

# Underwriting Around the World

## Introduction

In June 2012, the Underwriting sub-committee of the International Actuarial Association Mortality Working Group (IAAMWG) solicited countries through a questionnaire to provide information on the medical and non-medical (e.g., financial, lifestyle, etc.) individual life underwriting practices for their mortality business. In addition, a completed questionnaire with responses for the USA was sent to provide a better understanding of the types of responses desired. We offered countries to just “cut and paste” the USA response if the particular response was also appropriate for them. We received responses through 2013.

There were three intended outcomes of the research. Firstly, it was to provide a source of centralized underwriting terminology which will enhance communication between practitioners in different regions. Secondly, it was to provide a central source of data that may encourage countries to use methods of underwriting that haven't previously been considered. Thirdly, because the mortality of portfolios of insured underwritten lives is heavily influenced by the level and type of underwriting, the research was intended to enable actuaries to make more educated evaluations of the various risk evaluation tools on insured mortality and to allow comparisons among countries.

It is important to note that it was **not** the purpose of this project to influence underwriting practices or to standardize underwriting loadings for particular medical conditions. Each country has unique market conditions which may mean that one method of underwriting may be more viable, practical or sensible than another. The members of the Underwriting sub-committee are well aware that the method and level of underwriting is often a commercial decision, based on a cost benefit analysis and local market conditions, made by insurance companies operating in a particular market.

It is the intention to publish these findings at the ICA Conference in 2014. Presentations at other venues can be arranged following this meeting.

**Executive Summary**

**TO BE COMPLETED**

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The following will provide the detailed results of each section in the survey.

## **1. General Information**

Sixteen reports were received. One included multiple countries. The reports received include:

1. Australia
2. Canada
3. Croatia
4. India
5. Israel
6. Italy
7. Japan
8. Latin America/Caribbean
9. Mexico
10. Norway
11. Russia
12. South Africa
13. Sweden
14. Switzerland
15. United Kingdom
16. United States

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## 2. Underwriting types

We asked about the type of underwriting done in each country. We have broken down the responses by fully underwritten, simplified issue, guaranteed issue and other. The business for those indicating “non-medical” underwriting was placed in “simplified issue” in Figure 1. The definitions of all terms are provided in the Appendix to this report.

For this question, some countries provided percentages that added to less than 100%. For these countries, we proportionally increased the percentage for each category so that the percentages totaled 100%.

Figure 1 shows the usage of the various underwriting types by country. All responding countries (Norway did not respond to this question) write some fully underwritten business, but the percentage of this business varies greatly, from 3% in Croatia to 95% in Israel. All countries except the UK write simplified issue business, with the percentages again varying greatly. Five countries indicated that they wrote guaranteed issue business. Two countries indicated that they used a different type of underwriting. Both Japan and South Africa indicated that the other underwriting was underwriting done for the group employee/employer marketplace.

**Figure 1 – Underwriting Types**

	Fully Underwritten*	Simplified Issue	Guaranteed Issue	Other	Total
Australia					
Canada	74%	20%	6%		100%
Croatia	3%	97%			100%
India	80%	20%			100%
Israel	95%	5%			100%
Italy	20%	80%			100%
Japan	29%	50%	20%	<1%	100%
Latin America/Caribbean	74%	20%	6%		100%
Mexico	15%	85%			100%
Norway					0%
Russia	83%	17%			
South Africa	80%	10%		10%	100%
Sweden	50%	50%			100%
Switzerland	70%	30%			100%
United Kingdom	75%		25%		100%
United States	74%	20%	6%		100%

\* Fully underwritten may or may not include an exam, depending on standard practice in the country concerned

The following provides more details on some of the underwriting programs summarized in Figure 1.

### Canada and United States

- Guaranteed Issue – The characteristics of guaranteed issue life underwriting include:
  - No or a few medical questions
  - No medical or paramedical exam, no blood or urine specimen
  - The applicant cannot be turned down for coverage, with a few exceptions. Generally the only circumstances where one can be turned down are:
    - The proposed insured doesn’t meet specific age requirements for the plan, or
    - The proposed insured currently is living in a nursing home or Long Term Care facility
  - Small face amounts

- Return of premium for death in first two years
- Guaranteed-to-Issue
  - Guaranteed-to-issue is sometimes referred to as guaranteed acceptance.
  - This type of underwriting is similar to guaranteed issue; however, the person cannot be turned down for coverage. Instead, rating of the individual is allowed.
  - Guaranteed-to-issue also has relatively small benefits, sometimes return of premium with interest.

## India

- Automatic/Clear case underwriting
  - Cases screened through an automated rule-based engine
  - May include medical exam as well
- Non-medical underwriting
  - Cases kicked out by the automated rule-based engine for reasons such as build, occupation, etc.
  - Underwritten by a junior underwriter
  - No medical reports

## South Africa

- Simplified issue
  - This is essentially limited underwriting.
  - The application form would consist of between 3 and 5 questions with regard to general health, HIV testing and whether the life assured had ever been loaded, declined, had an exclusion on prior policies or claimed a benefit.
  - There is a limit to the amount of cover that can be taken up on this policy and the underwriting decision is usually to accept or decline.
  - The use of pre-existing conditions clauses are applied at claim stage.
  - There is often a 'phased in' waiting period for deaths due to natural causes; this means that, if the life insured claims, he will only be entitled to a % of the benefit amount which is linked to the time since policy inception (for example 50% of the benefit will be paid between 6 and 12 months; 75% between 12 and 18 months etc.). Claims due to unnatural causes will always be paid at 100%.
  - There are generally no medical requirements (examinations or blood tests) on these policies.
- Group or pension fund underwriting
  - This is the same as for medical underwriting, the exception being that there is no financial underwriting as the benefit is linked to the individual's salary.
  - Some companies writing group business do not underwrite for hazardous pursuits or travel risks.
  - Some companies also price the base rate in order that loadings of up to a certain extra-mortality or extra-morbidity are waived to standard rates.
  - Group underwriting is more lenient than individual underwriting due to the reduced risk of anti-selection as the cover is compulsory.

## Sweden

- Non-medical
  - Few medical questions
  - No medical or paramedical exam, no blood or urine specimen

- The applicant cannot be turned down for coverage, with a few exceptions. Generally the only circumstances where one can be turned down are:
  - The proposed insured doesn't meet specific age requirements for the plan, or
  - Is rated total mortality >150%
- Small face amounts
- Mainly voluntary group business

## United Kingdom

- Guaranteed issue
  - Generally limited to older life applicants
  - No medical questions other than possibly tobacco use.
  - Cover guaranteed
  - Low sum assured
  - Benefit limited to accidental death or return of premiums in the first 1/2 years

Figure 2 shows the percentages of business written on a fully underwritten and simplified issue basis in rank order. As above, you can see that the fully underwritten business ranges from 3% for Croatia to 95% for Israel.

**Figure 2 – Rank Order of Use of Fully Underwritten and Simplified Issue Business**

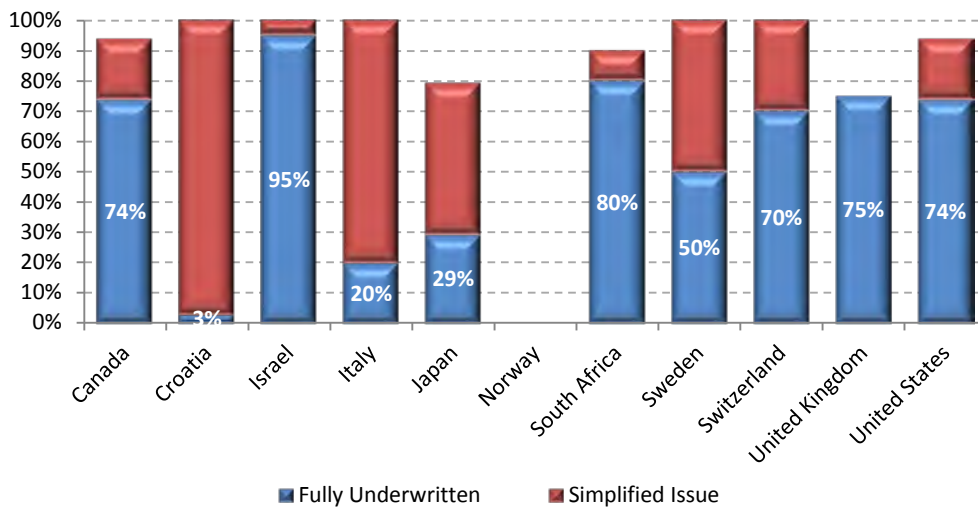


Figure 3 shows the percentage of business written for each country with and without a medical exam. It also shows the percentage of business written without medical questions. The percentage of business written with a medical exam ranged from 3% in Croatia to 90% in South Africa. The reason for the high percentage in South Africa is due to the high prevalence of HIV. Five countries indicated writing a certain percentage of their business without medical questions. These countries were Canada, Japan, South Africa, UK, and USA.

