

# The social costs and benefits of dietetics for malnourished patients in hospital

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## Summary

*This study calculates the social costs and benefits of dietetics for malnourished patients with gastro-intestinal or lung cancer, patients with head and neck cancer and elderly hospital patients. For every euro spent on dietetics for these patients the benefit to society is 3.08-22.60 euros (gastro-intestinal or lung cancer), 2.40-4.50 euros (head and neck cancer) and 1.20-1.90 euros (malnourished elderly hospital patients). If all malnourished patients were to be treated the total annual benefit would be 4-42 million euros (gastro-intestinal or lung cancer), 1.5-3.8 million euros (head and neck cancer) and 15-78 million euros (elderly hospital patients).*

### Background

Hospital dietitians offer individual dietary treatment e.g. to malnourished patients, but the funding for hospital dietary treatment is squeezed. OHDAAZ (the committee of heads of dietetics at university medical centres) and the Dutch Association of Dietitians (NVD) therefore wish to show the social value of their work by means of this study. The report answers the following research questions:

- What are the social costs and benefits of dietetics for malnourished cancer patients?
- What are the social costs and benefits of dietetics for malnourished elderly hospital patients?

### Effects of malnutrition

Previous research (see Kok & Scholte, 2014) has shown that malnutrition has the following effects:

- Higher mortality (400 deaths a year)
- Longer hospital stays (about 1.3 times longer)
- Additional hospital costs for patient treatment of approx. 1.1 billion euros

### Dietetics for malnourished hospital patients

Malnutrition affects about 22% of hospital patients and is relatively common in cancer patients and elderly patients. Dietary treatment by hospital dietitians is an important part of their treatment, designed to achieve adequate energy and protein intake, among other things. Optimum treatment comprises screening, diagnosis, treatment and evaluation. The dietitians assess patients' medical, social and personal characteristics and provide individually tailored dietary treatment. They also try to motivate patients and give advice on exercise.

### Effects of treatment by a dietitian

#### **Effects on patients with gastro-intestinal or lung cancer**

Dietitians often treat malnourished patients with lung cancer or gastro-intestinal tumours. Scientific studies of the effects of dietetics on this patient population do not always find significant effects on food intake, weight loss, nutritional state, quality of life and mortality. Where they do find significant effects, however, they are always positive. Taking all the studies together we find that dietetics is likely to have a small effect on postponing death and on quality of life. Possible explanations for the varying effects are differences in the patient populations

studied (disease stage) and the treatments studied. No studies have been found that indicate a reduction in care consumption.

#### **Effects on head and neck cancer patients**

The scientific literature shows that dietary treatment provided by dietitians for malnourished head and neck cancer patients results in higher food intake, less weight loss and a better nutritional state. The improvement in nutritional state results in better quality of life. A decrease in care consumption is also found, but there is no evidence of a decrease in mortality.

#### **Effects on malnourished elderly hospital patients**

Dietetics for malnourished elderly hospital patients increases food intake and weight and improves nutritional state. There is also a decrease in the number of functional impairments (e.g. ability to climb stairs) and the number of falls in the elderly. A Dutch study has found positive effects on quality of life. Effects on hospital outcomes and mortality are occasionally found, but often they are not.

### **Benefit of treatment by a dietitian**

#### **Benefit of treating gastro-intestinal or lung cancer patients: 3.08-22.60 euros per euro invested**

The net benefit (total benefits less costs) of dietetics for malnourished patients with gastro-intestinal or lung cancer amounts to 3,840 euros per treatment. The decrease in mortality accounts for the largest benefit, 3,470 euros. The average cost of the treatments studied is relatively low at 178 euros. The cost is low because the average costs and benefits are based partly on a study into the effects of non-intensive treatment on a specific patient population, namely patients with gastro-intestinal or lung cancer whose lives cannot be saved. This non-intensive treatment for the 'more severe' patients does not produce significant benefits.

Each euro invested yields 3.08-22.60 euros. If each year all new malnourished patients with gastro-intestinal or lung cancer (10,950) were to be treated by a dietitian the total net benefit would be between 4 million and 42 million euros. The lower limit of this total benefit does not include benefits from lower mortality; it is therefore more suitable for comparison with the benefits of treating head and neck cancer patients, as there are no studies on this group that show an effect of dietetics on mortality, so any benefits in the form of longer life are not included.

#### **Benefit of treating head and neck cancer patients: 2.40-4.50 euros per euro invested**

The net benefit of treating head and neck cancer patients by a dietitian amounts to 3,320 euros. Improved quality of life is the main benefit item, at 4,085 euros. The cost of the treatment is 930 euros, which is borne by the hospital. Every euro invested in treating head and neck cancer patients by a dietitian yields 2.40-4.50 euros. If each year all new malnourished head and neck cancer patients (1,150) were to be treated by a dietitian the total benefit would be between 1.5 million and 3.8 million euros.

#### **Benefit of treating malnourished elderly hospital patients: 1.20-1.90 euros per euro invested**

The net benefit of treating malnourished elderly hospital patients amounts to 606 euros per treatment. This positive net benefit is due to the improvement in the patient's quality of life,

worth 1,000 euros, and the reduction in the number of falls (254 euros). Each euro invested yields 1.20-1.90 euros. If all 128,060 malnourished elderly hospital patients were to be treated by a dietitian the total net benefit would be between 15 million and 78 million euros.

### **Recommendation**

The total net benefit of dietetics for malnourished cancer patients and malnourished elderly hospital patients is positive, but the short-term individual net benefit to the hospital is negative. This is due to the fact that the hospital pays for the treatment by the dietitian, whereas the short-term price of the Diagnosis Treatment Combination is fixed and does not increase when a dietitian provides treatment. The main recommendation of the study is therefore to organize the charging system in such a way that hospitals have a financial incentive to offer dietetics.