Mortality indicators

Training Workshop on CRVS

ESCAP, Bangkok
9-13 January 2016

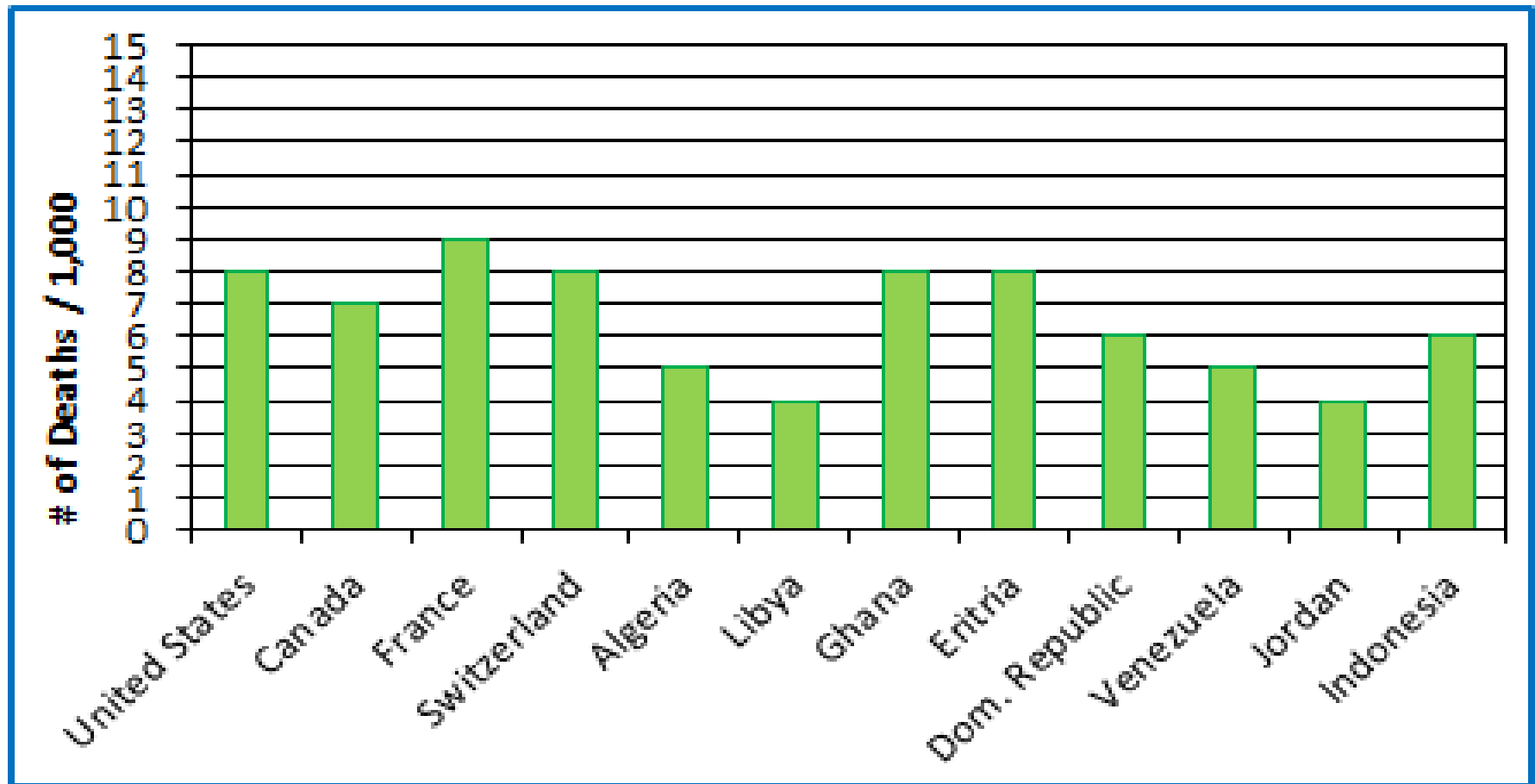Helge Brunborg

Statistics Norway

Helge.Brunborg@gmail.com

Mortality indicators

- Total number of deaths
- Number of deaths by age and sex
- Infant mortality rate (IMR)
- Under five mortality rate (U5MR)
- Maternal mortality rate (MMR)
- Age-specific mortality rates
- Death rates by age and sex (qx)
- Life expectancy at birth (LE, e0)

