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HEALTH IN REVIEW

An International Comparative Analysis of Bermuda Health System Indicators

2nd Edition

Health in Review

An International Comparative Analysis of Bermuda Health System Indicators, 2nd Edition

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Foreword

This second edition of Health in Review - An International Comparative Analysis of Bermuda Health System Indicators presents the most recent comparable data on key indicators of health and health systems in Bermuda to 35 member countries of the Organisation for Economic Co-operation and Development (OECD) and 9 additional partner countries. This edition includes two new features: an opening chapter showing sets of dashboard indicators on health and health systems which summarises the comparative performance of each country, and dashboard indicators, within each chapter, showing specific detailed data for Bermuda, as available.

This production of Health in Review would not have been possible without contributions from the Department of Statistics, the Office of the Registrar General, the Bermuda Health Council, the Bermuda Police Service, the Department for National Drug Control, the Bermuda Hospitals Board, and the Epidemiology and Surveillance Unit of the Ministry of Health. Their effort in providing most of the data contained in this publication is gratefully acknowledged.

This publication benefited from scholarly advice and guidance from Dr. Cheryl Peek-Ball, Dr. Janice Chang, Dr. Michael Ashton, Ms. Melinda Williams, Mrs. Robyn Skinner, and Ms. Katura Horton-Perinchief.

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Readers Guide

Most of the individual indicators covered in this report are presented first by a brief commentary highlighting any key findings conveyed by the data. The commentary also provides the indicator definition and any significant variation from the definition which may affect data comparability. For most indicators, a figure of the most recently available five- to ten-year data is shown for Bermuda followed by a comparison to the most recently available data from OECD Health Statistics 2016. Where an OECD average is included, it is the unweighted average of the OECD countries presented. More information including the full documentation of definitions, sources and methods presented can be found on OECD.Stat (http://stats.oecd.org/index.aspx, under Health).

The population figures used to calculate rates per capita for Bermuda come from mid-year population estimates as provided by the Department of Statistics. As this report spans a ten year period, which included a census year, two sets of population estimates were used. For data spanning 2000-2009, population estimates published in 2006 for 2000-2030 was used. For data spanning 2010-2016, population estimated published in 2014 for 2010-2020 was used. For numerous indicators, the rates presented are standardized to various standard populations to remove variations arising from differences in age-structures across countries and over time.

The comparison countries* and respective ISO Codes are as follows:

Country	Country ISO Code	Country	Country ISO Code	Country	Country ISO Code
Australia	AUS	Germany	DEU	Netherlands	NLD
Austria	AUT	Greece	GRC	New Zealand	NZL
Belgium	BEL	Hungary	HUN	Norway	NOR
Bermuda	**BMU**	Iceland	ISL	Poland	POL
Brazil	BRA	India	IND	Portugal	PRT
Canada	CAN	Indonesia	IDN	Russia	RUS
Chile	CHL	Ireland	IRL	Slovak Republic	SVK
China (People's Republic of)	CHN	Israel	ISR	Slovenia	SVN
Colombia	COL	Italy	ITA	South Africa	ZAF
Costa Rica	CRI	Japan	JPN	Spain	ESP
Czech Republic	CZE	Korea	KOR	Sweden	SWE
Denmark	DNK	Latvia	LVA	Switzerland	CHE
Estonia	EST	Lithuania	LTU	Turkey	TUR
Finland	FIN	Luxembourg	LUX	United Kingdom	GBR
France	FRA	Mexico	MEX	United States	USA

*OECD countries are in black.

Data is current as at time of publishing and may be subject to revision in future editions. Information presented in this report supersedes that of the previous edition, for the presented comparable indicators.

The dashboards following should be used to get a first impression of Bermuda's relative strengths and weaknesses on the selected indicators. As there are inherent limitations in data availability, comparability and statistical significance, the individual indicators following the dashboards provide more detail. It is also important that the indicators be considered in the broader context of the racial/ethnic differences and geographical position between Bermuda's population and those of the comparison countries.

The dashboards contain the value of the indicator and an indication of the relative ranking among the comparison countries. For indicators where there is a clear indication of better or worse performance, white is used to show values around the average, red is used to show the extent to which a country is performing worse than the average, and blue is used to show the extent to which a country is performing better than the average. For indicators where there is no clear performance standard, white is used for the lowest values progressing to dark blue for the higher values. Grey indicates that data is not available.

1.1 Health Status

Bermuda is performing well in terms of life expectancy and life expectancy at 65, especially for women. Residents also perceive themselves to be in good health.

All-cause mortality rates are on par with the OECD average, however there are differences by cause of death. Of the major causes of death, cardiovascular disease mortality rates are on par with the OECD average while diabetes mortality rates are somewhat higher.

Overall, cancer mortality rates are near the OECD average. By selected types, lung cancer mortality is lower than the OECD average and colorectal cancer mortality is comparable to the OECD average. For the sex-specific cancers, Bermuda's breast cancer mortality is lower than the OECD average while cervical cancer mortality is comparable to the OECD average, but prostate cancer mortality far exceeds the OECD average. When compared with incidence rates, the following is observed. Overall cancer incidence rates are higher than the OECD average, lung cancer incidence rates are lower, and colorectal cancer rates are near the OECD average but slightly higher for women. While cervical cancer incidence rates are on par with the OECD average, both breast cancer incidence and prostate cancer incidence are slightly higher.

In terms of deaths due to external causes, Bermuda's mortality rates are lower overall, among the lowest for females and on par with the OECD average for males. The overall transport accident mortality rate is over twice the OECD average, mainly due to the rate among males being nearly three times the OECD average; the transport accident mortality rate among females in Bermuda is among the lowest of all the countries. There is a similar scenario with deaths due to assault (homicides), where the overall average mortality in Bermuda is five times the OECD average mainly due to the increased mortality among males. Suicide mortality in Bermuda remains low regardless of gender.

Communicable disease mortality in Bermuda is on par with the OECD average while infant and maternal mortality are among the lowest of all comparative countries. Premature mortality is also on par with the OECD average, mostly due to potential years of life lost among males as premature mortality among females is very low.

Table 1.1.1 Health Status – Life Expectancy at birth and at age 65, and Perceived Health Status

	Life Expectancy at Birth (years)			Life Expectancy at 65 (years)		Perceived Health Status (% reporting good health)		
Country	Total	Female	Male	Female	Male	Total	Female	Male
Australia	82.5	84.5	80.4	22.3	19.5	85	85	85
Austria	81.3	83.7	78.8	21.3	18.1	70	68	72
Belgium	81.1	83.4	78.7	21.5	18.2	75	72	78
Bermuda	**81.1**	**84.9**	**77.3**	**22.2**	**17.8**	**85**	**85**	**85**
Brazil	74.7	78.5	71.0	19.8	16.7			
Canada	81.7	83.8	79.6	21.9	19.0	88	88	88
Chile	79.1	81.7	76.5	20.1	16.9	57	53	62
China (People's Republic of)	76.0	77.5	74.5					
Colombia	74.2	77.8	70.7					
Costa Rica	79.6	82.1	77.2	7.3	7.3			
Czech Republic	78.7	81.6	75.7	19.4	15.9	61	60	63
Denmark	80.8	82.7	78.8	20.7	18.0	72	70	73
Estonia	77.7	82.2	73.2	20.7	15.5	51	50	54
Finland	81.6	84.4	78.7	21.9	18.3	70	69	70
France	82.4	85.5	79.2	23.5	19.4	68	66	70
Germany	80.7	83.1	78.3	21.0	17.9	65	63	66
Greece	81.1	83.7	78.5	21.3	18.5	74	72	77
Hungary	75.7	79.0	72.3	18.2	14.5	56	53	60
Iceland	82.5	83.8	81.2	21.3	19.5	76	73	80
India	68.3	69.9	66.9					
Indonesia	69.1	71.2	67.0					
Ireland	81.5	83.4	79.6	21.0	18.4	82	82	83
Israel	82.1	84.1	80.1	21.5	18.9	84	82	86
Italy	82.6	84.9	80.3	22.2	18.9	66	63	69
Japan	83.9	87.1	80.8	24.3	19.5	35	34	37
Korea	82.1	85.2	79.0	22.4	18.2	33	28	37
Latvia	74.6	79.5	69.7	18.9	14.2	46	42	51
Lithuania	74.5	79.7	69.2	19.2	14.1	43	38	49
Luxembourg	82.4	84.7	80.0	21.8	18.9	70	69	72
Mexico	75.0	77.7	72.3	18.6	16.8			
Netherlands	81.6	83.2	79.9	21.1	18.4	76	73	80
New Zealand	81.7	83.4	79.9	21.5	19.3	89	89	89
Norway	82.4	84.2	80.5	21.6	18.9	78	77	80
OECD35	80.6	83.1	77.9	21.1	17.9	68	66	71
Poland	77.6	81.6	73.5	20.1	15.7	58	55	62
Portugal	81.2	84.3	78.1	21.7	18.0	46	42	52
Russia	71.3	76.7	65.9	17.6	13.3			
Slovak Republic	76.7	80.2	73.1	18.8	15.0	66	62	70
Slovenia	80.9	83.9	77.8	21.4	17.6	65	62	68
South Africa	57.4	59.5	55.5	15.8	11.9			
Spain	83.0	85.8	80.1	23.0	19.0	72	70	75
Sweden	82.3	84.1	80.4	21.5	18.9	80	77	82
Switzerland	83.0	85.1	80.8	22.4	19.4	79	77	82
Turkey	78.0	80.7	75.3	19.4	16.1	66	62	71
United Kingdom	81.0	82.8	79.2	20.8	18.6	70	70	70
United States	78.8	81.2	76.3	20.6	18.0	88	88	89

Table 1.1.2 Health Status - All-Cause Mortality, Cardiovascular Disease Mortality, and Diabetes Mortality

	All-Cause Mortality (standardized rate per 100,000)			Cardiovascular Disease Mortality (standardized rate per 100,000)			Diabetes Mortality (standardized rate per 100,000)		
Country	**Total**	**Female**	**Male**	**Total**	**Female**	**Male**	**Total**	**Female**	**Male**
Australia	654	555	770	191	165	219	19	16	22
Austria	736	609	901	302	263	351	29	25	34
Belgium	746	612	920	206	174	248	11	10	12
Bermuda*	**758**	**607**	**952**	**258**	**214**	**316**	**39**	**32**	**50**
Brazil	993	815	1203	304	262	354	51	51	51
Canada	683	579	813	184	150	226	20	16	24
Chile	800	656	986	230	193	276	34	31	39
Colombia	908	737	1132	336	286	405	35	35	35
Costa Rica	743	619	883	243	207	284	28	28	27
Czech Republic	935	751	1187	442	374	533	31	27	36
Denmark	794	679	941	189	154	234	20	15	27
Estonia	976	722	1396	511	416	663	9	9	9
Finland	761	610	957	280	221	358	7	6	10
France	670	519	871	158	127	201	13	11	17
Germany	773	639	944	294	254	342	20	17	22
Greece	747	612	905	289	252	328	11	9	13
Hungary	1135	906	1476	573	483	705	23	20	26
Iceland	675	583	792	222	174	282	9	6	13
Ireland	792	673	942	261	215	316	16	12	22
Israel	683	589	799	166	145	192	40	36	43
Italy	709	579	888	255	219	302	24	22	27
Japan	583	437	782	152	119	192	6	5	8
Korea	712	544	966	164	140	195	29	24	35
Latvia	1163	865	1650	654	528	859	21	19	22
Lithuania	1140	828	1626	623	507	809	8	7	9
Luxembourg	675	538	861	212	177	252	17	13	23
Mexico	953	803	1137	277	243	320	148	142	155
Netherlands	753	649	896	206	175	245	15	14	16
New Zealand	727	633	837	251	217	286	19	16	23
Norway	718	608	859	204	171	245	11	9	13
OECD35	**790**	**643**	**988**	**282**	**237**	**342**	**23**	**20**	**26**
Poland	955	731	1271	438	358	548	17	15	19
Portugal	778	619	989	235	204	273	31	28	34
Russia	1489	1113	2092	869	707	1137	7	7	5
Slovak Republic	1054	832	1378	494	417	604	18	16	19
Slovenia	772	616	988	318	282	358	12	10	14
South Africa	1896	1635	2337	480	442	546	120	120	122
Spain	649	507	830	185	156	221	15	14	17
Sweden	713	611	841	253	210	306	15	11	20
Switzerland	667	559	811	216	183	260	13	11	16
Turkey	898	731	1116	396	351	452	42	43	40
United Kingdom	776	674	903	213	174	260	8	7	9
United States	822	692	986	251	204	310	24	20	30

*5-year aggregate data as presented for diabetes mortality.

Table 1.1.3 Health Status - Cancer Mortality

	Cancer Mortality (standardized rate per 100,000)			Lung Cancer Mortality (standardized rate per 100,000)			Colorectal Cancer Mortality (standardized rate per 100,000)			Sex-specific Cancer Mortality (standardized rate per 100,000)		
Country	Total	Female	Male	Total	Female	Male	Total	Female	Male	Breast	Cervical	Prostate
Australia	187	152	233	36	27	47	18	15	22	23	2	32
Austria	197	161	250	38	26	54	21	16	27	26	3	28
Belgium	199	156	260	49	27	78	20	16	26	30	2	26
Bermuda*	**222**	**166**	**301**	**32**	**20**	**46**	**22**	**17**	**31**	**20**	**3**	**66**
Brazil	160	133	196	21	15	29	14	13	15	20	7	33
Canada	207	177	249	55	46	67	23	18	28	25	2	26
Chile	194	161	243	24	17	33	19	17	22	19	7	45
Colombia	158	136	191	20	14	27	13	13	14	18	10	37
Costa Rica	167	138	204	11	8	15	18	15	21	21	7	40
Czech Republic	226	175	301	42	24	67	30	22	42	23	5	36
Denmark	233	202	279	56	49	65	27	22	34	31	3	44
Estonia	237	173	368	44	18	92	28	22	41	25	8	54
Finland	172	142	220	31	20	46	18	14	23	22	2	32
France	196	142	271	41	20	67	21	16	28	27	2	27
Germany	201	161	257	41	26	61	23	18	29	29	3	31
Greece	199	139	274	50	18	89	18	14	24	25	2	25
Hungary	283	217	386	74	48	113	44	31	64	31	7	32
Iceland	205	177	243	45	42	48	25	21	29	32	2	41
Ireland	227	195	273	47	36	62	27	21	36	33	4	34
Israel	179	158	207	32	20	48	21	18	24	30	3	18
Italy	205	156	277	41	19	71	23	18	30	27	1	22
Japan	177	126	249	34	17	59	24	18	30	14	3	13
Korea	179	116	280	42	20	77	21	15	29	8	4	14
Latvia	241	172	378	38	12	85	27	21	40	29	8	53
Lithuania	225	155	353	38	12	81	26	18	40	24	9	45
Luxembourg	200	149	273	46	27	71	19	13	29	28	3	23
Mexico	115	105	129	11	7	15	8	7	9	15	10	27
Netherlands	228	189	286	54	41	74	26	21	33	29	2	35
New Zealand	210	180	250	39	33	46	31	27	36	27	3	35
Norway	198	168	244	40	33	49	29	25	33	22	2	50
OECD35	**204**	**160**	**269**	**42**	**26**	**64**	**24**	**19**	**31**	**25**	**4**	**33**
Poland	234	179	322	56	31	93	28	21	41	26	7	32
Portugal	197	138	278	30	12	54	28	20	39	22	3	34
Russia	209	155	313	36	10	81	28	24	38	**27**	**8**	**26**
Slovak Republic	259	192	367	40	18	74	39	28	57	29	7	44
Slovenia	235	177	329	47	28	73	30	21	42	26	4	44
South Africa	176	144	248	24	14	41	12	10	17	23	23	59
Spain	186	126	266	39	14	70	26	18	38	20	2	24
Sweden	185	161	219	30	29	33	23	20	27	22	2	46
Switzerland	176	140	228	34	24	47	17	14	22	25	1	36
Turkey	166	104	246	48	13	90	15	11	20	13	2	25
United Kingdom	222	189	269	49	40	60	22	18	28	29	3	36
United States	188	159	228	50	41	62	17	14	20	24	3	22

*5-year aggregate data as presented for cancer mortality.

Table 1.1.4 Health Status - Cancer Incidence

	Cancer Incidence (standardized rate per 100,000)			Lung Cancer Incidence (standardized rate per 100,000)			Colorectal Cancer Incidence (standardized rate per 100,000)			Sex-specific Cancer Incidence (standardized rate per 100,000)		
Country	Total	Female	Male	Total	Female	Male	Total	Female	Male	Breast	Cervical	Prostate
Australia	323	279	374	27	22	33	38	32	46	86	6	115
Austria	254	223	295	28	20	37	26	20	34	68	6	75
Belgium	321	289	365	37	20	57	37	30	45	112	9	91
Bermuda*	**305**	**281**	**341**	**23**	**15**	**32**	**32**	**30**	**34**	**90**	**8**	**83**
Brazil	206	187	232	16	12	21	16	15	17	60	16	76
Canada	296	277	321	38	34	43	35	29	43	80	6	89
Chile	176	163	195	13	10	17	15	14	16	35	13	52
China (People's Republic of)	174	140	211	36	20	53	14	12	17	22	8	5
Colombia	161	152	175	11	7	16	13	13	13	36	19	51
Costa Rica	179	169	194	7	5	10	16	16	17	45	11	68
Czech Republic	294	259	346	33	18	51	39	27	54	70	14	72
Denmark	338	329	354	39	38	42	41	36	46	105	11	91
Estonia	243	203	322	24	9	48	27	23	35	52	20	94
Finland	257	234	290	20	12	30	24	20	28	89	4	97
France	304	262	356	35	20	52	30	25	36	90	7	98
Germany	284	253	324	28	18	39	31	23	40	92	8	77
Greece	163	138	195	29	9	51	14	11	16	44	5	20
Hungary	285	237	356	52	33	77	42	31	59	55	18	38
Iceland	284	274	300	30	29	31	28	28	29	96	8	107
India	94	97	92	7	3	11	6	5	7	26	22	4
Indonesia	134	134	136	16	8	26	13	10	16	40	17	15
Ireland	308	279	343	31	27	36	35	28	43	92	14	114
Israel	283	259	318	21	14	30	36	30	43	81	5	84
Italy	279	255	313	25	13	39	34	28	42	91	7	68
Japan	217	186	260	25	13	39	32	24	42	52	11	30
Korea	308	294	340	29	16	46	45	33	59	52	10	30
Latvia	247	207	325	28	8	58	24	20	30	52	17	83
Lithuania	252	224	312	26	7	55	23	19	31	49	26	61
Luxembourg	280	260	309	28	19	40	32	22	42	89	5	79
Mexico	132	140	124	8	5	11	8	7	9	35	23	27
Netherlands	305	290	328	37	32	44	40	34	48	99	7	83
New Zealand	295	274	320	26	23	29	37	34	42	85	5	92
Norway	318	277	369	30	26	35	39	36	43	73	10	130
OECD34	**270**	**241**	**310**	**29**	**19**	**42**	**31**	**25**	**39**	**74**	**9**	**76**
Poland	230	206	269	38	22	61	27	20	37	52	12	36
Portugal	246	198	306	20	8	34	32	24	42	68	9	64
Russia	204	187	246	24	7	51	25	22	30	46	15	30
Slovak Republic	277	238	338	28	14	48	43	29	62	58	16	50
Slovenia	296	252	358	34	18	54	37	27	50	67	11	83
South Africa	187	169	224	19	11	29	12	10	16	42	32	68
Spain	249	198	313	30	11	53	33	24	44	67	8	65
Sweden	270	249	297	19	19	19	29	27	32	80	7	119
Switzerland	287	246	338	27	21	35	29	24	36	83	4	107
Turkey	205	162	258	35	9	64	17	13	21	39	4	41
United Kingdom	273	267	284	30	26	35	30	24	37	95	7	73
United States	318	297	347	38	34	44	25	22	29	93	7	98

*5-year aggregate data as presented for cancer incidence.

Table 1.1.5 Health Status - External Cause Mortality

	External Cause Mortality (standardized rate per 100,000)			Transport Accident Mortality (standardized rate per 100,000)			Homicide (standardized rate per 100,000)			Suicide (standardized rate per 100,000)		
Country	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Australia	43	28	58	6	3	9	1	1	1	12	6	19
Austria	43	26	62	5	2	8	0	0	1	14	6	23
Belgium	52	35	70	6	3	10	1	1	1	16	9	24
Bermuda*	**36**	**7**	**68**	**15**	**1**	**30**	**10**	**2**	**19**	**3**	**1**	**5**
Brazil	86	34	142	24	9	40	28	5	52	6	2	10
Canada	46	31	62	7	4	11	1	1	2	11	5	17
Chile	49	23	77	12	5	20	5	1	8	10	4	18
Colombia	71	22	126	17	6	30	30	5	57	5	2	8
Costa Rica	56	29	83	14	4	25	9	2	15	6	2	10
Czech Republic	52	29	78	8	3	12	1	1	1	13	5	23
Denmark	34	22	46	4	2	6	1	1	1	11	5	16
Estonia	70	27	123	7	4	11	3	1	5	18	6	32
Finland	57	32	85	6	3	9	1	1	2	14	7	22
France	47	30	68	5	2	8	1	0	1	14	7	23
Germany	34	22	48	4	2	7	0	0	0	11	5	17
Greece	29	14	45	9	4	15	1	0	2	5	2	8
Hungary	55	30	87	8	4	13	1	1	1	18	8	31
Iceland	39	30	48	2	2	2	0	1	1	14	7	21
Ireland	35	19	51	4	2	6	1	0	1	11	4	18
Israel	26	15	37	4	2	7	2	1	3	6	2	9
Italy	31	20	44	7	3	11	1	0	1	6	3	11
Japan	41	26	58	4	2	6	0	0	0	18	10	25
Korea	68	41	101	13	7	20	1	1	1	29	17	43
Latvia	87	34	152	12	5	20	7	3	10	18	6	34
Lithuania	106	40	186	11	5	18	4	2	6	30	9	55
Luxembourg	43	30	58	5	2	8	1	1	1	12	5	18
Mexico	66	27	110	16	6	26	18	4	34	6	2	10
Netherlands	38	29	48	4	2	6	1	0	1	10	7	15
New Zealand	45	30	60	10	5	15	1	1	2	13	6	19
Norway	47	31	64	4	2	6	1	0	1	11	6	16
OECD35	**46**	**27**	**69**	**7**	**3**	**11**	**2**	**1**	**3**	**12**	**6**	**20**
Poland	54	23	89	10	4	16	1	0	1	15	4	27
Portugal	39	22	58	7	3	12	1	1	1	10	5	17
Russia	136	57	241	20	10	32	11	5	19	21	7	39
Slovak Republic	60	32	94	8	4	12	1	1	1	10	3	18
Slovenia	53	31	78	6	3	9	1	1	1	17	5	30
South Africa	117	60	188	13	7	21	10	3	18	1	1	2
Spain	27	16	39	4	2	7	1	0	1	8	4	12
Sweden	44	28	61	3	2	5	1	1	1	11	7	16
Switzerland	41	29	55	4	2	6	1	1	0	12	6	19
Turkey	34	20	51	10	5	17	2	1	3	3	1	4
United Kingdom	33	20	46	3	1	4	0	0	0	8	3	12
United States	64	39	90	12	7	18	5	2	8	14	6	22

*5-year aggregate data as presented for external cause mortality.

Table 1.1.6 Health Status - Communicable Disease Mortality, Infant and Maternal Mortality, and Premature Mortality

	Communicable Disease Mortality (standardized rate per 100,000)			Infant Mortality	Maternal Mortality	Premature Mortality (PYLL per 100,000)		
Country	Total	Female	Male	(per 1,000 live births)		Total	Female	Male
Australia	12	10	14		3	2674	2024	3329
Austria	7	5	9	3	5	2794	2034	3563
Belgium	18	15	21	3	2	3026	2211	3836
Bermuda*	**16**	**12**	**23**	**2**	**0**	**3184**	**1542**	**4933**
Brazil	38	32	46			7198	4672	9810
Canada	16	14	18		6	3034	2389	3675
Chile	19	15	24	7	14	4003	2834	5187
Colombia	21	15	29			5040	3337	6800
Costa Rica	12	10	14			4032	2945	5082
Czech Republic	15	13	19	2	4	3427	2180	4672
Denmark	14	13	15	3	0	2855	2174	3529
Estonia	9	7	11	3	0	5095	2744	7620
Finland	5	4	5	2	4	3007	1906	4092
France	13	10	16	4	5	3130	2095	4201
Germany	16	14	19	3	3	2880	2063	3695
Greece	22	21	23		4	2988	1922	4103
Hungary	7	6	9	4	6	5056	3301	6943
Iceland	10	10	9	2	0	2223	1937	2507
Ireland	7	6	7		2	2815	2080	3557
Israel	38	34	45	3	3	2435	1805	3084
Italy	15	12	18		1	2490	1806	3190
Japan	12	10	15	2	3	2361	1668	3048
Korea	18	14	25	3	9	2830	1814	3829
Latvia	14	9	20	4	55	6687	3656	10056
Lithuania	20	12	31			7037	3618	10815
Luxembourg	10	9	11		0	2200	1527	2846
Mexico	21	16	25		35	6429	4636	8292
Netherlands	17	15	20	4	4	2540	2145	2931
New Zealand	8	7	8	4	17	3220	2552	3900
Norway	16	14	19	...	0	2401	1771	3004
OECD35	**14**	**11**	**16**	**3**	**7**	**3324**	**2299**	**4374**
Poland	5	4	7	4	2	4715	2768	6716
Portugal	17	13	22		7	2936	1851	4057
Russia	23	11	37			10878	5932	16444
Slovak Republic	7	7	8	3	2	4601	2855	6397
Slovenia	6	5	8	2	5	2765	1795	3699
South Africa	278	240	337			17963	15575	20509
Spain	11	9	13	2	4	2398	1657	3146
Sweden	17	14	21	2	1	2347	1785	2892
Switzerland	8	7	9	3	2	2355	1742	2957
Turkey	15	12	19	10	15	4024	2948	5100
United Kingdom	9	8	9	3	5	2996	2320	3680
United States	22	19	26	4	13	4611	3461	5755

*5-year aggregate data as presented for communicable disease mortality, infant mortality, and maternal mortality...

1.2 Risk Factors and Related Conditions

Chronic health conditions and their associated risk factors are a public health concern. It can be said that the risk factors of today are the diseases of tomorrow. As with all public health concerns, these risk factors and their associated chronic health conditions, including heart disease, diabetes, and cancers, threaten the wellbeing of a country's community and economy. Prevalence of these conditions and their risk factors are assessed through health surveys. As with all sample surveys, health survey data might be subject to systematic error resulting from non-coverage, nonresponse, or measurement bias. However, the results of such surveys provide sufficient evidence of the need for directed actions and policies that can assist in preventing and controlling chronic health conditions and their associated risk factors.

Subsequent health surveys in Bermuda have shown consistently high rates of overweight and obesity, diabetes, high blood pressure and high cholesterol. Indeed, overweight and obesity rates are among the highest of the comparison countries. However, as there are limitations in data comparability for this indicator, confidence intervals for the Bermuda 2014 data are provided:

Males:

Overweight - BMI 25.0-29.9: 49.6% (CI: 35.9-63.4)

Obese - BMI ≥ 30: 29.4% (CI: 21 .2-37.7)

Overweight/obese – BMI ≥ 25: 79.1% (CI: 71 .1-87.1)

Females:

Overweight - BMI 25.0-29.9: 29.6% (CI: 25.3-34.0)

Obese - BMI ≥ 30: 40.0% (CI: 29.9-50.2)

Overweight/obese – BMI ≥ 25: 69.6% (CI: 60.9-78.4)

Total Population:

Overweight - BMI 25.0-29.9: 40.2% (CI: 32.7-47.8)

Obese - BMI ≥ 30: 34.4% (CI: 29.0-39.8)

Overweight/obese – BMI ≥ 25: 74.6% (CI: 67.0-82.2)

Even at the lower ends of the confidence intervals, the obesity prevalence and the overweight/obesity prevalence are well above the OECD average. However, and additionally, several countries survey results are based on self-reported height and weight, resulting in an underestimation compared to those countries that provide more reliable data based on measured obesity. Bermuda 2014 data is based on measured height and weight of over 1000 persons.

Although not a comprehensive measure of complete nutrition, daily fruit consumption (at least one serving) is on par with the OECD average while daily vegetable consumption (at least one serving) is somewhat higher than the OECD average.

Bermuda is doing exceptionally well in comparison to the OECD countries in regards to daily smoking.

Table 1.2.1 Risk Factors – Overweight and Obesity

	Overweight prevalence (% BMI 25.0-29.9)			Obesity Prevalence (% BMI 30.0 and over)			Overweight & Obesity Prevalence (% BMI 25.0 and over)		
Country	Total	Female	Male	Total	Female	Male	Total	Female	Male
Australia*	36	29	42	28	27	28	63	56	71
Austria	32	26	39	15	13	16	47	39	55
Belgium*	32	27	37	19	19	18	51	46	56
Bermuda*	**40**	**30**	**50**	**34**	**40**	**29**	**75**	**70**	**79**
Brazil	33	29	38	21	24	17			
Canada*	34	27	42	26	26	26	60	53	68
Chile*	39	34	45	25	31	19	65	64	65
China (People's Republic of)				7	8	6			
Colombia				21	26	16			
Costa Rica				24					
Czech Republic*	34	28	40	21	21	21	55	49	61
Denmark	33	27	40	15	16	14	47	41	54
Estonia*	33	26	41	18	19	17	51	45	58
Finland*	40	34	46	25	26	24	65	60	70
France*	32	24	41	17	18	16	49	41	57
Germany*	36	29	44	24	24	23	60	53	67
Greece	39	32	48	17	16	18	56	48	66
Hungary*	32	29	37	30	32	28	62	60	65
Iceland	41	34	49	22	23	21	63	57	70
India				5	7	3			
Indonesia				6	8	4			
Ireland*	38	32	45	23	24	22	61	56	67
Israel	37	31	42	18	17	18	55	48	61
Italy	36	28	45	10	10	11	46	38	56
Japan*	21	18	25	4	4	4	25	21	29
Korea*	26	21	32	4	4	5	31	25	37
Latvia*	34	28	40	21	25	16	55	53	56
Lithuania				17	19	13			
Luxembourg*	36	28	42	23	21	24	58	49	66
Mexico*	39	36	43	32	38	27	71	73	69
Netherlands	35	29	40	13	15	12	48	45	52
New Zealand*	35	30	41	30	30	30	65	60	71
Norway	36	29	42	10	9	11	46	38	53
OECD35	**35**	**29**	**41**	**20**	**20**	**19**	**54**	**49**	**60**
Poland	37	30	44	17	16	18	53	46	62
Portugal	36	32	42	17	18	15	53	49	57
Russia				20	23	15			
Slovak Republic*	35	31	41	17	17	17	52	48	58
Slovenia	36	30	43	19	17	21	56	48	64
South Africa				27	37	16			
Spain	35	28	43	17	16	17	52	44	59
Sweden	34	28	41	12	12	12	47	40	53
Switzerland	31	23	39	10	9	11	41	32	50
Turkey*	33	29	37	22	29	15	55	58	53
United Kingdom*	36	31	41	26	27	24	62	58	65
United States*	32	26	38	38	41	36	70	67	74

Data on Body Mass Index in adults are based on measured height and weight for all the countries marked with an *. These generally result in more accurate data and higher obesity rates compared with all other countries that are providing self-reported height and weight.

Table 1.2.2 Risk Factors – Fruit and Vegetable Consumption and Tobacco Use

	Fruit Consumption (% reporting daily consumption)			Vegetable Consumption (% reporting daily consumption)			Tobacco Use (% reporting daily tobacco use)		
Country	Total	Female	Male	Total	Female	Male	Total	Female	Male
Australia	95	96	93	99	100	99	13	11	15
Austria	56	66	45	48	55	40	24	22	27
Belgium	54	59	48	78	81	75	19	16	22
Bermuda	**59**	**61**	**59**	**73**	**80**	**67**	**10**	**5**	**15**
Brazil							9	7	10
Canada	69	76	62	75	81	68	14	12	16
Chile	35	41	29	61	66	55	30	26	34
China (People's Republic of)							26	2	49
Colombia							12	7	17
Costa Rica							15	9	20
Czech Republic	47	56	37	41	48	34	22	19	26
Denmark	53	62	44	44	54	34	17	17	17
Estonia	52	59	44	55	60	49	22	16	31
Finland	32	41	20	44	51	34	15	14	17
France	55	61	49	58	63	51	22	19	26
Germany	47	56	39	34	43	25	21	17	25
Greece	55	59	51	62	67	57	27	21	34
Hungary	59	65	53	46	50	42	26	21	32
Iceland	46	56	36	47	55	39	13	13	12
India							13	2	23
Indonesia							38	4	72
Ireland							24	22	25
Israel	72	75	69	81	84	78	17	11	23
Italy	74	78	71	61	66	55	20	15	25
Japan							20	9	32
Korea	66	71	61	99	99	99	20	4	37
Latvia	20	27	13	37	43	30	24	15	36
Lithuania							20	9	34
Luxembourg	50	57	43	52	61	43	15	14	17
Mexico	43	45	41	58	58	57	12	5	13
Netherlands	41	47	35	31	35	28	19	17	22
New Zealand	81	84	77	96	96	95	16	14	17
Norway	62	70	53	65	73	57	13	13	14
OECD	**56**	**62**	**50**	**60**	**65**	**55**	**19**	**15**	**24**
Poland	59	64	52	56	60	51	23	17	29
Portugal	71	75	67	55	61	49	17	11	24
Russia							22	8	41
Slovak Republic	47	54	40	44	50	38	23	16	30
Slovenia	61	69	53	61	66	55	19	16	22
South Africa							20	7	32
Spain	67	71	62	45	50	39	23	19	28
Sweden	61	71	51	67	75	59	12	12	12
Switzerland	62	70	53	69	77	60	20	18	23
Turkey	48	49	46	60	63	58	27	13	42
United Kingdom	63	68	57	66	70	60	19	17	20
United States	58	61	54	92	92	93	13	12	14

1.3 Healthcare Utilization and Quality

Selected health care utilization and quality indicators provide a snapshot of health service delivery and quality of care. It looks at hospitalization rates and utilization rates of select diagnostic and surgical procedures. It also examines avoidable admissions as a way of assessing the degree to which care is delivered in accordance with established standards leading to improvements in patient outcomes. Quality of care for chronic conditions and delivery of acute care for life-threatening conditions such as heart attack and stroke are included.

Overall, hospital discharge rates are lower than the OECD average, including discharges for cancer, circulatory diseases and acute care. Bermuda's rates of cataract surgeries and caesarean sections are both higher than their respective OECD averages.

The overall average length of stay in hospital in Bermuda is longer than the OECD average, but this is not the case for acute care, where it is on par with the OECD average, or post-acute myocardial infarction (heart attack), where the average length of stay is shorter.

There is a mixed picture with avoidable admissions and 30-day in hospital mortality. On average, Bermuda is doing better than most OECD countries for chronic obstructive pulmonary disease and hypertension, but worse for asthma, congestive heart failure, and diabetes. Bermuda's diabetes major lower amputation rates are also tend to be quite high in comparison to the OECD average. The average 30-day in-hospital mortality rates are comparable to the OECD average for ischaemic stroke but Bermuda has more favourable outcomes for haemorrhagic stroke and acute myocardial infarction.

