevalent case in a forecasted year *t* was: where demographic and epidemiological data was from the GBD 2021 Forecasting Collaborators' study [20].

This project considered three health conditions not included in the GBD 2021 Forecasting Collaborators' study [20]: well care and pregnancy-related care; impairments; and, the treatment of risk factors. Well care and pregnancy-related care included general medical examinations, pregnancy and postpartum care, family planning, donor, other counseling services, and social services. Impairment contains care for heart failure, septicemia, and renal failure. The treatment of risk factors, contained tobacco cessation interventions, treatment of obesity, treatment of hypertension and treatment of hyperlipidemia (see Additional file 1, Part 3 and Supplemental Table 2 for more details about the 116 health conditions) [11, 12]. These health conditions were modeled by varying the total population, aging, and spending per case while excluding prevalent cases.

$$\bar{c}_{d,a,i,t} = \bar{c}_{d,a,i,t-1} * \left( 1 + \left( \frac{\text{GDP}_t - \text{GDP}_{t-1}}{\text{GDP}_{t-1}} * \beta_{1,i} \right) + \beta_{2,i} \right), t > 2022$$
(4)

Step 4: The expenditures were then summed over age groups *a*, to estimate the total health spending for health condition *d* in year *t*.

Spending<sub>*d,i,t*</sub> = 
$$\sum_{a=1}^{19}$$
 Spending<sub>*a,d,i,t*</sub> (6)

The expenditures were then summed across all health conditions d, to estimate the health spending by type of care—curative health care (HCE) and long-term care (LTC)—for year t.

$$Spending_{i,t} = \sum_{d=1}^{116} Spending_{d,i,t}$$
(7)

HCE was also summed across years to calculate total health spending (THE). In addition to the reference scenario, a scenario for epidemiological growth, cost pressures and improved behavioral and metabolic risk factors were produced (see Table 1 for a description).

To estimate how the forecasts were associated with population growth, aging, disease prevalence, and spending, we decomposed the forecasted total and cause-specific health expenditures into additive components of change and assessed their relative importance using the Das Gupta decomposition [35, 36].

To characterize the uncertainty of the estimated coefficients and input parameters, probabilistic sensitivity analysis with 1000 draws from Gaussian distributions was used, based on means and standard errors from the input data [37]. For the prevalence data, Poisson distributions were used. The residual growth, GDP, and the income elasticity were assumed constant across all age, health condition, and year combinations. In contrast, prevalence was drawn independently for each health condition. The reported uncertainty intervals (UIs) were the means and 2.5th and 97.5th percentiles of the 1000 estimates.

To evaluate the performance of the forecasting models we withheld data after 2009 and forecasted health spending. We then compared predicted values with actual values from national health accounts for the years 2010 to 2019. We also calculated the root mean squared error (RMSE), mean absolute error (MAE), mean absolute percentage error (MAPE), and the  $R^2$ . Following CD Lewis [38] a MAPE lower than 5% was considered highly accurate, 10–20% good, 20–50% reasonable, and > 50% inaccurate forecasting.

All values were in 2019 Billion NOK (BNOK) based on the GDP deflator from OECD [17, 39]. All analyses were conducted in StataSE 18.0.

#### Results

The income elasticities indicated that for each 1% increase in GDP per capita, HCE and LTC spending per case rose by 0.554% (S.E. 0.087) and 1.770% (S.E.

0.183), respectively. The semi-elasticities for residual growth rates showed annual growth rates in HCE and LTC spending per case -independent of GDP per capita growth- of 1.3% (S.E. 0.3) and 0.77% (S.E. 0.5), respectively. The estimates varied by specification (Additional file 1: Supplemental Table 3). The MAPEs were 4.4%, 4.2%, and 6.6% in the reference, cost pressures, and epidemiological growth scenarios, respectively (Additional file 1: Supplemental Table 4 and Supplemental Figs. 2 and 3).

In the reference scenario, the total health spending was forecasted to increase from 2022 to 2050, from 10.6% of GDP (95% UI 10.2–11.1) in 2022 to 14.3% (13.0–15.7) in 2050 (Fig. 1). Both HCE and LTC contributed to this growth (Additional file 1: Supplemental Fig. 4). In absolute BNOK, the increase in spending on LTC of 173 BNOK was more pronounced than for spending on HCE of 166 BNOK (Fig. 2). We observe that 26.3% of the increase in LTC was due to increased cost per case, while this constituted 66.3% of the increase for HCE. Conversely, 63.2% of the increase in spending for LTC was due to aging, which was much higher than for HCE of 16.7% (Fig. 2).

Both GDP and residual growth contributed to forecasted growth in spending. Residual growth made a larger contribution to total and curative health spending, whereas GDP accounted for a greater share of LTC spending (Additional file 1: Supplemental Fig. 5).

Among the 14 aggregate health conditions, neurological disorders increased the most from 1.7% (1.6– 1.8) to 2.7% (2.3–3.1) of GDP, surpassing mental and substance use disorders, which increased from 2.2%(2.1–2.3) to 2.4% (2.2–2.6) of GDP by 2037 (Fig. 3). Rising spending was also forecasted for most of the other aggregate causes, including cardiovascular diseases; diabetes, urogenital, blood, and endocrine diseases; and neoplasms.

Among the 116 health conditions, the highest spending was estimated for dementia in 2022 and in 2050 of 42.61 BNOK (41.52–43.70) and 98.78 (85.57–113.92), respectively (Table 2). Dementia also accounted for the largest increase in spending from 2022–2050, both in absolute BNOK and as a percent of GDP. Most of this increase in spending for dementia from 2022 to 2050, was due to aging alone (Table 2). Large increases in spending were also seen for cerebrovascular disease, unintentional injuries (incl. falls), diabetes mellitus, and sense organ diseases, of which all had a large increase in spending due to aging. Mental disorders, with the highest spending in 2022, like idiopathic intellectual disability, schizophrenia, anxiety disorders, depressive disorders, and drug use disorders, were all more

Scenarios	
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Scenario	Interpretation	Operation
Reference scenario	This is the baseline scenario	Used forecasted population, age distribution, and prevalence from the refer- ence scenario from GBD 2021 Forecasting Collaborators. The income elasticities and residual growth were initially set to values found in Additional file 1: Sup- plemental Table 3. Convergence rules were applied in which income elasticity converges to 1 and residual growth to 0 by 2050
Epidemiological growth scenario This scenario is based on th and "neutral" cost per case o	This scenario is based on the reference scenario but assumes no residual growth and "neutral" cost per case development	The reference scenario but assumes no residual growth Same as the reference scenario, but the residual growth is set to 0 and income elasticity is set to 1. This means that health spending per case evolves in line with GDP. If no change in the prevalence of diseases occurs, the proportion of spending to GDP will be constant
Cost pressures scenario	This scenario is based on the reference scenario but assumes increased residual growth in spending due to technology and price increases	Same as the reference scenario, but no convergence rules are applied
Improved behavioral and meta- bolic risk factors scenario	This scenario is based on the reference scenario but assumes a linear elimination by 2050 of health conditions caused by: high BMI, non-optimal diet, smoking, high systolic blood pressure, high LDL cholesterol, and high fasting plasma glucose	This scenario is based on the reference scenario but assumes a linear elimination Used forecasted population, and prevalence from the improved by 2050 of health conditions caused by: high BMI, non-optimal diet, smoking, behavioral risk scenario from GBD 2021 Forecasting Collaborators. The income high systolic blood pressure, high LDL cholesterol, and high fasting plasma elasticities and residual growth were identical to those in the reference scenario glucose

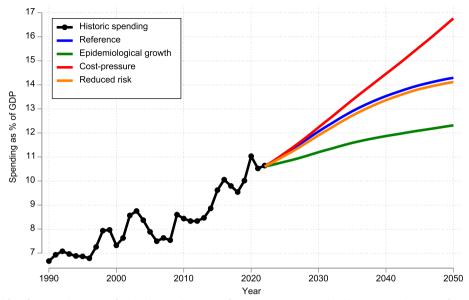


Fig. 1 Historic and four forecasted scenarios for health spending as % of GDP\*. Notes: \*Historic health account values were from OECD Health expenditure and financing [13] and Statistics Norway [19]. Figures for the two last years are preliminary. Historic GDP values were from OECD Economic Outlook 109, and the years 2021 and 2022 are forecasts [21]

prevalent in younger ages and thus associated with low increases in spending (Table 2).

# The epidemiological growth, cost pressures and reduced risk scenarios

We forecasted large differences when varying the growth in cost per case. Spending as a percent of GDP increased from 10.6% in 2022 to 12.3% in 2050, in the epidemiological growth scenario and to 16.8% in the cost pressures scenarios (Fig. 1).

Compared with the reference scenario, improved behavioral and metabolic risk factors resulted in lower total spending (Fig. 1). The improvement in behavioral and metabolic risks reduced spending for some conditions and increased spending for others (Figs. 3 and 4). Spending on diabetes in the reference scenario increased from 11.79 BNOK (11.63-11.94) in 2022 to 29.00 BNOK (26.66-31.72) in 2050, while in the reduced behavioral risk scenario, spending on diabetes was reduced to 10.4 BNOK in 2050. However, spending for other conditions, like stroke, unintentional injuries, and sense organ diseases, increased. For dementia, spending increased from 42.6 BNOK (41.5-43.7) in 2022 to 98.78 (85.57-113.92) in 2050 in the reference scenario. While it increased to BNOK 95.9 (83.1-110.7) in 2050 in the reduced behavioral risk scenario (Fig. 4).

Compared with the reference scenario, the forecasts of spending on mental disorders, like schizophrenia, anxiety, and depression, increase in the reduced behavioral risk scenario due to the increased total population (Fig. 3).

#### Discussion

This study forecasted spending for health services and long-term care across 116 health conditions in Norway from 2022 to 2050 under four scenarios. While total health spending increased in all scenarios, the distribution by age and health condition varied by year and scenario. The study attributed changes over time to four factors: total population growth, population aging, changes in disease prevalence, and cost per case. Longterm care spending increased more than other services, primarily due to aging. Expenditures for dementia, stroke, injuries, and diabetes were forecasted to rise substantially. The study also highlighted some prospects for reducing future diabetes-related expenditures by reducing behavioral and metabolic risks.

OECD and the European Commission also forecasted total spending for Norway, and our forecasts align with these. The OECD forecasted an increase in health spending from 10.1% of GDP in 2015 to 12.2% in 2030, an average annual growth of 0.14% per year [3]. Similarly, the European Commission estimated that combined health and long-term care spending would rise from 11% of GDP in 2019 to 14.5% by 2050, corresponding to an average growth rate of 0.11% per year [4]. Our forecasts of

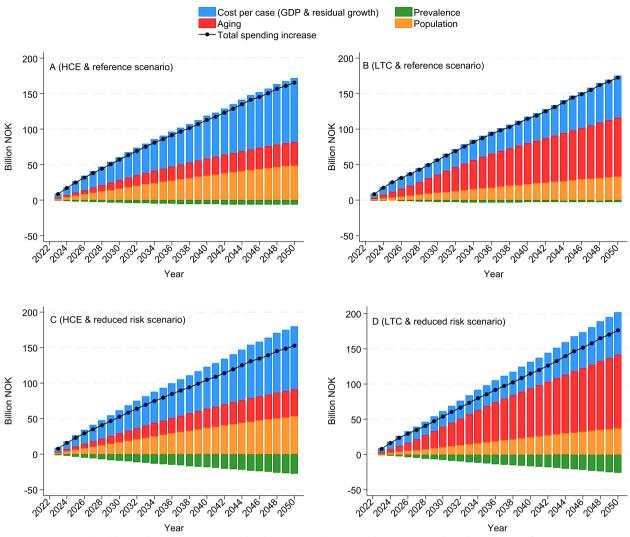


Fig. 2 Decomposed health spending changes associated with unit costs, disease prevalence, aging, and total population, reference scenario from 2023 to 2050. For health care expenditures and long-term care expenditures in the reference scenario (**A** and **B**) and in the reduced risk scenario (**C** and **D**)

growth in health spending from 10.6% of GDP in 2022 to 14.3%, and thus an average annual growth of 0.13, is of comparable magnitude.

#### **Policy implications**

Spending on health and long-term care increased in all scenarios, both in absolute terms and as a percentage of GDP, indicates that constant or reduced future spending on health is unlikely. Consequently, the Norwegian government needs to plan for growth in health spending [3].

The forecasts, which were based on the historical relations, suggest that the need for care—proxied by disease prevalence—is likely to account for a portion of the growth in spending, with this portion being higher for LTC. However, other factors, such as GDP per capita growth and residual growth, were forecasted to play a pivotal role in determining the extent of future health spending growth. These other factors could be related to the use of health technology and the organization of services.

To the extent that policy can alter these historical relationships, as reflected by the parameters in this study, spending growth could be mitigated through greater efficiency, while simultaneously retaining and recruiting healthcare personnel.

Given the input from the historical relations and the forecasted prevalence, our forecast suggested that the

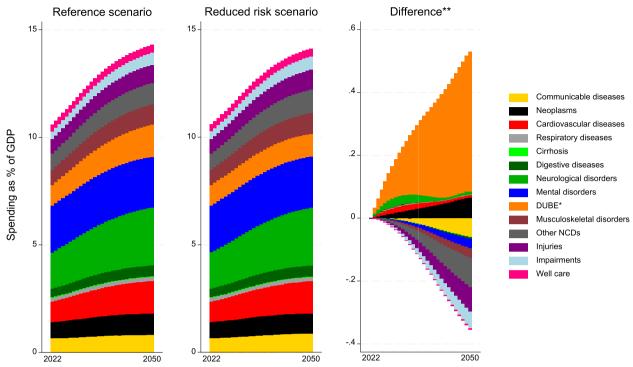


Fig. 3 Health spending by aggregated causes, reference scenario, and reduced risk scenario, 2022–2050. \*DUBE indicates diabetes, urogenital, blood, and endocrine diseases. \*\*The difference is calculated by subtracting spending in the reduced risk scenario, from spending in the reference scenario

development in cost-per-case was most important in curative care, with less impact on long-term care. This finding highlights the importance of continued efforts to improve supply-side efficiency, particularly in specialist and primary care. For example, while Norway has the highest number of physicians per capita, it ranks among the lowest in physician consultations per capita [9]. Geographical consolidation might be improved, as specialist health services and elderly care are highly geographically dispersed across a relatively small population. Moreover, utilization of some key and often expensive services, like magnetic resonance imaging (MRI) usage, lies significantly above the OECD average [10]. It will be crucial for governments to harness technological progress effectively, particularly technologies that enhance the efficiency of care provision [3].

The developments on the demand side are largely outside the government's control. Increased demand due to an aging population was forecasted to substantially increase pressures on long-term care services, particularly for conditions like dementia. However, the upward pressures on health care expenditures from increased demand may be largely mitigated by improving supplyside efficiency while safeguarding population health. An important aspect of supply-side efficiency, in a wide range of countries including Norway, involves the potential misallocation of resources between sectors, which stems from differing responsibilities: municipalities are responsible for financing primary health care and long-term care, while specialist care is state-funded [40]. Hence, there are potential gains through targeted planning and effective integration, particularly when addressing the future challenges age-related conditions pose for municipal healthcare services [11].

