



# **Suicide Analysis**

**A closer look at a concerning trend....**

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## Suicide Analysis

- Background to suicide
  - History lesson
  - Some facts
- Suicides trends
  - Globally
  - South Africa
- Underwriting considerations
  - Precipitating factors
  - Suicide Methods
- Suicide Exclusion Clauses
  - Analysis
- Risk Factors
- Case studies
- Issues and Conclusions



## A background to Suicide A short lesson

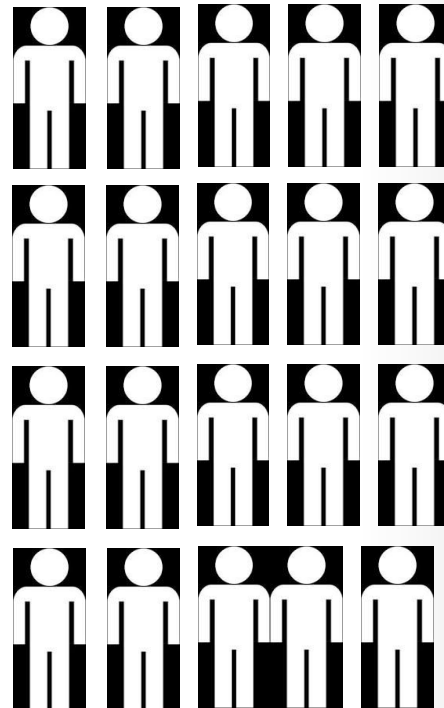
- “..the human act of self-inflicting one’s own life cessation” - WHO
- Historically suicide has been very prevalent
- Samurai in Japan – “seppuku” or “harakiri”
- “Suttee” in East India
- Self-immolation as form of protest
- Kamikaze
- Mass suicides
- A volcano?
- Suicide bombings



## A background to Suicide A few facts

- Global worrying trend
  - Suicide is among the top 3 causes of death for people aged 15 – 44 years
  - 2<sup>nd</sup> leading cause of death amongst university students (World Health Organization, 2010)
- Completed suicide vs. attempts

**1 x  
death  
claim**



**20 x  
disabilities**

## A background to Suicide A few facts

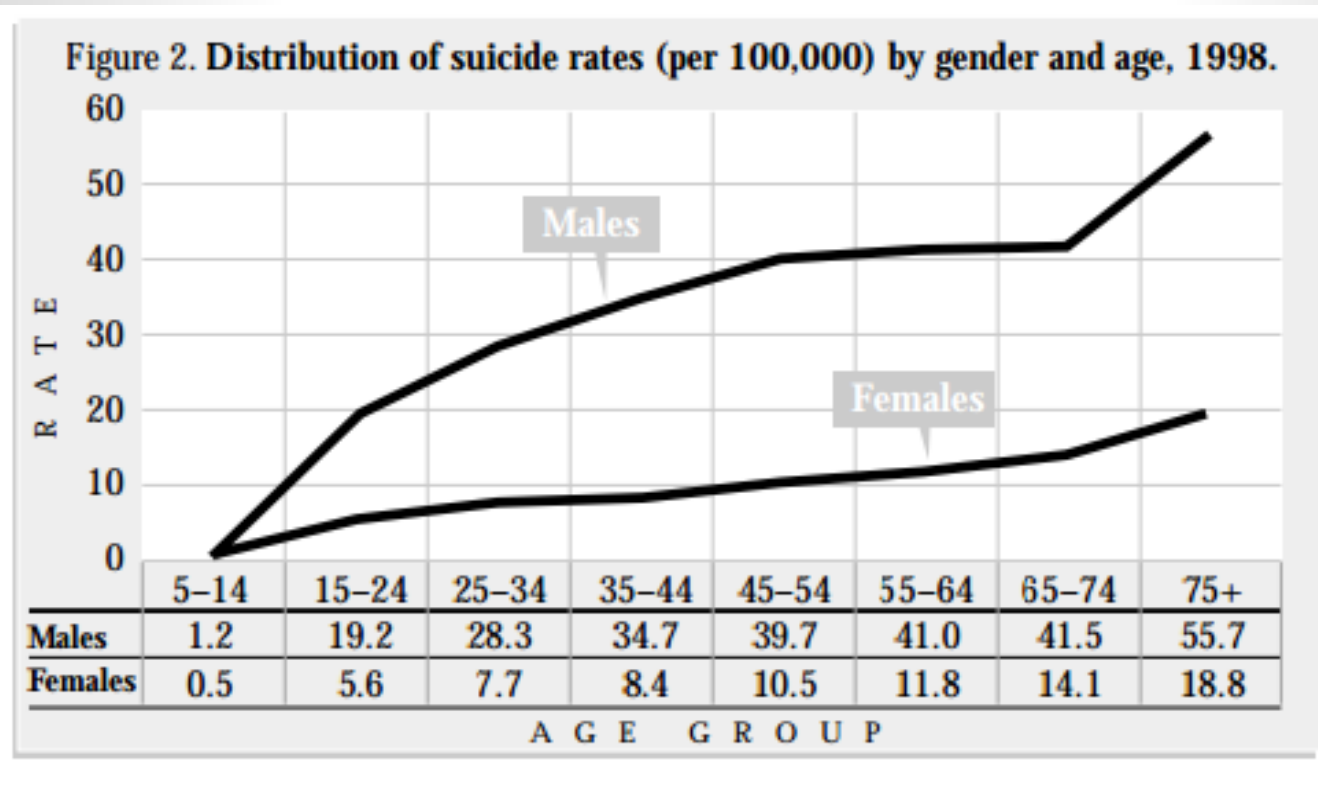
- Global worrying trend
- Completed suicide = 20 attempts
- Mental illness often plays a role
- Men commit more suicides than women
  - 4 x in US and UK
  - 2 x Globally
- Suicide methods
- Global rates of suicide reported to be rising
  - Around a million deaths per year
  - 11.6 per 100, 000 [2008]
  - But varies considerably by country (and year reported!)



