



## List of references on health expectancy

Update n°14

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### New references with keywords and abstracts

2010

Cai, L., Lubitz, J., Hayward, M., Hagedorn, A., Saito, Y., Crimmins, E. M. **Estimation of multi-state life table functions and their variability from complex survey data using the SPACE Program.**

*Demographic Research* 2010;22(6):129-158.

CB20/09

(<http://www.demographic-research.org/volumes/vol22/6/>)

HEALTH EXPECTANCY / CALCULATION METHOD / MULTI-STATE LIFE TABLE METHOD

The authors present the SPACE (Stochastic Population Analysis for Complex Events) program to estimate multi-state life table functions from survey data. SPACE allows the calculation of expected years in various health states. They compare SPACE with IMaCh and other methods.

Seeman, T. E., Merkin, S. S., Crimmins, E. M., Karlamangla, A. S. **Disability trends among older Americans: National Health And Nutrition Examination Surveys, 1988-1994 and 1999-2004.**

*American Journal of Public Health* 2010;100(1):100-107.

CB20/06

([http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list\\_uids=19910350](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=19910350))

ACTIVITIES OF DAILY LIVING (ADL) / INSTRUMENTAL ACTIVITIES OF DAILY LIVING (IADL) / FUNCTIONAL LIMITATION / DISABILITY / TRENDS / ELDERLY / USA

**OBJECTIVES:** We investigated trends in disability among older Americans from 1988 through 2004 to test the hypothesis that more recent cohorts show increased burdens of disability.

**METHODS:** We used data from 2 National Health and Nutrition Examination Surveys (1988-1994 and 1999-2004) to assess time trends in basic activities of daily living, instrumental activities, mobility, and functional limitations for adults aged 60 years and older. We assessed whether changes could be explained by sociodemographic, body weight, or behavioral factors.

**RESULTS:** With the exception of functional limitations, significant increases in each type of disability were seen over time among respondents aged 60 to 69 years, independent of sociodemographic characteristics, health status, relative weight, and health behaviors. Significantly greater increases occurred among non-Whites and persons who were obese or overweight (2 of the fastest-growing subgroups within this population). We detected no significant trends among respondents aged 70 to 79 years; in the oldest group (aged  $\geq 80$  years), time trends suggested lower prevalence of functional limitations among more recent cohorts.

**CONCLUSIONS:** Our results have significant and sobering implications: older Americans face increased disability, and society faces increased costs to meet the health care needs of these disabled Americans.

2009

Andrade, F. C. D. **Estimating diabetes and diabetes-free life expectancy in Mexico and seven major cities in Latin America and the Caribbean.** *Revista panamericana de salud pública = Pan American journal of public health* 2009;26(1):9-16. CB20/08  
([http://www.scielosp.org/scielo.php?pid=S1020-49892009000700002&script=sci\\_arttext](http://www.scielosp.org/scielo.php?pid=S1020-49892009000700002&script=sci_arttext))

HEALTH EXPECTANCY / DISEASE-FREE LIFE EXPECTANCY / DIABETES / ORIGINAL CALCULATION / SULLIVAN METHOD / LATIN AMERICA / THE CARRIBBEAN

**OBJECTIVES:** To estimate diabetes and diabetes-free life expectancy in seven major cities in Latin America and the Caribbean, plus Mexico as a whole.

**METHODS:** Data from the Survey on Health, Well-being, and Aging in Latin America and the Caribbean (n = 10 602) and the Mexican Health and Aging Study (n = 6 953) on individuals 60 or more years of age were used in this study. Estimates of diabetes and diabetes-free life expectancy were obtained by applying the Sullivan method.

**RESULTS:** Diabetes life expectancy for men 60 years of age was highest in Mexico City (4.5 years) and Bridgetown (3.4 years) and lowest in Havana (1.3 years). Diabetes-free life expectancy for men 60 years of age was highest in Santiago (17.6 years) and lowest in Bridgetown (14.2 years) and Sao Paulo (14.3 years). For women, diabetes life expectancy was highest in Bridgetown (5.4 years), followed by Mexico City and Havana; but these three cities also had the lowest diabetes-free life expectancy. Women 60 years of age in Buenos Aires had the lowest diabetes life expectancy (2.5 years), and in Santiago, the highest, with a diabetes-free life expectancy of 20.7 years.