Table 1.3.1 – Healthcare Utilization – Hospital discharges, average length of stay, and surgical procedure rates

	Hospital discharges (per 100,000 population)			Average Length of Stay (days)		Surgical Procedures	
Country	All	Cancer	Circulatory diseases	All	Acute Myocardial Infarction	Cataract surgeries (per 100,000 population)	Caesarean Section (per 1000 live births)
Australia	17479	1135	1590	5.5	5.2	1060	
Austria	25581	2862	3355	8.5	8.2	1235	287
Belgium	16582	1121	1925	7.6	6.9	1119	208
Bermuda	**9750**	**541**	**1346**	**12.0**	**4.6**	**1004**	**312**
Brazil	5522			9.6			
Canada		569	1044		5.2	1060	260
Chile	9317	668	721	5.7	10.2	36	
China (People's Republic of)	15300			5.5			
Colombia	3435			7.9			
Czech Republic	20638	1437	2715	9.3	5.9	1081	254
Denmark	14775	1069	1572	5.5	4.0	994	211
Estonia	17146	2014	2862	7.6	9.1	1104	187
Finland	16624	1521	2600	9.4	6.1	1040	155
France	18360	1100	1909	10.1	5.9	1207	208
Germany	25534	2440	3745	9.0	10.2	1028	302
Greece	19646	2444	2631	7.0	6.0	1075	
Hungary	20008	2369	3353	9.5	7.8	956	372
Iceland	11385	973	1108	6.3	5.5	575	301
Ireland	14064	693	1167	6.4	6.9	226	
Israel	15890	581	1183	6.8	5.9	715	162
Italy	11856	1109	1879	7.8	7.9	868	353
Japan	12412	2335	1623	29.1			
Korea	16414	1724	1118	16.1	7.4	964	380
Latvia	18704	1741	3153	8.3	6.5		210
Lithuania	23855	1973	4339	11.4	8.8	781	198
Luxembourg	14567	1337	1649	9.1	7.0	1085	278
Mexico	4988	360	232	4.2	6.5	70	
Netherlands	11646	1105	1638	6.8	5.6	1005	159
New Zealand	14383	762	1348	6.7	6.7	337	263
Norway	16437	1470	1993	7.3	3.7	439	161
OECD	**15910**	**1312**	**1902**	**8.0**	**6.5**	**798**	**262**
Poland	16958	1329	2713	8.8	6.1	459	362
Portugal	10917	735	1112	7.2	7.7	1419	
Russia	22854			6.5			
Slovak Republic	20053	1714	2971	6.8	4.9	175	
Slovenia	18457	1815	2113	7.3	7.5	894	208
Spain	11435	979	1320	5.9	7.0	722	245
Sweden	15312	1054	1952	8.4	4.3	1029	173
Switzerland	17147	1419	1837	3.9	6.8	438	325
Turkey	17115	653	1429	7.0	4.8	391	531
United Kingdom	13190	787	1206	6.1	6.8	736	262
United States		509	1816		5.4		

Table 1.3.2 Healthcare Quality - Avoidable admissions and 30-day in-hospital mortality

	Avoidable Admissions (per 100,000 population aged 15 years and over)						30-day In-hospital Mortality (% of patients aged 45 years and over)		
Country	Asthma	Chronic Obstructive Pulmonary Disease	Congestive Heart Failure	Hypertension	Diabetes	Diabetes major lower extremity amputations	Acute Myocardial Infarction	Ischaemic Stroke	Haemorrhagic Stroke
Australia	65	324	240	37	141	5	4	9	21
Austria	44	305	283	299	296		10	6	19
Belgium	34	211	183	9	171	5	7	9	27
Bermuda*	**74**	**35**	**491**	**35**	**187**	**13**	**4**	**11**	**18**
Brazil									
Canada	15	243	179	15	95	7	7	10	27
Chile	21	118	119	41	231		14	9	30
China (People's Republic of)									
Colombia	11	79	47	59	53	1			
Czech Republic	37	159	415	167	192		7	10	26
Denmark	46	288	154	66	125	9	6	9	29
Estonia	37	307					12	13	35
Finland	61	132	278	76	126		7	5	14
France	30	120	238	34	181	8	7	8	27
Germany	23	245	382	251	216	9	9	6	17
Greece									
Hungary	73	354	441	15	110		14	10	41
Iceland	21	206	197	45	55	4	7	8	25
Ireland	41	395	175	26	139	3	6	10	25
Israel	54	207	234	76	88	16	7	6	22
Italy	10	70	268	20	44	3	6	6	20
Japan	35	24	137	23	162		12	3	12
Korea	99	212	102	158	311	2	8	3	14
Latvia	95	162			131		15	18	39
Lithuania									
Luxembourg	25	166			168	4	7	9	19
Mexico	13	106	74	96	338		28	20	30
Netherlands	31	164	199	21	68	5	8	7	31
New Zealand	72	326	229	17	187	6	7	8	29
Norway	26	222	175	46	76	6	7	5	24
OECD	**45**	**197**	**244**	**78**	**149**	**6**	**8**	**9**	**25**
Poland	80	181	548	198	231		5		
Portugal	17	72	195	20	86	12	9	10	27
Russia									
Slovak Republic	110	170	437	397	225		7	11	28
Slovenia	43	108	306	13	112	15	5	13	29
Spain	42	194	206	13	52	7	8	10	26
Sweden	23	192	300	46	111	4	5	6	15
Switzerland	13	101	174	51	44	3	8	7	20
Turkey									
United Kingdom	61	213	99	12	64	3	8	9	27
United States	103	217	367	57	198		6	4	22

1.4 Healthcare Resources

Human resources for health, in terms of health workforce, affect access to care. Based on available data, Bermuda's employment in the health and social sectors is on par with the OECD average. Bermuda has slightly less physicians per 1000 population than the OECD average. By type of physician per 1000 population, there are more general practitioners and fewer paediatricians and psychiatrists. The number of obstetrician –gynaecologists per 1000 population is the same as the OECD average, but higher than the OECD average when compared per 1000 live births. For other selected health professionals, Bermuda has fewer nurses, dentists, pharmacists and physiotherapists.

The number of hospital beds may serve as an indication regarding the distribution of health care delivery – hospital-based vs. primary care. Bermuda has more hospital beds per 1000 population than the OECD average and more long-term care beds within hospitals per 1000 population aged 65 years and over, but only half the OECD average for curative (acute) care beds.

Medical technologies improve diagnosis and treatment but may also increase health spending. The number of CT scanners and MRI units per million population is higher than the OECD average. Usage rates for the CT scanners and the MRI units from the hospital only show rates substantially higher than the OECD average.

Bermuda's Gross Domestic Product (GDP) and total health expenditure, and by extension, health expenditure as share of GDP, are substantially higher than the OECD average and among the highest of the comparison countries. However, it should be noted that the performance of health systems in achieving the key policy goals of universal access and quality depends not only on allocating more money on health care, but also on making rational use of resources and ensuring the best value for money spent.

Table 1.4.1 Healthcare resources – Health workforce: Health and social employment

	Health Workforce (per 1000 population)				
Country	Health and Social Employment	Nurses	Dentists	Pharmacists	Physiotherapists
Australia	66	11.5	0.6	0.9	0.9
Austria	52	8.1	0.6	0.7	0.4
Belgium	53	10.8	0.7	1.2	1.9
Bermuda*	**45**	**7.9**	**0.6**	**0.7**	**0.8**
Brazil		1.5			
Canada	53	9.9	0.6	1.0	0.6
Chile	24				1.1
China (People's Republic of)		2.4			
Colombia		1.1			
Costa Rica	15				
Czech Republic	31	8.0	0.8	0.7	0.8
Denmark	89	16.7	0.8	0.5	1.6
Estonia	29	6.0	0.9	0.7	0.3
Finland	71	14.7	0.7	1.1	2.7
France	59		0.6	1.1	1.3
Germany	68	13.3	0.9	0.6	2.2
Greece	20	3.2			0.7
Hungary	30	6.5	0.6	0.7	0.3
Iceland	63	15.5	0.8	1.1	1.7
India		1.4			
Indonesia		1.2			
Ireland	52				0.6
Israel	49	4.9	0.8	0.7	1.1
Italy	31	5.4	0.8	1.2	1.0
Japan	65	11.0	0.8	1.7	
Korea	35	5.9	0.5	0.7	0.6
Latvia	24	4.7	0.7	0.8	0.3
Lithuania	31	7.7	0.9		1.1
Luxembourg	73	11.9	0.9	0.7	2.0
Mexico	9	2.8	0.1		
Netherlands	82	10.5	0.5	0.2	1.7
New Zealand	56	10.3		0.7	1.0
Norway	109	17.3	0.9	0.7	2.4
OECD	**49**	**9.0**	**0.7**	**0.8**	**1.0**
Poland	25	5.2	0.3	0.7	0.7
Portugal	34			0.8	0.1
Russia		**8.7**			
Slovak Republic	24				0.3
Slovenia	29	8.8	0.7	0.6	0.6
South Africa		1.2			
Spain	28	5.3		1.2	1.0
Sweden	82	11.1	0.8	0.8	1.3
Switzerland	77	18.0	0.5	0.5	
Turkey	13				0.1
United Kingdom	59	7.9	0.5	0.8	0.4
United States	63				0.7

Table 1.4.2 Healthcare resources – Health workforce: Physicians

	Health Workforce (per 1000 population)					
Country	Physicians	General practitioners	Paediatricians	Psychiatrists	OB/GYNS	OB/GYNs (per 1000 live births)
Australia	3.5	1.2	0.1	0.2	0.1	6.6
Austria	5.1	0.8	0.2	0.2	0.2	22.1
Belgium	3.0	1.1	0.1	0.2	0.1	11.6
Bermuda*	**2.7**	**1.0**	**0.1**	**0.1**	**0.1**	**15.4**
Brazil	1.8					
Canada	2.6	1.3	0.1	0.2	0.1	7.2
Chile		1.0	0.1	0.1	0.1	7.3
China (People's Republic of)	1.8					
Colombia	1.8					
Costa Rica						
Czech Republic	3.7	0.7	0.1	0.2	0.3	24.9
Denmark	3.7		0.1	0.2	0.1	10.2
Estonia	3.4	0.7	0.1	0.2	0.2	22.2
Finland	3.2		0.1	0.2	0.2	15.4
France	3.1	1.5	0.1	0.2	0.1	10.4
Germany	4.1	0.7	0.1	0.2	0.2	23.2
Greece		0.3	0.4	0.2	0.3	36.8
Hungary	3.1		0.3	0.1	0.1	13.5
Iceland	3.8	0.6	0.0	0.2	0.1	10.7
India	0.7					
Indonesia	0.3					
Ireland	2.9	0.8	0.1	0.2	0.1	5.1
Israel	3.4	0.3	0.3	0.2	0.2	9.1
Italy	3.8	0.7	0.3	0.2	0.2	24.2
Japan	2.4		0.1	0.1	0.1	12.8
Korea	2.2	0.1	0.1	0.1	0.1	13.5
Latvia	3.2		0.1	0.2	0.2	18.1
Lithuania	4.3	0.9	0.3	0.2	0.3	22.7
Luxembourg	2.9	0.9	0.2	0.2	0.2	15.0
Mexico	2.4	0.7	0.2	0.0	0.2	9.3
Netherlands	3.5	0.8	0.1	0.2	0.1	9.2
New Zealand	3.0	0.9	0.1	0.2	0.1	6.6
Norway	4.4	0.8	0.2	0.2	0.1	9.6
OECD	**3.3**	**0.7**	**0.2**	**0.2**	**0.1**	**14.0**
Poland	2.3	0.2	0.1	0.1	0.1	13.7
Portugal		0.6	0.2	0.1	0.2	20.2
Russia	4.0					
Slovak Republic						
Slovenia	2.8	0.6	0.3	0.1	0.2	16.1
South Africa	0.8					
Spain	3.9	0.8	0.3	0.1	0.1	13.3
Sweden	4.2	0.7	0.1	0.2	0.1	12.0
Switzerland	4.2		0.2	0.5	0.2	19.9
Turkey		0.6	0.1	0.0	0.1	5.3
United Kingdom	2.8	0.8	0.2	0.2	0.1	9.7
United States	2.6	0.3	0.3	0.1	0.1	10.8

Table 1.4.3 Healthcare resources – Hospital beds, medical technologies and health expenditure

	Hospital beds (per 1000 population)			Medical technologies				Health Expenditure		
Country	Total	Curative (acute) care beds	Long-term care beds (per 1000 persons 65 years and over)	CT scanners (per million population)	CT scans in hospital (per 1000 population)	MRI Units (per million population)	MRI exams in hospital (per 1000 population)	Health Expenditure per capita (USD PPP)	Health Expenditure as share of GDP (%)	Gross Domestic Product per capita (GDP) (USD PPP)
Australia	3.8			59.6	11.1	14.5	1.8	4492.6	9.4	47563.7
Austria	7.6	5.7	3.5	29.0	142.2	20.7	55.0	5100.0	10.3	49419.3
Belgium	6.2	5.7	0.7					4778.5	10.5	45608.4
Bermuda	**5.8**	**1.8**	**11.1**	**32.4**	**173.4**	**32.4**	**60.9**	**6915.0**	**11.6**	**59970.3**
Brazil	2.3	2.0		15.3		6.8		994.8	6.2	15869.0
Canada	2.6	2.0	2.8	15.0	150.6	9.5	49.1	4532.8	10.3	44204.9
Chile	2.1		0.1	14.8		9.4		1877.3	8.1	23095.2
China (People's Republic of)	3.9							733.3	5.5	14373.2
Colombia	1.6							964.2	7.2	13781.5
Costa Rica								1389.9	9.1	16413.3
Czech Republic	6.5	4.3	8.8	16.1	95.2	8.3	38.1	2434.1	7.2	33743.2
Denmark	2.5	2.5	0.2	37.7	159.5	15.4	66.5	5057.9	10.3	48980.8
Estonia	5.0	3.7	4.9	16.7	148.2	12.2	37.0	1885.2	6.5	28946.7
Finland	4.4	3.1	6.0	21.5	33.6	25.9	19.1	3993.2	9.4	42275.2
France	6.1	4.1	2.6	16.6	121.1	12.6	44.8	4529.6	11.1	40930.8
Germany	8.1	6.1	0.0	35.1	67.2	33.6	23.5	5352.6	11.2	47998.9
Greece	4.3	3.6	2.9	35.1	67.0	24.3	8.0	2210.1	8.4	26357.9
Hungary	7.0	4.3	10.0	8.4	1.7	3.6	0.1	1913.0	7.2	26436.2
Iceland	3.1	2.6	2.3	39.3	128.9	21.2	36.1	4105.7	8.6	47689.7
India	0.5							269.3	4.8	6137.2
Indonesia	1.0							302.5	2.8	11125.9
Ireland	2.6	2.4	1.1	17.8		14.1		5275.8	7.8	67974.1
Israel	3.0	2.3	4.5	9.8	106.1	4.1	30.6	2713.0	7.4	36545.7
Italy	3.2	2.6	0.7	33.3		28.2		3351.6	9.0	37255.2
Japan	13.2	7.9	10.0	107.2	80.8	51.7	20.1	4435.6	10.9	40700.8
Korea	11.5	7.3	34.1	37.0	160.4	26.3	29.7	2534.9	7.4	34299.8
Latvia	5.7	3.4	3.3	36.9	74.1	12.6	5.4	1434.4	5.8	24899.3
Lithuania	7.0	6.1	1.7	21.0	87.5	11.0	13.0	1883.3	6.5	28912.8
Luxembourg	4.8	4.1	0.0	17.6	207.7	12.3	82.5	6817.9	6.0	104206.8
Mexico	1.5	1.5		5.9		2.4		1054.5	5.9	17980.8
Netherlands	4.2	3.6	2.7	13.8	80.3	12.5	49.8	5296.7	10.7	49547.0
New Zealand	2.7	2.7	0.2	17.8	28.7	13.3	4.4	3544.6	9.3	37948.9
Norway	3.8	3.4	0.0					6190.1	10.0	62053.2
OECD	**4.7**	**3.7**	**3.8**	**26.1**	**97.0**	**16.0**	**33.0**	**3848.0**	**8.9**	**41489.8**
Poland	6.6	4.9	0.1	17.2	36.1	7.6	5.8	1703.6	6.3	26855.8
Portugal	3.4	3.3		27.6	165.3	9.3	36.3	2663.7	9.0	29687.8
Russia	8.5			12.8		**4.7**		1351.0	5.6	24092.1
Slovak Republic	5.8	4.9	5.2	17.9	59.1	8.9	11.3	2059.4	6.9	29907.1
Slovenia	4.5	4.2	0.8	13.1	14.9	8.7	2.8	2730.8	8.5	31964.7
South Africa	2.3							1148.9	8.8	13289.9
Spain	3.0	2.4	2.9	18.0	100.6	15.9	63.2	3180.0	9.2	34696.3
Sweden	2.4	2.3	0.9					5266.3	11.0	47823.3
Switzerland	4.6	3.7		36.2	100.3		69.9	7535.6	12.1	62499.6
Turkey	2.7	2.7	0.6	14.3		10.2		996.6	4.1	24070.5
United Kingdom	2.6		0.8	9.5	79.3	7.2	52.6	4125.3	9.9	41767.3
United States	2.8	2.5	0.3	41.0	195.4	39.0	53.9	9507	17	56207.0

2.1 Life Expectancy

Life Expectancy at Birth

Used worldwide, life expectancy at birth is understood as a measure of the general health of a population. A higher life expectancy is considered an indicator of better overall health of the population.

Life expectancy at birth continued to increase relatively steadily in Bermuda, increasing on average by three to four months every year. The exception to this were declines of nearly one year among males from 2009-2010 and an overall decline from 2012-2013. These variations are likely related to changes in the age-specific death rates, especially among males, occurring from 2009 through 2013.

In 2015, life expectancy at birth on average across OECD countries reached 80.6 years. With a life expectancy of 81 .1 years, Bermuda's life expectancy is higher than the OECD average and among the three-quarters of the OECD countries with a life expectancy exceeding 80 years, including Canada and the United Kingdom. By comparison, the United States has a life expectancy of 78.8 years.

There remain large gaps in life expectancy between women and men. On average across OECD countries, life expectancy at birth for women reached 83.1 years in 2015, compared with 77.9 years for men. For Bermuda, the life expectancy for women reached 84.9 years, which is over a year greater than the OECD average. The life expectancy for men in Bermuda of 77.3 years is slightly less than the OECD average. Accordingly, the gender gap in life expectancies in Bermuda at 7.6 years is wider than the OECD average of 5.3 years.

Factors affecting life expectancy include the nature of the health system, availability of resources devoted to public health and primary care, insurance coverage and health care access. Life expectancy is also influenced by health-related behaviours, including calorie consumption per capita and obesity rates, and premature deaths from road traffic collisions and homicide. Socioeconomic conditions also play a role - income inequality can have adverse effects on health-related behaviours and access to care and treatment. Differences in life expectancy by gender can also be partly attributed to differences in risk behaviours, such as smoking.

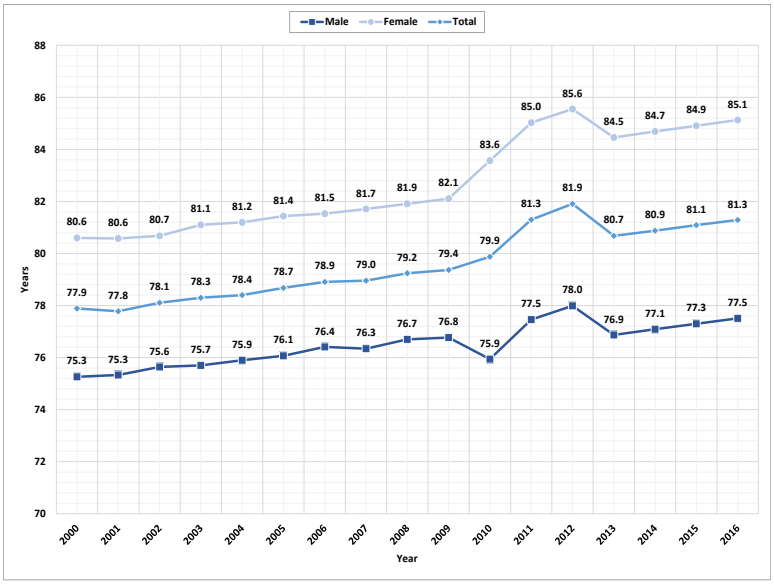
Definition and Comparability

Life expectancy at birth measures how long, on average, people would live based on a given set of age-specific death rates. However, the actual age-specific death rates of any particular birth cohort cannot be known in advance. If age-specific death rates are falling (as has been the case over the past decades), actual life spans will be higher than life expectancy calculated with current death rates. The methodology used to calculate life expectancy can vary slightly between countries. This can change a country's estimates by a fraction of a year.

Life expectancy at birth for the total population is calculated for all OECD countries using the unweighted average of life expectancy of men and women.

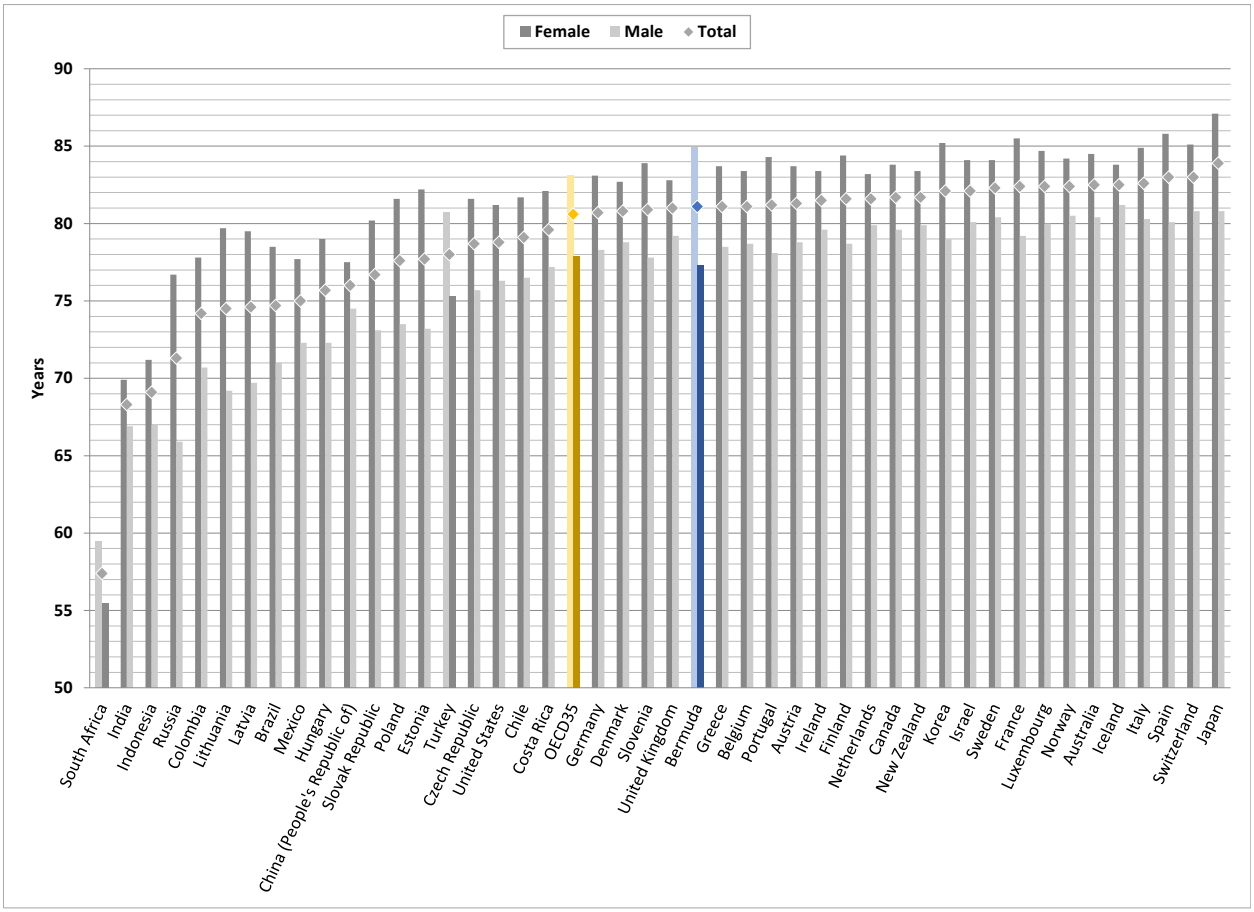
Data refers to 2013 for Canada.

Figure 2.1.1 Life expectancy at birth in years, Bermuda, 2000-2016



SOURCE: Department of Statistics, Government of Bermuda

Figure 2.1.2 Life expectancy at birth in years, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Life Expectancy at 65

Used worldwide, and often in combination with life expectancy at birth, life expectancy at age 65 is understood as a measure of the general health of the older population.

Life expectancy at age 65 increased on average by one to two months every year. The exception to this was an increase of around two years from 2010-2011 and a decrease of under one year from 2012-2013. These variations are likely related to changes in the age-specific death rates occurring from 2010 through 2013.

In 2015, people at age 65 in Bermuda could expect to live another 22.2 years if a woman and 17.8 years if a man, giving a gender gap of 4.4 years. In OECD countries, the gender gap of 3.2 years on average across OECD countries is not as wide with life expectances at age 65 of 21.1 years for women and 17.9 years for men. Bermuda's wider gender gap is directly related to the increased life expectancy at 65 among women.

The gender gap in life expectancy narrows from birth to age 65 indicating that as males age, and avoid premature death, their life expectancy becomes more similar to the life expectancy among females.

Factors influencing gains in life expectancy at age 65 include improved living conditions before and after people reach age 65, and advances in medical care combined with greater access to health care, and healthier lifestyles as we age.

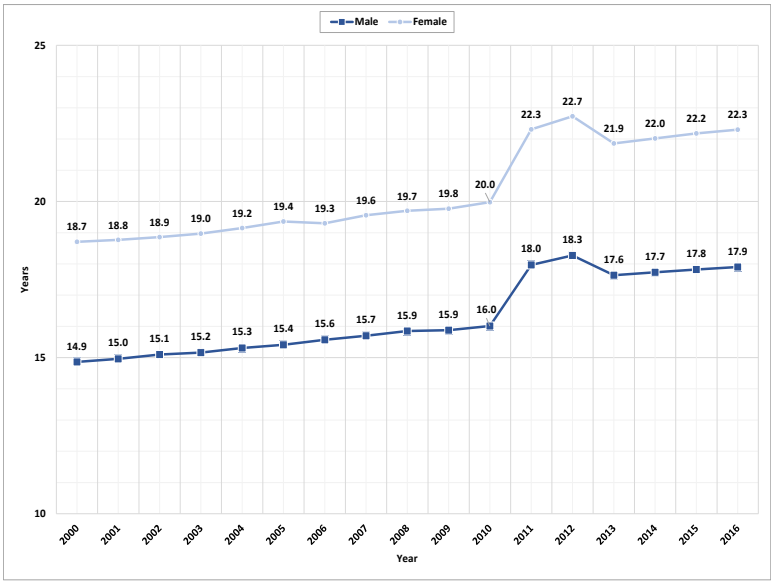
However, gains in longevity at older ages combined with reductions in fertility rates, contribute to a rise in the proportion of older persons in OECD countries and Bermuda. This, and the actualization that longer life expectancy may or may not be accompanied by good health and functional status, has important implications for health and socio-economic conditions within countries.

Definition and Comparability

Life expectancy at age 65 years old is the average number of years that a person at that age can be expected to live, assuming that age-specific mortality levels remain constant. However, the actual age-specific death rate of any particular birth cohort cannot be known in advance. The methodology used to calculate life expectancy can vary slightly between countries. This can change a country's estimates by a fraction of a year.

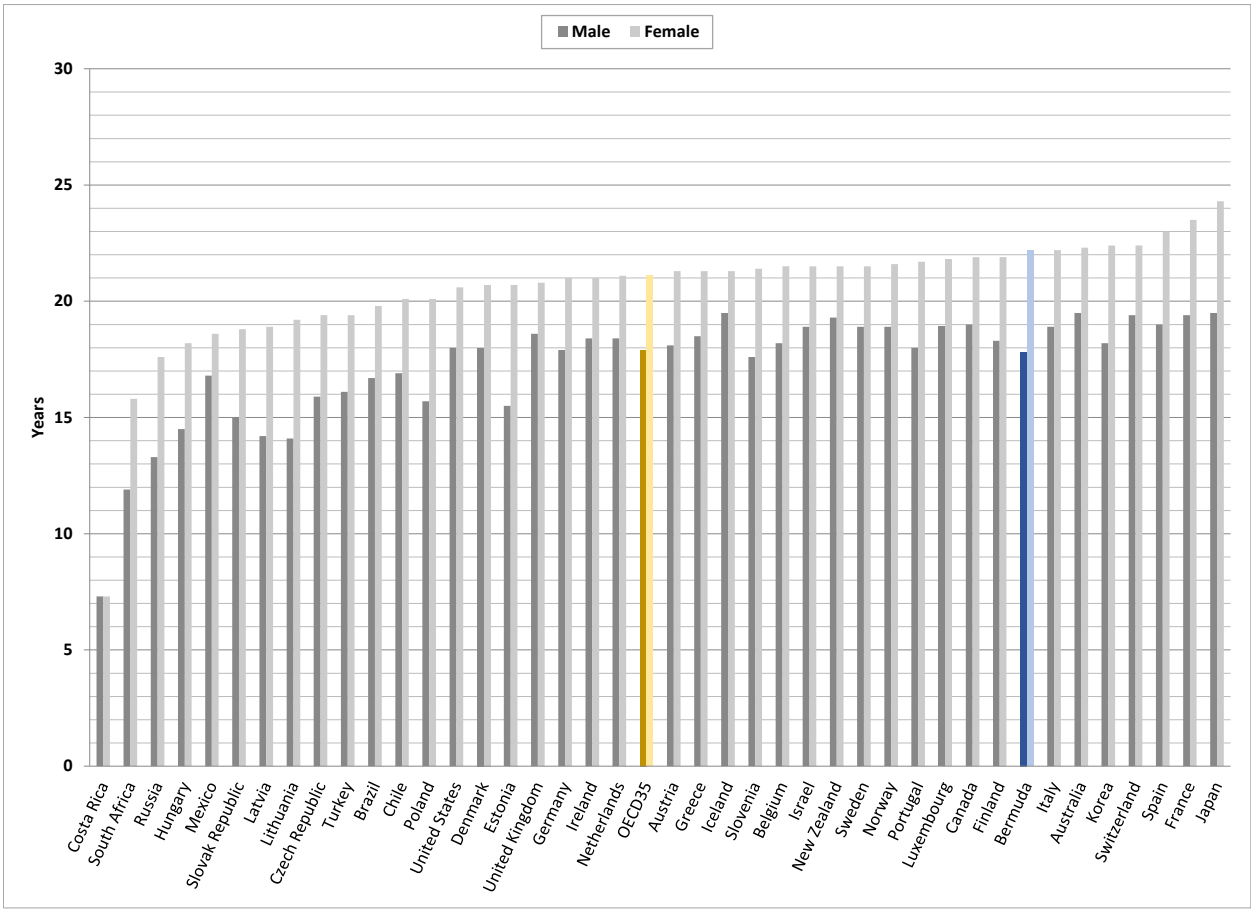
Data refers to 2013 for Canada, 2012 for Costa Rica and 2009 for South Africa.

Figure 2.1.3 Life expectancy at age 65 in years, Bermuda, 2000-2016



SOURCE: Department of Statistics, Government of Bermuda

Figure 2.1.4 Life expectancy at age 65 in years, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

2.2 All-Cause Mortality

The all-cause or general mortality rate is an important indicator for population health. Increases above usual levels are an indication of increased deaths which may be due to epidemics, natural disasters, etc. while decreases are generally due to improved health status in the population.

The age-standardized mortality rates for Bermuda have shown a decline over the past decade. This is related to an increase in persons dying at older ages as compared to younger ages. The decline is more apparent among females, who are less likely to experience premature death.

In 2014, Bermuda's mortality rates were 758 per 100,000 for the total population, 607 per 100,000 females and 952 per 100,000 males, all lower than the respective OECD averages of 790, 643 and 988 per 100,000.

For the total population, females and males, the leading causes of death were diseases of the circulatory system, including heart diseases, heart attacks and strokes, and neoplasms or cancers. With the addition of diabetes, which is included in endocrine, nutritional and metabolic diseases, these three causes of death account for around two-thirds to three-quarters of all deaths in Bermuda, irrespective of gender, for any given year.

Definition and Comparability

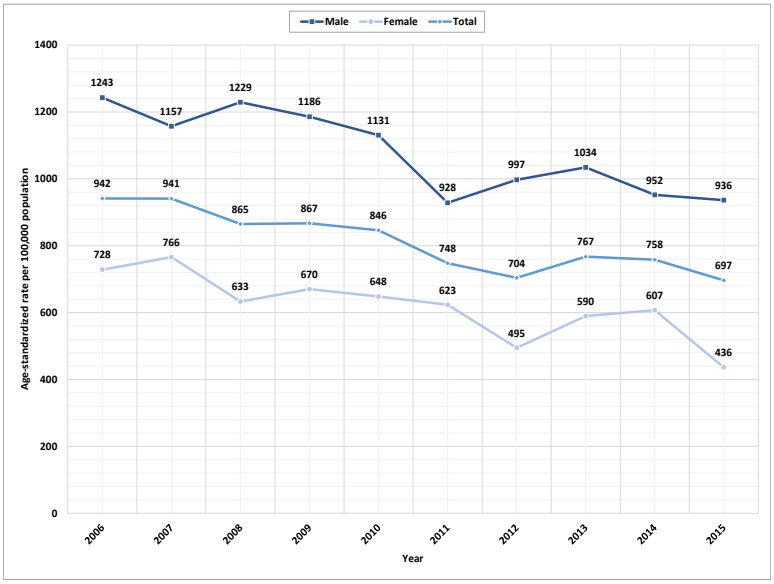
Mortality rates are calculated by dividing annual numbers of deaths by mid-year population estimates. Crude rates and age standardized rates are provided. For comparison to OECD countries, rates are age-standardised to the OECD 2010 population to remove variations arising from differences in age structures across countries. The direct method of standardisation is used for age-standardised calculations. However, the international comparability of mortality data can be affected by differences in medical training and practices and differences in death certification procedures across countries.

Registration of deaths is compulsory in all OECD countries and Bermuda. The data collected through the process of registration can be used by statistical and health authorities to monitor diseases and health status, and to plan health services. Mortality data for Bermuda includes only deaths occurring on the island and within Bermuda's territorial waters. Stillbirths and non-residents are excluded. Given the size of Bermuda's population, consideration must be provided for the privacy and confidentiality of decedents. There should not be any effort to determine the identity of any decedents. Users of the data should make no disclosure or other use of the identity of any persons discovered inadvertently.

For OECD countries, the number of deaths according to sex and selected causes are extracted from the World Health Organisation Mortality Database. Detailed information on the coverage and reliability of the cause-of-death data is regularly published in World Health Statistics Annuals. The causes of death presented here are coded according to the Tenth revision of the International Classification of Diseases (ICD) along with codes from other ICD revisions used in the WHO Mortality Database.

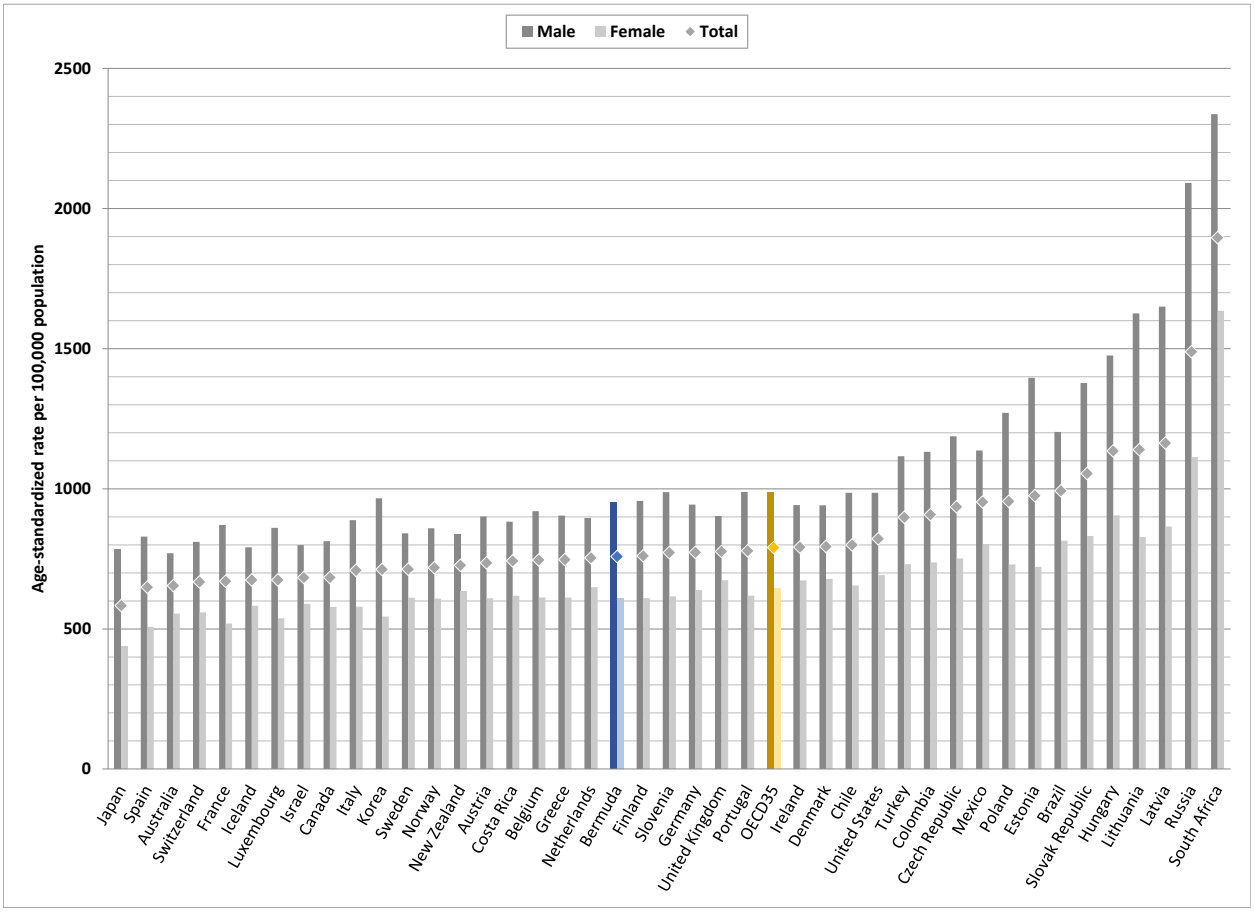
Data refers to 2013 for France, Ireland, Korea, Switzerland, Turkey, United Kingdom and Colombia, 2012 for Canada, Italy, and New Zealand, and 2011 for Russia.