A key demand side factor is the increasing public expectation and willingness to spend on personal health care as GDP grows [4, 15]. Based on the forecasts of increased future GDP, the willingness to spend more on health care services will also grow [2–4]. The demand will likely grow the most among those in most need of care, compared to the supply-side capacity, which will be particularly challenging among the elderly with conditions like dementia [4, 23]. If the government does not accommodate this increased willingness to spend, a shift toward more privately financed services may occur [3].

The impact on healthcare expenditure from changes in behavioral and metabolic risk factors was relatively small. The input data from the GBD 2021 Forecasting Collaborators' study [20] considered competing risks when Table 2 Total and per thousand GDP health spending for the 100 most expensive health conditions, and contribution of four factors to changes in health spending from 2022 and 2050

Math Display         Customer Leven         2023 Billon NCK         2023 Billon NC							Contribution of four fa and 2050 (Billion NOK)	Contribution of four factors to changes in spending from 2022 and 2050 (Billion NOK)	changes in spen	ding from 2022
Dementias         4.2.61 (41.5, 10, 43.70)         987.865.57 to 113.20         1118 (10.00 to 11.47)         190.7 (16.5 to 21.94)         9.39         3.2.76         -4.38           Storiee         13.4.0 (1831 to 19.98)         4.2.61 (43.5, 10.41, 70)         5.90 (496 to 5.22)         8.33 (757 to 9.60)         4.4         12.37         0.02         1.390           Unimeritonal injuries         11.2.7 (11.51 to 19.99)         3.4.2.633.30 to 5.30)         5.90 (456 to 5.12)         5.96 (551 to 50.91)         2.86 (51.5 to 23.93)         2.86 (51.5 to 23.93)         2.86 (51.5 to 23.93)         2.86 (51.5 to 23.93)         2.86 (53.0 to 57.4)         3.19         -1112         -1132         2.133           Serie operational injuries         12.36 (17.12 to 23.55)         2.56 (21.5 to 23.93)         3.40 (450 to 57.4)         3.19         -112         -1132         -1132           Kinn         112.6 (11.99 to 13.31)         1986 (7.5 to 23.93)         3.40 (4.5 to 57.4)         3.19         -112         -1132         -1132           Kinn         12.6 (11.9 to 13.37)         1986 (7.5 to 23.93)         3.40 (4.5 to 57.4)         3.19         -112         -112         -113           Kinn         12.6 (11.9 to 12.37)         19.34 (7.5 to 10.92)         3.25 (5.35 to 3.91)         1.91         -0.07         0.013 <td< th=""><th>Rank 2050</th><th>Cause name</th><th>2022 Billion NOK</th><th>2050 Billion NOK</th><th>2022 per GDP/1000</th><th>2050 per GDP/1000</th><th>Pop</th><th>Aging</th><th>Prev</th><th>Unit cost</th></td<>	Rank 2050	Cause name	2022 Billion NOK	2050 Billion NOK	2022 per GDP/1000	2050 per GDP/1000	Pop	Aging	Prev	Unit cost
Stole         19/0 (183) to (189)         4.23 (53) to 49(4)         5.00 (490 to 52.2)         8.33 (55) to 69(5)         4.44         12.37         0.02           Univerticonal injuries         12.77 (153 to 11/4)         22.40 (2254 to 22.87)         345 (57) to 6000         7.60 (75) to 7.60         7.60 (75)	-	Dementias	42.61 (41.52 to 43.70)	98.78 (85.57 to 113.92)	11.18 (10.90 to 11.47)	19.02 (16.5 to 21.94)	9.89	32.76	- 4.38	17.89
Unimentional injuries         2270 (2254 to 2287)         3945 (3715 to 41.76)         556 (531 to 600)         760 (715 to 804)         4.43         8.08        390           Dabetes: mellus         11.29 (11.63 to 11.34)         250 (566 to 317.2)         30 (305 to 313)         558 (513 to 61.1)         261         365           Seneogyn diseases         11.23 (11.21 to 12.32)         255 (2126 to 305)         355 (512 to 61.25)         30 (305 to 31)         558 (619 to 600)         266 (715 to 203)         266         319         -112         -112           Seneogyn diseases         11.23 (11.19 to 11.33)         189 (17.51 to 12.23)         325 (31.25 to 23.50)         339 (34.5 to 414)         235         -0.07         012           Siln         11.23 (11.28 to 13.77)         1968 (17.92 to 21.52)         340 (23.00 to 39)         333 (3.30 to 39)         129         -112           Siln         11.23 (11.28 to 12.37)         18.41 (7.48 to 12.91)         31.9 (31.5 to 33.91)         236 (3.30 to 39)         236         -0.07         012         -2.08           Winderud Side         11.32 (11.28 to 13.37)         18.41 (7.48 to 12.91)         31.9 (31.5 to 33.91         236         -0.07         0.03           Winderud Side         11.31         11.32         11.31         11.31         11.31         11.32<	2	Stroke	19.40 (18.91 to 19.89)	44.29 (39.30 to 49.84)	5.09 (4.96 to 5.22)	8.53 (7.57 to 9.60)	4.44	12.37	0.02	8.06
Diabetes mellus         11.9 (11.63 to 11.94)         2.900 (26.66 to 31.72)         3.06 (50 51.31)         5.58 (5.13 to 6.11)         2.81         5.56         3.56           Serves organ diseases         1.13 (11.31 to 12.34)         2.56 (3.25 6to 27.45)         3.26 (6.23 to 2.37)         4.94 (4.61 to 5.2.9)         2.67         5.84         -0.15           Serves organ diseases         1.23 (12.31 to 12.34)         2.55 (3.25 to 2.38)         3.40 (3.20 to 3.1)         3.49 (4.61 to 5.27)         2.67         5.84         -0.15           Schraphments         1.23 (11.31 to 11.32)         19.89 (17.61 to 2.028)         2.95 (2.94 to 2.97)         3.43 (3.30 to 3.90)         1.22        0.07         0.12           Minabia infert         8.64 (651 to 8.79)         18.34 (17.31 to 19.22)         2.95 (2.94 to 2.97)         3.33 (3.37 to 3.90)         1.22        0.08         0.00           Univality is and made infert         8.64 (651 to 8.79)         18.34 (17.31 to 18.27)         2.96 (2.95 to 2.91)         3.33 (3.27 to 3.93)         2.17         -0.08         0.01           Univality is and made infert         8.64 (651 to 8.79)         18.34 (17.31 to 19.22)         17.36 (2.57 to 2.93)         3.33 (2.37 to 3.96)         1.23         0.01           Univality disorders         1.091 (10.75 to 11.08)         17.31 (10.81 to 2.22)         17.36 (	ŝ	Unintentional injuries	22.70 (22.54 to 22.87)	39.45 (37.15 to 41.76)	5.96 (5.91 to 6.00)	7.60 (7.15 to 8.04)	4.43	8.08	- 3.90	8.14
Sense organ diseases         1238 (12.31 to 12.45)         25.63 (23.96 to 27.45)         32.53 (23.21 to 32.7)         4.94 (46 1 to 52.9)         2.67         5.84         -0.15           Intellectual disability         13.70 (17.15 to 23.35)         25.67 (23 for 23.45)         35.63 (23.96 to 27.45)         35.73 (23.95 to 31.4)         23.67         -11.2         -11.2           Kinophrenia         12.70 (11.316 to 13.37)         19.66 (17.92 to 12.35)         35.63 (23.95 to 31.9)         37.93 (45.40.44)         23.9         -0.07         0.12           Kin         12.20 (11.316 to 13.37)         18.89 (17.316 to 92.73)         35.63 (23.90 to 38.0)         18.89         -0.15         -1.12           Kin         736 (73.81 to 73.9)         183.70 (13.61 to 13.9)         183.60 (13.90 to 32.0)         35.73 (33.90 to 38.0)         183.7         -0.07         0.12           WellPreg         12.24 (12.81 to 13.7)         183.60 (13.61 to 12.9)         32.63 (23.10 to 58.0)         183.60 (13.61 to 12.9)         32.63 (23.10 to 58.0)         183.7         -0.07         0.01           WellPreg         12.24 (12.81 to 13.7)         133.70 (13.61 to 15.9)         32.63 (23.10 to 58.0)         133.70 (33.61 59.0)         237.63 (33.01 55.90         237.6         0.07           WellPreg         12.24 (11.91 to 17.7)         17.70 to 26.93         32.63	4	Diabetes mellitus	11.79 (11.63 to 11.94)	29.00 (26.66 to 31.72)	3.09 (3.05 to 3.13)	5.58 (5.13 to 6.11)	2.81	5.64	3.65	5.11
Intellectual disability         1870 (17.12 to 20.35)         25.26 (21.26 to 29.82)         491 (449 to 5.34)         486 (490 to 5.74)         319         -1.12         -1.22           Schizophrenia         112/97 (12.18 to 13.77)         958 (17.21 to 20.28)         295 (234 to 23.97)         354 (339 to 35.91)         213         -0.07         012           Schizophrenia         112/97 (12.18 to 13.77)         958 (17.51 to 97.22)         2.95 (234 to 23.92)         354 (339 to 35.91)         216         -0.07         012           Schizophrenia         12.22 (12.58 to 37.93)         833 (17.41 to 92.72)         2.95 (234 to 23.92)         353 (334 to 33.91)         216         -0.08         0.00           WellPeag         12.11 (51 (19 to 12.32)         17.88 (17.41 to 18.77)         319 (15.41 to 18.72)         2.95 (234 to 23.96)         1.82         -0.08         0.00           WellPeag         10.91 (10.75 to 11.08)         17.61 (16.71 to 18.57)         319 (15.41 to 18.27)         319 (15.71 to 35.93)         324 (32.70 to 36.90)         2.07         0.08           Other MSK         955 (634 to 8.64)         17.43 (16.68 to 18.19)         2.51 (17.67 to 2.86)         2.86 (23.70 to 36.90)         1.94         1.64           Other MSK         955 (84 to 8.64)         14.41 (17.57 to 18.27)         2.17 (27.05 to 2.87)         2.37 (23.05 a 3	ŝ	Sense organ diseases	12.38 (12.31 to 12.45)	25.63 (23.96 to 27.45)	3.25 (3.23 to 3.27)	4.94 (4.61 to 5.29)	2.67	5.84	- 0.15	4.89
Schizophrenia         1297 (12.18 to 13.77)         1968 (17.52 to 21.51)         3.40 (3.20 to 3.61)         3.79 (3.45 to 4.14)         2.35         -007         0.12           Kin         1126 (11.19 to 11.33)         1889 (17.51 to 22.83)         2.95 (2.49 to 22.93)         3.53 (3.30 to 3.80)         1.82         -0.07         0.12           Kin         1126 (11.91 to 11.33)         1889 (17.51 to 15.27)         13.84 (17.34 to 19.12)         3.25 (2.51 to 3.25)         3.53 (3.31 to 3.20)         1.82         -0.08         0.00           Winlyeg         11.26 (11.91 to 11.32)         11.88 (17.31 to 19.21)         3.19 (3.15 to 3.20)         3.23 (3.31 to 3.06)         1.82         -0.08         0.00           Winlyeg         10.91 (1073 to 11.08)         17.61 (1677 to 18.50)         2.86 (2.87 to 3.00)         1.81         -0.43         0.33           Depressive disorders         10.91 (1073 to 11.08)         17.61 (1677 to 18.50)         2.86 (2.87 to 3.00)         1.91         0.93         0.93           Depressive disorders         10.91 (1073 to 11.08)         17.41 (1671 to 18.50)         2.86 (2.81 to 3.00)         1.91         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.94 </td <td>9</td> <td>Intellectual disability</td> <td>18.70 (17.12 to 20.35)</td> <td>25.26 (21.26 to 29.82)</td> <td>4.91 (4.49 to 5.34)</td> <td>4.86 (4.09 to 5.74)</td> <td>3.19</td> <td>- 1.12</td> <td>- 1.32</td> <td>5.81</td>	9	Intellectual disability	18.70 (17.12 to 20.35)	25.26 (21.26 to 29.82)	4.91 (4.49 to 5.34)	4.86 (4.09 to 5.74)	3.19	- 1.12	- 1.32	5.81
Kin         1126(11.19 to 11.33)         1889 (75.61 to 20.28)         2.95 (2.94 to 2.97)         3.64 (3.39 to 3.91)         2.16         3.39         -2.08           Impairments         7.86 (7.83 to 7.89)         18.35 (7.13 to 1972)         2.06 (2.05 to 2.07)         3.33 (3.37 to 3.59)         1.82         4.84         0.00           WellPreg         17.23 (17.28 to 17.37)         18.4 (7.48 to 19.18)         18.33 (7.31 to 19.22)         2.06 (2.05 to 2.07)         3.33 (3.37 to 3.59)         1.82         4.84         0.00           WellPreg         17.23 (17.28 to 17.32)         18.30 (7.34 to 19.22)         2.27 (2.33 to 3.23)         3.33 (3.37 to 3.50)         1.82         4.84         0.00           Aniety disorders         1091 (0.73 to 11.08)         17.61 (6.71 to 18.50)         2.86 (2.86 to 2.86)         2.86 (2.86 to 2.86)         0.00         0.91           Other Miss         955 (9.39 to 97)         17.31 (6.12 to 18.20)         2.31 (7.10 to 2.69)         1.76 (1.67 to 18.50)         2.87 (2.31 to 3.50)         1.96         0.00           Other Miss         955 (9.39 to 97)         173 (16.71 to 18.20)         2.31 (2.21 to 2.350)         1.67         0.93         0.93           Other Miss         856 (8.48 to 8.64)         14.11 (13.48 to 14.71)         2.25 (2.23 to 2.31)         2.87 (2.23 to 2.30)         2.91	7	Schizophrenia	12.97 (12.18 to 13.77)	19.68 (17.92 to 21.51)	3.40 (3.20 to 3.61)	3.79 (3.45 to 4.14)	2.35	- 0.07	0.12	4.31
Impairments         786 (783 to 789)         183 (17.13 to 1972)         206 (2.05 to 2.07)         353 (3.30 to 3.80)         182         4.84         0.00           WellPreg         1.232 (12.28 to 12.37)         183 4(17.48 to 19.18)         323 (3.21 to 3.25)         353 (3.37 to 3.69)         1.22         -0.80         0.00           Winary dis and male infert         864 (851 to 876)         183 0(17.34 to 10.23)         31 (3.15 to 3.25)         353 (3.37 to 3.56)         2.27         -0.80         0.00           Anivety disorders         10.91 (10.73 to 11.08)         17.61 (16.91 to 1850)         2.97 (2.32 to 3.50)         2.17         -0.48         0.03           Other resp tract infect         8.76 (4.71 to 10.07)         14.31 (16.57 to 1850)         2.51 (5.46 to 2.53)         33.63 (2.12.03 to 3.51)         1.64         0.03           Other digestive diseases         7.04 (6.94 to 7.14)         1.75 (16.17 to 18.20)         2.51 (5.15 to 5.90)         1.24 (12.51 to 15.5)         2.74 (2.20 to 2.38)         1.67         -0.48           Other digestive diseases         5.51 (5.15 to 5.90)         1.24 (1.38 to 13.42)         1.85 (1.82 to 18.7)         2.27 (2.20 to 2.38)         1.67         -0.43           Devines disease         5.51 (5.15 to 5.90)         1.24 (1.38 to 13.42)         1.85 (1.82 to 18.7)         2.27 (2.20 to 2.58)         1.0	00	Skin	11.26 (11.19 to 11.33)	18.89 (17.61 to 20.28)	2.95 (2.94 to 2.97)	3.64 (3.39 to 3.91)	2.16	3.59	- 2.08	3.96
WellPreg         12.31(12.81c) 12.37)         18.34(17.48 to 19.18)         3.23 (3.37 to 3.69)         2.22         -0.80         0.00           Uninary dis. and male infert         8.64 (8.51 to 8.76)         18.30 (17.34 to 19.22)         2.27 (2.23 to 2.30)         3.53 (3.37 to 3.50)         1.28         0.81           Anxiety disorders         12.16 (11.99 to 12.32)         17.88 (17.10 to 18.71)         3.19 (3.15 to 3.20)         3.24 (3.29 to 3.60)         0.03           Depressive disorders         10.91 (10.73 to 11.08)         17.61 (16.71 to 18.50)         2.86 (2.82 to 2.91)         3.39 (3.21 to 3.50)         1.91         0.04           Other MSK         955 (9.30 to 971)         17.43 (16.68 to 18.19)         2.51 (2.46 to 2.55)         3.36 (3.21 to 3.50)         1.91         0.03           Other MSK         955 (8.47 to 10.07)         14.93 (11.57 to 18.21)         2.17 (7.01 to 2.55)         3.36 (2.21 to 2.33)         1.91         0.03           Lower resp. tractinfect         827 (6.41 to 17.4)         12.62 (11.87 to 18.21)         2.17 (7.01 to 2.31)         1.64         -0.03           Lower resp. tractinfect         837 (5.44 to 6.00)         12.41 (13.48 to 14.47)         2.26 (2.26 to 2.23)         2.31 (2.20 to 2.36)         1.44         -0.13           Prover resp. tractinfect         837 (5.44 to 6.69)         12.47 (1.56 to 15.9)<	6	Impairments	7.86 (7.83 to 7.89)	18.35 (17.13 to 19.72)	2.06 (2.05 to 2.07)	3.53 (3.30 to 3.80)	1.82	4.84	00.00	3.83
Urinary dis and male infert         864 (851 to 8.76)         1830 (17.34 to 19.22)         2.27 (2.23 to 2.30)         3.52 (3.34 to 3.70)         1.88         3.53         0.81           Anviety disorders         12.16 (11.99 to 12.32)         17.88 (17.10 to 18.71)         3.19 (3.15 to 3.23)         3.44 (3.29 to 3.60)         2.17         -0.48         0.03           Depressive disorders         10.91 (10.73 to 11.06)         17.43 (16.68 to 18.19)         2.51 (2.46 to 2.55)         3.36 (3.21 to 3.56)         2.04         0.98         -0.09           Other MSK         955 (9.30 to 971)         17.43 (16.68 to 18.19)         2.51 (2.46 to 2.55)         3.36 (3.21 to 3.50)         1.91         0.80         -0.09           University tractinfect         827 (6.47 to 10.07)         14.93 (11.57 to 18.21)         2.17 (7.01 to 5.45)         2.36 (2.32 to 2.50)         1.91         0.80         -0.03           University tractinfect         827 (6.47 to 10.07)         14.93 (11.57 to 18.21)         2.17 (7.01 to 2.52)         2.27 (2.20 to 2.83)         1.64         -0.13           Low back and neck pain         856 (8.48 to 86.4)         14.11 (13.48 to 1.47)         2.26 (2.22 to 2.22)         2.27 (2.20 to 2.83)         1.62         1.04           Divite disease         57 (16.45 to 18.20)         1.43 (11.55 to 18.2)         1.43 (11.55 to 18.2)         2	10	WellPreg	12.32 (12.28 to 12.37)	18.34 (17.48 to 19.18)	3.23 (3.22 to 3.25)	3.53 (3.37 to 3.69)	2.22	- 0.80	00.00	4.61