**Figure 3 – Use of Medical Exams**

	Medical/paramedical Exam	No Exam	No medical questions
<b>Australia</b>			
<b>Canada</b>	49%	51%	6%
<b>Croatia</b>	3%	97%	0%
<b>India</b>	80%	20%	0%
<b>Israel</b>	40%	60%	0%
<b>Italy</b>	20%	80%	0%
<b>Japan</b>	20%	80%	21%
<b>Latin America/Caribbean</b>	49%	51%	6%
<b>Mexico</b>	15%	85%	0%
<b>Norway</b>			
<b>Russia</b>	87%	13%	0%
<b>South Africa</b>	90%	10%	10%
<b>Sweden</b>	15%	85%	0%
<b>Switzerland</b>	70%	30%	0%
<b>United Kingdom</b>	20%	80%	25%
<b>United States</b>	49%	51%	6%

Figure 4 shows the use of a large number of underwriting questions. The questions are summarized in the following broad categories. The sub-bullets show the questions used by at least 9 of the 11 countries.

- General
  - Name
  - Address
  - Gender
  - Occupational details
  - Signature
- Habits
  - Smoking habits
  - Drinking alcohol, consumption habits
  - Drug use
  - Criminal history
- Plan Details
  - Pastimes, hazardous pursuits
- Medical Details – General
  - Full medical history
  - Family history
- Medical Exams
  - Blood sample
  - Urine sample
- Medical Vitals
  - Height
  - Weight
- Performer of Exam

The questions used by all 11 countries were:

- Name
- Full medical history
- Family history

Figure 4 shows the country by country detail.

**Figure 4 – Underwriting Questions**

Category	Indicator	Canada	Croatia	Israel	Italy	Japan	Norway	South Africa	Switzerland	Sweden	USA	UK	TOTAL
General	Name	X	X	X	X	X	X	X	X	X	X	X	11
General	Address	X	X	X	X		X	X	X	X	X	X	10
General	Gender	X	X	X	X	X	X	X	X		X	X	10
General	Date of birth	X	X	X	X	X	X	X	X		X	X	10
General	Occupational details*	X	X	X	X	X		X	X	X	X	X	10
General	Phone number	X	X	X			X	X			X	X	7
General	Identity/Social Security number	X	X	X			X	X		X	X		7
General	Residency Status/Citizenship	X	X		X			X	X		X	X	7
General	Financial information, including at least income (bankruptcy)	X		X	X		X	X	X		X		7
General	Marital Status							X				X	2
General	Drivers license number for Motor Vehicle Report (MVR) check	X									X		2
General	Email							X				X	2
General	Highest Educational Qualification						X	X					2
General	Language							X					1
General	GP details											X	1
General	Banking details and Premium payer details							X					1
General	Purpose of Insurance							X					1
Habits	Smoking habits	X	X	X			X	X	X	X	X	X	9
Habits	Drinking/alcohol consumption habits	X	X	X			X	X	X	X	X	X	9
Habits	Travel (future)							X				X	2
Habits	Average Distance Travelled per annum							X					1
Plan Details	Pastimes/hazardous pursuits (e.g., aviation, avocations, scuba diving)	X	X	X	X			X	X	X	X	X	9
Plan Details	Signature	X	X	X	X		X	X	X	X	X		9
Plan Details	Other coverage, including whether it is going to be replaced	X		X	X		X	X	X		X	X	8
Plan Details	Owner	X	X	X	X			X	X	X	X		8
Plan Details	Beneficiary	X	X	X	X			X	X	X	X		8
Plan Details	Authorization to collect additional information	X	X	X			X	X	X	X	X		8
Plan Details	Whether the applicant has ever been denied coverage	X		X				X	X	X	X	X	7



Category	Indicator	Canada	Croatia	Israel	Italy	Japan	Norway	South Africa	Switzerland	Sweden	USA	UK	TOTAL
Plan Details	Plan information, including riders	X	X	X				X	X		X		6
Medical Details - General	Full medical history	X	X	X	X	X	X	X	X	X	X	X	11
Medical Details - General	Family history	X	X	X	X	X	X	X	X	X	X	X	11
Medical Details - General	Alcohol/Drug consumption	X			X			X				X	4
Medical Details - General	Positive test for HIV, Hepatitis B or C.			X				X				X	3
Medical Details - General	Exposure to HIV			X								X	2
Medical Details - General	Sexually transmitted disease											X	1
Medical Exams	Blood sample	X	X	X	X	X		X	X	X	X		9
Medical Exams	Urine sample	X	X	X	X	X		X	X	X	X		9
Medical Exams	Serum cotinine test for non-smokers			X				X					2
Medical Exams	HIV test			X				X					2
Medical Vitals	Height	X	X	X	X	X		X	X	X	X	X	10
Medical Vitals	Weight	X	X	X	X	X		X	X	X	X	X	10
Medical Vitals	Blood pressure	X	X	X		X		X	X	X	X		8
Medical Vitals	Pulse	X	X	X				X	X	X	X		7
Medical Vitals	ECG			X		X							2
Medical Vitals	Random cholesterol			X				X					2
Medical Vitals	Gamma GT			X				X					2
Medical Vitals	Random blood sugar			X				X					2
Performer of Medical Exam	Dr	X	X	X				X	X	X	X	X	8
Performer of Medical Exam	Paramedical	X						X			X	X	4
	TOTAL	31	25	35	19	12	15	44	26	21	30	26	49

### 3. Underwriting Tools

There are many potential underwriting tools available as can be seen by the summary and more detailed explanation below. Rules based engines, not mentioned consistently as an underwriting tool, reflect usage in underwriting cases that have been reduced to numerical values and can be handled under automatic underwriting processes.

In addition to an application, which is a staple for all countries, additional investigative tools are requested either regularly or based on plan, issue age and amount or incident of profile. Blood, urine and EKG requirements are utilized in every country that responded, but not on every case. Typically higher levels of coverage warrant more thorough investigation for comprehensive evaluation. Norway did not respond to this question.

Depending on the type of coverage, the application or proposal requirement may range from a full/standard application, to a shorter form with fewer questions for simplified issue or rules engine processing, to a short application without medical questions for the guarantee issue market.

Figure 5 summarizes the underwriting tools used in each country.

The most common requirements (90% or more utilization) include:

- Blood test
- Urine test
- Electrocardiogram and/or Exercise stress test (EKG/EST)
- Statement from an attending physician
- Financial verification

Canada and the USA have very similar underwriting approaches.

Tools used by only 1-2 countries include:

- Oral fluid – Canada and USA
- Motor Vehicle Record (MVR) – Canada and USA
- Pharmacy check – USA
- Ultra Sound Scan – Croatia and Italy
- Age verification using electoral database records - India
- Passport copy, visa type and entry stamp – Latin America/Caribbean
- Canada and Latin America have additional questions for Politically Exposed Persons who may have a threat of kidnapping or assassination
- An echocardiogram can be requested for underwriting evaluation in Russia.

Abbreviations used in Figure 5, not already defined, include:

- APS/R – Attending Physician Statement/Report
- PMAR – Personal Medical Attendant's Report
- Tele App – Application completed by telephone Part 1 or 2 or both
- PFT – Pulmonary Function Test
- KFT – Kidney Function test
- TMT/EST – Treadmill Test/Exercise Stress Test

#### Market Registers

The Medical Information Bureau (MIB) is used exclusively in Canada, Mexico, the USA and some areas of Latin America. Canada and USA searches are limited to seven years. Norway has a national register to identify those

previously denied coverage (ROFF); the information is available for 10 years. The UK has a number of services to choose from, insurers can select some or all. Since no one register may contain all records it is prudent to gain membership in each.

### **Predictive Modeling**

There were no comments on the newly developed predictive underwriting models that are starting to gain ground in the USA.