Figure 2.2.1 All-cause mortality rates per 100,000 population, Bermuda, 2006-2015



SOURCE: Office of the Registrar General and Department of Statistics, Government of Bermuda

Figure 2.2.2 All-cause mortality rates per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Table 2.2.1 Distribution of causes of death, total population, Bermuda, 2006-2015

Underlying Cause of Death	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases (incl. HIV)	1.4%	2.3%	2.1%	3.9%	5.8%	2.1%	2.4%	2.4%	2.4%	1.5%	2.7%
Neoplasms (Cancer)	26.4%	23.7%	24.1%	26.5%	31.3%	28.8%	26.4%	30.3%	29.1%	31.2%	27.3%
Diseases of the blood and blood-forming organs	0.2%	0.7%	0.7%	0.7%	0.2%	0.4%	0.0%	0.2%	1.5%	0.4%	1.0%
Endocrine, nutritional and metabolic diseases (incl. diabetes)	8.4%	5.0%	6.0%	6.1%	4.4%	5.3%	8.9%	8.8%	7.1%	4.9%	7.1%
Mental and behavioural disorders (incl. dementia)	0.2%	0.5%	0.2%	0.7%	1.8%	0.8%	2.7%	2.6%	4.1%	1.1%	0.8%
Diseases of the nervous system (incl. Alzhemiers)	3.4%	3.6%	3.7%	4.6%	1.6%	4.6%	4.3%	4.1%	4.7%	8.9%	9.0%
Diseases of the circulatory system	37.0%	40.2%	43.4%	31.3%	30.8%	28.4%	37.2%	35.1%	33.8%	38.0%	36.3%
Diseases of the respiratory system	7.7%	3.8%	5.1%	8.0%	8.6%	11.8%	5.7%	6.4%	5.6%	4.4%	4.8%
Diseases of the digestive system	3.6%	4.3%	2.3%	3.2%	4.9%	5.3%	2.2%	1.7%	3.0%	1.9%	1.9%
Diseases of the skin and subcutaneous tissue	0.7%	0.7%	0.2%	0.5%	0.7%	0.4%	0.5%	0.5%	0.2%	0.0%	0.2%
Diseases of the musculoskeletal system and connective tissue	1.4%	1.6%	0.2%	1.0%	0.2%	0.2%	0.5%	0.7%	0.4%	0.6%	0.8%
Diseases of the genitourinary system	3.1%	2.5%	0.7%	2.2%	2.7%	3.2%	2.4%	1.4%	2.1%	2.1%	1.7%
Complications of pregnancy, childbirth and the puerperium	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Certain conditions originating in the perinatal period	1.2%	1.6%	0.5%	1.2%	0.7%	0.4%	0.3%	0.7%	0.4%	0.2%	0.6%
Congenital malformations and chromosomals abnormalities	0.0%	0.2%	0.5%	1.0%	0.2%	0.2%	0.0%	0.2%	0.6%	0.0%	0.0%
Ill-defined causes	1.4%	2.7%	5.8%	3.4%	1.3%	1.5%	1.3%	1.0%	1.1%	0.0%	0.8%
External causes	3.6%	6.5%	4.4%	5.8%	4.9%	6.5%	5.1%	3.8%	3.9%	4.9%	4.8%

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Table 2.2.2 Distribution of causes of death, females, Bermuda, 2006-2015

Underlying Cause of Death	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases (incl. HIV)	0.5%	2.5%	1.4%	0.0%	5.2%	1.8%	2.1%	2.2%	2.7%	1.3%	1.4%
Neoplasms (Cancer)	25.1%	21.7%	22.3%	27.3%	33.8%	28.0%	24.6%	28.0%	29.5%	28.0%	28.9%
Diseases of the blood and blood-forming organs	0.0%	0.5%	0.9%	1.1%	0.5%	0.5%	0.0%	0.5%	1.4%	0.4%	0.5%
Endocrine, nutritional and metabolic diseases (incl. diabetes)	8.7%	6.4%	7.6%	8.7%	5.2%	5.0%	9.9%	11.0%	8.6%	5.2%	9.6%
Mental and behavioural disorders (incl. dementia)	0.5%	0.5%	0.5%	1.1%	1.9%	1.4%	3.1%	2.2%	5.5%	1.3%	0.5%
Diseases of the nervous system (incl. Alzhemiers)	3.1%	5.4%	5.2%	6.0%	2.3%	5.0%	5.8%	6.6%	5.5%	10.8%	10.6%
Diseases of the circulatory system	37.4%	41.4%	43.6%	29.0%	31.5%	33.0%	39.8%	34.1%	35.0%	42.2%	34.9%
Diseases of the respiratory system	9.2%	3.9%	4.7%	10.4%	9.9%	12.4%	6.3%	7.7%	5.5%	3.9%	4.6%
Diseases of the digestive system	4.1%	3.9%	2.8%	3.3%	2.8%	5.5%	2.1%	1.6%	1.8%	2.2%	2.3%
Diseases of the skin and subcutaneous tissue	1.5%	0.5%	0.5%	1.1%	0.5%	0.9%	0.5%	1.1%	0.5%	0.0%	0.5%
Diseases of the musculoskeletal system and connective tissue	2.1%	3.0%	0.0%	2.2%	0.5%	0.0%	1.0%	1.1%	0.5%	1.3%	1.4%
Diseases of the genitourinary system	3.6%	1.5%	0.5%	1.6%	2.3%	3.2%	1.6%	1.1%	1.8%	1.7%	0.9%
Complications of pregnancy, childbirth and the puerperium	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Certain conditions originating in the perinatal period	1.5%	1.5%	0.5%	1.6%	0.5%	0.0%	0.0%	1.1%	0.0%	0.0%	0.5%
Congenital malformations and chromosomals abnormalities	0.0%	0.5%	0.0%	1.1%	0.5%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%
Ill-defined causes	1.5%	3.4%	8.1%	3.3%	2.3%	1.4%	1.6%	1.1%	1.4%	0.0%	1.8%
External causes	1.0%	3.0%	1.4%	2.2%	0.5%	1.8%	1.6%	0.5%	0.0%	1.7%	1.8%

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Table 2.2.3 Distribution of causes of death, males, Bermuda, 2006-2015

Underlying Cause of Death	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases (incl. HIV)	2.3%	2.1%	2.7%	7.0%	6.3%	2.3%	2.8%	2.5%	2.0%	1.7%	3.8%
Neoplasms (Cancer)	27.6%	25.4%	25.9%	25.8%	29.0%	29.6%	28.3%	32.1%	28.7%	34.3%	26.1%
Diseases of the blood and blood-forming organs	0.5%	0.8%	0.5%	0.4%	0.0%	0.4%	0.0%	0.0%	1.6%	0.4%	1.5%
Endocrine, nutritional and metabolic diseases (incl. diabetes)	8.1%	3.8%	4.5%	3.9%	3.8%	5.4%	7.8%	7.2%	5.7%	4.5%	5.0%
Mental and behavioural disorders (incl. dementia)	0.0%	0.4%	0.0%	0.4%	1.7%	0.4%	2.2%	3.0%	2.8%	0.8%	1.1%
Diseases of the nervous system (incl. Alzhemiers)	3.6%	2.1%	2.3%	3.5%	0.8%	4.3%	2.8%	2.1%	4.0%	7.0%	7.7%
Diseases of the circulatory system	36.7%	39.2%	43.2%	33.2%	30.3%	24.5%	34.4%	35.9%	32.8%	33.9%	37.5%
Diseases of the respiratory system	6.3%	3.8%	5.5%	6.1%	7.6%	11.3%	5.0%	5.5%	5.7%	5.0%	5.0%
Diseases of the digestive system	3.2%	4.6%	1.8%	3.1%	6.7%	5.1%	2.2%	1.7%	4.0%	1.7%	1.5%
Diseases of the skin and subcutaneous tissue	0.0%	0.8%	0.0%	0.0%	0.8%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%
Diseases of the musculoskeletal system and connective tissue	0.9%	0.4%	0.5%	0.0%	0.0%	0.4%	0.0%	0.4%	0.4%	0.0%	0.4%
Diseases of the genitourinary system	2.7%	3.3%	0.9%	2.6%	2.9%	3.1%	3.3%	1.7%	2.4%	2.5%	2.3%
Certain conditions originating in the perinatal period	0.9%	1.7%	0.5%	0.9%	0.8%	0.8%	0.6%	0.4%	0.8%	0.4%	0.8%
Congenital malformations and chromosomals abnormalities	0.0%	0.0%	0.9%	0.9%	0.0%	0.4%	0.0%	0.4%	0.8%	0.0%	0.0%
Ill-defined causes	1.4%	2.1%	3.6%	3.5%	0.4%	1.6%	1.1%	0.8%	0.8%	0.0%	0.0%
External causes	5.9%	9.6%	7.3%	8.7%	8.8%	10.5%	8.9%	6.3%	7.3%	7.9%	7.3%

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

2.3 Communicable Disease Morbidity and Mortality

Communicable diseases cause, or have the potential to cause, significant disease burden in both morbidity and mortality. They are also diseases for which effective preventive measures are generally available.

Morbidity and mortality rates for communicable disease are useful to understand the underlying prevalence of communicable diseases, give indications of any disease outbreaks and epidemics, and assess the quality of care given to infected persons. In addition, they are necessary for planning and evaluating prevention initiatives.

Communicable Disease Mortality

There are very few deaths due to communicable diseases in Bermuda. The continued low communicable disease mortality rates are an indication of quality prevention and treatment efforts for communicable diseases. Rates are generally higher in men than women which can be a reflection of gender differences in both risk-taking behaviour and health-seeking behaviour.

On average, Bermuda's communicable disease mortality rates are slightly higher than the OECD average for the population. By sex, Bermuda's rates are on par with the OECD average for females and higher than the OECD average for males.

HIV/AIDS, tuberculosis and vaccine-preventable diseases, such as measles, pertussis and hepatitis B, have contributed greatly to communicable disease mortality throughout many of the OECD countries. In Bermuda, there have been no deaths from tuberculosis, or any of the aforementioned vaccine-preventable diseases, during the period under review and indeed for many years prior.

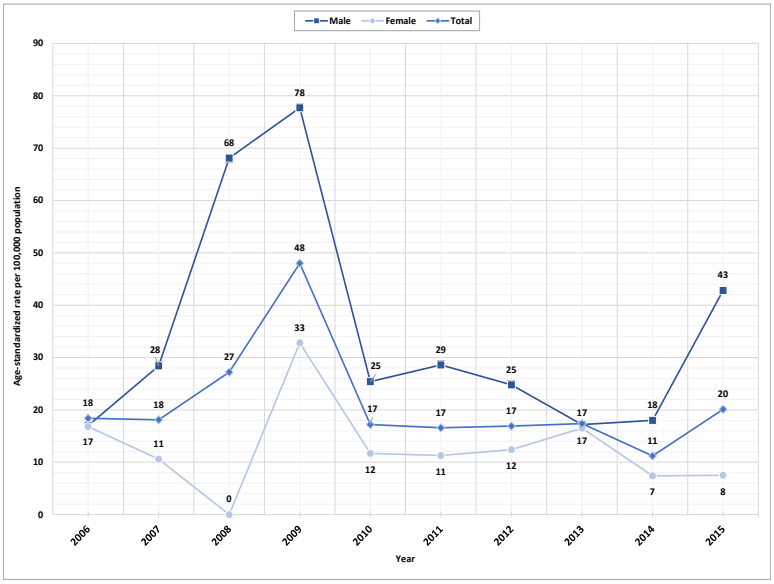
Definition and comparability

Mortality rates are calculated by dividing annual numbers of deaths by mid-year population estimates. Crude rates and age standardized rates are provided. For comparison to OECD countries, rates are age-standardised to the OECD 2010 population to remove variations arising from differences in age structures across countries. Deaths from all communicable diseases are classified to ICD-10 codes A00-B99.

Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data.

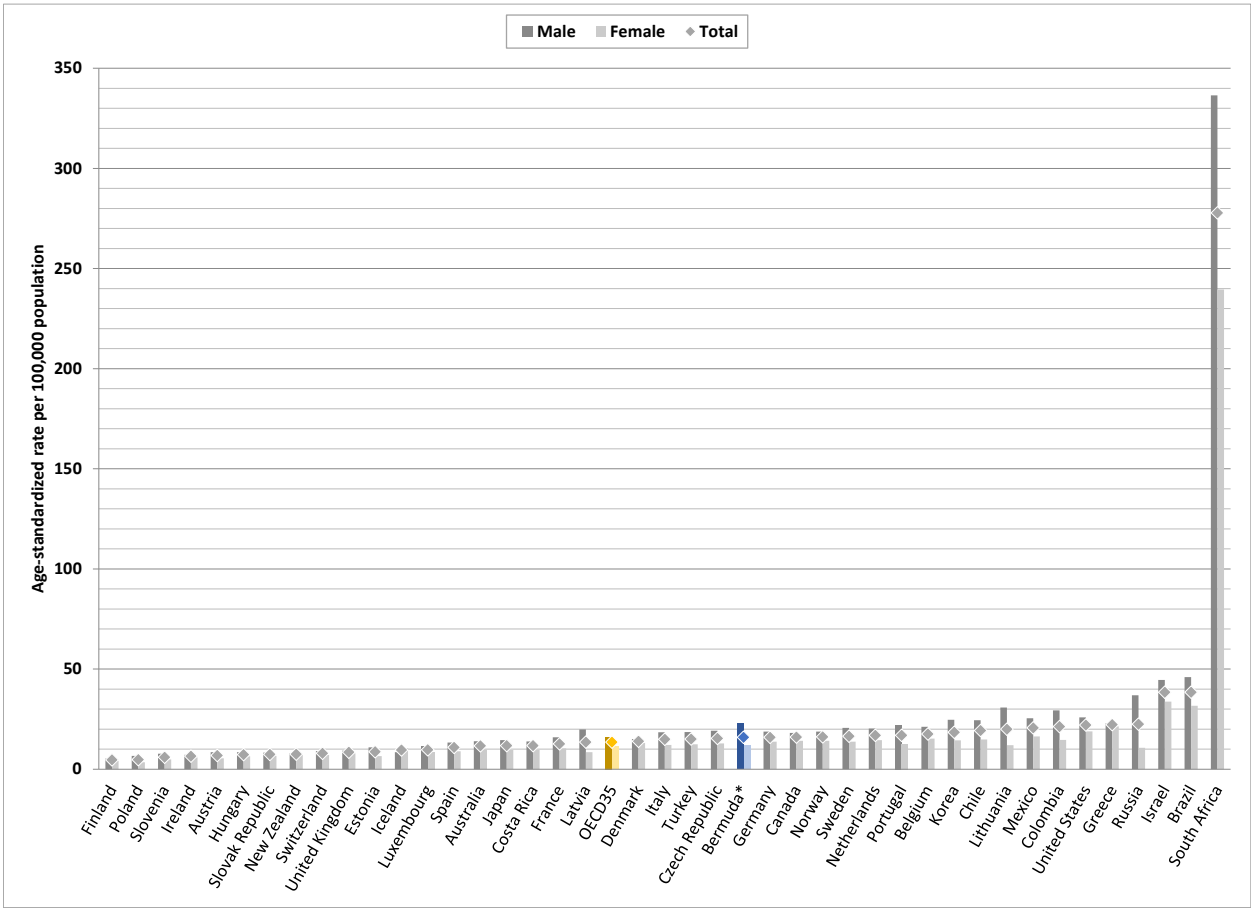
Data refers to 2013 for France, Ireland, Korea, Switzerland, Turkey, United Kingdom and Colombia, 2012 for Canada, Italy, and New Zealand, and 2011 for Russia. Aggregate data (2010-2014) is presented for Bermuda for comparison to OECD countries.

Figure 2.3.1 Mortality rates from communicable diseases per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.3.2 Mortality rates from communicable diseases per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

SOURCE: OECD Health Data 2017

Reported Communicable Diseases

During the period under review, there have been no reported cases of diseases subject to International Health Regulations, which include cholera, plague, yellow fever, polio and SARS.

Vaccine–preventable diseases continue to occur in Bermuda to varying degrees. Tuberculosis cases tend to be imported, occurring in persons from endemic countries. Chicken pox cases have dramatically reduced from 2006 to 2015.

Vector-borne-diseases also occur sporadically. Of the reported mosquito-borne diseases, all are imported as Bermuda does not have the mosquito vector most competent in transmitting these diseases.

Salmonellosis is the most common food and waterborne disease reported and may be related to water-catchment methods. In 2015, there was a significant increase in the number of confirmed rotavirus cases. This led to the introduction of the rotavirus vaccine in Bermuda.

Among the other diseases of public health interest, the majority of reported hepatitis B cases are among persons from endemic countries and the majority of Hepatitis C cases are among current or prior injection drug users.

Definition and Comparability

Under the Bermuda Public Health Act 1949 Part V, medical practitioners are required to report communicable diseases. Under the current sentinel surveillance system, there are 41 reporting sources including general practitioners, paediatricians and obstetrician, gynaecologists. Reports are also received from the Department of Health clinics and laboratories, the Bermuda Hospitals Board Laboratory, the Emergency Department and wards at King Edward VII Memorial Hospital and one private laboratory.

Absolute numbers of reported cases are provided. Given that reports for some diseases are for relatively small numbers, caution should be made in interpreting trends based on annual data. Additionally, differences in reporting practices among physicians affect

Table 2.3.3 Selected reported communicable diseases, Bermuda, 2006-2015

Communicable disease	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Diseases subject to International Health Regulations										
Cholera	0	0	0	0	0	0	0	0	0	0
Plague	0	0	0	0	0	0	0	0	0	0
Yellow Fever	0	0	0	0	0	0	0	0	0	0
Polio (acute)	0	0	0	0	0	0	0	0	0	0
Severe Acute Respirtory Syndrome (SARS)	0	0	0	0	0	0	0	0	0	0
Vaccine Preventable Diseases										
Tuberculosis (pulmonary)*	3	1	3	0	1	1	2	0	0	1
Tuberculosis (extra-pulmonary)*	0	0	1	0	0	0	1	0	0	0
Diphtheria	0	0	0	0	0	0	0	0	0	0
Pertussis (whooping cough)	0	0	0	0	0	1	3	0	0	3
Tetanus (excl. neonatal)	0	0	0	0	0	0	0	0	0	0
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0	0
Polio (acute)	0	0	0	0	0	0	0	0	0	0
Measles	0	0	0	0	0	0	0	0	0	0
Mumps	0	0	0	2	2	3	0	0	0	0
Rubella (German measles)	0	0	1	0	0	0	0	0	0	0
Congenital Rubella	0	0	0	0	0	0	0	0	0	0
Chicken pox (varicella)	248	33	37	27	43	20	13	27	25	28
Meningitis (due to *Haemophilis influenzae*)	0	0	0	0	0	0	0	0	0	0
Meningococcal infection (due to *Neisseria meningitidis*)	0	1	0	0	0	0	0	1	0	0
Pneumonia (due to *Haemophilis influenzae*)	0	0	0	0	0	0	0	0	0	0
Vector-borne Diseases										
Dengue Fever*	0	0	0	0	2	1	0	0	1	0
Chikungunya*	...	...	...	...	..	...	...	...	3	0
Leptospirosis	0	0	0	0	0	0	0	0	0	0
Malaria*	0	1	1	2	0	2	0	0	2	1
Food- and Water-borne diseases										
Salmonellosis	53	63	57	99	40	14	60	61	95	70
Shigellosis	1	0	16	10	3	3	4	2	1	1
Typhoid and paratyphoid fevers	0	0	0	0	0	0	0	0	0	0
Campylobacter	...	...	15	24	19	19	30	27	17	17
E. Coli (pathogenic)	0	0	0	0	0	0	0	0	0	0
Rotavirus	...	...	3	12	8	13	3	6	3	63
Norovirus	...	...	...	...	...	3	19	1	1	2
Other Diseases of Public Health Interest										
Leprosy (Hansen's Disease)*	0	1	0	0	0	0	0	0	0	0
Rabies (in humans)	0	0	0	0	0	0	0	0	0	0
Hepatitis A	0	0	1	0	0	0	0	0	0	0
Hepatitis B	6	3	2	4	1	0	2	1	8	5
Hepatitis C	...	...	...	21	28	14	13	18	8	8

*imported

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

HIV/AIDS Incidence and Prevalence

HIV and AIDS has become a major public health problem in many countries and monitoring the course of the epidemic and impact of interventions is crucial.

HIV and AIDS incidence in Bermuda remains low. As AIDS-related mortality is also low, HIV prevalence has increased during the period under review but remains at less than 0.5%.

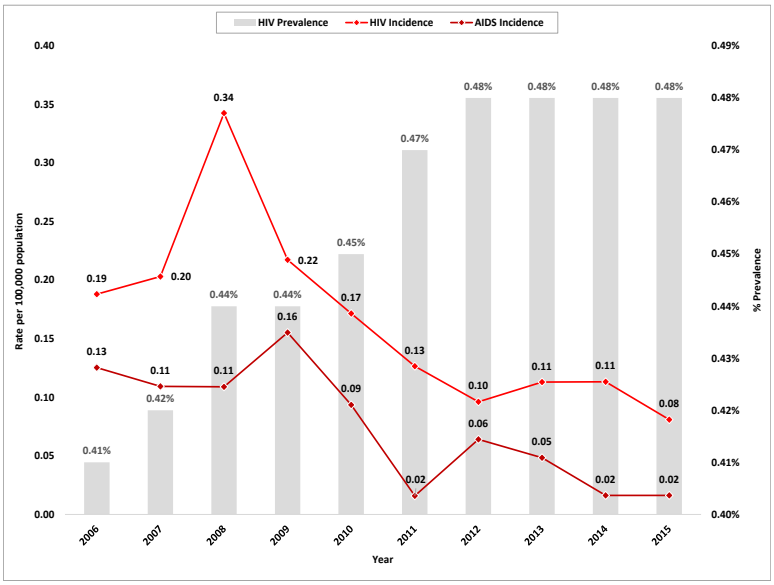
While HIV incidence can be considered a measure of primary prevention efforts, AIDS incidence can be considered as a measure of the efficiency of the management and care of persons living with HIV. AIDS incidence in Bermuda is among the lowest when compared to the OECD countries and well below the OECD average.

Definition and comparability

Incidence rates are calculated by dividing annual reported numbers of new cases by mid-year population estimates at the year of diagnosis. The total number of reported HIV/AIDS cases may not reflect the total number of HIV/AIDS cases, due to underreporting and reporting delays. Data represent the number of reported cases and may not necessarily be a true reflection of the total number of people with a diagnosis of AIDS or HIV infection. The prevalence rate of HIV is the proportion of the population living with the disease at a given time. Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data.

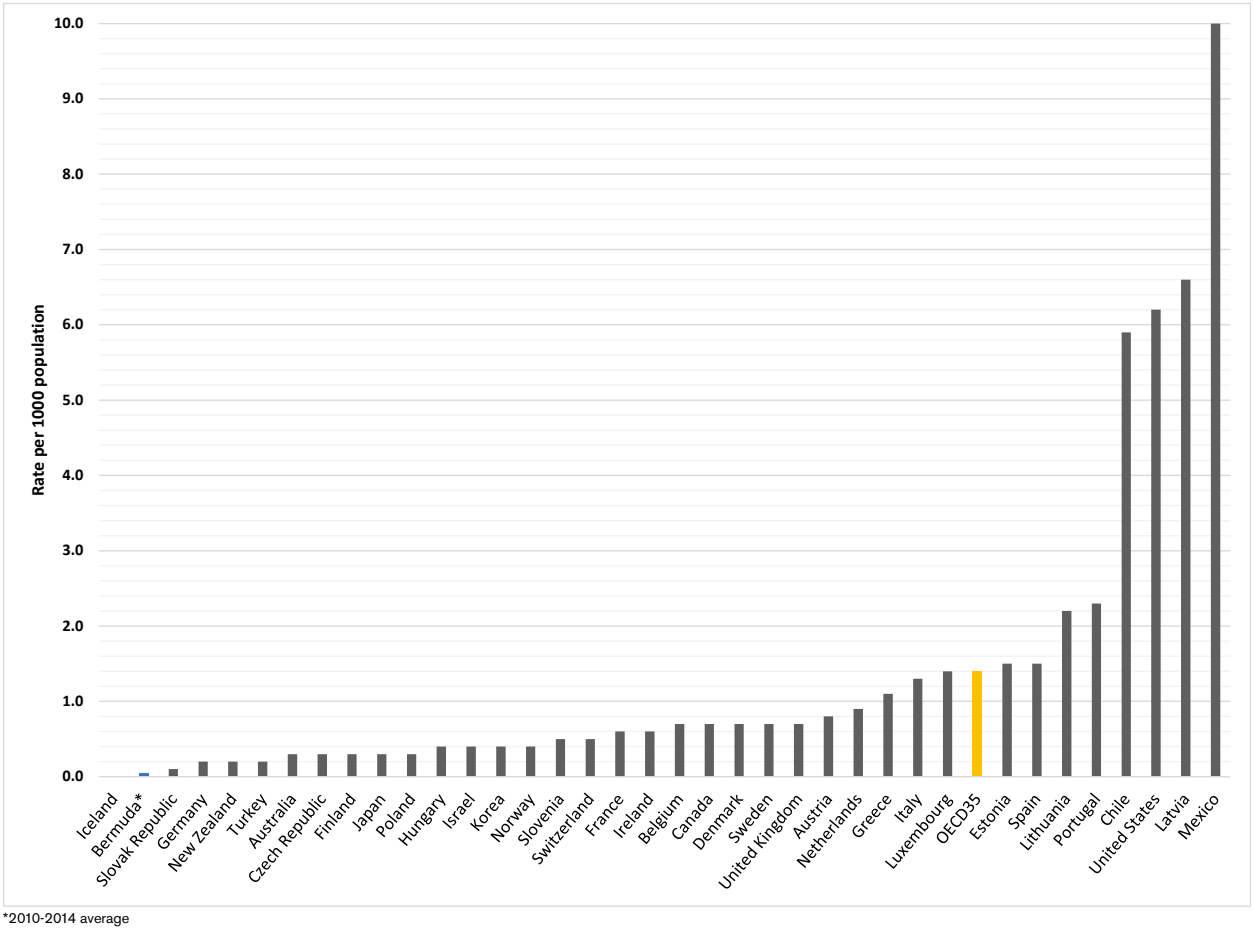
Data refers to 2014 for Canada, Netherlands, and United States, 2013 for Belgium, 2012 for Australia and 2007 for Sweden. Aggregate data (2010-2014) is presented for Bermuda for comparison to OECD countries.

Figure 2.3.4 HIV/AIDS incidence per 1000 population and prevalence, Bermuda, 2006-2017



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.3.5 AIDS incidence per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



*2010-2014 average

SOURCE: OECD Health Data 2017

2.4 Cancer

Cancer is the second leading cause of mortality in Bermuda and many OECD countries, accounting for around 25% of all deaths.

In 2014, the average rate of mortality attributable to cancer across OECD countries was 204 per 100,000 population. The cancer mortality rate in Bermuda for 2014 was slightly higher at 222 per 100,000 population. By sex, cancer mortality rates for females in Bermuda were on par with the OECD average, 166 and 160 per 100,000 females respectively, while the rates for males were higher in Bermuda as compared to the OECD average at 301 and 269 per 100,000 males, respectively.

Among men in Bermuda, lung cancer and prostate cancer impose the highest mortality burdens, together accounting for around a third to a half of all cancer-related deaths in any given year. For women in Bermuda, breast cancer remains a common cause of cancer mortality. Colorectal cancer is a major cause of cancer mortality among both men and women.

Bermuda's cancer incidence rates are higher than the OECD average incidence rates, but between the rates of United States and Canada, which are also higher than the OECD average regardless of gender. High rates of melanoma of the skin contribute to the high overall incidence rate in Bermuda. Aside from this, among men in Bermuda, prostate cancer is the most commonly diagnosed, while breast cancer is the most common cancer diagnosis among women. Colorectal cancer is a major cause of cancer morbidity among both men and women.

As in the OECD countries, Bermuda also displays a gender gap in cancer incidence and mortality rates, with rates consistently higher among males than among females. This can be partly explained by greater risk behaviours, including smoking, and lower health-seeking behaviour among men.

Bermuda's lung cancer incidence and mortality rates in Bermuda are generally lower than the OECD average while incidence and mortality from colorectal cancers are on par with the OECD averages. For breast cancer in Bermuda, incidence is higher than the OECD average, while mortality is lower. This may indicate increased or earlier detection leading to better treatment outcomes. For prostate cancer in Bermuda, incidence is slightly higher than the OECD average, while mortality is considerably higher. This may also be related to issues with detection and treatment.

Definition and comparability

Mortality rates are based on numbers of deaths registered per 100 000 population. Crude rates and age-standardized rates are provided. Mortality rates are age-standardised to the OECD 2010 population. Cancer incidence rates are the number of new cancer cases diagnosed in a year per 100 000 population. Incidence rates have been age-standardised to the WHO World Standard Population, as proposed by Segi and modified by Doll et al.

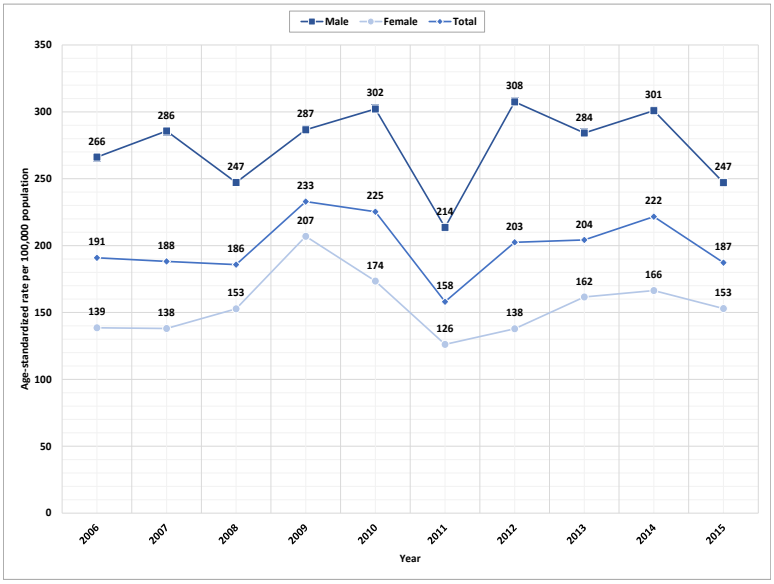
All cancers (malignant neoplasms) are classified to ICD-10 codes C00-C97. Selected cancers (and their ICD-10 codes) include colorectal (C18-C21), lung (C33-C34), female breast (C50), cervical (C56) and prostate (C61).

As cancer registries and other data sources are continuously improving in quality and extent, estimates may not be truly comparable over time. For selected cancer mortality and incidence rates, it is important to note that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant and caution should be used in interpreting trends based on annual data.

Mortality data refers to 2013 for France, Ireland, Korea, Switzerland, Turkey, United Kingdom, and Colombia, 2012 for Italy and New Zealand, and 2011 for Russia. Aggregate data (2010-2014) is presented for Bermuda for comparison to OECD countries.