Anview disorders12.16 (11.99 to 12.32)17.88 (17.10 to 18.71)3.19 (3.15 to 3.23)3.44 (3.29 to 3.60)2.17-0.480.03Depressive disorders10.91 (10.73 to 11.08)17.61 (16.71 to 18.50)2.86 (2.82 to 2.91)3.39 (3.22 to 3.56)2.040.98-0.09Depressive disorders10.91 (10.73 to 11.08)17.43 (16.68 to 18.19)2.51 (2.46 to 2.55)3.36 (3.21 to 3.50)1.910.801.64Deveresp. tract infect8.27 (6.47 to 1007)14.93 (11.57 to 18.21)2.17 (1.70 to 2.64)2.87 (2.32 to 3.51)1.653.30-0.03Low back and neck pain8.56 (8.48 to 8.64)14.11 (13.48 to 14.71)2.25 (2.33 to 2.27)2.77 (2.60 to 2.83)1.62-0.13Depressive diseases7.04 (6.94 to 7.14)1.262 (11.87 to 13.42)1.85 (1.82 to 1.87)2.43 (2.90 to 2.73)1.62-0.04Parkinson's disease551 (5.15 to 5.90)12.49 (10.83 to 14.40)1.45 (1.35 to 1.59)2.40 (2.09 to 2.77)1.251.06-0.13Dorbe rdigestive diseases573 (5.44 to 6.06)12.31 (10.88 to 13.99)1.50 (1.43 to 1.59)2.31 (2.10 to 2.69)1.261.670.49Drug use disease531 (5.54 to 5.90)11.49 (10.76 to 12.27)1.57 (1.56 to 12.89)2.21 (2.07 to 2.36)1.211.740.49Drug use disorders6.32 (6.50 to 7.15)11.23 (10.62 to 11.80)1.57 (1.56 to 12.59)2.16 (2.04 to 2.27)1.291.441.65Drug use disorders6.92 (6.69 to 7.15)11.23 (10.62 to 11.80)1.57 (1.56 to 2.22)1.21 (0.77	11	Urinary dis. and male infert	8.64 (8.51 to 8.76)	18.30 (17.34 to 19.22)	2.27 (2.23 to 2.30)	3.52 (3.34 to 3.70)	1.88	3.53	0.81	3.44
Depressive disorders1091 (10.73 to 11.08)17.61 (16.71 to 18.50)2.86 (2.82 to 2.91)3.39 (3.22 to 3.56)2.040.98-0.09Other MSK9.55 (9.39 to 9.71)17.43 (16.68 to 18.19)2.51 (2.46 to 2.55)3.36 (3.21 to 3.50)1.910.801.64Other MSK9.55 (9.39 to 9.71)17.43 (16.68 to 18.19)2.51 (7.70 to 2.64)2.87 (2.23 to 3.51)1.653.301.64Lower resp. tract infect8.27 (6.47 to 1007)14.93 (11.57 to 18.21)2.17 (1.70 to 2.64)2.87 (2.23 to 3.51)1.653.30-0.09Other digestive diseases7.04 (6.94 to 7.14)12.62 (11.87 to 13.42)1.85 (1.82 to 1.87)2.43 (2.29 to 2.58)1.400.98-0.13Other digestive diseases551 (5.15 to 5.90)12.49 (1088 to 13.99)1.50 (1.43 to 1.59)2.47 (2.09 to 2.77)1.251.740.96Parkinson's disease573 (5.41 to 6.06)12.31 (1088 to 13.99)1.50 (1.43 to 1.59)2.31 (2.10 to 2.69)1.741.63Other digestive diseases533 (5.75 to 5.90)11.49 (10.76 to 12.27)1.57 (1.51 to 15.50)1.22 (1.50 to 2.36)1.741.63Drug use disorders633 (6.28 to 7.15)11.23 (10.65 to 11.67)1.53 (1.51 to 15.50)1.21 (1.51 to 15.50)1.21 (2.07 to 2.36)1.741.63Drug use disorders638 (5.77 to 6.00)11.12 (10.65 to 11.67)1.54 (1.51 to 15.70)2.11 (2.01 to 2.27)1.291.741.64Drug use disorders588 (5.77 to 6.00)11.12 (10.65 to 11.67)1.54 (1.51 to 15.70)2.16 (2.04 to 2.	12	Anxiety disorders	12.16 (11.99 to 12.32)	17.88 (17.10 to 18.71)	3.19 (3.15 to 3.23)	3.44 (3.29 to 3.60)	2.17	- 0.48	0.03	4.00
Other MSK         955 (939 to 971)         1743 (1668 to 1819)         251 (246 to 255)         336 (321 to 350)         191         080         164           Lower resp. tractinfect         827 (647 to 1007)         1493 (1157 to 1821)         217 (170 to 264)         287 (223 to 351)         165         330         -131           Lower resp. tractinfect         856 (84 Rt 0864)         14.11 (13.48 to 14.71)         225 (2.23 to 257)         287 (2.26 to 283)         162         106         -013           Other digestive disease         551 (515 to 5.90)         12.49 (1083 to 14.40)         145 (1.35 to 15.9)         247 (2.00 to 283)         162         106         -013           Parkinson's disease         553 (5.51 to 5.90)         12.34 (1088 to 13.99)         150 (14.3 to 15.9)         247 (2.00 to 269)         12.3         0.44           Costeoarthritis         573 (5.44 to 6.06)         12.31 (10.88 to 13.99)         150 (14.3 to 15.9)         12.51 (12.5 to 2.90)         12.31 (10.5 to 15.9)         12.40 (2.00 to 2.83)         12.41         16.3           Distensistive disease         533 (5.51 to 5.9)         12.41 (10.88 to 13.99)         167 (1.45 to 15.9)         2.32 (2.10 to 2.42)	13	Depressive disorders	10.91 (10.73 to 11.08)	17.61 (16.71 to 18.50)	2.86 (2.82 to 2.91)	3.39 (3.22 to 3.56)	2.04	0.98	- 0.09	3.76
Lower resp. tract infect         8.27 (6.47 to 1007)         14.93 (11.57 to 18.21)         2.17 (1.70 to 2.64)         2.87 (2.23 to 3.51)         1.65         3.30         -1.31           Low back and neck pain         8.56 (8.48 to 8.64)         14.11 (13.48 to 14.71)         2.25 (2.23 to 2.23)         2.72 (2.60 to 2.83)         1.62         1.06         -0.13           Low back and neck pain         8.56 (8.48 to 8.64)         14.11 (13.48 to 14.71)         2.25 (2.23 to 2.23)         2.72 (2.60 to 2.83)         1.62         1.06         -0.13           Other digestive diseases         7.04 (6.94 to 7.14)         1.262 (11.87 to 13.42)         1.85 (1.87 to 15.5)         2.40 (2.09 to 2.77)         1.25         1.140         -0.49           Parkinson's disease         5.51 (5.15 to 5.90)         12.24 (10.88 to 13.99)         1.50 (1.43 to 15.5)         2.40 (2.09 to 2.77)         1.25         1.40         0.36           Costeoarthritis         6.35 (6.28 to 6.41)         12.01 (0.88 to 15.80)         1.50 (1.43 to 15.50)         2.31 (2.10 to 2.69)         1.25         1.44         1.63           Costeoarthritis         6.35 (6.28 to 6.41)         11.49 (10.76 to 12.27)         1.53 (1.51 to 15.5)         2.21 (2.04 to 2.26)         1.24         1.64           Drug use disorders         6.92 (6.69 to 7.15)         11.49 (10.76 to 12.27)         1.53 (1.	14	Other MSK	9.55 (9.39 to 9.71)	17.43 (16.68 to 18.19)	2.51 (2.46 to 2.55)	3.36 (3.21 to 3.50)	1.91	0.80	1.64	3.52
Low back and neck pain         8.56 (8.48 to 8.64)         14.11 (13.48 to 14.71)         2.25 (2.23 to 2.27)         2.77 (2.60 to 2.83)         1.62         1.06         -0.13           Other digestive diseases         7.04 (6.94 to 7.14)         12.62 (11.87 to 13.42)         1.85 (1.82 to 1.87)         2.43 (2.29 to 2.58)         1.40         2.11         -0.49           Parkinson's disease         5.51 (5.15 to 5.90)         12.49 (10.88 to 13.99)         1.50 (1.43 to 15.9)         2.43 (2.20 to 2.69)         1.25         1.44         1.63           Parkinson's disease         5.73 (5.44 to 6.06)         12.31 (10.88 to 13.99)         1.50 (1.43 to 15.9)         2.37 (2.10 to 2.69)         1.25         1.44         1.63           Osteoarthritis         6.35 (6.28 to 6.41)         12.06 (11.48 to 12.58)         1.67 (1.65 to 16.8)         2.32 (2.21 to 2.42)         1.94         0.02           Drug use disorders         6.92 (6.69 to 7.15)         11.23 (10.62 to 11.80)         1.53 (1.51 to 1.55)         2.21 (2.07 to 2.36)         1.24         1.74         0.49           Drug use disorders         6.92 (6.69 to 7.15)         11.123 (10.62 to 11.80)         1.53 (1.51 to 1.57)         2.15 (2.04 to 2.23)         1.20         1.74         0.49           Drug use disorders         6.92 (6.64 to 7.15)         11.23 (10.62 to 11.80)         1.54 (1.51 to 1.5	15	Lower resp. tract infect	8.27 (6.47 to 10.07)	14.93 (11.57 to 18.21)	2.17 (1.70 to 2.64)	2.87 (2.23 to 3.51)	1.65	3.30	- 1.31	3.02
Other digestive diseases         7.04 (6.94 to 7.14)         1.262 (11.87 to 13.42)         1.85 (1.82 to 1.87)         2.43 (2.29 to 2.58)         1.40         2.11         -0.49           Parkinson's disease         5.51 (5.15 to 5.90)         12.49 (10.83 to 14.40)         1.45 (1.35 to 1.55)         2.40 (2.09 to 2.77)         1.25         3.10         0.36           Parkinson's disease         5.51 (5.15 to 5.90)         12.49 (10.88 to 13.99)         1.50 (1.43 to 15.9)         2.47 (2.09 to 2.77)         1.25         3.10         0.36           Epilepsy         6.35 (6.28 to 6.41)         12.06 (11.48 to 12.58)         1.67 (1.65 to 1.68)         2.31 (2.10 to 2.69)         1.25         1.44         1.63           Osteoarthritis         6.35 (6.28 to 6.41)         12.06 (11.48 to 12.58)         1.67 (1.65 to 1.68)         2.31 (2.10 to 2.69)         1.25         1.44         1.63           Drug use disorders         6.92 (6.69 to 7.15)         11.23 (10.62 to 11.63)         1.53 (1.51 to 1.55)         2.16 (2.04 to 2.27)         1.30         1.74         0.49           Drug use disorders         6.93 (6.66 to 7.15)         11.123 (10.65 to 11.63)         1.54 (1.51 to 1.57)         2.15 (2.04 to 2.27)         1.30         1.74         0.49           Schemic heart disease         5.88 (5.77 to 6.00)         11.123 (10.65 to 11.67)         1.54 (	16	Low back and neck pain	8.56 (8.48 to 8.64)	14.11 (13.48 to 14.71)	2.25 (2.23 to 2.27)	2.72 (2.60 to 2.83)	1.62	1.06	- 0.13	2.99
Parkinson's disease         5.51 (5.15 to 5.90)         12.49 (10.83 to 14.40)         145 (1.35 to 1.55)         2.40 (2.09 to 2.77)         1.25         3.10         0.36           Epilepsy         5.73 (5.44 to 6.06)         12.31 (10.88 to 13.99)         1.50 (1.43 to 1.59)         2.37 (2.10 to 2.69)         1.25         1.44         1.63           Osteoarthritis         6.35 (6.28 to 6.41)         12.06 (11.48 to 12.58)         1.67 (1.65 to 1.68)         2.32 (2.21 to 2.42)         1.30         1.99         0.02           Endoc/metab/blood/immune         5.83 (5.75 to 5.90)         11.49 (10.76 to 12.27)         1.53 (1.51 to 1.55)         2.21 (2.07 to 2.36)         1.21         1.74         0.49           Drug use disorders         6.92 (6.69 to 7.15)         11.123 (10.62 to 11.80)         1.53 (1.51 to 1.57)         2.16 (2.04 to 2.27)         1.30         1.74         0.49           Schemic heart disease         5.88 (5.77 to 6.00)         11.15 (10.65 to 11.67)         1.54 (1.51 to 1.57)         2.15 (2.04 to 2.27)         1.30         1.04           RiskFactors         5.76 (5.74 to 5.78)         10.94 (10.42 to 11.42)         1.54 (1.51 to 1.52)         2.11 (2.01 to 2.20)         1.17         0.10           RiskFactors         5.76 (5.74 to 5.78)         10.94 (10.42 to 11.42)         1.54 (1.51 to 1.52)         2.11 (2.01 to 2.20)	17	Other digestive diseases	7.04 (6.94 to 7.14)	12.62 (11.87 to 13.42)	1.85 (1.82 to 1.87)	2.43 (2.29 to 2.58)	1.40	2.11	- 0.49	2.56
Epilepsy5.73 (5.44 to 6.06)12.31 (10.88 to 13.99)1.50 (1.43 to 1.59)2.37 (2.10 to 2.69)1.251.441.63Osteoarthritis6.35 (6.28 to 6.41)12.06 (11.48 to 12.58)1.67 (1.65 to 1.68)2.32 (2.21 to 2.36)1.990.02Endoc/metab/blood/immune5.83 (5.75 to 5.90)114.9 (10.76 to 12.27)1.53 (1.51 to 1.55)2.21 (2.07 to 2.36)1.211.740.49Drug use disorders6.92 (6.66 to 7.15)11.13 (10.65 to 11.80)1.82 (1.75 to 1.88)2.16 (2.04 to 2.27)1.30-0.471.08Ischemic heart disease5.88 (5.77 to 6.00)11.15 (10.65 to 11.67)1.54 (1.51 to 1.57)2.15 (2.05 to 2.25)1.201.750.10RiskFactors5.76 (5.74 to 5.78)10.94 (10.42 to 11.42)1.51 (1.51 to 1.52)2.11 (2.01 to 2.20)1.181.750.10RiskFactors5.76 (5.74 to 5.78)10.94 (10.42 to 11.42)1.51 (1.51 to 1.52)2.11 (2.01 to 2.20)1.181.750.10RiskFactors5.76 (5.74 to 5.78)10.94 (10.42 to 11.42)1.51 (1.51 to 1.52)2.11 (2.01 to 2.20)1.181.750.10RiskFactors5.76 (5.74 to 5.78)10.94 (10.42 to 11.42)1.24 (1.21 to 1.28)2.10 (1.99 to 2.21)1.080.00Atrial fibrinllation and flutter4.74 (4.62 to 4.87)10.91 (10.33 to 11.45)1.24 (1.21 to 1.28)2.10 (1.99 to 2.21)1.080.01	18	Parkinson's disease	5.51 (5.15 to 5.90)	12.49 (10.83 to 14.40)	1.45 (1.35 to 1.55)	2.40 (2.09 to 2.77)	1.25	3.10	0.36	2.27
Osteoarthritis         6.35 (6.28 to 6.41)         12.06 (11.48 to 12.58)         1.67 (1.65 to 1.68)         2.32 (2.21 to 2.42)         1.30         1.99         002           Endoc/metab/blood/immune         5.83 (5.75 to 5.90)         11.49 (10.76 to 12.27)         1.53 (1.51 to 1.55)         2.21 (2.07 to 2.36)         1.21         1.74         0.49           Drug use disorders         6.92 (6.69 to 7.15)         11.123 (10.62 to 11.80)         1.82 (1.75 to 1.88)         2.16 (2.04 to 2.27)         1.30         -0.47         1.08           Ischemic heart disease         5.88 (5.77 to 6.00)         11.15 (10.65 to 11.67)         1.54 (1.51 to 1.57)         2.16 (2.04 to 2.27)         1.30         -0.47         1.08           RiskFactors         5.63 (5.74 to 5.78)         10.94 (10.42 to 11.42)         1.51 (1.51 to 1.52)         2.11 (2.01 to 2.20)         1.18         1.75         0.10           RiskFactors         5.76 (5.74 to 5.78)         10.94 (10.42 to 11.42)         1.51 (1.51 to 1.52)         2.11 (2.01 to 2.20)         1.18         1.75           Atrial fibrinllation and flutter         4.74 (4.62 to 4.87)         10.91 (10.33 to 11.45)         1.24 (1.21 to 1.28)         2.10 (1.90 to 2.21)         1.08         0.00	19	Epilepsy	5.73 (5.44 to 6.06)	12.31 (10.88 to 13.99)	1.50 (1.43 to 1.59)	2.37 (2.10 to 2.69)	1.25	1.44	1.63	2.27
Endoc/metab/blood/immune       5.83 (5.75 to 5.90)       11.49 (10.76 to 12.27)       1.53 (1.51 to 1.55)       2.21 (2.07 to 2.36)       1.21       1.74       0.49         Drug use disorders       6.92 (6.69 to 7.15)       11.23 (10.62 to 11.80)       1.82 (1.75 to 1.88)       2.16 (2.04 to 2.27)       1.30       -0.47       1.08         Ischemic heart disease       5.88 (5.77 to 6.00)       11.15 (10.65 to 11.67)       1.54 (1.51 to 1.57)       2.15 (2.05 to 2.25)       1.20       1.75       0.10         RiskFactors       5.76 (5.74 to 5.78)       10.94 (10.42 to 11.42)       1.51 (1.51 to 1.52)       2.11 (2.01 to 2.20)       1.18       1.54       0.00         Atrial fibrillation and flutter       4.74 (4.62 to 4.87)       10.91 (10.33 to 11.45)       1.24 (1.21 to 1.28)       2.10 (1.99 to 2.21)       1.08       2.61       0.49	20	Osteoarthritis	6.35 (6.28 to 6.41)	12.06 (11.48 to 12.58)	1.67 (1.65 to 1.68)	2.32 (2.21 to 2.42)	1.30	1.99	0.02	2.40
Drug use disorders         6.92 (6.69 to 7.15)         11.23 (10.62 to 11.80)         1.82 (1.75 to 1.88)         2.16 (2.04 to 2.27)         1.30         -0.47         1.08           Ischemic heart disease         5.88 (5.77 to 6.00)         11.15 (10.65 to 11.67)         1.54 (1.51 to 1.57)         2.15 (2.05 to 2.25)         1.20         1.75         0.10           RiskFactors         5.76 (5.74 to 5.78)         10.94 (10.42 to 11.42)         1.51 (1.51 to 1.52)         2.11 (2.01 to 2.20)         1.18         1.54         0.00           Atrial fibrillation and flutter         4.74 (4.62 to 4.87)         10.91 (10.33 to 11.45)         1.24 (1.21 to 1.28)         2.10 (1.99 to 2.21)         1.08         2.61         0.49	21	Endoc./metab./blood./immune	5.83 (5.75 to 5.90)	11.49 (10.76 to 12.27)	1.53 (1.51 to 1.55)	2.21 (2.07 to 2.36)	1.21	1.74	0.49	2.22
Ischemic heart disease         5.88 (5.77 to 6.00)         11.15 (10.65 to 11.67)         1.54 (1.51 to 1.57)         2.15 (2.05 to 2.25)         1.20         1.75         0.10           RiskFactors         5.76 (5.74 to 5.78)         10.94 (10.42 to 11.42)         1.51 (1.51 to 1.52)         2.11 (2.01 to 2.20)         1.18         1.54         0.00           Atrial fibrillation and flutter         4.74 (4.62 to 4.87)         10.91 (10.33 to 11.45)         1.24 (1.21 to 1.28)         2.10 (1.99 to 2.21)         1.08         2.61         0.49	22	Drug use disorders	6.92 (6.69 to 7.15)	11.23 (10.62 to 11.80)	1.82 (1.75 to 1.88)	2.16 (2.04 to 2.27)	1.30	- 0.47	1.08	2.40
RiskFactors         5.76 (5.74 to 5.78)         10.94 (10.42 to 11.42)         1.51 (1.51 to 1.52)         2.11 (2.01 to 2.20)         1.18         1.54         0.00           Atrial fibrillation and flutter         4.74 (4.62 to 4.87)         10.91 (10.33 to 11.45)         1.24 (1.21 to 1.28)         2.10 (1.99 to 2.21)         1.08         2.61         0.49	23	Ischemic heart disease	5.88 (5.77 to 6.00)	11.15 (10.65 to 11.67)	1.54 (1.51 to 1.57)	2.15 (2.05 to 2.25)	1.20	1.75	0.10	2.22
Atrial fibrillation and flutter 4.74 (4.62 to 4.87) 10.91 (10.33 to 11.45) 1.24 (1.21 to 1.28) 2.10 (1.99 to 2.21) 1.08 2.61 0.49	24	RiskFactors	5.76 (5.74 to 5.78)	10.94 (10.42 to 11.42)	1.51 (1.51 to 1.52)	2.11 (2.01 to 2.20)	1.18	1.54	00.00	2.46
	25	Atrial fibrillation and flutter	4.74 (4.62 to 4.87)	10.91 (10.33 to 11.45)	1.24 (1.21 to 1.28)	2.10 (1.99 to 2.21)	1.08	2.61	0.49	1.99

