“Economy, Stupid” – Financial Crisis and Insurance

by Karin Neelsen, Gen Re, Cologne

Countries affected by the 2007 Global Financial Crisis (GFC) experienced reduced or stagnant gross domestic product, persistent low-interest rates, increased levels of unemployment, and austerity measures impacting social investment and public health systems. Collapsed banks and government bailouts make the news headlines, but seven years on, how should we gauge the less well-reported impact the GFC has had on the life and health insurance sector? The essence of financial distress is loss of confidence. A crisis may be followed by slow recovery, as economic flaws are ironed out, or by a sustained loss of confidence in long-term financial instruments. This article considers different aspects of the GFC effects on life and health insurance, not only limited to the more obvious consequences for savings products, but also examining the impact on protection business.

Overall impact

A general measurement for the impact of the GFC on the insurance industry is to review the overall level of premiums. A comparison of premium volume in 2008 with subsequent years reveals a drastic drop in the more heavily impacted countries, Ireland and Greece for example (see Figure 1).

Figure 1 – Written premiums for Life, Personal Accident and Healthcare benefits (selected countries for reference year 2008 in original currency)

Source: Author’s illustration based on Axco Global Statistics as per Apr 2014
Mortgage-linked products, in particular, experienced a reduction in sales volume as did credit life cover linked to consumer loans. For these lines of business, the reduction occurred when the product was too expensive for consumers. For products that focus on savings, such as saving for retirement, reductions in premium can be attributed to the insurance product no longer proving affordable.

Life insurers withdrew some products that they no longer deemed to be in-line with profitability or risk management requirements. At the same time, the low-interest environment reflected in companies’ guaranteed, or forecasted, return-on-premiums, made consumers increasingly sceptical about the attractiveness of life insurance products as means for saving.

**Savings products in a low-interest environment**

The developments in the life insurance market in Japan during the late 1990s demonstrate the difficulties that providers of traditional savings products face in a low-interest environment. Several Japanese life insurance companies became insolvent between 1997 and 2001. This prompted the establishment of an exhaustive rehabilitation process with the Japanese government acting as ultimate guarantor for the liabilities of the life insurance market.

While insurers struggle with the burden of guaranteed interest rates, their customers find it increasingly difficult to value the promises made to them about their savings by the industry. Taking into account deduction of expenses and risk premiums, even granting the sum of premiums paid is difficult to achieve for short-term savings policies. With increased awareness of the difference in guaranteed...
maturity benefit and illustrative projected maturity values, sales teams face a tough challenge to market the attractiveness of the products.

With this in mind, several life insurers in Germany introduced savings products with new models for guarantees, such as granting guarantees for a pre-defined phase only rather than for the full policy term, or outsourcing the guarantees to the capital market. Unit-linked policies that transfer the investment risk to the policyholder, the sales of which were also impacted by the GFC, are coming back into focus. Due to the high pressure to offer attractive and profitable savings products, German insurers are working to reduce their operating expenses and deploy new asset management strategies.

The challenge faced by companies selling savings products in this environment is not so surprising, but could the GFC have affected sales of protection cover? This line of business is of particular importance to insurers because they rely upon profit emerging from them when investment profit is volatile.

**Protection business in difficult economic times**

Assuming that times of economic turmoil go hand in hand with an impact on population-wide socioeconomic status, it is interesting to look at how the latter affects biometric risk, such as mortality. A defined status measure is required to quantify the impact of socioeconomic status on mortality – for example, an economic and sociological combined total measure of a person’s work experience and of an individual’s or family’s economic and social position in relation to others, based on income, education and occupation.²

Taking education as a proxy for socioeconomic status, a study from the US presents interesting results by examining trends in age-standardised death rates from all causes among 25- to 64-year-old US adults by race, gender and education for 1993 - 2001.³ Vast differences in mortality trends by the attribute “education” could be observed. The trends ranged from an improvement by 3.9% per annum for white males with at least 16 years of education to a deterioration of 3.2% per annum for white females with less than 12 years of education.

A recent study of mortality trends in the male German population found that gains in life expectancy vary with the socioeconomic status – measured in this context by the pension income being classified as “high” or “low”.⁴ While all pensioners benefited from mortality improvements, the gap in mortality improvements between receivers of low and high pensions widened over the observation period. The remaining life expectancy for 65-year-old men receiving high pensions was around 17 years in the mid-1990s but increased to almost 20 years in 2007 - 2008. Pensioners with low retirement incomes would expect to survive another 14 years in the mid-1990s, only increasing by one year by 2007 - 2008. It is not unreasonable to assume similar effects in nations that were affected to a different extent by the GFC.

Occupation is another factor of socioeconomic status that affects mortality. The influence of job and employment on mortality has also been subject of research by life insurers. The GFC had a drastic impact on unemployment rates in Spain and Greece and to a lesser extent in Italy, whereas this indicator has remained stable in other countries (see Figure 3).
Recent levels of unemployment, especially among young adults, have not yet been subject to extensive analysis, but more general research on the issue has shown a negative and statistical significant relationship between unemployment and mortality. Robust economic conditions are associated with higher total mortality rates and most causes of death, the most important exception being suicides, followed by homicides. The impact of one percentage point increase in unemployment has been modeled to result in changes to the specific causes of mortality and overall mortality rates for 24 OECD countries over the years 1960 to 1997, revealing the only positively correlated causes of death as suicide and homicide (see Table 1).