# **Trends in Suicide**

## Trends in Suicide A Global perspective

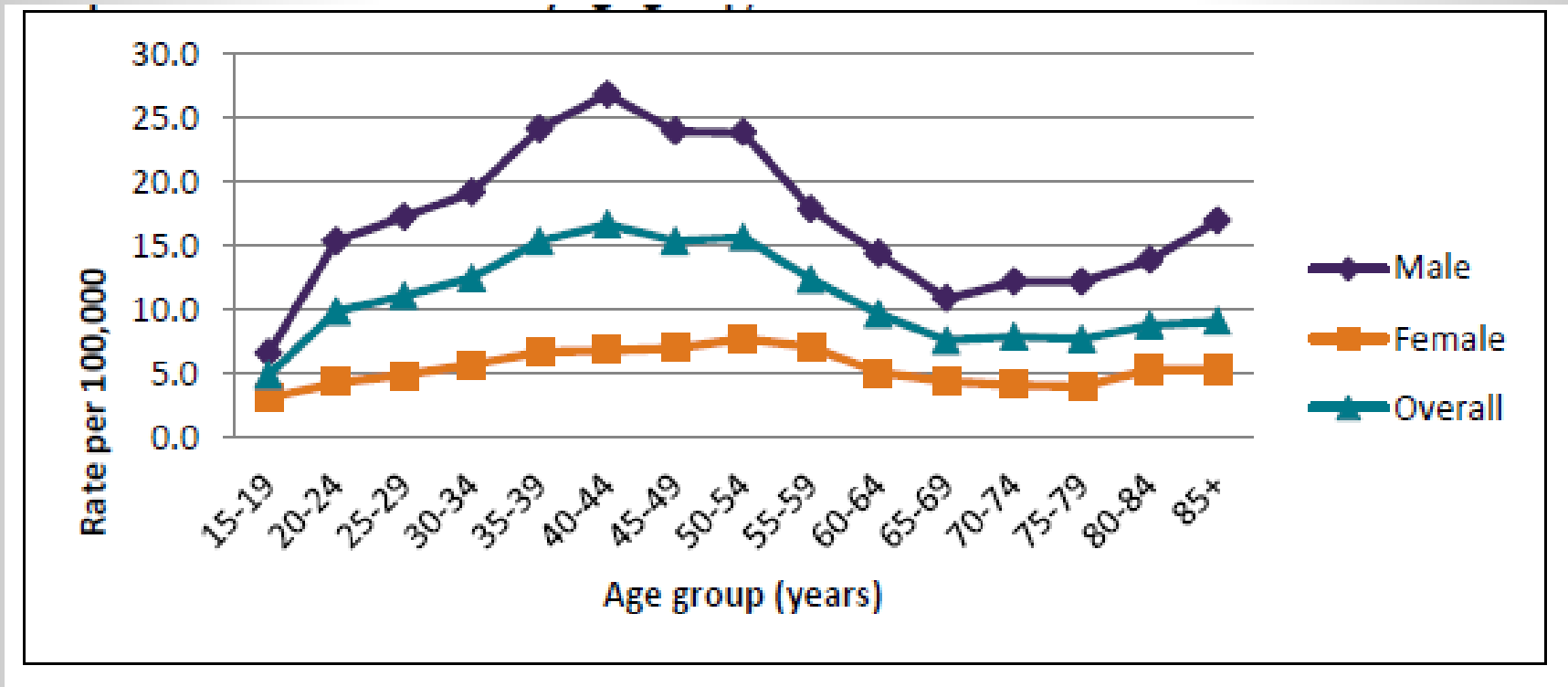
- 49% increase for males, 33% for females over period 1950 – 1995
- WHO projects 1.53million people will commit suicide in 2020



Source: "A Global Perspective in the Epidemiology of Suicide", report [2002], Bertolote et al