**CONCLUSIONS:** Older individuals in Latin America and the Caribbean can expect to live a large proportion of their remaining lives with diabetes. There were also important differences across settings; in particular, the pronounced diabetes burden in Barbados and Mexico and among women. Given the fast growth of the elderly population in these societies, it is crucial to promote healthy eating and exercise as a way of reducing the burden of diabetes.

Avendano, M., Glymour, M. M., Banks, J., Mackenbach, J. P. **Health disadvantage in US adults aged 50 to 74 years: A comparison of the health of rich and poor Americans with that of Europeans.** *American Journal of Public Health* 2009;99(3):540-548. CB20/11  
(<http://ajph.aphapublications.org/cgi/content/full/99/3/540>)

HEALTH STATUS / DISEASE (CHRONIC) / FUNCTIONAL LIMITATION / INCOME / COMPARISON / USA / ENGLAND / EUROPE

The authors compare the health of older US, English, and other European adults, stratified by income. American adults are less healthy than Europeans at all wealth levels, the poorest Americans experiencing the greatest disadvantage relative to Europeans. Comparisons with data on life and health expectancies between USA and Europe generally support these findings.

Bermudez, L. M., Guillen, M. E., Sole, A. A. **Escenarios del impacto de la inmigración en la longevidad y la dependencia de los mayores en la población española [Scenarios for the impact of immigration on longevity and dependency among the elderly in the Spanish population].** *Revista Espanola de Geriatria y Gerontologia* 2009;44(1):19-24. CB20/12  
([http://www.doyma.es/revistas/ctl\\_servlet?\\_f=7012&articuloid=13133394&revistaid=124](http://www.doyma.es/revistas/ctl_servlet?_f=7012&articuloid=13133394&revistaid=124))

HEALTH EXPECTANCY / DISABILITY / ORIGINAL CALCULATION / SULLIVAN METHOD / SPAIN / 1999

**INTRODUCTION:** The composition of the Spanish population has recently changed due to immigration.

The present study aimed to estimate the magnitude of change in the calculation of healthy life expectancy and life expectancy in disability, taking the population of foreign residents into account. For this population, there is no information on mortality or the prevalence of disability.

**MATERIAL AND METHODS:** Data were extracted from the 1999 Survey on Disabilities, Handicaps and Health Status to estimate healthy life expectancy and life expectancy in disability using the Sullivan method. Data were taken from the Spanish Statistical Institute and the World Health Organization, Sullivan's method was adapted to the case of two different populations, and possible scenarios were established.

**RESULTS:** The differences between the mortality table estimated for the foreign resident population and that estimated for the Spanish population were considerable and were more evident in women. At 65 years of age and in the worst scenario, which occurs when all the members of the foreign resident population are disabled, life expectancy in disability would be 2 more years for men and 3 more years for women than when the foreign population was not considered.

**CONCLUSIONS:** Our scenarios reveal that the impact of immigration on the calculation of healthy life expectancy and life expectancy in disability is moderate.

Bruggink, J.-W., Garssen, M. J., Lodder, B. J. H., Kardal, M. **Trends in gezonde Levensverwachting**. *Bevolkingstrends: statistisch kwartaalblad over de demografie van Nederland* 2009;57(1):60-66. CB20/03  
(<http://www.cbs.nl/NR/rdonlyres/FEC57CCD-AECC-49E5-AEC7-05BD9A81293D/0/2009k1b15p60art.pdf>)

HEALTH EXPECTANCY / PERCEIVED HEALTH / DISEASE (CHRONIC) / FUNCTIONAL LIMITATION / TRENDS / THE NETHERLANDS / 1981-2007

Data on life expectancy in good perceived health and life expectancy without chronic diseases are available from 1981. Data on life expectancy without physical limitations are available from 1983. This article describes the development of these three series, their coherence and their relation to the overall life expectancy. Healthy life expectancies at birth and at age 65 are examined.