Crude Death Rate (CDR)

CDR Is the number of deaths for a specific area during a specified period divided by the total population (mid-year estimate) for the same area/period multiplied by 1 000:

Number of resident deaths X 1 000

  Total Population

Mortality indicators

- Total number of deaths
- Crude Death Rate (CDR)
- Number of deaths by age and sex
- Infant mortality rate (IMR)
- Under five mortality rate (U5MR)
- Maternal mortality rate (MMR)
- Age-specific mortality rates
- Death rates by age and sex (qx)
- Life expectancy at birth (LE, e0)

Summary table on deaths, Botswana 2011-2014

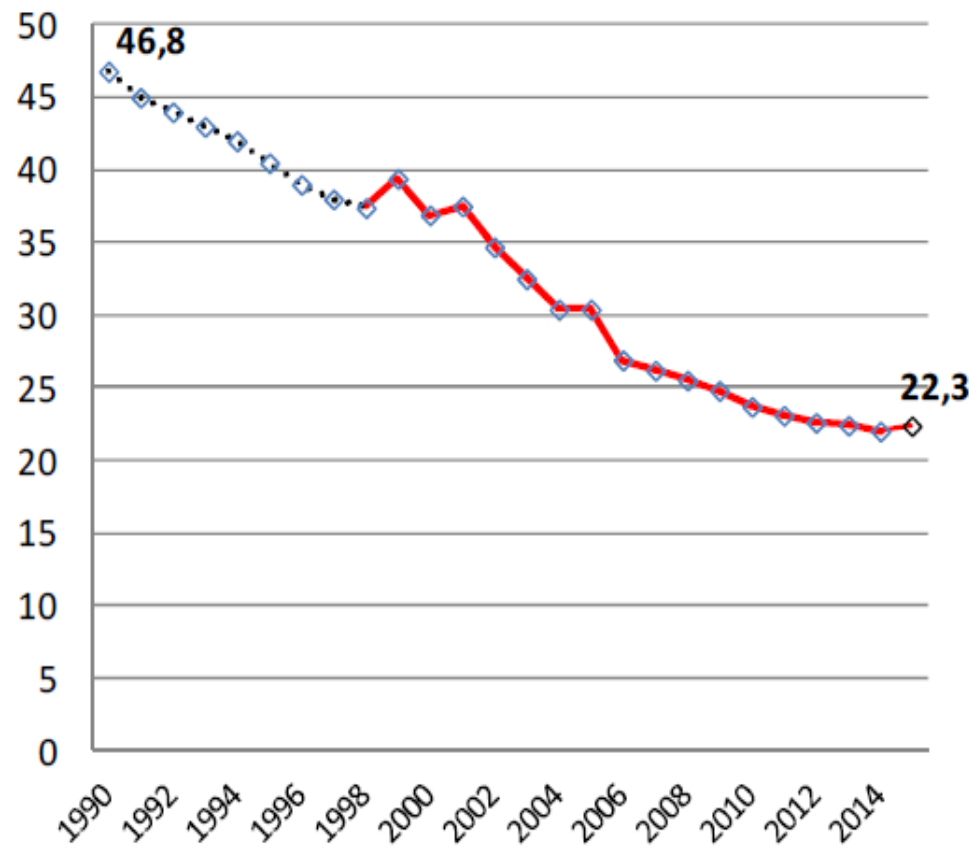|	2011	2012	2013	2014
Total Population	2,024,904	2,068,529	2,128,597	2,166,650
Infant deaths	...	..	960	1, 045
All deaths	13,410	12,270	11,967	12,177
Crude death rate(a)	6.6	5.9	5.6	5.6
Infant mortality rate(b)	17	..	21.2	20.8

Infant Mortality Rate (IMR)