Table 1 – Changes to mortality rates following one percentage point increase in unemployment

<table>
<thead>
<tr>
<th>Economic Change</th>
<th>Effect on All deaths</th>
<th>Cancer</th>
<th>Heart disease</th>
<th>Flu/Pneumonia</th>
<th>Liver disease</th>
<th>Vehicle accidents</th>
<th>Other accidents</th>
<th>Suicide</th>
<th>Homicide</th>
<th>Infant mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment up 1%</td>
<td>-0.04%</td>
<td>0.09%</td>
<td>-0.36%</td>
<td>-1.10%</td>
<td>-1.78%</td>
<td>-2.11%</td>
<td>-0.80%</td>
<td>+0.42%</td>
<td>+1.12%</td>
<td>-0.23%</td>
</tr>
</tbody>
</table>

The overall level of suicide rates varies significantly between different countries and is often influenced by cultural norms. Suicide rates were at an all-time low in 2007 (see Figure 4).

While some of the recent changes may be attributed to increasing unemployment rates, it is impossible to quantify the overall effect of the economic crisis on this increase. Nevertheless, insurers should be aware of such trends and consider what steps to take in addressing this complex issue.

Typically, policies have an exclusion period for suicide, and while these clauses have come under pressure in some markets, they might be a necessary safeguard in this environment. However, their effect may be to defer suicide or mask suicide as an accident and not actually deter people from self-harm, which might be overstating again the influence life insurers could have on the decisions of individuals. In any case, for early claims where the circumstances of death are suspicious, it is advisable for claims managers to request police and pathology reports. Insurers should continue to apply thorough financial underwriting protocols and know about in-force policies and concurrent applications.

The impact of economic change is perhaps of even greater importance in disability insurance. Gen Re has undertaken research to better understand the link between economic indicators and disability rates. The results suggest that unemployment rates, the consumer confidence index (CCI) and the business confidence index (BCI) are linked (taking into account different time lags before the impact fully materialises) to incidence rates for disability income business (see Table 2). The positive correlation between BCI and disability rates seems counterruitive at first glance and may indicate the need for a longer investigation period for further explanation.

Table 2 – Impact of economic change on disability rates

<table>
<thead>
<tr>
<th>Economic Change</th>
<th>Effect on disability rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment up 1%</td>
<td>6% increase</td>
</tr>
<tr>
<td>1 point increase in CCI</td>
<td>1% decrease</td>
</tr>
<tr>
<td>3 point increase in BCI</td>
<td>1% increase</td>
</tr>
</tbody>
</table>

Economic instability also affects the employed population, notably due to insecurity over future prospects and the constant drive for increased productivity. Germany, for instance, in recent years has seen increased work absences due to mental health issues. This is true for short-term absence –
covered by the employers’ obligation to extend wages for the first six weeks of sick leave – and for pensions paid by the social security system to people with reduced earning capacity (which translates into being disabled to work for more than three hours per day in any occupation). A study by a healthcare provider showed mental illness for the first time as the number two cause of sickness absence, with a proportion of 14.5%.9

With the duration of sickness absence for mental illness being disproportionate, these cases may easily transfer to long-term absences. For long-term disability, the proportion of mental causes is hence much more pronounced. Figure 5 illustrates that among people receiving a pension from the social security system due to reduced earning capacity, the proportion of people with mental illness as the cause rose from 15% in 1993 to 42% in 2012 for males and females combined.

A shift in causes of disability can also be observed in the private insurance industry, leading – at least for females in some age groups – to an increase in disability claims over the last few years. The insurance industry is increasingly involved in exploring ways to manage this sometimes subjective cause of claim. This is not the sole responsibility of claims managers, but should be considered in the product development, pricing and underwriting processes.

The economic crisis may have had other effects on the life and health insurance industry that might not be as markedly observable but can nonetheless be expected to have a significant impact on the long-term course of their business.

Some countries’ response to the GFC included cutting back on national social security systems, especially health expenditure, as part of wider austerity measures (see Figure 6). Examples include restructuring of the hospital sector, negotiating deals with pharmaceutical companies, limiting salaries of health professionals and removing selected services from social security packages. The most common measure has been applying or increasing user charges, and this has had a disproportionately high impact on population groups with the lowest socioeconomic status for whom healthcare has become a matter of affordability.

The experiences of Greece and Iceland offer contrast. In Greece the government deficit reached 15.8% of GDP in 2009. The bailout loans of 2010 and 2012 were conditional upon the government implementing austerity measures and structural reforms. One consequence was that some medicines became unobtainable or unaffordable for some patients.10 Pharmaceutical companies reduced supplies due to unpaid bills and low profits. Cuts were implemented on prevention and treatment of illicit drug use, with the consequence of increases in new HIV infections and tuberculosis. Scaling back the anti-mosquito programme allowed the re-emergence of malaria for the first time in 40 years. Cuts to mental health services led to a 2.5 times increase in major depression (2011 compared with 2008) and suicide increased by 45% (2011 compared with 2007), albeit from a low initial level.
In Iceland the national banks faced massive losses after the collapse of the US subprime market, and GDP fell by 5% and 3% in 2009 and 2010 respectively. Icelandic assets were frozen and the currency collapsed. Despite this, changes in the health status of the population were imperceptible. The government invested in social protection with an emphasis on getting people back to work. Diet improved – partly due to reduced imports of fast food and people returning to traditional dishes – and restrictive policies on alcohol were maintained. The overall health of the nation was only affected to a limited extent by the crisis.

Conclusion
It remains to be seen what impact the austerity measures – especially cuts to health expenditure in different countries – will have on the business of life/health insurance companies. These effects might have different implications on the course and profitability of different lines of business; for instance, in critical illness insurance, fewer diagnoses or surgeries might be made due to limited access to health facilities. On the other hand, reduction in treatment could lead to deterioration in chronic disease. Although some impact on mortality trends is to be expected, these may appear as a one-off effect pertaining to a (short) period after the economic crisis or cohort effects affecting the lifespan of population groups might ensue.

Insurers must come to terms with a low-interest environment, which requires them to offer well-designed interest rate guarantees as well as to maintain or introduce competitive expense management. To combat austerity measures, companies might make a difference by filling the gap that the cuts to social security systems leave behind. With simple and inexpensive health products offering security for worst-case scenarios or simple-term life products offering protection for dependant family members, the private insurance industry can make an essential contribution to address the future challenges society is already facing today.