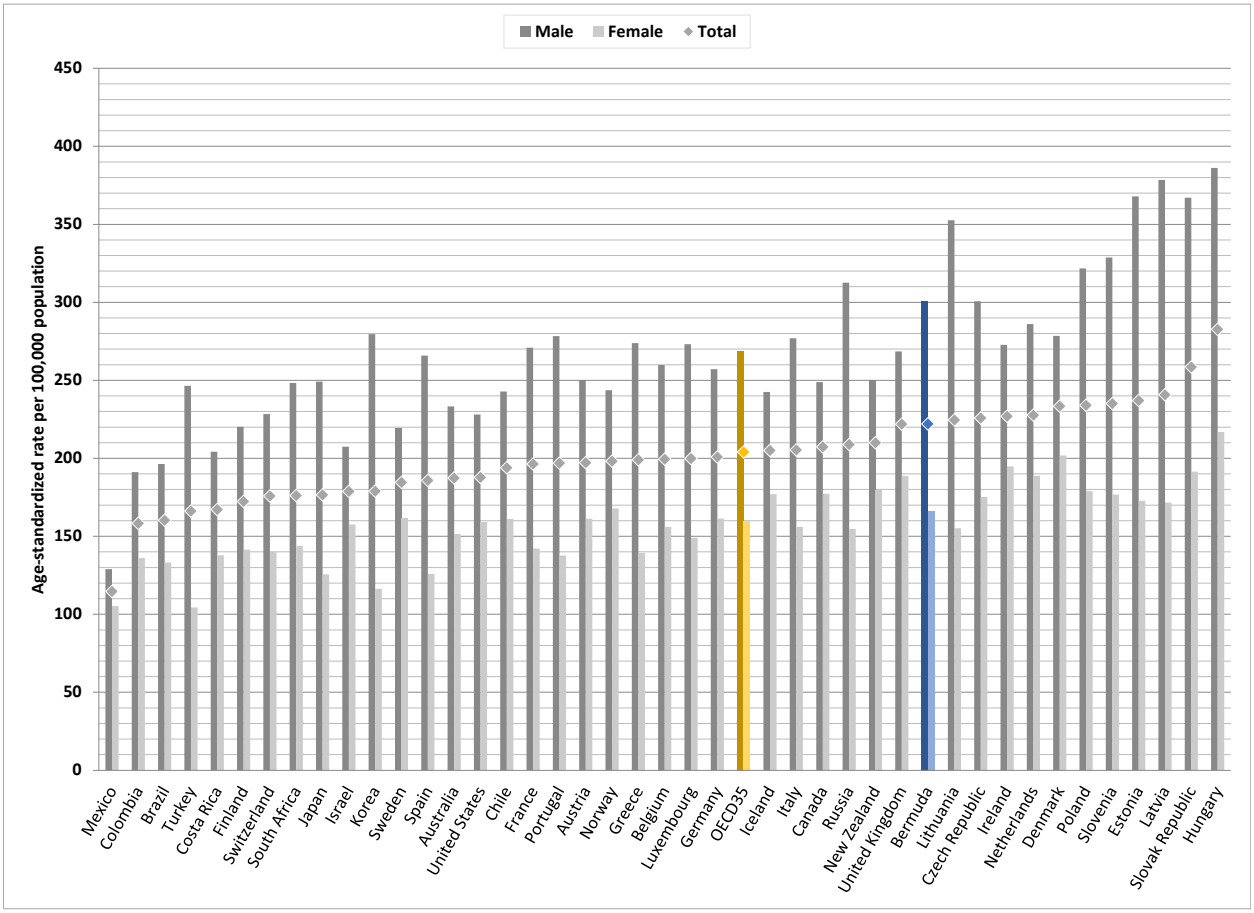
All Cancers

Figure 2.4.1 Mortality rates from malignant neoplasms (cancer) per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.4.2 Mortality rates from malignant neoplasms (cancer) per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Table 2.4.1 Cancer-related deaths, total population, Bermuda, 2006-2015

Cancer type/site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bladder	0.0%	4.0%	1.9%	0.7%	4.4%	3.1%	4.7%	6.9%	3.4%	3.1%
Breast	7.8%	10.0%	8.7%	12.5%	7.3%	4.2%	3.1%	8.4%	5.4%	5.5%
Cervical	0.0%	3.0%	1.0%	0.0%	0.7%	1.0%	0.0%	2.3%	0.0%	3.1%
Colorectal	12.6%	11.0%	16.5%	14.0%	10.2%	13.5%	8.7%	13.0%	9.5%	13.3%
Hodgkin's disease	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Leukemia	2.9%	5.0%	2.9%	2.9%	0.7%	3.1%	6.3%	1.5%	2.0%	3.1%
Liver	1.0%	3.0%	1.9%	0.7%	5.1%	1.0%	3.1%	6.9%	3.4%	4.7%
Lung	29.1%	20.0%	19.4%	19.9%	11.7%	17.7%	19.7%	14.5%	19.0%	19.5%
Ovarian	2.9%	1.0%	2.9%	4.4%	0.0%	5.2%	1.6%	1.5%	0.0%	2.3%
Pancreatic	9.7%	1.0%	8.7%	5.1%	4.4%	6.3%	6.3%	6.9%	7.5%	7.8%
Prostate	9.7%	12.0%	13.6%	8.8%	10.2%	8.3%	11.8%	8.4%	14.3%	7.8%
Skin	1.0%	1.0%	0.0%	1.5%	2.2%	2.1%	2.4%	0.8%	0.7%	1.6%
Stomach	1.9%	5.0%	3.9%	3.7%	2.2%	3.1%	0.8%	1.5%	0.7%	1.6%
Other	21.4%	24.0%	18.4%	25.7%	39.4%	31.3%	31.5%	27.5%	34.0%	26.6%

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Table 2.4.2 Cancer-related deaths, females, Bermuda, 2006-2015

Cancer type/site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bladder	0.0%	2.3%	2.0%	1.4%	1.6%	0.0%	3.9%	4.9%	1.5%	1.6%
Breast	18.6%	22.7%	18.0%	23.9%	16.4%	8.9%	7.8%	18.0%	12.3%	11.5%
Cervical	0.0%	6.8%	2.0%	0.0%	1.6%	2.2%	0.0%	4.9%	0.0%	6.6%
Colorectal	16.3%	18.2%	12.0%	21.1%	11.5%	11.1%	5.9%	14.8%	9.2%	19.7%
Hodgkin's disease	0.0%	0.0%	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Leukemia	4.7%	2.3%	0.0%	2.8%	0.0%	2.2%	5.9%	1.6%	3.1%	3.3%
Liver	0.0%	2.3%	2.0%	0.0%	4.9%	2.2%	3.9%	8.2%	3.1%	3.3%
Lung	18.6%	15.9%	16.0%	9.9%	13.1%	15.6%	19.6%	8.2%	10.8%	11.5%
Ovarian	7.0%	2.3%	6.0%	8.5%	0.0%	11.1%	3.9%	3.3%	0.0%	4.9%
Pancreatic	9.3%	2.3%	12.0%	2.8%	3.3%	6.7%	7.8%	8.2%	10.8%	11.5%
Skin	0.0%	2.3%	0.0%	1.4%	3.3%	2.2%	0.0%	1.6%	1.5%	1.6%
Stomach	2.3%	4.5%	4.0%	1.4%	3.3%	4.4%	2.0%	0.0%	0.0%	0.0%
Other	23.3%	18.2%	26.0%	26.8%	37.7%	33.3%	39.2%	26.2%	47.7%	24.6%

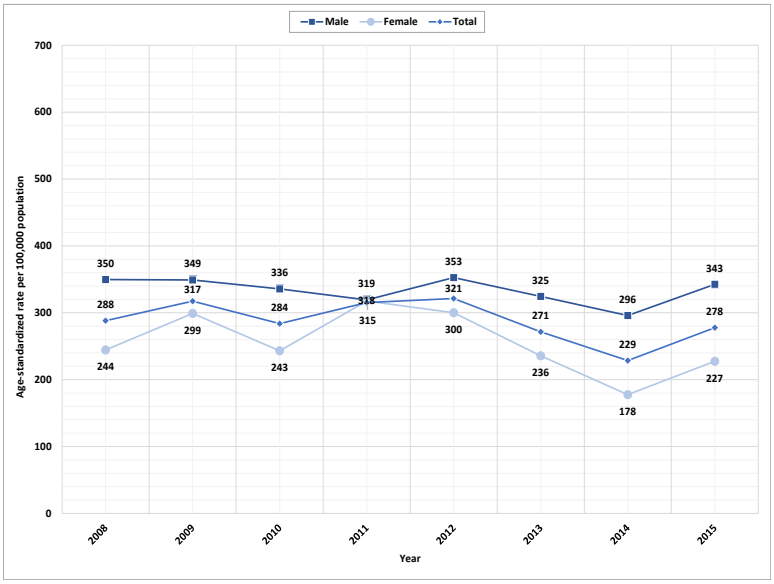
SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Table 2.4.3 Cancer-related deaths, males, Bermuda, 2006-2015

Cancer type/site	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bladder	0.0%	5.4%	1.9%	0.0%	6.6%	5.9%	5.3%	8.6%	4.9%	4.5%
Colorectal	10.0%	5.4%	20.8%	6.2%	9.2%	15.7%	10.5%	11.4%	9.8%	7.5%
Leukemia	1.7%	7.1%	5.7%	3.1%	1.3%	3.9%	6.6%	1.4%	1.2%	3.0%
Liver	1.7%	3.6%	1.9%	1.5%	5.3%	0.0%	2.6%	5.7%	3.7%	6.0%
Lung	36.7%	23.2%	22.6%	30.8%	10.5%	19.6%	19.7%	20.0%	25.6%	26.9%
Pancreas	10.0%	0.0%	5.7%	7.7%	5.3%	5.9%	5.3%	5.7%	4.9%	4.5%
Prostate	16.7%	21.4%	26.4%	18.5%	18.4%	15.7%	19.7%	15.7%	25.6%	14.9%
Skin	1.7%	0.0%	0.0%	1.5%	1.3%	2.0%	3.9%	0.0%	0.0%	1.5%
Stomach	1.7%	5.4%	3.8%	6.2%	1.3%	2.0%	0.0%	2.9%	1.2%	3.0%
Other	20.0%	28.6%	11.3%	24.6%	40.8%	29.4%	26.3%	28.6%	23.2%	28.4%

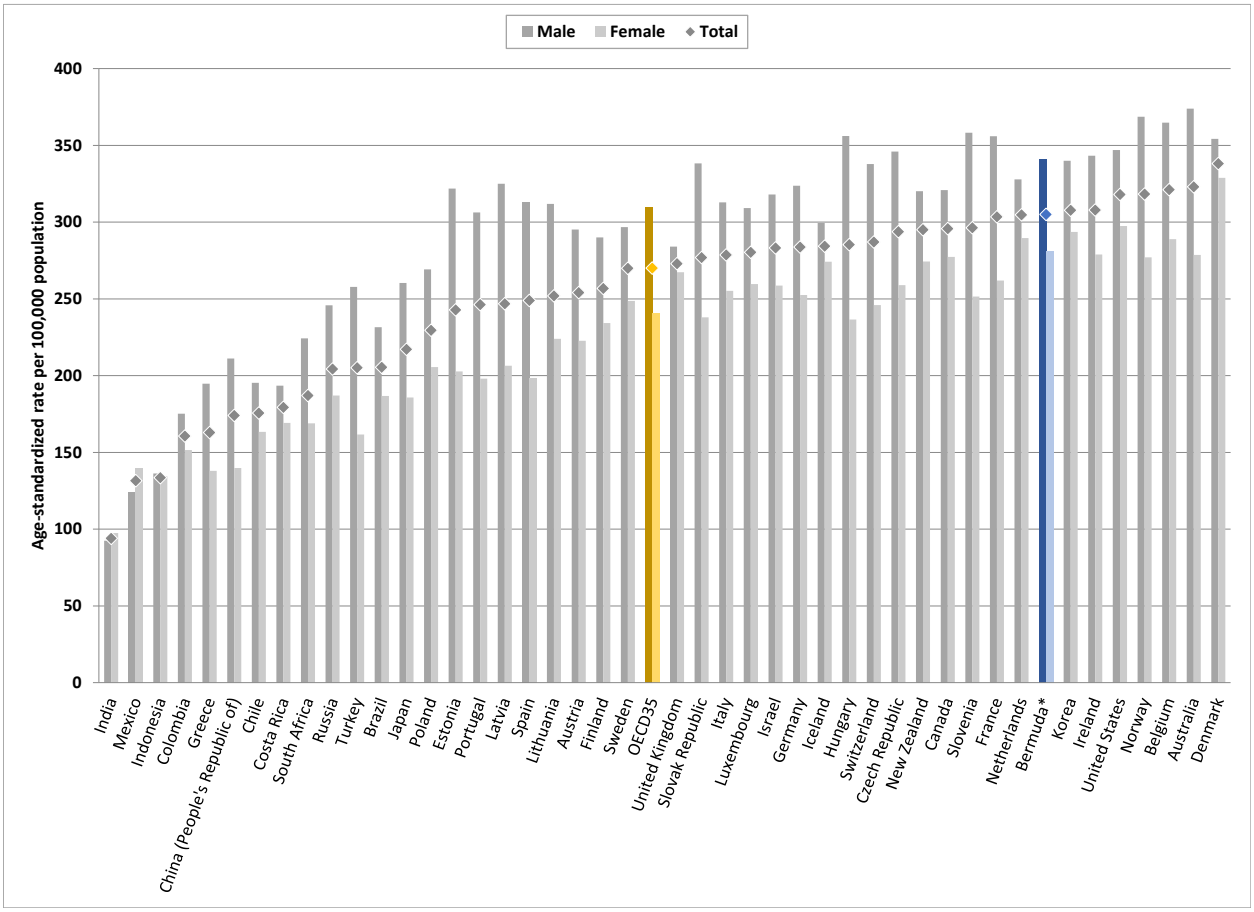
SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.4.3 Cancer incidence rates per 100,000 population, Bermuda, 2008-2015



SOURCE: Bermuda National Tumour Registry, Bermuda Hospitals Board

Figure 2.4.4 Cancer incidence rates per 100,000 population, OECD Comparison, 2012 (or nearest prior year available)



*2008-2012 average

SOURCE: OECD Health Data 2017

Table 2.4.4 Distribution of cancer diagnoses, total population, Bermuda, 2008-2015

Cancer type/site	2008	2009	2010	2011	2012	2013	2014	2015
Bladder	3.4%	2.3%	2.5%	3.4%	4.7%	5.1%	1.4%	3.5%
Breast	13.8%	19.2%	18.0%	19.1%	13.4%	14.4%	14.8%	13.7%
Cervical	0.0%	1.2%	1.3%	2.5%	0.8%	0.6%	0.4%	1.7%
Colorectal	12.7%	10.5%	10.8%	10.4%	7.9%	9.3%	10.2%	8.4%
Liver	1.5%	0.6%	0.3%	1.7%	0.5%	1.5%	1.4%	0.0%
Lung	7.5%	6.1%	7.9%	6.2%	10.2%	3.6%	4.9%	6.7%
Ovarian	0.7%	1.2%	0.6%	0.8%	2.1%	1.5%	1.1%	1.2%
Pancreatic	4.5%	0.6%	1.3%	1.1%	1.3%	2.1%	2.5%	2.3%
Prostate	11.6%	11.9%	13.9%	9.0%	10.7%	15.3%	18.7%	16.3%
Skin	22.8%	29.7%	24.7%	24.2%	22.8%	27.9%	19.1%	24.4%
Stomach	3.0%	1.5%	0.6%	1.4%	1.3%	0.6%	3.5%	0.6%
Other	18.7%	15.4%	18.0%	20.2%	24.3%	18.0%	21.9%	21.2%

SOURCE: Bermuda National Tumour Registry, Bermuda Hospitals Board

Table 2.4.5 Distribution of cancer diagnoses, females, Bermuda, 2006-2015

Cancer type/site	2008	2009	2010	2011	2012	2013	2014	2015
Bladder	0.8%	1.7%	2.0%	1.6%	1.1%	3.3%	2.6%	1.3%
Breast	29.6%	37.3%	38.1%	35.2%	26.8%	31.8%	36.0%	31.5%
Cervix	0.0%	2.3%	2.7%	4.7%	1.6%	1.3%	0.9%	4.0%
Colorectal	16.8%	11.9%	10.2%	7.8%	9.5%	9.9%	9.6%	6.7%
Liver	0.8%	0.6%	0.0%	2.1%	0.0%	0.0%	1.8%	0.0%
Lung	5.6%	4.5%	6.1%	5.2%	6.3%	3.3%	1.8%	4.0%
Ovary	1.6%	2.3%	1.4%	1.6%	4.2%	3.3%	2.6%	2.7%
Pancreas	5.6%	0.6%	1.4%	0.0%	1.6%	2.0%	0.9%	3.4%
Skin	17.6%	20.9%	23.8%	19.2%	20.5%	21.9%	18.4%	23.5%
Stomach	2.4%	1.1%	0.7%	1.0%	1.6%	0.0%	1.8%	0.0%
Other	19.2%	16.9%	13.6%	21.8%	26.8%	23.2%	23.7%	22.8%

SOURCE: Bermuda National Tumour Registry, Bermuda Hospitals Board

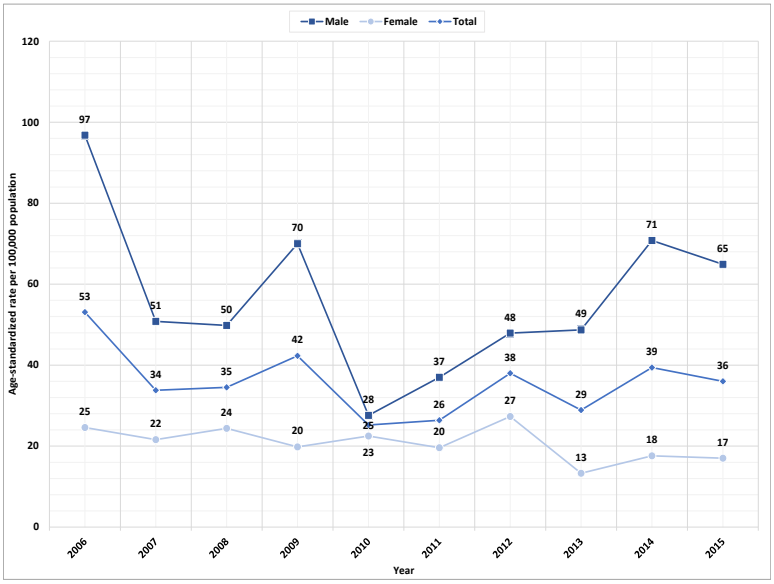
Table 2.4.6 Distribution of cancer diagnoses, males, Bermuda, 2006-2015

Cancer type/site	2008	2009	2010	2011	2012	2013	2014	2015
Bladder	5.6%	3.0%	3.0%	5.5%	8.3%	6.6%	0.6%	5.1%
Breast	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.6%	0.0%
Colorectal	9.1%	9.0%	11.2%	13.5%	6.3%	8.8%	10.7%	9.7%
Liver	2.1%	0.6%	0.6%	1.2%	1.0%	2.7%	1.2%	0.0%
Lung	9.1%	7.8%	9.5%	7.4%	14.1%	3.8%	7.1%	8.7%
Pancreas	3.5%	0.6%	1.2%	2.5%	1.0%	2.2%	3.6%	1.5%
Prostate	21.7%	24.6%	26.0%	19.6%	21.4%	28.0%	31.4%	28.7%
Skin	27.3%	38.9%	25.4%	30.1%	25.0%	33.0%	19.5%	25.1%
Stomach	3.5%	1.8%	0.6%	1.8%	1.0%	1.1%	4.7%	1.0%
Other	18.2%	13.8%	21.9%	18.4%	21.9%	13.7%	20.7%	20.0%

SOURCE: Bermuda National Tumour Registry, Bermuda Hospitals Board

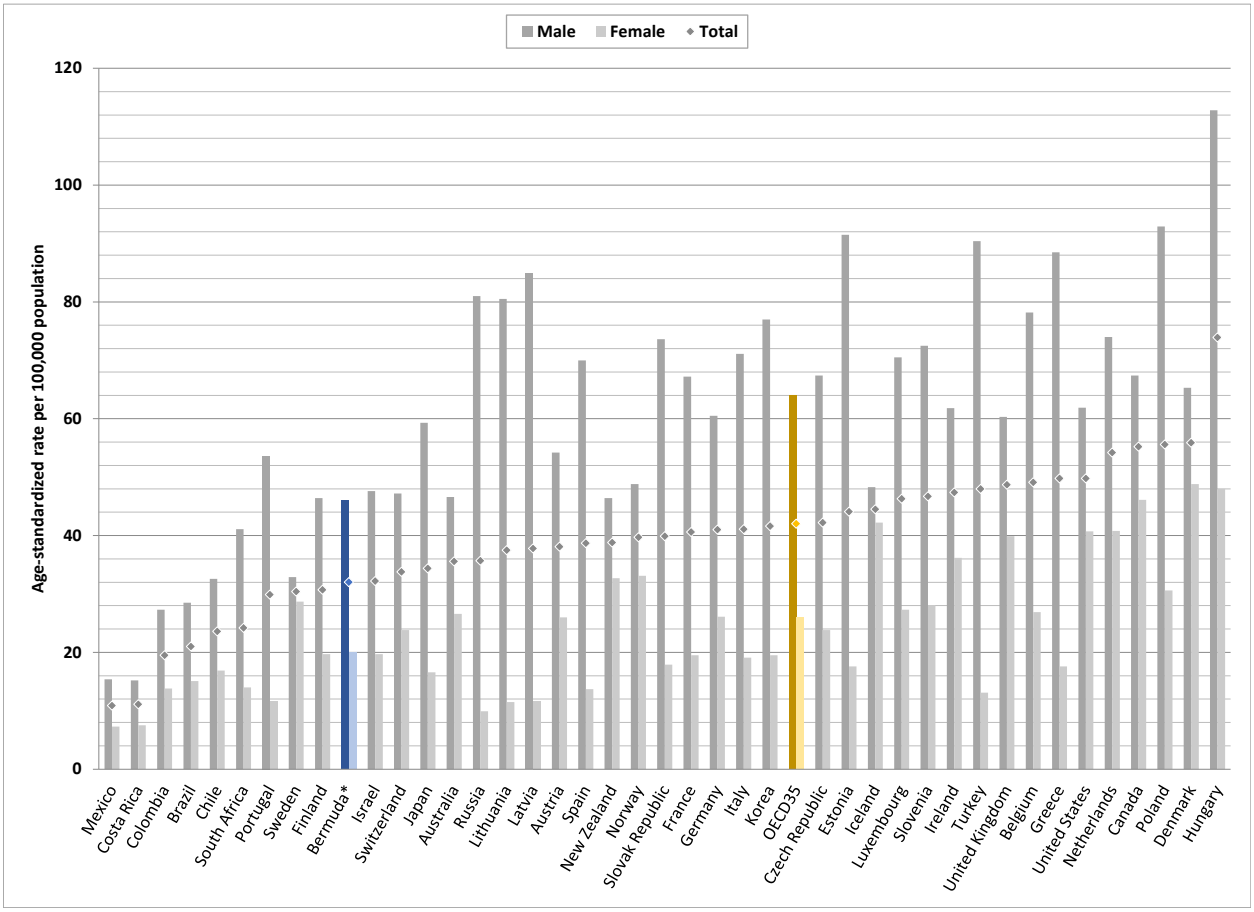
Lung Cancers

Figure 2.4.5 Mortality rates from lung cancer per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

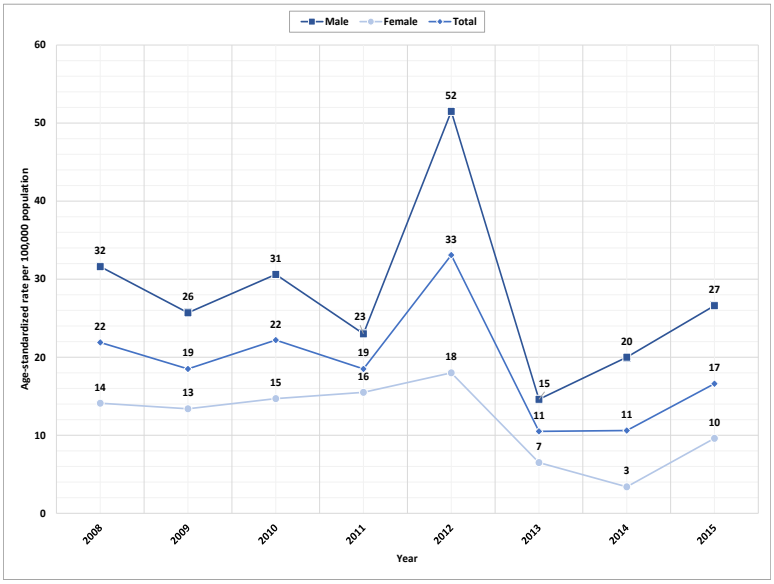
Figure 2.4.6 Mortality rates from lung cancer per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

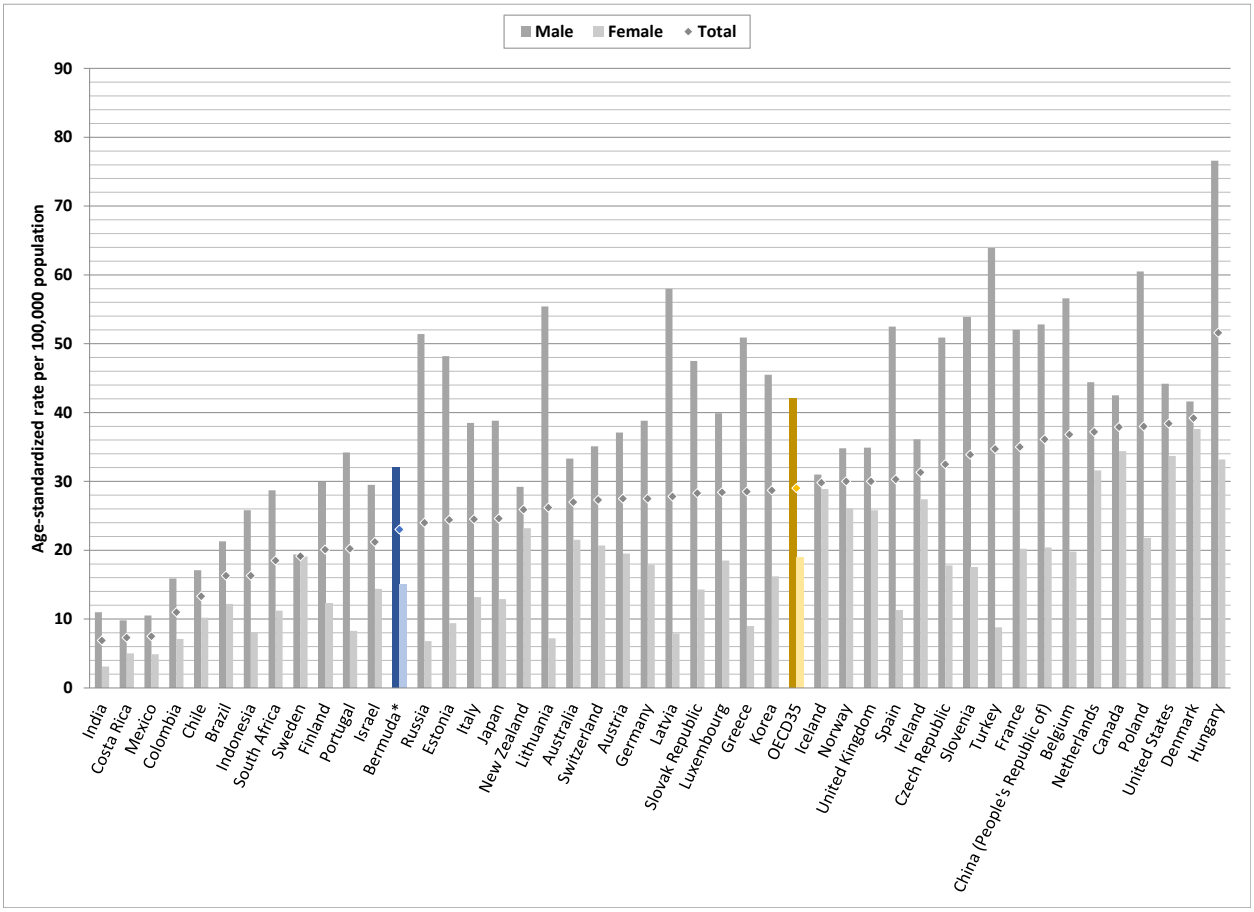
SOURCE: OECD Health Data 2017

Figure 2.4.7 Incidence rates of lung cancer per 100,000 population, Bermuda, 2008-2015



SOURCE: Bermuda National Tumour Registry, Bermuda Hospitals Board

Figure 2.4.8 Incidence rates of lung cancer per 100,000 population, OECD Comparison, 2012 (or nearest prior year available)

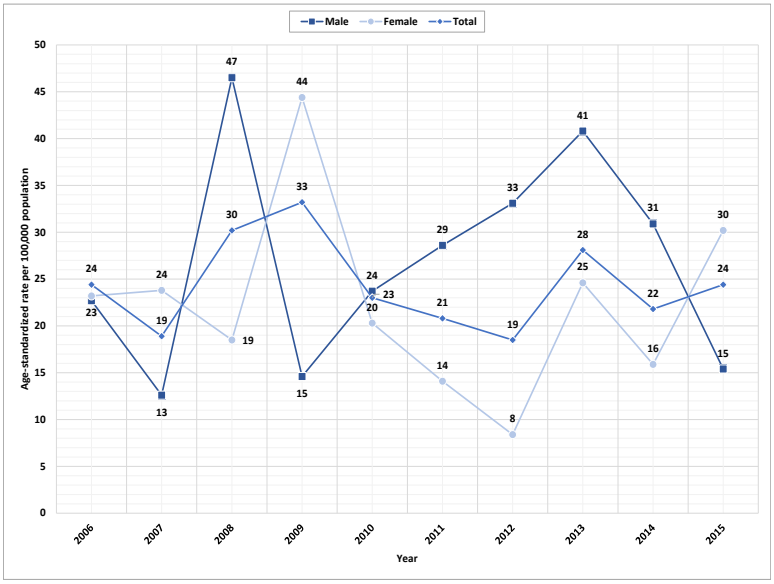


*2008-2012 average

SOURCE: OECD Health Data 2017

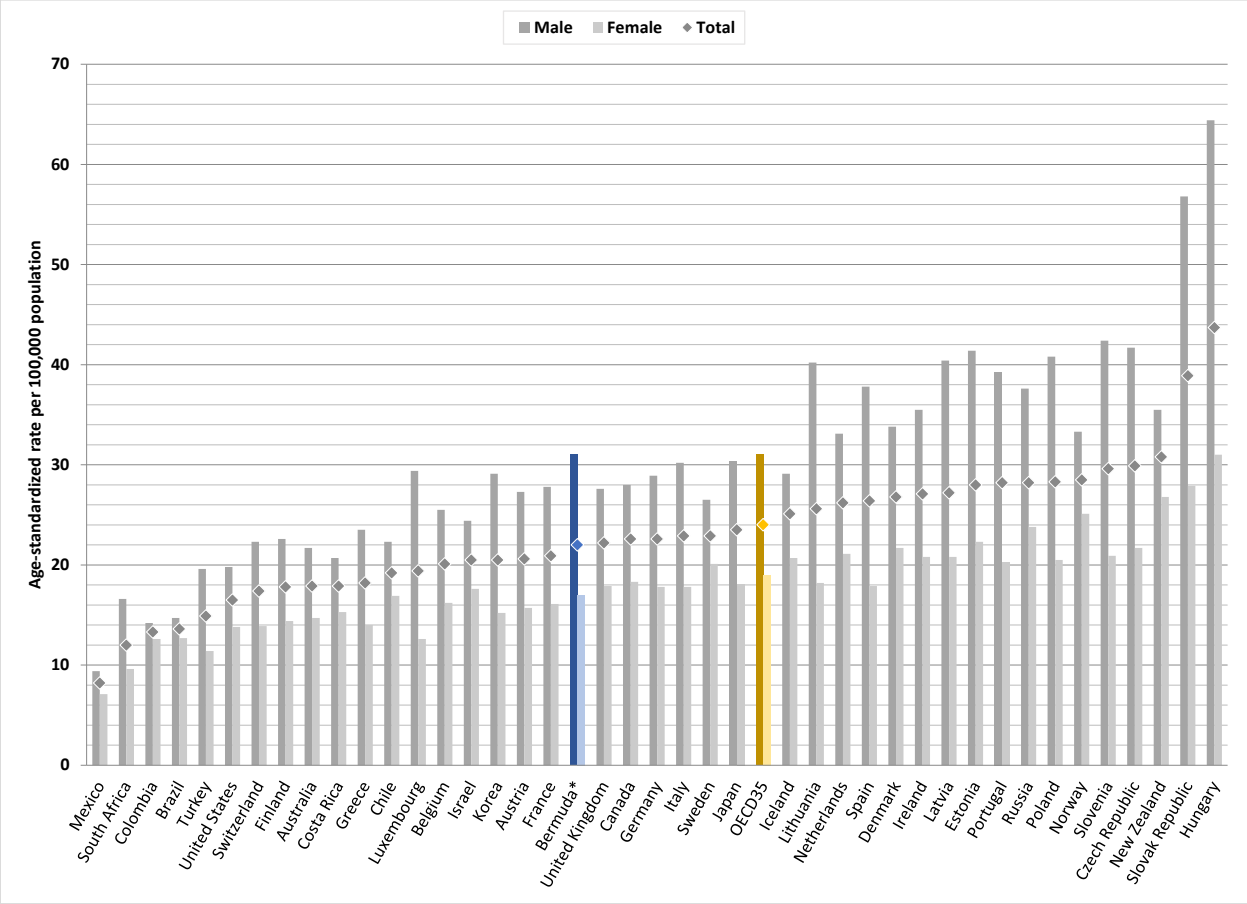
Colorectal Cancers

Figure 2.4.9 Mortality rates from colorectal cancer per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

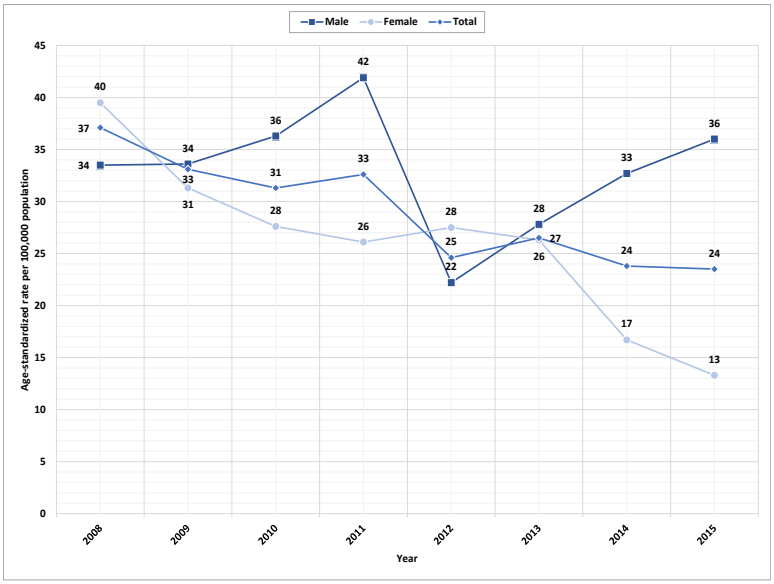
Figure 2.4.10 Mortality rates from colorectal cancer per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

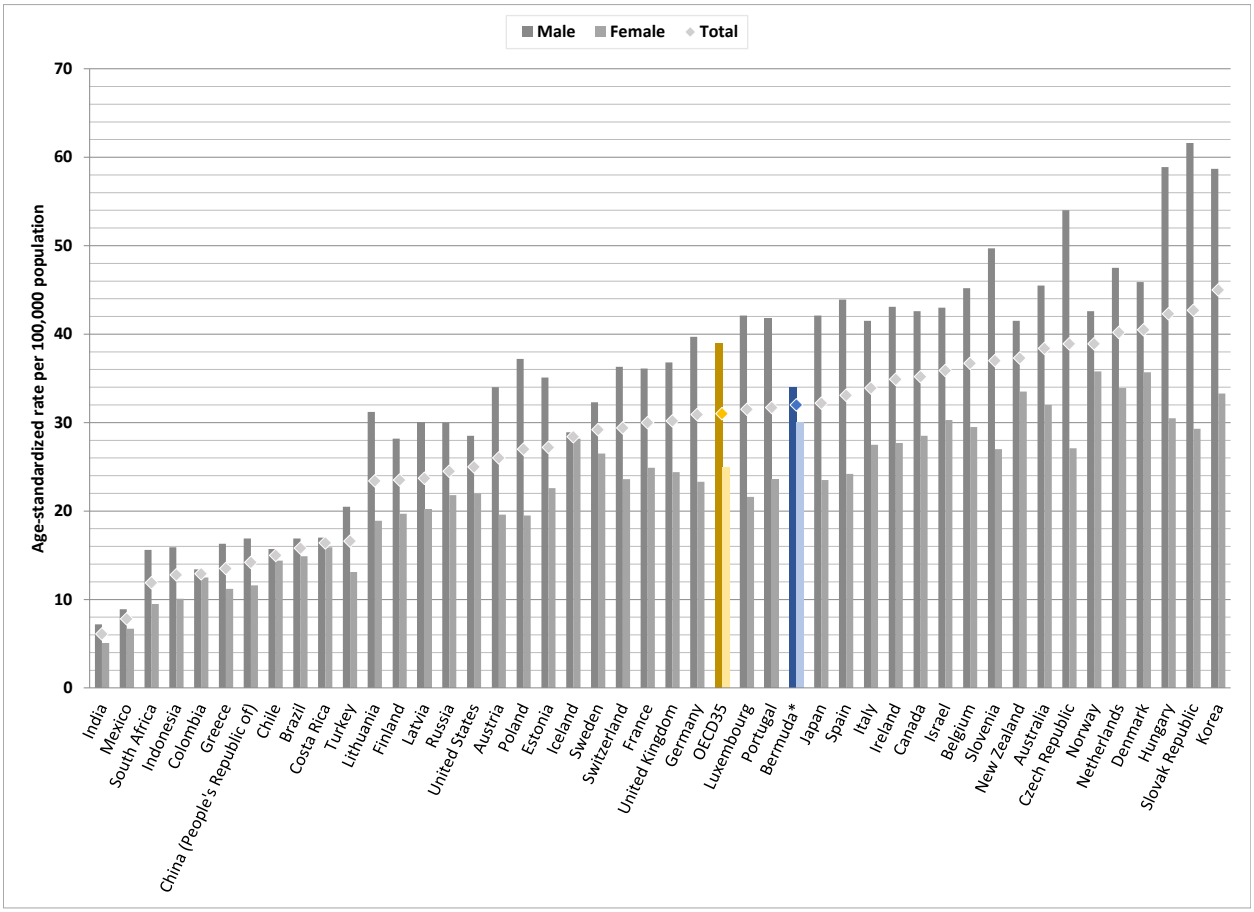
SOURCE: OECD Health Data 2017

Figure 2.4.11 Incidence rates of colorectal cancer per 100,000 population, Bermuda, 2008-2015



SOURCE: Bermuda National Tumour Registry, Bermuda Hospitals Board

Figure 2.4.12 Incidence rates of colorectal cancer per 100,000 population, OECD Comparison, 2012 (or nearest prior year available)

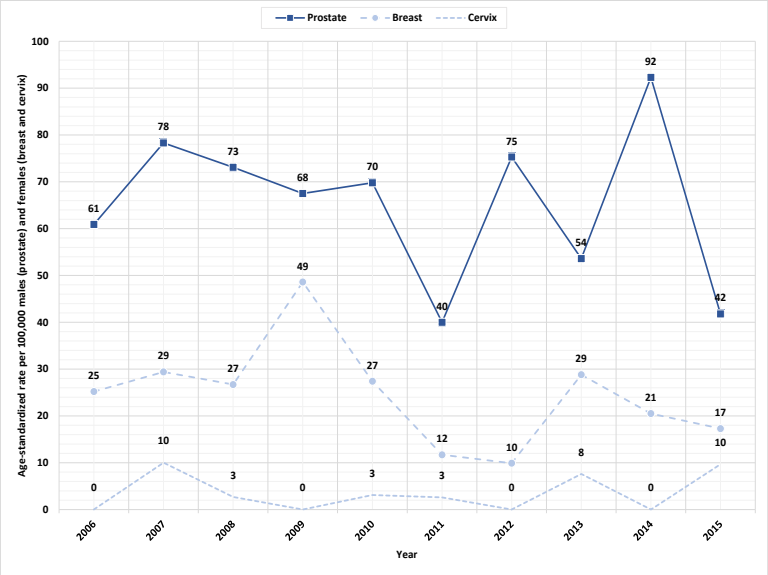


*2008-2012 average

SOURCE: OECD Health Data 2017

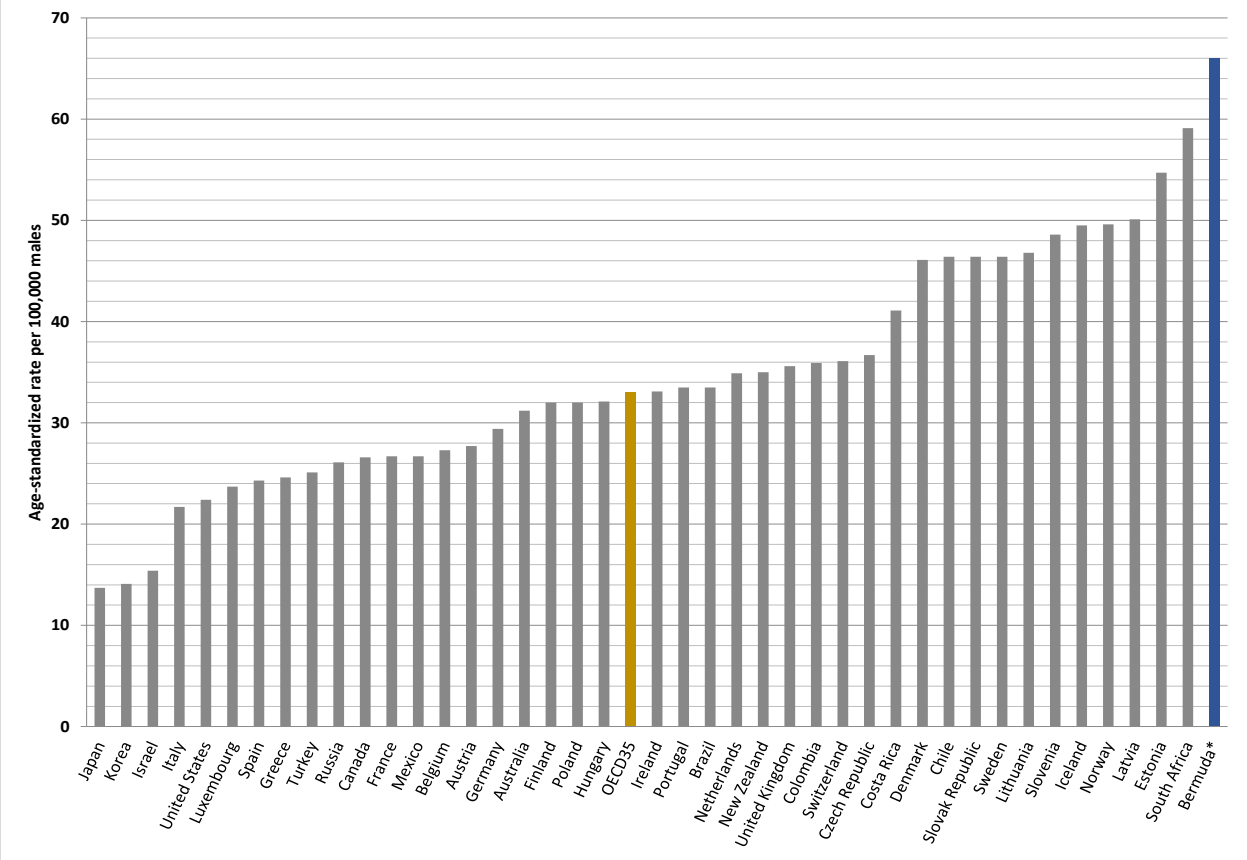
Sex-Specific Cancers (Prostate, Female Breast and Cervix)

