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Why Choosing Health is Good for Your Health

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Edinburgh

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Outcomes for Today

- Using Life Stories to Plan Your Career – looking forwards and backwards
- Health Insurance Business Model
- The Health Actuary – the Rock Star of Insurance
- The Social Actuary ... In the Caring rather than Partying Sense
- Lighting the Fire – Some stuff and Data for you to think about when you are really bored



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STORY OF MY LIFE IN BUSINESS AND IN THE PROFESSION



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STORY OF MY LIFE ... SO FAR										
	Technical	Commercial Product	Commercial General		Director	Executive	Head of	Manager	Analyst	Professional
2014	Valuation	Pricing	Distribution		Y					Council IFoA Council IFoA Council IFoA Council IoA Int Comm IoA
2013	Valuation	Pricing	Distribution		Y					
2012	Valuation	Pricing					Y			
2011	Valuation	Pricing					Y			
2010	Capital				Y		Y			
2009	Capital					Y	Y			
2008			Distribution		Y					President ASSA President ASSA Pres Elect ASSA Pres Elect ASSA
2007		Prod Dev				Y				
2006		Prod Dev					Y			
2005		Product	Strategy			Y				
2004	Valuation	Product	Customers			Y				Hon Sec ASSA Hon Sec ASSA Hon Sec ASSA ASSA Committees ASSA Committees ASSA Committees ASSA Committees
2003	Valuation	Pricing				Y				
2002	Valuation	Pricing				Y				
2001	Valuation	Pricing				Y				
2000	Valuation	Pricing					Y			
1999	Valuation	Pricing					Y			FIA
1998	Valuation	Pricing						Y		
1997	Valuation							Y		
1996	Valuation						Y			
1995		Prod Dev					Y			
1994		Prod Dev					Y			FIA
1993		Prod Dev						Y		
1992		Prod Dev						Y		
1991		Prod Dev							Y	
1990	Valuation							Y		
1989	Valuation								Y	FIA
1988	Valuation								Y	

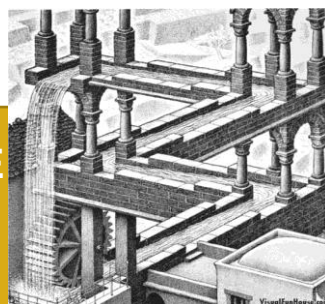
Green = Health ; Blue = Pensions and Asset Management; Orange = Capital Management

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Story of My Life ... What the Future Holds?

????

HEALTH INSURANCE
**BUSINESS
MODEL**
HISTORY, EVOLUTION &
CHARACTERISTICS



History

- First “accident and health” insurance policies sold to rail workers in 1860s
- Mutual form illustrates the social aspect before insurance was “commoditised”
- Significant macro-economic dislocation has tended to transform health sector
 - 1930s - The Depression prompted US hospital and physician groups to form cooperatives offering affordable medical insurance to consumers (“Blue Cross”)
 - 1940s - Wartime restrictions on wages led to employer sponsored group policies as an unrestricted and untaxed benefit in the US and the formation of NHS in UK
 - 1970s - Stagflation led to formation of “managed care” industry where excessive utilisation of care and spiralling prices could be better controlled than through a general indemnity insurance policy with limited control of trend

→ *New medical technologies have a glacial effect on health insurance. They are absorbed in health insurance by limiting benefits and other techniques until the macro-economic and political pressure shift their cost pressures more broadly across all services*

Evolutionary Forces

- As markets develop, health insurance is typically first offered by life insurers
- Life and health risks are strongly related:
 - Products like critical illness can offer similar protection
 - Health insurance can be added on to a life policy as a rider
 - Life insurers already collect underwriting information on health related risks, so they have a captive population where distribution costs are low
- As the average cost and technical complexity of a health care system develops, it tends to be understood, managed, and regulated as general insurance. Medical expense insurance has complexities and uncertainties, and “health” volumes eventually overtake “life” volumes
- Over time, more regulations are introduced, gradually leading to a niche health insurance market distinct from life or general insurance
- 80% of the 1,300 EU health insurers only write health insurance. Near 100% in US
- Developing markets will need to express their desire on cross-subsidising risks