Endnotes
9 DAK-Gesundheitsreport 2013.

About the Author
Karin Neelsen heads the Product Underwriting team within the department Research & Development. Her team facilitates the sharing of expert knowledge globally and supports the markets with the design and pricing of life insurance products. Karin is a member of the German Actuarial Society (DAV) and has worked in life reinsurance since 2000. She worked as Account Manager and Senior Treaty Underwriter in various markets before taking over as head of Product Underwriting in 2012.
Tel. +49 221 9738 752 or karin.neelsen@genre.com.
Obesity in Mexico – The Impact on Health Insurance

by Janice Mina, Gen Re, Mexico

A considerable increase in the global prevalence of overweight and obesity has been observed over the last three decades. The World Health Organization (WHO) has defined “overweight” as a body mass index (BMI) greater than or equal to 25 and “obesity” as a BMI greater than or equal to 30. According to WHO data, obesity rates have more than doubled since 1980. In 2008, 1.4 billion adults over 19 years of age were overweight, of which more than 200 million men and nearly 300 million women were obese. Furthermore, in 2010 approximately 40 million children were obese.1

Mexico has experienced one of the fastest increases in the prevalence of excess weight and comorbidities.2 The increase has occurred in all age groups and in both rural and urban areas of the country. Obesity is now recognised as a public health problem. Although in the past considered almost exclusively a problem of developed countries, obesity incidence has experienced an abrupt increase in developing countries.

Obesity is linked with more deaths than malnutrition and some infectious diseases. This, coupled with growing levels of obesity in children, has prompted the WHO to declare the condition a new epidemic for the 21st century. This article looks at the obesity epidemic from the perspective of Mexican medical expenses and disability insurance.

Mexico in a global context

From 1988, which was the first year the National Health and Nutrition Examination Survey (NHANES) was conducted in Mexico, until 2012, the prevalence of “overweight” in women of 20 to 49 years of age increased from 25% to 35.3% and “obesity” from 9.5% to 35.2%. This represents an increase of 41.2% in the prevalence of overweight and of 271.5% in obesity.3 Mexico is second only to the US in having the highest rate of obesity in adults (Table 1).

Mexico currently holds first place in the world for child obesity.4 The NHANES data shows that from 1998 to 2012 the prevalence of overweight and obesity in children under five increased from 7.8% to 9.7%. The increase was higher increase in the north of the country where the prevalence was 12% in 2012 – 2.3 percentage points above the national average. In 2012 the combined national prevalence of overweight and obesity in children aged 5 to 11 was 34.4% (girls 32%, boys 36.9%). For adolescents the figures were similar with 35% overweight or obese. Meanwhile the national prevalence in adults was 73.9% (women 82.8%, men 64.5%).

Obesity is a multifactorial disease. Sedentary life, high-calorie diet, cheap junk food, a lack of nutritional counselling and genetics go some way to explain the increased prevalence of obesity in Mexico. Over the last decade, the middle class in Latin America has increased by 50%.5 It has become common to eat in fast-food restaurants and to consume carbonated beverages. The relative price of soft drinks fell fuelling a 60% increase in consumption from 1989 to 2006. Mexico is now the largest consumer of soft drinks in the world, with an average of 163 litres per person per year. The greatest consumption is in the 12-to-39 age group and it is especially high in the 19-to-29 age group.6

<table>
<thead>
<tr>
<th>Country</th>
<th>Female</th>
<th>Male</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>4.1%</td>
<td>3.6%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Japan</td>
<td>3.5%</td>
<td>4.3%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>7.7%</td>
<td>8.6%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Italy</td>
<td>9.3%</td>
<td>11.3%</td>
<td>10.3%</td>
</tr>
<tr>
<td>France</td>
<td>11.5%</td>
<td>10.9%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Germany</td>
<td>13.8%</td>
<td>15.7%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Spain</td>
<td>14.7%</td>
<td>17.3%</td>
<td>16.0%</td>
</tr>
<tr>
<td>Greece</td>
<td>18.5%</td>
<td>17.7%</td>
<td>18.1%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>23.9%</td>
<td>22.1%</td>
<td>23.0%</td>
</tr>
<tr>
<td>Canada</td>
<td>23.2%</td>
<td>25.2%</td>
<td>24.2%</td>
</tr>
<tr>
<td>Australia</td>
<td>23.6%</td>
<td>25.5%</td>
<td>24.6%</td>
</tr>
<tr>
<td>Chile</td>
<td>30.7%</td>
<td>19.2%</td>
<td>25.1%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>27.0%</td>
<td>26.0%</td>
<td>26.5%</td>
</tr>
<tr>
<td>Mexico</td>
<td>34.5%</td>
<td>24.2%</td>
<td>30.0%</td>
</tr>
<tr>
<td>United States</td>
<td>35.5%</td>
<td>32.2%</td>
<td>33.8%</td>
</tr>
</tbody>
</table>

Source: OECD Health Data 2011
**Impact on mortality and morbidity**

Obesity is a risk factor in the development of chronic degenerative diseases, including heart disease, stroke, kidney failure, sleep apnoea, liver cirrhosis and musculoskeletal disorders, particularly osteoarthritis. WHO data links overweight and obesity to 44% of diabetes cases, 23% of ischaemic heart disease cases and between 7% and 14% of cancers such as breast, uterine and colon cancer.7

Mexico has undergone an epidemiological transition. In the early 1950s pneumonia, gastroenteritis and other communicable diseases were the major causes of death. These causes were displaced by non-communicable diseases and injuries in the 1990s. From 1950 to 2000, the percentage of deaths resulting from intestinal infections decreased from 14.3% to 1%, while the number of deaths from heart disease quadrupled (from 4% to 16%).8 Diabetes as a cause of death has moved from top 20 in the 1960s to the top 10 in the past two decades.9 Since 2004, diabetes has been the second cause of death in Mexico with 85,055 deaths per year (see Figure 2).10

