The Actuarial Profession
making financial sense of the future

Allocating Healthcare Resources – A World Cruise

Joanne Alder, Milliman UK

1-2 December 2003
The Glasgow Moat House

Agenda

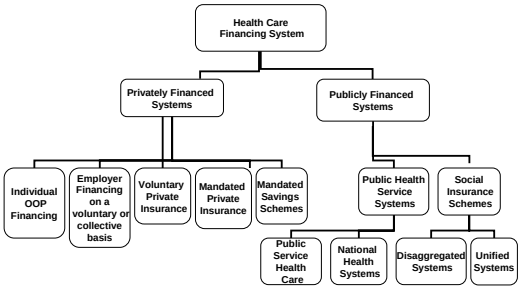
- Introduction/Objectives
- An introduction to the language of healthcare systems
- What are actuaries up to?
- Examples of some projects
- What next?

Introduction/Objectives

World Cruise

- Quick tour of types of healthcare systems – the language
- Some interesting (?) statistics
- Some current issues

Types of healthcare systems



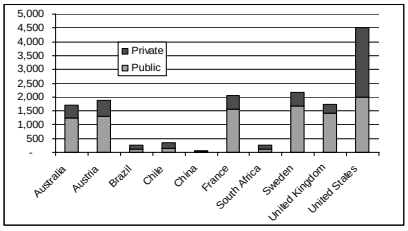
Reimbursement Mechanisms

- Fee For Service (FFS) – per procedure
- Case Rate – per episode, usually diagnosis based for IP, procedure based for OP.
- Per Diem rates – per day rate
- Capitation Rate/Carve outs – per person
- Budget – covers all people

Why do Reimbursements matter?

- Reimbursement methods create incentives…and incentives impact costs.
  - UK has a need to increase throughput – reward healthcare providers for doing work
  - US has a need to reduce costs – move risk between providers / insurers/ consumer
- Constant trade-off between cost and quality

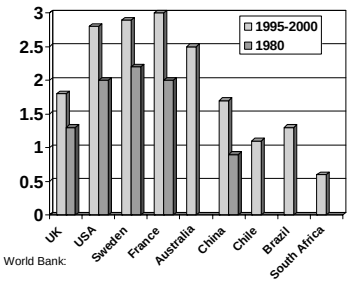
Private/Public Health Expenditure per capita 1997-2000



Source: World Bank:

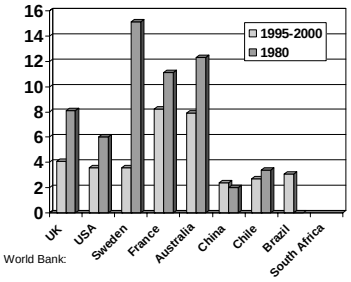
Source: WHO

Physicians/per 1000 people



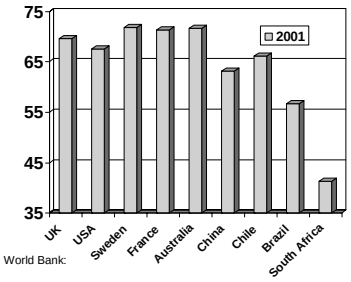
Source: World Bank:

Beds/1,000 people



Source: World Bank:

Healthy Life Expectancy at Birth



Source: World Bank:

Current issues

- Common themes
  - Increasing costs of healthcare, outstripping GDP growth
  - Ageing populations & their impact
  - Lack of rational debate about costs versus quality of care
  - Lifestyle factors, taking personal responsibility for health
  - Public health campaigns, smoking, obesity, exercise, asthma, diabetes

Current issues - UK

- Hospitals:
  - Foundation Hospitals – freeing hospitals from government control to increase ***choice*** and competition
  - Case Rate reimbursement – Payment by Results/Financial Flows
- Primary Care Trusts:
  - Chronic disease controls
  - Managing budgets
  - Implementing guidance and targets
  - GP reimbursement

Current issues - UK

- Other
  - National Institute for Clinical Excellence
    - Rational debate on cost effectiveness
    - Costs of new clinical guidelines
  - Impact on Private Healthcare of NHS plans/government interference
  - Expanding private market to give people choice

Current issues - USA

- Much greater percentage of public healthcare than you might think. Very fragmented system.
- Deep splits between hospitals and insurers
  - Spend more time fighting than treating people.
  - Lots of hospitals in deep financial trouble as passed inappropriate risk by insurers.
- Hugely costly, as very consumerist. Attitude of healthcare on demand – whether needed or not.
- Large amounts of choice, but are people qualified to make those choices?

