



List of references on health expectancy

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New references with keywords and abstracts

2007

Lai, T., Habicht, J., Reinap, M., Chisholm, D., Baltussen, R. **Costs, health effects and cost-effectiveness of alcohol and tobacco control strategies in Estonia.** *Health Policy* 2007 (In Press) CB17/116
(<http://linkinghub.elsevier.com/retrieve/pii/S0168851007000620>)

DISABILITY-ADJUSTED LIFE YEARS (DALYs)
ESTONIA

Objective: To assess the population-level costs, effects and cost-effectiveness of different alcohol and tobacco control strategies in Estonia.

Design: A WHO cost-effectiveness modelling framework was used to estimate the total costs and effects of interventions. Costs were assessed in Estonian Kroon (EEK) for the year 2000, while effects were expressed in disability-adjusted life years (DALYs) averted. Regional cost-effectiveness estimates for Eastern Europe, were used as baseline and were contextualised by including country-specific input data.

Results: Increased excise taxes are the most cost-effective intervention to reduce both hazardous alcohol consumption and smoking: 759 EEK (€49) and 218 EEK (€14) per DALY averted, respectively.

Imposing additional advertising bans would cost 1331 EEK (€85) per DALY averted to reduce hazardous alcohol consumption and 304 EEK (€19) to reduce smoking. Compared to WHO-CHOICE regional estimates, interventions were less costly and thereby more cost-effective in Estonia.

Conclusions: Interventions in alcohol and tobacco control are cost-effective, and broad implementation of these interventions to upgrade current situation is warranted from the economic point of view. First priority is an increase in taxation, followed by advertising bans and other interventions. The differences between WHO-CHOICE regional cost-effectiveness estimates and contextualised results underline the importance of the country level analysis.

Al Snih, S., Ottenbacher, K. J., Markides, K. S., Kuo, Y. F., Eschbach, K., Goodwin, J. S. **The effect of obesity on disability vs mortality in older Americans.** *Archives of Internal Medicine* 2007;167(8):774-80. CB17/104
(<http://archinte.ama-assn.org/cgi/content/abstract/167/8/774>)

EPESE STUDY
MORTALITY
DISABILITY
OBESITY
ELDERLY

LIFE EXPECTANCY
DISABILITY-FREE LIFE EXPECTANCY
ORIGINAL CALCULATION
MULTI-STATE LIFE TABLE (Imach)
USA

BACKGROUND: The association between obesity and mortality is reduced or eliminated in older subjects. In addition to mortality, disability is an important health outcome. The objectives of this study were to examine the association between body mass index (BMI), calculated as weight in kilograms divided by height in meters squared, and subsequent disability and mortality among older Americans, as well as to estimate the effect of BMI on life expectancy and disability-free life expectancy among older Americans.

METHODS: We studied 8359 non-Hispanic white Americans, 1931 African Americans, and 2435 Mexican Americans 65 years or older who were not disabled at baseline from 5 sites of the Established Populations for Epidemiologic Studies of the Elderly. Measures included BMI, medical conditions, activities of daily living, and demographic information. Cox proportional hazards regression analysis was used to estimate the hazard ratios (HRs) for subsequent disability and mortality during 7 years of follow-up. Total life expectancy and disability-free life expectancy were estimated using the interpolation of Markov chain approach.

RESULTS: The lowest HR (1.02; 95% confidence interval [CI], 0.94-1.10) for disability was at a BMI of 25 to less than 30. Subjects with BMIs of lower than 18.5 or 30 or higher at baseline were significantly more likely to experience disability during the follow-up period. In contrast, the lowest HRs for mortality were seen among subjects with BMIs of 25 to less than 30 (HR, 0.78; 95% CI, 0.72-0.85) and 30 to less than 35 (HR, 0.80; 95% CI, 0.72-0.90), with subjects with BMIs of lower than 25 or 35 or higher experiencing higher hazards for mortality. Disability-free life expectancy is greatest among subjects with a BMI of 25 to less than 30.

CONCLUSION: Assessments of the effect of obesity on the health of older Americans should account for mortality and incidence of disability.

Anderson, G. F., Chu, E. **Expanding Priorities - Confronting Chronic Disease in Countries with Low Income.** *New England Journal of Medicine* 2007;356(3):209-211. CB17/101
(<http://content.nejm.org/cgi/content/full/356/3/209>)

DISABILITY-ADJUSTED LIFE YEARS (DALYs)
MORTALITY
WORLD POPULATION

Authors provide disability-adjusted life years and deaths according to major diseases or conditions in the world and in low-income and lower-middle-income countries.

Ansai, T., Takata, Y., Soh, I., Akifusa, S., Sogame, A., Shimada, N., Yoshida, A., Hamasaki, T., Awano, S., Fukuhara, M., Takehara, T. **Relationship between chewing ability and 4-year mortality in a cohort of 80-year-old Japanese people.** *Oral Diseases* 2007;13(2):214-219. CB17/102
(<http://pt.wkhealth.com/pt/re/ordi/abstract.00044299-200703000-00015.htm;jsessionid=GlgJST07ycpGhQ9F5yCpZf1Qyl6p2F2vPwGQnRk5Hjmw4z2w3Y22!-879589638!-949856144!8091!-1>)

OBJECTIVE: Poor oral health has been reported to be a risk indicator of mortality, however, few data are available regarding the relationship between chewing ability and mortality. We examined the relationship between self-assessed chewing ability and mortality in elderly subjects.

