SOCIETY OF ACTUARIES

Article from:

Reinsurance Section News

May 2005 – Issue 55

OBESITY: THE NEXT SMOKING?

by Ernest Eng and Ronald L. Klein

Editor's Note: This article is based on a feature which previously appeared in the July 2004 issue of Reinsurance Magazine. *It is reprinted with permission.*

Swiss Re Investigates the parallels between public and (re)insurance industry responses to obesity and smoking.

Obesity is poised to overtake smoking as the leading preventable cause of death. What parallels can be drawn between public and (re)insurance industry responses to these two lifestyle choices? Swiss Re investigates.

The last 30 years has seen a sustained decline in heart-disease mortality in the United States and across the developed world. These mortality improvements should not, however, be taken for granted. Rising obesity, if allowed to continue, now threatens to attenuate these positive gains in the future. As Figure 1 shows, obesity is currently more prevalent than smoking in the United States.

The U.S. Centers for Disease Control and Prevention (CDC) has estimated that smoking accounts for 435,000 deaths annually, with deaths arising from poor dietary habits and physical inactivity — the two factors most closely associated with obesity — not far behind at 400,000. Assuming that current trends continue, obesity is poised to overtake smoking as the leading preventable cause of death.

Table 1 illustrates how obesity is also catching up with smoking in terms of the strain it places on total medical costs. This is especially true in the United States, where these costs are already considered to be on par with those related to smoking. According to one report, obesity is associated with even more chronic conditions than those linked to smoking[1].

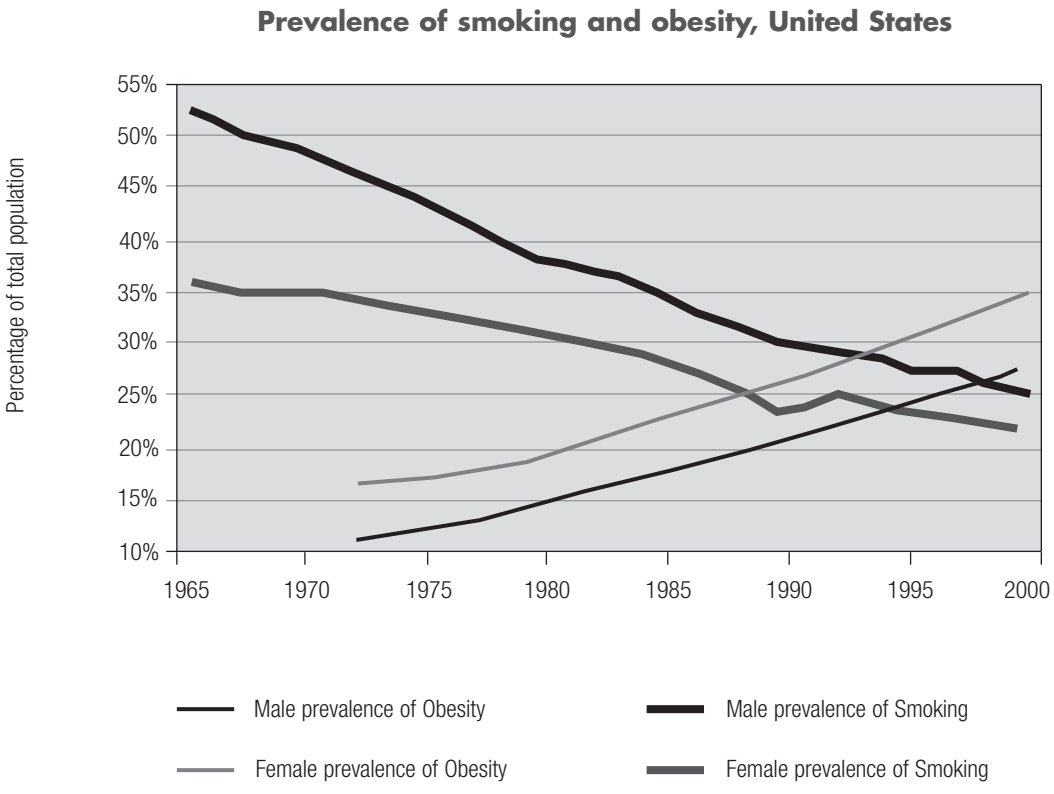

Figure 1
Prevalence of smoking and obesity, United States
Source: Centers for Disease Control and Prevention (U.S.)