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Muth Mode         Case numb         2023 Billion NOK         2323 per GDP/1000         Tesp Per GDP/1000         Tesp Per G							Contribution of four fa and 2050 (Billion NOK)	Contribution of four factors to changes in spending from 2022 and 2050 (Billion NOK)	changes in spen	ling from 2022
Chronic balancy disease         451 (6400 + 45)         988 (94 n to (31)         118 (117 to 120)         156 (137 to 123)         104         119         117 (137 to 123)         104         119         117 (137 to 123)         104         111 (135 to 123)         104         111 (135 to 123)         104         111 (135 to 133)         105 (141 to 157)         018         112 (135 to 133)         105 (141 to 157)         018         112 (135 to 133)         018         112 (135 to 133)         018         112 (135 to 133)         018         111 (135 to 113)         028         112 (135 to 133)         028         111 (135 to 113)         028         112 (135 to 133)         028         128	Rank 2050	Cause name	2022 Billion NOK	2050 Billion NOK	2022 per GDP/1000	2050 per GDP/1000	Pop	Aging	Prev	Unit cost
Gyneological         54 (5706 : 70)         84 (5016 : 50)         15 (1450 : 15)         104         151         -1.78           Almolous         59 (420 : 52)         88 (7506 : 70)         88 (7506 : 71)         18 (1450 : 65)         193         175         000           Almolous         59 (420 : 52)         88 (756 : 73)         88 (756 : 73)         13 (170 : 13)         15 (1450 : 15)         028         123	26	Chronic kidney diseases	4.51 (4.46 to 4.56)	9.88 (9.41 to 10.31)	1.18 (1.17 to 1.20)	1.90 (1.81 to 1.99)	1.00	1.69	0.85	1.84
$ \begin{array}{ccccc} \mbox{O} & 396 (3270 + 03) & 814 (776 (6.51) & 104 (1050 - 137) & 152 (1.490 + 16) & 0.65 & 175 & 0.00 \\ \mbox{A} \mbox{M} \mbox{M} \mbox{M} & 457 (4.49 (6.42) & 236 (6.270 - 23) & 132 (1.290 + 13) & 1.29 (1.23 + 0.15) & 0.85 & 0.14 & 0.03 \\ \mbox{D} \mbox{M} \mbox{M} \mbox{M} \mbox{M} & 457 (4.49 (6.42) & 527 (6.821 (6.25) & 1.23 (1.18 (6.12) & 1.23 (1.18 (6.11) & 0.25 & 0.14 & 0.03 \\ \mbox{D} \mbox{M} M$	27	Gynecological	5.74 (5.70 to 5.79)	8.43 (7.90 to 9.00)	1.51 (1.50 to 1.52)	1.62 (1.52 to 1.73)	1.04	1.51	- 1.78	1.91
Actival late         557 (427) (427) (426)         133 (125) (12) (12) (12) (123) (12	28	Other CVD	3.98 (3.92 to 4.03)	8.14 (7.76 to 8.51)	1.04 (1.03 to 1.06)	1.57 (1.49 to 1.64)	0.85	1.75	0.00	1.56
Color and rectum carc         4/5 (3.46 to 4.34)         7.36 (6.32 to 7.35)         100 (1.01 to 1.13)         14.2 (1.33 to 1.54)         0.22         1.29         -0.38           Bipard circler         4/5 (1.47 to 4.30)         7.35 (6.82 to 7.86)         11.2 (1.16 to 1.33)         1.43 (1.31 to 1.43)         0.86         0.14         0.00           OPD         4.33 (1.10 to 4.37)         7.07 (6.28 to 6.01)         1.23 (1.12 to 1.33)         1.36 (1.1 to 1.71)         0.77         1.07         -0.26           Other neurological         3.34 (2.56 to 4.91)         6.35 (5.71 to 5.70)         1.12 (1.12 to 1.33)         1.36 (1.1 to 1.71)         0.77         1.07         -0.26           Nennal discrete         3.31 (3.30 to 3.39)         5.41 (6.80 to 6.80)         1.33 (1.01 to 1.31)         0.83         -0.93         -0.91           Corportial anomalies         4.13 (4.47 to 5.70)         1.13 (1.01 to 1.31)         0.75 (1.01 to 1.31)         0.75         -0.92         -0.23           Prostree mere         3.37 (3.24 to 3.80)         1.36 (1.31 to 1.32)         0.31 (0.10 to 1.31)         0.75         0.75         0.75           Corportial anomalies         4.13 (4.95 to 5.70)         0.31 (0.96 to 0.93)         0.93 (0.95 to 0.93)         0.93         0.91         0.93         0.91           Corportial anom	29	Alcohol use	5.07 (4.92 to 5.22)	8.08 (7.50 to 8.70)	1.33 (1.29 to 1.37)	1.56 (1.44 to 1.67)	0.94	0.34	0.00	1.73
Biolar disorder $457$ ( $470$ c $480$ ) $725$ ( $682$ to $750$ ) $123$ ( $116$ 1 c $113$ ) $140$ ( $123$ to $149$ ) $026$ $149$ $000$ Multiple scheens $425$ ( $477$ c $430$ ) $723$ ( $887$ to $520$ ) $111$ ( $100$ to $113$ ) $133$ ( $112$ to $173$ ) $022$ $149$ $-022$ Multiple scheens $466$ ( $477$ to $530$ ) $539$ ( $254$ to $500$ ) $123$ ( $112$ to $123$ ) $123$ ( $110$ to $171$ ) $077$ $110$ $-026$ $-026$ Nerwald disorders $487$ ( $477$ to $530$ ) $543$ ( $571$ to $500$ ) $123$ ( $110$ to $171$ ) $077$ $107$ $-026$ $-011$ $-026$ Nerwald disorders $487$ ( $477$ to $530$ ) $543$ ( $571$ to $500$ ) $123$ ( $110$ to $171$ ) $077$ $023$ $020$ $011$ $020$ $021$	30	Colon and rectum canc	4.15 (3.96 to 4.34)	7.38 (6.93 to 7.83)	1.09 (1.04 to 1.14)	1.42 (1.33 to 1.51)	0.82	1.29	- 0.38	1.51
$ \begin{array}{ccccc} C0^{\rm CD} & 423 (417 0, 430) & 723 (688 0, 750) & 111 (100 0 113) & 139 (132 0 1, 46) & 022 & 149 & -088 & -080 & 013 & 000 & 023 (534 0.600) & 103 (712 0 1, 213) & 133 (101 0 1, 71) & 077 & 107 & -0.027 & -0.027 & -0.021 & -$	31	Bipolar disorder	4.67 (4.49 to 4.86)	7.25 (6.82 to 7.68)	1.23 (1.18 to 1.28)	1.40 (1.31 to 1.48)	0.86	0.14	0.00	1.58
Multiple sclerosis         466 (427 to 507)         707 (628 to 801)         122 (1.12 to 1.33)         136 (1.21 to 1.54)         0.84         0.29         -0.27           Other neurological         334 (2.55 to 4.71)         658 (6.17 to 6.81)         1.12 (1.24 to 1.31)         0.77         107         107         -0.26           Other neurological         334 (2.55 to 4.71)         658 (6.17 to 6.81)         1.13 (1.04 to 1.31)         0.73         -0.90         0.13         -0.26         -0.26         -0.26           Congenital inomalies         315 (3.01 to 3.29)         5.13 (5.80 to 5.71)         0.33 (0.051 to 0.36)         0.90 (0.051 to 0.36)         0.91 (0.061 to 1.31)         0.75         -0.05         0.01           Other infections         2.21 (2.13 to 2.30)         5.14 (4.84 to 5.45)         0.53 (0.55 to 0.66)         0.90 (0.57 to 0.95)         0.61         0.64         0.02         -0.02         0.01           Other infections         2.21 (2.13 to 2.30)         5.14 (4.84 to 5.45)         0.53 (0.55 to 0.66)         0.90 (0.57 to 0.95)         0.61         0.64         0.02         -0.02         0.01           Other infections         2.31 (2.37 to 2.93)         4.74 (4.50 to 5.70)         0.53 (0.55 to 0.66)         0.90 (0.55 to 0.66)         0.91 (0.57 to 0.95)         0.51         0.02         0.01	32	COPD	4.23 (4.17 to 4.30)	7.23 (6.88 to 7.56)	1.11 (1.09 to 1.13)	1.39 (1.32 to 1.46)	0.82	1.49	- 0.82	1.51
Other neurological         394 (255 to 491)         638 (51 to 681)         1.03 (0.77 to 123)         1.33 (101 to 171)         0.77         1.07         -0.26           Neomatal disorders         487 (473 to 501)         648 (611 to 681)         1.28 (1.26 to 133)         1.25 (1.18 to 131)         0.83         -0.90         0.15         -0.05           Neomatal disorders         487 (473 to 501)         648 (611 to 681)         1.28 (1.26 to 133)         0.23 (5.01 to 320)         0.21 (5.71 to 573)         0.23 (5.01 to 320)         0.03 (0.70 to 010)         0.75         -0.011         0.73         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.02         -0.011         0.011         0.01         -0.025         0.011         0.02         -0.011         0.011         0.011         0.011         0.011         0.011         0.011         0.011         0.011 <t< td=""><td>33</td><td>Multiple sclerosis</td><td>4.66 (4.27 to 5.07)</td><td>7.07 (6.28 to 8.01)</td><td>1.22 (1.12 to 1.33)</td><td>1.36 (1.21 to 1.54)</td><td>0.84</td><td>0.29</td><td>- 0.27</td><td>1.54</td></t<>	33	Multiple sclerosis	4.66 (4.27 to 5.07)	7.07 (6.28 to 8.01)	1.22 (1.12 to 1.33)	1.36 (1.21 to 1.54)	0.84	0.29	- 0.27	1.54
Neomatal disorders $48' (4.73  0.5  0)$ $648  (6.12  0.63)$ $1.28  (1.24  0.13)$ $1.25  (1.18  0.13)$ $0.33$ $-0.90$ $0.15$ Congenital anomalies $4.21  (4.05  0.437)$ $6.21  (5.71  0.657)$ $1.11  (1.06  1.15)$ $1.20  (1.101  0.13)$ $0.75$ $-0.15$ $0.02$ Pleast cancer $2.12  (2.310  0.329)$ $5.14  (4.84  0.554)$ $0.83  (0.56  0.060)$ $0.97  (0.68  0.09)$ $0.61  0.61$ $0.049$ Pleast cancer $2.21  (2.310  0.329)$ $5.14  (4.840  0.560)$ $0.91  (0.68  0.09)$ $0.51  0.103$ $0.049$ Pleast cancer $2.21  (2.310  0.329)$ $5.14  (4.840  0.560)$ $0.91  (0.561  0.09)$ $0.51  0.02$ $0.049$ Other infectious $2.37  (3.420  3.73)$ $4.74  (4.910  5.00)$ $0.91  (0.561  0.09)$ $0.51  0.02$ $0.049$ Other methal $2.37  (3.420  3.73)$ $4.23  (4.901  4.99)$ $0.70  (0.62  0.07)$ $0.83  (0.750  0.99)$ $0.64  0.07$ Other methal $2.37  (3.210  2.20)$ $4.23  (4.901  4.99)$ $0.70  (0.62  0.07)$ $0.83  (0.750  0.99)$ $0.64  0.07$ Other methal $2.45  (2.321  0.23)$ $3.73  (3.910  4.32)$ $0.64  (0.641  0.06)$ $0.73  (0.645  0.07)$ $0.73  (0.64  0.07)$ Other methal $1.74  (1.267  0.23)$ $3.73  (3.910  3.25)$ $0.64  (0.641  0.06)$ $0.73  (0.641  0.06)$ $0.73  (0.641  0.06)$ Other methal $1.72  (1.210  1.26)$ $2.88  (2.310  3.23)$ $0.56  (0.641  0.06)$ $0.73  (0.641  0.06)$ Other methal <t< td=""><td>34</td><td>Other neurological</td><td>3.94 (2.95 to 4.91)</td><td>6.93 (5.24 to 8.90)</td><td>1.03 (0.77 to 1.29)</td><td>1.33 (1.01 to 1.71)</td><td>0.77</td><td>1.07</td><td>- 0.26</td><td>1.41</td></t<>	34	Other neurological	3.94 (2.95 to 4.91)	6.93 (5.24 to 8.90)	1.03 (0.77 to 1.29)	1.33 (1.01 to 1.71)	0.77	1.07	- 0.26	1.41
Congenital anomalies         4.21 (405 to 4.37)         6.21 (571 to 6.79)         1.11 (106 to 1.15)         1.20 (1.10 to 1.31)         0.75         -0.15         0.02           Breast cancer         315 (301 to 3.29)         5.41 (581 to 5.43)         0.38 (0.79 to 0.86)         1.04 (0.98 to 1.11)         0.61         0.63         -0.11           Denst cancer         315 (301 to 3.29)         5.41 (581 to 5.43)         0.38 (0.55 to 0.66)         0.99 (0.351 to 1.05)         0.51         1.00         0.49         0.73         -0.11         0.09         0.49         0.44         0.88 (0.55 to 0.66)         0.99 (0.351 to 1.50)         0.41         0.44         0.44         0.88 (0.55 to 0.53)         0.55 (0.55 to 0.53)         0.53 (0.55 to 0.53)         0.53 (0.55 to 0.53)         0.53 (0.55 to 0.53)         0.53 (0.55 to 0.53)         0.56 (0.54 to 0.53)         0.56 (0.54 to 0.54)         0.73 <t< td=""><td>35</td><td>Neonatal disorders</td><td>4.87 (4.73 to 5.01)</td><td>6.48 (6.12 to 6.81)</td><td>1.28 (1.24 to 1.32)</td><td>1.25 (1.18 to 1.31)</td><td>0.83</td><td>- 0.90</td><td>0.15</td><td>1.53</td></t<>	35	Neonatal disorders	4.87 (4.73 to 5.01)	6.48 (6.12 to 6.81)	1.28 (1.24 to 1.32)	1.25 (1.18 to 1.31)	0.83	- 0.90	0.15	1.53
Breast cancer         315 (301 to 329)         541 (581 to 574)         0.83 (0.77 to 0.86)         1/4 (0.98 to 111)         0.61         0.63         -0.11           Prostate cancer         221 (2.13 to 2.30)         514 (434 to 545)         0.58 (0.56 to 0.60)         0.99 (0.93 to 105)         0.51         100         0.49           Prostate cancer         221 (2.13 to 2.30)         554 (4.49 to 545)         0.58 (0.56 to 0.60)         0.97 (0.66 to 1.03)         0.51         100         0.49           ADHD         357 (3.42 to 3.37)         474 (3.61 to 5.49)         0.80 (0.090 to 0.99)         0.97 (0.66 to 0.93)         0.56         -0.11         0.00           ADHD         314 (3.65 to 2.24)         4.49 (3.80 to 4.91)         0.70 (0.52 to 0.77)         0.83 (0.77 to 0.98)         0.46         0.23           ADHD         245 (2.37 to 2.39)         4.40 (3.81 to 4.91)         0.70 (0.52 to 0.77)         0.83 (0.77 to 0.88)         0.46         0.23           ADHe         245 (2.37 to 2.39)         34 (3.01 to 4.94)         0.73 (0.61 to 0.69)         0.74         0.23           ADH         245 (2.31 to 2.33)         353 (3.51 to 0.53)         0.56 (0.51 to 0.89)         0.46         0.23           ADH         246 (2.24)         3.33 (3.51 to 0.35)         0.56 (0.51 to 0.89)         0.46	36	Congenital anomalies	4.21 (4.05 to 4.37)	6.21 (5.71 to 6.79)	1.11 (1.06 to 1.15)	1.20 (1.10 to 1.31)	0.75	- 0.15	0.02	1.38
Prostate cancer         221 (2.13 to 2.20)         5.14 (4.84 to 5.45)         0.58 (0.56 to 0.60)         0.99 (0.93 to 1.05)         0.51         1.00         0.49           Other infectious         2.30 (2.09 to 2.50)         5.13 (4.49 to 5.60)         0.60 (0.55 to 0.66)         0.97 (0.86 to 1.06)         0.51         0.93         0.37         0.49           APHD         3.37 (3.42 to 3.73)         4.78 (4.30 to 5.09)         0.94 (0.00 to 0.98)         0.61         0.71         0.93         0.37           APHD         3.37 (3.291 to 2.39)         4.62 (4.39 to 4.94)         0.82 (0.80 to 0.93)         0.55        0.11         0.00           Iung cancers         2.66 (2.37 to 2.39)         4.78 (4.00 to 4.59)         0.70 (0.65 to 0.73)         0.55         0.74         0.73         0.39           Other metalial atthitis         2.15 (2.20 to 2.30)         3.78 (3.61 to 0.89)         0.65 (0.61 to 0.69)         0.70 (0.65 to 0.75)         0.70         0.73         0.23           Other metalia atthitis         2.15 (2.20 to 2.30)         3.76 (3.81 to 3.95)         0.56 (0.61 to 0.69)         0.71 (0.64         0.70         0.23         0.73         0.73         0.73         0.73         0.73         0.73         0.73         0.73         0.73         0.73         0.74         0.73 <td< td=""><td>37</td><td>Breast cancer</td><td>3.15 (3.01 to 3.29)</td><td>5.41 (5.08 to 5.74)</td><td>0.83 (0.79 to 0.86)</td><td>1.04 (0.98 to 1.11)</td><td>0.61</td><td>0.63</td><td>- 0.11</td><td>1.13</td></td<>	37	Breast cancer	3.15 (3.01 to 3.29)	5.41 (5.08 to 5.74)	0.83 (0.79 to 0.86)	1.04 (0.98 to 1.11)	0.61	0.63	- 0.11	1.13
Other infectious         230 (209 to 250)         503 (449 to 560)         060 (055 to 066)         097 (036 to 108)         051         093         037           ADHD         357 (342 to 373)         478 (450 to 509)         094 (090 to 038)         092 (037 to 039)         061         -0.52         001           ADHD         357 (342 to 373)         478 (450 to 509)         094 (090 to 038)         093 (057 to 059)         056         -0.11         000           Under mental         314 (305 to 322)         420 (430 to 459)         056 (054 to 059)         038 (075 to 059)         056         0.70         -0.39         033           Under mentolar         215 (205 to 224)         420 (430 to 459)         056 (054 to 059)         038 (075 to 059)         056         0.70         0.20         0.20           Other mentolar         215 (205 to 224)         420 (430 to 459)         056 (054 to 059)         038 (075 to 059)         038 (075 to 059)         0.70         0.70         0.23         0.23           Other mentolar         224 (230 to 239)         356 (338 to 395)         056 (051 to 059)         073 (056 to 076)         0.44         0.23         0.02         0.70         0.23         0.23         0.23         0.23         0.24         0.23         0.26         0.24	38	Prostate cancer	2.21 (2.13 to 2.30)	5.14 (4.84 to 5.45)	0.58 (0.56 to 0.60)	0.99 (0.93 to 1.05)	0.51	1.00	0.49	0.93
ADHD $357 (342 \text{ to} 3.73)$ $4.78 (450 \text{ to} 5.09)$ $0.94 (0.90 \text{ to} 0.98)$ $0.92 (0.87 \text{ to} 0.98)$ $0.61$ $-0.52$ $0.01$ Other mental $314 (3.05 \text{ to} 3.22)$ $4.62 (4.39 \text{ to} 4.84)$ $0.82 (0.80 \text{ to} 0.85)$ $0.92 (0.87 \text{ to} 0.95)$ $0.56$ $-0.11$ $0.00$ Unry cancers $2.56 (2.37 \text{ to} 2.29)$ $4.40 (3.89 \text{ to} 4.91)$ $0.70 (6.62 \text{ to} 0.77)$ $0.85 (0.75 \text{ to} 0.95)$ $0.76$ $0.70$ $-0.39$ Rheumatoid arthritis $2.15 (2.05 \text{ to} 2.24)$ $4.29 (4.007 \text{ to} 4.59)$ $0.56 (0.54 \text{ to} 0.55)$ $0.33 (0.77 \text{ to} 0.88)$ $0.46$ $0.23$ Other neoplasms $2.45 (2.39 \text{ to} 2.24)$ $4.29 (4.07 \text{ to} 4.49)$ $0.64 (0.53 \text{ to} 0.50)$ $0.33 (0.77 \text{ to} 0.88)$ $0.44$ $0.23$ Other neoplasms $2.45 (2.39 \text{ to} 2.24)$ $3.28 (3.61 \text{ to} 0.65)$ $0.33 (0.77 \text{ to} 0.88)$ $0.44$ $0.23$ Gallbidder and bil $2.24 (2.39 \text{ to} 2.24)$ $3.28 (3.61 \text{ to} 0.66)$ $0.33 (0.77 \text{ to} 0.89)$ $0.44$ $0.23$ Upper resp. tractifiect $2.38 (2.23 \text{ to} 2.32)$ $3.58 (3.38 \text{ to} 3.32)$ $0.64 (0.61 \text{ to} 0.64)$ $0.73 (0.61 \text{ to} 0.65)$ $0.74$ $0.23$ Independence $1.57 (1.27 \text{ to} 1.81)$ $2.88 (2.70 \text{ to} 3.04)$ $0.56 (6.61 \text{ to} 0.65)$ $0.31$ $0.32$ $0.31$ Multiple myeloma $1.57 (1.27 \text{ to} 1.81)$ $2.88 (2.20 \text{ to} 3.34)$ $0.57 (0.51 \text{ to} 0.55)$ $0.32$ $0.05$ Baing discretes $1.57 (1.24 \text{ to} 1.30)$ $2.84 (2.24 \text{ to} 3.33)$ $0.24 (0.61 \text{ to} 0.64)$ <	39	Other infectious	2.30 (2.09 to 2.50)	5.03 (4.49 to 5.60)	0.60 (0.55 to 0.66)	0.97 (0.86 to 1.08)	0.51	0.93	0.37	0.93