Camargos, M. C. S., Rodrigues, R. D., Machado, C. J. **Expectativa de vida saudável para idosos brasileiros, 2003 [Healthy life expectancy to Brazilian elders, 2003]**. *Ciencia & Saude Coletiva* 2009;14(5):1903-1909. CB20/13  
([http://www.scielo.org/scielo.php?script=sci\\_arttext&pid=S1413-81232009000500032](http://www.scielo.org/scielo.php?script=sci_arttext&pid=S1413-81232009000500032))

HEALTH EXPECTANCY / PERCEIVED HEALTH / SEX COMPARISON / HEALTH POLICY / ORIGINAL CALCULATION / SULLIVAN METHOD / BRAZIL / 2003

The authors compute health and life expectancy for the elderly of 60 years and above, by sex and age, in the year of 2003 in Brazil. The Sullivan method was used. The self-perceived health - from the National Research of Household Sample (PNAD), 2003 - was dichotomized in good and bad perceived health. The results indicate that women live longer than men, but spend a higher number of years perceiving their health as bad. The results highlights the need of considering the differences between sexes in relation to the demand for health care and of establishing policies designed to allow the increase in the number of years that the elderly can live in good health conditions.

EHEMU team, European Commission, DG SANCO, Eurostat. **Healthy life years in the European Union : facts and figures 2005**. Luxembourg: Publications Office; 2009 (European Health Reports) CB19/60  
([http://ec.europa.eu/health/ph\\_information/reporting/docs/hly\\_en.pdf](http://ec.europa.eu/health/ph_information/reporting/docs/hly_en.pdf))

HEALTH EXPECTANCY / HEALTHY LIFE YEARS / EUROPEAN UNION / 2005

This report presents estimates of health expectancies based on global activity limitation (Healthy Life

Years) for the EU25 in 2005 and trends in life expectancy at birth and at age 65 in the EU27 since 1995 and HLY for the EU15.

As an annex to the report, the status of every Member State is described in detail in a “Country Report” aiming at improving the understanding and dissemination of the HLY indicator at national level.

Fang, X., Zimmer, Z., Kaneda, T., Tang, Z., Xiang, M. **Stroke and Active Life Expectancy among Older Adults in Beijing China.** *Disability and Rehabilitation* 2009;31(9):701-711. CB20/17  
(<http://www.informaworld.com/smpp/content~db=all~content=a904997632>)

HEALTH EXPECTANCY / ACTIVE LIFE EXPECTANCY / ACTIVITY RESTRICTION / STROKE / ORIGINAL CALCULATION / MULTI-STATE LIFE TABLE METHOD / TRENDS / CHINA / 1992-97 / 2000-04

Purpose. Increasing stroke prevalence, population ageing and economic change in China necessitate a better understanding of the impact of stroke. This study examines the impact of stroke on disability and trends over time.

Method. Data are from longitudinal surveys conducted in the Beijing municipality from 1992 to 1997 and 2000 to 2004. Multi-state life tables constructed from hazard models are used to estimate life expectancy (LE) and active life expectancy (ALE). The active state is defined using six functional tasks and mortality is determined using interviewer follow-ups.

Results. LE and ALE are higher among those without stroke. Population-based estimates for the cohort observed beginning in 1992 indicate LE at age 55 of about 17 for those who have had a stroke and about 21 for others, whereas years of active life are about 14 and 19, respectively. Disability status at baseline is important for determining ALE. For those active, LE and ALE patterns are similar regardless of stroke status. For those inactive, the stroke group lives almost their entire lives inactive. Stroke reduces years of life by 20-40%, but active life by up to 90%.

Conclusion. Trends in ALE among those with stroke suggest possible influences of rapid development, concomitant improvement in health care and an increased focus on disease management.

Fang, X., Tang, Z., Zimmer, Z., Xiang, M., Kaneda, T. [Effects and trends of stroke and life expectancy among older adults--from 1990s to 2000s]. *Chung-Hua Liu Hsing Ping Hsueh Tsa Chih Chinese Journal of Epidemiology* 2009;30(2):105-109. CB20/07  
(<http://zhjxbx.periodicals.net.cn/default.html>)

HEALTH EXPECTANCY / ACTIVE LIFE EXPECTANCY / ACTIVITY RESTRICTION / STROKE / ORIGINAL CALCULATION / MULTI-STATE LIFE TABLE METHOD / TRENDS / 1992-97 / 2000-04

**OBJECTIVE:** To explore the experience of stroke influencing the life expectancy (LE), active life expectancy (ALE), inactive life expectancy (IALE), and the trend of life expectancy among older adults, from 1990s to 2000s in Beijing, China.