### **Challenges**

The insurance industry can sometimes collect a significant level of data in order to complete the risk assessment; however collection of information and documentation can be challenging to obtain. Still a staple in the risk assessment toolkit, comprehensive medical records can be difficult to obtain in some markets because record keeping is neither systematic nor detailed. In many instances an attending physician will provide only a handwritten narrative with scant detail. (Latin America); India rarely seeks records due to record keeping concerns. There are no APS retrieval services in any of the Latin American/Caribbean countries.

In a few countries, there is no vendor support, standardized paramedical services, testing centers for medical examinations, financial paper trails nor trustworthy sources. In India, getting tax returns for self-employed individuals is challenging; the life insurance industry will accept reports from surrogates who provide financial and net worth documentation.

Laboratory services can vary widely between countries, from tight quality controlled state of the art environments to questionable handwritten reports reflecting results that may not have been properly analyzed. A majority of countries in Latin America do not have access to an insurance laboratory and have to make do with dubious lab reports. These labs are usually for clinical use and lack reflexive testing and the facilities to house specimens for retests. USA kits are used where permitted; some countries ban the kits or impose high custom duties.

Motor Vehicle recordkeeping is not available in every market, so there is no way to capture this type of hazard data; where available, the reports can be costly and do not represent an attractive cost-benefit model.

Not all countries experience success with the telephone application model; customers can be reluctant to share personal, medical and financial data to a person on the phone fearing future personal risk of extortion or kidnapping.

Unisex underwriting standards became sanctioned in the EU beginning 21 December 2012. Companies that fall under the EU regulation are reexamining their requirements to meet the standard while providing protective value.

## Figure 5 – Underwriting Tools

For a better explanation of any of these tools, please see the Appendix.

	Blood	Urine	EKG	Full Exam or vitals	TMT, EST	Chest X-Ray	PFT	Oral Fluid	Ultra Sound Scan	APS or PMR	Fin'I	Tele App/ Tele UW	Inspection Interview	Pharmacy Check	MVR
Australia	X	X	X	X	X					X	X				
Canada	X	X	X	X	X	X		X		X	X	X	X		X
Croatia	X	X	X	X					X	X	X				
India	X	X	X	X	X	X					X	X	X		
Israel	X	X	X	X	X					X	X	X			
Italy	X	X	X		X	X			X	X	X				
Japan	X	X		X	X	X				X	X				
Latin America/ Caribbean	X	X	X	X						X	X		X	Used for customers in US market only	
Mexico	X	X	X							X	X		X		
Norway										X		X			
Russia	X	X	X	X	X	X				X	X				
So. Africa	X	X	X	X			X			X	X	X			
Sweden	X	X	X		X	X	X			X	X	X			
Switzerland	X	X	X		X		X			X	X	X			
UK	X	X	X	X			X			X	X	X			
USA	X	X	X	X	X		X	X		X	X	X	X	X	X
Percentage	100%	100%	100%	73%	67%	40%	33%	13%	13%	93%	93%	60%	33%	13%	13%

### Testing Protocols

Specific testing by country is shown in Figures 6-8. These figures illustrate that certain tests are used by all countries (except Norway that didn't respond to this question<sup>1</sup>) and include the following (all from Figure 6):

- Serum Glucose/Diabetes
- Kidney Function
- Lipid Panel
- Liver Function
- Detect tobacco usage

A few tests and examinations not widely used include:

- eGFR, ordered as a screening requirement – South Africa and Australia;
- Screening breast exam ordered in certain age/amount groups – Australia
- Thyroid T3, T4 and TSH tests – Russia
- Internist Examination-When the extent of a disease or impairment is not known, an underwriter can request an examination by an internal medicine specialist; paramedical exams are not used – Croatia
- Ultrasound scan-used as a screening tool, usually for large amounts of coverage – Croatia

Testing is primarily focused on liver and kidney function, lipids, blood glucose levels, cotinine detection and presence of HIV. Testing can involve a full panel or a single representative reading. Blood testing can go beyond routine organ screening and include CBC with differentials, PSA, thyroid tests and ESR depending on level of coverage and product type.

<sup>1</sup> I think Norway might order tests which they refer to as "additional examinations" need to clarify

**Figure 6 – Underwriting Profile Tests**

GENERAL SCREENING	Diabetes	Kidney Function	Lipids	Livers Function	HIV	PSA
Australia	X	X	X	X	X	X
Canada	X	X	X	X	X	X
Croatia	X	X	X	X		
India	X	X	X	X	X	X
Israel	X	X	X	X	X	
Italy	X	X	X	X	X	X
Japan	X	X	X	X	X	
Latin America/ Caribbean	X	X	X	X	X	
Mexico	X	X	X	X	X	X
Russia	X	X	X	X	X	X
So. Africa	X	X	X	X	X	X
Sweden	X	X	X	X	X	X
Switzerland	X	X	X	X	X	X
UK	X	X	X	X	X	X
USA	X	X	X	X	X	X
Percentage	100%	100%	100%	100%	93%	73%

**Figure 7 – Specific Tests:** KIDNEY FUNCTION and OTHER TESTS

KIDNEY FUNCTION and OTHER TESTS	KFT: BUN	KFT: Creatinine	Lipids-Chol	Lipids: HDL	Lipids: LDL	Lipids: Trig..	Hgb. A1c	CBC	eGFR	Thyroid Gland
Australia	X	X	X	X	X	X	X		X	X
Canada	X	X	X	X	X	X	X			
Croatia		X	X	X	X	X				
India	X	X	X	X	X	X	X	X		
Israel	X	X	X	X	X	X	X			
Italy	X	X	X	X	X	X	X			
Japan	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP
Latin America/ Caribbean	X	X	X	X	X	X	X			
Mexico	X	X	X	X	X	X	X			
Russia	X	X	X	X	X	X	X			X
So. Africa	X	X	X	X	X	X	X		X	
Sweden		X	X	X	X	X				
Switzerland		X	X	X	X	X	X			
UK	X	X	X	X	X	X	X			
USA	X	X	X	X	X	X	X	X		
Percentage	79%	100%	100%	100%	100%	100%	86%	14%	14%	14%

**Figure 8 – Specific Tests:** LIVER FUNCTION TESTS

LIVER FUNCTION TESTS	LFT: Alk Phos	LFT: Bilirubin	LFT: AST/SGOT	LFT: ALT/SGPT	LFT: GGT	LFT: Albumin	LFT: Globulin	LFT: Hepatitis
Australia	X	X	X	X	X	X		X
Canada	X	X	X	X	X	X	X	X
Croatia		X	X	X	X			
India	X	X	X	X	X	X	X	X
Israel	X	X	X	X	X	X		
Italy	X	X	X	X	X	X	X	X
Japan	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP
Latin America/ Caribbean	X	X	X	X	X	X	X	
Mexico	X	X	X	X	X	X	X	
Russia	X	X	X	X	X	X	X	X
So. Africa	X	X	X	X	X		X	
Sweden	X	X	X	X	X	X	X	X
Switzerland	X	X	X	X	X	X	X	
UK	X	X	X	X	X	X	X	
USA	X	X	X	X	X	X	X	X
Percentage	93%	100%	100%	100%	100%	86%	79%	50%

Figure 9 show the various urine tests used. Only three countries utilize all listed tests: Canada, UK and USA. Not every country screens for nicotine or legal/illegal drug usage in the urine specimen. Kidney and bladder function are the primary reason for obtaining a urine screen along with tobacco usage.

**Figure 9 – Urine Testing**

URINE SCREENING	Cotinine	Cocaine/Drugs	Medicines	Kidney Function	Diuretics	Blood	Protein	Glucose	Infections
Australia	X			X		X	X		X
Canada	X	X	X	X	X	X	X	X	X
Croatia				X					X
India	X			X				X	X
Israel	X			X					X
Italy	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP
Japan							X	X	
Latin America/ Caribbean	X	X	X	X	X	X			X
Mexico	X	X	X	X		X			
Russia				X		X			X
So. Africa	X	X		X			X	X	
Sweden				X					
Switzerland	X		X	X					
UK	X	X	X	X	X	X	X	X	X
USA	X	X	X	X	X	X	X	X	X
Percentage	71%	43%	43%	93%	29%	50%	43%	43%	64%

Only Canada and the USA utilize oral fluid testing, usually in conjunction with simplified issue products. Screening normally includes nicotine, cocaine, GGT and HIV. This test is rarely used for preferred risk classification.

