

US Health Summary

Disease Prevalence + Health Expenditures + Care Costs

11.4.1.1 US Disease Prevalence

According to report from US CDC (Centers for Disease Control and Prevention) NCHS (National Center for Health Statistics), **15 leading causes of death in the United States** in 2004: **1.** Heart Disease, **2.** Cancer, **3.** Stroke, **4.** Chronic Lower Respiratory Diseases, **5.** Accidents (unintentional injuries), **6.** Diabetes, **7.** Alzheimer's Disease, **8.** Influenza and Pneumonia, **9.** Kidney Disease, **10.** Septicemia, **11.** Suicide, **12.** Chronic Liver Disease and Cirrhosis Liver, **13.** Hypertension, **14.** Parkinson's Disease and **15.** Pneumonitis due to solids and liquids. <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimdeaths04/preliminarydeaths04.htm>

Through the Faststats site provides quick access to statistics on topics of public health importance of **National Center for Health Statistics (NCHS)** <http://www.cdc.gov/nchs/fastats/default.htm> and according to CDC Summary Health Statistics for 2004 U.S. Adults: National Health Interview Survey, among persons 18 years of age and over as **2004 US Adult populations: Total 215.19M** (Million) with Males 103.55M and Females 116.6M, frequencies of selected diseases detail in following (**M**: Number in Million) (Source: "**Summary Health Statistics for U.S. Adults: National Health Interview Survey, 2004**") http://www.cdc.gov/nchs/data/series/sr_10/sr10_228.pdf

1. Table 1 (PDF Page 23): Circulatory Diseases: **Heart Disease 24.67M, Hypertension 47.49M, Stroke 5.52M.**
2. Table 3 (PDF Page 27): Respiratory Diseases: **Emphysema 3.58M, Asthma 21.3M, Allergic Rhinitis (Hay Fever) 18.63M, Sinusitis 30.79M, Chronic Bronchitis 9.05M.**
3. Table 5 (PDF Page 31): **2004 Cancer 15.02M** for Breast Cancer 2.58M, Cervical Cancer 1.11M and Prostate Cancer 1.69M. Further review: Estimated Number of Cancer Survivors per year in the United States from 1971 to 2003. **2003 cancer 10.5M.**
http://cancercontrol.cancer.gov/ocs/prevalence/prevalence_d.html#5
Note: The population of **China's HealthCare Available Markets** totaled over 337 million in 2005 and cancer registries will be estimated for **22.01 million** population detailed in 11.3.3 Chinese Healthcare Market and 11.4.2 Sales Forecast in China.
4. Table 7 (PDF Page 35): **Diabetes 15.13M, Ulcers 14.83M, CKD (Chronic Kidney Disease) 3.65M, Liver Disease 2.86M, Arthritis 46.52M and Chronic Joint Symptoms 58M.**
5. Table 9 (PDF Page 39): **Migraines or Severe Headaches 32.92M, Pain in Neck 31.74M, Pain in Lower Back 58.39M and Pain in Face or Jaw 9.22M.**
6. Table 20 (PDF Page 65): Respondent-assessed **health status: Fair/poor 26.40M.**
7. Table 22 (PDF Page 69): Respondent-assessed current health status Fair/poor in **8.99M worse than last year.**
8. Table 28 (PDF Page 83): Frequency distributions of number of **Leisure-Time** periods per week of **NEVER** vigorous **Physical Activity**