Other mental $314 (305 to 322)$ $462 (439 to 484)$ $082 (080 to 085)$ $089 (035 to 093)$ $0.56$ $-0.11$ $0.00$ Lung cancers $2.65 (2.37 to 293)$ $4.40 (389 to 491)$ $0.70 (0.62 to 0.77)$ $0.85 (0.75 to 093)$ $0.56$ $-0.11$ $0.03$ Rheumatoid arthritis $2.15 (2.05 to 224)$ $4.20 (4.07 to 449)$ $0.70 (0.62 to 0.77)$ $0.88 (0.77 to 0.88)$ $0.45$ $0.64$ $0.23$ Rheumatoid arthritis $2.15 (2.05 to 224)$ $4.20 (4.07 to 449)$ $0.64 (0.31 to 0.66)$ $0.83 (0.77 to 0.88)$ $0.48$ $0.64$ $0.23$ Gallbadder and bil $2.20 (2.18 to 223)$ $3.76 (3.10 to 5.75)$ $0.64 (0.57 to 0.75)$ $0.43$ $0.45$ $0.64$ $0.23$ Bip $2.24 (2.22 to 2.44)$ $3.37 (3.19 to 3.34)$ $0.64 (0.65 to 0.75)$ $0.43 (0.65 to 0.75)$ $0.44$ $0.66$ $-0.15$ Bip $2.24 (2.22 to 2.24)$ $3.37 (3.19 to 3.34)$ $0.64 (0.65 to 0.75)$ $0.43 (0.65 to 0.75)$ $0.43$ $0.66$ $-0.15$ Bip $1.76 (1.72 to 1.81)$ $2.38 (2.31 to 3.34)$ $0.56 (0.61 to 0.64)$ $0.65 (0.61 to 0.63)$ $0.33$ $0.23$ $-0.19$ Multiper repolarm $1.57 (1.72 to 1.81)$ $2.38 (2.31 to 3.34)$ $0.57 (0.54 to 0.56)$ $0.33 (0.65 to 0.75)$ $0.06$ $-0.15$ Multiper repolarm $1.57 (1.72 to 1.81)$ $2.38 (2.23 to 3.34)$ $0.57 (0.54 to 0.56)$ $0.74 to 0.56$ $0.06$ Multiper repolarm $1.57 (1.24 to 1.30)$ $0.57 (0.54 to 0.65)$ $0.55 (0.54 to 0.56)$ $0.74 to 0.76$ $0.05$ <	40	ADHD	3.57 (3.42 to 3.73)	4.78 (4.50 to 5.09)	0.94 (0.90 to 0.98)	0.92 (0.87 to 0.98)	0.61	- 0.52	0.01	1.12
Lung cancers $265 (237 to 239)$ $440 (389 to 491)$ $0.70 (0.62 to 0.77)$ $085 (0.75 to 0.95)$ $6.70$ $0.039$ Rheumatoid arthritis $2.15 (205 to 224)$ $4.29 (400 to 459)$ $0.56 (0.34 to 0.59)$ $0.83 (0.77 to 0.88)$ $0.45$ $0.64$ $0.23$ Rheumatoid arthritis $2.15 (2.05 to 2.24)$ $4.29 (400 ta 459)$ $0.56 (0.34 to 0.59)$ $0.83 (0.77 to 0.88)$ $0.45$ $0.64$ $0.23$ Other neoplarms $2.45 (2.39 to 2.23)$ $3.78 (3.61 ta 3.95)$ $0.56 (0.51 to 0.65)$ $0.73 (0.65 to 0.75)$ $0.44$ $0.66$ BD $2.20 (2.18 to 2.23)$ $3.56 (3.38 ta 3.92)$ $0.65 (0.61 to 0.64)$ $0.73 (0.65 to 0.75)$ $0.44$ $0.66$ Upper resp. tract infect $2.38 (2.32 to 2.34)$ $3.37 (3.19 ta 3.34)$ $0.66 (0.61 to 0.64)$ $0.65 (0.61 to 0.68)$ $0.42$ $-0.19$ Upper resp. tract infect $2.38 (2.32 to 2.34)$ $3.37 (3.19 ta 3.34)$ $0.66 (0.61 to 0.64)$ $0.56 (0.61 to 0.68)$ $0.42$ $0.06$ Upper resp. tract infect $2.38 (2.32 to 2.34)$ $3.37 (3.19 ta 3.34)$ $0.67 (0.61 to 0.68)$ $0.72$ $0.07$ $0.07$ Upper resp. tract infect $2.38 (2.32 to 2.34)$ $3.37 (3.19 ta 3.34)$ $0.66 (0.61 to 0.64)$ $0.65 (0.61 to 0.68)$ $0.72$ $0.07$ $0.07$ Upper resp. tract infect $2.38 (2.32 to 2.30)$ $2.86 (2.34 to 0.30)$ $0.65 (0.61 to 0.68)$ $0.72 (0.67 to 0.69)$ $0.06$ $0.07$ Uhtiple myeloma $1.71 (1.27 to 1.76)$ $2.88 (2.27 to 3.30)$ $0.41 (0.37 (0.46 to 0.64))$ $0.51 (0.67 to 0.56)$	41	Other mental	3.14 (3.05 to 3.22)	4.62 (4.39 to 4.84)	0.82 (0.80 to 0.85)	0.89 (0.85 to 0.93)	0.56	- 0.11	0.00	1.03
Rheumatoid arthritis $2.15 (2.05 to 2.24)$ $4.29 (4.00 to 4.59)$ $0.56 (0.54 to 0.59)$ $0.83 (0.77 to 0.88)$ $0.45$ $0.64$ $0.23$ Other neoplasms $2.45 (2.39 to 2.52)$ $4.29 (4.07 to 4.49)$ $0.64 (0.63 to 0.66)$ $0.33 (0.77 to 0.88)$ $0.47$ $0.47$ $0.29$ Gallbladder and bil $2.20 (2.18 to 2.23)$ $3.78 (351 to 3.95)$ $0.58 (0.57 to 0.59)$ $0.73 (0.69 to 0.76)$ $0.47$ $0.66$ $-0.29$ IBD $2.20 (2.18 to 2.23)$ $3.65 (3.38 to 3.92)$ $0.65 (0.61 to 0.66)$ $0.77 (0.65 to 0.75)$ $0.44$ $0.06$ $-0.15$ Upper resp. tract infect $2.38 (2.32 to 2.44)$ $3.37 (3.19 to 3.54)$ $0.65 (0.61 to 0.66)$ $0.77 (0.65 to 0.75)$ $0.44$ $0.06$ $-0.129$ Upper resp. tract infect $2.38 (2.32 to 2.44)$ $3.37 (3.19 to 3.54)$ $0.65 (0.61 to 0.66)$ $0.73 (0.65 to 0.75)$ $0.44$ $0.06$ $-0.129$ Upper resp. tract infect $2.38 (2.32 to 2.34)$ $3.73 (3.19 to 3.54)$ $0.65 (0.61 to 0.66)$ $0.72 (0.56 to 0.76)$ $0.07$ $0.07$ Multiple myeloma $1.51 (1.27 to 1.81)$ $2.86 (2.70 to 3.30)$ $0.46 (0.45 to 0.47)$ $0.55 (0.52 to 0.58)$ $0.33$ $0.22$ $-0.13$ Multiple myeloma $1.51 (1.27 to 1.76)$ $2.88 (2.39 to 3.310)$ $0.40 (0.35 (0.54 to 0.66)$ $0.33$ $0.23$ $0.24 to 0.64)$ $0.31$ Multiple myeloma $1.57 (1.41 to 1.74)$ $2.88 (2.31 to 3.24)$ $0.57 (0.54 to 0.66)$ $0.55 (0.46 to 0.64)$ $0.31$ $0.33$ Multiple myeloma $1.27 (1.24 to 1.30)$	42	Lung cancers	2.65 (2.37 to 2.93)	4.40 (3.89 to 4.91)	0.70 (0.62 to 0.77)	0.85 (0.75 to 0.95)	0.50	0.70	- 0.39	0.93
Other neoplasms         245 (239 to 252)         429 (407 to 449)         064 (0.65 to 0.66)         083 (0.78 to 0.86)         0.46         0.45         0.02           Gallbladder and bil         2.20 (2.18 to 2.23)         3.78 (3.61 to 3.95)         0.58 (0.57 to 0.59)         0.73 (0.69 to 0.76)         0.43         0.66         -0.029           IBD         2.48 (2.32 to 2.43)         3.55 (3.38 to 3.92)         0.65 (0.61 to 0.69)         0.70 (0.65 to 0.75)         0.44         0.06         -0.029           IBD         2.48 (2.32 to 2.44)         3.37 (3.19 to 3.54)         0.65 (0.61 to 0.68)         0.73 (0.69 to 0.68)         0.44         0.06         -0.029           Imasport injuries         1.76 (1.72 to 1.81)         2.85 (2.30 to 3.00)         0.66 (0.61 to 0.68)         0.55 (0.51 to 0.58)         0.33         0.20           Multiple myeloma         1.51 (1.27 to 1.81)         2.85 (2.30 to 3.00)         0.46 (0.33 to 0.45)         0.55 (0.51 to 0.59)         0.33         0.23         0.23           Multiple myeloma         1.51 (1.27 to 1.76)         2.85 (2.30 to 3.30)         0.46 (0.65 to 0.55)         0.31         0.32         0.23         0.05           Brain concers         1.51 (1.27 to 1.76)         2.88 (2.31 to 3.34)         0.57 (0.54 to 0.64)         0.55 (0.54 to 0.65)         0.34         0.05     <	43	Rheumatoid arthritis	2.15 (2.05 to 2.24)	4.29 (4.00 to 4.59)	0.56 (0.54 to 0.59)	0.83 (0.77 to 0.88)	0.45	0.64	0.23	0.83
Gallbladder and bil2.20 (2.18 to 2.23)3.78 (3.61 to 3.95)0.58 (0.57 to 0.59)0.73 (0.69 to 0.76)0.430.66-0.29IBD2.48 (2.32 to 2.63)3.65 (3.38 to 3.92)0.65 (0.61 to 0.69)0.70 (0.65 to 0.75)0.440.06-0.15Upper resp. tract infect2.38 (2.32 to 2.44)3.37 (3.19 to 3.54)0.65 (0.61 to 0.66)0.70 (0.65 to 0.75)0.440.06-0.190.00Transport injuries1.76 (1.72 to 1.81)2.85 (2.70 to 3.00)0.64 (0.45 to 0.47)0.55 (0.61 to 0.68)0.330.22-0.190.00Multiple myeloma1.51 (1.27 to 1.76)2.85 (2.39 to 3.33)0.40 (0.33 to 0.46)0.55 (0.61 to 0.68)0.310.22-0.07Multiple myeloma1.51 (1.27 to 1.76)2.85 (2.39 to 3.33)0.41 (0.37 to 0.66)0.55 (0.61 to 0.69)0.310.33Brain cancers1.57 (1.41 to 1.74)2.84 (2.49 to 3.19)0.67 (0.54 to 0.60)0.55 (0.51 to 0.59)0.36-0.02Anemia1.27 (1.24 to 1.30)2.84 (2.57 to 2.85)0.33 (0.31 to 0.46)0.55 (0.48 to 0.61)0.310.370.00Anemia1.27 (1.05 to 1.51)2.84 (2.91 to 3.32)0.33 (0.31 to 0.46)0.55 (0.48 to 0.61)0.310.370.07Non-melan. skin cancer1.27 (1.05 to 1.51)2.84 (2.47 to 2.84)0.53 (0.50 to 0.55)0.21 to 0.52)0.280.07Non-melan. skin cancer1.27 (1.05 to 1.51)2.66 (2.47 to 2.84)0.53 (0.51 to 0.55)0.21 (0.48 to 0.55)0.450.07 <trr>Non-melan. skin cancer</trr>	44	Other neoplasms	2.45 (2.39 to 2.52)	4.29 (4.07 to 4.49)	0.64 (0.63 to 0.66)	0.83 (0.78 to 0.86)	0.48	0.45	0.02	0.88
IBD         248 (2.32 to 2.63)         3.55 (3.38 to 3.92)         0.65 (0.61 to 0.69)         0.70 (0.65 to 0.75)         0.44         0.06         -0.15           Upper resp. tractinfect         2.38 (2.32 to 2.44)         337 (3.19 to 3.54)         0.65 (0.61 to 0.69)         0.70 (0.65 to 0.75)         0.44         0.06         -0.15           Upper resp. tractinfect         2.38 (2.32 to 2.44)         337 (3.19 to 3.54)         0.62 (0.61 to 0.64)         0.55 (0.51 to 0.68)         0.42         -0.19         0.00           Tansport injuries         1.51 (1.27 to 1.76)         2.85 (2.39 to 3.33)         0.40 (0.33 to 0.46)         0.55 (0.51 to 0.59)         0.33         0.22         -0.07         0.07           Multiple myeloma         1.51 (1.27 to 1.76)         2.85 (2.39 to 3.33)         0.40 (0.33 to 0.46)         0.55 (0.51 to 0.59)         0.33         0.33         0.33         0.33         0.33         0.33         0.35         0.48 to 0.64)         0.38         0.09         0.07           Rain cancers         1.57 (1.41 to 1.74)         2.84 (2.57 to 3.30)         0.55 (0.51 to 0.59)         0.33         0.36         0.35         0.36         0.03         0.07           Anemia         1.27 (1.24 to 1.30)         2.84 (2.57 to 2.85)         0.33 (0.33 to 0.41)         0.55 (0.48 to 0.51)         0.34	45	Gallbladder and bil	2.20 (2.18 to 2.23)	3.78 (3.61 to 3.95)	0.58 (0.57 to 0.59)	0.73 (0.69 to 0.76)	0.43	0.66	- 0.29	0.78
Upper resp. tract infect         2.38 (2.32 to 2.44)         3.37 (3.19 to 3.54)         0.62 (0.61 to 0.64)         0.65 (0.61 to 0.68)         0.42         -0.19         0.00           Tansport injuries         1.76 (1.72 to 1.81)         2.85 (2.70 to 300)         0.46 (0.45 to 0.47)         0.55 (0.52 to 0.58)         0.33         0.22         -0.07           Multiple myeloma         1.51 (1.27 to 1.76)         2.85 (2.39 to 3.33)         0.40 (0.33 to 0.46)         0.55 (0.51 to 0.59)         0.33         0.22         -0.07           Multiple myeloma         1.51 (1.27 to 1.76)         2.84 (2.59 to 3.34)         0.57 (0.54 to 0.60)         0.55 (0.51 to 0.59)         0.31         0.33         0.32           Rain cancers         1.57 (1.41 to 1.74)         2.84 (2.57 to 3.81)         0.41 (0.37 to 0.46)         0.55 (0.48 to 0.61)         0.31         0.36         0.36         0.37         0.30           Anemia         1.27 (1.24 to 1.30)         2.71 (2.57 to 2.85)         0.33 (0.31 to 0.42)         0.52 (0.48 to 0.55)         0.31         0.36         0.36         0.37         0.30           Anemia         1.27 (1.26 to 1.51)         2.88 (2.21 to 3.22)         0.33 (0.33 to 0.34)         0.52 (0.48 to 0.55)         0.36         0.36         0.36         0.30           Non-melan skin cancer         1.27 (1.24 to 1.30	46	IBD	2.48 (2.32 to 2.63)	3.65 (3.38 to 3.92)	0.65 (0.61 to 0.69)	0.70 (0.65 to 0.75)	0.44	0.06	- 0.15	0.82
Tansport injuries         1.76 (1.72 to 1.81)         2.85 (2.70 to 3.00)         0.46 (0.45 to 0.47)         0.55 (0.52 to 0.58)         0.33         0.22         -0.07           Multiple myeloma         1.51 (1.27 to 1.76)         2.85 (2.39 to 3.33)         0.40 (0.33 to 0.46)         0.55 (0.46 to 0.64)         0.31         0.38         0.09           Brain disorders         2.17 (2.05 to 2.30)         2.84 (2.55 to 3.04)         0.57 (0.54 to 0.60)         0.55 (0.48 to 0.61)         0.31         0.38         0.09           Rain cancers         1.57 (1.41 to 1.74)         2.84 (2.49 to 3.19)         0.41 (0.37 to 0.46)         0.55 (0.48 to 0.61)         0.31         0.37         0.00           Anemia         1.27 (1.24 to 1.30)         2.84 (2.49 to 3.19)         0.41 (0.37 to 0.46)         0.55 (0.48 to 0.61)         0.31         0.37         0.00           Anemia         1.27 (1.24 to 1.30)         2.71 (2.57 to 2.85)         0.33 (0.33 to 0.34)         0.52 (0.49 to 0.55)         0.22         0.37         0.00           Non-melan. skin cancer         1.27 (1.26 to 1.51)         2.68 (2.21 to 3.22)         0.33 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.28         0.45         0.17           Antistic disorders         2.00 (1.92 to 2.80)         2.66 (2.47 to 2.84)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)	47	Upper resp. tract infect	2.38 (2.32 to 2.44)	3.37 (3.19 to 3.54)	0.62 (0.61 to 0.64)	0.65 (0.61 to 0.68)	0.42	- 0.19	0.00	0.77
Multiple myeloma         1.51 (1.27 to 1.76)         2.85 (2.39 to 3.33)         0.40 (0.33 to 0.46)         0.55 (0.46 to 0.64)         0.31         0.38         0.09           Eating disorders         2.17 (2.05 to 2.30)         2.84 (2.65 to 3.04)         0.57 (0.54 to 0.60)         0.55 (0.51 to 0.59)         0.36         -0.32         -0.05           Brain cancers         1.57 (1.41 to 1.74)         2.84 (2.49 to 3.19)         0.41 (0.37 to 0.46)         0.55 (0.48 to 0.61)         0.31         0.37         0.00           Anemia         1.27 (1.24 to 1.30)         2.71 (2.57 to 2.85)         0.33 (0.33 to 0.34)         0.52 (0.49 to 0.55)         0.28         0.66         0.00           Non-melan. skin cancer         1.27 (1.24 to 1.30)         2.71 (2.57 to 2.85)         0.33 (0.33 to 0.34)         0.52 (0.49 to 0.55)         0.28         0.66         0.00           Non-melan. skin cancer         1.27 (1.05 to 1.51)         2.68 (2.21 to 2.30)         0.33 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.28         0.45         0.17           Autistic disorders         2.00 (1.92 to 2.20)         2.66 (2.24 7o 2.84)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.34         0.45         0.17           Partiple al vascular         1.26 (1.24 to 1.28)         2.65 (2.47 to 2.84)         0.53 (0.50 to 0.55)         0.	48	Transport injuries	1.76 (1.72 to 1.81)	2.85 (2.70 to 3.00)	0.46 (0.45 to 0.47)	0.55 (0.52 to 0.58)	0.33	0.22	- 0.07	0.61
Eating disorders         2.17 (2.05 to 2.30)         2.84 (2.65 to 3.04)         0.57 (0.54 to 0.60)         0.55 (0.51 to 0.59)         0.36         -0.32         -0.05           Brain cancers         1.57 (1.41 to 1.74)         2.84 (2.49 to 3.19)         0.41 (0.37 to 0.46)         0.55 (0.48 to 0.61)         0.31         0.37         0.00           Anemia         1.27 (1.24 to 1.30)         2.71 (2.57 to 2.85)         0.33 (0.33 to 0.34)         0.52 (0.49 to 0.55)         0.28         0.66         0.00           Non-melan. skin cancer         1.27 (1.05 to 1.51)         2.68 (2.21 to 3.22)         0.33 (0.28 to 0.40)         0.52 (0.43 to 0.65)         0.28         0.45         0.17           Autistic disorders         2.00 (1.92 to 2.08)         2.56 (2.47 to 2.84)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.34         -0.32         0.17           Autistic disorders         2.00 (1.92 to 2.08)         2.56 (2.47 to 2.84)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.34         -0.32         0.17           Peripheral vascular         1.26 (1.24 to 1.28)         2.43 (2.31 to 2.54)         0.33 (0.32 to 0.34)         0.47 (0.44 to 0.49)         0.61         -0.32         0.01	49	Multiple myeloma	1.51 (1.27 to 1.76)	2.85 (2.39 to 3.33)	0.40 (0.33 to 0.46)	0.55 (0.46 to 0.64)	0.31	0.38	60:0	0.57
Brain cancers         1.57 (1.41 to 1.74)         2.84 (2.49 to 3.19)         0.41 (0.37 to 0.46)         0.55 (0.48 to 0.61)         0.31         0.37         0.00           Anemia         1.27 (1.24 to 1.30)         2.71 (2.57 to 2.85)         0.33 (0.33 to 0.34)         0.52 (0.49 to 0.55)         0.28         0.66         0.00           Non-melan. skin cancer         1.27 (1.05 to 1.51)         2.68 (2.21 to 3.22)         0.33 (0.28 to 0.40)         0.52 (0.43 to 0.62)         0.28         0.45         0.17           Autistic disorders         2.00 (1.92 to 2.08)         2.66 (2.21 to 3.22)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.28         0.17           Autistic disorders         2.00 (1.92 to 2.08)         2.65 (2.47 to 2.84)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.34         -0.32         0.17           Peripheral vascular         1.26 (1.24 to 1.28)         2.43 (2.31 to 2.54)         0.33 (0.32 to 0.34)         0.47 (0.44 to 0.49)         0.26         0.61         -0.18	50	Eating disorders	2.17 (2.05 to 2.30)	2.84 (2.65 to 3.04)	0.57 (0.54 to 0.60)	0.55 (0.51 to 0.59)	0.36	- 0.32	- 0.05	0.67
Anemia         1.27 (1.24 to 1.30)         2.71 (2.57 to 2.85)         0.33 (0.33 to 0.34)         0.52 (0.49 to 0.55)         0.28         0.66         0.00           Non-melan. skin cancer         1.27 (1.05 to 1.51)         2.68 (2.21 to 3.22)         0.33 (0.28 to 0.40)         0.52 (0.43 to 0.62)         0.28         0.45         0.17           Autistic disorders         2.00 (1.92 to 2.08)         2.65 (2.47 to 2.84)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.34         -0.32         0.01           Peripheral vascular         1.26 (1.24 to 1.28)         2.43 (2.31 to 2.54)         0.33 (0.32 to 0.34)         0.47 (0.44 to 0.49)         0.26         0.61         -0.18	51	Brain cancers	1.57 (1.41 to 1.74)	2.84 (2.49 to 3.19)	0.41 (0.37 to 0.46)	0.55 (0.48 to 0.61)	0.31	0.37	0.00	0.57
Non-melan. skin cancer         1.27 (1.05 to 1.51)         2.68 (2.21 to 3.22)         0.33 (0.28 to 0.40)         0.52 (0.43 to 0.62)         0.28         0.45         0.17           Autistic disorders         2.00 (1.92 to 2.08)         2.65 (2.47 to 2.84)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.34         -0.32         0.01           Peripheral vascular         1.26 (1.24 to 1.28)         2.43 (2.31 to 2.54)         0.33 (0.32 to 0.34)         0.47 (0.44 to 0.49)         0.26         0.61         -0.18	52	Anemia	1.27 (1.24 to 1.30)	2.71 (2.57 to 2.85)	0.33 (0.33 to 0.34)	0.52 (0.49 to 0.55)	0.28	0.66	0.00	0.51
Autistic disorders         2.00 (1.92 to 2.08)         2.65 (2.47 to 2.84)         0.53 (0.50 to 0.55)         0.51 (0.48 to 0.55)         0.34         -0.32         0.01           Peripheral vascular         1.26 (1.24 to 1.28)         2.43 (2.31 to 2.54)         0.33 (0.32 to 0.34)         0.47 (0.44 to 0.49)         0.26         0.61         -0.18	53	Non-melan. skin cancer	1.27 (1.05 to 1.51)	2.68 (2.21 to 3.22)	0.33 (0.28 to 0.40)	0.52 (0.43 to 0.62)	0.28	0.45	0.17	0.51
Peripheral vascular 1.26 (1.24 to 1.28) 2.43 (2.31 to 2.54) 0.33 (0.32 to 0.34) 0.47 (0.44 to 0.49) 0.26 0.61 – 0.18	54	Autistic disorders	2.00 (1.92 to 2.08)	2.65 (2.47 to 2.84)	0.53 (0.50 to 0.55)	0.51 (0.48 to 0.55)	0.34	- 0.32	0.01	0.62
	55	Peripheral vascular	1.26 (1.24 to 1.28)	2.43 (2.31 to 2.54)	0.33 (0.32 to 0.34)	0.47 (0.44 to 0.49)	0.26	0.61	- 0.18	0.48