**METHODS:** A representative sample of 3257 elderly people living in urban or rural communities in Beijing were followed up from 1990 until 2004. Their health and survival status had been surveyed every 3-5 years. Activity Daily Living (ADL) scale, recommended by WHO was used to evaluate the physical function capability of the elderly. SAS was used to estimate LE, ALE and IALE for both periods of 1992-1997 and 2000-2004 by age and by areas of residency (rural or urban).

**RESULTS:** LE and ALE were shorter, and IALE was longer, among the elderly with stroke than those without stroke at all age groups. Functional status at baseline was also a very important factor in determining ALE and IALE. For those active at baseline, ALE in the elderly with stroke was shorter than those without. There were no differences found in IALE between those with or without stroke, but ALE was longer than IALE. For the elderly with stroke and inactive at baseline, their IALE were longer than ALE and their ALE were at low levels in all age groups. Among those with stroke and living in urban, their LE and ALE were longer than those living in the rural area. When comparing with the period of 1992-

1997, both LE and ALE increased during the period of 2000-2004 in all the elderly groups, both in urban and rural areas. The largest increment occurred among those with stroke who originated in an inactive state.

CONCLUSION: Stroke reduced both quality and quantity of life of the elderly. The reductions of LE and ALE were greater among the elderly with stroke in rural than in urban areas. Both LE and ALE increased from 1992-1997 to 2000-2004 among the elderly with stroke in both urban and rural areas.

Gu, D., Dupre, M. E., Warner, D. F., Zeng, Y. **Changing health status and health expectancies among older adults in China: Gender differences from 1992 to 2002.** *Social Science and Medicine* 2009;68(12):2170-2179. CB20/16  
(<http://www.ncbi.nlm.nih.gov/pubmed/19394120>)

HEALTH EXPECTANCY / PERCEIVED HEALTH / ACTIVITIES OF DAILY LIVING (ADL) / DISEASE (CHRONIC) / ELDERLY / TRENDS / ORIGINAL CALCULATION / SULLIVAN METHOD / CHINA

Using two nationally representative samples of non-institutionalized adults in China aged 65 years and older, this study investigates gender differences in the improvements in disability, chronic disease prevalence, and self-rated health from 1992 to 2002. Results from multivariate logistic regression models show that all three indicators of health improved over the 10-year period, with the largest improvement in self-rated health. With the exception of disability, the health of women improved more than men. Using Sullivan's decomposition methods, the study also shows that active life expectancy, disease-free life expectancy, and healthy life expectancy increased over this decade and were patterned differently according to gender. Overall, the findings demonstrate that China experienced broad health improvements during its early stages of the epidemiologic transition and that these changes were not uniform by gender.

Karcharnubarn, R., Rees, P. **Population Ageing and Healthy Life Expectancy in Thailand.** 2009. CB19/55  
([http://www.geog.leeds.ac.uk/fileadmin/downloads/school/people/postgrads/r.karcharnubarn/Population\\_Ageing\\_and\\_Health\\_Expectancy\\_in\\_Thailand\\_draft\\_3\\_PHR.pdf](http://www.geog.leeds.ac.uk/fileadmin/downloads/school/people/postgrads/r.karcharnubarn/Population_Ageing_and_Health_Expectancy_in_Thailand_draft_3_PHR.pdf))

HEALTH EXPECTANCY / HEALTHY LIFE EXPECTANCY / DISABILITY-FREE LIFE EXPECTANCY / PERCEIVED HEALTH / ACTIVITIES OF DAILY LIVING (ADL) / ORIGINAL CALCULATION / SULLIVAN METHOD / TRENDS / THAILAND / 2002 / 2007

The aim of this study is to investigate changes in health expectancy in Thailand. The data on health status are derived from Surveys of Elderly in Thailand 2002 and 2007. The life table data are obtained from Thailand vital registration. The life expectancy in self-rated good health and disability-free life expectancy (based on ADLs) were calculated using Sullivan's method. The results indicate that the life expectancy increased both for men and women between the period 2002 and 2007. However, life expectancy in self-rated good health was stagnating whereas disability free life expectancy increased, and increased more than life expectancy.