Characteristics of Successful Health Insurers

Proposition

- Products, service, and brand have strong appeal in the market
- **Manage providers and customer** in an aligned manner
- Not a “nanny” and not patronising ... right information to customer at right time

Pricing and Analytics

- Risk is not given away for free
- Know the **behavioural economics** of consumers
- Parsimonious analytics that know what data points generate the most predictive power
- Constant nurturing, cleansing, and pruning of portfolios
- Characterised by relatively few advisors and actuaries with **deep health insurance experience**
- Lots of “talking the talk”

Operations

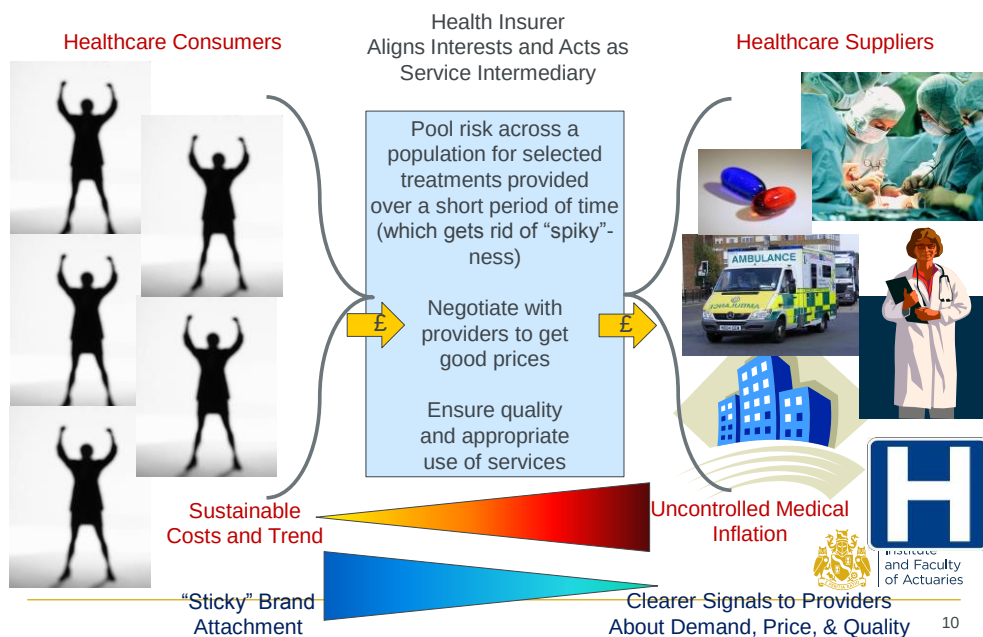
- Invest to create the **data and models** needed for longer term success
- Continual information flow and **analytics** for smart decisions - and in real time
- Continual focus, discipline, and hygiene to follow through on decisions that create value



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Business - The Basic Business Model of a Health Insurer



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HEALTH INSURANCE ROCK STAR

WHAT MAKES HEALTH DIFFERENT ... AND INTERESTING?



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Insurance Business Differs From Most Goods and Services

Insurers are in the business of taking risk

For manufacturing and most service businesses, the cost of goods sold does not - generally speaking - depend on who consumes it. This is not the case with insurance. The risk profile of those buying insurance affects the cost of goods sold



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Business Snapshot - General Insurance



General Insurance

Large and infrequent claims lead to volatility and periodic "bad years"

Benefit is large multiple of premium

Some adverse events affect many customers (i.e., risk accumulations)

Pooling diversifies more slowly

Average claim can take 5 or more years to settle

Many actuarial assumptions



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Business Snapshot - Life Insurance



Life Insurance

Long term trends on mortality

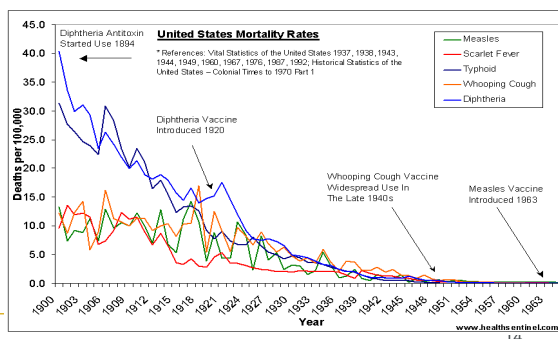
Large sums assured require massive pools to spread risk