Table 2 – Leading causes of death in Mexico (2012)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Medical cause of death</th>
<th>Deaths</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td>602,354</td>
<td>100</td>
</tr>
<tr>
<td>1</td>
<td>Heart disease</td>
<td>109,309</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Diabetes</td>
<td>85,055</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>Malignant tumours</td>
<td>73,240</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Liver disease</td>
<td>33,310</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Cerebrovascular disease</td>
<td>31,905</td>
<td>5</td>
</tr>
</tbody>
</table>

Source INEGI mortality statistics

While it is true that the combined prevalence of overweight and obesity in Mexican adults is higher in women than in men, the life expectancy of obese women is not necessarily less than that of obese men. This is primarily due to the distribution of fat; while in the majority of women fatty deposits are located in the femoral region, in males these deposits are more frequently found in the abdominal and visceral areas, and the accumulation of fat in these regions represents the greatest risk factor for the development of certain cardiovascular diseases.

Studies show obesity reduces life expectancy by an average of seven years.11 That obesity is increasingly affecting children is worrying as they are more likely to be obese in adulthood, compared to non-overweight children, and are more likely to develop diabetes and cardiovascular disease at an early age. In turn, these conditions are associated with an increased chance of disability and premature death.12 Should the trend continue, new generations of Mexicans could experience, for the first time, a lower life expectancy at birth than their parents.

Morbidity from diabetes showed a steady increase until 1998, ranking 10th among the main causes of morbidity in Mexico in 2005. Diabetes occurs at earlier ages in Mexico compared to other countries. The Ministry of Health estimates almost 65% of Mexicans who have diabetes also have hypertension, increasing their risk of stroke. Diabetes is the leading cause of blindness in adults and is responsible for 60% of end-stage renal failure cases. Diabetic ulceration is one of the leading causes of hospitalisation in Mexico with 70% of cases resulting in amputation.13

Overweight and obesity also significantly increase the demand for health services and, therefore, consume a significant portion of the budget allocated to this area. It is estimated that the cost of obesity in 2008 was MXN $67 billion, and based on the observed trend, it will reach between MXN $151 billion and MXN $202 billion by 2017.14

**Impact on insurance**

The penetration of insurance in Mexico, as a percentage of Gross Domestic Product (GDP), is about 1.9%.15 According to the Mexican Association of Insurance Institutions (AMIS), only 13% of the economically active population has life insurance and about 6.5% of the total population has major medical insurance coverage.16

Despite the low penetration, the impact of deaths from endocrine, nutrition and metabolic disease is reflected in insurance claims in individual and group life portfolios (Figures 3 and 4). On average 15% of all deaths of people between 46 and 75 years of age are attributed to these causes.

Although it is difficult to determine the exact number of deaths due to overweight and obesity, we can say that these conditions occupy a considerable percentage of this segment, given the impact diabetes mellitus has had on causes of death. It is, however, important to note that this category does not include those cases where the final cause of death was cancer or heart disease,
which may have been caused by complications from overweight and obesity, so 15% could be an underestimate of the true rate.

Several studies conducted by insurance companies in the US show that disability rates for individuals aged 30 to 59 have increased by approximately 130% in recent years, across all demographic and economic groups, whereas diabetes and other musculoskeletal problems commonly associated with overweight and obesity constitute the major cause of increased disability rates in young people. However, the definitions often used by insurance companies to determine what constitutes a disability are based on a significant reduction in the insured's ability to perform certain day-to-day activities, such as eating, bathing, dressing, moving about a room, etc. A study in the US revealed that being overweight reduces the ability of men to perform daily life tasks by 50%, while severe obesity reduces these skills by 300%. Results from the same study for women are even more alarming.

Should the trend observed in the prevalence rates of overweight and obesity continue, the number of disability claims could significantly increase. Tables 5 and 6 show the percentage of disability cases of insured lives associated with overweight and obesity.

<table>
<thead>
<tr>
<th>Year</th>
<th>Disability Related to Obesity</th>
<th>Total Cases</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>257</td>
<td>3018</td>
<td>8.5%</td>
</tr>
<tr>
<td>2011</td>
<td>266</td>
<td>2562</td>
<td>10.4%</td>
</tr>
<tr>
<td>2010</td>
<td>302</td>
<td>3002</td>
<td>10.1%</td>
</tr>
<tr>
<td>2009</td>
<td>216</td>
<td>3075</td>
<td>7.0%</td>
</tr>
<tr>
<td>2008</td>
<td>156</td>
<td>2577</td>
<td>6.1%</td>
</tr>
<tr>
<td>2007</td>
<td>151</td>
<td>2327</td>
<td>6.5%</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Year</th>
<th>Disability Related to Obesity</th>
<th>Total Cases</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>698</td>
<td>6319</td>
<td>11.0%</td>
</tr>
<tr>
<td>2011</td>
<td>713</td>
<td>5451</td>
<td>13.1%</td>
</tr>
<tr>
<td>2010</td>
<td>396</td>
<td>2964</td>
<td>13.4%</td>
</tr>
<tr>
<td>2009</td>
<td>608</td>
<td>3792</td>
<td>16.0%</td>
</tr>
<tr>
<td>2008</td>
<td>347</td>
<td>2429</td>
<td>14.3%</td>
</tr>
<tr>
<td>2007</td>
<td>327</td>
<td>2032</td>
<td>16.1%</td>
</tr>
</tbody>
</table>


Table 3 – Percentage of deaths of insured population by disease of the endocrine glands, nutrition and metabolism in Mexico (Individual Life)