## Trends in Suicide A Global perspective

- UK Suicides for 2011
- Bi-Modal Distribution evident



Source: "Samaritans Suicide Statistics Report ",2013

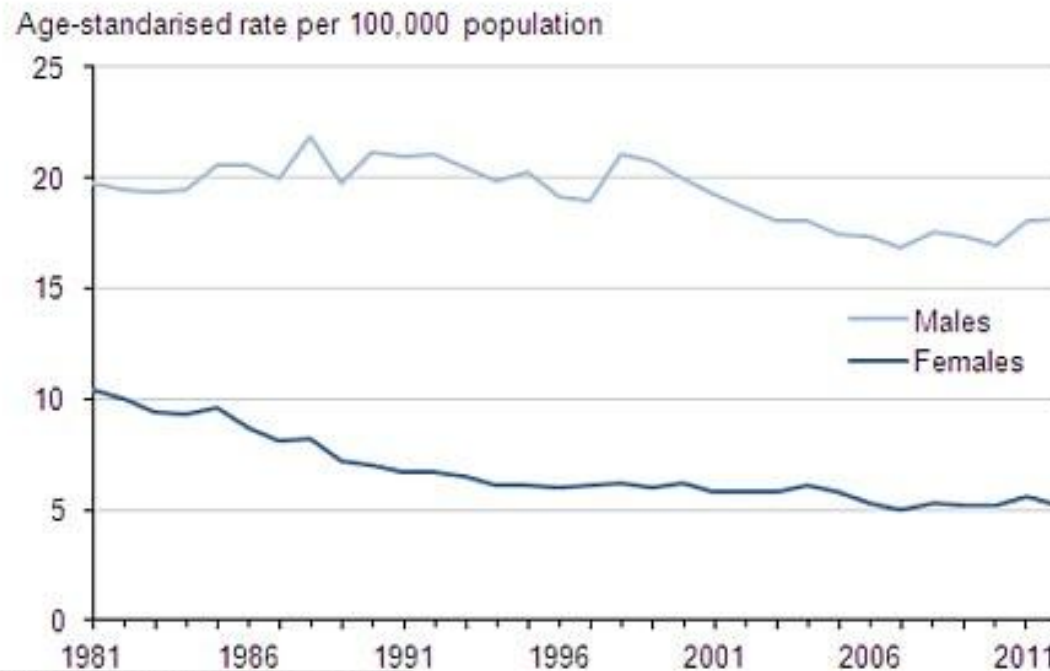


## Trends in Suicide A Global perspective

- UK Rates show an atypical trend over time
- Gender differences are typical

**Figure 1. Age-standardised suicide rates: by sex, deaths registered in each year from 1981 to 2012**

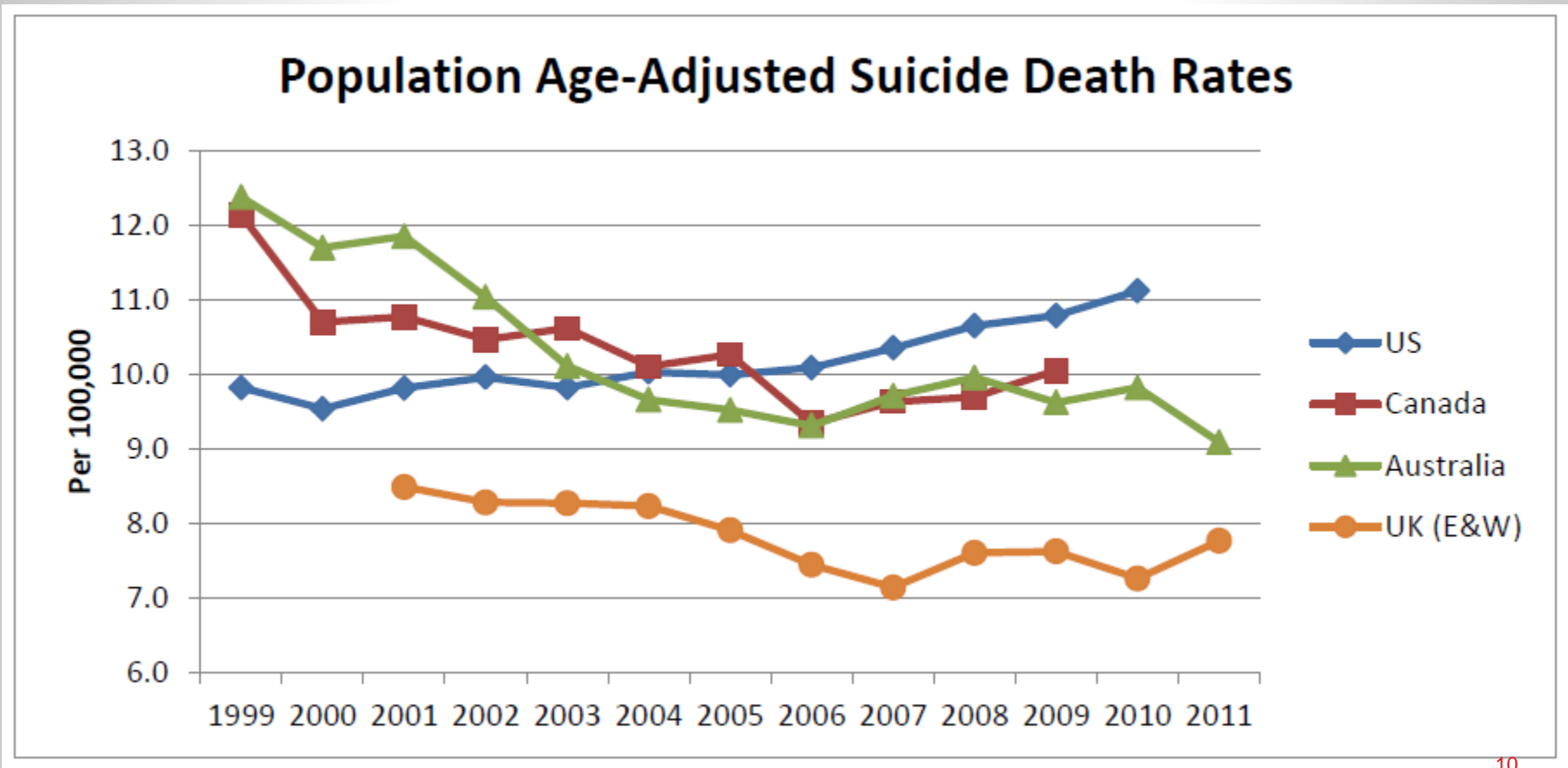
United Kingdom



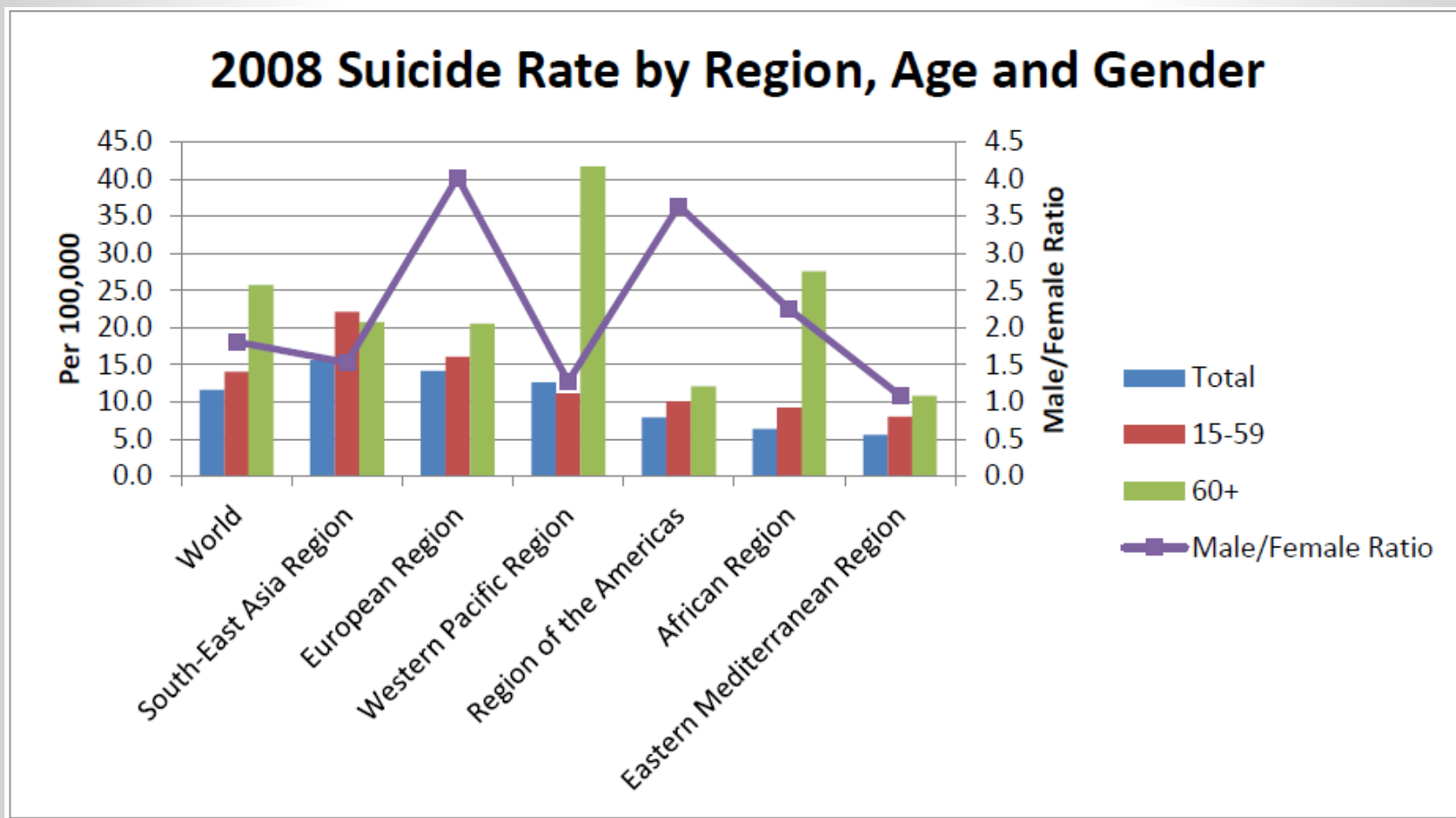
© Office for National Statistics

## Trends in Suicide A Global perspective

- UK, Canada and Australia rates seem to have decreased
- US has shown increase over decade between 2000 – 2010
- Financial crisis has played a part