- lasting 10 minutes: **130.44M**.
9. Table 30 (PDF Page 87): in Body Mass Index, **Over-Weight 72.61M** and **Obese 49.48M**.
 10. Table 32 (PDF Page 91): Usual place of health care: All persons with a usual place of care for 181.91M distributed into **Doctor's office or HMO 143.86M**, **Clinic or health center 30.65M**, Hospital emergency room or outpatient department 4.2M, Some other place 1.49M.
 11. Table 34 (PDF Page 96): Frequency distributions of number of office visits to a doctor or other health care professional in the past 12 months: **50.88M for 4-9 times and 29.49M for 10 times or more to see a doctor in the past 12 months**.
 12. According to United States Renal Data System (USRDS) <http://www.usrds.org/> & <http://www.usrds.org/atlas.htm> **CKD (Chronic Kidney Disease)**, the precursor to **ESRD (End-Stage Renal-Disease)**, estimated **20M** divided into 8 million people as 4.3 percent of the U.S. population had an eGFR (estimated Glomerular Filtration Rates) and 12 million people as 6.5 percent of the U.S. population had evidence of micro-albuminuria. http://www.usrds.org/2006/pdf/01_ckd_06.pdf & http://www.usrds.org/2006/ref/B_prevalence_06.pdf
 13. **Hepatitis C Virus (HCV) 3.9M**, of whom 2.7M (74%) have chronic infection. http://www.cdc.gov/ncidod/diseases/hepatitis/c/plan/HCV_infection.htm . **Hepatitis B virus (HBV) 1.25M** chronically infected Americans, of whom 20-30% acquired their infection in childhood. <http://www.cdc.gov/ncidod/diseases/hepatitis/b/fact.htm> and http://www.cdc.gov/ncidod/diseases/hepatitis/b/aasld_update_chronichep_b.pdf . In 1998 US, **Chronic Liver Disease and Cirrhosis 5.49M**, **Gallbladder Disease 20.5M** http://www.hcvadvocate.org/hepatitis/About_Hepatitis_pdf/1.1_Hepatitis_C/Burden.pdf .
 14. **Kidney Failure 419,263** in 2002 http://www.nkdep.nih.gov/news/campaign/kidney_failure_prevalence.htm
 15. According to CDC NCHS (National Center for Health Statistics) Estimates for 2004 Outpatient U.S. Medical Care Exceeds **1.1 Billion Visits** (June 23, 2006), shown percentage **increase** for 10 years (between 1994-2004) by selected primary diagnoses: **Diabetes 117%**, **Spinal Disorders 94%**, **Arthropathies 61%**, **Malignant Neoplasms 54%**, **Hypertension 49%**. <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/estimates2004/estimates04.htm>
 16. **COPD (Chronic Obstructive Pulmonary Disease** which is a respiratory disease.) estimated **10M** U.S. adults in 2000. However, data from NHANES III estimate that approximately **24M** U.S. adults have evidence of impaired lung function, indicating that COPD is underdiagnosed. <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5106a1.htm>

11.4.1.2-1 US Health Expenditure Current

Total US National Health Expenditures (NHE): In 2003, it is **\$1.7 trillion** as a percent of **GDP (Gross Domestic Product): 15.3%**. In percent of health expenditures, using public funds: **46%**, **hospital care: 31%**, **physician and clinical services: 22%**, **prescription drugs: 11%** and **nursing home care: 7%** <http://www.cdc.gov/nchs/fastats/hexpense.htm>.

National Health Expenditures (NHE) will continue to rise rapidly in the U.S. and throughout the developed world. Total U.S. health care expenditures are projected to increase from **\$1.7 trillion in 2003**, **\$2.17 trillion in 2006**, **\$2.2 trillion in 2008**, **\$2.88 trillion in 2010** to **\$3.36 trillion in 2013** with averaging **annual increases 7%** about.

The health care market in the U.S. in 2006 was made up of **hospitals (\$662.5 billion)**, **physician and clinical services (\$463.3 billion)**, **prescription drugs (\$219.2 billion)**, **nursing home and home health (\$181.5 billion)**, and other items totaling \$549.2 billion.

<http://www.plunkettresearch.com/HealthCare/HealthCareTrends/tabid/294/Default.aspx>

Respective main health care expenditures by disease category as follows:

1. The American Heart Association estimated that the total cost of **Cardiovascular Disease (CVD)** will be approximately **\$403.1 billion in 2006** and distributed into **Heart Disease \$258.5 billion**, **CHD (Coronary Heart Disease) \$142.5 billion**, **Stroke \$57.9 billion**, **Hypertension \$63.5 billion** and **Heart Failure \$29.6 billion**. <http://www.theheart.org/article/376847.do> ,
<http://www.princetoncme.com/public/index.php?program=2005-149&rid=266>
http://www.ajmc.com/files/articlefiles/A164_06decTurpieS430to4.pdf
2. The health care expenditures of **Heart Disease and Stroke** in the United States is **\$209 billion** in 2003 www.healthierus.gov/STEPS/summit/prevportfolio/Heart-HHS.pdf
3. According to data from Alzheimer's Association National Office, **Alzheimer's disease** are at least **\$100 billion**. The average **lifetime cost** of care for an individual with Alzheimer's is **\$174,000**. **Medicare** costs for beneficiaries with Alzheimer's are expected to increase 75 percent, from \$91 billion in 2005 to **\$160 billion** in 2010. http://www.alz.org/alzheimer_statistics.asp
http://www.usc.edu/schools/medicine/departments/psychiatry_behavioralsciences/research/gsc/alzheimers/facts_ADstats.pdf
4. Medical expenditures for the U.S. population attributable to **Diabetes** in 2002 were estimated at **\$132 billion** including direct medical costs: \$92 billion and Indirect costs (related to disability, work loss, premature death): \$40 billion. <http://care.diabetesjournals.org/cgi/content/abstract/26/3/917> &
<http://www.cdc.gov/nccdphp/publications/aag/ddt.htm> . A recent report by the Centers for Disease Control (CDC) reveals that treatment for diabetes will cost the U.S. economy **\$192 billion** by 2020 <http://dave.md/s/index.cfm?aid=11>
5. **Cancer** treatment spending is **72.1 Billion** in 2004 US.
http://progressreport.cancer.gov/doc_detail.asp?pid=1&did=2005&chid=25&coid=226&mid . **The financial costs of cancer are overwhelming**. According to the National Institutes of Health, cancers cost the United States an estimated **\$210 billion in 2005**. This amount included \$74 billion in direct medical costs and nearly \$136 billion in lost productivity. With fiscal year **2006** funding over **\$412.6 million**, CDC provides national leadership for **Preventing Cancer** and promoting its early detection. <http://www.cdc.gov/nccdphp/publications/aag/dcpc.htm>
6. **Hypertension** is estimated that the direct and indirect costs of high blood pressure will be **\$63.5 billion** in the year 2006. It is estimated that about **90% of middle-aged adults** will develop high blood pressure in the remainder of their lifetime. <http://www.cdc.gov/bloodpressure/facts.htm>
7. **Kidney Failure Care \$25.2 Billion** in 2002 accounts for 6% of Medicare Payments. Its 10% death rate just less than Lung Cancer 16%.
http://nkdep.nih.gov/resources/nkdep_ckd_presentation.ppt
8. **Septicemia** accounts for **\$5-\$10 billion** of health-care expenditures annually in the United States. <http://www.cdc.gov/mmwr/preview/mmwrhtml/00001539.htm> .
Estimated Total Economic Cost **\$ 7.2 billion in 1998**
<http://ospp.od.nih.gov/pdf/septicemia.pdf>
9. **Liver Disease** (including 4 categories: Chronic Liver Disease with Cirrhosis, Chronic Hepatitis C, Liver Cancer, Gallbladder Disease) accounted for **\$9.78**

billion of total cost with **Direct Cost \$9.14 billion** in 1998 US. (Table 3 of http://www.hcvadvocate.org/hepatitis/About_Hepatitis_pdf/1.1_Hepatitis_C/Burden.pdf).

10. Direct health care costs for **Asthma** in the United States total more than \$11.5 billion annually; indirect costs (lost productivity) add another \$4.6 billion for a total of **\$16.1 billion**. **Prescription drugs represented the largest single direct medical expenditure, over \$5 billion.**

http://www.aaaai.org/media/resources/media_kit/asthma_statistics.stm **Allergy Statistics:**

11. **COPD** (Chronic Obstructive Pulmonary Disease which is a respiratory disease including **Chronic Bronchitis** and **Emphysema**) total cost amounted to **\$26 billion** in 1998 US..

