

**INCOSE**  
**International Workshop in Model Based  
Systems Engineering**

*Challenge to the Participants*

Healthcare Working Group  
Session 3, 25 January 2015

**Michael Robkin, MBA**  
**President, Anakena Solutions**  
**mikerobkin@gmail.com**  
**(626) 840-3415**

# Acknowledgements

- Commercial Customers
  - Technology Companies
  - Managed Service Organizations
  - Healthcare Providers
- Government research grants on medical devices, both current and proposed
- Member of numerous standards organizations

# Challenge to Participants

- We don't have one healthcare system
- Good data is hard to find

# Current Health Care Systems

## Single Payer

- Medicare (50 States)
  - Parts A and B (Fee-for-Service)
  - Part C (Medicare Advantage)
  - Part D (Drug Coverage)
- Medicaid (50 States)
- Tri-Care (DoD)
- Veterans Health Administration
- Indian Health Service

## Private

- Medicare Supplement Plans
- Insurance Risk Models
  - Fee-for-Service
  - Self Insured
  - Shared
  - Value-Based (ACOs, Pay-for-Performance)
- Insurance Customers
  - Corporate, Organization, Government
  - Group
  - Individual & Families
- Charity Care
- “Emergency Room” care
- Health Care Sharing Ministries
- Cash

## NATIONAL LIFE EXPECTANCY: 1980 TO 1999 (with and without fatal injuries)

RANKING	OECD NATIONS	ACTUAL MEAN LIFE EXPECTANCY (INCLUDING FATAL INJURIES)	OECD NATIONS	STANDARDIZED MEAN LIFE EXPECTANCY (WITHOUT FATAL INJURIES)
1.	Japan	78.7	<b>United States</b>	<b>76.9</b>
2.	Iceland	78.0	Switzerland	76.6
3.	Sweden	77.7	Norway	76.3
4.	Switzerland	77.6	Canada	76.2
5.	Canada	77.3	Iceland	76.1
6.	Spain	77.3	Sweden	76.1
7.	Greece	77.1	Germany	76.1
8.	Netherlands	77.0	Denmark	76.1
9.	Norway	77.0	Japan	76.0
10.	Australia	76.8	Australia	76.0
11.	Italy	76.6	France	76.0
12.	France	76.6	Belgium	76.0
13.	Belgium	75.7	Austria	76.0
14.	United Kingdom	75.6	Netherlands	75.9
15.	Germany	75.4	Italy	75.8
16.	Finland	75.4	United Kingdom	75.7
17.	New Zealand	75.4	Finland	75.7
18.	Austria	75.3	New Zealand	75.4
19.	<b>United States</b>	<b>75.3</b>	Czech Republic	75.1
20.	Denmark	75.1	Ireland	75.0
21.	Ireland	74.8	Spain	74.9
22.	Portugal	73.9	Slovak Republic	74.4
23.	Czech Republic	72.2	Greece	74.4
24.	Slovak Republic	71.6	Portugal	74.3
25.	Poland	71.5	Hungary	74.3
26.	Korea	71.1	Korea	73.3
27.	Mexico	70.9	Poland	73.2
28.	Hungary	69.7	Mexico	72.8
29.	Turkey	64.4	Turkey	72.0