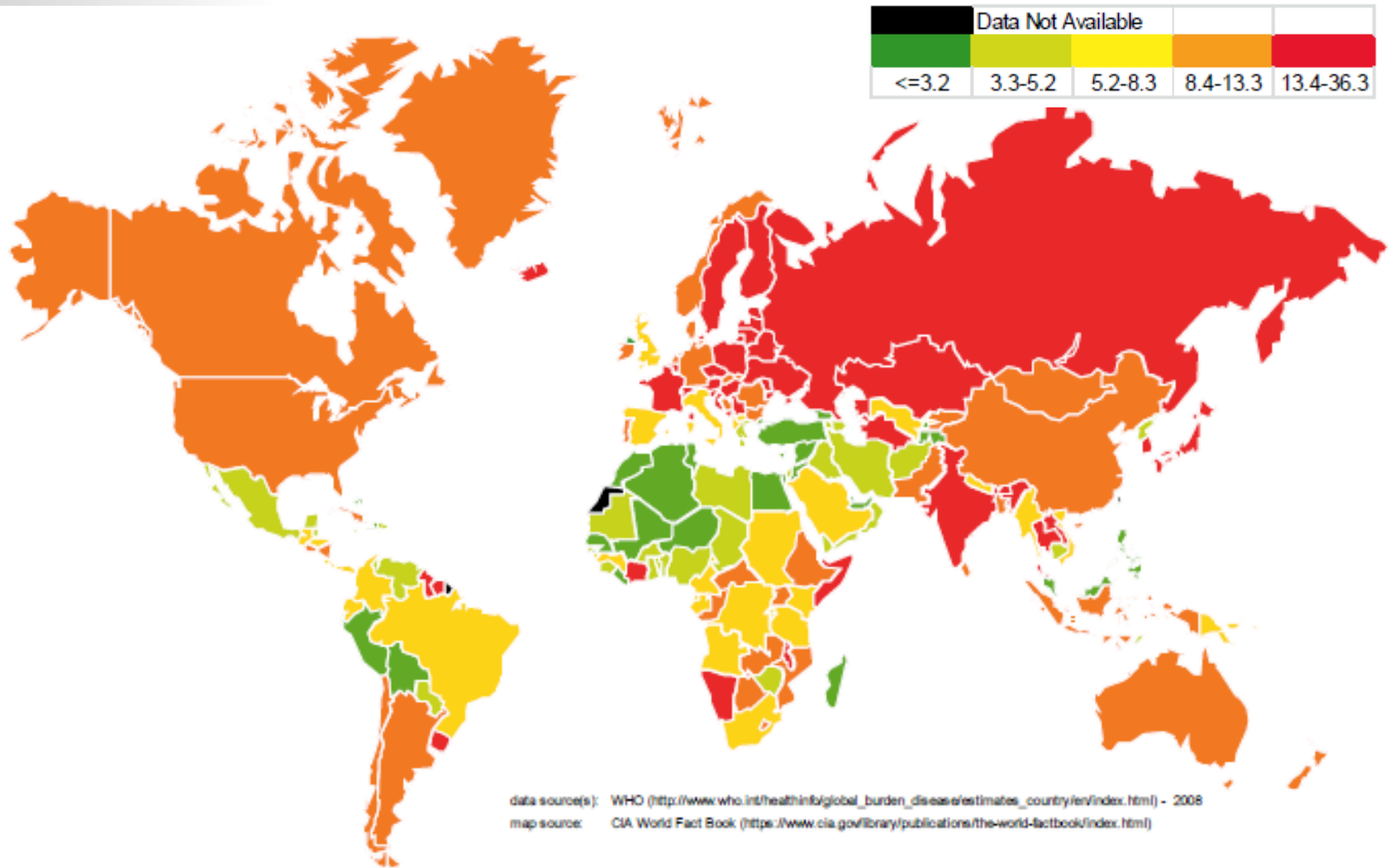


# Trends in Suicide A Global perspective



Source: WHO – “Disease and injury country estimates”

# A background to Suicide World suicide rates 2008



## A background to Suicide South Africa

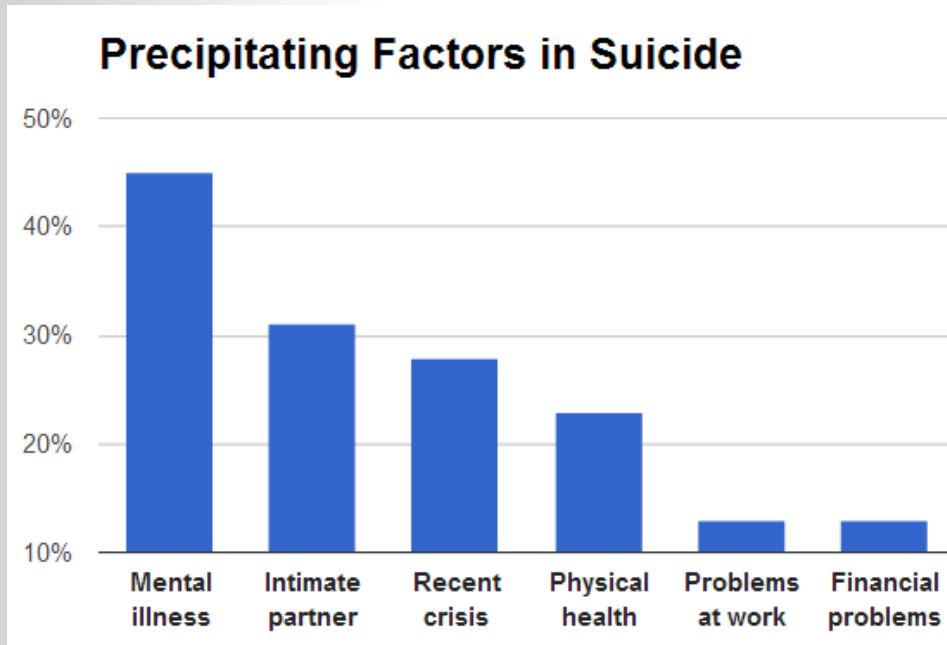
2008 Suicide Rate per 100,000 People					
Rank	Country	Rate	Rank	Country	Rate
1	Kiribati	0.00	189	Belarus	26.9
2	Jordan	0.41	190	Russia	27.2
3	Syria	0.47	191	Guyana	31.1
4	Antigua/Barbuda	0.53	192	Kazakhstan	32.1
5	Malaysia	0.53	193	Lithuania	36.3

Source: WHO – “Disease and injury country estimates”

- South Africa has the 22<sup>nd</sup> (2005) or 8<sup>th</sup> highest (2010) rate of suicide in the world ~15.4
- Approximately 6000 – 8000 people commit suicide p.a.
- 3<sup>rd</sup> greatest cause of unnatural death in the country, after homicide and unintentional causes