Figure 2.4.13 Mortality rates from sex-specific cancers (prostate, female breast and cervix) per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

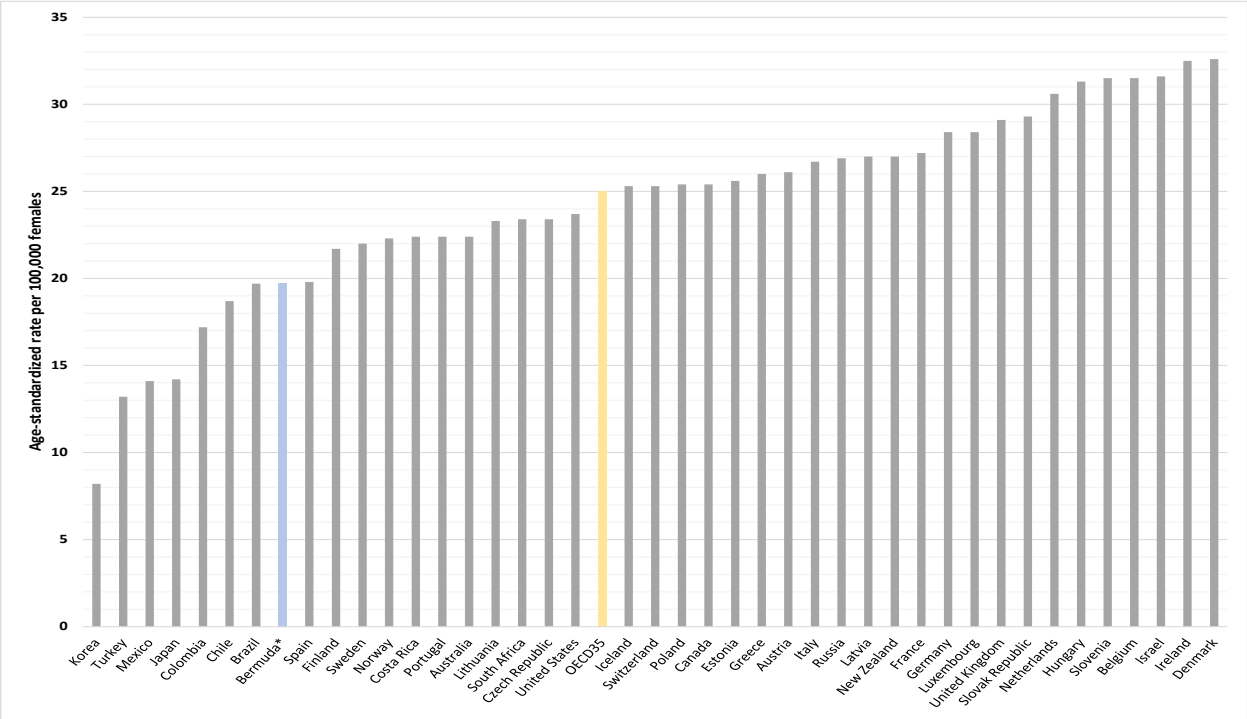
Figure 2.4.14 Mortality rates from prostate cancer per 100,000 males, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

SOURCE: OECD Health Data 2017

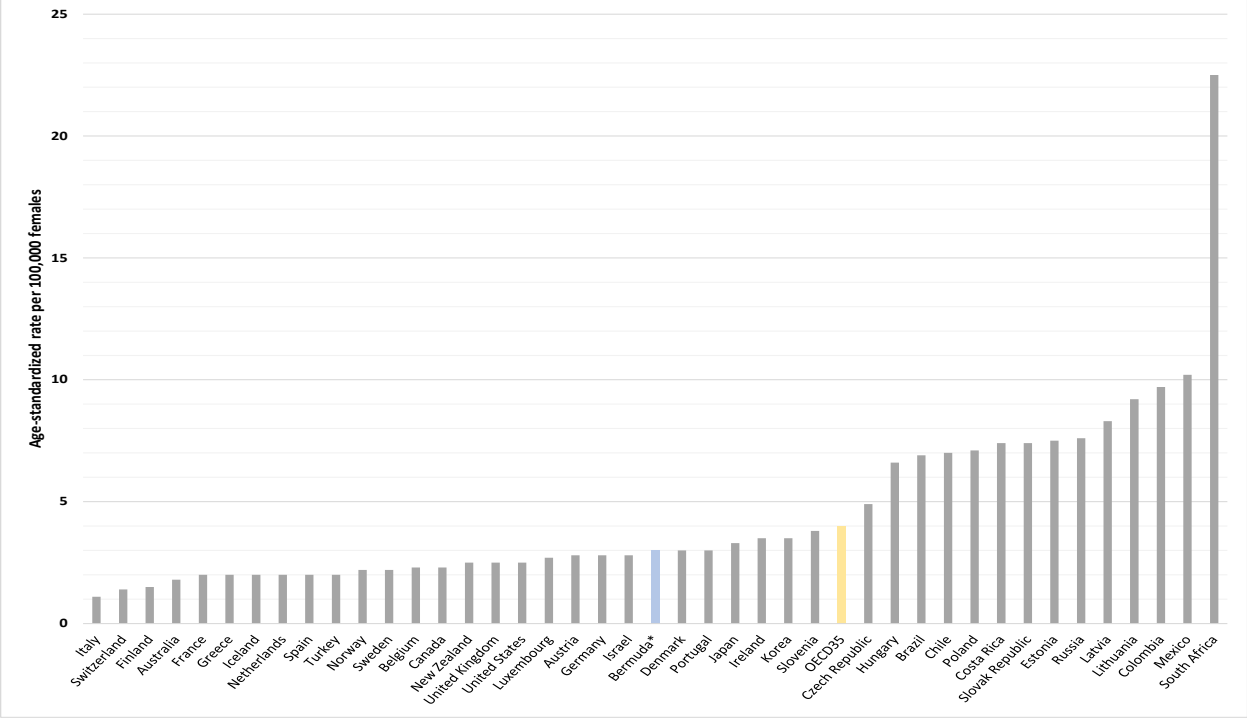
Figure 2.4.15 Mortality rates from breast cancer per 100,000 females, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

SOURCE: OECD Health Data 2017

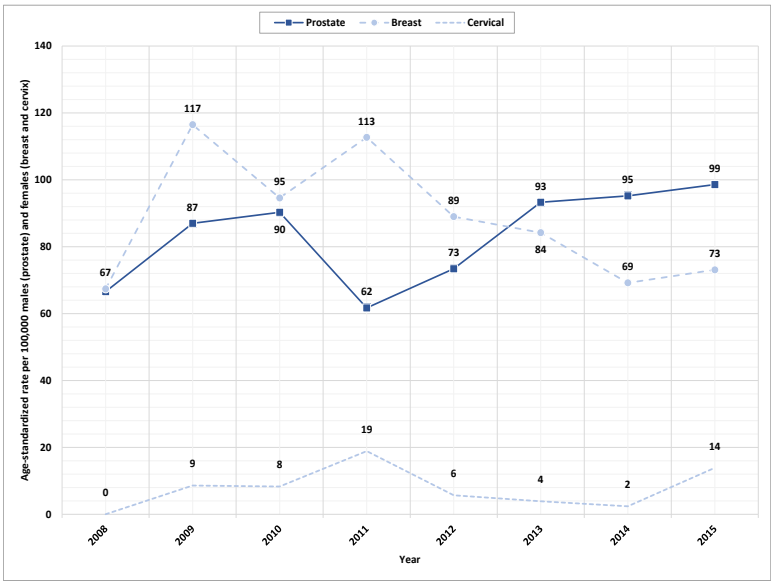
Figure 2.4.16 Mortality rates from cervical cancer per 100,000 females, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

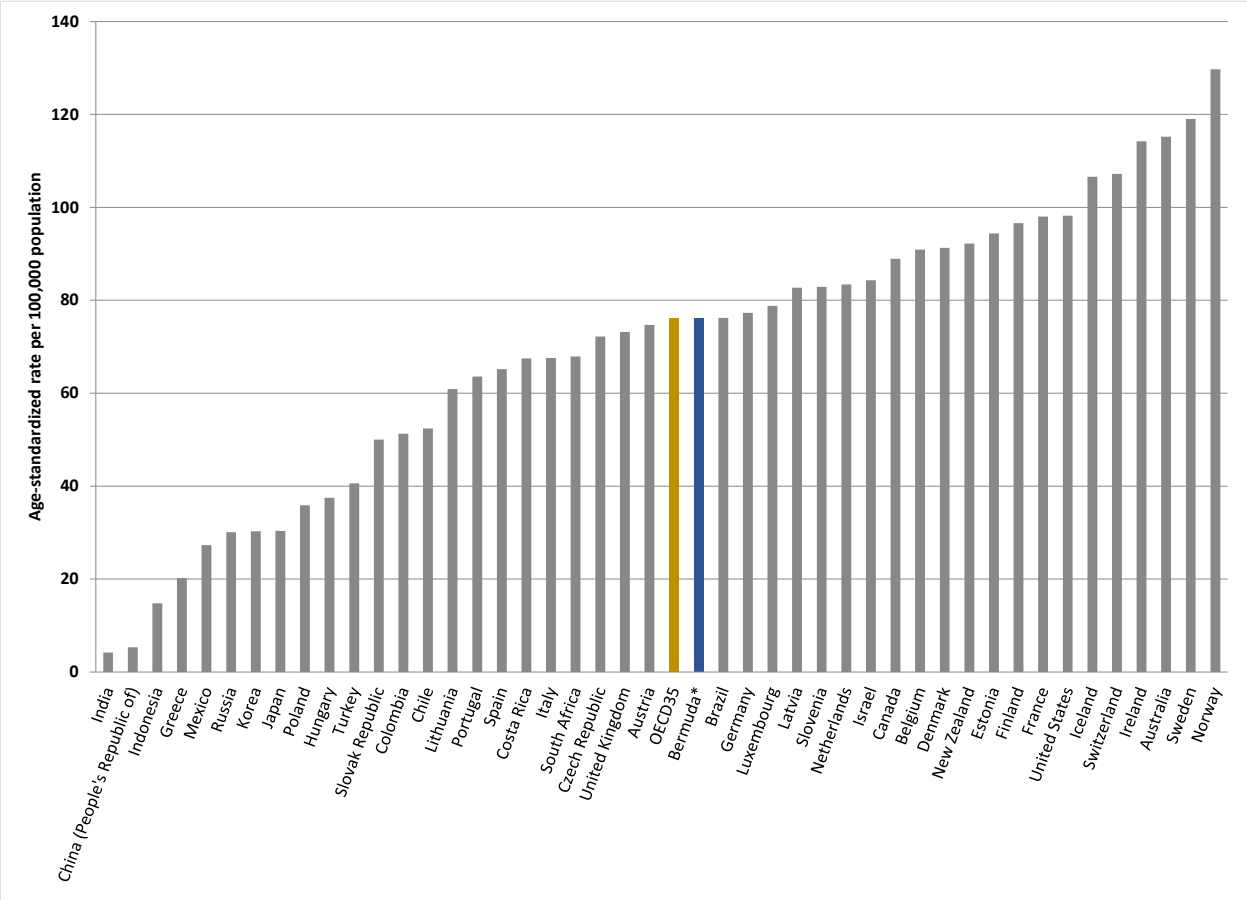
SOURCE: OECD Health Data 2017

Figure 2.4.17 Incidence rates from sex-specific cancers (prostate, female breast and cervix) per 100,000 population, Bermuda,



SOURCE: Bermuda National Tumour Registry, Bermuda Hospitals Board

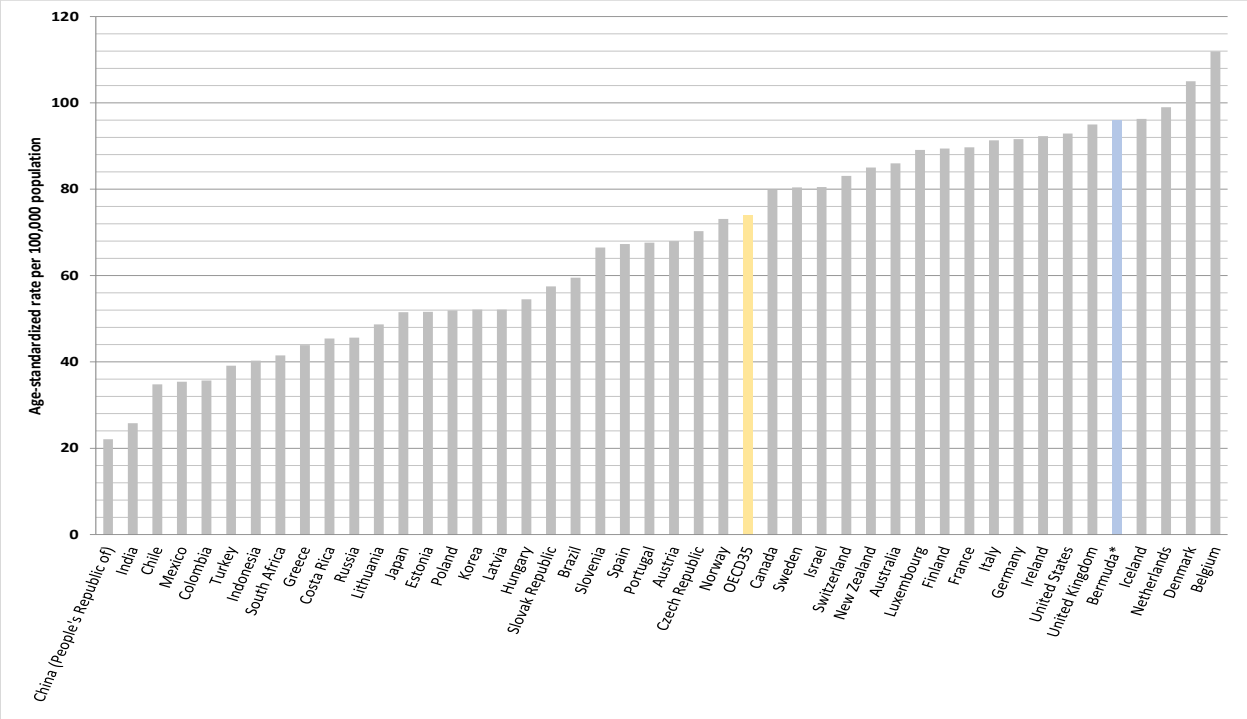
Figure 2.4.18 Incidence rates of prostate cancer per 100,000 males, OECD Comparison, 2012 (or nearest prior year available)



*2008-2012 average

SOURCE: OECD Health Data 2017

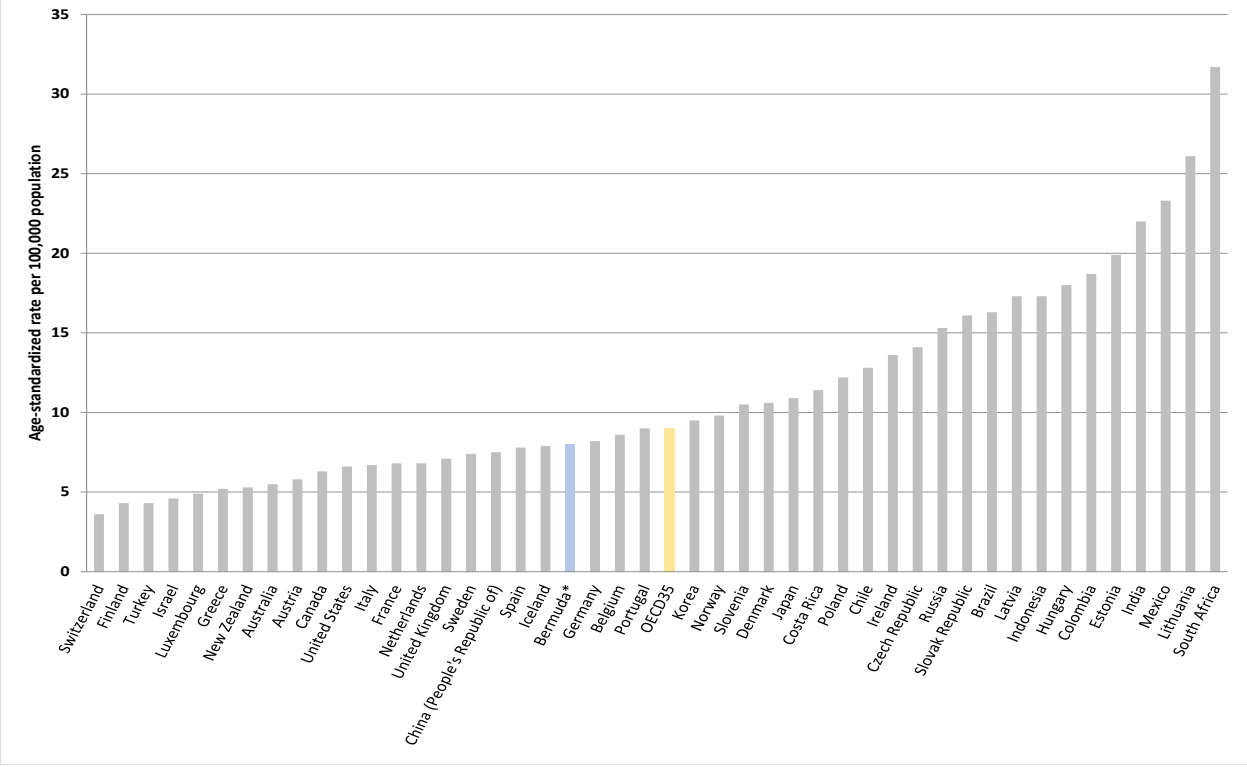
Figure 2.4.19 Incidence rates of breast cancer per 100,000 females, OECD Comparison, 2012 (or nearest prior year available)



*2008-2012 average

SOURCE: OECD Health Data 2017

Figure 2.4.20 Incidence rates of cervical cancer per 100,000 females, OECD Comparison, 2012 (or nearest prior year available)



*2008-2012 average

SOURCE: OECD Health Data 2017

2.5 Diabetes

Mortality due to diabetes is generally a result of multiple long-term complications that can be prevented through regular, optimal blood glucose, blood lipid, and blood pressure monitoring and through screening and treatment for eye, foot, and kidney abnormalities. Means to prevent these complications, and resulting deaths, include improved patient education and self-management and provision of adequate and timely screening services and medical care. Improved patient education and self-management and provision of adequate and timely screening services and medical care are a means to prevent complications and deaths due to diabetes. Diabetes prevalence is also reflective of screening availability.

Mortality rates due to diabetes in Bermuda are generally higher than the OECD average, with the male rates almost double the OECD average. This is directly related to the relatively high rates of diabetes in Bermuda. In 2011, it was estimated that 11% of the population had ever been diagnosed with diabetes, which among the highest of the comparative countries.

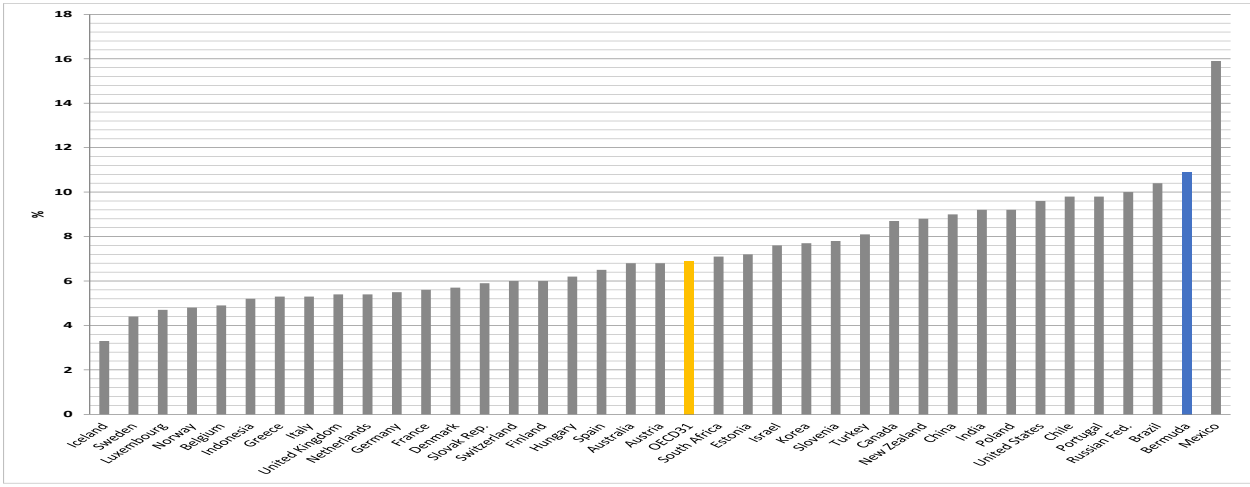
Definition and Comparability

Prevalence rates for comparison countries were provided by the international Diabetes Federation and adjusted to the World Health Organization world standard population. The data for the prevalence of diabetes in Bermuda was derived from the Health Survey of Adults in Bermuda 2011 which was self-reported and not adjusted to the world standard population.

Mortality rates are calculated by dividing annual numbers of deaths by mid-year population estimates. Crude rates and age standardized rates are provided. For comparison to OECD countries, rates are age-standardised to the OECD 2010 population to remove variations arising from differences in age structures across countries. All PAHO mortality rates are age-adjusted death rates with the WHO World Standard Population. For comparison, rates are age-standardised to the OECD 2010 population to remove variations arising from differences in age structures across countries. Deaths from diabetes are classified to ICD-10 codes E10-E14.

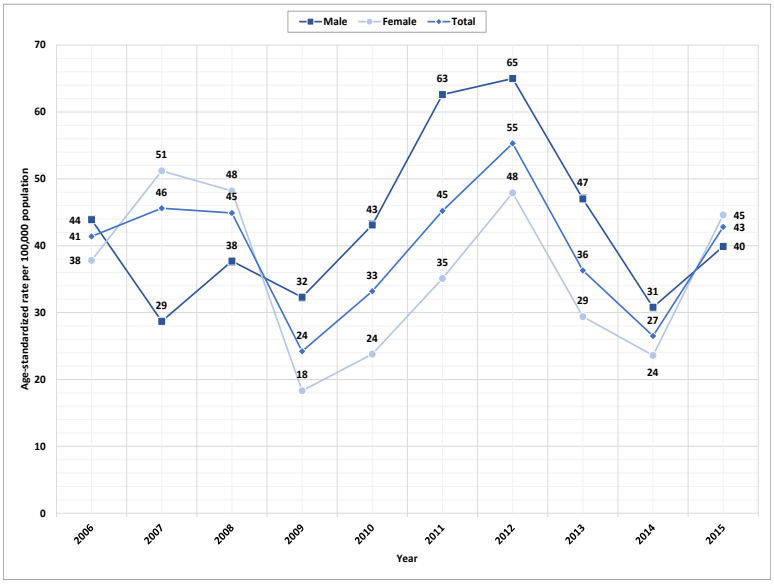
Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data. Aggregate data is presented for comparison to OECD countries.

Figure 2.5.1 Prevalence of diabetes, OECD Comparison, 2011 (or nearest prior year available)



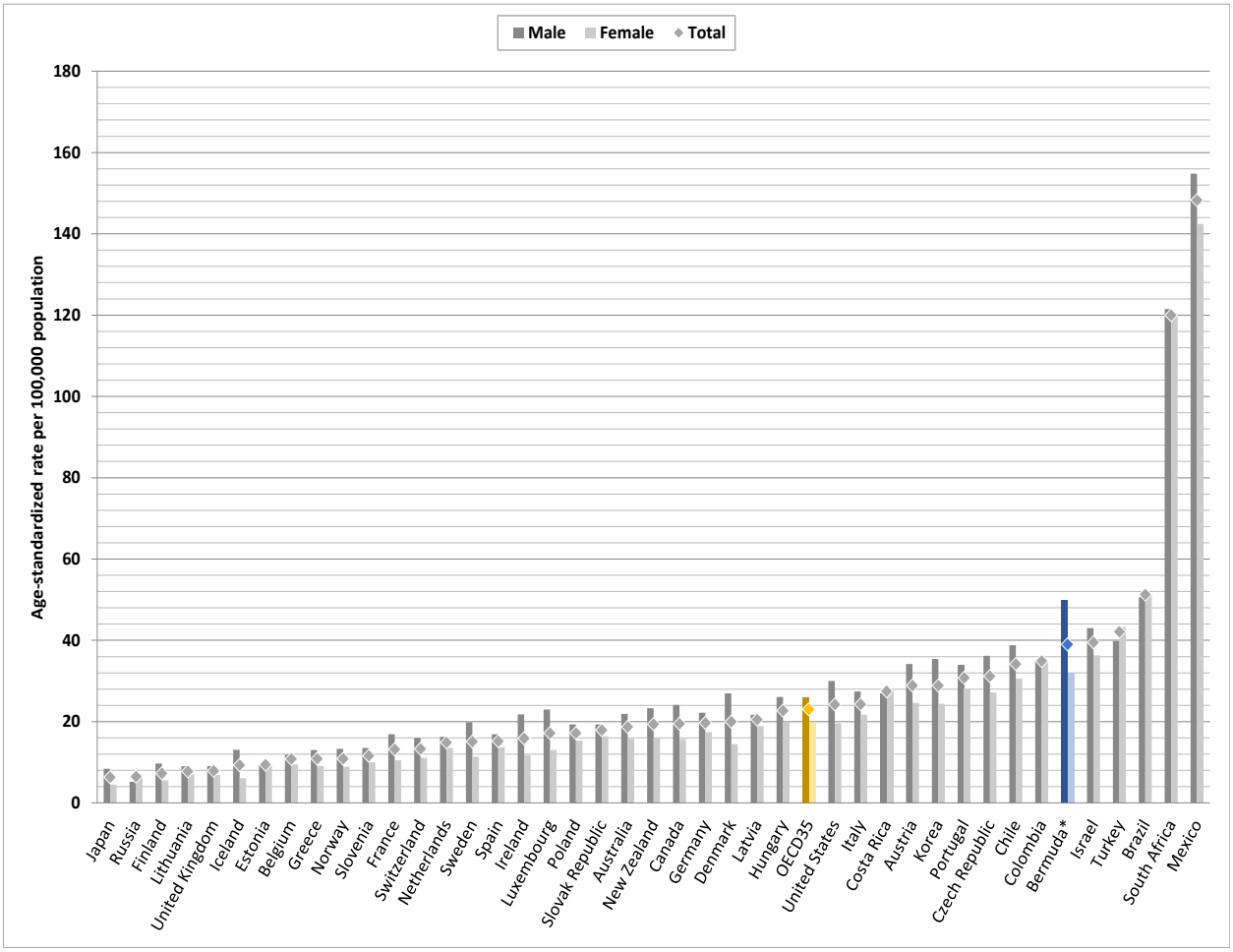
SOURCE: OECD Health Data 2013

Figure 2.5.2 Mortality rates from diabetes per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.5.3 Mortality rates from diabetes per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

SOURCE: OECD Health Data 2017

2.6 Cardiovascular Diseases: Ischaemic Heart Disease and Stroke

Cardiovascular diseases remain the leading cause of mortality in most OECD countries and Bermuda. These diseases account for around one-third of all deaths in recent years. Cardiovascular diseases cover a range of illnesses related to the circulatory system, including ischemic heart disease and cerebrovascular disease (stroke). Heart disease and stroke are preventable. Changes in mortality rates from these conditions may reflect the effectiveness of interventions aimed at preventing cardiovascular diseases and changes in the distribution of certain risk factors such as obesity and diabetes.

Overall, ischemic heart disease mortality appears to be decreasing in Bermuda, with rates slightly lower than the OECD average. Cerebrovascular disease mortality rates also appear to be declining but remain above the OECD average.

Males have consistently higher mortality rates for these conditions than females. This is likely to be related to gender difference in health-seeking and other behaviours. As ischemic heart disease and stroke are closely associated with risk factors such as diabetes, high blood pressure, high cholesterol and lifestyle factors such as smoking, inadequate nutrition, and physical inactivity, part of the gender gap is also due to males being more likely to have some of these risk factors.

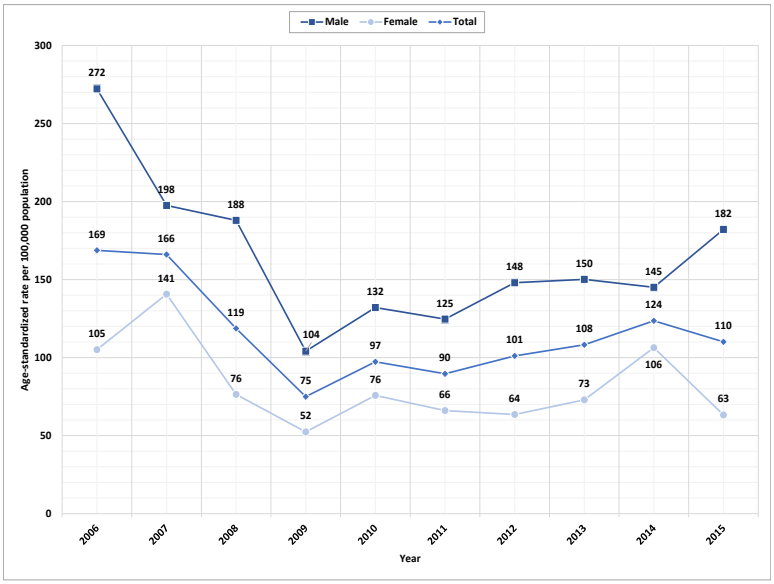
Definition and Comparability

Mortality rates are calculated by dividing annual numbers of deaths by mid-year population estimates. Crude rates and age standardized rates are provided. For comparison to OECD countries, rates are age-standardised to the OECD 2010 population to remove variations arising from differences in age structures across countries. All PAHO mortality rates are age-adjusted death rates with the WHO World Standard Population. Deaths from ischaemic heart disease are classified to ICD-10 codes I20-I25. Deaths from cerebrovascular disease are classified to ICD-10 codes I60-I69.

Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data. Aggregate data is presented for cerebrovascular disease rate comparison to OECD countries.

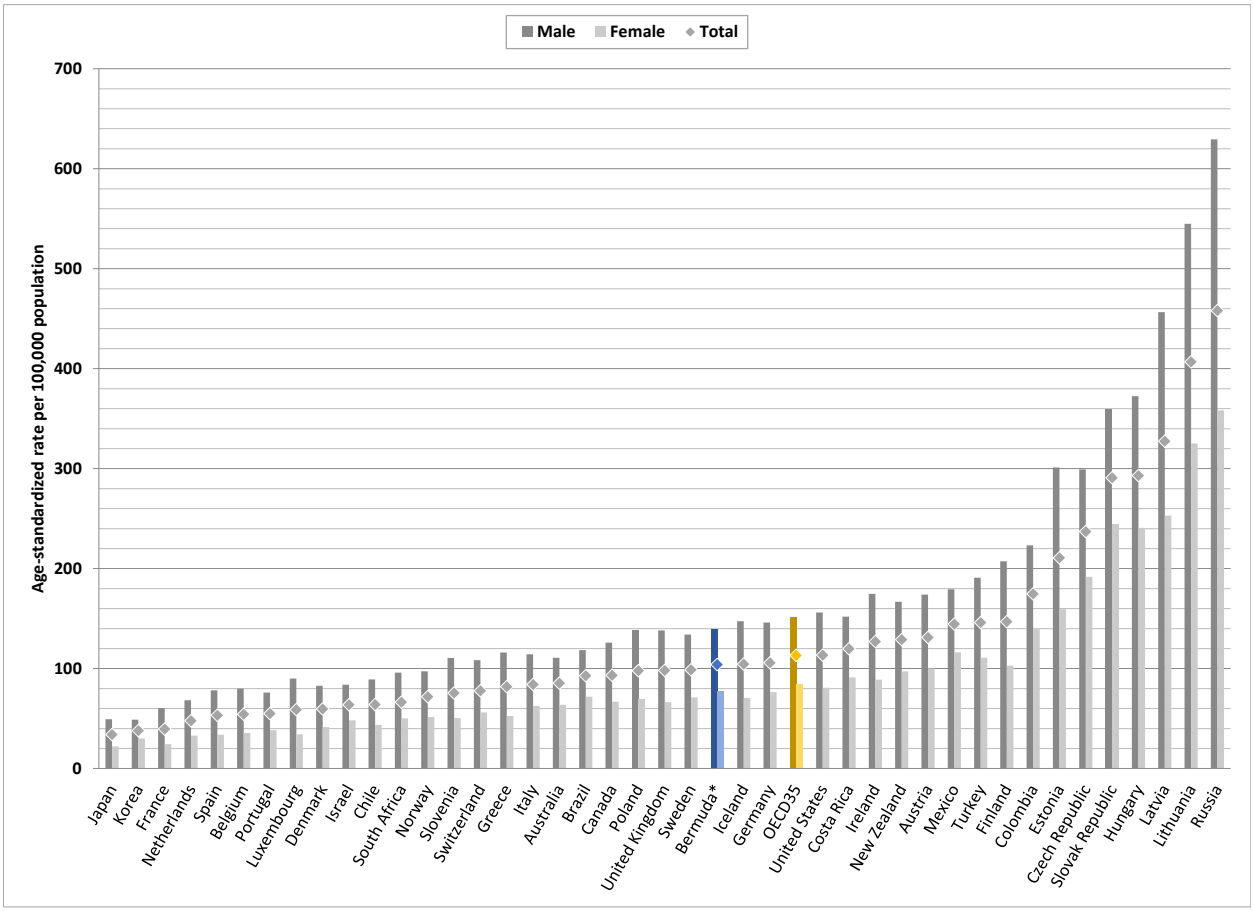
Ischemic Heart Disease

Figure 2.6.1 Mortality rates from ischemic heart disease per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.6.2 Mortality rates from ischemic heart disease per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)

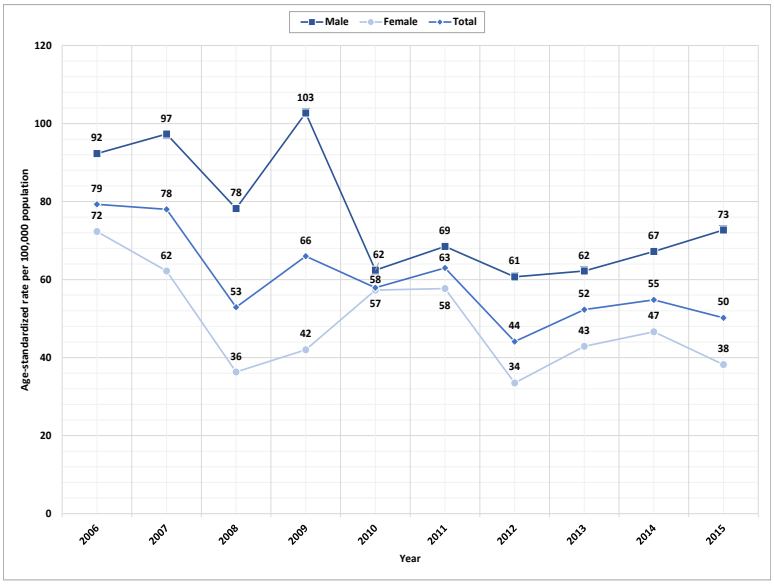


*2010-2014 average

SOURCE: OECD Health Data 2017

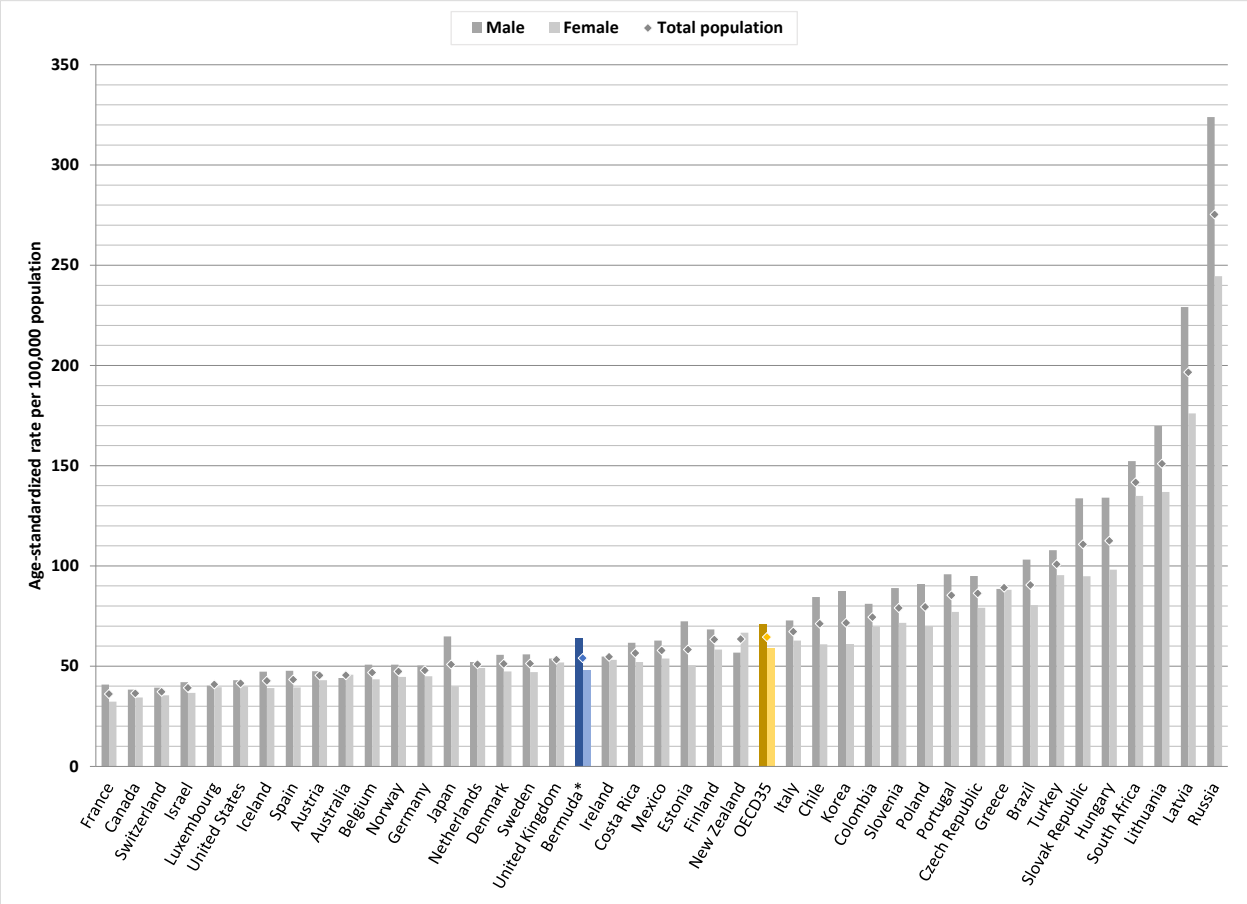
Cerebrovascular Disease (Stroke)

Figure 2.6.3 Mortality rates from cerebrovascular disease per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.6.4 Mortality rates from cerebrovascular disease per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

SOURCE: OECD Health Data 2017

2.7 External Causes

External causes are a major contributor to premature death and preventable death. In Bermuda, the main causes of death due to external causes are related to transport accidents (or collisions). Secondary to transport accidents are deaths due to assault (homicide). Registered deaths due to overdose, suicide and drowning are relatively rare.