DESIGN: Prospective study.

SUBJECTS AND METHODS: Participating in the study were 697 people (277 males, 420 females) from 1282 individuals (80 years old) residing in Fukuoka Prefecture, Japan. Data on oral and systemic health status through questionnaires, accompanied by physical and laboratory blood examinations were obtained. Chewing ability was assessed based on the number of types of food each subject reported as able to chew by questionnaire.

RESULTS: A total of 108 subjects died between 1998 and 2002. Those with the lowest number of chewable foods were associated with higher risk of mortality than those with the ability to chew all of the 15 types of food surveyed [hazard ratio (HR) = 2.38, 95% confidence interval (95% CI) = 1.07-5.29], though other parameters including current smoking, low serum albumin, and poor physical health status were more significant. Further, reduced chewing ability of soft foods increased the risk (HR = 2.65, 95% CI = 1.20-5.87).

CONCLUSION: Chewing ability was associated with mortality in a population of 80-year-old community residents, and may be a predictor for survival rate.

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Gu, D. N., Dupre, M. E., Liu, G. Y. **Characteristics of the institutionalized and community-residing oldest-old in China.** *Social Science and Medicine* 2007;64(4):871-883. CB17/99
(<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=search&DB=pubmed>)

DISABILITY
HEALTH STATUS
MORTALITY
INSTITUTIONALIZATION
OLDEST OLD
CHINA

Existing research on the institutionalized population of older adults is primarily limited to Western countries. This study is the first to use nationally representative data to examine differences in the institutionalized and community-residing population of the oldest-old (ages 80+) in China. Using three waves of the Chinese Longitudinal Healthy Longevity Survey (CLHLS) (1998, 2000, and 2002), we examine differences in sociodemographic characteristics, family caregiving resources, health practices, religious activity, chronic conditions, and mortality risk. The results indicate that the institutionalized oldest-old are younger, male, reside in urban areas, have lower family-care resources, and exhibit poorer health compared to those living in the community. We also find that the 2-year mortality risk for institutionalized elders is 1.35 times greater than for those residing in the community. However, the mortality differential is eliminated once the sociodemographic, family caregiving, and health characteristics of the oldest-old are taken into account. The implications of these findings are discussed.
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Jagger, C., Matthews, R., Matthews, F., Robinson, T., Robine, J. M., Brayne, C., Medical Research Council Cognitive Function and Ageing Study Investigators. **The burden of diseases on disability-free life expectancy in later life.** *Journal of Gerontology: Medical Sciences* 2007;62A(4):408-414.

CB17/100

(http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=17452735)

HEALTH EXPECTANCY
DISABILITY-FREE LIFE EXPECTANCY

DISABILITY
DISEASE
ACTIVITIES OF DAILY LIVING (ADL)
LIFE EXPECTANCY
UNITED KINGDOM
1992-2002

BACKGROUND: The consequences of diseases in later life have been judged predominantly through mortality, resulting in an emphasis on the fatal rather than the nonfatal disabling conditions. We use a longitudinal study with follow-up at 2, 6, and 10 years to assess the impact of different diseases on both total life expectancy (TLE) and disability-free life expectancy (DFLE).

METHODS: The Medical Research Council Cognitive Function and Ageing Study investigators interviewed 13,004 people aged 65 years and older from five U.K. centers starting in 1991. Persons aged 75 years and older were oversampled. Disability (mild, moderate, and severe) was assessed through basic Activities of Daily Living (ADL) and Instrumental ADL (IADL) scales at baseline and at follow-ups at 2, 6, and 10 years. TLE and DFLE were compared for persons with and without each of nine conditions.

RESULTS: At age 65, men had a TLE of 15.3 years of which 12.1 (79%) were free of any disability, whereas women of the same age had an average TLE of 19.4 years, 11.0 years (57%) disability-free. Men (women) aged 65 years without stroke had 4.8 (4.6) more years of TLE and 6.5 (5.8) more years DFLE. Without diabetes, men (women) lived 4.4 (5.6) years longer and had 4.1 (5.1) years disability-free.

CONCLUSIONS: More disability-free years were gained than total life years in persons free of stroke, cognitive impairment, arthritis, and/or visual impairment at baseline. This finding suggests that elimination of these conditions would result in a compression of disability.

Jankovic, S., Vlajinac, H., Bjegovic, V., Marinkovic, J., Sipetic-Grujicic, S., Markovic-Denic, L., Koccev, N., Santric-Milicevic, M., Terzic-Supic, Z., Maksimovic, N., Laaser, U. **The burden of disease and injury in Serbia.** *European Journal of Public Health* 2007;17(1):80-85. CB17/102
(<http://eurpub.oxfordjournals.org/cgi/content/short/17/1/80>)

DISABILITY-ADJUSTED LIFE YEARS (DALYs)
DISEASE
SERBIA
2002-2003

Background: In the last decade of the 20th century, a considerable effort has been put into the development of summary measures of population health that combine information on mortality and non-fatal health outcomes. We used the DALYs (Disability adjusted life years) method to assess the burden of disease and injury in the population of Serbia.