# **Underwriting Considerations**

# Precipitating Factors Underwriting Considerations

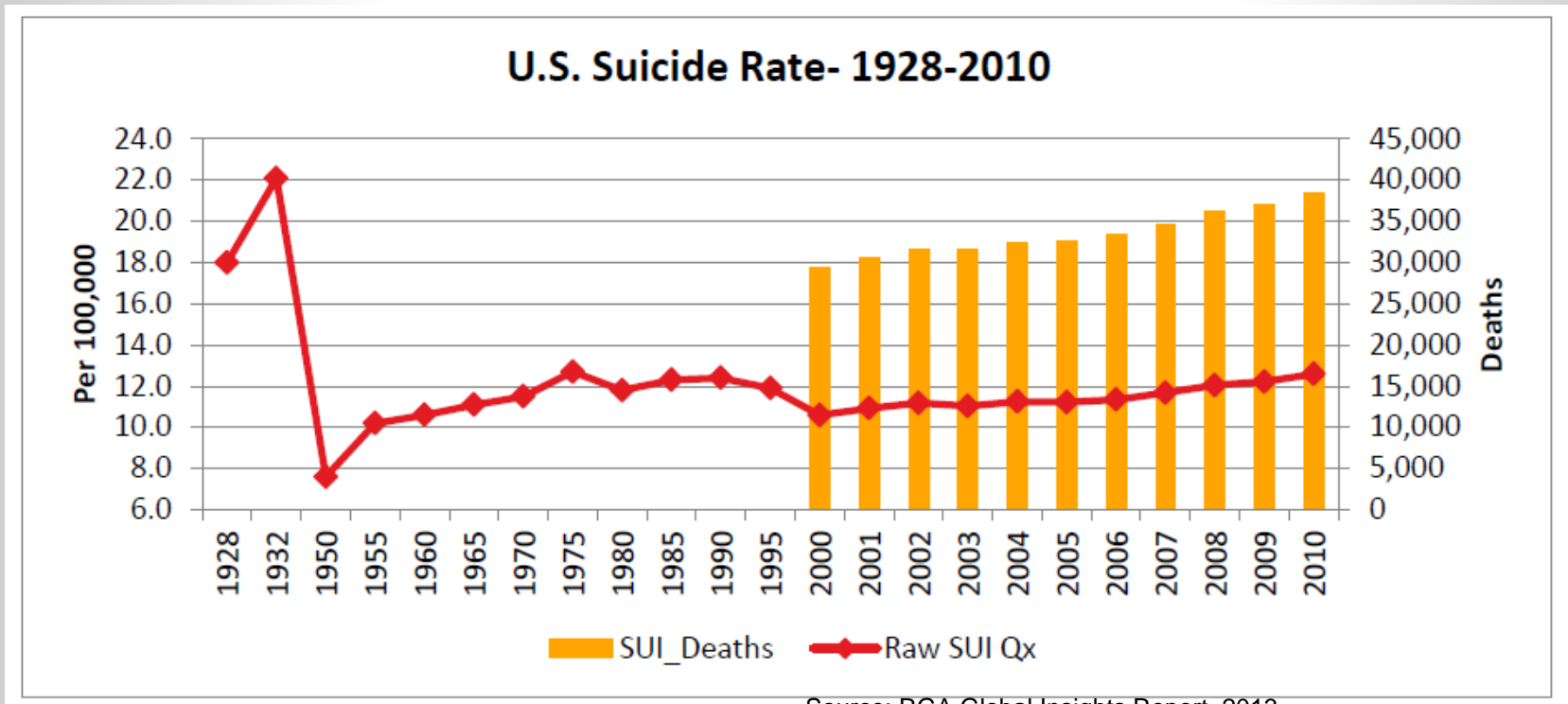


Source: 16 American States in 2008 – James Heilman, MD

- Academic related problems
- Interpersonal problems / Family problems
- Family history (Qin et al, 2003)
- Past or present physical or sexual trauma
- Mental health problems
- High levels of stress and sense that one is unable to cope



## Precipitating Factors Economic Link

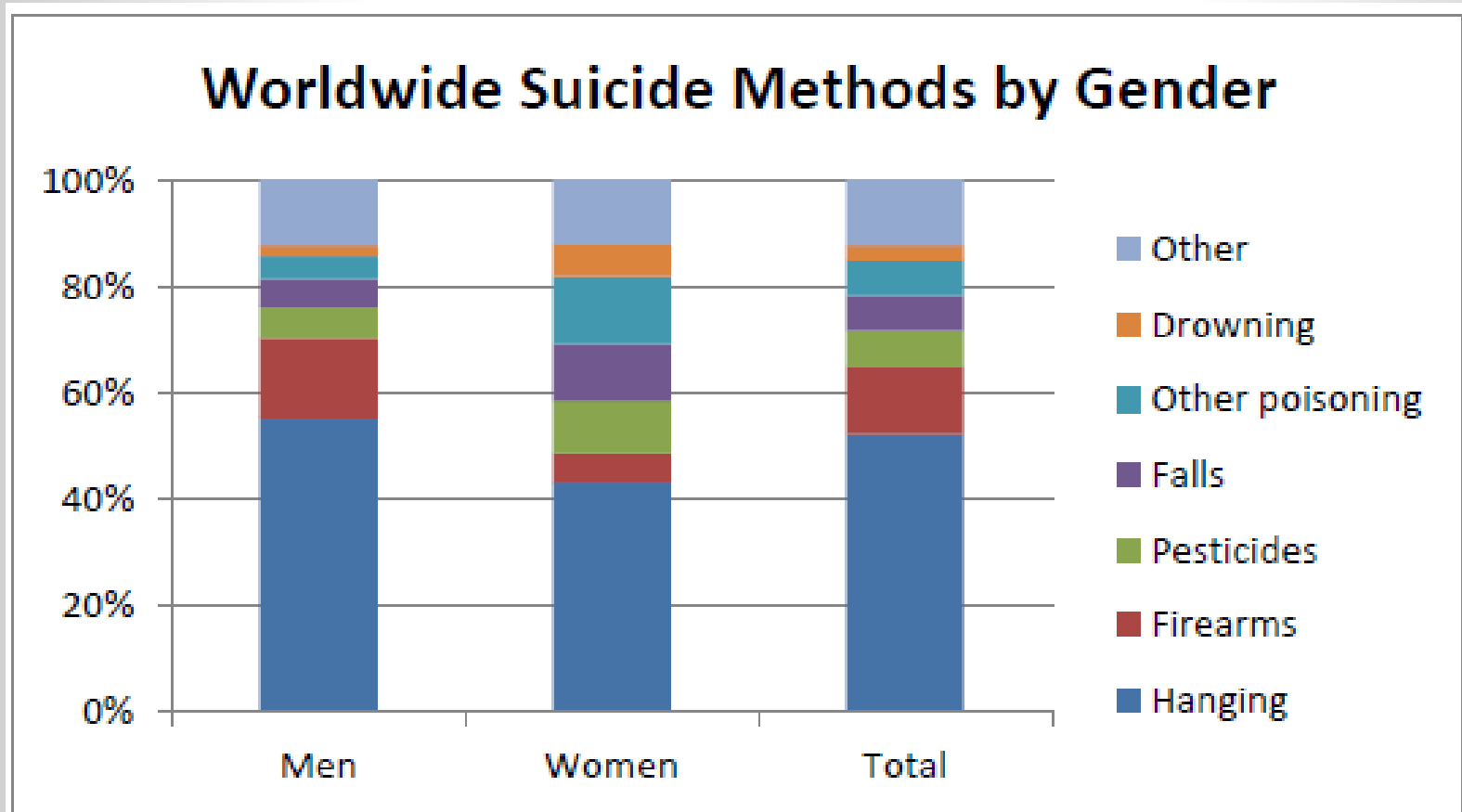


Source: RGA Global Insights Report, 2013

- Insured population affected more; males too
- Ages 45 and older suicides rates increased more
- The average claim size increased
- Higher face amounts had the largest increase following 2008
- Following the recession, suicide became the most common non-medical cause of death.



