



Epidemiology of Cardiovascular Disease in the 21st Century: Updated Numbers and Updated Facts

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Abstract — According to updated statistics, cardiovascular disease is the first cause of death both in United States (source: American Heart Association, 2013) and worldwide (data of the World Health Organization, 2013). In this special short report the current epidemiological data concerning cardiovascular disease, diabetes and stroke are presented.

Cardiovascular disorders represent the foremost cause of preventable death globally. Indeed, efforts to improve lifestyles, controlling lifestyle-related major cardiovascular risk factors, will definitely contribute to cardiovascular disease prevention.

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Cardiovascular disease represents the leading cause of death in United States (US), as recently confirmed by the Centers for Disease Control and Prevention (CDC)¹. Data from CDC on leading causes of death in US in 2011, 2010 and 2009 are depicted in Tables 1-3, respectively.

According to the World Health Organization (WHO) cardiovascular disease is the number one cause of death globally: more people die annually from cardiovascular disorders than from any other cause (source: <http://www.who.int/mediacentre/factsheets/fs317/en/> accessed 20 June 2013). In particular, the Global Burden of Disease study classified ischemic heart disease as the leading cause of global mortality, accounting for 1.4 million deaths in the developed world and 5.7 million deaths in developing regions².

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Table 1

Leading Causes of Death in 2011 (preliminary data)¹.

Disease	Number of Death in US
Heart disease	596,339
Cancer	575,313
Chronic lower respiratory diseases	143,382
Stroke (cerebrovascular diseases)	128,931
Accidents (unintentional injuries)	122,777
Alzheimer's disease	84,691
Diabetes	73,282
Influenza and Pneumonia	53,667
Nephritis, nephrotic syndrome, and nephrosis	45,731
Intentional self-harm	38,285

Source: Centers for Disease Control and Prevention, National Center for Health Statistics <http://www.cdc.gov/nchs/fastats/lcod.htm>. Accessed June 20, 2013.

Table 2

Leading Causes of Death in 2010.

Disease	Number of Death in US
Heart disease	597,689
Cancer	574,743
Chronic lower respiratory diseases	138,080
Stroke (cerebrovascular diseases)	129,476
Accidents (unintentional injuries)	120,859
Alzheimer's disease	83,494
Diabetes	69,071
Nephritis, nephrotic syndrome, and nephrosis	50,476
Influenza and Pneumonia	50,097
Intentional self-harm	38,364

Source: Centers for Disease Control and Prevention, National Center for Health Statistics <http://www.cdc.gov/nchs/fastats/lcod.htm>. Accessed June 20, 2013.

Table 3

Leading Causes of Death in 2009.

Disease	Number of Death in US
Heart disease	515,587
Cancer	486,995
Chronic lower respiratory diseases	126,733
Stroke (cerebrovascular diseases)	129,476
Accidents (unintentional injuries)	108,764
Alzheimer's disease	72,696
Diabetes	54,113
Influenza and Pneumonia	46,432
Nephritis, nephrotic syndrome, and nephrosis	38,758
Intentional self-harm	33,425

Source: Centers for Disease Control and Prevention, National Center for Health Statistics <http://www.cdc.gov/nchs/fastats/lcod.htm>. Accessed June 20, 2013.



Cardiovascular disease accounts for approximately 30% of all deaths. Of note, deaths caused by stroke and other cerebrovascular disorders are not considered in this count (cerebrovascular disease alone represents roughly 10% of all causes of death).

In 2010, the three leading risk factors for global disease burden were (in this order) arterial hypertension, tobacco smoking (including second-hand smoke), and household air pollution from solid fuels³. The reason for the enormous burden of hypertension has been reported in numerous studies, showing that hypertensive disease is strongly associated with overall cardiovascular risk⁴. Increased blood pressure contributes indeed to both cardiovascular and cerebrovascular endpoints, including heart failure, myocardial infarction, and stroke. As reported in 2013 statistics of the American Heart Association (AHA), 33.0% of US adults ≥ 20 years of age have hypertension. African American adults have among the highest prevalence of hypertension (44%) in the world⁵.

The following numbers can give to the reader an idea of the importance of hypertension worldwide: 16.5% of all deaths can be attributed to high blood pressure. This includes 51% of deaths due to strokes and 45% of deaths due to coronary heart disease³. Of note, in US only 53% of those with documented hypertension have their condition controlled to target levels.

Epidemic obesity, often triggered by multifaceted dietary imbalances, with its consequences, including rampant incidence of type 2 diabetes mellitus and other obesity-driven metabolic cardiovascular risk factors, represents another major health problem in the industrialized world.

According to AHA, 8.3% of the adult population has diabetes and 38.2% has abnormal fasting glucose levels or prediabetes⁵.

The statistics of US mortality⁵ in elderly people confirm the importance of cardiovascular disease, both in males and females. Indeed, the leading causes of death in women ≥ 65 years of age were: 1) diseases of the heart, 2) cancer, 3) stroke, 4) chronic lower respiratory disease. In older men, they were: 1) diseases of the heart, 2) cancer, 3) chronic lower respiratory disease, 4) stroke.