Aligning the asset and liability side of balance sheet critical to business model

Timing issues: actuarially speaking, people get what they pay for (less a margin)

Average claim takes 20+ years to occur

Many actuarial assumptions



Business Snapshot - Health Insurance








Health Insurance

Frequency, mix, and severity widely diversified across a broad cross section of health services, individuals, and locations

Indemnity products with payment to provider, with many small claims and a few larger ones

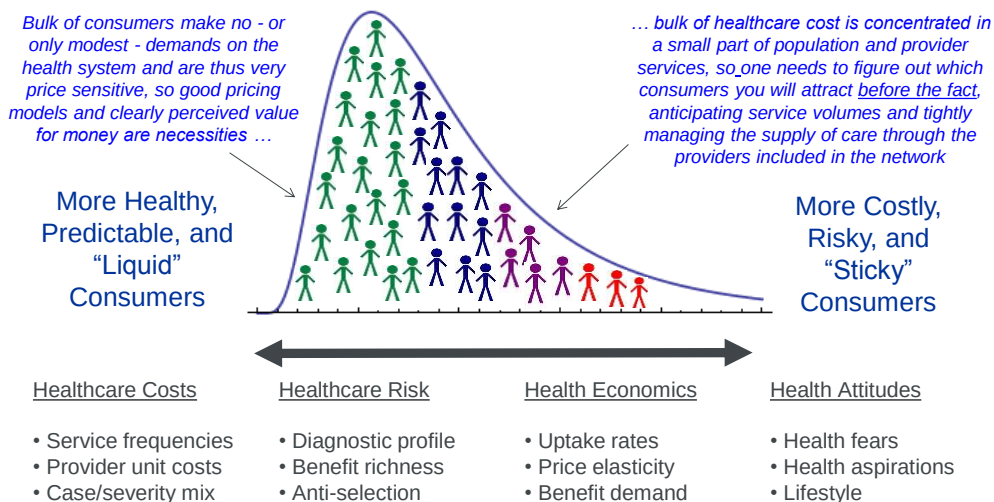
Benefit is expense coverage, so financial protection is expressed as provision of service

Risks tend to be independent, so efficient pooling

Average claim settles within 6 or 8 weeks

A few key actuarial assumptions

"80 / 20 Patterns" and "Long Tails" Are Common in Healthcare





THE SOCIAL ACTUARY

WHY WE CARE ...
AND THERE AREN'T THAT
MANY HEALTH ACTUARY
MILLIONAIRES



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EXPERIENCE THE RAW GUT-WRENCHING
DRAMA OF HUMAN CONFLICT THROUGH
ACTUARIAL CONSULTING



Preparing to do battle



The thrill of victory



The agony of defeat



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Health Insurance Markets – Social and Political Dimensions

Political	Health reform is always on everyone's agenda as it somehow affects nearly everyone Large margins can be discouraged in highly regulated markets (e.g., Australia) Sometimes governments try to promote social fairness by equalising health insurers' risk profiles or reallocating their profits: - Community rating so all consumers pay the same price (e.g., Australia) - Guaranteed issue and/or renewability to avoid insurers "cherry picking" (e.g., Australia, South Africa) - Mandated benefits to socialise those costs considered to be for the public good - Risk equalisation (e.g., Australia) - Minimum "loss ratios" (e.g., US) - Tax incentives and penalties (e.g., Australia)
Economic	Health insurance is an expanding area of the insurance sector in developing markets as more is spent on healthcare as GDP grows Pooling health fortunes, setting prices in the face of uncertainty, operating health systems, and being prepared for healthcare surprises
Social	Unique, changing degree of social understanding, attitude, or commoditisation of insurance Cultural attitude towards cross-subsidizing the burden of disease : - Catastrophic care (e.g., spinal cord injuries) - Chronic care (e.g., diabetes) - High cost or experimental treatments (e.g., rare cancers requiring exotic drugs) - How do you say "No"?
Tech	Relentless and costly. Often acts as concrete trigger of discussions on real need for technology or fairest way to share Affects both the insurance and service aspects of health business

