

## **SAM3-2**

### **Economic benefit of increased vitamin D**

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Recent studies have documented the health benefits of vitamin D for many types of disease. Significant benefits have been found in reducing risk of fractures, cancers (digestive tract, female organs, urogenital organs, and lymphoma), bacterial (pneumonia, septicaemia, tuberculosis) and viral (influenza, norovirus, rhinovirus) infectious diseases autoimmune diseases (multiple sclerosis, type 1 diabetes mellitus), metabolic diseases (coronary heart disease, type 2 diabetes mellitus, hypertension, stroke), and congestive heart failure. There is sufficient information about dose/response relations that estimates of health benefits for increased vitamin D3 intake or production and serum 25-hydroxyvitamin D (calcidiol) levels. In general, reductions of mortality rates of 15-25% are estimated for each major category of disease for 2000-4000 IU of vitamin D3 per day and/or a calcidiol level of 40 ng/mL (100 nmol/L) or higher. The total reduction in mortality rate in the United States is estimated at 14% (8-20%). In 2003, treatment expenditures were estimated at \$280 billion and lost productivity at \$1050 billion for a total of \$1330 billion. Assuming that total economic burden, both direct and indirect, is directly related to mortality rates, the economic benefit of higher vitamin D3 would be \$186 billion (uncertainty, \$63 billion). By comparison, the economic burden of skin cancer, melanoma and cataracts is around \$6 billion. Thus, the economic benefit of increased vitamin D3 from either supplements or photoproduction from ultraviolet-B irradiance is very cost effective.