There are a number of sources that can be contacted during an inspection report. Figure 10 shows these items and those that are used by each country. The most common sources are the consumer themselves and tax records.

Most inspections are held directly with the customer; additional sources may be contacted depending on the level of coverage. The majority, 10 of 15 countries, also verified income through tax records and rarely through banking, credit and other sources.

Some countries will follow the reinsurer’s guidelines in determining investigation level.

**Figure 10 – Inspection Report Sources of Information**

INSPECTIONS	Customer	References	Banker	Accountant	Legal	Credit	Criminal	Tax Records	Questionnaire
Australia	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP
Canada	X		X		X	X		X	X
Croatia									X
India	X	X		X				X	X
Israel	X	X						X	
Italy	X								X
Japan	X							X	
Latin America/ Caribbean	X								
Mexico									
Russia	X							X	
So. Africa *	X	X	X	X	X	X		X	
Sweden	X							X	
Switzerland	X							X	
UK	X	X	X	X				X	
USA	X	X	X	X	X	X	X	X	X
Percentage	86%	36%	29%	29%	21%	21%	7%	71%	36%

\*Used more for high sum assureds or business cover

The following provides additional information and commentary on underwriting requirements by country.

#### Canada

- Attending Physician Statement/Report (APS/R)
  - The complete medical file is generally not sent and only a summary is provided by the doctor with supporting documentation.
  - If it is a high net worth case, the insurer can request the full medical file for at least the past 5-7 years.
- Inspection Report
  - The vendor also contacts banking, legal and credit providers for their history with the applicant.



## Croatia

- Ultrasound scan
  - External ultrasound scan allows doctor to look more closely at organs such as the heart or womb and detect the problems.
  - It is usually used for large amounts of coverage.
- Internist examination
  - When the extent of a disease or impairment is not known, an underwriter often asks an internal medicine specialist examination to get a clearer picture of the situation.
  - The aim of the internist examination is to provide the underwriter with the additional information needed to make a rating decision on the proposed insured
- Financial Records
  - As a rule, Croatian companies use financial questionnaires drawn by their reinsurers.

## Israel

- Personal Medical Attendant's report (PMAR)
  - It is relatively simple to request and has a minimal cost to the insured. Use is also made of specialists' reports; however, these are more difficult to get a hold of and if not already in the possession of the applicant, the applicant may have a lengthy wait for the required appointment.
- Tele-underwriting
  - Tele-underwriting is not widely used; however, there are two direct insurance companies that use it.
  - Other companies use a form of tele-underwriting for their mortgage business.

## Italy

- Attending Physician Statement
  - Additional information from a trusted doctor nominated by the company or from the family doctor.
- Abdominal Ultrasound
  - Abdominal ultrasound is an imaging procedure used to examine the internal organs of the abdomen, including the liver, gallbladder, spleen, pancreas and kidneys.
  - The blood vessels that lead to some of these organs can also be looked at with ultrasound.
- Financial questionnaire
  - Different kind of covers are underwritten with different questionnaires:
    - Personal cover questionnaire (family protection).
    - Business cover questionnaire (key man, partnership/share protection).
  - For business owners, financial underwriting is primarily done to make sure that the income and net worth are consistent with the amount of insurance in force and applied for.

## Norway

- Investigation
  - Full set of medical questions, but no exam.
  - Anyone applying for life insurance cannot be sick at the time of application.
  - For high sum insured, it might be necessary to ask the applicant to have additional medical examinations (through their personal MD?).
- NEMNDA
  - The purpose of the committee for health assessment (NEMNDA) is to establish a system for the best possible professional assessment of death, disease and disability associated with diseases, disorders, blemishes and lifestyle.
  - Evaluations are related to insurance applications with a view to determining the most appropriate insurance risk before signing the contract.
  - In special cases, the assessment may apply to compensation.
  - NEMNDA prepares updated guidelines that provide guidance about how different health conditions affect or do not affect mortality, morbidity and disability.
  - They also provide recommendations on how this should be handled in relation to an insurance application.
  - NEMNDA also makes recommendations to the assessment of individual applications for insurance of difficult medical grades and for compensation when necessary.

## South Africa

- ASISA register
  - This is a register compiled by Association of Saving and Investments South Africa (ASISA, an industry body) of all lives assured in the market who have been loaded previously for insurance.
- ASTUTE
  - This is an industry wide database that checks the existing policies in the market for the life assured.
- Lipid screen
  - Generally only total cholesterol and HDL (High Density Lipoproteins) are used.
- Urine specimen
  - Drug profile – tests for cannabis, cocaine and other drugs like Ecstasy.
  - Can be an indicator for diabetes (glycosuria) or cancer (haematuria).

## Sweden

- Hepatitis screen A, B, and C.

## United Kingdom

- General Practitioners Report (GPR)
  - When the extent of a disease or impairment is not known, an underwriter often requests a GPR to get a clearer picture of the medical situation.

- The advantage of a GPR is it generally provides the underwriter with the additional information needed to make a medical underwriting decision on the proposed insured.
- The disadvantages of ordering a GPR are that it generally takes at least 20-30 days to receive, slowing the issue process, and it can be a costly process.
- Subject Access Request (SAR)
  - Used as an alternative to a GPR whereby the insurer uses Data Protection legislation to request, on behalf of the applicant, a full copy of medical records held by the GP.
  - Use is controversial but perceived advantages are a fuller medical history and faster turnaround speed.

## United States

- Fraud Detection
  - US based vendors are refining fraud detection services in addition to the Medical Information Bureau. As fraudulent activity increases there is a strong need to identify patterns and trends that point to fraudulent activity.

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#### 4. Market limits

This section was focused on high level market limits as they pertained to Body Mass Index (BMI) obesity.

##### Definition of Obesity

The definition of obesity is the excessive distribution of adipose tissue which increases the risk of cardiovascular disease, cancer and disability. It can be defined as being 20% or more above recommended body weight but the World Health Organization (WHO) has produced a set of definitions for overweight and obesity in adults based upon the Body Mass Index (BMI). A BMI of 30 or above is regarded as obesity. The BMI (also known as the Quetelet's Index) is measured as  $\{\text{weight}/(\text{height})^2\}$  where weight is measured in kilograms, and height in meters (alternatively the weight in pounds can be multiplied by 704 and then divided by the square of the height in inches).

Average body weight and the distribution of BMI varies between ethnic groups and populations and the relationship between relative disease risk and BMI also varies. As a result, the concept of being underweight or overweight will vary accordingly, particularly in light framed populations in East Asia and the Indian subcontinent.

The International Diabetes Institute (IDI) has proposed a separate definition for overweight and obesity in Asian populations. Both the WHO definitions and the IDI recommendations are provided in Figure 11:

**Figure 11 – BMI Limits**

Obesity class	BMI	
	Current WHO	Proposed Asian
Underweight	< 18.5	< 18.5
Normal	18.5 – 24.9	18.5 – 22.9
Overweight	25.0 – 29.9	23.0 – 24.9
Obesity class:		
I	30.0 – 34.9	25.0 – 29.9
II	35.0 – 39.9	> 30.0
III (Morbid obesity)	> 40.0	

However up to five broad population (country) BMI distribution groups have been identified ranging from the countries with the most obesity such as the United States through to countries in East Asia where the population have light frames. The groups, ranging from the lightest to the heaviest, are as shown in Figure 12:

**Figure 12 – Rank of Geographical Areas by BMI/Weight (from lightest to heaviest)**

Group	BMI region
5	East Asia, including Southeast Asia
4	Indian subcontinent
3	Switzerland, Europe (low risk), Middle East, Rest of Africa
2	United Kingdom, Canada, Ireland, North & Eastern Europe, Australia, New Zealand, Rest of the Americas, South Africa (females)
1	USA (males and females), South Africa (males)

Source: Swiss Re

There is increasing interest in measures of abdominal adiposity as this may provide a better method of assessing cardiovascular risk than BMI. Waist circumference, the waist to hip ratio and waist to stature (height) have been suggested as ways to estimate abdominal fat. A waist circumference > 102 cm (> 40 inches) in men and > 88 cm (>35 inches) in women have been proposed by the National Institutes of Health in America as representing

increased risk and these have been incorporated into the National Cholesterol Education Program (NCEP) definition of the metabolic syndrome. Lower waist circumferences are recommended for use in the Indian sub-continent and the Far East. However studies that have compared BMI and measures of abdominal obesity show that adding waist circumference or waist to hip ratio to BMI has little additional effect on the quantification of the mortality or morbidity risk except in the normal to modestly overweight range.