Current issues - Asia

- Most systems are public, with varying degrees of private top-up or replacement cover. Generally government paid and government run hospitals, with some private insurance and private hospitals
- Quite common to have to pay for specialist consultations and outpatient treatment privately
- Public systems in varying degrees of realising non-sustainability, depending on richness of benefits

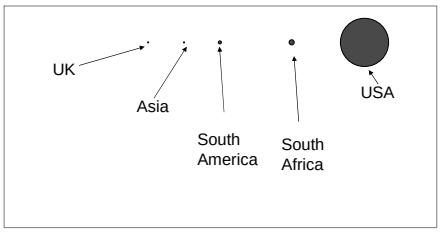
Current issues – South America

- 75% public/government funded – rest is private
  - Private payer sector is a mixture of cooperatives, self insurance, insurers and HMO-type operators
  - Providers are a mix of private and public
- Traditional hyper-inflation, difficult to justify actuarial claim projections. Premiums at start of month invested and could pay claims without worrying

Current issues – South Africa

- Mix of public and private care, but public very limited and deteriorating fast. Both group and individual private markets
  - Many doctors leaving the country
- Huge AIDS crisis – lots of work going on in this area.

What are the actuaries up to?



Example Projects

- Cancer Charities
- Costs of Clinical guidelines
- Rx cost benefit analysis
- Underwriting/Rating models
- Disease management – savings costs
- Financial modelling of new healthcare system
- Reimbursement analysis

Cancer Charity

- Wanted to demonstrate to employers the benefits of prevention versus treatment, to persuade them to put in screening programmes.
- Built interactive model with inputs for employee turnover, type of programme, type of employer, etc etc
- Best practice and current practice model, to show costs of screening programmes and their impact. Then output costs of treatments and financial projections.

Clinical Guidelines costs

- Aim: to test the impact of clinical guidelines on costs
- Challenges
  - Getting current practice patterns
  - Identifying best practice patterns
  - Identifying service costs and associated salary and infrastructure requirements
- Data *is* an issue, but *not* an excuse for doing nothing!!!

Pharmaceuticals and other interventions

- Aim: to test the cost effectiveness of clinical interventions/drugs
- Model:
  - Identify costs associated with intervention and alternatives
    - Service costs
    - Equipment costs
    - Staffing costs
  - Identify population
  - Project population and associated costs
  - Calculate financial impact on a long term basis of using this intervention

Disease Management

- Aim: to test the cost effectiveness of a disease management company
- Model:
  - Identify population at risk with specified disease
  - Identify costs associated with treating unmanaged population
  - Identify costs associated with managed population
  - Calculate savings made for managed population

Underwriting effects

- Aim: to identify the true costs of certain diseases to rate more accurately
- Build a picture from data of the costs of certain key diseases
  - Allocate relative ranking to diseases and associated co-morbidities
  - Benchmark total costs to company experience
  - Build a rating model to allow differential rating based on individual state of health

Government advice on new financing

- Advising government on insurance as a way of healthcare financing
- Modelling the premiums for certain sectors of the population
- Designing benefit plans – allowing governments to have a rational debate about what to mandate taking into account total health spend and policy priorities

Reimbursement of Hospital cases

- Aim: to compare different types of reimbursement and their effect on total budgets:
  - Which fees result in greater total payment?
  - What is the implied equivalence?
  - Which fees are out of line with the market?
- Model:
  - Calculate frequency of use of services in groups/or by individual service
  - Apply different fee schedules
  - Calculate total impact on budgets and where differences lie
  - Project likely impact over a number of years.

Where next?

- Institute Healthcare exams from 2005
- Institute would like to see more actuaries in this area?
- Some way to go in the UK
- Perceived competition with accountants and health economists, but may be complementary
- Start looking for ways to apply your skills

Questions/Ideas/Comments