Lai, T., Habicht, J., Kiivet, R. **Measuring burden of disease in Estonia to support public health policy.** *European Journal of Public Health* 2009 19(5):541-547. CB20/02  
(<http://eurpub.oxfordjournals.org.gate2.inist.fr/content/vol19/issue5/index.dtl>)

DISABILITY-ADJUSTED LIFE YEARS (DALYs) / DISEASE / MORBIDITY / MORTALITY / HEALTH POLICY / ESTONIA

Background: Many countries have an overview on mortality and morbidity but few have performed contextualized national burden of disease studies. The objective of the present study is to provide a first set

of national and sub-national burden of disease estimates for Estonia. Further, we present the causes and age-gender distribution of the burden. We conclude with the description of result uptake and impact of the study in Estonian public health policy arena.

Methods: A burden of disease estimation procedure modified for best fit to country situation was used. That included disease classification reflecting Estonian disease profile, national disease severity assessments, mortality and morbidity prevalence data. Calculations were performed on national and sub-national levels.

Results: Estonian population lost 446 361 (327/1000 persons) disability adjusted life-years in 2002. Premature mortality caused majority of the burden and cardiovascular diseases, external causes (e.g. suicide and injuries) and cancers were main sources of burden. Working age population (16–64 years) shouldered 60% of the burden. Sub-national levels of burden range from 114 to 725 disability adjusted life-years per 1000 persons and are correlated to regional socioeconomic development.

Conclusion: Cardiovascular disease and injuries, premature mortality, working age population, male and people from economically less developed regions should be the priority targets for public health interventions. Estonian main public health strategies now address burden of disease concerns highlighted by our study.

Lai, T., Köhler, K. **Burden of disease of Estonian population.** *Policy Brief* 2009(1):14. CB20/01 ([http://www.sm.ee/fileadmin/meedia/Dokumendid/V2ljaanded/Toimetised/2009/series\\_20091eng.pdf](http://www.sm.ee/fileadmin/meedia/Dokumendid/V2ljaanded/Toimetised/2009/series_20091eng.pdf))

#### DISABILITY-ADJUSTED LIFE YEARS (DALYs) / ESTONIA

The burden of disease methodology describes the gap between the best possible and actual state of health of the population. Burden of disease calculations are based on morbidity and mortality statistics, disease severity assessments and the age of persons at the time of death. As a result a more comprehensive picture of morbidity and mortality effects on population health is achieved in comparison to what is commonly available from traditional health statistics. This policy brief uses the most recent burden of disease data from 2006 and gives a short overview on the topic with the most important age, gender, regional and disease distributions presented. Moreover, the current policy brief is a first-time attempt to provide an introduction to possible links between socioeconomic factors and burden of disease.

Melchor Alos, I., Moncho Vasallo, J., Nolasco Bonmati, A., Pereyra Zamora, P., Pina Romero, J. A., Tamayo Fonseca, N., Alfonso Gil, R., Ruiz Lapuente, A., Sanchis Alvarez, J. B. **Esperanzas de salud. Una revision conceptual y metodologica. Resultados en la Comunitat Valenciana.** Valencia: Generalitat. Conselleria de Sanitat; 2008. CB20/10 ([http://www.san.gva.es/portalnoticias/docs/doc\\_297765\\_417.doc](http://www.san.gva.es/portalnoticias/docs/doc_297765_417.doc))

#### HEALTH SURVEYS / HEALTH INDICATOR / HEALTH EXPECTANCY / CALCULATION METHOD / ORIGINAL CALCULATION / SULLIVAN METHOD / VALENCIA / SPAIN / 2005

Survey instruments are validated and data from the "Encuesta de Salud de la Comunitat Valenciana" 2005 are used to calculate a series of health expectancy indicators by sex and age for the Comunitat Valenciana.