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						and 2050 (Billion NOK)	3illion NOK)		
Rank 2050	Cause name	2022 Billion NOK	2050 Billion NOK	2022 per GDP/1000	2050 per GDP/1000	Pop	Aging	Prev	Unit cost
56	Headache	1.62 (1.62 to 1.63)	2.42 (2.32 to 2.53)	0.43 (0.42 to 0.43)	0.47 (0.45 to 0.49)	0.29	- 0.03	0:00	0.54
57	Hernia	1.27 (1.15 to 1.40)	2.24 (1.96 to 2.53)	0.33 (0.30 to 0.37)	0.43 (0.38 to 0.49)	0.25	0.55	- 0.28	0.46
58	Leukemia	1.50 (1.29 to 1.72)	2.22 (1.88 to 2.56)	0.39 (0.34 to 0.45)	0.43 (0.36 to 0.49)	0.27	0.23	- 0.28	0.50
59	Diarrheal diseases	0.73 (0.70 to 0.76)	2.04 (1.93 to 2.16)	0.19 (0.18 to 0.20)	0.39 (0.37 to 0.42)	0.19	0.18	0.60	0.34
60	Malnutrition	0.95 (0.93 to 0.98)	2.00 (1.79 to 2.25)	0.25 (0.24 to 0.26)	0.38 (0.35 to 0.43)	0.21	0.46	0.00	0.38
61	Non-Hodgkin lymph	1.12 (1.02 to 1.23)	1.98 (1.79 to 2.20)	0.29 (0.27 to 0.32)	0.38 (0.34 to 0.42)	0.22	0.27	- 0.04	0.41
62	HIV/AIDS	0.69 (0.62 to 0.77)	1.96 (1.75 to 2.18)	0.18 (0.16 to 0.20)	0.38 (0.34 to 0.42)	0.18	0.03	0.73	0.33
63	Paralytic/intestinal	0.87 (0.65 to 1.10)	1.76 (1.32 to 2.22)	0.23 (0.17 to 0.29)	0.34 (0.25 to 0.43)	0.18	0.28	0.09	0.34
64	Bladder cancer	0.84 (0.77 to 0.91)	1.71 (1.55 to 1.89)	0.22 (0.20 to 0.24)	0.33 (0.30 to 0.36)	0.18	0.36	0.00	0.33
65	Pancreatic cancer	0.76 (0.60 to 0.94)	1.59 (1.24 to 1.97)	0.20 (0.16 to 0.25)	0.31 (0.24 to 0.38)	0.16	0.22	0.14	0.30
66	Malignant skin mel	0.84 (0.79 to 0.88)	1.57 (1.46 to 1.68)	0.22 (0.21 to 0.23)	0.30 (0.28 to 0.32)	0.17	0.24	0.01	0.31
67	Self-harm and violence	1.09 (1.07 to 1.12)	1.53 (1.45 to 1.61)	0.29 (0.28 to 0.29)	0.30 (0.28 to 0.31)	0.19	0.05	- 0.15	0.35
68	Kidney cancer	0.77 (0.68 to 0.86)	1.39 (1.22 to 1.55)	0.20 (0.18 to 0.23)	0.27 (0.24 to 0.30)	0.15	0.17	0.02	0.28
69	Asthma	2.14 (2.10 to 2.18)	1.38 (1.32 to 1.45)	0.56 (0.55 to 0.57)	0.27 (0.25 to 0.28)	0.27	0.12	- 1.66	0.51
70	Oral disorders	0.84 (0.83 to 0.84)	1.35 (1.29 to 1.41)	0.22 (0.22 to 0.22)	0.26 (0.25 to 0.27)	0.16	0.07	0.00	0.29
71	Cirrhosis	0.99 (0.98 to 1.00)	1.35 (1.29 to 1.41)	0.26 (0.26 to 0.26)	0.26 (0.25 to 0.27)	0.17	0.10	- 0.23	0.31
72	Pancreatitis	0.66 (0.61 to 0.72)	1.20 (1.09 to 1.31)	0.17 (0.16 to 0.19)	0.23 (0.21 to 0.25)	0.13	0.17	- 0.01	0.24
73	Ovarian cancer	0.64 (0.53 to 0.77)	1.14 (0.92 to 1.36)	0.17 (0.14 to 0.20)	0.22 (0.18 to 0.26)	0.13	0.13	0.01	0.23
74	Lung disease	0.53 (0.48 to 0.58)	1.10 (0.98 to 1.21)	0.14 (0.13 to 0.15)	0.21 (0.19 to 0.23)	0.11	0.21	0.04	0.21
75	Uterine cancer	0.56 (0.51 to 0.62)	0.99 (0.87 to 1.10)	0.15 (0.13 to 0.16)	0.19 (0.17 to 0.21)	0.11	60:0	0.02	0.20
76	Hepatitis	0.65 (0.56 to 0.73)	0.91 (0.78 to 1.05)	0.17 (0.15 to 0.19)	0.18 (0.15 to 0.20)	0.11	- 0.01	- 0.05	0.21
77	Endocarditis	0.37 (0.27 to 0.47)	0.87 (0.64 to 1.11)	0.10 (0.07 to 0.12)	0.17 (0.12 to 0.21)	0.09	0.14	0.11	0.16
78	Gout	0.36 (0.35 to 0.37)	0.77 (0.73 to 0.80)	0.09 (0.09 to 0.10)	0.15 (0.14 to 0.15)	0.08	0.16	0.03	0.14
79	Appendicitis	0.72 (0.41 to 1.06)	0.74 (0.44 to 1.08)	0.19 (0.11 to 0.28)	0.14 (0.08 to 0.21)	0.11	0.02	- 0.31	0.20
80	Mouth cancer	0.39 (0.32 to 0.46)	0.69 (0.56 to 0.82)	0.10 (0.08 to 0.12)	0.13 (0.11 to 0.16)	0.08	0.10	- 0.02	0.14
81	Liver cancer	0.30 (0.21 to 0.39)	0.64 (0.46 to 0.84)	0.08 (0.06 to 0.10)	0.12 (0.09 to 0.16)	0.06	0.07	0.08	0.12
82	Varicella	0.35 (0.30 to 0.39)	0.63 (0.53 to 0.73)	0.09 (0.08 to 0.10)	0.12 (0.10 to 0.14)	0.07	0.19	- 0.10	0.13
83	Maternal disorders	1.43 (1.20 to 1.68)	0.61 (0.51 to 0.72)	0.38 (0.32 to 0.44)	0.12 (0.10 to 0.14)	0.16	- 0.09	- 1.19	0.30
84	Stomach cancer	0.46 (0.35 to 0.56)	0.60 (0.45 to 0.74)	0.12 (0.09 to 0.15)	0.11 (0.09 to 0.14)	0.08	0.11	- 0.19	0.14
85	Esophageal cancer	0.32 (0.22 to 0.42)	0.54 (0.38 to 0.70)	0.08 (0.06 to 0.11)	0.10 (0.07 to 0.14)	0.06	0.07	- 0.02	0.11
86	Cardiomyo. and myocard	0.38 (0.33 to 0.43)	0.49 (0.43 to 0.55)	0.10 (0.09 to 0.11)	0.09 (0.08 to 0.11)	0.06	0.04	- 0.11	0.12
87	Conduct disorder	1020 1026 +0 1020	0 49 (0 45 +0 0 51)		000 00000000000000000000000000000000000	200	0	0000	