Overall, deaths due to external causes have decreased in recent years and remain lower than the OECD average. However, there are differences by manner of death. Bermuda's homicide rates are higher than the OECD average while suicide rates remain lower. There is a mixed picture with transport accident mortality where although the overall rate and the rate among males is higher, the rate among females is among the lowest of the OECD countries. The vast majority of transport accident deaths are among motor cyclists.

Recent years have seen declines in the number of injury collisions. Although not directly comparable, Bermuda's traffic accident injury rates are likely to be significantly higher than the OECD average.

Definition and comparability

Mortality rates are calculated by dividing annual numbers of deaths by mid-year population estimates. Crude rates and age standardized rates are provided. For comparison to OECD countries, rates are age-standardised to the OECD 2010 population to remove variations arising from differences in age structures across countries.

Deaths from external causes are classified to ICD-10 codes V01-Y98. Deaths from transport accidents are classified to ICD-10 codes V01-V99. Deaths from assault are classified to ICD-10 codes X85-Y09. Deaths from intentional self-harm (suicide) are classified to ICD-10 codes X60-X84.

Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data. Aggregate data is presented for comparison to OECD countries.

For OECD and comparison countries, road traffic accident injury rates are calculated as the number of people injured in road traffic accidents per million population and using the following definitions:

Road traffic accident: any accident which occurred or originated on a way or street open to public traffic; resulting in one or more persons being killed or injured, and at least one moving vehicle involved.

Injured: Any person who was not killed but sustained one or more serious or slight injuries as a result of the accident.

Serious injuries: Fractures, concussions, internal lesions, crushing, severe cuts and laceration, severe general shock requiring medical treatment and any other serious lesions entailing detention in hospital.

Slight injuries: Secondary injuries such as sprains or bruises.

Available comparable figures for Bermuda are the number of traffic collisions in Bermuda by type – serious injury collisions and slight injury collisions.

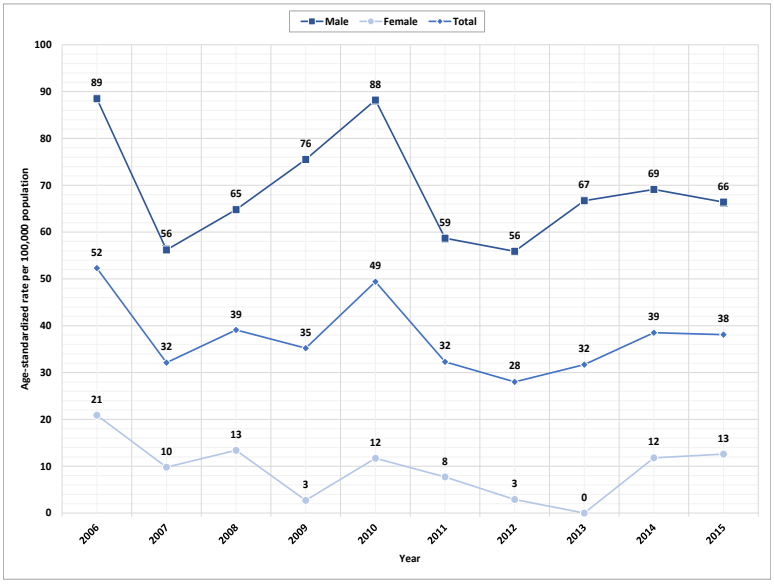
Table 2.7.1 Deaths due to external causes, Bermuda, 2006-2015

External cause	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Assault (homicide)	0.0%	5.3%	0.0%	9.1%	19.4%	42.1%	25.0%	27.8%	17.4%	17.4%
Drowning	0.0%	21.1%	4.2%	4.5%	9.7%	0.0%	25.0%	5.6%	13.0%	8.7%
Falls	13.8%	10.5%	16.7%	4.5%	3.2%	5.3%	0.0%	5.6%	0.0%	13.0%
Intentional self-harm (suicide)	3.4%	5.3%	4.2%	9.1%	12.9%	5.3%	12.5%	5.6%	8.7%	0.0%
Overdose	6.9%	5.3%	8.3%	9.1%	9.7%	0.0%	0.0%	0.0%	0.0%	8.7%
Transport accidents	51.7%	47.4%	66.7%	45.5%	35.5%	26.3%	31.3%	50.0%	56.5%	34.8%
Other	24.1%	5.3%	0.0%	18.2%	9.7%	21.1%	6.3%	5.6%	4.3%	17.4%

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

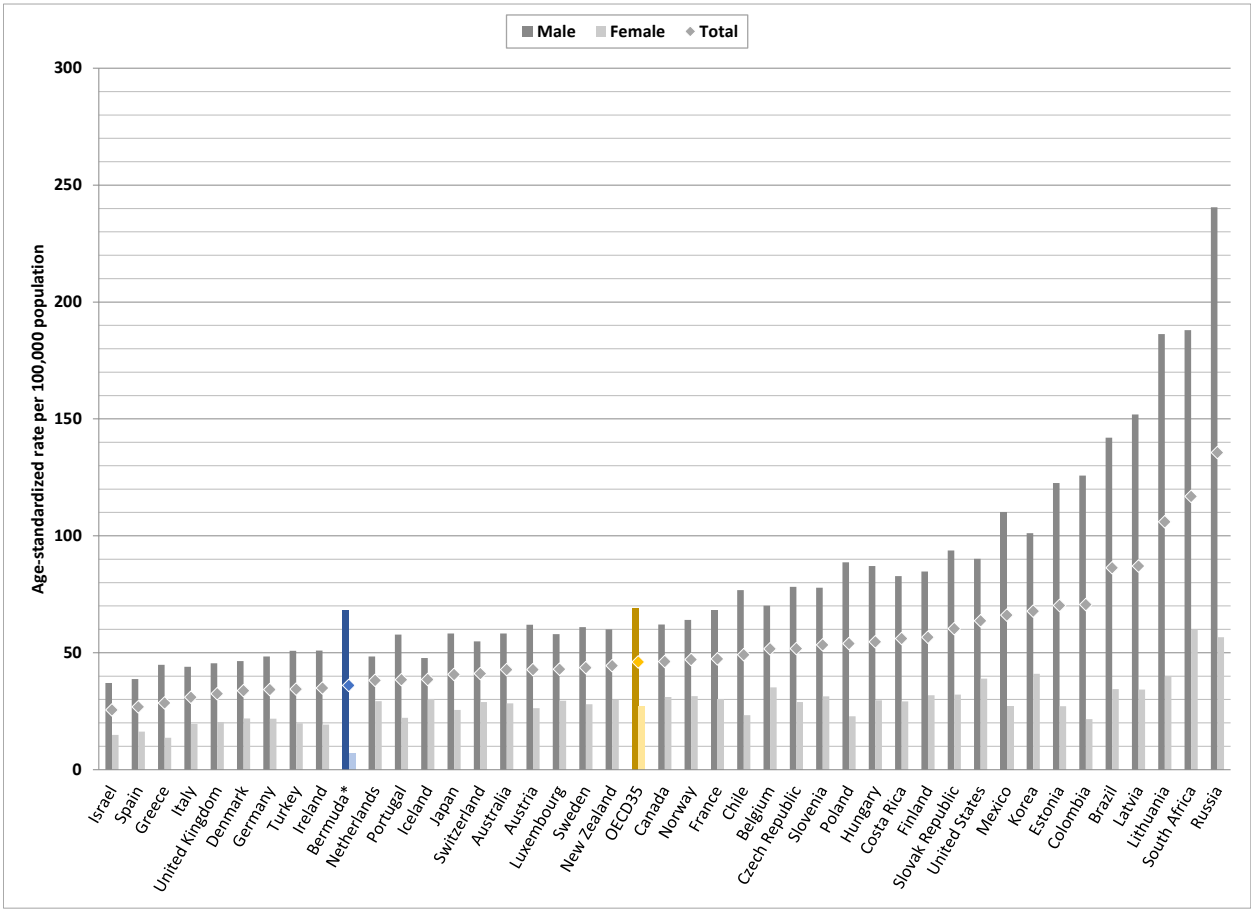
All External Causes

Figure 2.7.1 Mortality rates from external causes per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

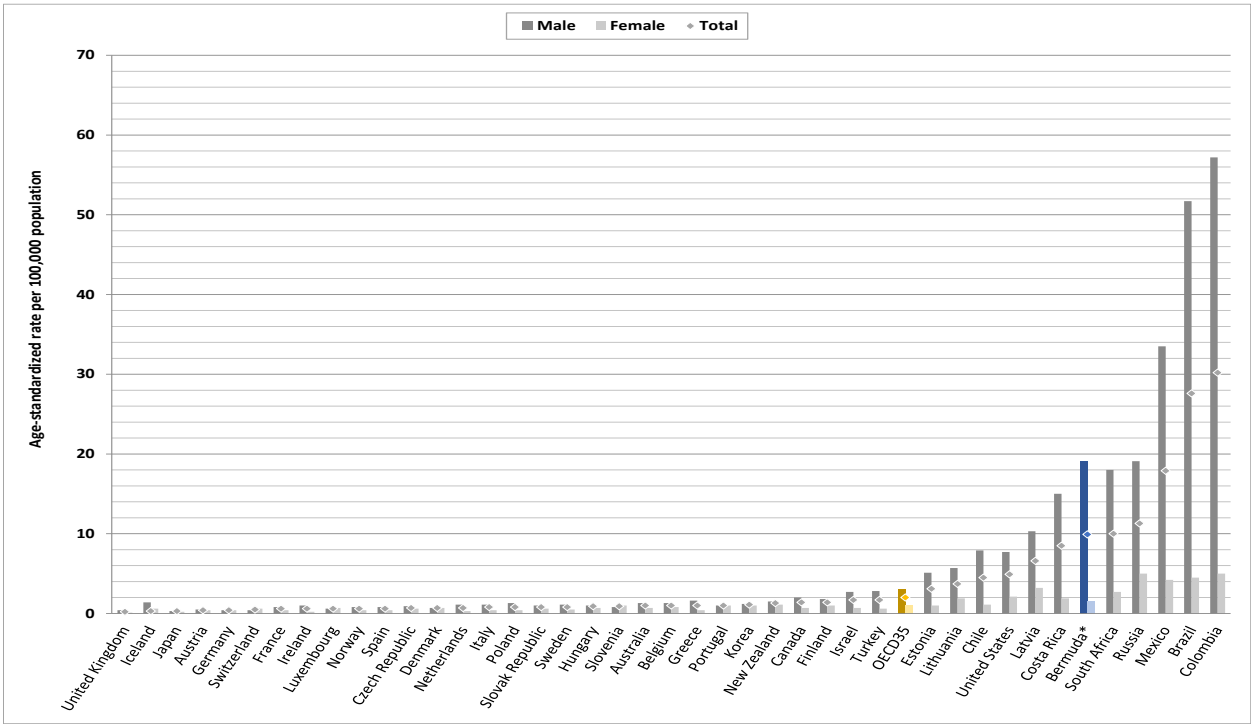
Figure 2.7.2 Mortality rates from external causes per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

SOURCE: OECD Health Data 2017

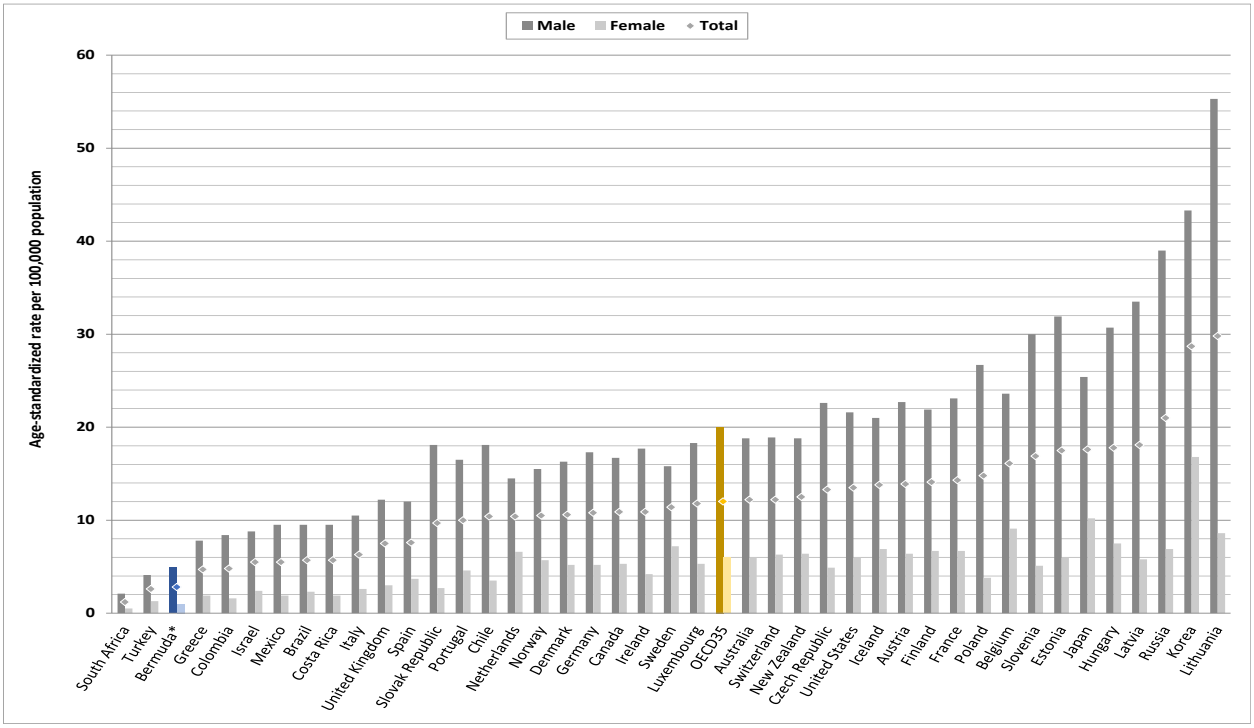
Figure 2.7.3 Mortality rates from assault (homicide) per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

SOURCE: OECD Health Data 2017

Figure 2.7.4 Mortality rates from intentional self-harm (suicide) per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)

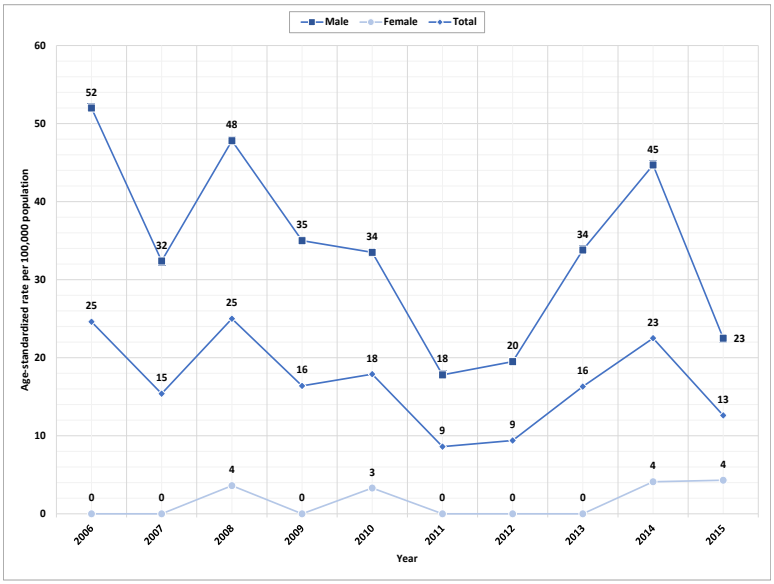


*2010-2014 average

SOURCE: OECD Health Data 2017

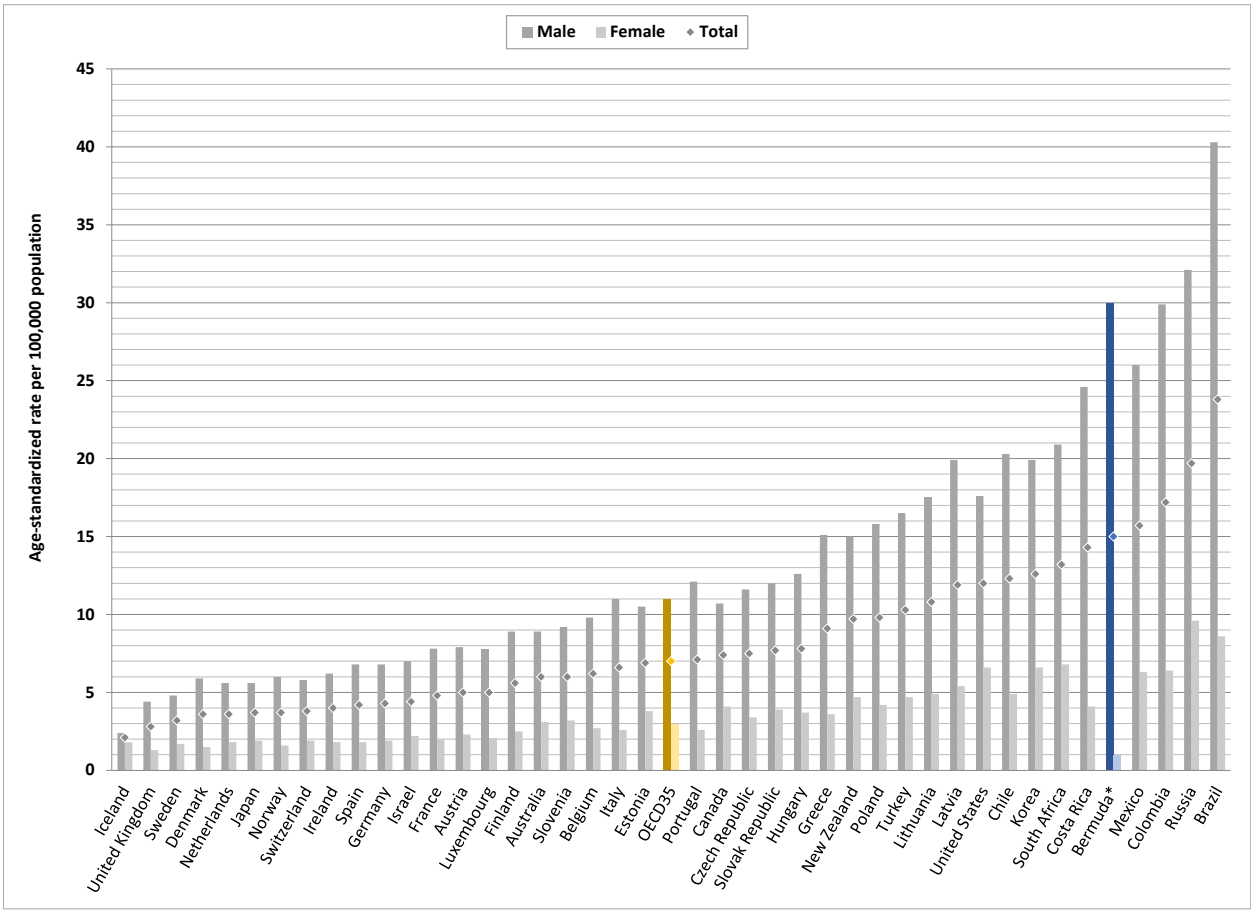
Transport Accidents

Figure 2.7.5 Mortality rates from transport accidents per 100,000 population, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.7.6 Mortality rates from transport accidents per 100,000 population, OECD Comparison, 2014 (or nearest prior year available)



*2010-2014 average

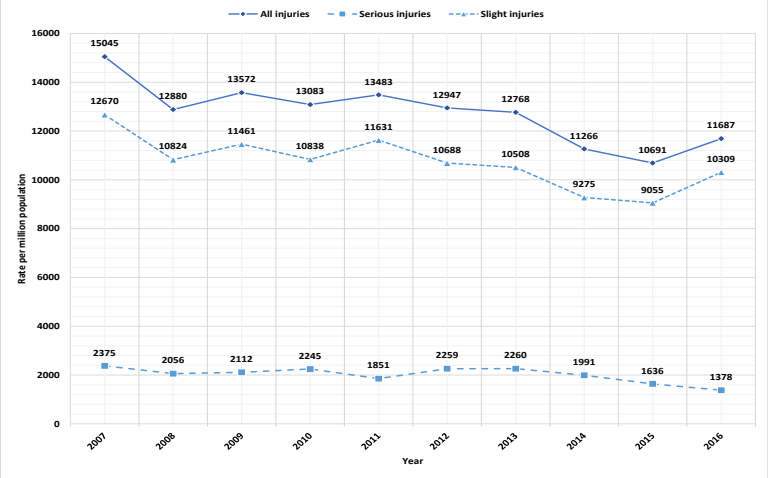
SOURCE: OECD Health Data 2017

Table 2.7.2 Manner of death due to transport accidents, Bermuda, 2006-2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Pedestrian	0.0%	0.0%	6.3%	0.0%	9.1%	0.0%	0.0%	11.1%	15.4%	0.0%
Pedal cyclist	6.7%	11.1%	0.0%	0.0%	9.1%	0.0%	0.0%	0.0%	7.7%	0.0%
Motor cyclist	93.0%	88.9%	87.5%	90.0%	63.6%	100.0%	100.0%	88.9%	69.2%	87.5%
Car occupant	0.0%	0.0%	6.3%	10.0%	0.0%	0.0%	0.0%	0.0%	7.7%	0.0%
Other land transport	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%
Water transport	0.0%	0.0%	0.0%	0.0%	18.2%	0.0%	0.0%	0.0%	0.0%	0.0%

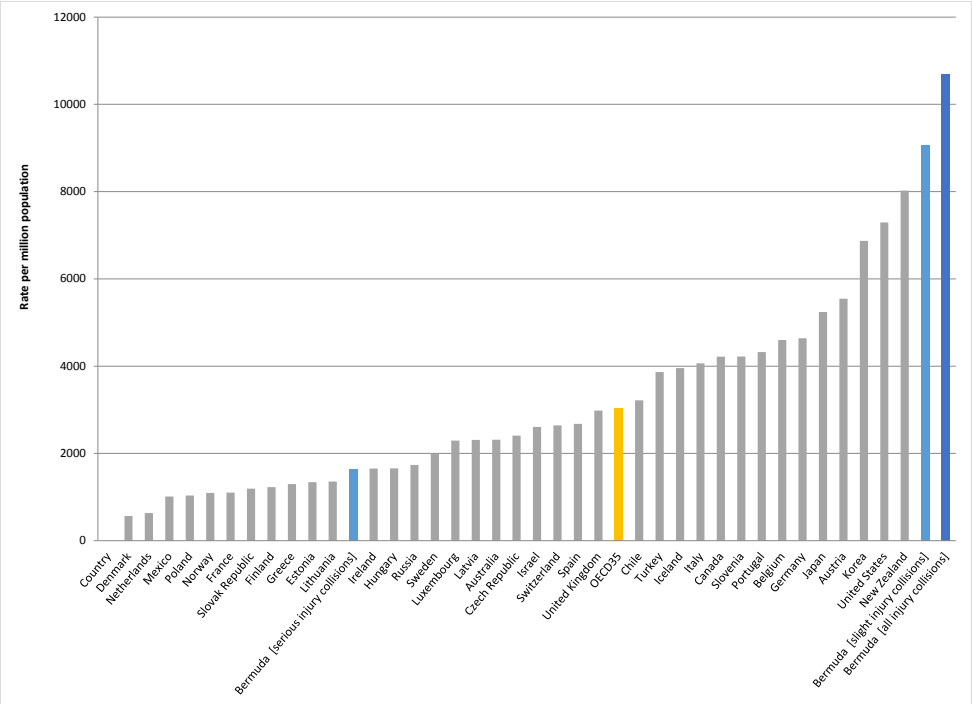
SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.7.7 Road traffic collisions with injury per million population, Bermuda, 2006-2015



SOURCE: Bermuda Police Service

Figure 2.7.8 Road traffic accident injury rates per million population, OECD Comparison, 2015 (or nearest prior year available)



*Different methodology – Bermuda data based on number of collisions as opposed to number of persons injured

SOURCE: OECD Health Data 2017

2.8 Infant and Maternal Health

Low birth weight is an important indicator of infant health because of the close relationship between birth weight and infant morbidity and mortality. Low birth weight can occur as a result of restricted foetal growth or due to pre-term birth. Low birth weight infants have a greater risk of poor health or death, require a longer period of hospitalisation after birth, and are more likely to develop significant disabilities. Risk factors for low birth weight include maternal smoking, excessive alcohol consumption, poor nutrition, low body mass index, lower socio-economic status, and multiple births. Some of these factors also contribute to maternal mortality.

On average, around one in 12 babies born in Bermuda weighed less than 2500 grams at birth. This means that more babies in Bermuda are born at low birth weight than the OECD average of around one in 15 live births. However, Bermuda's infant mortality rates are around half the OECD average. It should be noted that Bermuda's infant mortality only takes into account infant deaths occurring locally. In some cases, pre-term babies with complications are transported overseas for care. Any infant dying during overseas treatment is not included in Bermuda's infant mortality figures. Maternal deaths in Bermuda are rare events, with the last one recorded in 2006.

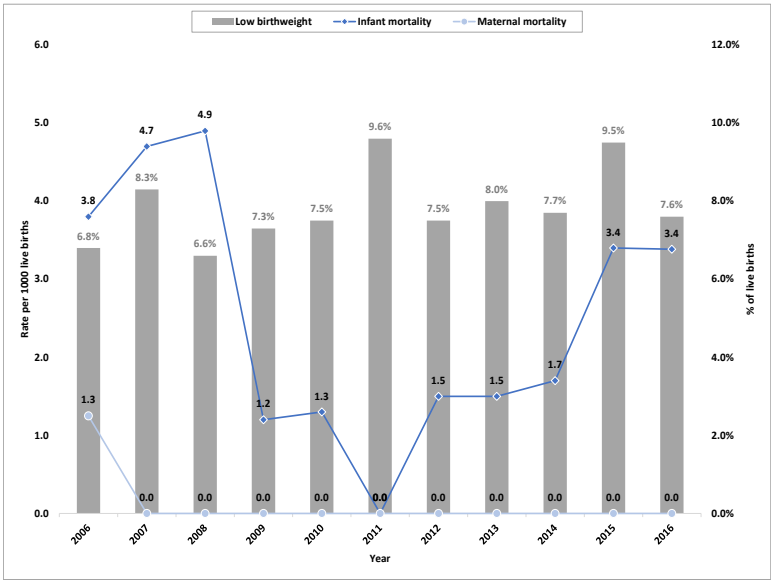
Definition and comparability

Low birth weight is defined by the World Health Organization (WHO) as the weight of an infant at birth of less than 2500 grams (5.5 pounds) irrespective of the gestational age of the infant. This is based on epidemiological observations regarding the increased risk of death to the infant and serves for international comparative health statistics. The number of low weight births is then expressed as a percentage of total live births.

The infant mortality rate is the number of deaths of children under one year of age, expressed per 1 000 live births. Some of the international variation in infant mortality rates is related to variations in registering practices for very premature infants. While some countries register all live births including very small babies with low odds of survival, several countries apply a minimum threshold of a gestation period of 22 weeks (or a birth weight threshold of 500 grams) for babies to be registered as live births. To remove this data comparability limitation, the data are based on a minimum threshold of 22 weeks of gestation period (or 500 grams birth weight).

Maternal mortality is defined as the death of a woman while pregnant or during childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. This includes direct deaths from obstetric complications of pregnancy, interventions, omissions or incorrect treatment. It also includes indirect deaths due to previously existing diseases, or diseases that developed during pregnancy, where these were aggravated by the effects of pregnancy. Maternal mortality is here measured using the maternal mortality ratio (MMR). It is the number of maternal deaths during a given time period per 1000 live births during the same time period.

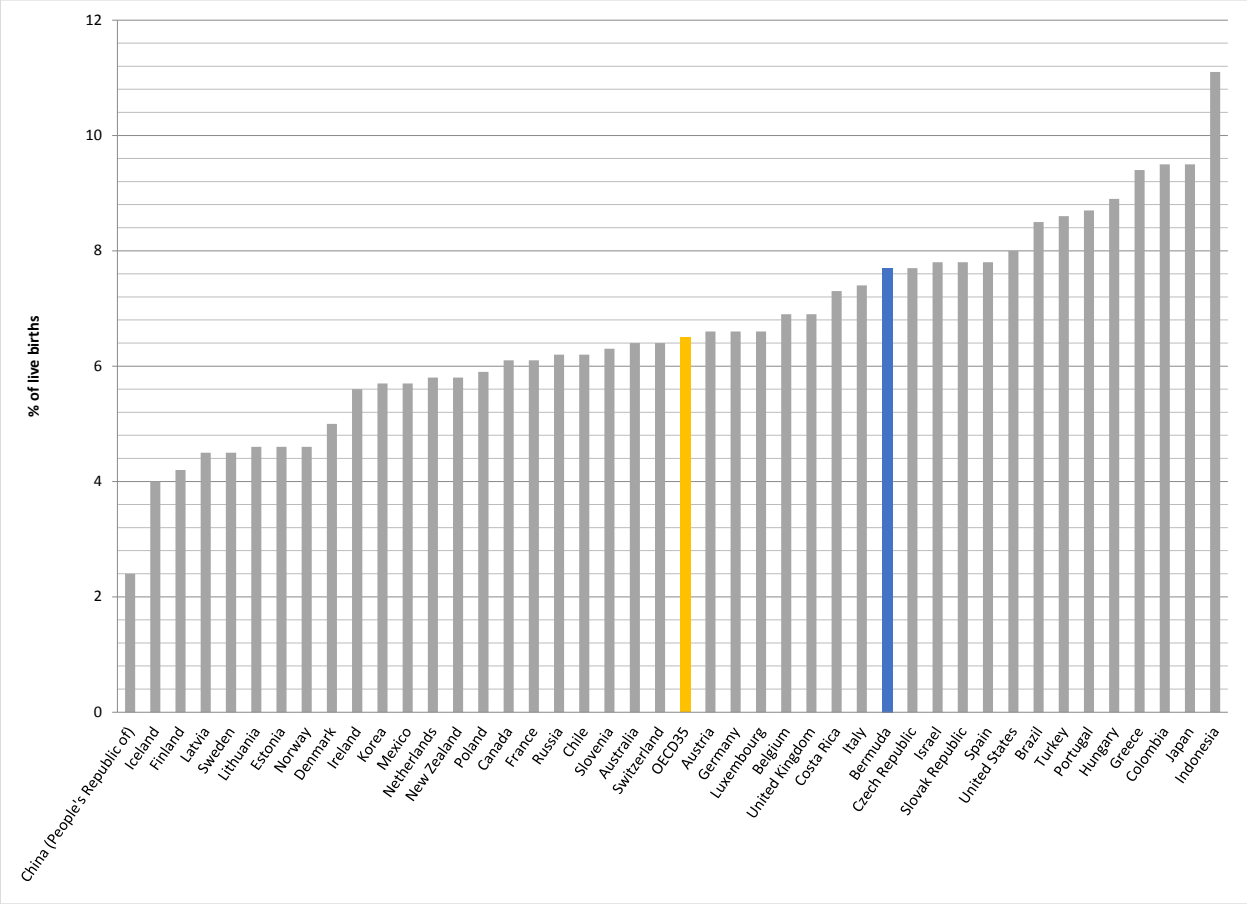
Figure 2.8.1 Low birthweight, infant and maternal mortality, Bermuda, 2006-2016



SOURCE: Bermuda Hospitals Board (low birthweight),

Office of the Registrar General (infant mortality), Epidemiology and Surveillance Unit (maternal mortality)

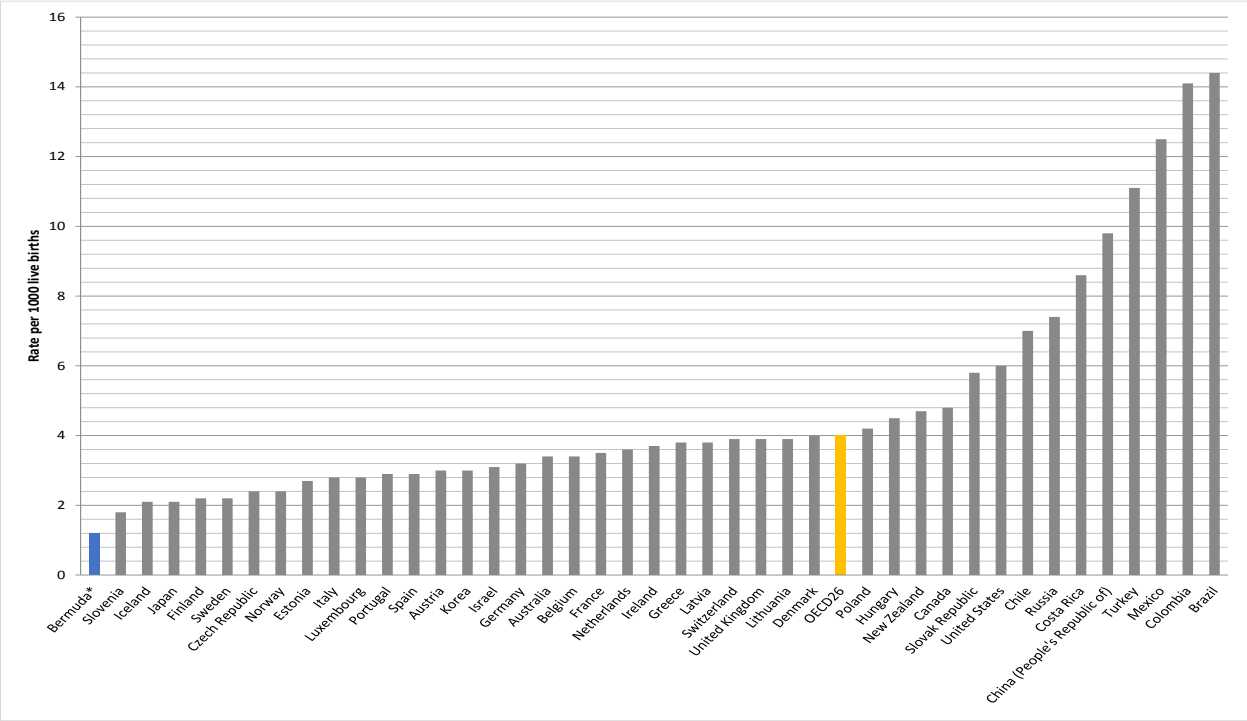
Figure 2.8.2 Low birthweight, OECD Comparison, 2015 (or nearest prior year available)



*2011-2015 average

SOURCE: OECD Health Data 2017

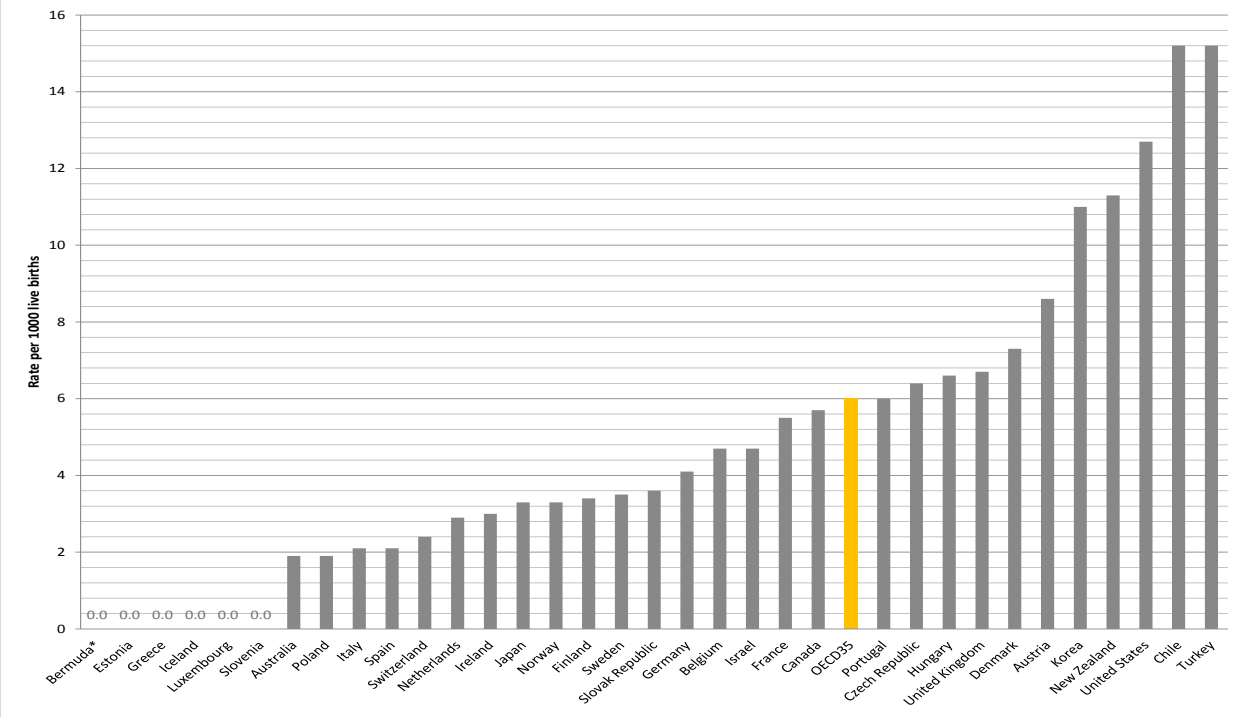
Figure 2.8.3 Infant mortality, OECD Comparison, 2015 (or nearest prior year available)



*2011-2015 average

SOURCE: OECD Health Data 2017

Figure 2.8.4 Maternal mortality, OECD Comparison, 2015 (or nearest prior year available)



*2011-2015 average

SOURCE: OECD Health Data 2017

2.9 Premature Mortality

Premature mortality, measured in terms of potential years of life lost (PYLL) before the age of 70 years, focuses on deaths among younger age groups of the population. PYLL values are heavily influenced by infant mortality and deaths from diseases and injuries affecting children and younger adults. Premature mortality can be influenced by advances in medical technology, especially in relation to infant mortality, and in prevention and control measures, reducing untimely or avoidable deaths from external causes and communicable diseases.