Methods: Our study, largely based on the methods developed for the Global burden of disease study, was conducted between October 2002 and September 2003. DALYs, stratified by gender and age, were calculated for 18 selected health conditions for the population of Serbia, Serbia and Montenegro for 2000. Years of life lost (YLL) were calculated using country mortality statistics, while years lived with disability (YLD) were calculated using different sources of information. Also, the YLD/YLL ratio and age-adjusted rates of DALYs were calculated.

Results: Ischaemic heart disease, cerebrovascular diseases, lung cancer, unipolar depressive disorders, and diabetes mellitus were responsible for almost two-thirds (70%) of the total burden of 18 selected disorders in Serbia 2000. The leading five causes for males were ischaemic heart disease (26.1 DALY per 1000), stroke (17.9), lung cancer (12.7), road traffic accidents (6.5), and self-inflicted injuries (5.5). For females, the leading five causes were stroke (18.1 DALY per 1000), ischaemic heart disease (14.1), depression (8.7), breast cancer (6.1), and diabetes mellitus (5.2).

Conclusions: The final results of the study have shown that the national health priority areas should cover cardiovascular diseases, cancers, and mental health.

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Sainio, P., Martelin, T., Koskinen, S., Heliovaara, M. **Educational differences in mobility: the contribution of physical workload, obesity, smoking and chronic conditions.** *Journal of Epidemiology and Community Health* 2007;61(5):401-408. CB17/103

(<http://jech.bmj.com/cgi/search?fulltext=Educational+differences+in+mobility%3A+the+contribution+of+physical+workload%2C+obesity%2C+smoking+and+chr&sendit=Enter&volume=61&issue=5>)

DISABILITY
DISEASE
EDUCATION
ELDERLY
FINLAND
2000-2001

Background: In earlier studies, determinants of socioeconomic gradient in mobility have not been measured comprehensively.

Aim: To assess the contribution of chronic morbidity, obesity, smoking and physical workload to inequalities in mobility.

Methods: This was a cross-sectional study on 2572 persons (76% of a nationally representative sample of the Finnish population aged ≥ 55 years). Mobility limitations were measured by self-reports and performance rates.

Results: According to a wide array of self-reported and test-based indicators, persons with a lower level of education showed more mobility limitations than those with a higher level. The age-adjusted ORs for limitations in stair climbing were threefold in the lowest-educational category compared with the highest one (OR 3.3 in men and 2.9 in women for self-reported limitations, and 3.5 in men and 2.2 in women for test-based limitations). When obesity, smoking, work-related physical loading and clinically diagnosed chronic diseases were simultaneously accounted for, the educational differences in stair-climbing limitations vanished or were greatly diminished. In women, obesity contributed most to the differences, followed by a history of physically strenuous work, knee and hip osteoarthritis and cardiovascular diseases. In men, diabetes, work-related physical loading, musculoskeletal diseases, obesity and smoking contributed substantially to the inequalities.

Conclusions: Great educational inequalities exist in various measures of mobility. Common chronic diseases, obesity, smoking and workload appeared to be the main pathways from low education to mobility limitations. General health promotion using methods that also yield good results in the lowest-educational groups is thus a good strategy to reduce the disparities in mobility.

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2006

Healthy life expectancy. In: O.N.S., editor. Sustainable development indicators in your pocket 2006.

London: O.N.S.; 2006. p. 83

CB17/96

(http://www.sustainable-development.gov.uk/progress/data-resources/documents/sdiyp2006_a6.pdf)

HEALTHY LIFE EXPECTANCY
TRENDS
UNITED KINGDOM

1990-2002

The UK Government Sustainable Development Strategy outlined 68 indicators through which to review progress, and Healthy Life Expectancy is one of them.

Krajowy Program „Zabezpieczenie Społeczne i Integracja Społeczna na lata 2006-2008” [National Report on Strategy for Social Protection and Social Inclusion 2006-2008]. Warsaw: Ministry of Labour and Social Policy; 2006 CB17/88
(http://www.mpips.gov.pl/integracja/pliki/NAP_2006_10_16_poRM.doc.)

HEALTHY LIFE EXPECTANCY
POLAND

First part of the Report contains evaluation of the social situation in Poland. Authors pay attention to increase of the healthy life expectancy (without disability) giving values calculated on the basis of the population census and stress that aging of population makes one of the most important challenge for social policy.

Report includes statistical annex presenting data for Poland and UE-25.

Healthy life expectancy. In: O.N.S., editor. Sustainable development indicators in your pocket 2005. London: O.N.S.; 2006. p. 70 CB17/97
(http://www.sustainable-development.gov.uk/progress/documents/sdiyp2005_a6.pdf)

HEALTHY LIFE EXPECTANCY
TRENDS
UNITED KINGDOM
1990-2001

The UK Government Sustainable Development Strategy outlined 68 indicators through which to review progress, and Healthy Life Expectancy is one of them.