Like smoking, the origins of obesity are usually heavily rooted in lifestyle choices. The last 20 years have seen a fall in the prevalence of physical activity, coupled with an increase in unbalanced diets. It is, of course, possible that some of the rise in obesity may be linked to a change in dietary habits when people give up smoking. Similarities between smoking and obesity suggest that a combination of public and private-sector responses may be required to adequately address the risks associated with obesity.

A brief history of smoking

Between the 1920s and the mid-1960s, cigarette smoking was

Estimated costs as a percentage of total medical spending		
	Smoking	Obesity (BMI > 30)
United States	6.0% - 8.0%	5.3% -5.7%
United Kingdom	5.1%	1.5%
France	3.5%	2.0%
Canada	4.0%	2.4%

Table 1
Estimated costs as a percentage of total medical spending, selected countries
Source: Various

regarded as a lifestyle choice rather than a health problem. In the United States, cigarette consumption increased markedly during the two World Wars, largely because of the increased availability of tobacco products to men of military age. Anti-smoking movements did exist in the early 20th century, but were unsuccessful in achieving large-scale changes in attitudes towards the habit. During this period, the U.S. government was largely ambivalent towards the health impact of smoking. It was not until 1964, when the Surgeon General published 15 years' worth of definitive medical research linking smoking and its detrimental impact on lung cancer, that trends began to reverse. Even then, it took yet another decade for cigarette smoking to begin its sustained decline, up to the present day. Figure 2 illustrates these trends.

The decline in smoking over the last 30 years highlights the scale of resources needed to reduce cigarette consumption. Despite the efforts of government policies, anti-smoking groups and further medical research confirming its associated health hazards, the prevalence of smoking still remains stubbornly high, particularly amongst the lower socioeconomic groups. According to one set of U.S. data, more than 30 percent of American adults who had not completed high school were smokers, compared with 10 percent of those with graduate degrees or higher[2].

A similar trend for obesity?

All of this might suggest that any future decline in the prevalence of obesity may take a long time to achieve — decades rather than years. There was a strong lobby against smoking, partly because of the impact on nonsmokers and unborn children; the response to obesity is likely to be weaker. There are also indications that the current situation might get worse before it gets better. It is worth remembering that today's concerns over obesity relate not only to adults but to children and adolescents, too. By contrast, obesity is already more prevalent in children and adolescents today than smoking was 30 or 40 years ago.

Furthermore, the longer-term health implications of obesity largely remain to be felt. A parallel might be drawn from the delayed effects of lung cancer mortality, which, in men, as Figure 3 demonstrates, did not reach its peak until 1990, nearly 30 years after the corresponding highs in cigarette consumption. A recent study[3] has suggested that there may be