### **BMI and Life Insurance**

For insurance purposes, the estimates of risk associated with obesity are based on mortality studies and the BMI distribution in the insured population. For mortality, the range of increased BMI acceptable at standard rates is relatively wide but there is a log linear increase in IHD and stroke risk with increasing BMI above 20 in those populations studied and there is an increase in the risk of some cancers and accidental death risk. By contrast being overweight is not associated with premature death in old people (in old people the mortality risk attenuates with obesity). Being underweight and elderly carries an increased mortality and morbidity risk. Disability rates are higher in overweight and obese people at all ages.

### **Underwriting practices related to obesity for selected countries**

All of the responses given indicate that companies charge an additional premium for obesity and that this is based on BMI. The rating factors to be applied to different BMI levels do show differences between markets and between companies within an individual market.

It is clear that the global reinsurers are heavily influencing the rating of obesity. The responses from Israel, South Africa, Switzerland, and the UK make specific reference to ratings following the various reinsurers underwriting manuals. Although other countries do not mention reinsurers specifically it is likely that the reinsurers have influence and indeed will look for appropriate ratings for lives with elevated BMI as this business is reinsured to themselves.

Companies in a single market will show some variation in rating for obesity in particular for which lives are offered standard rates versus those who are required to pay an additional premium. The specific comment that "companies use different BMI cutoff levels for their standard and substandard risk classes" was made in the responses from Canada, Croatia, Israel, Italy, South Africa, Sweden, UK, and USA. The USA would also use BMI cutoff level for preferred lives. It was also mentioned by Sweden that any market standardization would be seen as a cartel decision.

Whilst the BMI index is the main driver for the obesity rating other factors may also influence the underwriting decision. For example, in Japan sex and age will also be taken into account.

The amount of cover available may also be limited to those with a higher BMI. This was specifically mentioned by Norway who indicated that higher BMI would result in an additional premium, limited coverage, or a decline.

In respect of terminology the terms "overweight" or "obese" are not used in underwriting in Canada, Croatia, and the USA.

## 5. Regulatory Issues

Countries were asked about any anticipated regulatory issues and whether genetic testing was allowed and done. In summary, the only regulatory issues mentioned were by Israel regarding equal opportunities for disabled lives and by the European countries regarding the EU (European Union) anti-discrimination by gender.

Regarding genetic testing, it is generally either: (1) not allowed, (2) not allowed unless the applicant brings it forward, or (3) allowed only above certain sums assured.

Details on a country by country basis are shown below.

### Australia

- Regulatory
  -
- Genetic testing
  -

### Canada

- Regulatory
  - No known regulatory issues that may impact underwriting by 2013.
- Genetic testing
  - Would not require applicant to undergo.
  - If testing done and info available from applicant or applicant's doctor, would request it.

### India

- Regulatory
  - In many insurance products, the insurance amount is a multiple of the premium. Effective October 1, 2013, the regulator has amended the product guidelines and the minimum insurance amount available to the applicant has been enhanced across all products.
  - This creates the need for more judicious underwriting and may lead to reassessment of the medical grids and non-medical limits across insurance companies.
- Genetic testing
  - ?

### Israel

- Regulatory
  - Insurance Commissioner is very active, concern about unequal opportunities for disabled applicants.
- Genetic testing
  - In general, prohibited to request genetic testing or results of genetic testing for underwriting purposes.
  - If applicant provides such results on a voluntary basis, there is a dispute whether these results may or may not be taken into consideration.

## Italy

- Regulatory
  - EU Anti-Discrimination – Equal treatment between men and women in pricing, premiums and underwriting.
- Genetic testing
  - Not allowed by national laws.
  - Tests only allowed to predict genetic diseases upon applicant's explicit request.
  - Doctors can do predictive genetic tests for insurance or occupational purposes only if requested by owner.

## Japan

- Regulatory
  - None.
- Genetic testing
  - None done, but it is not prohibited by law.

## Latin America/Caribbean

- Regulatory
  - None.
- Genetic testing
  - Currently, no genes are tested in the life insurance underwriting process, but there are also no regulations with respect to genetic testing for life insurance.

## Mexico

- Regulatory
  - In 2012, the discrimination law was approved.
  - It implies that no company could reject a person only for the reason of his disability.
  - Companies are now more careful with how they should reject an applicant.
- Genetic testing
  - Prohibited.

## Russia

- Regulatory
  - No known issues that may impact underwriting in 2013.
- Genetic testing
  - Currently, no genes are tested in the life insurance underwriting process, but there are also no regulations with respect to genetic testing for life insurance.

## Sweden

- Regulatory
  - EU Anti-Discrimination – Equal treatment between men and women in pricing, premiums, and underwriting.
- Genetic testing
  - Currently no genes are tested in the life underwriting process.
  - Regulation prohibits company from asking applicant if they have done a genetic test if the sum insured is below \$192,500 (EUR 150,000).

## Switzerland

- Regulatory
  - None.
- Genetic testing
  - Currently no genes are tested in the life underwriting process.
  - Regulation prohibits company from asking applicant if they have done a genetic test up to a certain sum insured.

## United Kingdom

- Regulatory
  - EU Anti-Discrimination – Equal treatment between men and women in pricing, premiums, and underwriting.
- Genetic testing
  - It is acceptable to ask questions about immediate family history.
  - Applicants are only required to share a positive result of specified genetic tests in very limited circumstances – the only positive test result that must be declared is Huntington's disease and only if the sum assured exceeds \$801,250 (GBP 500,000).
  - Applicants may share negative results if they so choose and insurer may use this to alter their decision.
  - These rules will last until 2017 and will next be reviewed in 2014.

## United States

- Regulatory
  - None.
- Genetic testing
  - Currently no genes are tested in the life underwriting process.
  - No current regulations with respect to genetic testing and life insurance.



## 6. Potential new approaches to life underwriting

We asked about potential future developments regarding life underwriting within each country. Approaches to life underwriting vary enormously between countries. They are dependent on past practice, legislation, sales channel, competition and acceptability. Even in countries with the most developed underwriting systems, an approach that is commonly used in one country may be illegal, impractical or unacceptable in another.

"New Approaches" could include the following:

- Preferred underwriting
- Tele-interviewing and tele-underwriting
- Standard forms that can be electronically transmitted to a variety of insurers
- Electronic underwriting systems
- Expert systems
- Use of national databases (e.g. prescription databases)
- Financial underwriting using (e.g., tax records)
- Older age underwriting (e.g., the use of cognitive and functional testing)
- Use of social media information

In many countries, innovation in underwriting is led by the reinsurers, who develop systems, processes, and manuals to support their preferred basis.

The following summarizes individual countries' submissions on this subject.

### Australia

- None mentioned.

### Croatia

- None mentioned.

### India

- Tele-underwriting is likely to be used more frequently in the next few years.
- There is scope for social media information to be used for underwriting.

### Latin America/Caribbean

- There was a list of items newly used in Latin America/Caribbean that is consistent with the items listed below for the United States.

### Mexico

- None mentioned.

### Norway

- None mentioned.

## South Africa

- For many years, the South African market has focused on product innovation and therefore the products are fairly advanced and complex in comparison with other markets.
- Currently, there is a definite shift from product innovation to process innovation.
- There has been an increase in the number of companies offering direct insurance in the last few years.
- Tele-interviewing and tele-underwriting are slowly gaining popularity.

## Sweden

- None mentioned.

## Switzerland

- Pilot for Tele-Interviewing (scheduled to start in November 2012).

## United Kingdom

- Preferred underwriting is not offered although, with the aim of offering lower standard rates, insurers writing business through the independent market will now rate a higher proportion of lives and will impose ratings of +25% where previously an applicant may have been accepted at standard terms.
- Insurers are looking to design specific application forms with limited underwriting questions to support particular distribution channels.
- Electronic underwriting systems are increasing in popularity. Providers tend to implement one expert system and develop this over time to improve and increase straight-through processing rates.

The following may be of interest to other countries as examples of existing practices:

- General Practitioner's Report (GPR)
  - When the extent of a disease or impairment is not known, an underwriter often requests a GPR to get a clearer picture of the medical situation.
  - The advantage of a GPR is it generally provides the underwriter with the additional information needed to make a medical underwriting decision on the proposed insured.
  - The disadvantage of ordering a GPR is that it generally takes at least 20-30 days to receive, slowing the issue process, and it can be a costly process.
- Subject Access Request (SAR)
  - Used as an alternative to a GPR whereby the insurer uses Data Protection legislation to request, on behalf of the applicant, a full copy of medical records held by the GP.
  - Use is controversial but perceived advantages are a fuller medical history and faster turnaround speed.