Herrmann, F. R., Robine, J.-M., Michel, J.-P. **Living without disability.** *Geneva Association Information Newsletter* 2006(14):8-10. CB17/82
(<http://www.genevaassociation.org/HEALTHN%C2%B014.pdf>)

DISABILITY
TRENDS
HEALTH EXPECTANCY
DISABILITY COMPRESSION

Jagger, C., EHEMU team. ***Healthy life expectancy in the EU 15.*** In: Institut des Sciences de la Santé, editor. Living longer but healthier lives: how to achieve health gains in the elderly in the European union. Europe Blanche XXVI, Budapest, 25-26 November 2005. Paris: ISS; 2006. p. 49-62 CB17/108

HEALTH EXPECTANCY
EUROPEAN UNION

This report on Healthy Life Expectancy in the EU15 describes comparisons using current, though not

optimally harmonised, data on disability from the European Community Household Panel, providing an example of how ageing in the European Union might be monitored in the future.

Khoman, E., Weale, M. *Healthy life expectancy in the EU Member States: ENEPRI Research report n°33 - AHEAD WP5*. sl: ENEPRI; 2006 CB17/107
(<http://www.enepri.org>)

HEALTH EXPECTANCY
TRANSITION PROBABILITY
HEALTHY LIFE EXPECTANCY
BELGIUM
DENMARK
FINLAND
GERMANY
GREECE
IRELAND
ITALY
PORTUGAL
UNITED KINGDOM
REVES
EUROPEAN UNION

The main output of this work package is designed to be the construction of transition probabilities from the probit equations presented in work package 3 (Bebbington & Shapiro, 2006 - CB16/37). These transition probabilities are then used to construct estimates of the expected time spent in poor health. Comparison of these life expectancy measures with analogous figures calculated from the prevalence data are computed in order to assess the importance of the use of incidence rather than prevalence data for such calculations. Two definitions of health status were used for this purpose: self-assessed health (SAH) and chronic hampering health (HH) condition. Full results are provided for Belgium, Denmark, Finland, Germany, Greece, Ireland, Italy, Portugal and the United Kingdom. Following the results that are presented in the form of probit equations, which enable estimates to be prepared by age and gender in Bebbington & Shapiro (2006), this paper constructs transition probabilities from these probit equations. This paper will try to answer one of two questions. First, what is the probability that an individual will be in the same health state next free of disability, be in worse health, have left for a permanent health care institution or be dead? Secondly, what is the expected time spent in each health state, given that an individual is initially in a specified health category?

Following the project protocol, this work package makes use of the European Community Household Panel (ECHP), the major innovative attempt at a harmonised household (longitudinal) panel across the member states of the European Union. The ECHP is essentially a standardised multi-purpose annual longitudinal survey carried out between 1994 and 2001 on the member states (Peracchi, 2002). The survey is based on a standardised questionnaire that involves annual interviewing of a representative panel of households and individuals of 16 years and older in each of the participating EU member states. It covers a wide range of topics including demographics, income, social transfers, health, housing, education and employment. Therefore the ECHP represents an unrepeatability opportunity for the particular policy-oriented analysis to which this project is committed.

Oortwijn, W., Mathijssen, J., Lankhuizen, M., Cave, J. *Evaluating the uptake of the healthy life years indicator*. RAND Europe; 2006 (TR-453-EC). CB17/106
(http://www.ec.europa.eu/health/ph_information/indicators/docs/RAND_HLY_en.pdf)

HEALTH EXPECTANCY
HEALTHY LIFE YEARS
HEALTH POLICY
EUROPEAN UNION

The European Commission (EC) is interested in the uptake of the Healthy Life Years (HLY) indicator in the EC Services and Member States. In this respect, the EC (DG SANCO) asked RAND Europe to undertake an evaluation to help the EC better understand how to increase the uptake of the HLY indicator and how to raise the profile of health within non-health policies, particularly those addressing or shaped by demographic change. Uptake involves both awareness and use, which we defined as 'having knowledge of the indicator' (awareness) and use of the HLY indicator in practice (e.g. in policy making and/or impact assessment). The evaluation covers the period since the adoption of HLY as a Lisbon Structural Indicator in 2005.

Regidor Poyatos, E., Gutiérrez Fisac, J. L. *Indicadores de Salud. La salud de la población española en el contexto europeo y del Sistema Nacional de Salud 2005*. Madrid: Ministerio de Sanidad Y Consumo; 2006 CB17/87
(<http://www.msc.es/estadEstudios/estadisticas/inforRecopilaciones/tabla/Indicadores5.pdf>)

HEALTH INDICATOR
DISABILITY
PERCEIVED HEALTH
LIFE EXPECTANCY
DISABILITY-FREE LIFE EXPECTANCY
HEALTHY LIFE EXPECTANCY
GEOGRAPHIC COMPARISON
CALCULATION
SPAIN

This report is an overview of the health status of the Spanish population in 2005 for the autonomous regions, and a comparison with the other European countries.