There have been slight declines in premature mortality in Bermuda during the period under review. The main causes of potential years of life lost before age 70 among men are external causes including accidents and violence, followed by cancer and circulatory diseases. For women, the principal causes are cancer and circulatory diseases, followed by endocrine nutritional and metabolic diseases, including diabetes, diseases of the respiratory system and external causes. Rates of premature mortality are two to four times higher among males than females.

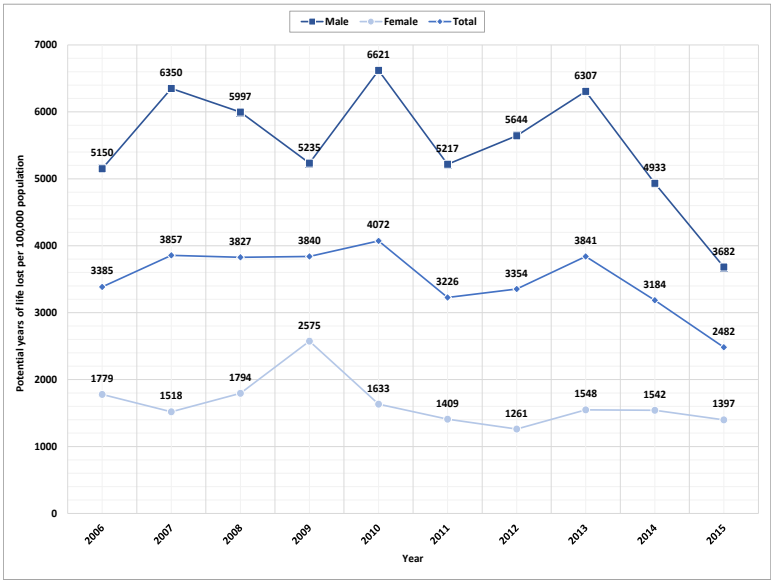
In comparison to OECD countries, Bermuda has among the lowest levels of premature mortality among females. The level among males is higher than the OECD average, resulting in an overall value for the total population that is comparable to the OECD average.

Definition and comparability

Potential years of life lost (PYLL) is a summary measure of premature mortality, providing an explicit method of weighting deaths which occur at younger ages. The calculation of PYLL involves adding age-specific deaths occurring at each age and weighting them by the number of remaining unlived years up to a selected age limit, defined here as age 70.

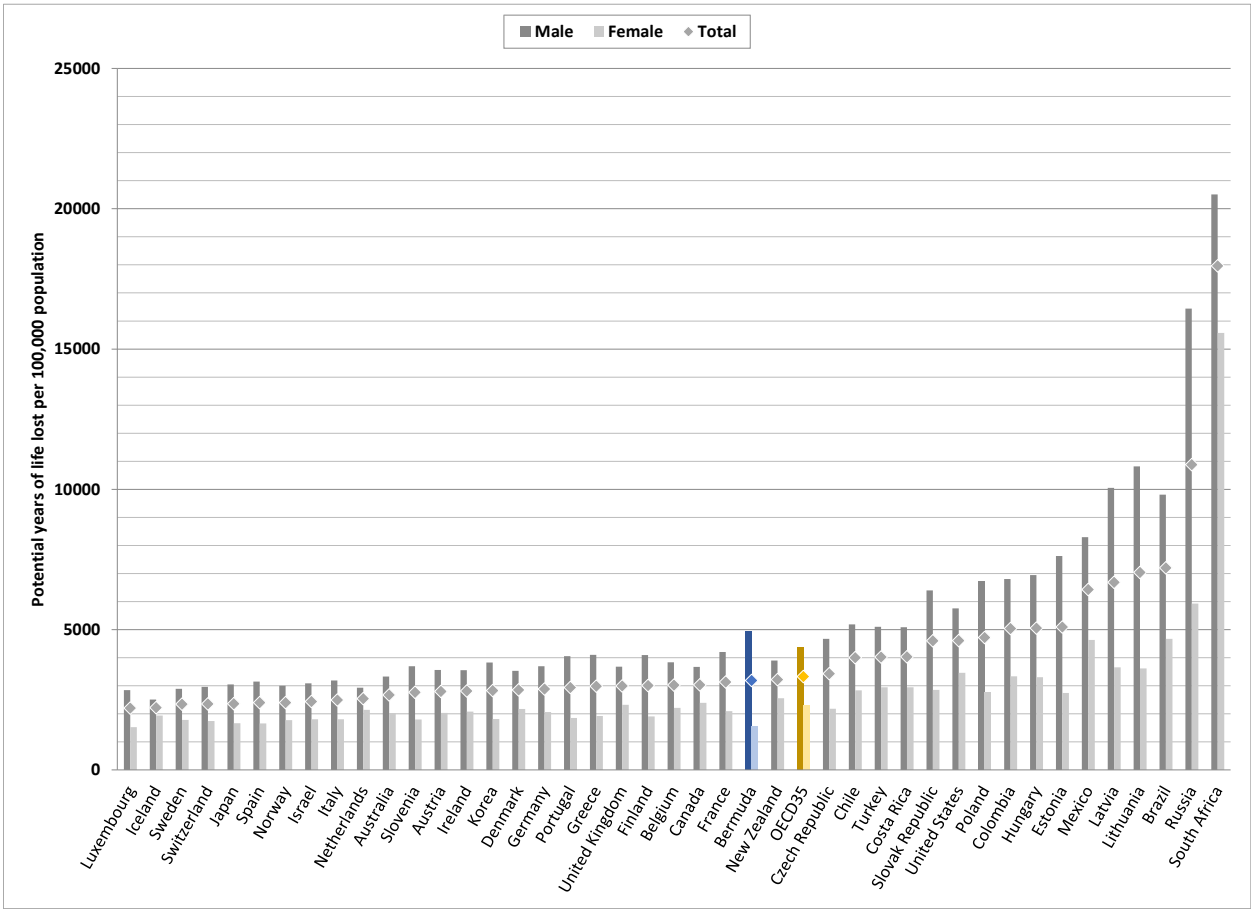
A simplified methodology was used to estimate PYLL by underlying cause of death for Bermuda.

Figure 2.9.1 Potential years of life lost, Bermuda, 2006-2015



SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Figure 2.9.2 Potential years of life lost, OECD Comparison, 2014 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Table 2.9.1 Potential years of life lost (est.) by cause of death, total population, Bermuda, 2006-2015

Underlying cause of death	2010	2011	2012	2013	2014
Certain infectious and parasitic diseases (incl. HIV)	45	35	185	153	34
Neoplasms (Cancer)	1135	673	913	1023	818
Diseases of the blood and blood-forming organs	127	0	0	112	31
Endocrine, nutritional and metabolic diseases (incl. diabetes)	210	136	133	341	99
Mental and behavioural disorders	0	19	27	0	54
Diseases of the nervous system	179	26	0	83	178
Diseases of the circulatory system	743	600	1203	901	1061
Diseases of the respiratory system	148	308	194	121	103
Diseases of the digestive system	276	101	53	288	92
Diseases of the skin and subcutaneous tissue	0	0	5	0	0
Diseases of the musculoskeletal system/connective tissue	0	38	44	0	0
Diseases of the genitourinary system	107	28	68	2	18
Complications of pregnancy, childbirth and puerperium	0	0	0	0	0
Congenital malformations and chromosomal abnormalities	5	0	0	254	0
Ill-defined causes	125	28	119	252	0
External causes of mortality	1510	579	993	1144	1192

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Table 2.9.2 Potential years of life lost (est.) by cause of death, females, Bermuda, 2006-2015

Underlying cause of death	2010	2011	2012	2013	2014
Certain infectious and parasitic diseases (incl. HIV)	30	41	201	94	53
Neoplasms (Cancer)	1128	441	698	869	531
Diseases of the blood and blood-forming organs	84	0	0	63	49
Endocrine, nutritional and metabolic diseases (incl. diabetes)	88	225	28	372	141
Mental and behavioural disorders	0	0	0	0	0
Diseases of the nervous system	50	51	0	0	314
Diseases of the circulatory system	300	340	498	344	542
Diseases of the respiratory system	74	398	235	112	74
Diseases of the digestive system	47	112	0	21	11
Diseases of the skin and subcutaneous tissue	0	0	10	0	0
Diseases of the musculoskeletal system/connective tissue	0	75	86	0	0
Diseases of the genitourinary system	40	37	3	3	0
Complications of pregnancy, childbirth and puerperium	0	0	0	0	0
Congenital malformations and chromosomal abnormalities	0	0	0	231	0
Ill-defined causes	20	0	0	0	0
External causes of mortality	205	150	100	0	357

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

Table 2.9.3 Potential years of life lost (est.) by cause of death, males, Bermuda, 2006-2015

Underlying cause of death	2010	2011	2012	2013	2014
Certain infectious and parasitic diseases (incl. HIV)	59	29	169	215	15
Neoplasms (Cancer)	1149	909	1139	1186	1133
Diseases of the blood and blood-forming organs	172	0	0	163	11
Endocrine, nutritional and metabolic diseases (incl. diabetes)	338	43	246	311	56
Mental and behavioural disorders	0	40	55	0	112
Diseases of the nervous system	313	0	0	171	34
Diseases of the circulatory system	1203	875	1949	1494	1608
Diseases of the respiratory system	225	213	149	129	134
Diseases of the digestive system	516	90	110	571	179
Diseases of the skin and subcutaneous tissue	0	0	0	0	0
Diseases of the musculoskeletal system/connective tissue	0	0	0	0	0
Diseases of the genitourinary system	176	18	135	0	37
Congenital malformations and chromosomal abnormalities	11	0	0	278	0
Ill-defined causes	236	58	245	519	0
External causes of mortality	2883	2361	1940	2355	2075

SOURCE: Epidemiology and Surveillance Unit, Government of Bermuda

2.10 Perceived Health Status

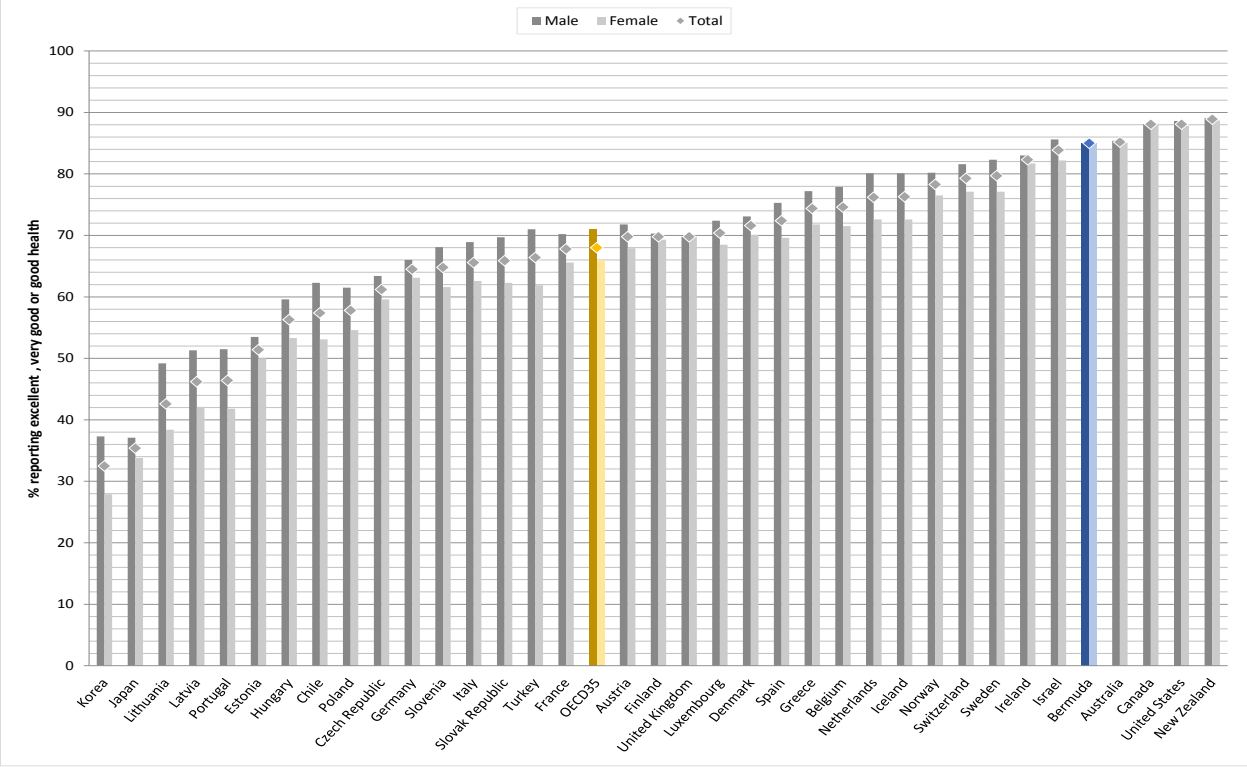
Perceived health status is a self-rated health indicator that measures an individual's perception of his or her overall health. It refers to a person's health in general which includes not only the absence of disease or injury but also the presence of physical, mental and social well-being. It may also reflect aspects of health, such as disease severity and undiagnosed disease that are not captured in more objective measures of health and can have implications for future health care utilization.

At 85%, the proportion of the population reporting good to excellent health in Bermuda is quite high and well above the OECD average. Unlike in most OECD countries, males and females in Bermuda are equally likely to report good health.

Definition and Comparability

Perceived health status reflects people's overall perception of their health. Survey respondents are typically asked a question such as: "How is your health in general? Very good, Good, Fair, Poor, Very poor" .Caution is warranted when comparing perceived health status data across countries, due to a number of limitations. These include the subjective nature of asking people to judge their health. Responses can also be affected by differing expectations and norms of health, which can vary across cultural and ethnic groups, economic levels, overall level of industrialization or development, etc.

Figure 2.10.1 Percent reporting good/very good/excellent health, OECD Comparison, 2014 (or nearest prior year available)



SOURCE: OECD Health Data 2017

3.1 Selected Chronic Health Conditions and Risk Factors in Adults and Adolescents

In 2014, it was estimated that three out of every four adults in Bermuda were overweight or obese based on height and weight measurements. This shows an increase from around two in three adults considered to be overweight or obese based on their self-reported height and weight in 2006 and 2011. Self-reported high blood pressure increased from 2006 to 2011. The measured high-blood pressure results then showed a slight decrease in 2014. Overall diabetes prevalence has remained relatively stable during the period under review, as has high cholesterol. However, there are considerable gender differences in the prevalence of high cholesterol, in which it appears to be decreasing among females and increasing among males.

Fruit and vegetable consumption remains inadequate with less than one in four adults reporting consuming three or more servings of vegetables per day and around one in ten adults reporting consuming three or more servings of fruit per day in 2014. Fruit consumption appears to be decreasing while vegetable consumption may be increasing.

Alcohol consumption among adults increased in 2014; tobacco use remained stable overall but males showed an increase in tobacco use while there was a decrease among females. Decreases in risk factors have been observed among adolescents with fewer reporting use of alcohol and tobacco.

Table 3.1.1 Prevalence of chronic health conditions in adults, Bermuda 2006, 2011, and 2014

	2006	2011	2014*		2006	2011	2014
Overweight and obesity (BMI ≥ 25)				Diabetes			
Total	64%	67%	75%	Total	13%	11%	12%
Female	61%	62%	70%	Female	13%	14%	14%
Male	68%	72%	79%	Male	12%	8%	11%
High blood pressure				High cholesterol			
Total	25%	36%	33%	Total	34%	34%	34%
Female	27%	37%	35%	Female	34%	34%	25%
Male	23%	35%	32%	Male	33%	35%	40%

*measured

SOURCE: Ministry of Health, Government of Bermuda

Table 3.1.2 Prevalence of selected risk factors in adults, Bermuda, 2006, 2011, and 2014

	2006	2011	2014		2006	2011	2014
Fruit consumption (three or more servings per day)				Vegetable consumption (three or more servings per day)			
Total	18%	20%	12%	Total	17%	19%	21%
Female	21%	25%	14%	Female	21%	20%	25%
Male	14%	15%	9%	Male	13%	17%	17%
Alcohol consumption (current - within prior 30 days)				Tobacco use (current - within prior 30 days)			
Total	53%	50%	64%	Total	13%	13%	14%
Female	46%	48%	51%	Female	10%	9%	8%
Male	61%	51%	76%	Male	17%	19%	20%

SOURCE: Ministry of Health, Government of Bermuda

Table 3.1.3 Prevalence of selected risk factors in adolescents, Bermuda, 2007, 2011 and 2015

	2006	2011	2015		2006	2011	2015
Alcohol consumption (current - within prior 30 days)				Tobacco use (current - within prior 30 days)			
Total	38%	19%	18%	Total	5%	3%	3%
Alcohol consumption (lifetime - ever consumed)				Tobacco use (lifetime - ever used)			
Total	67%	55%	53%	Total	22%	11%	12%

SOURCE: Department of National Drug Control, Government of Bermuda

3.2 Body Mass Index

High prevalence of overweight and obesity constitute a major public health problem. Overweight and obesity are known risk factors for numerous health problems, including hypertension, high cholesterol, diabetes, cardiovascular diseases, respiratory problems (asthma), musculoskeletal diseases (arthritis) and some forms of cancer.

A number of behavioural and environmental factors have contributed to the long-term rise in overweight and obesity rates in OECD countries, and in Bermuda. These include the widespread availability of energy dense foods and more time spent being physically inactive. These factors have led to a generally obesogenic environment.

The most recent estimates for Bermuda indicate that four in ten adults are overweight and around one in three are obese. Bermuda's estimated overweight prevalence is higher than the OECD average while Bermuda's estimated obesity prevalence is also higher than the OECD average. Combined overweight and obesity prevalence estimates place Bermuda higher than all OECD countries.

Patterns of overweight and obesity differ by sex. Half of males in Bermuda are overweight as compared to less than one third of females while four out of ten females are obese as compared to around three out of ten males. The prevalence of overweight in females in Bermuda is on par with the OECD average. However, the obesity prevalence among females in Bermuda is twice the OECD average. For males, both overweight and obesity prevalence are above the OECD average

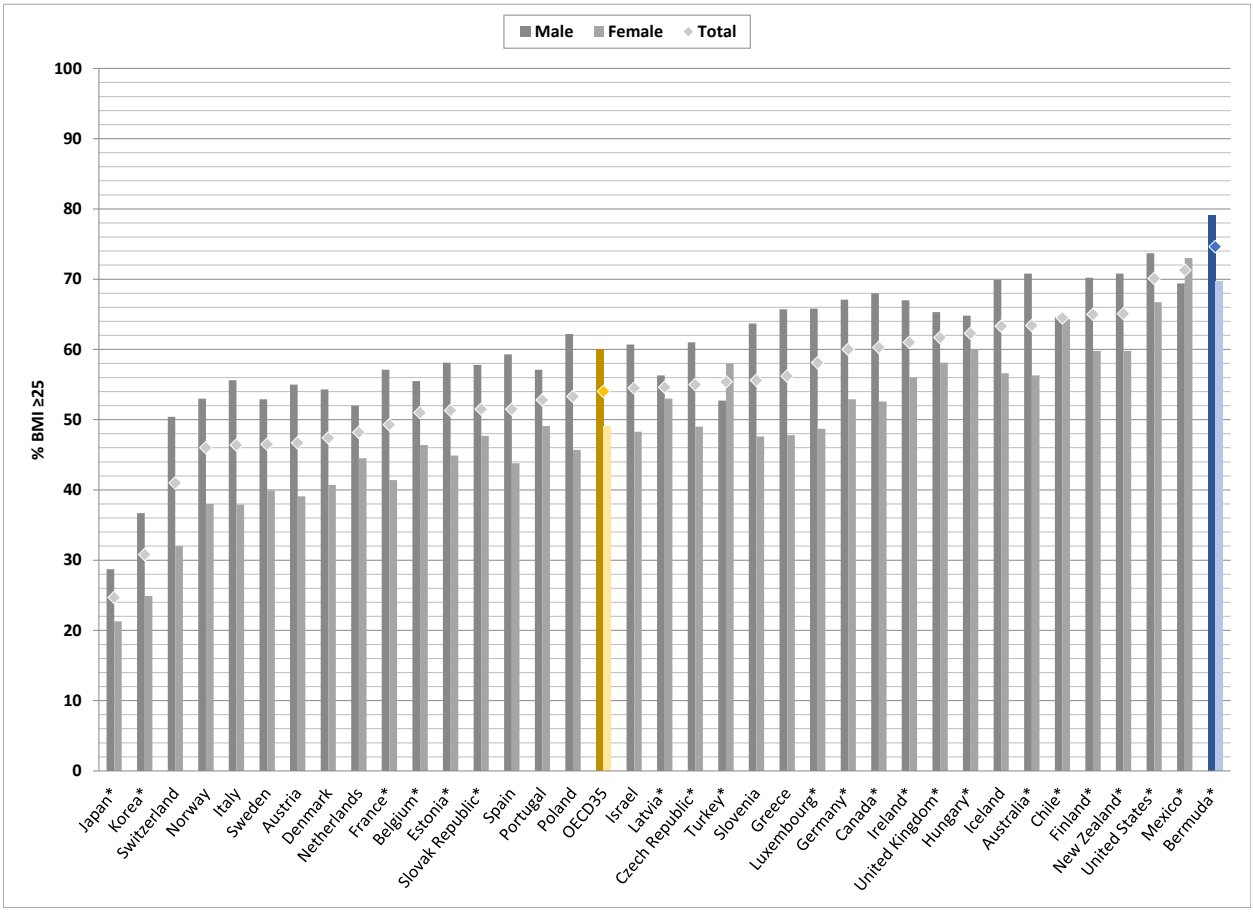
Definition and Comparability

Overweight and obesity are defined as excessive weight presenting health risks because of the high proportion of body fat. The most frequently used measure is based on the body mass index (BMI), which is a single number that evaluates an individual's weight in relation to height (weight/height, with weight in kilograms and height in metres). Based on the WHO classification, adults with a BMI from 25 to 30 are defined as overweight, and those with a BMI of 30 or over as obese.

The BMI classification may not be suitable for all ethnic groups, who may have equivalent levels of risk at lower or higher BMI.

For half of the countries, overweight and obesity rates are self-reported through estimates of height and weight from population-based health interview surveys. However, the other half of OECD countries derives their estimates from health examinations. These differences limit data comparability. Estimates from health examinations are generally higher, and more reliable than estimates from health interviews. The OECD average is based on both types of estimates (self-reported and measured) and, thus, may be underestimated.

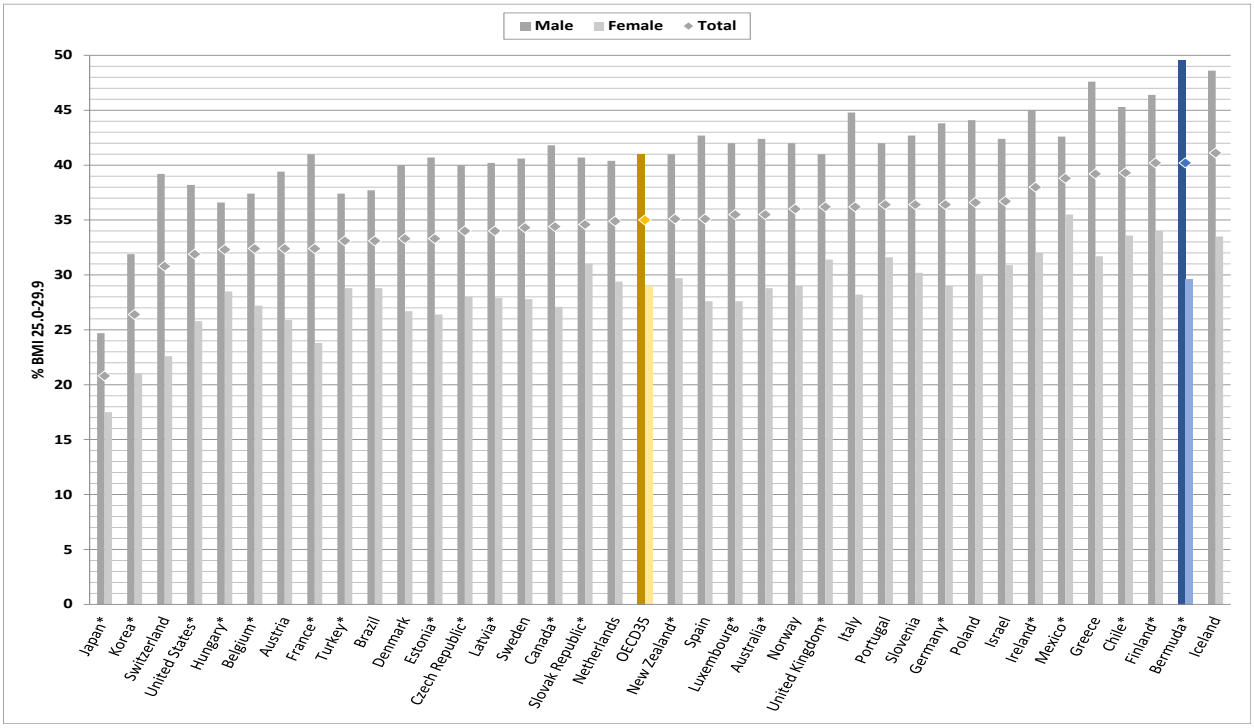
Figure 3.2.1 Prevalence of overweight and obesity (BMI 25 and over), OECD Comparison, 2014 (or nearest prior year available)



*measured

SOURCE: OECD Health Data 2017

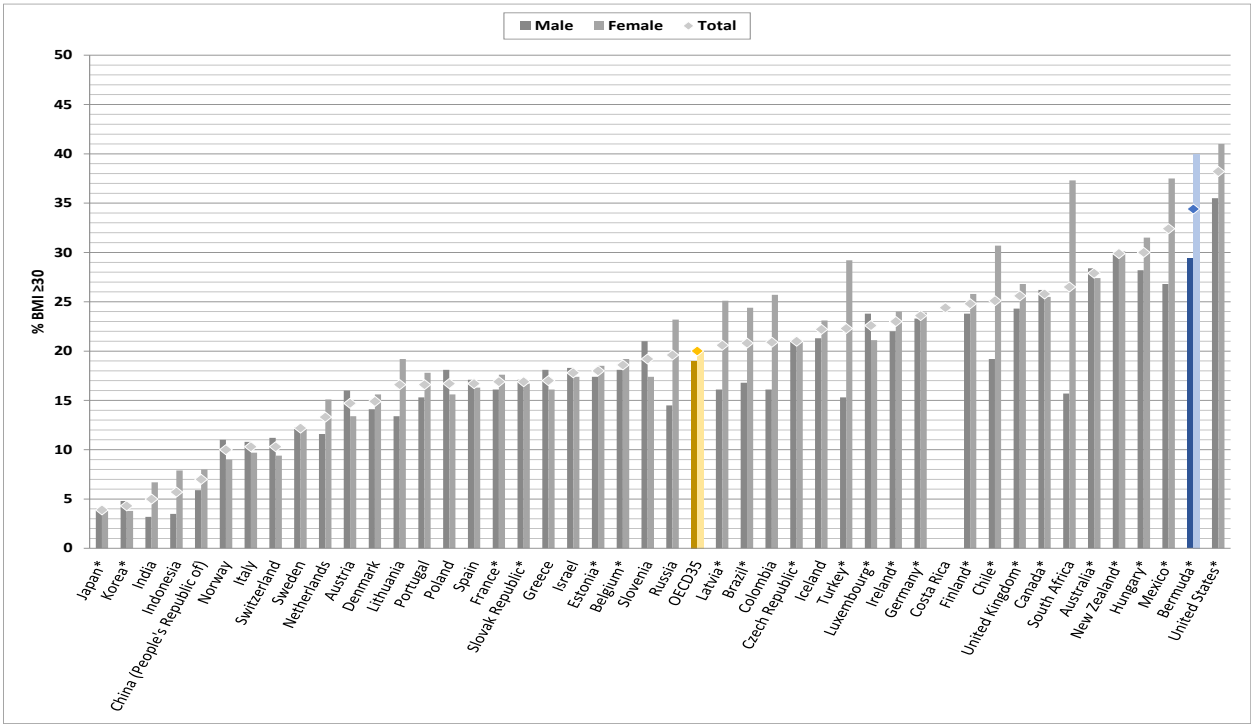
Figure 3.2.2 Prevalence of overweight (BMI 25-29.9), OECD Comparison, 2014 (or nearest prior year available)



*measured

SOURCE: OECD Health Data 2017

Figure 3.2.3 Prevalence of obesity (BMI 30 and over), OECD Comparison, 2014 (or nearest prior year available)



*measured

SOURCE: OECD Health Data 2017

3.3 Fruit And Vegetable Consumption

Nutrition is an important determinant of health. Proper nutrition assists in preventing a number of chronic conditions, including cardiovascular disease, hypertension, type-2 diabetes, stroke, certain cancers, musculoskeletal disorders and a range of mental health conditions. Insufficient consumption of fruit and vegetables is one factor that can play a role in increased risk of morbidity. Food insecurity, that is the inability to afford enough food for a healthy and active life, is also associated with adverse health effects. Measures of fruit and vegetable consumption reflect both health behaviours and availability of healthy food.

In Bermuda, around three of every five persons ate at least one serving of fruit per day which is on par with the OECD average. Bermuda was above the OECD average for vegetable consumption with nearly three out of every four persons consuming at least one serving of vegetables per day, compared to the OECD average of around three in five.

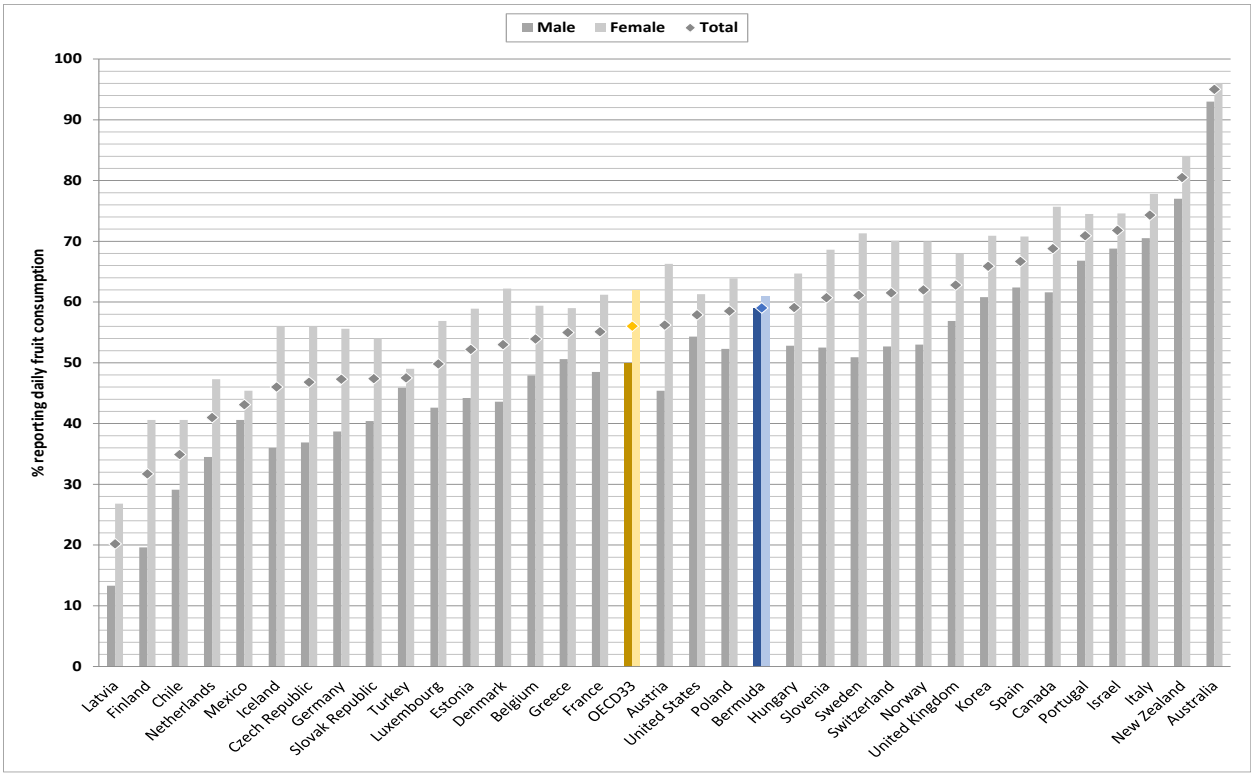
Interestingly, this indicator does not reflect the recommended daily intake of five servings of fruits and vegetables.