continued on page 14

Obesity: the next smoking? from page 13

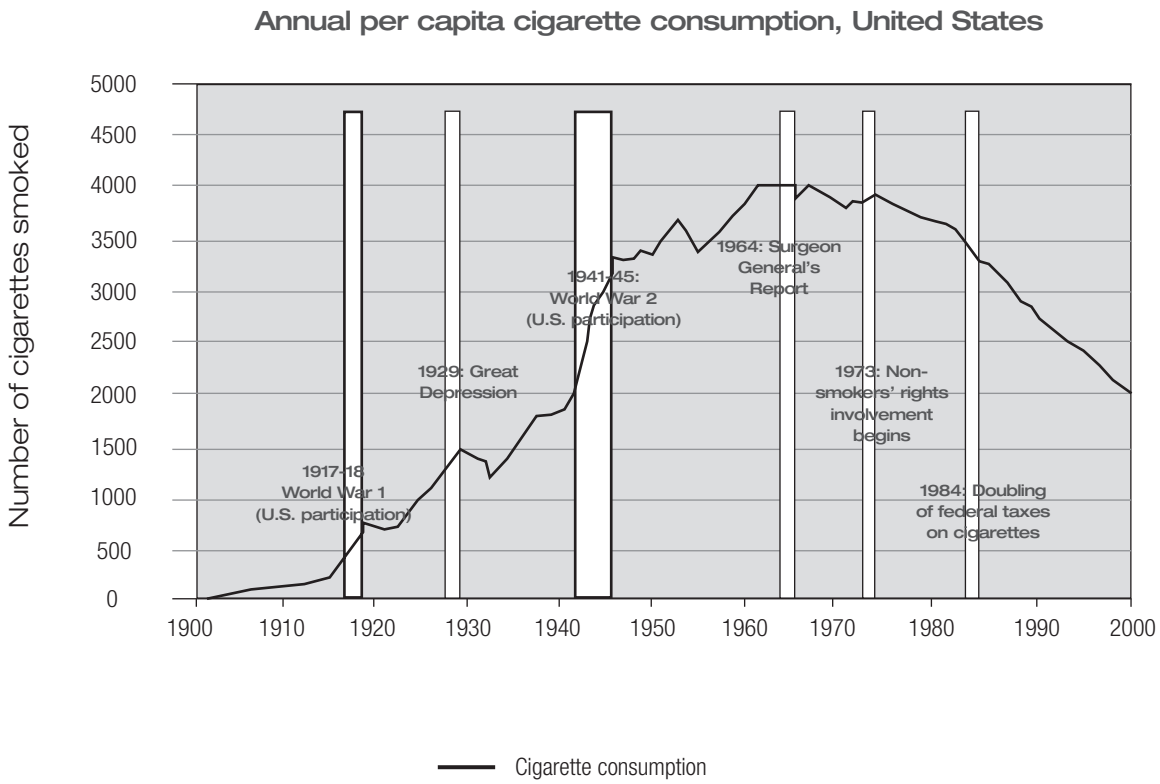

Figure 2
Per capita cigarette consumption, United States
Source: Department of Health and Human Services (U.S.)

a similar lag between diet and future heart-disease mortality, and it is therefore plausible that a similar pattern could emerge in the case of obesity.

Will obesity go the same way as smoking? Using the United States as an example, Table 2 illustrates some of the similarities in how government, businesses and society at large have responded following increased consumer awareness of the risks associated with these two health hazards.

Taking responsibility for our actions

Governments understand that the efforts required to tackle obesity require the participation of all sectors of society. It will not be sufficient to place the onus solely on businesses through regulation, taxation or litigation. Consumers must rethink the 'find someone else to blame' culture and start accepting more responsibility for their own actions.

Signs of such a shift in thinking are perhaps already starting to appear, at least in government circles. According to Dr. William H. Dietz, director of the division of nutrition and physical activity at the CDC: "No single company or agency can solve the problem of obesity on its own." In March 2004, the U.S. House of Representatives ruled that customers are no longer allowed to take legal action against fast-food restaurants for making them obese.

In the case of smoking, governments took the lead in educating women on the dangers to foetuses