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Customers have Real Needs

- **Health insurers interact with individuals at some of the most vulnerable points in life, where the quality of service and emotional sensitivity can be as important as any financial protection (i.e., being a healthcare partner can have emotional as much as financial and informational dimensions)**
- **Dealing with medical professionals who are also running their own businesses completely changes the dynamics**
- **A great healthcare product CAN make a difference in someone's life:**
 - **In the UK context it can be the difference between immediate treatment and recuperation and dying before you hit the top of the NHS waiting list. It can be the difference that leads to a lifestyle change for the better through offering the appropriate incentives**
 - **It can be the catalyst for a proactive health assessment that diagnosis a life threatening condition**
 - **It can provide the funding to bring someone home to their loved ones rather than dying in some strange and unfamiliar environment**



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LIGHTING THE FIRE - INTERESTING HEALTH DATA TO THINK ABOUT



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At the Heart of Finding and Applying Insight is ...



... and the quality thereof ...

Frontiers

Learning how to exploit untapped data to identify prospective customers and create products where pent up demand is high, uptake rates are high, but where health risks are manageable



Given demographics, longevity and chronic disease trends, knowing when bad risks are actually good, and vice versa



Better identifying and delineating consumer desire for protection from desire for health services within propositions so that products, prices, providers, and markets can be more effectively aligned

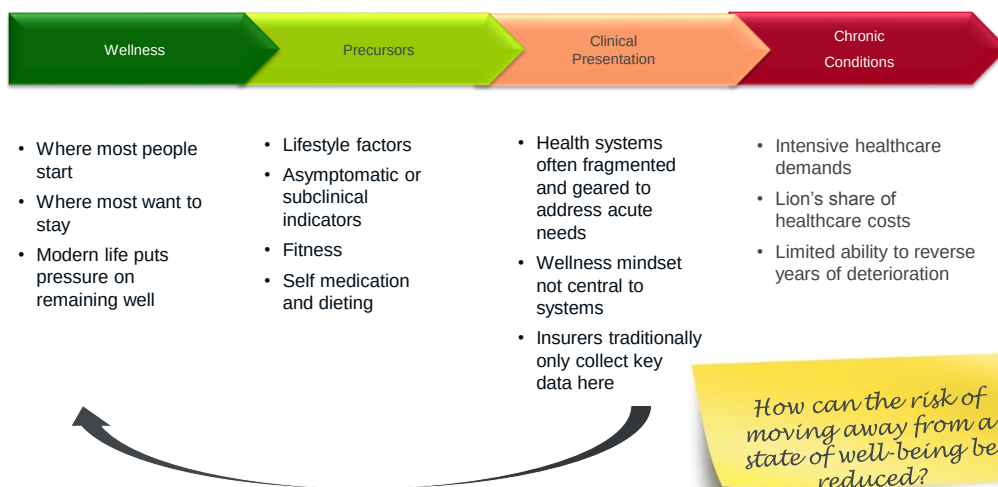


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A Word on Wellness ... Myth or Virtue

As wellness weakens and precursors and outright disease manifest, the ability to shift risk factors and restore wellness become more difficult, and the effort to preserve wellness becomes more expensive...

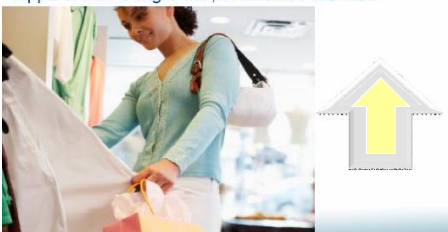


Lifestyles Associated with Exposure & Risk of Adverse Outcomes

Diabetes Prevalence Model
Predictor Variable – Casino Gambling



Prevalence of Cardiovascular Disease
Apparel Men's Big & Tall, Women's Plus Size



Prevalence of Depression
Dieting/Weight Control



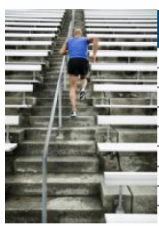
Prevalence of Depression
Watching Sports on TV



