

# **Disability Committee**

## **Software Developments & 2003 Plans**

**IAAust BIENNIAL CONVENTION 2003**



# Software Developments



*I*nstitute of Actuaries of Australia

*D*isability

*E*xperience

*A*nalysis

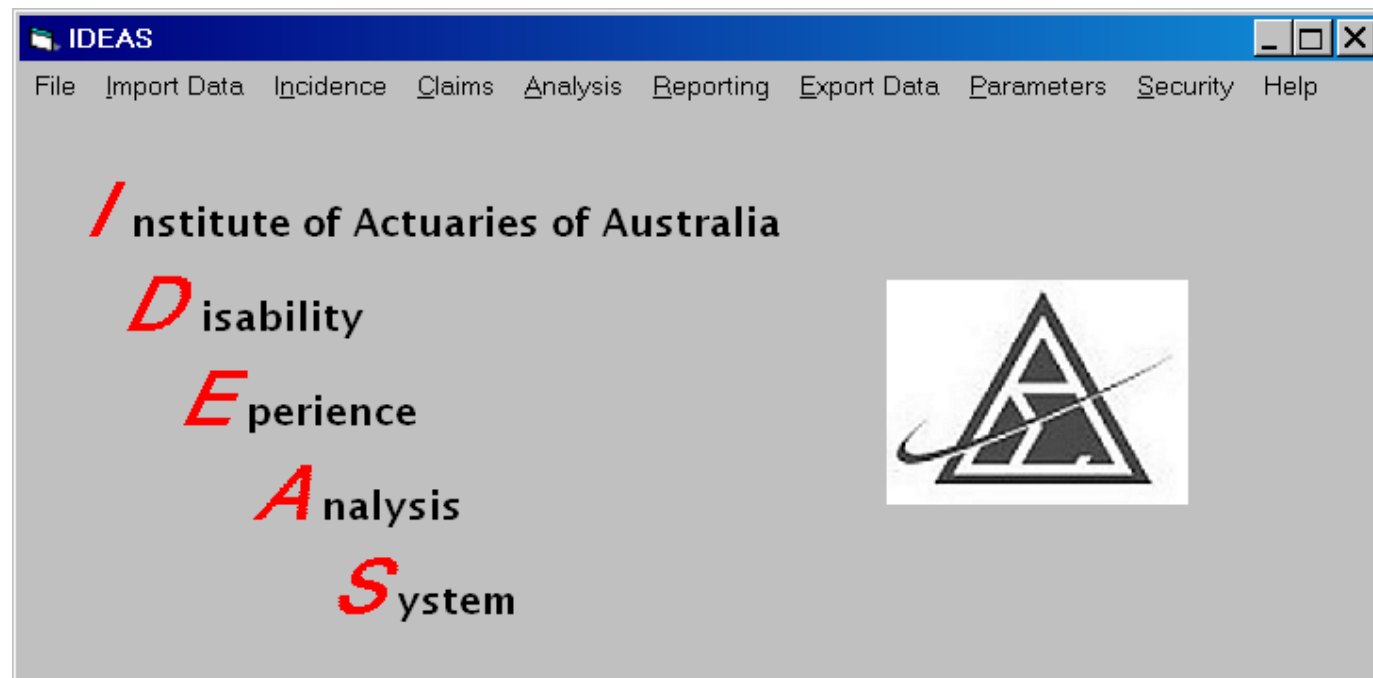
*S*ystem



# Functional Overview

- **Import & Validate data**
- **Calculate Exposure**
- **Calculate Expected**
- **Perform & Report Analysis**
- **Submit data for IAAust**





# Foundations

- **Calendar year data**
- **All characteristics [20] retained**
- **Adjusted census method**
  - Assume exits distributed uniformly
  - New entrants treated according to date of entry
- **All output is delivered in the form of EXCEL spreadsheets**



# Technical Issues

- **Microsoft ACCESS database**
- **Each year's data in a separate database**
- **Compiled Microsoft Visual Basic**
- **Standard Windows interface**



# Import & Validate Data

- **Import data in any of**
  - **Text**
  - **Excel**
  - **Access**
- **Validate**
  - **Conforms to IAAust codes**
  - **Internally consistent**





**Data Conversion** [Minimize] [Maximize] [Close]

**Contributor** [Dropdown] ID1000

**Data File Type**

☒ Text File ☐ Excel File ☐ Access DB

**Data**

☒ In Force ☐ Claims **Year** [Text Box]

**Data Is**

☒ New ☐ Replacement ☐ Additional **DataSet** [Text Box]

[Get File Location]

[OK] [Cancel] [Help]



# Calculate Exposure

- All exposure in days
- All durations in days
  - Active lives calculated monthly
  - Claims calculated daily for the first 90 days then monthly up to 3 years then annually
  - Claim durations calculated from date of disability
- Ages annually as age last
- All ages & durations change exactly
- Exposure calculated separately for each month of time



# Calculate Expected

- A range of “standard” expected bases provided
- Currently
  - IAD89-93
  - CIDA
- Will have IAD95-98
- Other “standard” tables can be added
- New bases can be cloned by adjusting “standard” tables



