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IAAHS Survey of Actuarial Issues and Practices

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SECTION SUR LES PENSIONS, AVANTAGES SOCIAUX ET SÉCURITÉ SOCIALE DE L'AAI
IAA PENSIONS, BENEFITS AND SOCIAL SECURITY SECTION
PBSS

SECTION SANTÉ DE L'AAI
IAA HEALTH SECTION
IAAHS

Overview

- Background for IAAHS Survey
- Details of Phase 1 Results
- Details of Phase 2 Results
- Next Steps

Background for IAAHS Sponsored Survey

- Sharing of actuarial practices for medical expense policies
- Discussion of issues which health actuaries commonly face, and how successful different approaches have been
- Results to be published and available to all members of the international community
- Intended to be the start of a dialogue

Background for IAAHS Sponsored Survey

- Perform survey in two phases:
  - Phase 1: Which tasks and issues are most important?
  - Phase 2: Receive, consolidate, and interpret detailed results for these tasks and issues:
    - How do you approach the practices?
    - Do these issues affect you?
    - How do you address these issues?
- 23 volunteers from 14 countries
- Role of volunteers
  - Helped us compose our list of practices and issues for Phase I
  - Conducted some interview from Phase II

Thanks to the volunteers

Australia- Rob Paton, Stuart Rodger, David Torrance

Canada- Claude Ferguson

Denmark, Sweden- Per Simon Voldsgaard, Ming Hui Wu

Germany- Erich Schneider

Japan- Norimasa Muton

Malaysia- Hassan Kamil

Mexico- Eduardo Lara

Middle East- Ronald Chidiac

Singapore- Alex Lee, Frank McInerney

South Africa- Katy Caldis, Tauravi Chinowona, Bernie Clark, Simon Dreyer, Paul la Cock, Emile Stipp

Spain- Socorro Blanco

UK- Joanne Alder

USA- Daniel Bailey, Mary van der Heijde

Phase 1: Survey of Important Issues

- Two questions:
  - Which tasks are actuaries expected to perform?
  - What issues and obstacles do you encounter?
- Offered long list of issues to select, and availability for open ended responses
- 33 responses from 5 continents

Phase 1: Tasks performed by actuaries?

- **Detailed Data Analysis: 82%**
- **Advice on Product Design: 82%**
- **Monitor Claims Experience: 79%**
- **Calculation of Premium Rates: 79%**
- **Reserving – IBNR: 76%**
- **Financial Forecasting: 73%**
- **Calculation of Appropriate Risk Margins: 70%**
- **Experience rating for larger groups 70%**
- **Active Life Reserves 67%**
- **Statutory signoff on actuarial filings 67%**
- **Advice on Underwriting 61%**
- **Reporting to Board/Audit Committee 58%**
- **Direct Communication with regulators: 52%**
- **Cost-Benefit Analysis of Disease Management 52%**
- **Provider Reimbursement Analysis: 48%**
- **Development of Systems reporting 48%**
- **Asset Liability Matching 48%**
- **(Items in bold included in Phase 2 survey)**

Overview

Phase 1: Issues and Obstacles encountered?

- **Data Quality and Integrity Issues: 61%**
- **Lack of Clarity of Domain of Actuary: 42%**
- Inadequate Coding of Claims Data: 42%
- **Regulatory Constraints (Pricing and Benefits): 39%**
- Resistance from Insurers to Involve Actuaries: 36%
- **Willingness of Clients to Pay Actuarial Fees:30%**
- **High Medical Inflation: 30%**
- Small % of Population Affords Insurance: 30%
- Lack of Technical Computing Skills to Manipulate Large Data Sets: 27%
- Lack of Analytical support (analysts, students) 27%
- Actuary as part of compliance work, but not decision making 21%
- Lack of resources/infrastructure for actuarial education 9%
- (Items in **bold** included in Phase 2 survey)

Phase 2: Detailed Responses

- **36 responses to this phase (none from Africa)**
- **11 Specific Questions/Topics Addressed**