Smith, M., White, C. **An investigation into the impact of question change on estimates of General Health Status and Healthy Life Expectancy.** *Health Statistics Quarterly* 2009;41(Spring):28-41. CB19/56 (<http://www.palgrave-journals.com/hsq/journal/v41/n1/pdf/hsq20096a.pdf>)

#### HEALTH EXPECTANCY / HEALTH SURVEYS / UNITED KINGDOM

This article investigates the likely effects of incorporating the European Union Statistics on Income and Living Conditions (EU-SILC) general health question upon Office for National Statistics (ONS) estimates

of general health and healthy life expectancy (HLE). Incorporation of the EU-SILC question in the reporting of UK health statistics will improve comparability with other EU member states, and provide a stronger indicator of functional health status.

van den Hout, A., Matthews, F. E. **Estimating dementia-free life expectancy for Parkinson's patients using Bayesian inference and microsimulation.** *Biostatistics* 2009;10(4):729-743. CB20/05 (<http://biostatistics.oxfordjournals.org/cgi/content/short/10/4/729?rss=1>)

#### DEMENTIA-FREE LIFE EXPECTANCY / MATHEMATICAL MODEL

Interval-censored longitudinal data taken from a Norwegian study of individuals with Parkinson's disease are investigated with respect to the onset of dementia. Of interest are risk factors for dementia and the subdivision of total life expectancy (LE) into LE with and without dementia. To estimate LEs using extrapolation, a parametric continuous-time 3-state illness-death Markov model is presented in a Bayesian framework. The framework is well suited to allow for heterogeneity via random effects and to investigate additional computation using model parameters. In the estimation of LEs, microsimulation is used to take into account random effects. Intensities of moving between the states are allowed to change in a piecewise-constant fashion by linking them to age as a time-dependent covariate. Possible right censoring at the end of the follow-up can be incorporated. The model is applicable in many situations where individuals are followed over a long time period. In describing how a disease develops over time, the model can help to predict future need for health care.

Walter, S., Kunst, A., Mackenbach, J., Hofman, A., Tiemeier, H. **Mortality and disability: the effect of overweight and obesity.** *International Journal of Obesity* 2009;33(12):1410-1418. CB20/04 (<http://www.nature.com/ijo/journal/v33/n12/abs/ijo2009176a.html>)

#### HEALTH EXPECTANCY / ACTIVE LIFE EXPECTANCY / OBESITY / DISABILITY / ELDERLY / LIFE EXPECTANCY LOST / ORIGINAL CALCULATION / THE NETHERLANDS

**Objective:** To determine the influence of overweight and obesity on mortality and disability by quantifying the effect in terms of disability-free life expectancy and years lost to disability (YLD) in the older people.

**Design, Setting and Participants:** For 5980 participants from the Rotterdam Study cohort, regression techniques were used to estimate the association of body mass index (BMI) and waist circumference (WC) separately with mortality, incident disability and recovery from disability. Disability was assessed using the Stanford Health Assessment Questionnaire Disability Index, an activity of daily living scale. Multistate life table methodology was used to calculate life expectancies.

**Results:** We observed 2388 deaths. Our analysis revealed no association between body mass index, or WC and mortality in the healthy population. Body mass index and WC were related to disability and negatively to recovery from disability. We observed an increase of years lost to disability with increasing weight for men and for women.

**Conclusion:** Results do not support the hypothesis that an increased body weight reduces total life expectancy in the older people. Although increased body weight was associated with a higher risk of becoming and remaining disabled. These results remained using WC.

Wang, J. S., Jin, S. G. **[Cause-excluded health adjusted life expectancy: a new indicator in measuring the burden of diseases.]** *Zhonghua yu fang yi xue za zhi [Chinese journal of preventive medicine]* 2009;43(8):655-658. CB20/18 ([http://www.ncbi.nlm.nih.gov/pubmed/20021841?log\\$=activity](http://www.ncbi.nlm.nih.gov/pubmed/20021841?log$=activity))

#### HEALTH-ADJUSTED LIFE EXPECTANCY (HALE) / DISABILITY-ADJUSTED LIFE YEARS (DALYs)

Based on the integration of concept and methods of cause-eliminated life expectancy (CELE), health-adjusted life expectancy (HALE) and disability-adjusted life year (DALY), a new index named cause-excluded health adjusted life expectancy (CEHALE) was developed in this study to evaluate the health impact(both fetal and non-fetal) of single disease. In order to include the impact of both premature death and health problems among those who are alive, the concept of suppositional death was introduced to calculate CEHALE. Cause-excluded health adjusted life expectancy developed in this study, should be not only easy to understand in concept, but also has theoretical support and be not affected by age structure, and be more suitable to use in comparison among different diseases and different population. Moreover, the new index is easy to calculate. So, CEHALE should be an ideal index to evaluate the impact of disease to population health.