- Tele-underwriting
  - There are different types of tele-underwriting. In general, tele-underwriting is where someone calls the proposed insured to either confirm information provided on the application or to the medical / paramedical examiner.
  - The call may also be used to find out more information.
  - It is always done by phone.
  - The caller who makes the calls can be from the insurance company or from an outside vendor.
  - The caller is usually knowledgeable about medical conditions and knows how to interact with customers.
  - Tele-underwriting answers are usually more honest than from other sources because the proposed insured generally feels more comfortable discussing medical issues with someone who has a medical background. Also, they sometimes don't want to admit an impairment to an agent, whom they might know personally, because it might be embarrassing.
  - When additional questions are asked of the applicant, there is usually a script and pre-programmed questions that pop up on the caller's screen, depending on how the previous question was answered. These are called drill-down questions and are designed to determine the extent of the impairment that was mentioned on the application.
- ECG, Treadmill
  - An ECG (or EKG) is an electrocardiogram or a resting test of the heart.
  - The treadmill test is a stress test to determine whether there are any irregular heart patterns.
  - These are typically performed on older applicants and those applying for large amounts of coverage.
- Financial Records / Tax Forms
  - Financial underwriting is primarily done to make sure that the income and net worth are consistent with the amount of insurance in force and applied for.
  - This evidence would include a financial questionnaire detailing specific information regarding the applicant's income, existing cover, and purpose of the proposed cover.
  - The insurer may need to see reports and accounts, loan offers, or tax returns depending upon the need for the cover.

## United States

These are not new in the USA, but may of interest to other countries:

- Preferred underwriting
  - The key elements of preferred underwriting are used by most companies.
  - These have generally remained the same since preferred underwriting began in the USA in the late 1980s / early 1990s.

- The key elements of preferred risk underwriting include a profile related to:
  - Alcohol and drug abuse
  - Blood pressure
  - Build
  - Cholesterol
  - Family history
  - MVR
  - Personal medical history
  - Tobacco use
  - Other – Aviation, avocations, citizenship, hazardous activities, and foreign travel and residence
  
- While the elements themselves haven't changed much over the years, what has changed are the number of classes and the cutoff levels of each for the specific criteria. The number of risk classes has increased. With this increase, the cutoff levels have moved both up and down, depending on the company, product and risk class.
  
- Another more recent change is that some companies have moved from a knockout approach to a debit/credit approach.
  - A knockout approach is where an applicant does not qualify for a particular risk class if they do not meet one or more of the cutoff levels for the full set of criteria.
  - A debit/credit approach is one where a point system is used for good and bad levels for the criteria. At the end, the points are summed and the point total determines which risk class into which the applicant is placed.
  - There are also hybrid systems which include a combination of knockout and debit/credit. In fact, most debit/credit structures have some element of knockout in them.
  
- Another more recent development is that some companies allow exceptions to the published guidelines.
  - These exceptions are sometimes published and sometimes kept internally to be applied to the criteria.
  - The types of exceptions allowed vary considerably.
  
- Older age underwriting - Older age underwriting programs in the USA may include one or more of the following:
  - Cognitive testing – Test for dementia and other cognitive impairments.
  - Functional testing – Test for frailty.
  - Changes to the traditional levels of underwriting acceptance – Lower readings on blood pressure, cholesterol, and weight, for example, could be indicative of more serious problems than higher readings for the elderly
  - Supplemental questionnaire – This may include questions on such things as social, mental and physical activities, activities of daily living, living arrangements and travel.

## 7. Measuring the Impact on Mortality Experience

We asked about the work done in measuring the impact of different underwriting methods on mortality.

No public comprehensive studies measuring the impact of underwriting on mortality experience are available in any market. Protective value studies and studies directly measuring the experience of the various types of underwriting are being done by individual companies in Canada and the USA. These proprietary studies are not shared publicly. Nevertheless, the industry is very interested in furthering this work, as evidenced by an initial attempt by the Society of Actuaries to provide forward looking evaluations of the potential use of medical markers provided through blood testing laboratories in the USA market. That paper also provides a methodology for establishing a cost-benefit analysis of the more promising lab tests.

Moving one step further away from actual underwriting risk evaluation tools, industry experience studies exist in many markets. In many cases, those studies can be used to establish a broad relative value of the various categories of underwriting, such as well underwritten (with medical exams, blood tests, etc.) vs. various more simplified underwriting approaches. Various underwriting tools are often used within face amount ranges. The tools tend to become more extensive as face amounts increase. Therefore, experience by face amount bands is often a reasonable surrogate for establishing the value of underwriting tools.

Countries in which actuarial associations or government agencies conduct and publish frequent industry mortality studies include:

- Canada
- Japan
- Mexico
- United Kingdom
- United States

In addition, the Society of Actuaries has developed an International Experience Study program which assists countries in conducting local market mortality experience studies. Studies have been published for several markets, including:

- Argentina
- Brazil
- Caribbean region (in progress)
- Estonia
- Philippines
- Poland
- Vietnam

In Australia, mortality and disability studies are not done by the local Institute. Rather, they are the responsibility of the Financial Services Council (FSC), the lobby group for the industry. In turn the FSC contracted the work to KPMG. However, the participating companies require an embargo period on publishing the data and restrict which information can be made publically available.

## 8. Underwriting as a profession

This section deals with the individuals who do the actual underwriting. We asked six questions and the responses are summarized below.

Who does the underwriting in your country? Choices were actuary, doctor, and underwriter. Respondents were asked to check all that apply.

- All countries indicated the underwriter, with Israel noting actuaries also.

What academic background do underwriters usually have?

- Underwriters come from varied educational backgrounds.
- While there is a formal professional underwriting certification (FALU) available through the Academy of Life Underwriting, it is not currently available in languages other than English, possibly causing some unawareness of its existence.

Is there a formal profession that underwriters belong to?

- Yes – Canada (underwriters belonging to the CIU, the Canadian Institute of Underwriters), India (underwriters belonging to AIU, The Association of Insurance Underwriters), Mexico (underwriters belonging to The Asociacion Mexicana de Seleccionadores), UK, USA (underwriters belonging to AHOU, The Association of Home Office Underwriters)
- No – Australia, Croatia, Israel, Italy, Japan, Latin America/Caribbean (although some may belong to the AHOU in the USA), Norway, South Africa, Sweden, Switzerland

Is there a nationally recognized underwriting qualification?

- The Academy of Life Underwriting program, ultimately resulting in an FALU designation upon completion is not limited to Canada, the UK, and the USA. It is available to any underwriter who wishes to participate.
- The program materials needed for study are available in English, limiting participation by non-English speaking students.

Is there a system of formal, recorded ongoing Continuing Professional Development (CPD)?

- While there is no universal formal continuing education program for underwriters, there are third party providers of formal education for underwriters. Hank George, Inc. would be an example of one of these companies.
- The Academy of Life Underwriting provides education webinars throughout the year, available to underwriters on a variety of topics.
- Most medium to large size companies in the USA provide ongoing continuing education to their staff of underwriters. These may be provided by the in house Medical Director or senior staff members.

- Very large companies in the USA have a dedicated education staff who provide ongoing seminars, along with consistent updating of their underwriting manual to ensure the most current mortality assessments are applied to the daily review of applications.

Are there nationally consistent and recognized “titles” for an underwriter (e.g., junior underwriter, senior underwriter, chief underwriter)?

- The answer to this question may be slightly misleading. There are recognized titles, however, what they mean as far as qualifications vary widely between companies. A title is merely that, not a true representation of an underwriter’s time in the business or necessarily their level of expertise.