Robine, J.-M., Le Roy, S., Jagger, C., EHEMU team. *Changes in life expectancy in the European union since 1995: similarities and differences between the 25 EU countries*. In: Institut des Sciences de la Santé, editor. Living longer but healthier lives: how to achieve health gains in the elderly in the European union. Europe Blanche XXVI, Budapest, 25-26 November 2005. Paris: ISS; 2006. p. 9-48 CB17/109

HEALTH EXPECTANCY
EUROPEAN UNION

European countries experienced a marked convergence in their life expectancy figures in the aftermath of the Second World War from a different but generally increasing trend in life expectancy but during the 1960s European life expectancies began to diverge. In one group of countries, the growth in life expectancy hardly slowed during the 1960s, and continued to converge towards higher values. These are high convergence countries. A second group, where growth in life expectancy slowed more in the late 1950s and early 1960s, converged to a level of around two years from the highest European values. These are low convergence countries. The third group includes those European countries that at some time ceased to follow the trend of the highest European values. These are divergent countries. It is in this third

group that the Baltic and Eastern Europe countries are found as their life expectancies ceased to follow the trend of the highest European values from the 1960s onwards. Denmark is also included though its life expectancy trend varied from the mid-1970s, whilst trends in Norway and the Netherlands diverged from the mid-1980s onwards. These divergences coincided with health crises in Europe but their impact varied tremendously from one country to the next.

In 1995, life expectancy at birth in the Baltic countries differed from the highest values in Europe by nine years for women and sixteen for men. These differences narrowed in 1996 or 1997, but the Baltic countries have still not embarked on a phase of convergence towards the highest European values. The Eastern European countries show greater heterogeneity but again have not yet fully entered a convergence phase. In Northern Europe, the gap between the highest European life expectancies and that for Danish women remains relatively constant although the same gap for women in the Netherlands and Greece continues to widen and is currently three years. For other European countries life expectancies at birth are generally within one to three years of the highest values with no major change in the observed trends. In total in 2002-2003, the differences in life expectancy at birth between European countries vary enormously, reaching a maximum of twelve years for men and seven years for women. Out of the 25 member States, fifteen have life expectancies at birth for both men and women that lie within three years of the highest European values. Elsewhere, for women, we observe differences with the highest European value of around four years in Denmark, five years in the Czech Republic and Poland, six years in Slovakia, Lithuania and Estonia and finally seven years in Hungary and Latvia. For men, the same differences are observed of around four years in Portugal, five years in Slovenia, six years in the Czech Republic, eight years in Poland and Slovakia, ten years in Hungary and twelve years in Latvia, Lithuania and Estonia. Not only are these major differences, but the current trends do not suggest that life expectancies at birth are converging. These figures pose a colossal challenge for the European Union as it wishes to offer all its citizens means towards better health.

Rychtaříková, J. **Zdravá délka života v současné české populaci** [Healthy Life Expectancy in the Czech population]. *Demografie* 2006;48(3):166-178. CB17/113

HEALTH EXPECTANCY CZECH REPUBLIC

V posledních desetiletích narůstá ve vyspělých zemích incidence chronických onemocnění, která nejsou prvotní příčinou úmrtí. V této souvislosti se vedle střední délky života stává důležitým ukazatelem zdravá délka života (počet let prožitých v dobrém zdravotním stavu). V příspěvku autorka analyzovala délku života mezi 18. a 80. narozeninami podle subjektivně vnímaného zdraví, chronické nemocnosti a omezení každodenních aktivit. Metodou multinomické logistické regrese sledovala vliv věku, partnerství a vzdělání na kategorie subjektivně vnímaného zdraví (data vycházela ze šetření Rodina, partnerství a demografické stárnutí: Generace a gender (Generations and Gender Survey: prospective longitudinal study)). V závěru konstatovala, že muži v České republice mají sice kratší život, ale roky, které ženy žijí navíc, jsou prožity především v nemoci, resp. v omezení každodenních aktivit. Pocit dobrého zdraví je negativně korelovan s věkem a pozitivně se vzděláním, partnerství je důležité zejména u osob se špatným zdravotním stavem

Szałkiewicz, E. *Starzenie się społeczeństwa – wyzwanie dla Polski* [Ageing – challenge for Poland]. 2006 (MEDI 2/2006). CB17/90
(http://www.dps.pl/home_new/index.php?rob=radar&dzial=12&art=658)

HEALTH EXPECTANCY POLAND

Author discusses progress in health care, in quality of life and factors influencing ageing process. She makes references to the WHO report and results of HYLE calculation for Poland compared with data of other countries especially UE members.

van Baal, P. H. M., Hoogenveen, R. T., Polder, J. J., Feenstra, T. L., Boshuizen, H. C., de Wit, G. A.
Healthy life expectancy and lifetime medical costs of smokers and obese people. *European Journal of Public Health* 2006;16:50-50. CB17/105
(http://eurpub.oxfordjournals.org/cgi/reprint/16/suppl_1/50)

Background: Prevention of obesity and smoking differ not only in their effect on (healthy) life expectancy but also on their effects on health care costs. However, estimates of health expenditure attributable to risk factors are usually based on cross-sectional analyses and do not take into account health care costs of diseases that occur in life years gained due to healthier lifestyles. Therefore, they give an incomplete picture of the information needed for prioritizing of prevention activities.