# Perform & Report Analysis

- Data can be analysed on up to 10 dimensions selected from

- |                        |                   |
|------------------------|-------------------|
| –Country               | –Benefit Type     |
| –Disability Definition | –Medical Evidence |
| –Gender                | –Group/Individual |
| –Occupation            | –Contract Type    |
| –Deferment             | –No Claim Bonus   |
| –Year of Entry         | –Smoker Status    |
| –Age Attained          | –AIDS Exclusion   |
| –Expiry Age            | –Duration         |
| –Benefit Period        | –Cause of Claim   |
| –Benefit Amount        | –Exposure Period  |



# Perform & Report Analysis (2)

- Analysis results can be reported for any of

Multiple dimensional data

Single dimensional data

- Exposure

- New Claims

- Incidence Rates

- Claim Durations

- Claim Termination Rates

- Claim Costs



# Perform & Report Analysis (2)

- Analysis results can be reported for any of

Multiple dimensional data

Single dimensional data

- Exposure

- New Claims

- Incidence Rates

- Claim Durations

- Claim Termination Rates

- Claim Costs

- Comparisons can be performed for any of

- Actual/Expected

- Non-Smoker/Smoker

- Females/Males

- Cancellable/Non-Cancellable

- Business O'heads/Individual

Select/Ultimate

Non-Smoker/Aggregate



# Perform & Report Analysis (3)

- Results can be measured by
  - Number
  - Amount
  - Number \* Benefit Percent
- All the results output and comparisons are performed according to the characteristics selected
- Characteristics can be selected as
  - either a single value i.e. only records which match this value are included
  - Or, as ALL values which are then analysed as part of the multi-dimensional matrix



**Incidence Analysis [2]** ID4010

**Selection Characteristics**

<input checked="" type="checkbox"/> Country	Australia	<input type="checkbox"/> Age	<input checked="" type="checkbox"/> Group/Individual	individual
<input type="checkbox"/> Disability Definition		<input type="checkbox"/> Expiry Age	<input checked="" type="checkbox"/> Contract Type	Non Cancellable
<input checked="" type="checkbox"/> Gender	ALL	<input type="checkbox"/> Benefit Period	<input type="checkbox"/> No Claim Bonus	
<input checked="" type="checkbox"/> Occupation	ALL	<input type="checkbox"/> Benefit Amount	<input type="checkbox"/> Smoker Status	
<input checked="" type="checkbox"/> Deferment Period	ALL	<input checked="" type="checkbox"/> Benefit Type	<input type="checkbox"/> AIDS Exclusion	
<input type="checkbox"/> Commencement Year		<input type="checkbox"/> Medical Evidence	<input type="checkbox"/> Duration	
<input type="checkbox"/> Cause of Claim				

**Output**

<input type="checkbox"/> Data	<i>Comparisons</i>
	<input type="checkbox"/> Actual / Expected
	<input type="checkbox"/> Select / Ultimate
	<input type="checkbox"/> Non-Smoker / Smoker <input type="checkbox"/> Non-Smoker / Aggregate
<input checked="" type="checkbox"/> Exposure	<input type="checkbox"/> Females / Males
<input type="checkbox"/> New Claims	<input type="checkbox"/> Cancellable / Non-Cancellable
<input type="checkbox"/> Incidence Rates	<input type="checkbox"/> Business Overheads / Individual

OK Cancel Help





Microsoft Excel - exp9598.XLS											
File Edit View Insert Format Tools Data Window Help Acrobat											
<div>File Edit View Insert Format Tools Data Window Help Acrobat</div>											
F24 =											
	A	B	C	D	E	F	G	H	I	J	K
1		Exposure									
2		Gender	male								
3											
4		Occupation	Deferment								
5			7 days	14 days	1 month	2 months	3 months	6 months	1 year	2 years	
6	A		1,102,081	33,045,156	123,852,928	8,718,311	20,471,804	2,988,031	1,242,059	779,078	
7	B		1,642	9,310,178	20,393,882	1,515,717	2,062,566	340,645	117,325	48,146	
8	C		282,093	48,588,100	59,173,054	2,127,219	2,825,183	382,171	167,739	423,549	
9	D		379,060	32,035,816	34,654,073	745,225	1,045,596	94,522	30,054	843,964	
10											
11		Gender	female								
12											
13		Occupation	Deferment								
14			7 days	14 days	1 month	2 months	3 months	6 months	1 year	2 years	
15	A		65,462	11,105,122	40,496,218	2,883,249	4,707,229	509,814	268,473	211,846	
16	B			1,487,953	4,577,657	429,542	411,499	59,250	21,758	14,731	
17	C		6,369	2,222,562	5,320,877	435,673	534,592	61,578	16,755	16,952	
18	D		6,000	788,271	1,262,345	49,193	45,260	5,904	791	13,210	
19											
20											
21											
22											
23											
24											
25											
Sheet5 / Sheet4 / Sheet1 / Sheet2 / Sheet3 /											
Ready											



# Submit Data for IAAust

- Once the data is satisfactory it can be exported to the IAAust Disability automatically for addition to the industry analysis



# Validation

- **Comparison against 1995-98 published data shows**
  - **Complete agreement for Table A – Data Characteristics**
  - **Exposure within 4%**
  - **New Claims within 2%**
  - **Overall Incidence rates within 2%**



# 2003 Plans



# Disability C'tee – 2003 Plans

- IDEAS distributed to contributors including all past data
- Initial report on 1998-2001 experience
- First draft of a new “standard” table - IAD95-98 – for discussion