<http://www.healthypeople.gov/Document/HTML/Volume2/24Respiratory.htm>

12. The total costs attributable to **Arthritis** and other **Rheumatic** conditions (AORC) in the United States in 2003 was approximately **\$128 billion**. This equaled 1.2% of the 2003 U.S. gross domestic product.

http://www.cdc.gov/arthritis/data_statistics/cost_data.htm

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5601a2.htm>

13.

14.1.1.2-2 US Health Expenditures 2015

According to "Health Spending Projections Through 2015" from National Health Statistics Group, Office of the Actuary, Centers for Medicare and Medicaid Services (<http://content.healthaffairs.org/cgi/content/full/25/2/w61> &

<http://content.healthaffairs.org/cgi/content/abstract/hlthaff.25.w61>) , by **2015 one in every five U.S. dollars will be spent on health care**, for total annual health-care spending of more than **\$4 trillion**. (Added SOURCES: Feb. 21, 2006, News Conference with John Poisal, deputy director as author, National Health Statistics Group, Office of the Actuary, Centers for Medicare and Medicaid Services (<http://www.hon.ch/News/HSN/531159.html> , <http://www.medicinenet.com/script/main/art.asp?articlekey=59984>)

America's health-care estimated highlights as follows:

- **Growth in National Health Spending** is expected to decline to 7.3 percent in 2005, down from a high of 9.1 percent in 2002. Growth in national health spending will **average 7.2 percent over the next 10 years**, or 2.1 percentage points faster than GDP growth but slower than in the recent past.
- **Growth in Private Health Insurance Premiums** are projected to slow to 6.6 percent in 2005, with the pace picking up again in 2007.
- Growth in health spending will surpass growth in the United States' GDP (Gross Domestic Product) **over the next decade**. Health spending will make up **20% of GDP, vs. 16% today**.
- **Hospital Spending Growth** is projected to be 7.9 percent in 2005, and by **2015 is expected to reach \$1.2 trillion**, or **double what it is today**. **Much of this is fueled by a boom in urban hospital building**.
- Similarly, spending on **Prescription Drugs** is expected to reach **\$446 billion in 2015, up from \$188 billion in 2004**. Over the decade, average **annual spending growth** for prescription drugs is projected to be **8.2%**, two percentage points below last year's projection. Total prescription drug spending is expected to grow 7.7 percent in 2006.
- **Medicare** spending will reach **\$792 billion in 2015, up from \$309 billion in 2004**. Growth will reach 25.2 percent in 2006, largely as a

result of the implementation of the Medicare Part D drug benefit. Spending growth will slow to 5.4 percent in 2007, but will average 7.5 percent from 2008 to 2015.

- **Medicaid** spending will reach \$320 billion in 2006, up from \$293 billion in 2004. Growth is expected to rise to 8.5 percent in 2007, and average 8.6 percent a year until 2015, at which point spending is anticipated to be \$670 billion.
- Growth in state, local and federal government spending on public health is estimated at 10.5 percent in 2005, more than double the rate of the year before, largely due to devastation wrought by hurricanes Katrina and Rita. Federal public health spending is forecast to increase 24.3 percent in 2005, more than four times the rate of 2004, for a total of \$11.3 billion.
- Growth in private health insurance premiums will continue to decline, down from 8.4 percent in 2004 to 6.8 percent in 2005.
- Out-of-pocket spending growth will likely remain stable at 5.6 percent in 2005 while out-of-pocket payments are expected to decline 1 percent in 2006. All in all, **consumers will spend \$421 billion of their own money on health care by 2015**, up from \$248.8 billion in 2005.
- Nursing home spending is expected to grow by 5.6 percent in 2005, up from 4.3 percent in 2004, largely the effect of an aging population.
- **Home Health Spending** is projected to grow **13.2 percent in 2005**, to reach nearly **\$49 billion**. It represents the fastest-growing health-care sector.
- A recent report by the Centers for Disease Control (CDC) reveals that treatment for **Diabetes** will cost the U.S. economy **\$192 billion** by 2020
<http://dave.md/s/index.cfm?aid=11>

SOURCES: Feb. 21, 2006, news conference with John Poisal, deputy director, National Health Statistics Group, Centers for Medicare and Medicaid Services; March 2006 *Health Affairs* (<http://www.hon.ch/News/HSN/531159.html> <http://www.medicinenet.com/script/main/art.asp?articlekey=59984>)