Number of new-borns dying under 1 year of age for a specific area during a specified period divided by the number of resident live births for the same area/period multiplied by 1,000:

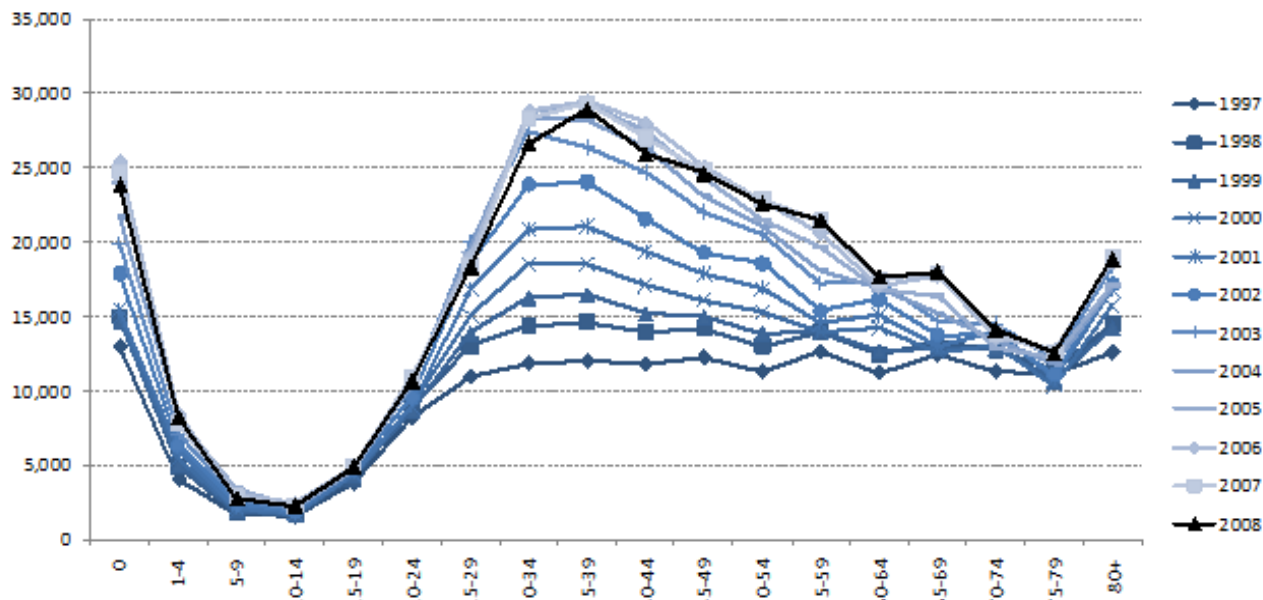$$\frac{\text{# of infant deaths} \times 1,000}{\text{# of live births}}$$

Algeria 1980-2015

Evolution du TMI de 1990 à 2015 (en ‰)