## Suicide Methods Male vs. Female Dilemma



Source: RGA Global Insights Report, 2013

- Globally hanging seems to be most prevalent
- Men use more violent means; women use more poisoning as means

## “Other” category MVAs

- Ability to disguise as accident
- Study in Australia
  - 14.8% conceived to have a motor vehicle “accident”
  - 8.3% had previously attempted this
  - All attempters reported having emotional or mental problems at time of event
  - Significantly more likely to be fully employed with partner and children
  - Motives behind usually financial benefits and eliminating stigma



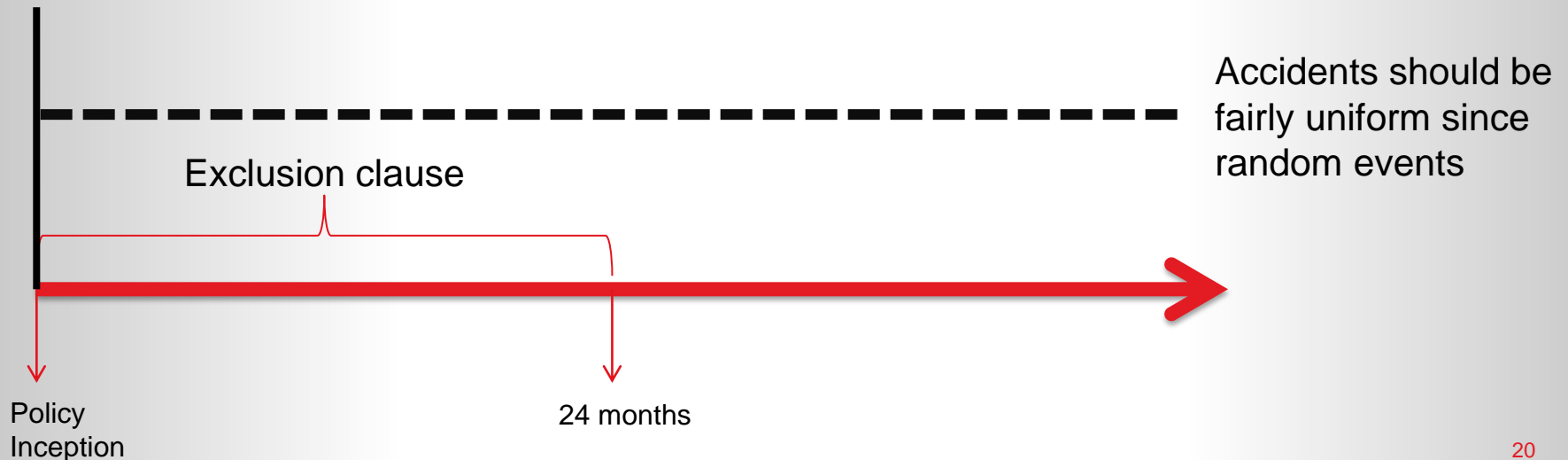
“The intentional traffic accident is probably the most common means of suicide that is typically misclassified” [Moyle Information Services for Law Enforcement on Suicide Investigation]

- Study of suicidal intent in single-car accidents
  - 30 accidents with average 10 day hospitalisation
  - RFL showed higher than control for risk
  - Low suicide risk, but looking for solution to their problems
- What does this mean for insurance??

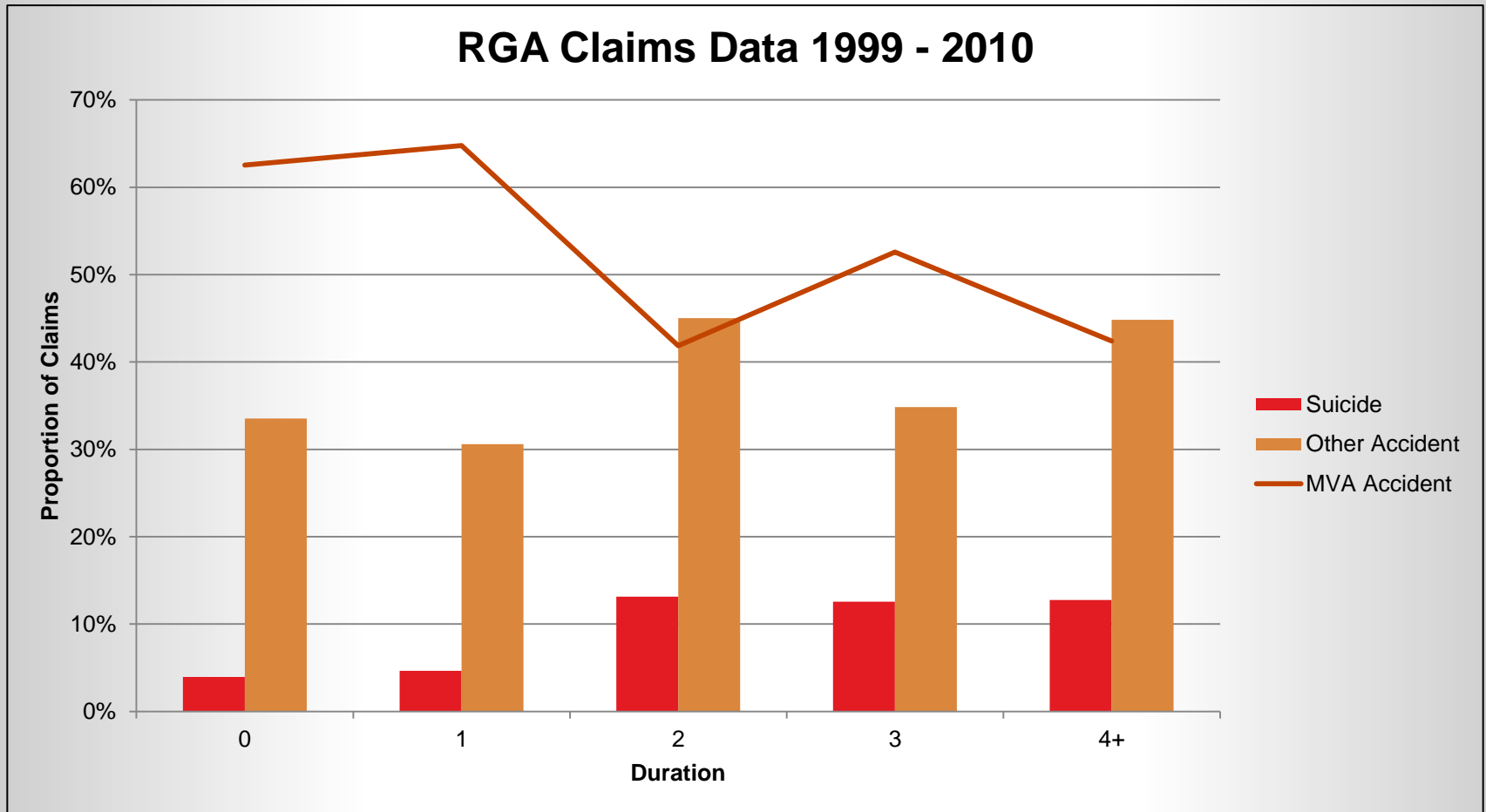
# **Suicide Clauses and its intended effects**