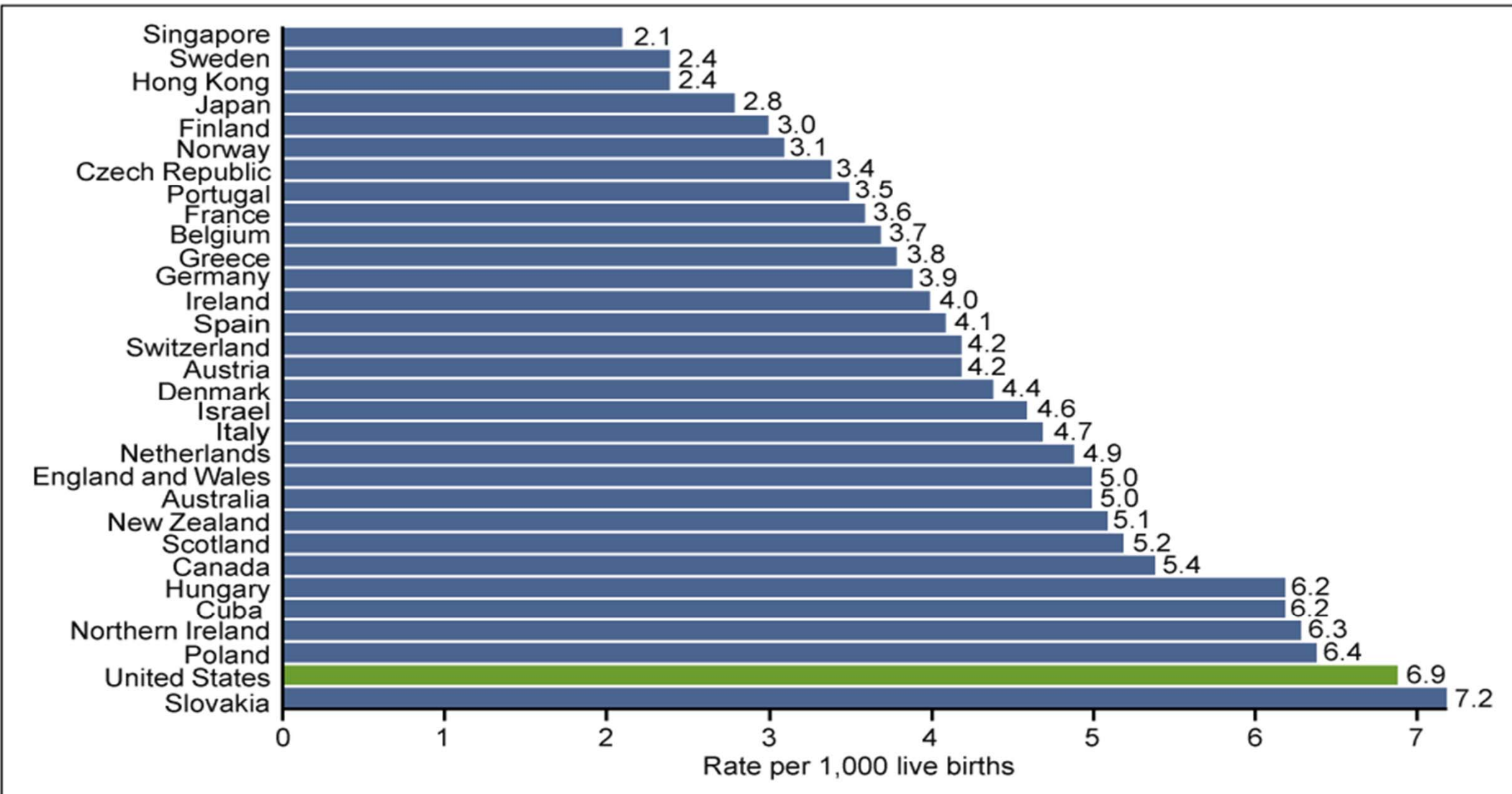
<http://www.forbes.com/sites/theapothecary/2011/11/23/the-myth-of-americans-poor-life-expectancy/>

## 5-Year Relative Survival Rates in Various Cancers, From the CONCORD Study (2008)

Country	Breast Women	Colorectal Men	Colorectal Women	Prostate	Average
United States	83.9%	59.1%	60.2%	91.9%	<b>73.8%</b>
Canada	82.5%	55.3%	58.9%	85.1%	<b>70.5%</b>
Australia	80.7%	56.7%	58.2%	77.4%	<b>68.3%</b>
Austria	74.9%	52.7%	55.1%	86.1%	<b>67.2%</b>
Germany	75.5%	50.1%	55.0%	76.4%	<b>64.3%</b>
Sweden	82.0%	52.8%	56.2%	66.0%	<b>64.3%</b>
Netherlands	77.6%	53.6%	55.1%	69.5%	<b>64.0%</b>
Iceland	79.0%	49.5%	54.0%	69.7%	<b>63.1%</b>
Japan	81.6%	61.1%	57.3%	50.4%	<b>62.6%</b>
Finland	80.2%	52.5%	54.0%	62.9%	<b>62.4%</b>
Italy	79.5%	50.7%	52.7%	65.4%	<b>62.1%</b>
Norway	76.3%	51.1%	55.3%	63.0%	<b>61.4%</b>
Spain	77.7%	52.5%	54.7%	60.5%	<b>61.4%</b>
Ireland	69.6%	46.0%	50.0%	62.8%	<b>57.1%</b>
Portugal	72.2%	46.5%	44.7%	47.7%	<b>52.8%</b>
UK	69.7%	42.3%	44.7%	51.1%	<b>52.0%</b>
Denmark	73.6%	44.2%	47.7%	38.4%	<b>51.0%</b>
Switzerland	76.0%	N/A	N/A	N/A	N/A