<table>
<thead>
<tr>
<th>Year</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0%</td>
</tr>
<tr>
<td>2009</td>
<td>1%</td>
</tr>
<tr>
<td>2010</td>
<td>5%</td>
</tr>
<tr>
<td>2011</td>
<td>1%</td>
</tr>
<tr>
<td>2012</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table 4 – Percentage of deaths of insured population by disease of the endocrine glands, nutrition and metabolism in Mexico (Group Life)

<table>
<thead>
<tr>
<th>Year</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0%</td>
</tr>
<tr>
<td>2009</td>
<td>1%</td>
</tr>
<tr>
<td>2010</td>
<td>5%</td>
</tr>
<tr>
<td>2011</td>
<td>1%</td>
</tr>
<tr>
<td>2012</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table 5 – Percentage of cases of disability of insured population related to overweight and obesity in Mexico (Individual Life)

<table>
<thead>
<tr>
<th>Year</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0%</td>
</tr>
<tr>
<td>2009</td>
<td>1%</td>
</tr>
<tr>
<td>2010</td>
<td>5%</td>
</tr>
<tr>
<td>2011</td>
<td>1%</td>
</tr>
<tr>
<td>2012</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table 6 – Percentage of cases of disability of insured population related to overweight and obesity in Mexico (Group Life)

<table>
<thead>
<tr>
<th>Year</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0%</td>
</tr>
<tr>
<td>2009</td>
<td>1%</td>
</tr>
<tr>
<td>2010</td>
<td>5%</td>
</tr>
<tr>
<td>2011</td>
<td>1%</td>
</tr>
<tr>
<td>2012</td>
<td>3%</td>
</tr>
</tbody>
</table>
surcharges may be appropriate for life and disability coverage, in health they do not solve the problem, especially when there are risk factors associated with obesity or overweight.

Providing health cover to individuals with chronic degenerative disease implies that any claims will be paid unconditionally and without limit. Although their life expectancy is determined to an extent by treatment, the medical expenses associated with providing that treatment are, in contrast, fixed. Obese people spend, on average, 36% more on health and 77% more on medication than non-obese people do.\textsuperscript{19}

In Mexico, life and health insurers may still offer premiums differentiated by gender. There is a correlation between education level and overweight in females; those with little education are two to three times more likely to be overweight compared to those with a high level of education, while in men there is no significant difference.\textsuperscript{20}

One reason for the low penetration of health insurance in Mexico is yearly premium increases that are especially high for people over age 60. The increases are attributed to the high levels of medical inflation coupled with a limited number of private hospitals and health services. Overweight and obesity increase the demand for health services, significantly impacting insurance costs. High BMI itself does not appear on the list of most expensive medical claims but diabetes is among the 20 most frequent diagnoses in health insurance claims and in the top 10 by duration (see Table 7).

In the short-term the challenge for health insurers from claims caused by high BMI is that they are frequent rather than large. Furthermore, the increase in the incidence of these diseases raises the already high premiums for major medical expenses coverage, which could also have a major effect on the lapse rate of these policies (especially after a certain age). This could tarnish the image of insurance as the perception of policyholders is that their cover becomes too costly as they get older. This could generate an adverse effect on the selection of unhealthy people to continue their cover – making coverage of major medical expenses unsustainable over the long term.

The percentages are similar to those for death claims; however, for group life portfolios, the negative trend in rates over time is significant. For individual portfolios, peaks are observed in the years 2010 and 2011, although the rate in 2012 is even higher than the levels observed prior to 2010.

There are some measures that insurance companies could take to control the accidental death and disability claim rates. For example, if an applicant is only marginally overweight – free of other risk factors such as diabetes, vascular disease or hypertension – then a rating could apply, in accordance to the provisions in the underwriting manual used by the company. An applicant with additional risk factors would require further evaluation to determine final terms.

To exclude obesity as a specific cause of death or disability claim, especially in the presence of additional risk factors such as diabetes, would be complex. It would also hinder claims management; the disease is chronic and degenerative, and awkward to define, making it difficult to determine whether death or disability is a direct cause of any related condition. This becomes more complicated in medical expenses insurance. Although

| Table 7 – Major medical health claims by duration in Mexico (USD) |
|-----------------|-----------------|----------------|----------------|
| Diagnosis       | Amount Paid     | Duration in years | Average Amount Paid per year |
| Endocrine disease | 106,921.58     | 20              | 5,090.75          |
| Cardiovascular disease | 86,089.75     | 18              | 4,531.00          |
| Prostate disorders   | 85,280.33     | 18              | 4,488.42          |
| Diabetes           | 151,771.92     | 17              | 8,431.75          |
| Nervous System disease | 143,715.00    | 17              | 7,984.17          |
| Digestive System disease | 109,721.42    | 17              | 6,095.67          |
| Nervous System disease | 218,654.33    | 16              | 12,862.00         |
| Cardiovascular disease | 111,261.17    | 16              | 6,544.75          |
| Endocrine disease   | 108,210.33     | 16              | 6,365.33          |
| Diabetes           | 99,447.25      | 16              | 5,849.83          |
| Circulatory System disease | 83,434.92    | 16              | 4,907.92          |
| Other conditions   | 102,593.08     | 15              | 6,412.08          |
| Cardiovascular disease | 91,176.08    | 15              | 5,698.50          |
| Cancer and other tumors | 267,403.75   | 14              | 17,526.92         |
| Circulatory System disease | 192,054.75   | 14              | 12,803.67         |

Source: Resumen Ejecutivo Accidentes y Enfermedades, AMIS 2012
Conclusion

Combating obesity requires the implementation of a combined strategy by the government, at home, in school and by the media. Many governments, including that of Mexico, have taken action in an effort to control the prevalence rate in the population, especially in children. Taxes have been imposed on food and beverages with high caloric intake to discourage consumption of these products. Awareness campaigns have been conducted, nutrition advice offered and national obesity policies implemented.