						Contribution of four fa and 2050 (Billion NOK)	Contribution of four factors to changes in spending from 2022 and 2050 (Billion NOK)	changes in spen	ding from 2022
Rank 2050	Cause name	2022 Billion NOK	2050 Billion NOK	2022 per GDP/1000	2050 per GDP/1000	Pop	Aging	Prev	Unit cost
88	Otitis media	0.38 (0.36 to 0.40)	0.39 (0.36 to 0.41)	0.10 (0.09 to 0.10)	0.07 (0.07 to 0.08)	0.06	- 0.03	- 0.12	0.11
89	Meningitis	0.40 (0.31 to 0.49)	0.35 (0.27 to 0.43)	0.10 (0.08 to 0.13)	0.07 (0.05 to 0.08)	0.06	0.05	- 0.27	0.10
06	Thyroid cancer	0.19 (0.16 to 0.23)	0.34 (0.28 to 0.40)	0.05 (0.04 to 0.06)	0.06 (0.05 to 0.08)	0.04	0.03	00.00	0.07
91	Anemias	0.22 (0.21 to 0.22)	0.33 (0.32 to 0.35)	0.06 (0.06 to 0.06)	0.06 (0.06 to 0.07)	0.04	0.01	00.00	0.07
92	Cervical cancer	0.26 (0.21 to 0.32)	0.31 (0.25 to 0.38)	0.07 (0.05 to 0.08)	0.06 (0.05 to 0.07)	0.04	0.02	- 0.09	0.08
93	STD (excl. HIV)	0.23 (0.22 to 0.23)	0.31 (0.30 to 0.33)	0.06 (0.06 to 0.06)	0.06 (0.06 to 0.06)	0.04	- 0.01	- 0.01	0.07
94	Rheumatic heart dis	0.17 (0.14 to 0.19)	0.31 (0.26 to 0.37)	0.04 (0.04 to 0.05)	0.06 (0.05 to 0.07)	0.03	0.05	00.00	0.06
95	Other pharynx canc	0.16 (0.12 to 0.21)	0.28 (0.20 to 0.38)	0.04 (0.03 to 0.06)	0.05 (0.04 to 0.07)	0.03	0.02	0.01	0.06
96	Vascular intestinal	0.16 (0.10 to 0.22)	0.28 (0.17 to 0.39)	0.04 (0.03 to 0.06)	0.05 (0.03 to 0.08)	0.03	0.05	- 0.02	0.06
97	Hodgkin lymphoma	0.18 (0.13 to 0.22)	0.27 (0.20 to 0.33)	0.05 (0.04 to 0.06)	0.05 (0.04 to 0.06)	0.03	0.01	- 0.01	0.06
98	Encephalitis	0.16 (0.09 to 0.23)	0.25 (0.15 to 0.36)	0.04 (0.02 to 0.06)	0.05 (0.03 to 0.07)	0.03	0.01	- 0.01	0.05
66	Gallbladder cancer	0.14 (0.09 to 0.19)	0.19 (0.13 to 0.27)	0.04 (0.02 to 0.05)	0.04 (0.03 to 0.05)	0.02	0.03	- 0.05	0.04
100	Larynx cancer	0.13 (0.09 to 0.16)	0.18 (0.13 to 0.23)	0.03 (0.02 to 0.04)	0.03 (0.03 to 0.04)	0.02	0.03	- 0.04	0.04
Historic <sup>k</sup> and the y	Historic health account values were from OECD Health expenditure and financing [13] and Statistics Norway [19] Figures for the two last years are preliminary. Historic GDP values were from OECD Economic Outlook 109, and the years 2021 and 2022 are forecasts [43]	ECD Health expenditure and 43]	d financing [13] and Statistic	s Norway [19] Figures for the	e two last years are prelin	ninary. Historic	GDP values were fro	om OECD Econor	nic Outlook 109,