PERSPECTIVES

Cardiovascular disease is the leading cause of death. Importantly, it remains the foremost cause of preventable death globally. Public health efforts to improve lifestyles, controlling lifestyle-related major cardiovascular risk factors, will certainly contribute to cardiovascular disease prevention.

REFERENCES

- [1] Hoyert D and Xu J. Deaths: preliminary data for 2011. *National vital statistics reports : from the Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System* **2012**;61(6):1-52.
- [2] Pagidipati NJ and Gaziano TA. Estimating deaths from cardiovascular disease: a review of global methodologies of mortality measurement. *Circulation* **2013**;127(6):749-56.
- [3] Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, Amann M, Anderson HR, Andrews KG, Aryee M, Atkinson C, Bacchus LJ, Bahalim AN, Balakrishnan K, Balmes J, Barker-Collo S, Baxter A, Bell ML, Blore JD, Blyth F, Bonner C, Borges G, Bourne R, Boussinesq M, Brauer M, Brooks P, Bruce NG, Brunekreef B, Bryan-Hancock C, Bucello C, Buchbinder R, Bull F, Burnett RT, Byers TE, Calabria B, Carapetis J, Carnahan E, Chafe Z, Charlson F, Chen H, Chen JS, Cheng AT, Child JC, Cohen A, Colson KE, Cowie BC, Darby S, Darling S, Davis A, Degenhardt L, Dentener F, Des Jarlais DC, Devries K, Dherani M, Ding EL, Dorsey ER, Driscoll T, Edmond K, Ali SE, Engell RE, Erwin PJ, Fahimi S, Falder G, Farzadfar F, Ferrari A, Finucane MM, Flaxman S, Fowkes FG, Freedman G, Freeman MK, Gakidou E, Ghosh S, Giovannucci E, Gmel G, Graham K, Grainger R, Grant B, Gunnell D, Gutierrez HR, Hall W, Hoek HW, Hogan A, Hosgood HD, 3rd, Hoy D, Hu H, Hubbell BJ, Hutchings SJ, Ibeanusi SE, Jacklyn GL, Jasrasaria R, Jonas JB, Kan H, Kanis JA, Kassebaum N, Kawakami N, Khang YH, Khatibzadeh S, Khoo JP, Kok C, Laden F, Lalloo R, Lan Q, Lathlean T, Leasher JL, Leigh J, Li Y, Lin JK, Lipshultz SE, London S, Lozano R, Lu Y, Mak J, Malekzadeh R, Mallinger L, Marcenes W, March L, Marks R, Martin R, McGale P, McGrath J, Mehta S, Mensah GA, Merriman TR, Micha R, Michaud C, Mishra V, Hanafiah KM, Mokdad AA, Morawska L, Mozaffarian D, Murphy T, Naghavi M, Neal B, Nelson PK, Nolla JM, Norman R, Olives C, Omer SB, Orchard J, Osborne R, Ostro B, Page A, Pandey KD, Parry CD, Passmore E, Patra J, Pearce N, Pelizzari PM, Petzold M, Phillips MR, Pope D, Pope CA, 3rd, Powles J, Rao M, Razavi H, Rehfuess EA, Rehm JT, Ritz B, Rivara FP, Roberts T, Robinson C, Rodriguez-Portales JA, Romieu I, Room R, Rosenfeld LC, Roy A, Rushton L, Salomon JA, Sampson U, Sanchez-Riera L, Sanman E, Sapkota A, Seedat S, Shi P, Shield K, Shivakoti R, Singh GM, Sleet DA, Smith E, Smith KR, Stapelberg NJ, Steenland K, Stockl H, Stovner LJ, Straif K, Straney L, Thurston GD, Tran JH, Van Dingenen R, van Donkelaar A, Veerman JL, Vijayakumar L, Weintraub R, Weissman MM, White RA, Whiteford H, Wiersma ST, Wilkinson JD, Williams HC, Williams W, Wilson N, Woolf AD, Yip P, Zielinski JM, Lopez AD, Murray CJ, Ezzati M, AlMazroo MA and Memish ZA. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* **2012**;380(9859):2224-60.
- [4] Santulli G. Coronary heart disease risk factors and mortality. *JAMA : the journal of the American Medical Association* **2012**;307(11):1137; author reply 1138.
- [5] Go AS, Mozaffarian D, Roger VL, Benjamin EJ, Berry JD, Borden WB, Bravata DM, Dai S, Ford ES, Fox CS, Franco S, Fullerton HJ, Gillespie C, Hailpern SM, Heit JA, Howard VJ, Huffman MD, Kissela BM, Kittner SJ, Lackland DT, Lichtman JH, Lisabeth LD, Magid D, Marcus GM, Marelli A, Matchar DB, McGuire DK, Mohler ER, Moy CS, Mussolino ME, Nichol G, Paynter NP, Schreiner PJ, Sorlie PD, Stein J, Turan TN, Virani SS, Wong ND, Woo D, Turner MB, American Heart Association Statistics and Stroke Statistics S. Heart disease and stroke statistics--2013 update: a report from the American Heart Association. *Circulation* **2013**;127(1):e6-e245.