- **Tasks Actuaries Perform:**
  - **Do you perform this task?**
  - **Major steps followed to complete the task**
  - **Are you willing to share work product?**

- **Issues and Obstacles Faced:**
  - **Do you face this issue?**
  - **Full description of current situation**
  - **Common steps to solve or mitigate this issue**
  - **How successful has this been?**

Data quality and integrity issues

Do you face this issue? No/rarely: 6
Yes: 30

Description of the issue:

Fairly universal issues about limitations in the data capture, data entry errors, bad data (e.g., pregnant males), inconsistent coding

Data problems tend to arise because individuals creating the data set do not recognize the need for consistent data

Data quality and integrity issues

Systems not designed to collect necessary data

North America: "Data on lives covered (exposure) is generally lacking. This makes calculation of incidence rates difficult."

Europe: "Data necessary during the underwriting and the quotation is not always captured into the system. More specifically, the decision is taken outside the IT system and only the final outcome (e.g. premium) is captured in the system; some classes of risk are not specified."

Those entering data not worried about accuracy

North America: "Key fields not uniformly coded. Data segments coded differently than the rest. Data from TPAs not always uploaded, and where available not always consistent. We often have to rely upon data from another source, such as that provided by the government. The government is often less motivated to provide good data.""

Europe: "Data is never as plentiful or as well coded as you might wish. We get poor quality diagnosis codes and operation codes. Often no secondary codes. There is no standard hospital invoice form for the UK".

Asia: "Yes, in that if one were to try to analyse the data in more detail, one discovers difficulties in tracing the duration of the policy (endorsements and policy switches may not be recorded consistently) and the clinical data is often not coded or not coded consistently."

Data quality and integrity issues

What are the most common steps which you use to help solve or mitigate this issue?

There seem to be no great answers, but a number of mitigation techniques.

North America: "Trying to reconcile the data with audited numbers"

Asia: "If it is not possible to group claims into per policy year basis, will go on conservative approach to cap claims at benefit limit on per hospital admission basis instead of per policy year basis. However, have to be mindful of the price competitiveness."

Europe: "Sometimes use US data"

Asia: "Generally, no steps taken. Not a priority to date. Health insurance remains a "sideline" business."

North America: "We will sometimes select samples to review in detail. This often reveals some of the underlying data issues."

Data quality and integrity issues

How successful has this been?

Generally successful but painful

Asia: "Reasonably successful, reconciliation can be done to a fairly good extent and has helped verify that data downloaded is complete.

Asia: "Proven to be successful, especially when in-house data are sufficient and adequate. Also, if benefit features are not price-sensitive, conservative approach will be just fine."

North America: "Very successful. Detailed checking by Actuarial staff has eliminated all major and, over time, most minor discrepancies."

Europe: "I have done a lot to improve the quality of the data from the source. We now have a very reliable data base, but with minor integrity issues."

Detailed data analysis

How many do this:	No:	3
	Yes:	33

Most analyzed health utilization and cost trends

Asia: "In the vast majority of cases, a detailed analysis of utilization and claims severity, for example, is not done."

Asia: "typically only for utilization analysis preparatory to either plan design or pricing or benefit budget estimation (for self-insured programs)."

Detailed data analysis

Most actuaries completing the survey indicated that they did this step, but some indicated that other functional areas completed it, and they peer reviewed.

Major steps followed to complete the task:

Extract data

Validate and repair data

Analyze and Report

Detailed data analysis

Extract data

Data warehouse mentioned by four respondents, otherwise other means (or gain from client)

Combine data from different sources when necessary

Europe: "Systems department execute it with the fields I have defined previously (age, sex, type of claim: hospital, non-hospital, medical fee…-)."

Australia: "Delete fields that are not relevant or shouldn't be provided under privacy laws."

Validate and repair data

Most respondents mentioned either checking the data against internal or external sources, inspecting it for reliability. Understanding the context is also important.

Australia: "Look at high claimants, or outliers – look for fraud."

Asia: "Check the data, making sure that they are correct/consistent with other sources."