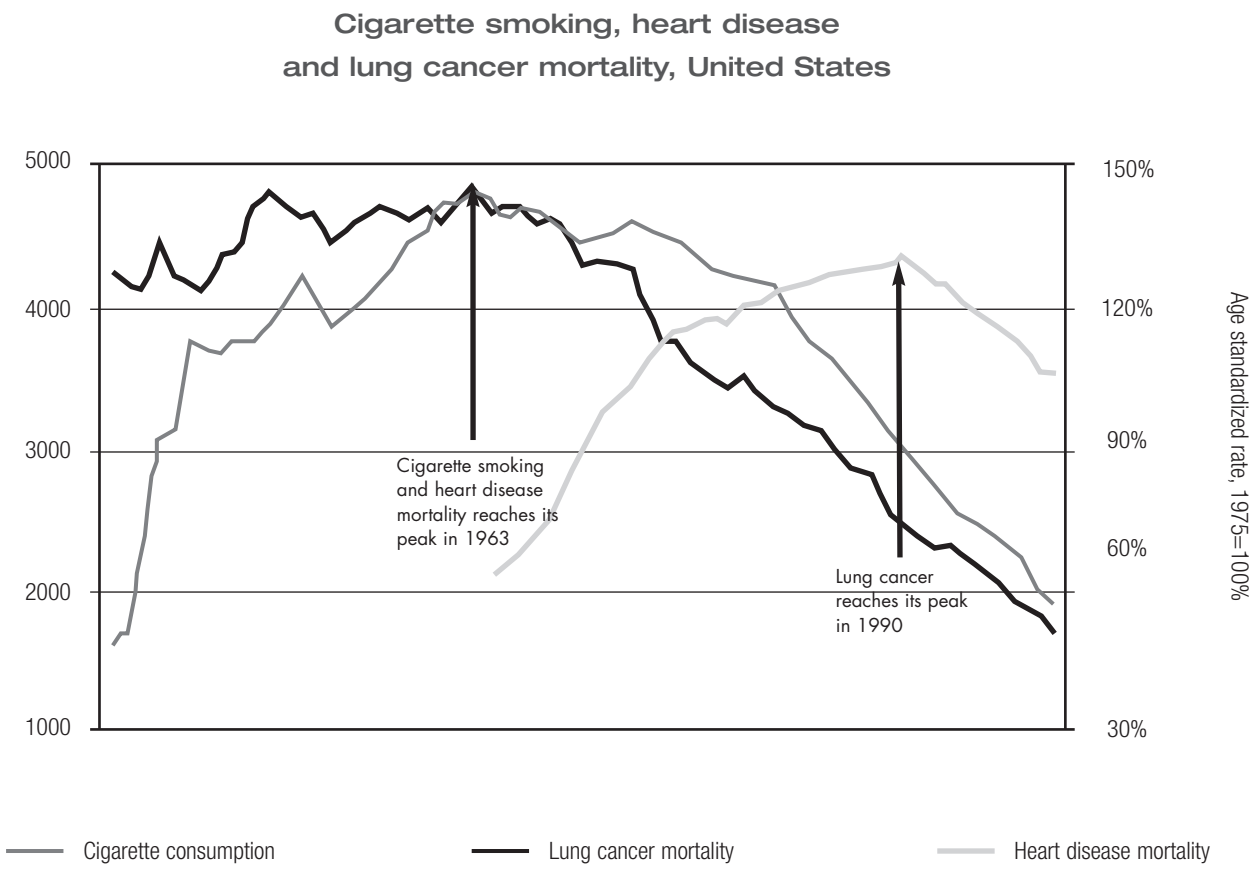

Figure 3
Cigarette smoking, heart disease and lung cancer mortality, United States
Sources: Department of Health and Human Services (U.S.), Centers for Disease Control and Prevention (U.S.)

of smoking during pregnancy. Likewise with obesity, governments have started to promote the importance of healthy diets and physical exercise — efforts which require the active participation of the population. Some countries have gone further to bring home the anti-smoking message in more graphic terms. For instance, countries like the United Kingdom, Canada and Singapore have used televised health warnings showing dissected body parts of smokers to warn against the dangers of smoking. These shock tactics are similar to earlier, apparently effective, awareness campaigns in the United Kingdom addressing the problems of AIDS and driving under the influence of alcohol. It will be interesting to see if the same approach will be adopted to discourage obesity in future.

Fortunately, many people seem to understand the importance of a healthy lifestyle. According to one report, Americans with health and fitness club memberships visited their clubs an average of 92 days per year in 2002, an increase of 10 percent over 1997. At the same time, membership of these clubs also grew by more than 7 percent to 36 million last year[6]. Similar trends have been reported in Germany and the United Kingdom.