46,8

22,3

50
45
40
35
30
25
20
15
10
5
0

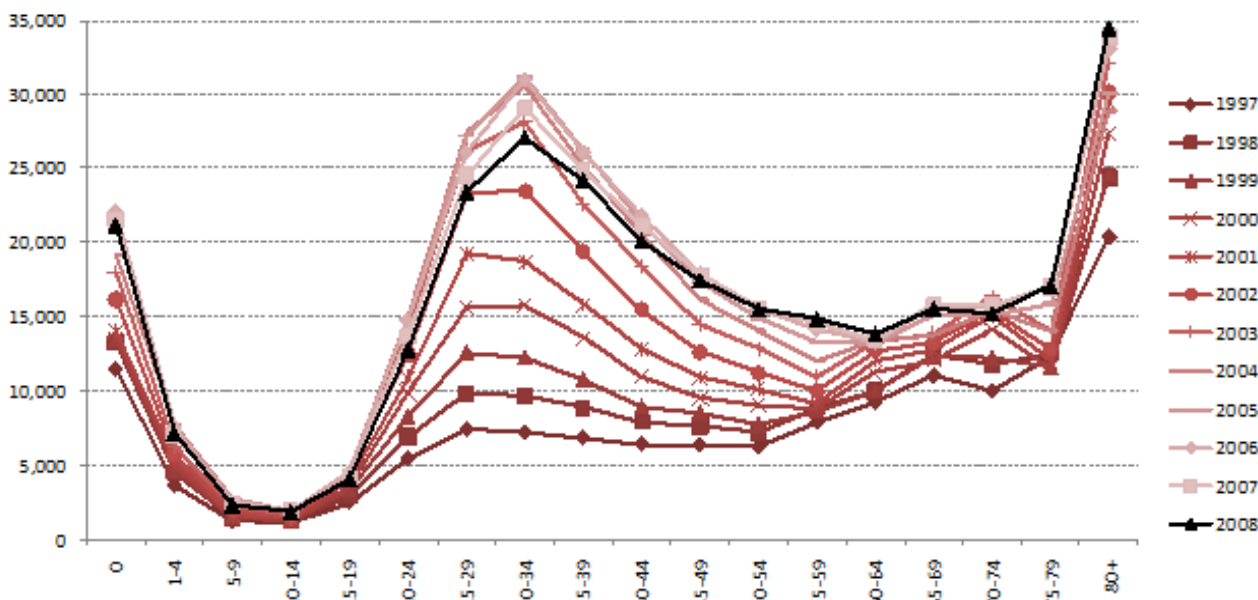1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014

Number of deaths by sex and age for different years in South Africa

Male deaths 1997 - 2008, South Africa

Female deaths 1997 - 2008, South Africa

Source: Stats SA data

Life Table (abridged)

x	n	$_nq_x$	$_np_x$	l_x	$_nd_x$	$_nL_x$	T_x	e_x
0	1	0.008252	0.991748	100 000	825	99 258	7 756 261	77.563
1	4	0.001630	0.998370	99 175	162	396 311	7 657 003	77.207
5	5	0.000905	0.999095	99 013	89	494 842	7 260 692	73.331
10	5	0.000935	0.999065	98 924	93	494 388	6 765 850	68.394
15	5	0.001409	0.998591	98 831	139	493 808	6 271 462	63.456
20	5	0.001534	0.998466	98 692	152	493 080	5 777 654	58.542
25	5	0.001818	0.998182	98 540	179	492 253	5 284 574	53.629
30	5	0.002826	0.997174	98 361	278	491 110	4 792 321	48.722
35	5	0.004410	0.995590	98 083	432	489 335	4 301 211	43.853
40	5	0.007199	0.992801	97 651	693	486 523	3 811 876	39.036
45	5	0.012348	0.987652	96 958	1 197	481 798	3 325 353	34.297
50	5	0.020831	0.979169	95 761	2 005	473 793	2 843 555	29.694
55	5	0.035455	0.964545	93 756	3 324	460 470	2 369 762	25.276
60	5	0.058507	0.941493	90 432	5 291	438 933	1 909 292	21.113
65	5	0.087310	0.912690	85 141	7 434	407 120	1 470 359	17.270
70	5	0.139189	0.860811	77 707	10 816	361 495	1 063 239	13.683
75	5	0.220993	0.779007	66 891	14 782	297 500	701 744	10.492
80	5	0.352367	0.647633	52 109	18 362	214 640	404 244	7.758
85		1.000000	0.000000	33 747	33 747	189 604	189 604	5.618

Source: Population Analysis for Policies & Programmes,
http://papp.iussp.org/sessions/papp101_s07/PAPP101_s07_030_010.html

Exercises

1. There was a total of 14 500 deaths registered in country Y in 2012. The estimated population in country Y for 2012 was 2 230 000. Given that the completeness rate of registration is very high, what was the crude death rate in country Y in 2012?

2. In 2011 there were registered 1 300 infant deaths in Country Q. In total there were 150 000 live births registered. What was the infant mortality rate (IMR) based on these figures? If the estimated number of births from population estimates based on a recent population census was 200 000, which figure would you use and why?

3. Can you estimate the life expectancy at birth for your country?