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## 9. Appendix – Terminology

South Africa provided the most complete terminology submission and it is included below. Much terminology is the same country to country, but there are also differences. **ADD OTHER COUNTRIES**

DESCRIPTION	CATEGORY
Hobby	General
South Africa	General
Partnership Cover (for shareholders in a business)	General
Simple urine analysis done in the doctors' office	General
body mass index	General
Age Next Birthday	General
South African Revenue Services	General
Closed Corporation	General
Cholesterol profile	General
Protein in urine	General
Blood in urine	General
Lack of blood supply	General
Abnormal heart rhythm	General
The credit bureau which compiles credit reports	General
Tax assessment as confirmed by the receiver of revenue	General
Personal Medical Attendant	General
income continuation benefit	insurance terminology
group life insurance	insurance terminology
dread disease	insurance terminology
group income protection cover	insurance terminology
temporary total disability	insurance terminology
total permanent disability	insurance terminology
whole of life	insurance terminology
group dread disease	insurance terminology
per mill	insurance terminology
severe illness benefit	insurance terminology
modified death benefit	insurance terminology
dread disease	insurance terminology
waiting period	insurance terminology
income protection	insurance terminology
temporary income protection	insurance terminology
lump sum disability	insurance terminology
extra mortality	insurance terminology
long term care	insurance terminology
units per week	underwriting terminology
non smoker	underwriting terminology
family history	underwriting terminology
on examination	underwriting terminology
beats per minute	underwriting terminology
cholesterol	underwriting terminology
circumcision	underwriting terminology
date of birth	underwriting terminology
diagnosis	underwriting terminology
history	underwriting terminology
negative	underwriting terminology
palpation	underwriting terminology
symptoms	underwriting terminology
tachycardia	underwriting terminology
weight	underwriting terminology
calcium	underwriting terminology
cervix	underwriting terminology



diabetes mellitis	underwriting terminology
fracture	underwriting terminology
no abnormality detected	underwriting terminology
on admission	underwriting terminology
patient	underwriting terminology
prescription treatment	underwriting terminology
within normal limits	underwriting terminology
Consumer protection act	legal regulatory
Financial intelligence centre act	legal regulatory
Income tax act	legal regulatory
Solvency Assessment and Management for insurance	legal regulatory
Collective investment schemes control act	legal regulatory
Financial Advisory and Intermediary Services Act	legal regulatory
Pensions fund act	legal regulatory
Professional Conduct Standards South Africa	legal regulatory
Prevention of organised crime	legal regulatory
retirement annuity	financial terminology
property limited	financial terminology
central securities depository	financial terminology
South African revenue services	financial terminology
capital gains tax	financial terminology
closed corporation	financial terminology
public interest score	financial terminology
unit trusts	financial terminology
embedded value	financial terminology
present value of future profiles	financial terminology
adjusted net asset value	financial terminology
International Federation of Gynecology and Obstetrics	organisations/association
Financial services sector	organisations/association
Financial services providers	organisations/association
Financial Advisory and Intermediary Services Act	organisations/association
Gross domestic product	organisations/association
Association for Savings and Investments South Africa	organisations/association
Financial services board	organisations/association
Johannesburg Stock exchange	organisations/association
Bond exchange of South Africa	organisations/association
Internal Arbitrator	organisations/association
Supreme Court of Appeal	organisations/association
Constitutional Court	organisations/association
Medical Underwriting sub committee	organisations/association
South African Society of Insurance Medical Underwriters	organisations/association
South African Insurance Association	organisations/association
association for Collective Investments	organisations/association
life offices association	organisations/association
Linked Investment Services Providers Association	organisations/association
Investment Management Association of South Africa	organisations/association
Bond exchange of South Africa	organisations/association
The South African Futures Exchange	organisations/association
Institute of retirement funds	organisations/association
Banking Association South Africa	organisations/association
Financial Services Ombuds Schemes Act	organisations/association
Actuarial Society of South Africa	organisations/association
Financial Planning Institute	organisations/association
Certified Financial Analyst	organisations/association
National Credit Act	organisations/association
Consumer protection Act	organisations/association
Commissioner for conciliation; mediation and arbitration	organisations/association
World health organisation	organisations/association
Financial Action Task Force	organisations/association

right bundle branch block	cardiology
incomplete right bundle branch block	cardiology
left bundle branch block	cardiology
incomplete left bundle branch block	cardiology
atrial ventricular block	cardiology
ventricular tachycardia	cardiology
Wolff–Parkinson–White syndrome	cardiology
atrio ventricular node	cardiology
sino-atrial node	cardiology
sudden cardiac death	cardiology
Hypertrophic cardiomyopathy	cardiology
coronary artery disease	cardiology
bicuspid aortic valve	cardiology
tetralogy of fallot	cardiology
superior vena cava	cardiology
postural orthostatic tachycardia	cardiology
acute myocardial infarction	cardiology
supraventricular tachycardia	cardiology
transient ischemic attack	cardiology
aortic stenosis	cardiology
aretervenous malformation	cardiology
arteriosclerotic heart disease	cardiology
atrial septal defect	cardiology
congestive cardiac failure	cardiology
inferior vena cava	cardiology
ischaemic heart disease	cardiology
left atrium	cardiology
left ventricle	cardiology
right atrium	cardiology
right ventricle	cardiology
mitral stenosis	cardiology
peripheral vascular disease	cardiology
right sided heart failure	cardiology
supraventricular fibrillation	cardiology
ventral tachycardia	cardiology
valvular heart disease	cardiology
cardiopulmonary resuscitation	cardiology
patent ductus arteriosus	cardiology
patent foramen ovale	cardiology
transposition of the great vessels	cardiology
percutaneous transluminal coronary angioplasty	cardiology
coronary artery bypass surgery	cardiology
echocardiography	cardiology
acute coronary syndrome	cardiology
diabetes mellitus	endocrine
growth hormone	endocrine
adrenocorticotrophic hormone	endocrine
human chorionic gonadotropin	endocrine
parathyroid hormone	endocrine
thyroid stimulating hormone	endocrine
Follicle-stimulating hormone	endocrine
luteinizing hormone	endocrine
insulin-like growth factor	endocrine
erythropoietin	endocrine
multinodular goiter	endocrine
latent autoimmune diabetes in adults	endocrine
prolactin	endocrine
Triiodothyronine	endocrine

maturity onset diabetes of the young	endocrine
Thyroxine	endocrine
impaired fasting glucose	endocrine
somatotropic hormone	endocrine
melanocyte -stimulating hormone	endocrine
somatostatin	endocrine
insulin dependant diabetes mellitus	endocrine
oxytocin	endocrine
non insulin dependant diabetes mellitus	endocrine
vasopressin	endocrine
thyroid releasing hormone	endocrine
dopamine/prolactine inhibiting hormone	endocrine
human chorionic gonadotrophin	endocrine
gastrointestinal system	gastrointestinal
hereditary nonpolyposis colorectal cancer	gastrointestinal
gut-associated lymphoid tissue	gastrointestinal
bowel obstruction	gastrointestinal
irritable bowel syndrome	gastrointestinal
gastroscopy	gastrointestinal
inflammatory bowel disease	gastrointestinal
gastrroduodenal	gastrointestinal
ulcerative colitis	gastrointestinal
gastroenteritis	gastrointestinal
gastrointestinal	gastrointestinal
gastrointestinal system	gastrointestinal
subarachnoid hemorrhage	haematology
autoimmune hemolytic anemia	haematology
sickle cell disease	haematology
major histocompatibility complex	haematology
polymorphinuclear neutrophils	haematology
chediak - higashi syndrome	haematology
arterial blood gas	haematology
blood count	haematology
blood donar	haematology
white blood cell	haematology
complete blood count	haematology
deep vein thrombosis	haematology
polymorphinuclear neutrophils	haematology
red blood cells	haematology
natural killer cells	haematology
human immunodeficiency virus	immune
Epstein-Barr virus	immune
Acquired immune deficiency syndrome	immune
cluster of differentiation 4	immune
C reactive protein	immune
immunoglobulin M	immune
tumor necrosis factor	immune
anti - tumour necrosis factor	immune
non-Hodgkin's lymphomas	lymphatic
mucosal associated lymphoid system	lymphatic
Reed-Sternberg	lymphatic
hairy cell leukemia	lymphatic
non-hodgkin's lymphoma	lymphatic
bilateral hilar lymphadenopathy	lymphatic
Ebstein barr virus	lymphatic
severe combined immunodeficiency disease	lymphatic
acquired combined immunodeficiency disease	lymphatic
mucosal associated lymphoid system	lymphatic