Detailed data analysis

Analyze and report

Europe: "Conduct detailed analysis on the production and on the claims, the purpose being to: identify classes of risk, measure utilization rate and average cost inflation/trend (i.e. dissociate between medical inflation and structural inflation). The detailed analysis is usually conducted by benefit while including or excluding or truncating: large claims, emergency claims, maternity claims"

North America: "Questions studied may include trend over time, provider discount arrangements, claims by diagnosis."

Actuaries are a very careful group

North America: "Compare to budget and previous year analyses."

Australia: "Compare with other similar results."

Europe: "Once analyzed the data, the results are revised by the technical Area, who in most occasions has a greater sensibility to the origin and causes of the results."

Europe: "Benchmark against UK Health Cost Guidelines."

North American: "usually have an idea of a reasonable range for results"

Monitoring of claims experience

How many do this:	No:	7
	Yes:	29

Four of the responders from Europe said they do not monitor results.

Appears that this is very rigorously done in North America and Asia

Most responses were very similar to the data analysis responses

North America: "Summarize health care costs by injury year and type e.g. drugs, hospitals. Every four years do an in depth study of costs by year and type."

Monitoring of claims experience

Actuaries generally develop a systematic approach to monitoring.

Asia: "• Comparing the actual and expected in totality • Comparing the actual and expected in more details by benefit types and over time • Identify the reasons if the actual is significantly different from the expected• Review and update assumptions, if necessary"

Asia: "Health claims are monitored quarterly, whilst mortality/morbidity will be done annually and the number of years of data used will depend on the type of claims being monitored."

Australia: "At least once a year discuss findings and trends with Board."

Regulatory constraints on pricing and benefit design

Do you face this issue?	No/rarely:	19
	Yes:	17

Description of the issue:

By nature, health is a public good, and therefore receives more pressure than other insurance coverages

North America: "Public coverage impose a minimum characteristics for private contracts: private contracts need to adapt to changes made to stay competitive."

Regulatory constraints on pricing and benefit design

Common restrictions: low increases, flatter (or no) age slope

Australia: "At various times there is a lot of political pressure to keep rate increases low. These particularly occur before Federal elections so it is necessary to plan years ahead in order to accommodate the pressures when they are applied."

North America: "Certain states such as NY have community rating laws limiting pricing (underwriting) and many states have minimum benefit requirements"

South America: "Brazil – individual block of business is guaranteed issue, rates are flat after age 60, and rate increases are limited."

Europe: "Usually product design and calculation in Germany is free of permission by regulator, but the supervisory Authority has the right to check all the products for misuse. (nobody knows exactly when they detect misuse). So, it is necessary to check carefully the design and the calculation. Otherwise the company faces the problem to remove a product from the market. This is bad for reputation especially when company has relation to many brokers."

Regulatory constraints on pricing and benefit design

What are the most common steps which you use to help solve or mitigate this issue?

If you can't beat them, join them.

North America: "Monitor development of public health programs. Determine impact of proposed changes. Communicate impact to Marketing and Sales to seek input on preferred strategy. Determine system, product, and/or price changes needed."

Asia: "We work closely with the Regulators to understand their concerns and to also communicate our ideas/recommendations and this has been quite productive."

Regulatory constraints on pricing and benefit design

How successful has this been?

Most efforts have only modest success.

North America: “Not really steps for fixing problem – just for making sure company is able to stay solvent.”

Europe: “It’s difficult to influence German regulation”

North America: “Unfortunately we can't solve them.”

Advice on product design

How many do this:	No:	2
	Yes:	34

Major steps followed to complete the task:

- Review existing products
- Compare to competitors' products and pricing
- Discussions with others about design, and price of various options
- Combination of market driven and (internally focused) traditional product design

Advice on product design

Review existing products

There is a significant amount of input from marketing staffs, internal functional areas, comparison with competitor products, and regulatory constraints. Actuary's role is often to balance these with competing forces.