16.1.1.3 US Care Costs

In addition to following ICER table, it is necessary for complete understanding to read “ **2007 US HealthCare Cost** “: http://biomedicine.us/pdf/2007_US_HealthCare_Cost.pdf

Disease Treatment	ICER (Incremental Cost-Effectiveness Ratio) US\$ per QALY (Quality-Adjusted Life Years)
CHD (Coronary Heart Disease)	Chest Pain: ICER of \$41,900 per QALY gained. Angina Pectoris: ICER: \$36 400 per QALY gained. http://www.ajmc.com/files/articlefiles/A164_06decTurpieS430to4.pdf
	For primary prevention of CHD in patients with low HDL-cholesterol levels, estimated cost-effectiveness ratio of \$50,000 per QALY gained, http://www.ingentaconnect.com/content/adis/pec/2005/00000023/00000002/art00005
CAD (Coronary Artery Disease)	According to WHO Guidelines for CAD (Coronary Artery Disease) screening in asymptomatic patients with type 2 diabetes and other atherogenic risk factors in Japan, ICER (Incremental Cost-Effectiveness Ratio) of exercise electrocardiography was \$31,400 / QALY for 60-year-old asymptomatic diabetic men. The ICER of exercise

	echocardiography was \$31,500 / QALY and SPECT (Single Photon Emission Computed Tomography) was \$326,000 / QALY. http://www.internationaljournalofcardiology.com/article/PIIS016752730600756X/abstract
LVSD (Left Ventricular Systolic Dysfunction)	Under an ICD (Implantable Cardioverter–Defibrillator) improves survival among patients who are at risk for sudden death due to LVSD (Left Ventricular Systolic Dysfunction) but who have not had a life-threatening ventricular arrhythmia, the cost-effectiveness of the ICD ranged from \$34,000 to \$70,200 per QALY gained. http://content.nejm.org/cgi/content/full/353/14/1471?ijkey=eac3a003b78f12a4e514c651f250f4aef57aa98b
Stroke	Stroke prevention: ICER below \$50,000 per QALY gained in sensitivity analysis. (Source: Case No.122, http://www.pharmacotherapy.org/pdf/free/Pharm2503_ACCP-Abs.pdf)
COPD (Chronic Obstructive Pulmonary Disease)	For ICS (Inhaled CorticoSteroids) treatment is a cost-effective alternative in patients with stages II and III COPD . In the first scenario, cost-effectiveness per LYG (life-year gained) was \$29,064 at 5 year http://pats.atsjournals.org/cgi/content/full/3/7/630
Emphysema	Early-Onset Emphysema with Severe {alpha}1-Antitrypsin Deficiency for treatment in ICER of \$207,841/QALY , and cost \$895,243. for 7.19 QALYs. http://ajrcm.atsjournals.org/cgi/content/full/167/10/1387
Asthma	Asthma treatment, in 10-year time horizon, ICER of \$26,000 per QALY gained. Over an extended the time horizon (lifetime), the ICER increased to \$42,000/QALY . http://www.jacionline.org/article/PIIS0091674905023304/abstract
Influenza A and B	For treatment of Influenza A and B, The Sensitivity Analysis showed that variations can cause the ICER to range from – \$72,520 (£37,000) to \$360,640 (£184,000) per QALY gained, including these parameters as number of follow-up GP (general practitioner) visits, prevalence of true influenza, effectiveness in the ITT (intention-to-treat) population, days to alleviation of symptoms. http://www.hta.nhsweb.nhs.uk/fullmono/mon735.pdf
Diabetes	Type 1 Diabetes: ICER of \$14,974 per QALY gained. Type 2 Diabetes: ICER of \$25,368 per QALY gained. http://www.imshealth.com/vgn/images/portal/cit_40000873/44/49/78786087HEOR_Abstracts_2006.pdf
	Diabetic Retinopathy: ICER of \$16,514/18.73 QALYs for teleophthalmology. http://care.diabetesjournals.org/cgi/content/full/27/5/1095 For prevention and treatment of the Diabetic Foot Ulcer , ICER of < \$25,000 per QALY gained. http://care.diabetesjournals.org/cgi/content/full/27/4/901
Cancer	According to the European Organisation for Research and Treatment of Cancer (EORTC) for interferon-alpha treatment in malignant melanoma , ICER of \$80,350 (£41,432) per QALY in the UK. http://www.nature.com/bjc/journal/v94/n4/full/6602973a.html
	Predicting Oesophageal Adenocarcinoma: ICER of \$50,000 per QALY gained. http://www.medscape.com/viewarticle/509000_2
	Breast Cancer: ICER of \$21 400/life-year in the USA. CT (Computed Tomography) colography ICER of \$24 586/life-year . Colonoscopy would be more cost-effective at \$20,930 / life-year. MRI (Magnetic Resonance Imaging)