The NHANES results show a slowdown in the upward trend in overweight and obesity prevalence in those children and adolescents in Mexico. The fact that no significant increase has been observed since 2006 is encouraging, as previous surveys showed high rates and ever-growing incidence at younger ages. The slowdown in the growth of overweight and obesity prevalence in children and adolescents in Mexico corresponds with that recently observed for various age groups in other countries. Policies and action plans to combat obesity could partly explain this effect; however, it is too early to make that judgement.

The prevalence of overweight and obesity remain unacceptably high. One saving grace may be that there is a percentage of the population with a high propensity to become overweight and obese for genetic reasons; thus, certain populations may have already reached the ceiling of this prevalence.21 Undoubtedly, preventive medicine is a crucial element in combating obesity, that and reducing the economic and social costs involved in treatment. For now, insurers should encourage a preventive culture and continue to monitor trends in the incidence of excess weight. Furthermore, underwriters must pay particular attention to this condition during the selection process if major claims deviations in their portfolios are to be avoided.

Endnotes

1 www.who.int/mediacentre/factsheets/fs311/es/.
7 Ibid in note 1.
9 Manual of Standardized Procedures for the Epidemiological Monitoring of Diabetes Mellitus Type 2, Department of Epidemiology, Ministry of Health.
11 Alford H, Lampkin J “The supersizing of America; obesity’s potential implications for the insurance industry”.
14 Ibid in note 2.
15 http://www.cnsf.gob.mx/Difusion/Otraspublicaciones/Presentaciones/2012/MAguilera_Convenci%C3%B3n%20AMIS%202012.pdf.
17 Ibid in note 11.
18 Ibid in note 11.
19 Ibid in note 11.
20 Obesity Update OCDE 2012.
21 Ibid in note 3.

About the Author

Janice Mina joined Gen Re in 2011. She works as Pricing Actuary Life/Health for the Latin America region and is based in Gen Re’s Mexico office. She can be reached at Tel. +52 5591719244 or janice.mina@genre.com.
Sugar – The New Tobacco?

by Ross Campbell, Gen Re, London

Obesity is a multi-factorial condition and the over-consumption of energy (calories) as sugar is a significant contributor to weight gain. When people take in more energy than they actually use up by body metabolism and physical activity, they create an imbalance. Sustained energy imbalance leads to an accumulation of excess body fat and weight gain over time.

The amount of added sugar in food and drink is of concern to scientists and government policymakers. Added sugars – which do not occur naturally – are increasingly blamed as the fuel of increasing obesity.1 It is added sugars that contribute additional calories, but zero nutrients, to our food. One reason for the popularity of sugary food and drink is that people have an innate preference for sweet tastes, although the degree varies individually.2

The World Health Organization has called for restrictions on sugar-sweetened beverages, even including taxation.3 Norway already taxes refined sugar products and Mexico introduced a “soda tax” in 2013. The last “Sugar Act” enacted by the British in 1764 raised taxes to defray the military cost of protecting its American colonies and to reduce treasury losses from smuggling. This unpopular legislation is regarded by historians as a tipping point toward the American Revolution. Perhaps those calling for a new tax on sugar hope it will herald revolution of a different sort?

For people whose weight has spiraled out of control, attempts to control and lose it by conservative means – dieting and exercise – are mostly ineffective. Increasing numbers of eligible people are therefore undergoing gastric bypass surgery. While there are undoubted improvements in vascular risk factors in people who sustain weight loss after bariatric surgery, it is no “silver bullet” cure for obesity.

Upsizing

Obesity is a major public health problem because of its association with diabetes, hypertension and hyperlipidaemia – themselves major risk factors for cardiovascular disease and cardiovascular-related mortality. Obesity is associated with cancer, disability, reduced quality of life and premature death. The international classification of body fatness defines “obesity” as a body mass index (BMI) of ≥30kg/m². An individual is considered to be morbidly obese if he or she is 45 kilos over his or her ideal body weight, or has a BMI of 40 or more (35 or more if the individual has an obesity-related health condition).

Evidence for the increasing prevalence of obesity is stark. For example, in England there was an increase from 13.2% of obese men in 1993 to 24.4% in 2012 and from 16.4% of obese women to 25.1% in the same period. About 6% of deaths in the UK are attributable to obesity and the risks associated with it are high (see Table 1).

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2 diabetes</td>
<td>5.2</td>
<td>12.7</td>
</tr>
<tr>
<td>Hypertension</td>
<td>2.6</td>
<td>4.2</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>1.5</td>
<td>3.2</td>
</tr>
<tr>
<td>Colon cancer</td>
<td>3.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Angina</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Gall bladder disease</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Ovarian cancer</td>
<td>–</td>
<td>1.7</td>
</tr>
<tr>
<td>Osteoarthritis</td>
<td>1.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Stroke</td>
<td>1.3</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Source: National Audit Office

Behavioral, societal and cultural factors underlie the global trend for people to get fatter. Cars, computers and calories form the basic ingredients of the obesity recipe. Contemporary lifestyles are often inactive with sedentary work patterns, modern technologies that simplify homemaking, and pastimes and activities that involve little or no exercise. Fundamental changes to work, transportation, leisure and food have exposed an underlying biological tendency for many people to unavoidably gain and retain weight. The post-war generation, reared on scarcity and rationing, has done rather well from an obesity perspective, but
the baby-boomers much less well. Successive
generations have enjoyed more luxurious lifestyles
and an abundance of food, at least in developed
countries. Advertising and cheap, fast, processed
food, in large portion sizes or even super-size all
play their part. The export of these irresistible
delicacies to developing nations has fueled a rapid
obesity increase in individuals unused to a high-fat-
high-sugar diet.