Yardim, N., Akgun, S., Mollahaliloglu, S., Basara, B. **Life Expectancies and Health Adjusted Life Expectancy (Hale) at 60 Years Old, Population in Turkey.** *Turk Geriatri Dergisi-Turkish Journal of Geriatrics* 2009;12(3):111-117. CB20/20  
([http://www.geriatri.dergisi.org/pdf/pdf\\_TJG\\_428.pdf](http://www.geriatri.dergisi.org/pdf/pdf_TJG_428.pdf))

HEALTH-ADJUSTED LIFE EXPECTANCY (HALE) / LIFE EXPECTANCY / LIFE EXPECTANCY LOST / ORIGINAL CALCULATION / SULLIVAN METHOD / TURKEY / 1998-2000

Introduction: The goal of the study is to provide information and to set up objective criteria, which shall guide policies by using Health Adjusted Life (HALE) analysis. The results of the population census 2000, death statistics, data of the Turkish Demographic and Health Survey and Verbal Autopsy Survey, were used to develop life tables. Materials and Method: Preston-Coale (50.0%) Method which corresponds to the Horiuchi Method was used when developing life tables, in order to revise the number of deaths. The national life table was developed after urban, rural areas five regions. Results: Life expectancy at the age 60, is found to be 17.86 years at national, 16.62 among males, and 19.04 among females. At the age of 65, the value is 14.26 at national, 13.26 among males, and 15.19 among females. At age group 60; HALEs values are 14.4, years for national, 13.4 years in males, 15.9 years in females. At the age group 65 HALEs values are 14.26, for national, 13.26 years for males, and 15.19 years for females. Conclusion: Necessary efforts should be made to reach the goal to "Ensure Minimum 20% Increase in Life Expectancy and HALE in 65 years and older age.

**2008**

Crimmins, E. M., Hayward, M. D., Ueda, H., Saito, Y., Kim, J. K. **Life with and without heart disease among women and men over 50.** *Journal of Women and Aging* 2008;20(1-2):5-19. CB20/14  
(<http://www.ncbi.nlm.nih.gov/pubmed/18581697>)

HEALTH EXPECTANCY / DISEASE-FREE LIFE EXPECTANCY / CARDIOVASCULAR DISEASE / ORIGINAL CALCULATION / MULTI-STATE LIFE TABLE METHOD / ELDERLY / USA / 1990s

The authors use a multisate life table approach to calculate sex differences in the length of life lived with heart disease and after a heart attack for persons in the United States age 50 and older. They use data from the Health and Retirement Survey, a nationally representative sample of the U.S. population. On average, women live longer than men with heart disease. At age 50 women can expect to live 7.9 years and men 6.7 years with heart disease. Women experience heart disease onset three years older and heart attacks 4.4 years older than men.

Harbers, M. M., van der Wilk, E. A., Kramers, P. G. N., Kuunders, M. M. A. P., Verschuuren, M., Eliyahu, H., Achterberg, P. W. **Dare to compare! Benchmarking Dutch health with the European Community Health Indicators (ECHI).** Houten: Bohn Stafleu Van Loghum; 2008. (RIVM report number 2700551011) CB19/58

<http://www.rivm.nl/bibliotheek/rapporten/270051011.pdf>

HEALTH EXPECTANCY / HEALTHY LIFE YEARS / PUBLIC HEALTH / COMPARISON / EUROPEAN UNION / THE NETHERLANDS

The authors update the picture of Dutch public health against other EU member states using the ECHI shortlist and in particular the Healthy Life years indicator and other health expectancies at ages 16 and 65.

Kilpeläinen, K., Aromaa, A., ECHIM project. *European health indicators: development and initial implementation. Final report of the ECHIM project*. Helsinki: National Public Health Institute; 2008. (Publication of the National Public Health Institute B31/2008) CB19/57  
[http://www.ktl.fi/attachments/suomi/julkaisut/julkaisusarja\\_b/2008/2008b31.pdf](http://www.ktl.fi/attachments/suomi/julkaisut/julkaisusarja_b/2008/2008b31.pdf)

HEALTH INDICATOR / HEALTH EXPECTANCY / HEALTHY LIFE YEARS / EUROPEAN UNION

ECHIM project was designed to develop and implement health indicators and health monitoring in the European Union. The project produced a short list of indicators with documentation forms, among which healthy life years.

