low W:H-R (odds ratio 1.6). These patterns were even more obvious in diabetic patients. Similar results could be shown by combining BMI and waist circumference only. CONCLUSIONS: BMI in addition to W:H-R or waist circumference is a better and more precise predictor of obesity-related complications, and should where possible be preferentially used. Longitudinal obesity-related outcome data are needed.

**POB6**

COSTS OF OBESITY IN THE UNITED STATES AND EUROPE: A REVIEW OF THE LITERATURE

Budhiarso I, Derleth A, Martin ML

Health Research Associates, Mountlake Terrace, WA, USA

OBJECTIVE: To provide a broad picture of the costs of obesity using data from the US and major European countries.

METHOD: Literature (2000–2004) was searched via Medline using cost keywords: cost, cost-effectiveness, cost-benefit, cost-efficiency. Selected citations were reviewed by title and abstract, followed by retrieval of relevant articles, review and synthesis of cost information.

RESULT: Direct medical expenditures for obesity in the US were estimated to be between $70–$94 billion and $331 billion—with all obesity associated comorbidities included. This represented approximately 5.7%–9.4% of the adult direct health spending. Cardiovascular disease and diabetes constituted approximately 70% of the obesity-related cost. Indirect costs associated with obesity were estimated to be at least $48 billion. The expected mean costs for persons with BMI = 30–34 and BMI = 35–39 were 12% and 19% higher (respectively) than persons with BMI < 25. Women spent more than men for obesity care. In the US, Wyoming showed the lowest expenditure for obesity ($87 million), and California the highest ($7.7 billion). Direct costs of obesity in Europe were estimated between 1.5% and 4% of total health expenditures, with the UK, Germany and France all showing similar expenditures (1.5%). Expenses associated with comorbid hypertension, coronary heart disease and diabetes were the main drivers of cost in the UK (80%). Indirect costs in the UK were estimated at £2.1 billion, of which £1.3 billion (61%) was due to work loss. Drug interventions using Orlistat, Sibutramine and Metformin were all cost-effective with the cost per QALY gained ranging between £8,327 to £19,968 (£4,780 to £54,881). CONCLUSION: The costs attributable to obesity in both the US and Europe represented a significant portion of the national health expenditure for those countries reviewed, with comorbid cardiovascular disease and diabetes constituting the major components of obesity associated health care costs.

**POB7**

LIFETIME COSTS ASSOCIATED WITH OBESITY: A COMPUTER SIMULATION MODEL

Tucker DM1, Minshall ME2, Palmer AJ1, Valentine WJ1

1CORE—Center for Outcomes Research, Binningen, Basel, Switzerland; 2CORE—USA, Fishers, IN, USA

OBJECTIVES: To estimate the health care costs and clinical outcomes of various body mass index (BMI) levels over a lifetime.

METHODS: A Markov model was developed to perform cost-effectiveness/ utility analyses to evaluate obesity treatments including lifestyle, pharmacological and surgical interventions. User-defined cohorts of obese adults can be followed over a lifetime assessing changes in costs and life expectancy. Baseline risk factors include age, gender, race and BMI. First and second order Monte Carlo simulation techniques were utilized. To compare the outcomes of three distinct BMI groups a 20 year-old Caucasian male with varying baseline BMI (25, 35 and 45 kg.m\(^{-2}\)) was chosen and it was assumed that no medical intervention was undertaken. The perspective was third-party reimbursement in a US setting. Mortality was adjusted for age, gender, race and BMI by Cox regression and applied US life tables. Costs and utility values were adjusted for age, gender and BMI. US costs were derived from published resources and inflated to year 2004 figures. Reported outcomes included direct medical costs, life expectancy (LE) and quality-adjusted life expectancy (QALE) all of which were discounted at 3% according to US guidelines.

RESULTS: Mean lifetime costs were $85,393 (±1535), $97,136 (±1836) and $97,542 (±2397) for BMI levels of 25, 35 and 45 kg.m\(^{-2}\) respectively. Undiscounted LEs were 54.43 (±1.47), 51.48 (±1.37) and 42.04 (±1.69) years respectively. Lifetime costs associated with a BMI of 45 kg.m\(^{-2}\) from age 20 were approximately 14% higher than costs associated with BMI 25 kg.m\(^{-2}\). Undiscounted life expectancy was reduced by 12.39 years and discounted QALE was reduced by 3.52 years for BMI 45 kg.m\(^{-2}\) versus 25 kg.m\(^{-2}\). CONCLUSIONS: Raised BMI is associated with substantially greater direct medical costs and diminished LE and QALE. This model will allow health economic evaluations of the outcomes of various anti-obesity interventions.