<http://www.thelancet.com/journals/lanonc/article/PIIS1470204508701797/abstract>

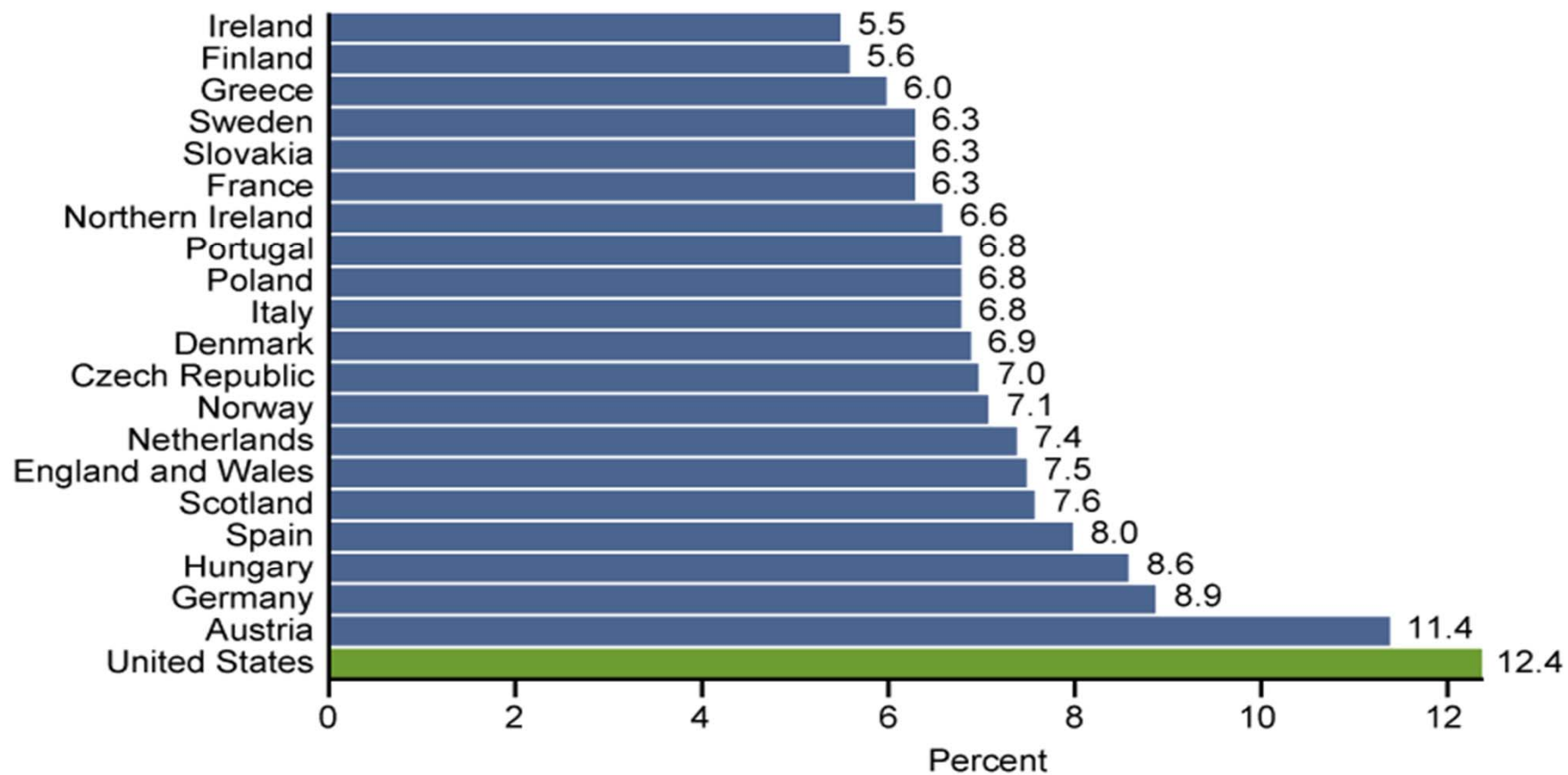
Figure 1. Infant mortality rates, selected countries, 2005



SOURCE: Health, United States, 2008.

<http://www.cdc.gov/nchs/data/databriefs/db23.htm#summary>

Figure 3. Percentage of preterm births, United States and selected European countries, 2004



NOTE: Excludes births at less than 22 weeks of gestation to promote comparability between countries. Preterm births are those from 22 to 36 weeks of gestation.

SOURCE: NCHS linked birth/infant death data set (for U.S. data) and *European Perinatal Health Report* (for European data).



**Table 2. Gestational age-specific infant mortality rates, United States and selected European countries, 2004**

<b>Selected countries</b>	<b>22-23 weeks<sup>1</sup></b>	<b>24-27 weeks</b>	<b>28-31 weeks</b>	<b>32-36 weeks</b>	<b>37 weeks or more</b>
<b>United States</b>	707.7	236.9	45.0	8.6	2.4
<b>Austria</b>	888.9	319.6	43.8	5.8	1.5
<b>Denmark</b>	947.4	301.2	42.2	10.3	2.3
<b>England and Wales<sup>2</sup></b>	880.5	298.2	52.2	10.6	1.8
<b>Finland</b>	900.0	315.8	58.5	9.7	1.4
<b>Northern Ireland</b>	1,000.0	268.3	54.5	13.1	1.6
<b>Norway</b>	555.6	220.2	56.4	7.2	1.5
<b>Poland</b>	921.1	530.6	147.7	23.1	2.3
<b>Scotland</b>	1,000.0	377.0	60.8	8.8	1.7
<b>Sweden</b>	515.2	197.7	41.3	12.8	1.5

<sup>1</sup> Infant mortality rates at 22-23 weeks of gestation may be unreliable due to reporting differences.

<http://www.cdc.gov/nchs/data/databriefs/db23.htm#summary>