	costing \$17,970 (EUR13,930) per detected cancer. \$116,300/QALY http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1434591
	Ovarian Cancer or Breast Cancer: ICER<\$100,000/QALY. http://smdm.confex.com/smdm/2005ca/techprogram/P2033.HTM
	Metastatic Prostate Cancer: ICER of \$33,677/QALY (5 years) and \$20,053/QALY (10 Years). http://casodex.net/gUserFiles/AUA-05-Penson.pdf
	Under Lung Cancer Symptom Scale for the treatment of Malignant Pleural Mesothelioma: ICER of \$71,565 (pound 36,700) per QALY gained. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=17181984&query_hl=2
Hepatitis B	Cost-effectiveness of treatment option for patients with Chronic Hepatitis B (CHB) in Taiwan, an ICER of \$ US 12,000 per quality-adjusted life year (QALY) gained. For prognosis of HBeAg-positive CHB, the ICER did not exceed \$US 15,000 per QALY gained. http://www.blackwell-synergy.com/doi/abs/10.1111/j.1440-1746.2006.04539.x
Hepatitis B	For treatments for CHB (Chronic Hepatitis B) estimated the ICER \$US per QALY gained, IFN (Interferon Alfa) (24 weeks) is \$15,316 (£7936) and PEG-IFN (Pegylated interferon alfa-2a) (48 weeks) is \$31,200 (£16,166) http://www.hta.nhsweb.nhs.uk/execsumm/summ1028.htm
Hepatitis C	According to the research findings from the UK NHS R&D Health Technology Assessment (HTA) Programme in The cost-effectiveness of testing for HCV (Hepatitis C Virus) in former injecting drug users, ICER of \$31,872 (£16,514) per QALY gained. http://www.hta.nhsweb.nhs.uk/execsumm/summ1032.htm
Kidney Failure	Kidney Failure as ESRD (End-Stage Renal Disease), 2003 treatment costs as per capita \$60,270. http://kidney.niddk.nih.gov/kudiseases/pubs/kustats/index.htm For EPO (Erythropoietin) doses to alleviate anemia in ESRD patients, ICER of \$38,481 per QALY gained. http://italia.medscape.com/viewarticle/538873
Hypertension	To reduce blood pressure in Uncontrolled Hypertension ICER of \$4371 per QALY gained, and \$8,764 to \$13,163 by cost-sensitivity analysis. http://www.lejacq.com/downloads/3rdPartyLinkOut/CrdDyn-HH5728-Ferrario.pdf
Intracerebral Hemorrhage (ICH)	In the United States, through treatment of rFVIIa (recombinant activated factor VII) reduces ICH mortality and improves functional outcome, http://stroke.ahajournals.org/cgi/content/abstract/37/11/2751
Migraine	Treatment of Acute Migraine in adults: ICER of \$27,000 (\$Can31,845) per QALY gained. http://pharmacoeconomics.adisonline.com/pt/abstract/00019053-200523120-00011.htm?sessionid=FzMkNK5B7scKpJz30CJ1shjWm4lH5BMPv2Pv2wyyCWn4Cl2p1134402189f-949856144f80911-1

US Now-2030 HealthCare Trouble & Bottleneck

http://biomedicine.us/pdf/US_HC_Now-2030.pdf