Asia: "Ideas are normally presented from the Market Research/Marketing areas of the Company. Actuarial will consider the details of the design relative to the market (other similar products), the Company's financial controls/targets (e.g. capital requirements, guarantees provided in the market), appropriateness for the consumer."

Compare to competitors' products and pricing

North America: "Research for new coverages offered in the market"

Europe: "Checking regulatory requirements, market practice and data availability"

Asia: "Identification of target market and primary competitors and competing products. Determination of planned distribution channel. Articulation of product design guidelines: e.g. competitive pricing benchmarks, channel compensation benchmarks, profitability metric and target levels."

Advice on product design

Discussions with others about design, and price of various options

Europe: "Identify the reason for introducing a new product"

Europe: "Feasibility study: profit testing and IT systemmanagement"

Australia: "I get involved as early as possible and preferably attend Steering Committee Meetings. Thus I know the rationale behind the product design, and give broad advice early in the piece. (I am amazed with the ability of marketing types to calculate approximate but always too low rates, and then rationalize why they are right and I am wrong)"

Europe: "Brainstorming: Find some unique selling propositions, make a first product draft with the main coverages."

Combination of market driven and internally focused product design

Asia: "Actuarial will consider the details of the design relative to the market (other similar products), the Company's financial controls/targets (e.g. capital requirements, guarantees provided in the market), appropriateness for the consumer."

Very little variation by country. Noteworthy that actuaries do appear very involved in the product design process.

Calculation of Premium Rates

How many do this:	No:	2
	Yes:	34

The *no* responses are from Japan and Germany:

Japan: "we are not insurers, although we plan the basic scheme of public health insurance (they are a public insurer)"

This process is sometimes driven by loss ratios rather than detailed claims in Europe

In Hong Kong, smaller insurers often rely on reinsurers for help

Calculation of Premium Rates

North America: “Actuarial is responsible for calculation of manual rates, but Underwriting is responsible for the calculation of case rates (blending experience and manual rates).”

Australia: “Usually the most important product is rated solely on its experience and claims trends (grouped for less significant items). The less important products are also rated on this basis but rates are adjusted to allow for relativities with the most important product. Ultimately the whole portfolio is modeled to ensure future bottom line results are appropriate and solvency/capital adequacy issues are addressed.The final step in the process is my Appointed Actuary’s Report. I discuss the draft with the CEO to ensure words and phrases are acceptable to the Executive Team without compromising the thrust of my report. I attend the Board meeting at which approval is given, during which I deliver a presentation that justifies assumptions and explains the impact of assumptions being incorrect.”

Asia: “Very very rarely, only a few insurers in each country would do this, the insurer would have developed a pricing manual.”

Reserving – incurred but not reported liability

How many do this:	No:	8
	Yes:	28

When the specific method for IBNR was given, it was the lag/development method

North America: "For early months in the triangle, usually rely on past averages of completion factors to set the cf for any particular month, but we smooth the results. For months in which we find the cf not to be fully credible, we also review projections of PMPMs from prior months. For these months, we make a PMPM projection using observed trend (combined with judgment), and review whether there is any seasonality. The final cf is chosen by judgment using all of this information (both the historic cf and the projected PMPM)."

Reserving – incurred but not reported liability

Australia: “Obtain estimates of incurred claims by claim type. Program allows for adjustments to be made for recent month’s claims. Outstanding claims is a simple calculation once incurred claims are established. An expense component is added. A sufficiency margin is added. Reinsurance allowances are also included.”

Europe: “We calculate an historical series, defined by law. It takes into account medium cost and number of claims of the last three years to obtain a medium cost of IBNR claims for next year.”

Europe: “The final amount of each closing is determined by the Technical and Accounting Areas but I have taken part in the analysis and definition of the formula and calculation.”PMPM).”

High medical inflation

Do you face this issue?

No/unclear:	21
Yes:	18

Description of the issue:

In general, medical trend exceeds medical inflation, which also exceeds general inflation. Regulators and consumers don't expect rates to increase by this amount.

High medical inflation

Australia: "There is an international marketplace for nurses now. In the long term economically advanced countries are going to have to make nursing and medicine more attractive for workers. This means high medical inflation for some years."