Methods: Using a dynamic population model that calculates chronic disease incidence conditional on risk factor classes, we estimated (healthy) life expectancy and lifetime health care costs for three different cohorts: a cohort of smokers, a cohort of obese people, and a cohort of 'healthy living' people (defined as non-smoking with a BMI < 25).

Results: The smoking cohort has a 7.0 (6.9) lower (healthy) life expectancy and the obese cohort a 4.5 (4.6) lower (healthy) life expectancy compared with the 'healthy' living cohort. At all ages, per capita annual health care costs were lowest for 'healthy' people. Until age 60, average health care costs were highest for obese people. At older ages, smokers were most expensive in terms of annual costs per person. However, since health care costs increased rapidly from age 65 onwards, and healthy living people live longer than smokers and obese people, total lifetime costs were 26% (14%) lower for the cohort of smokers (obese people) compared with that of the 'healthy living' people.

Conclusions: Prevention of smoking leads to more health gains but also to more additional health care costs in life years gained. Since obesity is related to less lethal diseases than smoking, the ratio of cost savings in normal years to costs in life years gained is more favourable.

Van Oyen, H. ***Living longer healthier lives, comments on the changes in life expectancy and disability free life expectancy in the European Union since 1995.*** In: Institut des Sciences de la Santé, editor. *Living longer but healthier lives: how to achieve health gains in the elderly in the European union.* Europe Blanche XXVI, Budapest, 25-26 November 2005. Paris: ISS; 2006. p. 89-93 CB17/110

HEALTH EXPECTANCY TRENDS EUROPEAN UNION

The study of the evolutions of life expectancy and the disability-free life expectancy points out the gender gap and the heterogeneity between MS, both in the level of health and in the evolution of health over time.

2005

Hrkal, J., Kasalová Daňková, Š. **Zdravá délka života u obyvatel EU [Healthy Life Expectancy in the population of the EU].** *Demografické informační centrum* 2005(10.07.2005) CB17/114

(http://demografie.info/?cz_detail_clanku&artclID=107)

HEALTH EXPECTANCY
CZECH REPUBLIK

Lai, T., Baburin, A., Vals, K., Kiiwet, R. **Suremusest ja haigestumusest põhjustatud tervise-kadu Eestis [Health loss due to mortality and disease incidence: disease burden in Estonia]**. *Eesti Arst* 2005;84(7):466–472. CB17/117
(http://www.taavilai.net/bod/Lai_EA_072005.pdf)

DISABILITY-ADJUSTED LIFE YEARS (DALYs)
DISEASE
HEALTHY YEARS OF LIFE LOST
ESTONIA

Until recently, health indicators for populations have been based solely on mortality or disease incidence and prevalence. The previous decade witnessed a continuous increase in different burden of disease methodologies that merged these two halves into one measure which describes population health by loss of life-years caused by disease induced loss of quality of life and premature death. This article describes the results of Estonian national burden of disease study which was based on nationwide mortality and health insurance data from the year 2002. On that particular year, 326,899 disability-adjusted life-years (DALYs) were lost in Estonia with significant gender differences in the burden of disease causes. The most important difference is that in women most of loss is due to lifetime illness, while in men most of loss is due to premature mortality. Cardiovascular diseases, injuries and neoplasms are the major sources of disease burden, which caused altogether the loss of 210,520 life-years. In the case of injuries, over 50% of life-years lost can be attributed to age below 40, which is a clear indicator of widespread risk behaviours among younger people. Estimation of the disease burden provides a new generalised overview of population health, which allows to identify problems of public health and to support health policy and setting of priorities.

Vals, K. **Haiguskoormuse tõttu kaotatud eluaastad Eestis [Health loss due to burden of disease in Estonia]**: University of Tartu; 2005.(Magistritöö rahvatervishoius: 25 [Master thesis in Public Health: 25]) CB17/118
(http://www.taavilai.net/bod/Vals_mag.pdf)

DISABILITY-ADJUSTED LIFE YEARS (DALYs)
ESTONIA

This work describes the results of Estonian national burden of disease study based on data from year 2002. It centers on the DALY methodology and describes selected burden of disease studies as an example of the use of this approach.

