

Summary

In this report, we estimate that approximately 114,000 persons in Norway suffer from disease-related malnutrition. This results in a total social cost in excess of NOK 31 billion in 2022. There are large variations in the healthcare system throughout Norway with regard to identifying and following up persons with a risk of disease-related malnutrition. Several earlier reports have documented benefits in the range of billions of kroner related to the prevention of malnutrition. The considerable social costs and the variations in the follow-up of patients documented in this report indicate that the preventive potential is large.

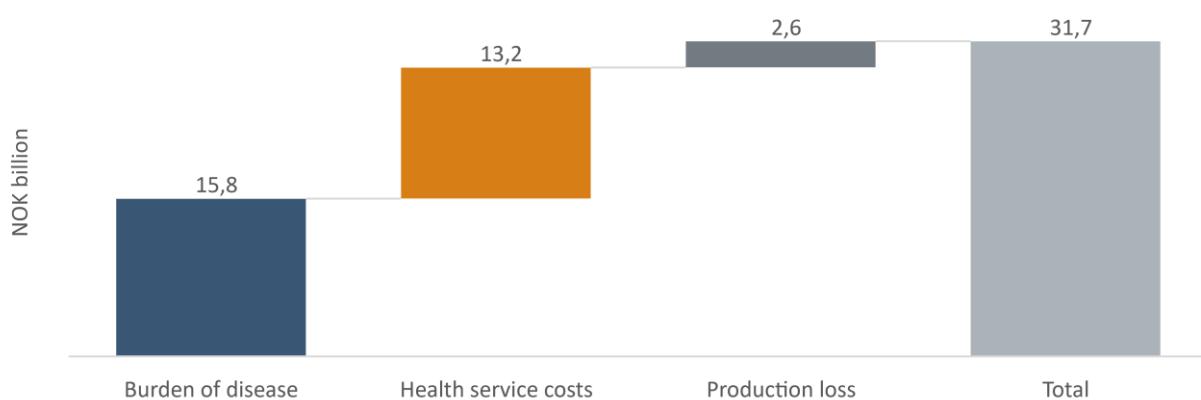
This report focuses on persons that are already suffering from malnutrition, not those who are merely at risk. Disease-related malnutrition is a condition that affects people of all ages and occurs when the body's need for energy and nutrients over time is not satisfied through the consumption of food and drink. The condition leads to an increased risk of disease, complications related to disease, longer stays in hospital and higher mortality.

Total social costs of more than NOK 30 billion related to malnutrition

The total social costs related to malnutrition are estimated to NOK 31.7 billion in 2022. There are no reliable sources on the incidence of malnutrition, and there are large variations in the estimates between different studies. This also means that there is considerable uncertainty associated with the estimated social costs. The results from our uncertainty analysis show that the overall social costs are between NOK 23 billion and 41 billion.

To put the extent of the social costs related to malnutrition in context, we can look at this in relation to the impact of other diseases. The Norwegian Directorate of Health has estimated the total social costs related to disease and accidents in Norway in 2015 at approximately NOK 2,000 billion. In other words, malnutrition represents, seen in isolation, 1.5 percent of the overall socio-economic consequences of disease.

Total social costs related to malnutrition in billion 2022-NOK



Burden of disease: Loss of health-related quality of life and premature death

For persons suffering from malnutrition, this means increased ill-health and higher mortality. The total loss resulting from loss of health-related quality of life and premature death is estimated to almost 12,000 quality-adjusted life years (QUALY) in 2022. This burden of disease entails an economic loss calculated to NOK 15.8

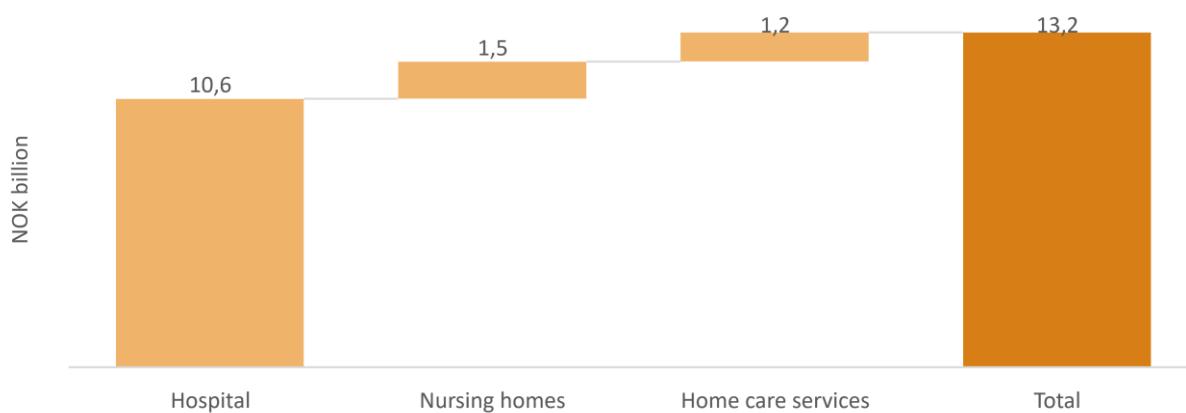
billion. Non-fatal health loss stands for approximately 80 percent of the disease burden, while the remaining 20 percent are related to lost years of life due to premature death.

Health service costs

In total, we estimate that the health service costs related to malnutrition are NOK 13.2 billion in 2022. Of this, specialist health service costs stand for 80 percent (NOK 10.6 billion), while the remaining 20 percent (NOK 2.7 billion) are related to nursing homes and the home care service in the municipalities.

The biggest cost driver in health services is days spent in hospital. A patient admitted to hospital with malnutrition as a secondary diagnosis has, on average, a significantly longer stay than a patient without this diagnosis, all other things being equal. Based on the total cost for inpatient stays in hospital, approximately NOK 90 billion per year, NOK 10.6 billion thus constitutes approximately 12 per cent of these costs.

Health service costs related to malnutrition in Norway, distributed on hospital stays, nursing homes and home care services in 2022



Informal care from family caregivers stands for a significant number of FTEs related to care services in Norway. In this report, the estimated health service costs only cover the formal health and care services. The increased resource use related to informal care resulting from malnutrition therefore comes in addition to the costs that are mapped here.

Production loss

By production loss, we mean the negative impacts disease has on the Norwegian economy, in the form of reduced participation in working life and lower productivity. For malnutrition, the total production loss is estimated to NOK 2.6 billion in 2022. *Disease-related* malnutrition often means that another illness is the primary cause for reduced work participation. Malnutrition may however prolong the course of the disease and thus result in negative consequences for value creation in society. However, the largest share of the overall production loss is due to the efficiency loss linked to tax-financed services, commonly known as tax financing cost, which is the primary source of loss.

Significant potential for cost savings related to prevention

With yearly social costs of more than NOK 31 billion, malnutrition is a major social problem. This means that there is a large potential related to the prevention of malnutrition, which is important to reduce the scale of the problem. Norway's national strategy for a good diet and nutrition for the elderly in nursing homes and in receipt of home care services clearly states that preventive measures against malnutrition lead to considerable cost savings. *Inter alia*, the strategy points to data from Denmark which estimate that a preventive, targeted effort against malnutrition will result in annual cost savings of approximately NOK 1.5 billion in the health and care services.

Both the findings from this report and several other studies substantiate that there will be potential socio-economic benefits related to the prevention of malnutrition.