It would be inaccurate, however, to explain all
obesity by gluttony or laziness. Genes can have a
strong influence, affecting the method and the
location of fat storage in the body, and the family
environment is a factor because families share food
and physical activity habits. Hormonal problems
including hypothyroidism, Cushing's syndrome and
polycystic ovarian syndrome are associated with
overweight tendencies. Certain medicines prompt
weight gain as they slow the metabolic rate,
increase appetite and cause water retention.
Pregnancy causes natural weight increase and this
can prove hard to lose for some, while menopause
adds weight and alters body fat distribution. A lack
of sleep disrupts the balance of hormones — ghrelin
(hunger) and leptin (satiety) — and affects how the
body reacts to insulin, thus pushing up blood sugar
levels. People can overeat when they quit smoking
or are bored, angry or stressed. Those who cannot
reduce their calorific intake with age will gain
weight as their exercise levels drop. These factors do
not absolve all personal responsibility but many
people have found themselves simply overwhelmed
by the multiple forces that drive obesity.

** Downsizing **

It is simple to calculate the number of calories per
serving, as 1 gram of sugar is equivalent to 4
calories. Any processed, sweetened product
without fruit or milk ingredients contains only
added-sugars. It seems unfeasible that anyone
would add nine teaspoons (35g) of sugar to a glass
of cola to make it palatable, yet a 330ml can
contains this amount of added-sugar. If consumers
had to add the sugar themselves, no doubt they
would put in less.

A “rule of thumb” reference maximum daily intake
for adults of 90g of total sugar has been in place
across the EU since 2006.28 Current UK
government advice says no more than 11% of a
person’s daily food calories should come from
added sugars (or 10% taking alcohol into account),
which equates to a daily intake for women of 50g
and for men of 70g. However, people of all age
groups are eating much more sugar than the
recommended 11% level, prompting a review of
dietary recommendations on carbohydrates,
including advice on sugar.9

People at risk of becoming obese or who are
already overweight are advised to exercise at
moderate intensity for up to 300 minutes every
week. Eating low-calorie, nutrient-dense foods,
such as fruits, vegetables and whole grains, while
avoiding saturated fat and limiting sweets and
alcohol are recommended. Interestingly, rapid or
fad dieting is not recommended by clinicians.
Alternatively, people are advised to plan their food
intake, to avoid situations where their eating
becomes uncontrolled, to monitor their weight
regularly and to adhere to these revised behaviours
on a consistent basis.

The simple solution seems to be to eat less and
exercise more. Yet there are difficulties with over-
simplification of this complex matter. Although
exercising burns stored calories, the idea that the
benefits of exercise are primarily derived from the
number of calories burned is scientifically
inaccurate.10 High-intensity bursts of interval
training provides equal, or better, aerobic benefits
than prolonged low- or moderate-intensity exercise
that consumes the same number of calories.11

** Resizing **

Gastric bypass is a surgical procedure that isolates
the upper part of the stomach, below the
esophagus, to create an egg-sized pouch that has
about 25% of the capacity of a normal stomach.
The pouch is then connected to the jejunum. Food
bypasses the stomach and an unused portion of
duodenum and goes directly into the small
intestine. The intended effect of this surgery is to
limit fat and calorie absorption.

Following gastric bypass patients must learn to eat
differently. Food must be chewed slowly up to 20
or 30 times to make it smooth before it is
swallowed to avoid blocking the pouch. Not all
food types can work in this approach — rice for
example — with the result that many food favorites
are struck from the menu. Switching to low-fat
protein menus can prove a challenge. Changes to established rituals and social pleasures of eating meals that are necessary to ensure compliance with the post-surgery regimen simply prove too difficult for some.

Gastric surgery does not alter the way people metabolise calories. They can gain weight if they consume food that has a high calorie-to-volume ratio. The relationship some people have with food can work against a successful outcome – their desire to lose weight overruled by biological hunger. Many prior habits, feelings and attitudes towards food remain unchanged – for example the urge to eat high-calorie foods. In the months after surgery patients may endure hair loss, nausea, palpitations, dumping syndrome, low mood and depression. It is prudent for underwriters to postpone applications made in the first 12 months following surgery as the post-operative complication rate falls and the success of the procedure can be better judged.

There are undoubted improvements in many vascular risk factors in people who lose weight with bariatric surgery – diabetes, hyperlipidaemia, hypertension and sleep apnoea have been observed to improve or resolve. The key question is whether bariatric surgery “heals” any metabolic disease associated with obesity; effectively wiping the risk slate clean. The evidence available currently suggests that it does not.

Median survival is reduced by 2 to 4 years by a BMI of 30 - 35. BMI 40 - 45 reduces it by 8 to 10 years. The short-term resolution of vascular risk factors following gastric bypass translate into small improvements in long-term mortality – no more than 3 years – with the absolute life expectancy benefit similar across age groups. The progressive excess mortality is due mainly to vascular disease. The effect of depression in the severely obese may not be resolved by surgery and any subsequent loss of weight. Depressive disorders after surgery significantly predict reduced weight loss. There is an increased rate of suicide in those who have undergone bariatric surgery. It is over-optimistic to suggest that people who lose weight (to a level not normally rated by underwriters) this way are standard risks for life insurance. There is a long tail risk from the surgery, psychological issues and more especially the vascular damage that will have occurred during the time risk factors were elevated by obesity. Although the degree and persistence of this elevated risk can be argued, an extra rating is appropriate for individuals who have undergone bariatric surgery.

**Summarizing**

The information provided on food packaging may be confusing, or even deliberately obfuscated by manufacturers, but portion size is within the control of everyone. Fast food and take-away establishments can be avoided. Exercise can be taken. The problem for policymakers seeking to tackle the growing trend towards obesity using a “healthy eating” or “energy balance” message is that real change demands people alter entrenched shopping, eating, home, family and leisure habits. Challenging the psychological ambivalence of individuals who have made lifestyle choices that may have led to inevitable obesity will not be easy. Stark health warnings and government campaigns about healthy eating face stiff competition from primary appetite control mechanisms in the brain and the force of dietary habit. Tobacco again proves an unlikely parallel for excess sugar-risk; despite dire health consequences, high taxation and use restrictions, many people continue to smoke.