North America: "Medical cost are rising world wide, due to monopoly type situation of pharmacies, medical provider fraud, consumer fraud."

Europe: "This issue arises out of physicians and hospitals demand for higher tariffs for their services using a mix of economics and politics to justify their demands."

Europe: "Private premiums increase 8-10% per year even while more money goes into the public sector. The private market is not growing because of premium increases. This is mostly due to high outpatient costs and high utilization, even while inpatient costs are falling and ALOS is falling."

Europe: "In Germany we face a similar situation than the US. The expenses for health and health insurance are developing fast, higher than the increase of GDP. The insurers are increasing the premiums each year, more then the normal inflation. The Government stays under pressure due to this increasing expenses.

High medical inflation

What are the most common steps which you use to help solve or mitigate this issue?

Europe: “medical inflation is a regular part of the business model”

North America: “Product design and controls at the consumer and provider level”

Australia: “Strong bargaining to force efficiencies in hospital systems as a counter to their increased costs. Recently there has been industry-wide collective bargaining with device manufacturers to reduce inflation in prosthetic devices.”

Europe: “To limit the claims cost we can exclude some treatment options from the insurance.”

Europe: “We negotiate with entities requesting increases to their fees and we try to reduce the increase to the least possible levels. Threats to stop sending patients to those providers are also a way of dealing with this issue.”

High medical inflation

Asia: "Private insurers mostly sell either daily cash benefit products, or indemnity products with restrictive inside limits."

Asia: "For employers, the response will tend to be holding back on benefit improvements and introduction of cost management measures. For insurers, effective communication is key."

Asia: "Not much we can do except to perform bill audit and minimize fraud."

How successful has this been?

Responses varied, but most actions (other than including in pricing) seem to work only at the margins.

Financial forecasting

How many do this:	No/rarely:	12
	Yes:	24

Less common in North America, more common in Asia
Some variety in items included in forecast

Asia: "Obtain sales target for various products from Marketing dept, Set the assumptions for Claims, persistency, reinsurance ratio, reinsurance recovery ratio. These assumptions are set based on pricing assumptions or actual experience, Input the sales numbers, assumptions and enforce data into the model, Run the model, Check results"

Europe: "Projections are being conducted through a very rough approach. A more refined methodology will be introduced in due course, that is projections will be conducted by classes of risk and will be showing number of insureds, number of claims, premium and average claim cost, etc."

Lack of clarity of the domain of the actuary

Do you face this issue?	No/rarely:	17
	Yes:	19

It seems the scope of the actuary is particularly unclear in Asia.

European actuaries seem to have a smaller scope, while Australians have wider scope

In Singapore, the scope of the actuary is very specifically dictated by law. However, another response said it is very difficult in Singapore because of all of the other things put on their plate.

Lack of clarity of the domain of the actuary

Others often attempt to take on actuarial roles

North America: "Other areas unaware of expertise/value actuaries can bring in variety of areas due to their lack of understanding of the complexity of insurance products"

North America: "Certain people believe they can interpret data without use of actuarial e.g., paid claims versus incurred claims for LTD"

Europe: "Actuary are mainly seen as expert in Life insurance field only"

Some actuaries look outside to define the domain.

Asia: "Not clear to the scope of the actuary. Underwriting, Claims and other operational areas are passed on to the actuary to decide sometimes. Sometimes the actuary has to make decisions without necessary info or control of the situation. Management doesn't make it very clear who's responsibility it is to make some of these decisions."

Asia: "in Singapore, the domain for actuary is well-defined. There are regulations on Appointed Actuary, and the roles of actuary on actuarial functions and risk management disciplines are quite clear."

Asia: "Actuaries are not many in Malaysia and thus work confined to traditional role such as valuation and pricing"

Lack of clarity of the domain of the actuary

Other constraints limit the actuary's role

Europe: "When actuarial skills are used in the health insurance field, they are asked to limit their role in premium & reserves calculation"

Europe: "There are new international developments which are sometimes difficult to implement because of the national situation."