Governments, corporations and insurance companies might also be able to do more to influence attitudes amongst the public than might be expected. A recent survey[7] found that, among the U.S. population:

- Three in five people believe that the U.S. Congress should do more to tackle obesity;

continued on page 16

Obesity: the next smoking? from page 15

	Smoking	Obesity
Product choice	Tobacco companies introduced 'low tar' and 'lights' cigarettes, accompanied by claims to be less addictive[4] or harmful to health[5] because of a lower tar or nicotine concentration.	Food & beverage companies have introduced 'low-fat' or 'slim' versions of their products. In fast-food restaurants, choices of salads and fruits are available. McDonald's no longer offers 'super-sized' meals.
Legal action	During the 1980s, the public began to sue tobacco companies for cigarette smoking-related effects on health.	A lawsuit that accused McDonald's of contributing to young customers' obesity was filed in 2002. In 2004, the U.S. House of Reps. approved a bill to ban lawsuits by obese customers claiming to have become overweight by eating at fast-food restaurants.
Advertising	Tobacco advertising was restricted in 1964 following the Surgeon General's report on health and smoking, leading to a complete ban on TV and radio advertising of cigarettes in 1970.	In Feb. 2004, Commercial Alert, a nonprofit organization, called for the World Health Organization to impose a global ban on the marketing of 'junk food' to children.
Product labeling	Mandatory health warnings on all cigarette packaging were introduced in 1965. The warnings were strengthened in 1970 and, again, in 1984.	In August 2003, the U.S. Food and Drug Administration set up a working group to examine food labeling and packaging requirements as part of its campaign against obesity.
Life insurance	In 1964, State Mutual Life Assurance Company of America became the first company to offer lower premiums to nonsmokers, a change which was soon adopted by most other companies.	The life insurance industry applies ratings to applicants who are above 'normal' weight. Height-weight tables were first introduced by life insurance companies in 1908. These were replaced by Body Mass Index (BMI) during the late 1990s.

Table 2
U.S. Responses to smoking and obesity following increased consumer awareness of the associated risks
Sources: Various

- Two-thirds feel that the costs of providing health club memberships should be a tax-deductible expense for their employers; and

- Three-quarters of respondents would agree to undergo a regime of regular physical exercise in return for a lower health insurance premium.

Financial incentives: lose weight or pay more

There is clearly more scope for improvement. Insurers, particularly those in the providing health and disability insurance, are beginning to take obesity seriously — unsurprisingly perhaps. BUPA, Britain's largest private health insurance company, has reported that a growing proportion of its clientele is obese[8], while UNUM Provident, a large insurer operating in the United States, has recently reported a ten-fold increase in obesity-related, short-term disability claims over the past decade[9].

The total cost of obesity to American companies has been estimated at USD 13 billion annually, of which USD 8 billion and USD 1.8 billion was attributed to health and life insurance costs respectively[10]. In this respect, employers have a stake in encouraging a healthy workforce.

The insurance sector can also play its part in encouraging consumers to help themselves. In addition to other risk factors, such as blood pressure and cholesterol levels of the applicant, life and health insurers typically apply ratings according to the Body Mass Index (BMI). However, there may be scope for BMI to be applied in a manner more obvious to the consumer when life insurance premiums are quoted, using ratings supported by medical evidence. Certainly, this is the case with smoker-differentiated rates, which are not only already well accepted, but are now a common feature of automated insurance quote systems. This stems from the 1960s, when life insurance companies in the United States introduced smoking-differentiated rates after the Surgeon General's report on tobacco use was published, bringing the cost of increased premiums directly to the attention of smokers. Under this 'carrot and stick' approach, consumers will take more notice when discounts on premiums are offered to those who maintain 'normal' weight and/or exercise regularly, or when insurance becomes increasingly difficult for obese people to obtain. As Swiss Re has warned in its own report on this topic[11], if obesity continues to rise, fewer people will be able to purchase life insurance at standard rates and those who are overweight will ultimately have to bear the costs of higher premiums.

Facing the future: tough action all around

Like smoking, obesity is linked to cardiovascular disease and many types of cancer. It has also become a major public health concern world wide on a similar scale. Looking ahead, the life insurance industry must tackle the likely increase in obesity by ensuring that the associated risks are accurately assessed and rated, and that consumers are charged an appropriate premium to reflect the risk they present. This, however, presents challenges for underwriters and actuaries in an increasingly competitive environment. For existing life insurance cover, the detrimental effects of increasing obesity will be offset, to an extent, by the wider mortality improvements that have been driven by progress in medical treatment, reductions in heart disease and declining tobacco use.