Vals, K., Lai, T., Kiiwet, R. **Rahvastiku tervisekaotus ehk haiguskoormus: hindamise meetoodika [Methodology of burden of disease studies]**. *Eesti Arst* 2005;84(7):473–480. CB17/111
(http://www.taavilai.net/bod/Vals_EA_072005.pdf)

DISABILITY-ADJUSTED LIFE YEARS (DALYs)
DISEASE

HEALTHY YEARS OF LIFE LOST ESTONIA

Assessment of the health status of a population as a whole is as important as evaluation of the health of a single person is part of everyday medical practice. The majority of the methods used so far have focused on specific problems or one facet of the multidimensional concept of population health. Development of methods with higher explanatory power started in the mid-forties and initiated the DALY (Disability Adjusted Life Years) methodology in 1990, when a Global Burden of Disease study was carried out by the World Health Organisation (WHO). This approach is one of the most widespread tools for describing the health status of a population by summing up health losses due to death as well as due to disease. The mortality component expresses the gap (loss of years lived) between expected age at death and actual age. The disease component describes loss of perfect health due to illness. Every disease causes a decrease in life quality, for example, if a person suffers from a disease, life quality down by half, and in 10 years he or she loses five years of life in perfect health. Total loss of years by age-gender groups and disease provides the necessary overview of population health in the most important aspects. This overview focuses on the DALY methodology but enlists and describes also selected disease burden studies conducted worldwide as an example of the use of this approach.

2004

H6-Health. In: Achieving a better quality of life. Review of progress towards sustainable development: Government annual report 2003. London: Department of the Environment, Food & Rural Affairs; 2004. p. 57 CB17/94
(<http://www.sustainable-development.gov.uk/publications/pdf/ar2003.pdf>)

HEALTHY LIFE EXPECTANCY TRENDS UNITED KINGDOM 1980-1999

This report is an important milestone marking UK's progress towards a better quality of life for everyone, the core aim of sustainable development. Among the indicators, expectancy at birth of years lived in good or fairly good general health and its trends from 1981 to 1999.

Health. In: Sustainable development indicators in your pocket 2004: a selection of the UK Government's indicators of sustainable development. London: O.N.S.; 2004. p. 33 CB17/95
(<http://www.sustainable-development.gov.uk/publications/pdf/ar2003.pdf>)

HEALTHY LIFE EXPECTANCY TRENDS UNITED KINGDOM 1981-1999

This report is an important milestone marking UK's progress towards a better quality of life for everyone, the core aim of sustainable development. Among the indicators, expectancy at birth of years lived in good or fairly good general health and its trends from 1981 to 1999.

Hrkal, J. *Střední délka zdravého života [Health expectancy based on limitation of usual activities]*. In:

Kříž, Jaroslav, editors. Zdravotní stav populace ČR. Jak jsme na tom se zdravím? [Health status of the Czech population. How healthy are we?]. Praha; 2004. p. 24-25 CB17/115

HEALTH EXPECTANCY
CZECH REPUBLIC

Monteverde, M. *Discapacidades de las Personas Mayores en España: Prevalencia, Duraciones e Impacto sobre los Costes de Cuidados de Larga Duración* [Tesis Doctoral]. Barcelona: Universidad de Barcelona Departamento de Econometría, Estadística y Economía Española 2004 CB17/84
(http://www.tdx.cesca.es/TESIS_UB/AVAILABLE/TDX-0520105-124037/TESIS_LMMONTEVERDE.pdf)

HEALTH EXPECTANCY
LIFE EXPECTANCY IN DIFFERENT STATES OF HEALTH
DISABILITY
AGED
SPAIN

The author calculates life expectancies for persons aged 65 and over without disability, with disabilities and for persons becoming disabled. (Capítulo 6, pages 143 to 162)

2003

H6-Health. In: Achieving a better quality of life. Review of progress towards sustainable development: Government annual report 2002. London: Department of the Environment, Food & Rural Affairs; 2003. p. 59 CB17/93
(<http://www.sustainable-development.gov.uk/publications/pdf/achieving-2002.pdf>)

HEALTHY LIFE EXPECTANCY
TRENDS
UNITED KINGDOM
1980-1999

This report is an important milestone marking UK's progress towards a better quality of life for everyone, the core aim of sustainable development. Among the indicators, expectancy at birth of years lived in good or fairly good general health and its trends from 1981 to 1999.

Genova Maleras, R., Pereira Candel, J. *Estudio monográfico: las expectativas de salud.* In: Sancho Castiello, M., editor. Las personas mayores en España. Informe 2002. Madrid: IMSERSO; 2003. p. 515-547 CB17/81
(<http://www.imsersomayores.csic.es/estadisticas/informemayores/informe2002/index.html>)

HEALTH EXPECTANCY
HEALTHY LIFE EXPECTANCY
HEALTH-ADJUSTED LIFE EXPECTANCY (HALE)
DISABILITY-FREE LIFE EXPECTANCY
HEALTH REPORT
CALCULATION

SULLIVAN METHOD
CHRONOLOGICAL SERIES
SPAIN
1994
1987-1997
1999
2000
2001

Chapter in health report devoted to health expectancy calculations in Spain according to difference datasources (WHO, European Community Health Panel, national health surveys).

Topór-Mądry, R., Gilis-Januszewska, A., Lusawa, K. *Szacowanie potrzeb zdrowotnych (Estimation of health care needs)*. Warsaw: Zdrowie i Zarządzanie, no 2/2003; 2003 CB17/89

POLAND

Health care is one of basic part of activities of society; it is also one of main part of state economy. Its importance depends on economic development and social system in countries. Among aims of development of health care there are improvement of health of population and equal access to the system. The main limit of development of healthcare is cost of functioning. Effectiveness of health care systems is measured by level of satisfaction of health care needs and improvement of population health is a challenge for health politics all over the world. Epidemiological, social indicators and availability of health services are main of the tools for choosing health priorities are among others. Available in polish health system statistical data were converted to health indicators for priority settings in building the computer system QVAZIZ (qualitative and valid analysis of health and health needs) in project Priority settings - tools for assessment and analysis.