Asia: "Actuaries are not many in Malaysia and thus work confined to traditional role such as valuation and pricing"

Lack of clarity of the domain of the actuary

What are the most common steps which you use to help solve or mitigate this issue?

Some look to demonstrate a broader role.

North America; "Discussion, communication, education. Leadership within the company."

Europe: "It is important to show insurance companies that actuaries can really help in the whole process i.e. product design, rating, underwriting, claims, reporting. The best way to achieve this is to be heavily involved in a software solution development"

Europe: "I do lots of explanations and try to make the actuary a real person"

Others are careful to limit the domain.

Asia: "Try to limit your tasks to the ones that are closest to "actuarial" (e.g. premium calculation, valuation, etc.). Provide suggestions and advice to other "non-actuarial" issues. People will appreciate suggestions and advice from an actuary. Prioritize work. Define scope of actuarial work in the company."

Asia: "During the course of the project, whenever there is confusion about roles, the proposal becomes our reference. What is critical, though, is that protocol with respect to roles and activities are followed throughout the engagement."

Lack of clarity of the domain of the actuary

How successful has this been?

This still remains an open issue

Asia: “Reasonably successful but painfully tiring.”

Europe: “Rarely successful, depends on clients intention.”

Willingness of clients to pay actuarial fees versus cheaper resources

Do you face this issue?

No/rarely:	26
Yes:	10

Description of the issue in their situation:

Competition comes from academics, in-house actuaries, reinsurers, TPAs, "less than professional" actuaries, and ignorance of the need.

Europe: "'Professional' Actuarial services are expensive, especially for small insurance companies"

Willingness of clients to pay actuarial fees versus cheaper resources

North America: “As consultants, we are either competing against other consultants or internal resources.”

Europe: “I only can take a conclusion from the German attitude, to solve most of the actuarial work by themselves and use external actuaries only in special situations (need of an independent opinion or competence, too much work, no adequate statistics, requirement by regulator, caused by Supervisory Board, caused by Shareholder meeting).”

Europe: “The actuary is not fully appreciated since there are no regulations which require the insurance companies to file or to justify their pricing policies. Companies usually wait for a product to hit the market and then most will follow suit thru copying most of the work done including premium rates.”

Asia: “Insurers prefer to do the work in-house or use the services of a reinsurer. They don’t mind sharing the underwriting profits because this is just a sideline to the insurer. Most importantly, they want to complete their product lineup and not disappoint the policyholder.”

Willingness of clients to pay actuarial fees versus cheaper resources

What are the most common steps which you use to help solve or mitigate this issue?

Some solutions are basic sales techniques.

Asia: "At first contact, we determine what the client requires and is willing to pay. We provide a ballpark figure up front. If they seem hesitant, we will decline to send a proposal."

Asia: "The choice of presenting consultant seems to be important. No matter how high the quality of the calculations and the report, much of the client's appreciation of the project rests on the meetings with the primary consultant."

Asia: "It helps to have a good relationship with key decision-makers."

Australia: "Have an agreed scale of fees including discount. Explain the scale. Don't charge for all time. Help with search for alternative resources."

North America: "help them see the value we bring/add to them"

Other solutions relate to alternative arrangements.

Europe: "Work directly with TPAs instead of working with insurance companies"

North America: "We do combination of fixed fee and contingency arrangements."

Willingness of clients to pay actuarial fees versus cheaper resources

How successful has this been?

Despite frustration, there seem to be a number of consulting actuaries answering the question.

Europe: "Promotion is still in its early stage and thus its impact cannot be properly measured yet"

Asia: "Reasonably successful. It really depends on our ability to accurately screen prospects. Also, our ability to match the consultant with the client is important. We need to consider personal styles and chemistry."

Next Steps – This Survey

- Summarize information into a report
- Available to all IAAHS members and international community
- Continue the dialogue among actuaries from different countries
- Tell me (or others) about your experiences – are they different from those just presented?
- What other questions should we be asking?
- Are there issues here that suggest special interest groups?