## Life Insurance Suicide clauses

- Insurance generally excludes *intentional acts*
- Direct or indirect – causation issues may occur
- Purpose
  - Recognition that cover for suicide is needed...to an extent
  - Balance between complete coverage and anti-selection
- Clauses are in favour of *the insured*

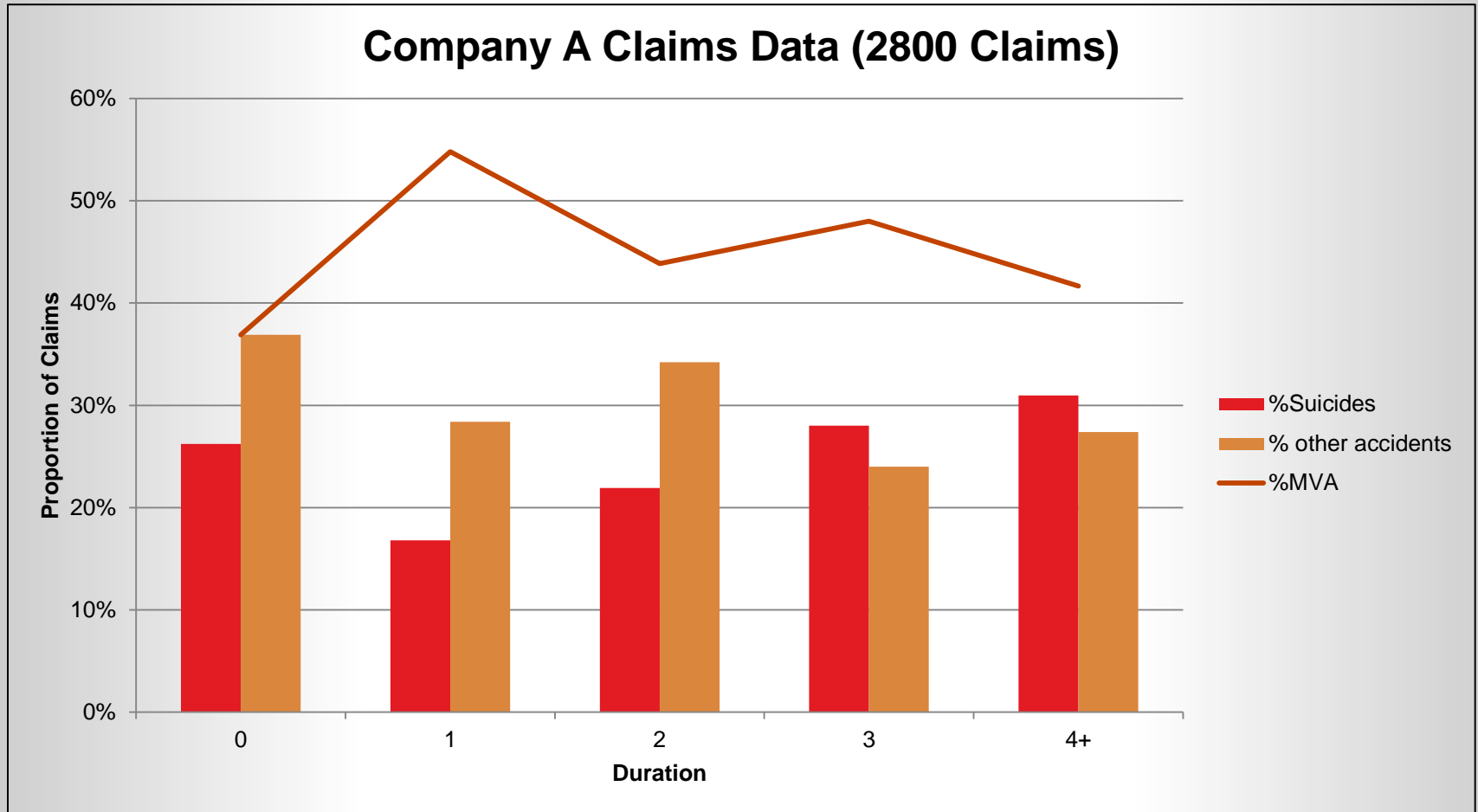


# Suicide exclusion clause Timing of claims



Source: RGA Internal Data

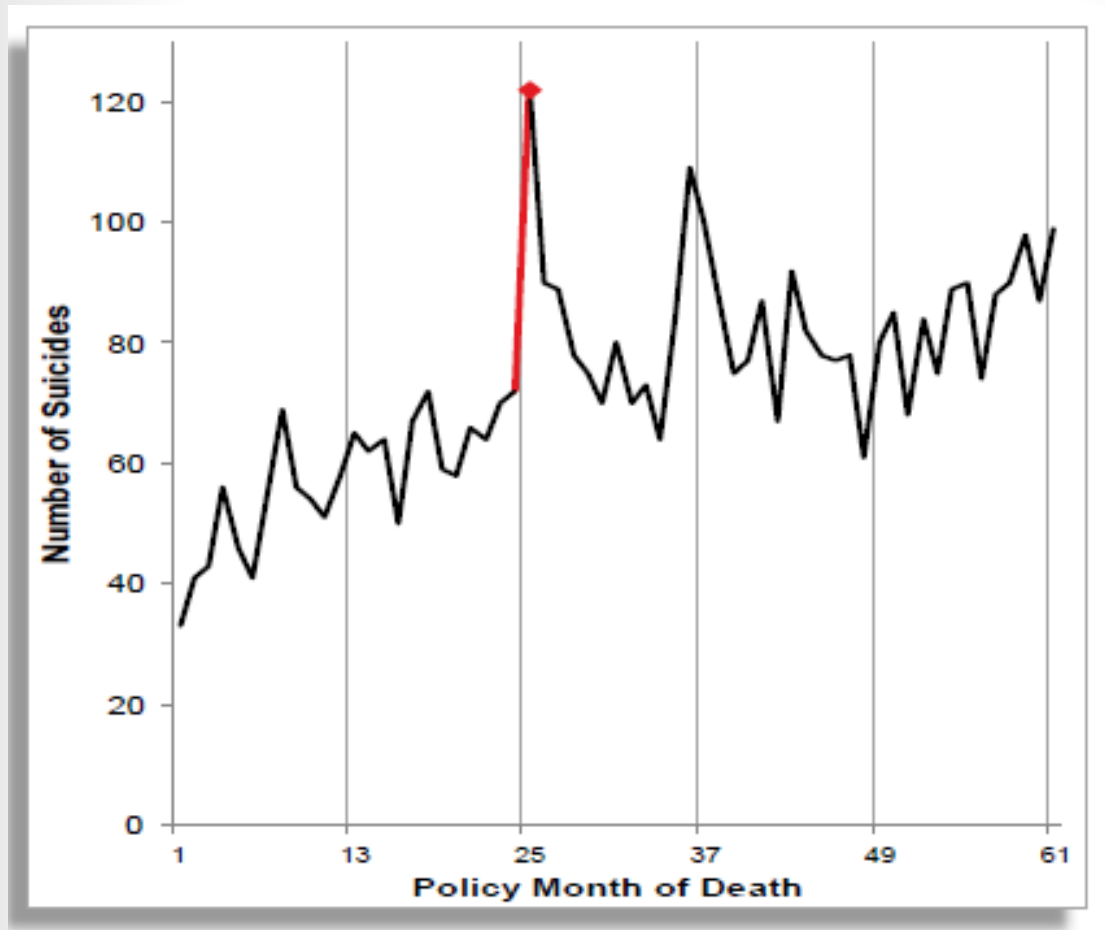
Suicide exclusion clause Timing of claims



Source: RGA Internal Data

## Suicide exclusion clause Timing of claims

- Term business & larger sums assured particularly at risk of anti-selection



# **Risk Factors**



## Suicide claims Impairment

- Study of 10,000 RGA Fac cases
- 2000-2009
- Significant correlation between impairment and claim cause?

Impairment Code	Cause of Death
Mental Disorder	Suicide
Oncology	Cancer
Motor Vehicle Record	Motor Vehicle Accident
Avocation	All Accidental Deaths
Cardiovascular Health	Heart Disease
Alcohol Use	Non-Transport Accidents
Diabetes	Diabetes
Build	Diabetes and Heart Disease
Aviation	Plane Crash

**Suicide claims** Impairment

<b>Cause of Death</b>	<b>Percent of occurrence of deaths in study</b>	<b>Percent of all 2005 U.S. Deaths</b>
Suicide	2.4%	1.3%
Cancer	32.5%	22.8%
Motor Vehicle Accident	1.9%	1.9%
All Accidents	5.1%	4.9%
Heart Disease	35.0%	37.9%
Other Accident	2.8%	3.1%
Diabetes	2.3%	3.1%
Plane Crash	0.35%	0.03%
<b>Total</b>	<b>77.3%</b>	<b>70.1%</b>

<b>Population</b>	<b>Total Deaths</b>	<b>Suicides</b>	<b>Percent of Suicides</b>
No Mental Illness Impairment	9294	206	2.2%
Mental Illness Impairment	294	27	9.2%

## Suicide claims Impairment

- Binomial probability of 27 suicides with mental disorder
- Significance level of  $< 0.000000001$ 
  - Mental impairment is good indicator of suicide risk

Impairment	Impairment-Specific Cause of Death	Population of deaths with this impairment	Deaths by Specific COD	Percent of Specific COD	Control population by Specific COD	Binomial probability due to chance
Mental Disorder	Suicide	294	27	9.2%	2.20%	< 1 per billion
Oncology	Cancer	422	209	49.5%	31.70%	< 1 per billion
MVR	Car Accident	61	7	11.5%	1.90%	< 1 per thousand
Circulatory	Cardiovascular Disease	660	289	43.8%	34.40%	< 1 per million
Diabetes	Diabetes	971	95	9.8%	1.50%	< 1 per billion
Avocation	Accidents	30	7	23.3%	5.10%	< 1 per 100
Alcoholism	"Other" Accidents	196	15	7.7%	2.80%	< 1 per thousand
Build	Diabetes or Cardiovascular Disease	545	228	41.8%	35.90%	< 1 per 100