(continued)	
Table 2	

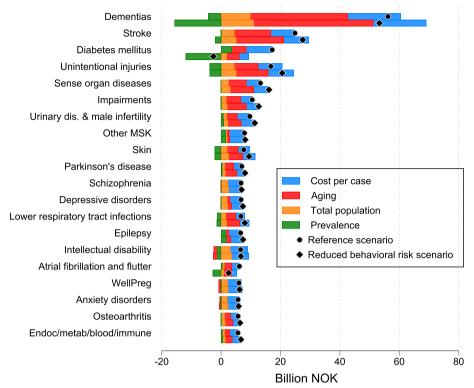


Fig. 4 Decomposed changes in health spending associated with unit costs, disease prevalence, aging, and total population for the 20 health conditions with the largest increase in spending in the reference scenario, 2022–2050. Note: Spending on the top 20 health conditions in the figure constitutes 66% of total spending in 2050

forecasting the implications of reductions in risks from behavioral & metabolic risk factors. Compared to the reference scenario, the reduced behavioral and metabolic risk scenario predicted declines in age-specific prevalence for conditions like dementia. At the same time, this scenario also forecasted a larger older population, due to decreased mortality from diseases associated with behavioral risks. Although this shift in spending from younger to older had little impact on total healthcare spending, this scenario will reduce overall disability and premature mortality and thus increase HALE substantially [20]. As such, it will not reduce spending substantially but increase performance and efficiency by having a healthier population living longer. As the population ages, if any related policies could raise the proportion of the population that is working, thereby boosting GDP, it could potentially also mitigate the growth of health care spending as a percentage of GDP.

#### Limitations

Long-term forecasting, and especially of health care spending, is inherently uncertain [41]. For example, new technology, like new weight loss treatments, may impact on risk factors and diseases and thereby change the prevalence and management. In addition, this study has several limitations. First, the model only partially accounted for a potential heterogeneous effect of GDP per capita, prices, and technological advancement on the cost per case across different health conditions. It assumed that the development of spending per case was uniform, within the type of care, and proportional to the spending patterns observed in 2019 by age and disease. Second, our estimates may be biased as health spending and GDP could be correlated due to various factors, including unmeasured third variables, that were not accounted for in our regressions [42]. Additionally, the causal relationship between health spending per case and GDP per capita could be bidirectional [43]. Third, the model does not separate treatment proportion, volume of care, intensity of care, and price for each health condition and age group but models these jointly. Fourth, this study relied on estimates and forecasts from other studies, which themselves contain uncertainties due to data limitations, although we did propagate uncertainty intended to capture this. Fifth, the model did not account for any changes in cost per case resulting from future changes in immigration. Also, our estimates assumed constant patterns of spending for comorbidities. However, these comorbidity patterns may change over the coming decades, and our estimates cannot account for such changes. Sixth, while we have tested the model on a "left out" period of historical data, this "left out" period covered only 10 year, which was less than our forecasts of spending of 28 years. Finally, our UIs only captured a subset of uncertainty. They do not capture the uncertainty from the decisions about the model and one of the data sources did not have any estimates of uncertainty. Hence, the UIs should be considered a lower bound.

#### Conclusions

Norwegian health spending was forecasted to grow in four scenarios, highlighting the need for policymakers to prepare for this rise. The growth was expected to be more pronounced in long-term care compared to other health services. However, government policies can shape the trajectory of health expenditures, depending on how resources are allocated within the healthcare system.

#### Abbreviations

BNOK	Billion NOK
GDP	Gross domestic product
HALE	Healthy life expectancy
HCE	Curative health care
IHME	Institute for Health Metrics and Evaluation
LTC	Long-term care
MAE	Mean absolute error
MAPE	Mean absolute percentage error
MRI	Magnetic resonance imaging
OECD	The Organisation for Economic Co-operation and Development
RMSE	Root mean squared error
THE	Total health spending
UI	Uncertainty interval

#### **Supplementary Information**

The online version contains supplementary material available at https://doi. org/10.1186/s12916-025-03917-2.

Additional file 1: Supplementary methods Part 1–3: Part 1. Determinants of health and long-term care expenditures. Part 2. More details about the forecasting methodology. Part 3. The cause list. Supplementary tables 1–4. Supplemental Table 1. Data sources used in this study. Supplemental Table 2. Aggregated to disaggregated reporting level. Supplemental Table 3. Regression results, coefficients and standard errors. Supplemental Table 4. Forecast performance measures. Supplemental Figs. 1–5. Supplemental Fig. 1. Forecasted growth in GDP per capita, with uncertainty intervals. Supplemental Fig. 2. Historic and four forecasted scenarios for health spending, 2009–2019. Supplemental Fig. 3. Historic and four forecasted scenarios for health spending as % of GDP, 2009–2019. Supplemental Fig. 4. Four forecasted scenarios for health spending as % of GDP, for health care expendituresand long-term care expenditures. Supplemental Fig. 5. Four scenarios for spending varying the contribution of GDP per capita growth and residual growth.

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#### Authors' contributions

Conceptualization: JMK, JD, SEV. Data curation: JMK, HØ, BAR. Formal analysis: JMK. Resources: JMK, AKK. Methodology: JMK, HØ, JD, BAR, GG, CM, SEV. Project administration: JMK, SEV. Validation: JMK, HØ, JD, BAR, AKK, GS, JF, EB, GG,

CM, SEV. Supervision: SEV. Visualization: JMK, JD, HØ, CM, SEV. Writing original draft: JMK, BAR, SEV. Review & editing: JMK, HØ, JD, BAR, AKK, GS, JF, GG, EB, CM, SEV. JMK had final responsibility for the decision to submit for publication.

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#### Data availability

Parts of the data that support the findings of this study are available from helsedata no but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Some of the data is publicly available and described with references in Additional file 1, Supplemental Table 1.

#### Declarations

#### Ethics approval and consent to participate

The microdata used for the Norwegian Health Spending Project was approved, and participant consent was waived, by the Regional Committee for Medical and Health Research Ethics South-East Norway, reference number 184544.

#### **Consent for publication**

Not applicable.

#### **Competing interests**

GS has received honoraria for giving lectures at symposia sponsored by Eisai and Eli-Lilly. GS had participated at advisory boards for Eisai and Eli-Lilly concerning anti-amyloid treatment in Alzheimer's disease.

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