The arguments over preventable deaths and excess consumption of added sugar sound similar to those around tobacco control. In a close parallel with tobacco companies’ reaction to the commercial threat of e-cigarettes, the food industry giants fear losing out to products from small, independent companies that have a greater health focus. So far, the food and drinks industry has avoided extra regulation through voluntary deals – mainly reducing the volume and weight of individual products. Many of the claims for reduced sugar (and fat) content in products therefore come from the manufacturers themselves. As the clamour to do something positive to limit obesity intensifies, governments facing escalating healthcare costs could opt to impose taxes or regulation to force changes in eating habits.
The physiological mechanisms triggered by bariatric surgery, which physically reduces caloric capacity provoking rapid weight loss in some patients, offer further clues to the complexity. Rather than stemming from pure calorie limitation, any weight loss following surgery may in fact result from changes to insulin, ghrelin and leptin levels and the action these hormones have on multiple systems, including the brain, muscles and fat.19

Setting aside poor compliance with the strict eating regimens required for surgery to prove successful, increased physical activity and reduced calorie intake alone would not appear to guarantee weight loss.

Endnotes
1 The European Food Safety Authority defines sugars as total sugars, including both indigenous (sugars naturally present in foods such as fruit, vegetables, cereals and lactose in milk products) and added sugars (EFSA, 2009). The term “added sugars” refers to sucrose, fructose, glucose, starch hydrolysates (glucose syrup, high-fructose syrup, isoglucose) and other isolated sugar preparations used as such, or added during food preparation and manufacturing.


6 Health and Social Care Information Centre, 2013.


E-cigarettes – Here comes some science

Electronic nicotine delivery systems (ENDS) first became popular 10 years ago. They represent an alternative that reduces the health hazards associated with the toxic chemicals found in tobacco smoke. E-cigarettes may turn out to be much less harmful than smoking tobacco, but to date there is insufficient scientific evidence to support the notion that they are effective smoking cessation devices. Ross Campbell discusses the informative value of the studies that have been carried out so far, as well as how different countries regulate and control e-cigarettes.

Also in this edition, an evaluation of the factors that have driven Group Disability experience in Australia.

Underwriting Focus

Anke Siebers and Ross Campbell explore the causes of obesity and consider prevention strategies. Dr. Ian Cox highlights the risk factors underwriters must take into account when assessing applicants who disclose bariatric surgery. This edition also includes an explanation of surgical treatments and a review of the global impact of obesity.

Industry Meetings

Stelio Rossi, Senior Underwriter & Claims Specialist, Gen Re, Milan, participated in a roundtable discussion on underwriting evidence and claims fraud at the AIMAV (Italian Association of Insurance Medicine) annual conference in Milan on 7 October.

Ross Campbell, Chief Underwriter R&D, Gen Re, London, presented “Underwriting – Predicting the Future” at the Association of Insurance Underwriters conference in Mumbai on 15 and 16 November.

Mark Your Calendar

Gen Re offices around the world will run the following events:

Gen Re, Madrid:
Breakfast Meeting – 18 November 2014

Gen Re, Mexico City hosted a seminar in Colombia from 14 to 19 September. Presentations on group life, health insurance, reinsurance, new products and distribution were made by Luis Enrique Garcia, Al’Nair Escalante, Rita Hernandez and Janice Mina (Gen Re, Mexico City), Florencia Proverbio and Carmelo Galante (Gen Re, Cologne).

Gen Re, Mumbai hosted a Product Management Seminar at Mumbai on 16 September. Presenters included: Wolfgang Droste, Chief Executive Officer, Asia Pacific, “Changing Consumer Behaviour – How Do Insurer’s Evolve”; Sara Goldberg, Senior Actuarial Manager, Gen Re, Hong Kong, “Drivers of Mortality Improvements in India, Asia and Beyond”; Subha Neelakantan, Country Manager, Gen Re Mumbai, “Critical Illness – A Compelling Story”; Frank McInerney, General Manager, Gen Re, Singapore, “Disability Products – Has the Time Come?” and John Ferguson, Regional Chief Actuary, Gen Re, Shanghai, “Pricing and Reserving for Critical Illness Guarantees”.

Gen Re, London chaired a Risk Matters Symposium in London on 18 September. The presenter was Julian Saunders, CEO, Allfiled. The event was attended by clients from seven companies.

Gen Re, Cologne hosted the 12th International Seminar on Risk Management on 22 and 23 September. This annual conference addresses top level executives and drew participants from 25 countries in Europe, Middle East, Asia, Latin America and South Africa. Gen Re speakers: Dr. Winfried Heinen, “Impact of the Economic Environment on the Insurance Sector”; Friedrich Müller, “Regulation of Insurance Distribution – From Commission to Fee”; Peter Temple, “Using Big Data to Become US President – Imagine What It Can Do for Your Business”, Sabine Fahrig, “Big Data Privacy”, Guest speakers: Dr. Nicolaus Heinen, Deutsche Bank, “Economic and Capital Markets Review”; David Hare, Deloitte MCS Limited, “Own Risk and Solvency Assessment (ORSA)”; Arno Dolders, Legal & General, The Netherlands, “The Dutch Case: Ban on Commission – Chopping Off Your Head Because You Have a Toothache”; Dr. Claus Mischler, Standard Life, Germany, “The UK Case: From Commission to Fee – Experiences from the Most Highly Regulated Financial Market in the World”; Prof. Dr. Bernhard Pörksen, University of Tübingen, Germany, “The Unleashed Scandal – The End of Control in the Digital Age”. A panel discussion “The Value of Life Insurance” was moderated by Dr. Wolfgang Droste with guest panelists Stephen Collins, ReMark, Myles Rix, LV=, Jan Donselaar, Dazure and Dr. Rainer Wilmink, LVM.
Client Seminars cont’d


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