**2000-2007**

van Oers, J. A. M., editor. *Health on Course: The 2002 Dutch Public Health Status and Forecasts Report*. Houten: Bohn Stafleu Van Loghum; 2003. CB19/59  
<http://www.rivm.nl/bibliotheek/rapporten/270551002.pdf>

HEALTH EXPECTANCY / LIFE EXPECTANCY / HEALTH REPORT / PERCEIVED HEALTH / DISABILITY / MENTAL HEALTH / SEX COMPARISON / SOCIAL INEQUALITY / EDUCATION / GEOGRAPHIC COMPARISON / TRENDS / THE NETHERLANDS

This report presents new data and insights about public health, care and prevention in the Netherlands. It simultaneously examines the past, present and future, and draws comparisons both at home and abroad. Section 2 presents core information on the life and health expectancies of the Dutch population.

Pampalon, R. *Espérance de santé et défavorisation au Québec, 1996-1998*. Québec: Institut National de Santé Publique du Québec; 2002. CB20/15  
[http://www.inspq.qc.ca/pdf/publications/095\\_SanteDefavorisation.pdf](http://www.inspq.qc.ca/pdf/publications/095_SanteDefavorisation.pdf)

HEALTH EXPECTANCY / MORBIDITY / DISABILITY / HANDICAP / SOCIAL INEQUALITY / ORIGINAL CALCULATION / SULLIVAN METHOD / CANADA / QUEBEC / 1996-98

The authors estimate health expectancies for the Quebec population according to age, sex and level of material and social deprivation. Geographic comparisons are made between regions in Quebec.

van Herten, L. M. **Health expectancy according to socio-economic status in the Netherlands.** *European Journal of Public Health* 2002;12(4):105-105. CB20/21  
[http://eurpub.oxfordjournals.org/content/vol12/suppl\\_health1/index.dtl](http://eurpub.oxfordjournals.org/content/vol12/suppl_health1/index.dtl)

HEALTH EXPECTANCY / SOCIAL INEQUALITY / EDUCATION / PERCEIVED HEALTH / DISABILITY / ORIGINAL CALCULATION / SULLIVAN METHOD / THE NETHERLANDS / 1990s

Background: Health expectancy calculations combine the information on mortality with that on morbidity or disability. It shows in one figure the differences between (sub)populations. Within the framework of the publication of the third Public Health Status and Forecasts document, TNO Prevention and Health

calculated healthy life expectancy and disability free life expectancy according to socioeconomic status in the Netherlands.

Aim: Aim of the study is to describe the existing socio-economic differences in health expectancy in the Netherlands.

Methods: Since there are no mortality data according to socio-economic status in the Netherlands results from four longitudinal Dutch studies were used to calculate the life expectancy according to socio-economic status. Data on the health of the population were based on the Health Interview Survey, conducted by Statistic Netherlands. In order to have enough mass per category we combined the Health interview surveys over the years 1995–1999. For the healthy life expectancy calculations we used the question on perceived health. For the disability free life expectancy calculation we distinguished three types of disabilities (visus, hearing and ADL/mobility). The Sullivan method was used.

Results: Results are confidential yet, but will be public at the EUPHA meeting in Dresden in November 2002.

Conclusion: The higher the socio-economic status, the greater the life expectancy and health expectancy. The differences according to educational level in the Netherlands are in the same order of magnitude as in other European countries, like the Scandinavian countries, UK, Belgium and France.

Zhong, Z., Chen, Y., Yao, K. **Study of a calculation method for healthy life expectancy.** *Chinese Journal of Population Science* 1997;9(2):75-86. CB20/19  
([http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list\\_uids=12293056](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=12293056))

HEALTHY LIFE EXPECTANCY / CALCULATION METHOD / ORIGINAL CALCULATION / CHINA / 1993

The authors develop a calculation method for healthy life expectancy which would be suitable for China. They analyze the healthy life expectancy of urban residents in China, employing data on residents' deaths and data available from the 1993 national survey for health services and family health conditions. Results of the study show that the ratio of healthy life expectancy to life expectancy decreases with the increase of the residents' age; healthy life expectancy for females is higher than that for males; [and] healthy life expectancy for residents of large cities is lower than that for residents of medium and small cities.