Aviation	AVI, AVP	54	12	22.2%	0.35%	< 1 per billion

## Suicide claims Impairment

- Matched Pairs analysis to determine excess mortality
- Over 8 x higher risk of suicide
- 88% of these suicide cases were post 24 month period

<b>Impairment</b>	<b>Cause of Death</b>	<b>Multiple of Increased Mortality Risk for Listed Cause</b>
Aviation	Plane Crash	2400%
Mental Disorder	Suicide	855%
Diabetes	Diabetes	403%
Alcoholism	Non-Transport Accident	329%
MVR	Motor Vehicle Accident	198%
Oncology	Cancer	188%
Circulatory	Cardiovascular Event	108%
Build	Diabetes or Cardiovascular Event	84%
Avocation	Any Accident	9%

## Risk factors in Insurance



- Larger sums assured
- Age group 15-44
- Males (death) and females (disability)
- Occupations
  - Anesthesiologists
  - Dentists
  - Pharmacists
  - Medical practitioners
  - Veterinarians
  - Police officers
  - Farm workers
  - Construction workers, and
  - Prison inmates
- Duration less than 36 months
- Mental Illness impairment
- Recession



# **Some Case Studies**

## Case studies Intent vs. method

- Hanging from a tree **DECLINED**

**APPROVED**

- Rat poison

- Jumping in front of car **DECLINED**

**APPROVED**

- Sitting in middle of road, intoxicated

**APPROVED**

- Injecting toxic substance

**APPROVED**

- Bathtub anti-depressants

**APPROVED**

- Battery acid



# **Overall Issues and Conclusions**



## Issues with Suicide Claims

- Evidence relating to suicide
  - Possible motive (state of mind at time of death important)
  - Manner in which insured died – indicator of cause of death
  - Evidence is colourless – accident assumed
  - South African time
- Outside exclusion period = not reported as suicide
- The under-reporting of suicide:
  - Misclassification of deaths – intent difficult to establish
  - Males vs. females – methods contribute to gender differences
  - Subjective nature of Coronal system
- Inside exclusion period = onus on insurer
- Bad market image with rejected claims
  - Who suffers?

## Conclusion

- Suicides are more prevalent than immediately evident
- Suicides between 5% - 15% of claims (amounts)
- Potentially closer to 30% - often difficult to prove
- Lengthening exclusion period may help to reduce number of insured deaths
- Pre-claim counselling
  - Additional cover for no or little reason
  - Mental illness impairment
  - Young
  - Occupations at risk
  - Engaging with consumers around 2 year mark
  - Possibly engaging more in recessionary periods
- Aim to pay claims, but avoid unnecessary claims

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