2002

H6-Health. In: Achieving a better quality of life. Review of progress towards sustainable development: Government annual report 2001. London: Department of the Environment, Food & Rural Affairs; 2002. p. 64 CB17/92
(<http://www.sustainable-development.gov.uk/publications/pdf/ar2001.pdf>)

HEALTHY LIFE EXPECTANCY
TRENDS
UNITED KINGDOM
1980-1997

This report is an important milestone marking UK's progress towards a better quality of life for everyone, the core aim of sustainable development. Among the indicators, expectancy at birth of years lived in good or fairly good general health and its trends from 1981 to 1997.

Dependencias y necesidades asistenciales de los mayores en España. Previsión al año 2010. Madrid: Fundación Pfizer; 2002CB17/86
(<http://www.imsersomayores.csic.es/documentos/documentos/pfizer-dependencia-01.pdf>)

AGING
DEPENDENCE
FORECASTING
SPAIN

2001

H6-Health. In: Achieving a better quality of life. Review of progress towards sustainable development: Government annual report 2000. London: Department of the Environment, Transport and the regions; 2001. p. 45

CB17/91

(<http://www.sustainable-development.gov.uk/publications/pdf/susdevel.pdf>)

HEALTHY LIFE EXPECTANCY
TRENDS
UNITED KINGDOM
1980-1997

This report is an important milestone marking UK's progress towards a better quality of life for everyone, the core aim of sustainable development. Among the indicators, expectancy at birth of years lived in good or fairly good general health and its trends from 1980 to 1997.

Ham-Chande, R. *Esperanzas de vida y expectativas de salud en las edades avanzadas*. Centro Centroamericano de Población, Universidad de Costa Rica; 2001

CB17/98

(http://ccp.ucr.ac.cr/bvp/pdf/vejez/demog006_hamchande.pdf)

AGING
LIFE EXPECTANCY
HEALTH EXPECTANCY
CALCULATION
MEXICO
1995

Las esperanzas de vida (EV) al nacimiento y en todas las edades se han incrementado notablemente y se proyecta que habrá más ganancias en el futuro. Los cambios y sus características reflejan las formas y los tiempos de los descensos de la mortalidad. Entre 1930 y 1970 las EV reflejaron la baja de la mortalidad infantil y el combate a las enfermedades infecciosas. En las últimas décadas ha disminuido el ritmo de crecimiento de la esperanza de vida al nacimiento y ha aumentado el de las edades adultas y envejecidas, reflejando mayor sobrevivencia. Se proyectan cambios más lentos, que dan cuenta de las dificultades y costos que implica el abatir las enfermedades crónicas. Entre los años 2000 y 2010 se logrará una tasa bruta de mortalidad aún menor que habrá de crecer nuevamente debido a las estructuras cada vez más envejecidas de la población. Las muertes se están acumulando en las edades avanzadas, y en las décadas por venir el mayor porcentaje de decesos ocurrirá después de los 75 años de edad. Surge el tema de la morbilidad e incapacidad en el envejecimiento y se genera el concepto de la esperanza de vida dividida en EV con y sin buena salud. La información de la EV 94 constituye un medio para estimar esas modalidades. Los resultados indican mayores EV en las mujeres, pero en peores condiciones de bienestar; es asimismo relevante advertir que el nivel socioeconómico determina no sólo la extensión de la EV sino también de las condiciones de salud.

López Moreno, S. *Compresión de la morbilidad en México: implicaciones demográficas y epidemiológicas: Programa de Subvenciones para Tesis de Posgrado en Salud Pública de América Latina y el Caribe*. Organización Panamericana de la Salud; 2001 (Subvención No. Mex-1488).CB17/85 (<http://ris.bvsalud.org/finals/Mex-1488.pdf>)

MORBIDITY COMPRESSION
MEXICO

2000

Alonso, J., Ferre, M. *Objetivo 2: Valorar salud y calidad de vida*. In: Alvarez Dardet, C., Pero, S., editors. La salud pública ante los desafíos de un nuevo siglo. Informe SESPAS 2000. Granada: Escuela Andaluza de Salud Pública-SESPAS; 2000 CB17/83 (http://www.sespas.es/fr_inf.html)

DISABILITY-FREE LIFE EXPECTANCY
HEALTHY LIFE EXPECTANCY
SPAIN

Evaluation of objective 2 of the WHO strategy "Health for all 2000" in Spain. Trends in disability-free life expectancy and healthy life expectancy for Spain are provided.

Rychtaříková, J. *Naděje dožití ve zdraví [Disability free life expectancy]*. *Demografie* 2000;42(1):41-48. CB17/112

DISABILITY-FREE LIFE EXPECTANCY
CZECH REPUBLIC