Society has dealt with smoking through a variety of measures including education and persuasion. Confronting obesity is now an equally pressing task, calling for a combined and determined effort from all parties. Governments, the medical profession, food manufacturers and consumers — particularly parents — need to be alert to obesity and to play a role in confronting this emerging risk. ✹

Footnotes

1) Sturm R, Rand Health Research Highlights: *Obesity and Disability*, 2002

2) Center for Disease Control, National Center for Health Statistics

continued on page 19

Ernest Eng, ASA, FIA, works in structured finance with Swiss Re Capital Markets Ltd. in London, England. He can be reached at *ernest_eng@swissre.com*.

Ronald L. Klein, FSA, MAAA, is head of Sales and Marketing with Swiss Re in Armonk, N.Y. He can be reached at *ronald_klein@swissre.com*.

infectious diseases such as AIDS can dramatically alter population life expectancy. If you think industrialized countries are immune, think again. Russians now live seven years less since the collapse of the Soviet Union in 1991.

Olshansky believes the effect of obesity on longevity is currently equivalent to the overall effect of cancer mortality. In other words, if we found "the cure" for cancer, overall average life expectancy would increase by about 3-3.5 years. Further, he feels the effect of the obesity epidemic will double or triple in the future shortening lives by 7-12 years. As for infectious disease, higher rates of drug resistance, air travel, and an aging population will all take its toll. Just look at Asia where a highly virulent strain of influenza is raging through bird populations and killing scores of people. The World Health Organization has warned that it is only a matter of time before this lethal flu strain (H5N1) more easily spreads and infects humans. That development could spark a global flu catastrophe. And, need we remind you of Stanley Prusiner's Nobel prizewinning prionic disease discovery, best exemplified as "Mad Cow Disease" to the lay public.

For those of you with a sporting interest in aging, the Methuselah Mouse Challenge with a prize of $10,000 is available for anyone gifted or crazy enough to vie for developing the longest living laboratory mouse. Typically, a mouse lives about two years. Currently, the record is 1,819 days held by a mouse named GHR-KO11C. Sadly, I must report that he is no longer with us, but will never be forgotten. In the interest of fairness, I have disqualified myself from the competition since I am owned by a black feline who has a particular fondness for rodent flesh. Olshansky, himself, has placed a bet on his predictions. He has wagered $500 million that no 150-year-old person will be alive and in good health by the year 2150. The bet is in the form of a $150 endowment to a trust fund that with the magic of compound interest will be worth millions in about 150 years.

So, will medical technology such as organ replacement, gene manipulation and cloning continue to lead to boundless increases in longevity? Or, will man's predilection for an unhealthy lifestyle, destruction of the environment and emerging infectious disease outpace his science? I'll let you know in 50 years, but don't bet on it! ✺

Dr. Lawrence Segel, M.D., CBIM, FLMI, ALHC, AIAA, ACS, is assistant vice president of Medical Research and Development with John Hancock Life Insurance in Toronto, Ontario. He can be reached at *larry_segel@jhancock.com*.

Obesity: the next smoking? from page 17

3) Law and Wald, *British Medical Journal*, Vol.318, May 1999

4) Hyland A et al, *Nicotine and Tobacco Research* Vol. 5, October 2003

5) Harris JE et al, *British Medical Journal* Vol. 328, January 2004

6) International Health, Racquet and Sportsclub Association (IHRSA) *Trend Report* Vol. 11, No. 2, April 2004

7) IHRSA op cit

8) *The Guardian*, 29 March 2003

9) UnumProvident press release, 17 February 2004

10) Department for Health and Human Services (US), *Prevention Makes Common Cents: Estimated Economic Costs of Obesity to US Business*, 2003

11)Too big to ignore: the impact of obesity on mortality trends, 6 April 2004