ampule	medical prescriptions
up to	medical prescriptions
twice	medical prescriptions
body surface area	medical prescriptions
capsule	medical prescriptions
bowel movement	medical prescriptions
with food	medical prescriptions
continue same treatment	medical prescriptions
gram	medical prescriptions
per month or orally	medical prescriptions
per rectum	medical prescriptions
use immediately	medical prescriptions
tablespoon	medical prescriptions
teaspoon	medical prescriptions
vaginally	medical prescriptions
without	medical prescriptions
chronic inflammatory bowel disease	medical prescriptions
night	medical prescriptions
morning	medical prescriptions
nil per mouth	medical prescriptions
multiple sclerosis	neurology
amyotrophic lateral sclerosis	neurology
spinal cord injury	neurology
acute nerve irritation	neurology
cranial nerve	neurology
cranial nerve palsy	neurology
dorsal nerve root	neurology
median nerve	neurology
nerve action potential	neurology
nerve conduction study	neurology
nerve palsy	neurology
automatic nervous system	neurology
cerebro vascular fluid	neurology
intracranial pressure	neurology
peripheral nervous system	neurology
human papilloma virus	oncology
Hodgkin's lymphomas	oncology
hairy cell leukemia	oncology
acute lymphoblastic leukemia	oncology
chronic lymphoblastic leukemia	oncology
acute myelogenous leukemia	oncology
chronic myelogenous leukemia	oncology
t cell prolymphocytic leukemia	oncology
Reed-Sternberg	oncology
basal cell carcinoma	oncology
American Joint Committee on Cancer	oncology
Tumour; Node; Metastasis	oncology
tumour in situ	oncology
prostate cancer	oncology
Not assessed	oncology
Not assessed	oncology
cervical intra-epithelial neoplasia	oncology
basal cell Carcinoma	oncology
acute myoblastic leukemia	oncology
tumour in situ	oncology
retinoblastoma	oncology

plaster of paris	orthopaedics
shaft of femur	orthopaedics
shaft of jumerous	orthopaedics
shoulder disarticulation	orthopaedics
osteoarthritis	orthopaedics
cervical spine	orthopaedics
range of movement	orthopaedics
directly observed therapy	other
intercranial pressure	other
randomised control trail	other
body mass index	other
rapid eye movement	other
motor vehicle records	other
daily adjusted life years	other
disease prevelance	other
antibodis neutrofil cytoplasm antigens	other
expanded disability status scale	other
glasgow coma scale	other
traumatic brain injury	other
modified death benefit	other
dihydrotestosterone	other
high intensity focused ultrasound	other
biochemical no evidence of disease	other
multiple chemical sensitivity	other
gestational proteinuric hypertension	other
treating customers fairly	other
stem cell transport	other
bone morrow transplantation	other
hereditary spherocytosis	other
computed tomography	other
management information	other
fine needle aspiration	other
international statistical classification of disease related health problems	other
life time prevelance	other
non-steroid anti inflammatory drugs	other
<b>falls on outstretched hand</b>	other
Asisa service provider agreement	other
time off work	other
functional capacity evaluation	other
Electronic data interchange	other
underwriting	other
over the counter	other
against medical advice	other
disability adusted life years	other
bed rest	other
biopsy	other
deoxyribonucleie acid	other
fetal heart sounds	other
intensive care unit	other
intrauterine device	other
intravennous	other
motor vehicle accident	other
occupational therapy	other
pediatrics	other
rhesus	other
shortness of breath	other
activities of daily living	other
interstitial fluid	other

provisional diagnosis	other
rheumatic fever	other
toxic shock syndrome	other
disease-modifying antirheumatic drugs	other
systemic lupus erythematosus	other
diagnostic and Statistical manual of Mental disorders	other
blood pressure index	other
post partum haemorrhage	other
directly observed therapy	other
functional endoscopic sinus surgery	procedure
hormone replacement therapy	procedure
gastric bypas surgery	procedures
total abdominal hysterectomy	procedures
termination of pregnancy	procedures
total hip replacement	procedures
total hysterectomy	procedures
major depressive disorder	psychiatry
Global assessment of functioning	psychiatry
diagnostic and Statistical manual of Mental disorders	psychiatry
attention deficit hyperactivity disorder	psychiatry
selective serotonin reuptake inhibitor	psychiatry
electroconvulsive therapy	psychiatry
obsessive compulsive disorder	psychiatry
chronic fatigue syndrome	psychiatry
cognitive behavioral therapy	psychiatry
fibromyalgia	psychiatry
peak expiratory flow rate	pulmonary
mycobacterium tuberculosis	pulmonary
tuberculosis	pulmonary
isiopathic pulmonary fibrosis	pulmonary
cryptogenic fibrosing alveolitis	pulmonary
non-specific interstitial pneumonia	pulmonary
obstructive sleep apnoea	pulmonary
respiratory disruptive index	pulmonary
continous positive airways pressure	pulmonary
tongue retaining device	pulmonary
chronic obstructive pulmonary disease	pulmonary
forced expiratory volume in 1 second	pulmonary
forced vital capacity	pulmonary
non small cell lung cancer	pulmonary
small cell lung cancer	pulmonary
mycobacterium tuberculosis complex	pulmonary
tuberculosis	pulmonary
latent tuberculosis infection	pulmonary
acid-fast bacilli	pulmonary
bacille calmette-Guerin	pulmonary
tb skin test	pulmonary
purified protein derivative	pulmonary
isonaizid	pulmonary
rifampin	pulmonary
pyrazinamide	pulmonary
ethambutol	pulmonary
streptomycin	pulmonary
multi-drug resistant TB	pulmonary
extensive drug resistant TB	pulmonary
rapid eye movement	pulmonary
slow wave sleep	pulmonary
continous positive airways pressure	pulmonary

tongue retaining device	pulmonary
interstitial lung disease	pulmonary
diffuse parenchymal lung disease	pulmonary
cryptogenic fibrosing alveolitis	pulmonary
usual interstitial pneumonia	pulmonary
non-specific interstitial pneumonia	pulmonary
bihilar lymphadenopathy	pulmonary
excessive daytime sleepiness	pulmonary
continuous positive airways pressure	pulmonary
continuous hyperfractionated accelerated radiotherapy	pulmonary
peak expiratory flow rate	pulmonary
tidal volume	pulmonary
total lung capacity	pulmonary
diffusion capacity	pulmonary
positive end-expiratory pressure	pulmonary
Forced Expiratory Time	pulmonary
Forced expiratory flow	pulmonary
pulmonary artery	pulmonary
respiratory tract infection	pulmonary
upper respiratory tract	pulmonary
upper respiratory tract infection	pulmonary
end stage renal failure	renal
focal segmental glomerulose sclerosis	renal
glomerular filtration rate	renal
intravenous urography	renal
glomerular basement membrane	renal
autosomal dominant polycystic kidney disease	renal
medullary sponge kidney	renal
ureterapelvic junction	renal
minimal change disease	renal
minimal change nephropathy	renal
membranous nephropathy	renal
membranous glomerulonephritis	renal
chronic kidney disease	renal
transurethral resection	renal
urinary tract infection	renal
urine analysis	renal
pelvic inflammatory disease	renal
end stage renal disease	renal
deep digital rectal evaluation	reproductive system
prostate specific antigen	reproductive system
benign prostatic hypertrophy	reproductive system
polycystic ovarian syndrome	reproductive system
prostate specific antigen	reproductive system
sexually transmitted disease	reproductive system
no light perception	senses
light perception	senses
hand motion	senses
counting fingers	senses
magnetic resonance imaging	special investigations
enzyme-linked immunosorbent assay	special investigations
electrocardiography	special investigations
electroencephalography	special investigations
blood pressure	special investigations
chest x ray	special investigations

gamma glutamyl transferase	special investigations
alanine transaminase	special investigations
aspartate transaminase	special investigations
digital rectal examination	special investigations
Alkaline phosphatase	special investigations
Total bilirubin	special investigations
computerized axial tomography	special investigations
cystography	special investigations
fasting blood sugar	special investigations
glucose tolerance test	special investigations
high density lipoprotein	special investigations
low density lipoprotein	special investigations
lumbar puncture	special investigations
positron emission tomography	special investigations
electroencephalography	special investigations
electromyogram	special investigations
mid stream urine	special investigations
papanicolaou smear	special investigations
Aortic Arch Syndrome	syndrome
Acute chest syndrome	syndrome
acute joint syndrome	syndrome
acute organic brain syndrome	syndrome
guillian bare syndrome	syndrome
Good pasture syndrome	syndrome
Gilbert syndrome	syndrome
Dysplastic Nevus syndrome	syndrome
acute respiratory distress syndrome	syndrome
irritable bowel syndrome	syndrome
Ehlers-Danlos syndrome	syndrome

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