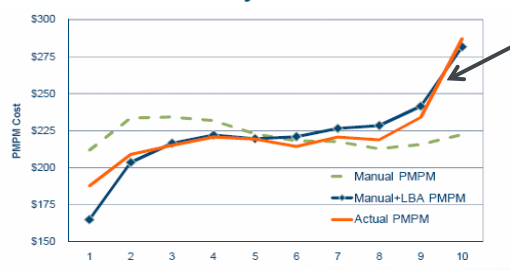
Smart Analysis Increases Predictive Power

Risk of Cardiovascular Disease by Favorite Interest

Reported Favorite Interest	Prevalence Rate
Running/Jogging	0.60%
Bicycling	1.33%
Golf	2.36%
Fishing	3.02%
Camping/Hiking	3.39%
Home Workshop/Do-It-Yourself	3.42%
Avid Book Reading	3.91%
Walking for Health	4.03%
Flower Gardening	4.55%

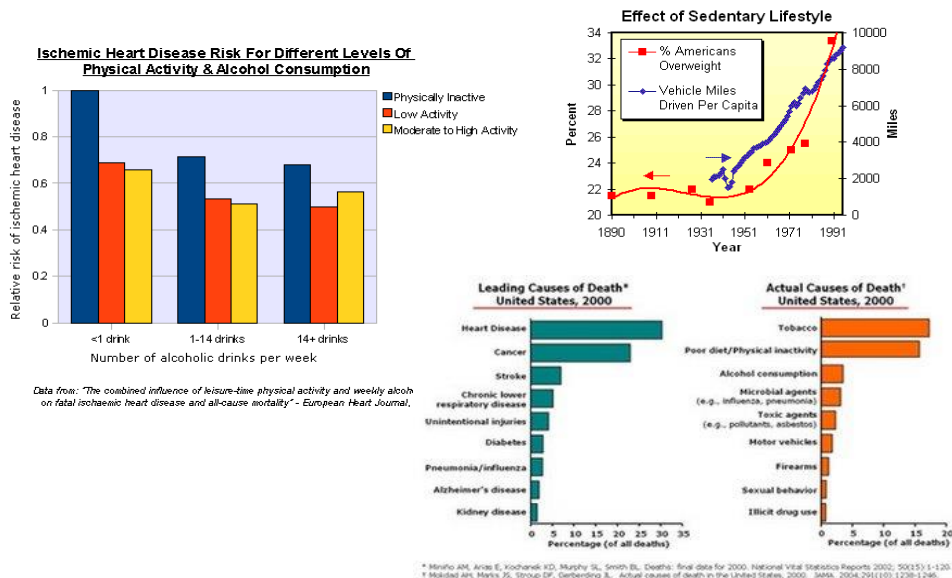


Performance of Lifestyle Prediction



- Lifestyle data improves knowledge of who is likely to be and remain well, and who will consume care
- It is not uncommon to double or triple the predictive power of traditional models
- This can be viewed as a form of *segmentation*

Data from Daily Life Can Predict Risks to Wellness



Data on Lifestyle is Now Abundant ...



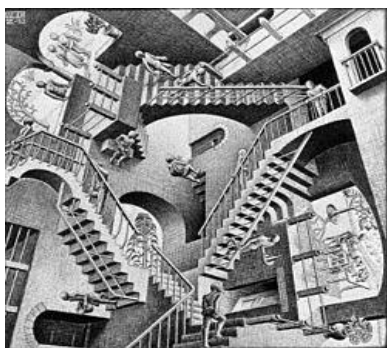
- Credit cards
- Banks
- Employers
- Insurers
- Internet
- Sky boxes
- Surveys
- Mobile phones

What precursors can I spot from such lifestyle data so as to target those whose wellness is at risk?

Some UK specific challenges for PMI actuaries

- Solvency 2
- Relationship between Private and public (NHS) healthcare
- Acute vs chronic
- Managed care potential influenced by position of GP
- EU legislation eg Gender Directive
- Small profession not (yet) very sexy
- Ageing population

A Final Challenge



There is a lot of data
and perspectives out
there if you know what
to look for.
We may have quite a
lot of useful data
already!

Consider the Story
of YOUR Life. How
will YOU WRITE IT
to make a
Difference in
Someone Else's
Life?



Questions



Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.