Definition and Comparability

Estimates of daily fruit and vegetable consumption are derived from national and European Health Interview Survey questions. Typically, respondents were asked "How often do you eat fruit (excluding juice)?" and "How often do you eat vegetables or salad (excluding juice and potatoes)?".

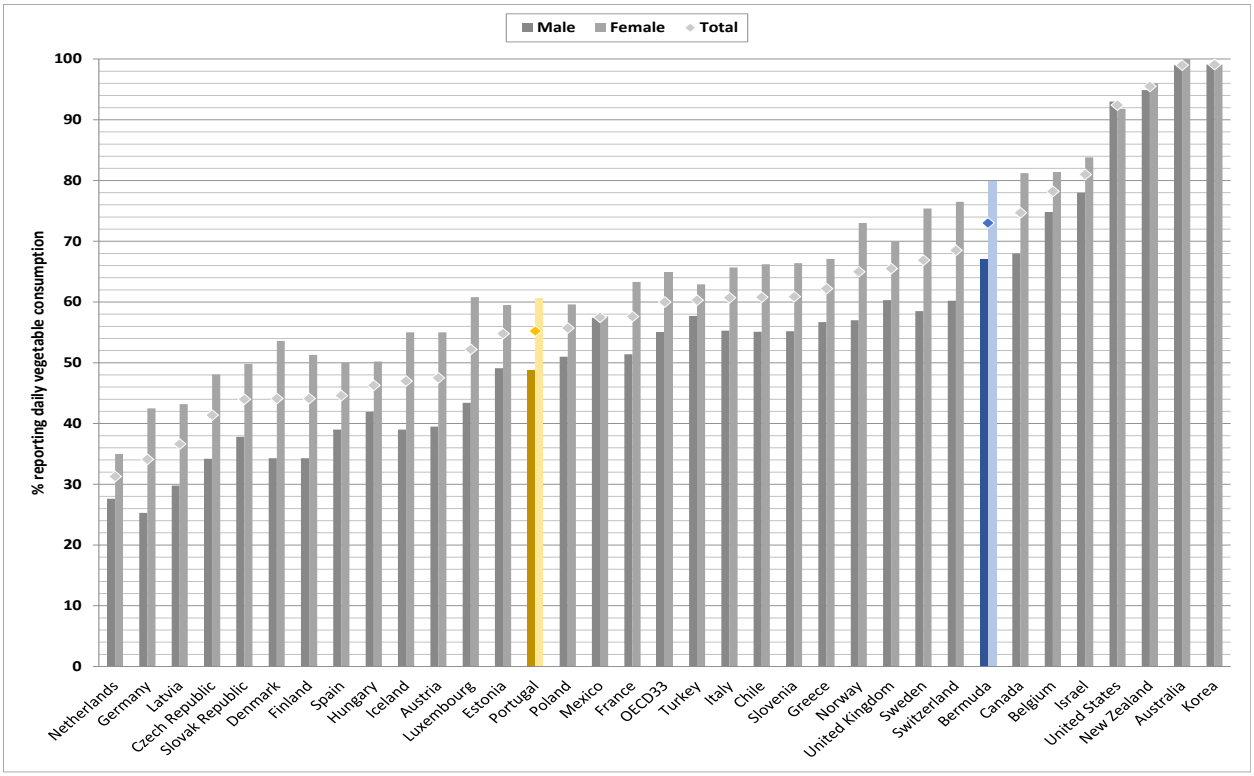
Data for Greece, Switzerland and Bermuda include juices as a portion of fruit, and juices and soups as a portion of vegetable. Data for Australia, Greece, New Zealand, and the United Kingdom include potatoes as vegetables. Data rely on self-reporting, and are subject to errors in recall. The same surveys also ask for information on age and sex. Data are not age standardised, with aggregate country estimates representing crude rates among respondents aged 15 years and over in all countries, except Germany and Australia which is 18 years and over. The Bermuda results also represent adults aged 18 years and over.

Figure 3.3.1 Percent reporting daily fruit consumption, OECD Comparison, 2014 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Figure 3.3.2 Percent reporting daily vegetable consumption, OECD Comparison, 2014 (or nearest prior year available)



SOURCE: OECD Health Data 2017

3.4 Tobacco Use

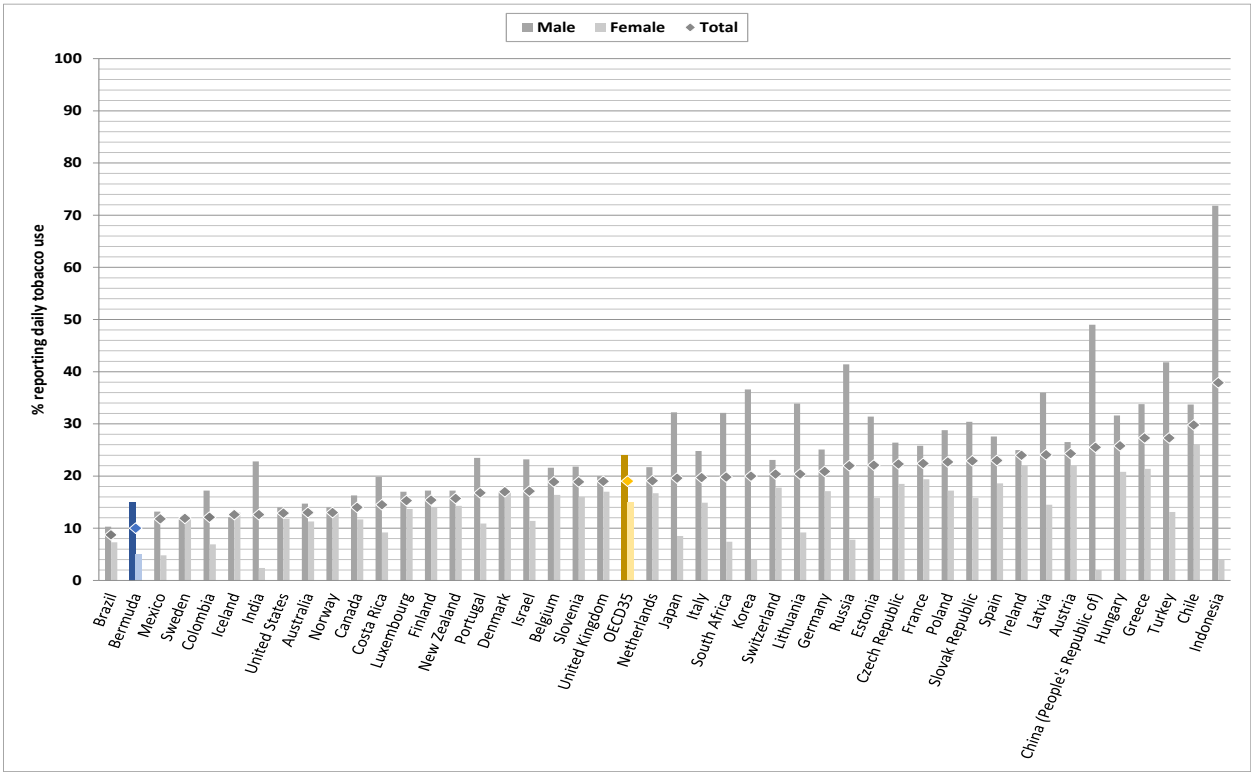
Tobacco is a major risk factor for at least two of the leading causes of premature mortality – cardiovascular diseases and cancer, increasing the risk of heart attack, stroke, lung cancer, cancers of the larynx and mouth, and pancreatic cancer, among others. In addition, it is a dominant contributing factor for respiratory diseases such as chronic obstructive pulmonary disease. Smoking remains the largest avoidable risk factor for health in OECD countries and worldwide.

Bermuda maintains one of the lowest rates of daily smoking of all the OECD countries, regardless of gender. Smoking prevalence is higher among men than among women in most OECD countries. In Bermuda, men are three times more likely to use tobacco than women. Bermuda's low smoking rates are partly attributable to policies aimed at reducing tobacco consumption through public awareness campaigns, advertising bans, increased taxation, and restriction of smoking in public spaces and health facilities, in response to rising rates of tobacco-related diseases.

Definition and Comparability

The proportion of daily smokers is defined as the percentage of the population aged 15 years and over who report smoking every day. International comparability is limited due to the lack of standardisation in the measurement of smoking habits in health interview surveys across OECD countries. Variations remain in the age groups surveyed, the wording of questions, response categories and survey. Self-reports of behaviours may also suffer from social desirability bias that may potentially limit cross-country comparisons. Bermuda data is for population aged 18 and over.

Figure 3.4.1 Percent reporting daily smoking, OECD Comparison, 2014 (or nearest prior year available)



SOURCE: OECD Health Data 2017

4.1 Inpatient Care Discharges and Average Length of Stay

Hospital discharge rates measure the number of patients who leave a hospital after staying at least one night. Together with the average length of stay, they are important indicators of hospital activities. Hospital activities are affected by a number of factors, including the demand for hospital services, the capacity of hospitals to treat patients, the payment and reimbursement systems, the ability of the primary care sector to prevent avoidable hospital admissions, and the availability of post-acute care settings to provide rehabilitative and long-term care services.

Overall, there has been a decline in hospital discharges during the period under review while the average length of stay has varied. In 2015, the hospital discharge rate in Bermuda at 9,750 per 100,000 population was well below the OECD average of 15,910 per 100,000 population and among the lowest of the OECD countries. However, the average length of stay of 12 days in Bermuda was 50% higher than the OECD average of 8 days. Excluding pregnancy and childbirth, the main conditions leading to hospitalization were circulatory diseases, injuries and other external causes, diseases of the digestive system, and respiratory diseases. Diseases of the nervous system and mental and behavioural disorders had the longest average length of stay; these include stays for Alzheimer's diseases and dementia. Diseases of the circulatory system and endocrine, nutritional and metabolic diseases, including diabetes, also had relatively longer lengths of stay.

During the period under review, discharge rates for cancers remained relatively stable overall. There was a slightly mixed picture for circulatory diseases as a slight increase in discharges for circulatory diseases was observed while the average length of stay following an acute myocardial infarction decreased from 2006 through 2015. The discharge rates for cancer and circulatory diseases were well below the OECD average, as was the average length of stay following an acute myocardial infarction.

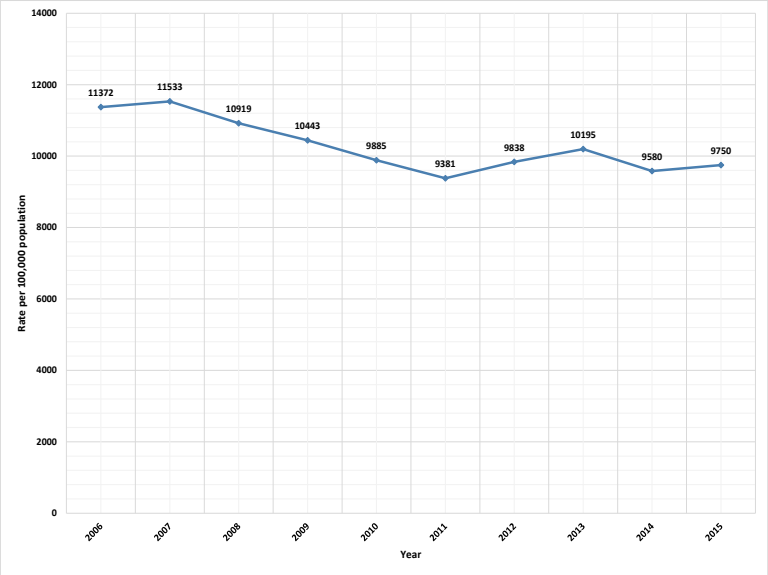
Changes in hospital discharge rates can be partly attributable to improved care and management in ambulatory, outpatient and non-hospital settings. With the opening of an urgent care centre in 2009 and the introduction of hospitalists in 2008, fewer patients are being admitted to hospital. In addition, there are a number of organizations involved in prevention efforts and management of chronic conditions, especially diabetes, circulatory diseases, and cancer. The efforts of these organizations, coupled with improved care by community-based physicians and improved self-management by persons with chronic conditions may also result in lower admissions for these conditions. Decreased admissions equate to declines in hospital discharge rates. Finally, a significant proportion of patients requiring advanced care may be sent directly abroad for treatment.

Definition and Comparability

A discharge is defined as the release of a patient who has stayed at least one night in hospital, including discharges following normal childbirth. It includes deaths in hospital following inpatient care. Same-day separations are usually excluded.

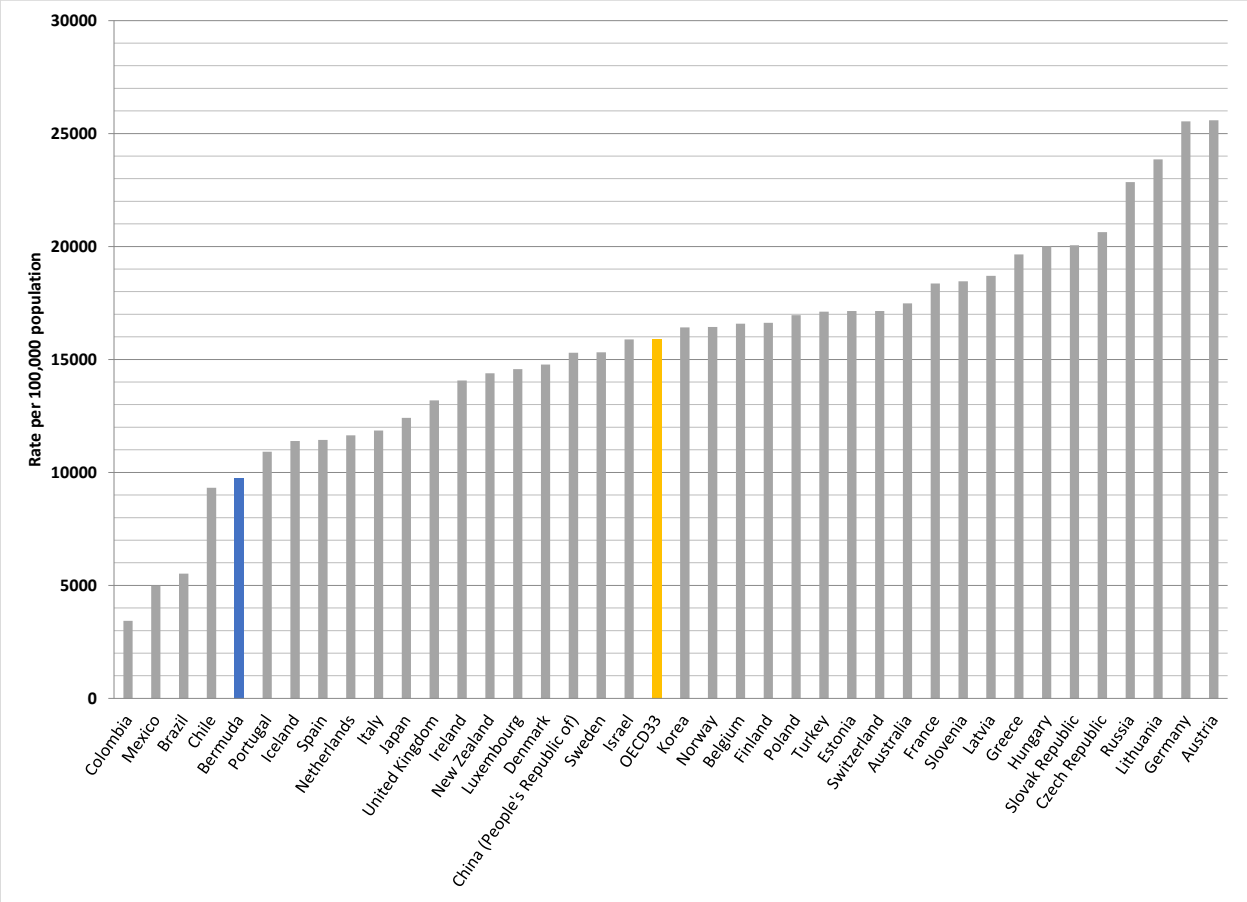
Average length of stay refers to the average number of days that patients spend in hospital. It is generally measured by dividing the total number of days stayed by all inpatients during a year by the number of admissions or discharges. Day cases are excluded.

Figure 4.1.1 Hospital discharges per 100,000 population, Bermuda, 2006-2015



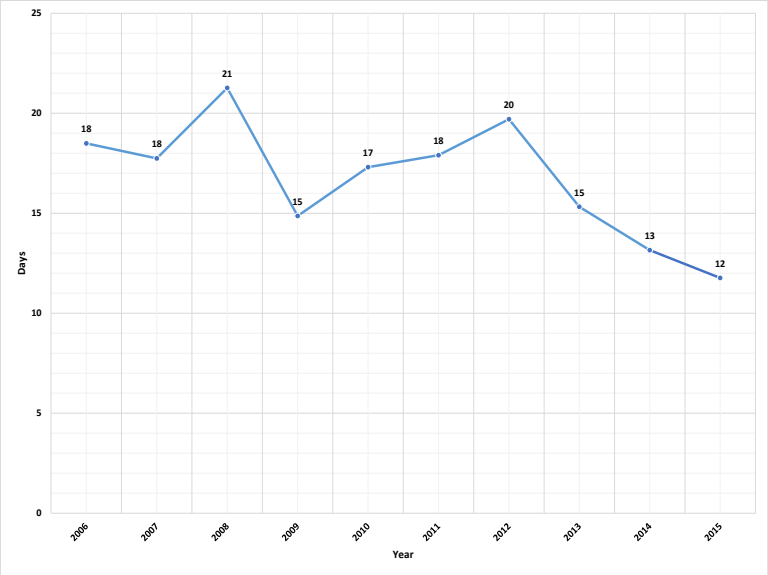
SOURCE: Bermuda Hospitals Board

Figure 4.1.2 Hospital discharges per 100,000 population, OECD Comparison, 2015 (or nearest prior year available)



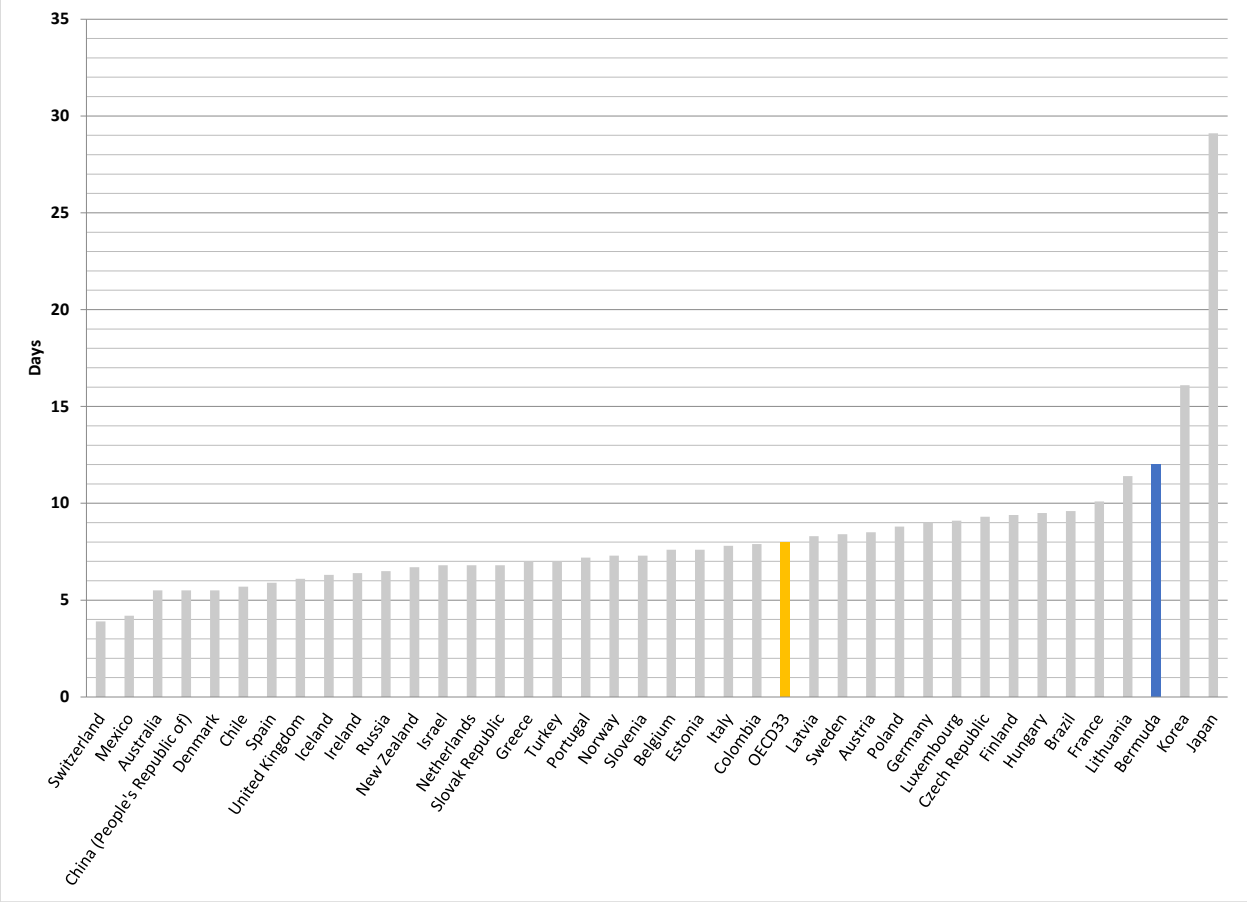
SOURCE: OECD Health Data 2017

Figure 4.1 .3 Average length of stay in hospital in days, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

Figure 4.1 .4 Average length of stay in hospital in days, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Table 4.1.1 Reasons for hospitalization by percent of discharges, Bermuda, 2006-2015

Cause of hospitalization	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases	1.3%	1.3%	1.6%	2.1%	1.7%	2.1%	2.5%	2.5%	2.9%	4.0%
Neoplasms	4.8%	4.4%	4.7%	5.4%	5.4%	5.8%	5.9%	5.5%	6.3%	5.6%
Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	1.5%	1.7%	1.5%	1.8%	1.3%	1.4%	1.8%	1.6%	1.7%	1.8%
Endocrine, nutritional and metabolic diseases	3.4%	3.6%	3.7%	3.7%	3.9%	4.0%	3.2%	3.5%	3.5%	3.2%
Mental and behavioural disorders	7.5%	8.0%	7.7%	7.0%	0.5%	0.6%	0.6%	0.7%	0.7%	0.3%
Diseases of the nervous system	1.7%	1.9%	2.5%	2.5%	3.1%	2.7%	2.8%	3.3%	2.5%	2.4%
Diseases of the eye and adnexa	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%
Diseases of the ear and mastoid process	0.3%	0.2%	0.3%	0.2%	0.5%	0.4%	0.5%	0.3%	0.3%	0.4%
Diseases of the circulatory system	9.5%	10.1%	10.2%	10.3%	13.1%	12.3%	12.3%	13.2%	13.2%	13.8%
Diseases of the respiratory system	6.8%	6.7%	6.9%	8.3%	9.9%	10.0%	10.2%	8.9%	9.5%	9.7%
Diseases of the digestive system	9.6%	8.0%	8.5%	8.4%	9.1%	9.7%	9.6%	9.6%	10.2%	9.5%
Diseases of the skin and subcutaneous tissue	1.9%	1.9%	1.6%	2.0%	1.7%	2.0%	1.6%	1.9%	1.9%	1.8%
Diseases of the musculoskeletal system and connective tissue	5.1%	4.6%	5.0%	4.8%	5.8%	6.6%	6.3%	6.4%	6.8%	6.9%
Diseases of the genitourinary system	4.9%	4.3%	4.3%	3.8%	3.8%	4.4%	5.0%	4.5%	4.6%	6.2%
Pregnancy, childbirth and the puerperium	12.6%	13.8%	13.2%	13.4%	13.6%	12.7%	12.6%	12.4%	11.1%	11.2%
Certain conditions originating in the perinatal period	3.5%	3.6%	1.0%	0.4%	0.6%	0.5%	0.5%	0.5%	0.4%	0.4%
Congenital malformations, deformations and chromosomal abnormalities	0.4%	0.4%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	6.4%	5.7%	4.3%	2.2%	2.8%	2.7%	2.6%	3.6%	3.1%	2.7%
Injury, poisoning, and certain other consequences of external causes	10.6%	10.8%	10.5%	10.6%	10.3%	10.2%	10.7%	10.7%	11.1%	10.1%
Factors influencing health status and contact with health services	8.2%	9.2%	12.1%	12.8%	12.8%	11.8%	11.2%	10.6%	10.2%	9.9%

SOURCE: Bermuda Hospitals Board

Table 4.1.2 Reasons for hospitalization by percent of discharges, females, Bermuda, 2006-2015

Cause of hospitalization	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases	1.0%	1.2%	1.0%	1.6%	1.4%	1.6%	2.1%	2.2%	2.4%	3.4%
Neoplasms (Cancer)	5.3%	5.0%	5.4%	5.7%	5.1%	6.7%	5.9%	5.9%	6.2%	5.6%
Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	1.3%	2.0%	1.5%	1.9%	1.3%	1.5%	2.2%	1.8%	1.5%	1.8%
Endocrine, nutritional and metabolic diseases	3.3%	3.1%	3.5%	3.1%	3.7%	3.8%	2.8%	3.3%	3.1%	2.9%
Mental and behavioural disorders	4.5%	4.9%	4.2%	4.6%	0.4%	0.5%	0.5%	0.6%	0.7%	0.2%
Diseases of the nervous system	1.4%	1.6%	2.6%	2.1%	2.6%	2.3%	2.5%	3.4%	2.3%	2.2%
Diseases of the eye and adnexa	0.2%	0.1%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%
Diseases of the ear and mastoid process	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.3%	0.3%	0.5%
Diseases of the circulatory system	8.6%	8.7%	8.0%	8.7%	11.7%	9.7%	10.6%	11.4%	12.2%	11.6%
Diseases of the respiratory system	5.8%	6.2%	6.7%	7.6%	9.4%	9.3%	9.5%	8.3%	8.4%	9.3%
Diseases of the digestive system	9.3%	7.5%	7.7%	8.1%	8.9%	9.1%	9.0%	8.7%	9.7%	9.9%
Diseases of the skin and subcutaneous tissue	1.6%	1.4%	1.4%	1.6%	1.6%	1.6%	1.4%	1.6%	1.7%	1.7%
Diseases of the musculoskeletal system and connective tissue	5.0%	4.5%	5.2%	4.9%	4.7%	6.7%	6.5%	6.4%	6.1%	6.6%
Diseases of the genitourinary system	5.4%	5.0%	4.7%	4.1%	3.7%	3.7%	4.8%	3.6%	4.5%	5.4%
Pregnancy, childbirth and the puerperium	23.3%	24.6%	25.1%	24.5%	23.7%	22.5%	22.0%	22.0%	20.3%	20.3%
Certain conditions originating in the perinatal period	2.6%	3.0%	0.8%	0.4%	0.4%	0.4%	0.3%	0.4%	0.1%	0.5%
Congenital malformations, deformations and chromosomal abnormalities	0.3%	0.4%	0.2%	0.3%	0.2%	0.2%	0.1%	0.1%	0.1%	0.2%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	6.1%	5.1%	3.5%	1.8%	2.4%	2.7%	2.1%	3.2%	2.7%	2.2%
Injury, poisoning, and certain other consequences of external causes	6.9%	7.2%	6.7%	7.6%	7.0%	6.7%	7.3%	7.3%	8.3%	6.8%
Factors influencing health status and contact with health services	8.0%	8.5%	11.4%	11.4%	11.5%	10.8%	10.1%	9.4%	9.5%	8.9%

SOURCE: Bermuda Hospitals Board

Table 4.1.3 Reasons for hospitalization by percent of discharges, males, Bermuda, 2006-2015

Cause of hospitalization	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases	1.7%	1.4%	2.3%	2.7%	2.2%	2.7%	3.2%	2.9%	3.6%	4.8%
Neoplasms (Cancer)	4.1%	3.6%	3.9%	5.0%	5.9%	4.7%	5.9%	5.0%	6.4%	5.5%
Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	1.6%	1.2%	1.6%	1.8%	1.2%	1.3%	1.3%	1.4%	1.9%	1.9%
Endocrine, nutritional and metabolic diseases	3.5%	4.2%	4.0%	4.4%	4.3%	4.2%	3.7%	3.8%	4.0%	3.6%
Mental and behavioural disorders	11.0%	11.9%	11.7%	10.0%	0.6%	0.6%	0.8%	0.8%	0.9%	0.4%
Diseases of the nervous system	2.0%	2.3%	2.4%	2.9%	3.7%	3.3%	3.3%	3.2%	2.8%	2.6%
Diseases of the eye and adnexa	0.1%	0.1%	0.1%	0.2%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%
Diseases of the ear and mastoid process	0.4%	0.2%	0.3%	0.2%	0.6%	0.5%	0.6%	0.3%	0.2%	0.3%
Diseases of the circulatory system	10.5%	11.8%	12.6%	12.3%	14.9%	15.8%	14.6%	15.6%	14.5%	16.6%
Diseases of the respiratory system	7.9%	7.3%	7.2%	9.2%	10.5%	10.9%	11.2%	9.7%	10.8%	10.2%
Diseases of the digestive system	10.0%	8.5%	9.4%	8.8%	9.5%	10.5%	10.5%	10.8%	10.7%	9.0%
Diseases of the skin and subcutaneous tissue	2.3%	2.6%	1.8%	2.3%	1.9%	2.7%	1.9%	2.2%	2.1%	1.9%
Diseases of the musculoskeletal system and connective tissue	5.3%	4.8%	4.8%	4.8%	7.2%	6.4%	6.0%	6.4%	7.5%	7.3%
Diseases of the genitourinary system	4.3%	3.4%	3.7%	3.4%	4.0%	5.2%	5.3%	5.8%	4.8%	7.1%
Certain conditions originating in the perinatal period	4.6%	4.4%	1.2%	0.4%	0.9%	0.6%	0.7%	0.7%	0.6%	0.3%
Congenital malformations, deformations and chromosomal abnormalities	0.5%	0.4%	0.2%	0.1%	0.1%	0.0%	0.2%	0.1%	0.1%	0.1%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	6.7%	6.5%	5.1%	2.8%	3.5%	2.7%	3.2%	4.1%	3.7%	3.3%
Injury, poisoning, and certain other consequences of external causes	15.0%	15.4%	14.7%	14.3%	14.7%	14.8%	15.2%	15.1%	14.5%	14.0%
Factors influencing health status and contact with health services	8.4%	10.1%	12.9%	14.4%	14.4%	13.2%	12.6%	12.1%	10.9%	11.2%

SOURCE: Bermuda Hospitals Board

Table 4.1.4 Average length of stay in hospital (days) by cause of hospitalization, Bermuda, 2006-2015

Cause of hospitalization	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases	14	19	30	15	18	19	16	24	14	9
Neoplasms (Cancer)	21	11	14	13	25	13	18	12	15	10
Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	11	6	6	5	10	7	8	7	5	6
Endocrine, nutritional and metabolic diseases	34	28	28	17	23	29	36	29	12	23
Mental and behavioural disorders	50	62	98	53	23	204	130	117	111	116
Diseases of the nervous system	125	76	115	41	111	154	241	97	91	85
Diseases of the eye and adnexa	4	2	5	3	4	4	15	7	3	6
Diseases of the ear and mastoid process	3	3	4	3	2	3	3	3	2	3
Diseases of the circulatory system	40	37	29	34	36	37	39	28	26	23
Diseases of the respiratory system	21	16	13	7	13	8	7	10	9	8
Diseases of the digestive system	12	7	7	6	10	13	5	9	6	5
Diseases of the skin and subcutaneous tissue	21	13	18	27	47	33	18	15	22	14
Diseases of the musculoskeletal system and connective tissue	8	6	13	11	7	8	7	8	8	5
Diseases of the genitourinary system	8	8	9	8	14	12	9	8	8	11
Pregnancy, childbirth and the puerperium	3	3	3	3	3	3	3	3	3	3
Certain conditions originating in the perinatal period	6	7	9	6	10	10	10	10	12	7
Congenital malformations, deformations and chromosomal abnormalities	3	3	2	3	9	3	4	3	7	2
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	7	24	9	7	5	5	5	4	5	5
Injury, poisoning, and certain other consequences of external causes	10	9	9	9	10	8	11	11	9	10
Factors influencing health status and contact with health services	5	4	8	6	6	4	4	4	4	4

SOURCE: Bermuda Hospitals Board

Table 4.1.5 Average length of stay in hospital (days) by cause of hospitalization, females, Bermuda, 2006-2015

Cause of hospitalization	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases	6	16	9	18	15	11	14	16	8	6
Neoplasms (Cancer)	10	8	10	13	13	11	22	9	10	8
Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	8	5	7	6	13	7	5	7	5	5
Endocrine, nutritional and metabolic diseases	38	22	20	15	21	33	40	31	11	10
Mental and behavioural disorders	64	115	160	72	4	281	196	163	81	288
Diseases of the nervous system	193	120	176	50	42	240	249	66	78	77
Diseases of the eye and adnexa	3	3	4	1	4	4	7	9	3	2
Diseases of the ear and mastoid process	5	4	4	4	3	4	4	3	2	3
Diseases of the circulatory system	50	47	35	35	33	45	48	28	24	33
Diseases of the respiratory system	31	13	7	7	17	8	7	12	9	10
Diseases of the digestive system	9	7	6	6	12	7	5	6	6	5
Diseases of the skin and subcutaneous tissue	13	9	15	21	65	66	19	18	11	8
Diseases of the musculoskeletal system and connective tissue	9	7	6	16	8	9	8	9	7	6
Diseases of the genitourinary system	6	5	7	8	19	11	6	7	7	14
Pregnancy, childbirth and the puerperium	3	3	3	3	3	3	3	3	3	3
Certain conditions originating in the perinatal period	7	7	12	4	10	6	12	9	19	7
Congenital malformations, deformations and chromosomal abnormalities	2	3	3	3	13	3	4	2	4	2
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	8	32	7	8	5	5	5	4	6	3
Injury, poisoning, and certain other consequences of external causes	13	10	12	9	13	11	11	13	11	9
Factors influencing health status and contact with health services	3	4	4	8	7	4	4	4	3	4

SOURCE: Bermuda Hospitals Board

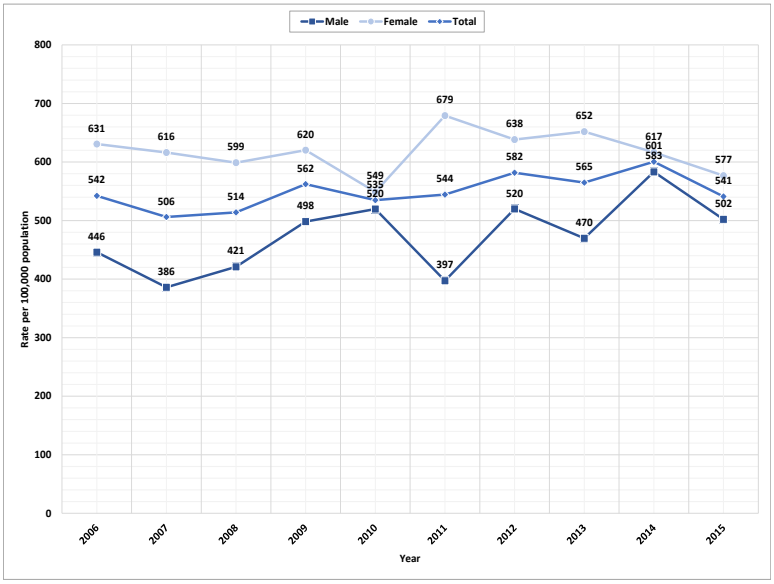
Table 4.1.6 Average length of stay in hospital (days) by cause of hospitalization, males, Bermuda, 2006-2015

Cause of hospitalization	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certain infectious and parasitic diseases	20	22	39	13	20	24	17	31	19	11
Neoplasms (Cancer)	37	17	20	13	39	16	13	17	20	13
Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	14	8	6	4	5	6	14	9	5	8
Endocrine, nutritional and metabolic diseases	29	33	37	19	25	24	32	28	12	36
Mental and behavioural disorders	44	35	74	43	39	118	78	73	139	6
Diseases of the nervous system	68	37	44	33	177	76	233	139	104	93
Diseases of the eye and adnexa	7	2	6	4	1	6	20	5	3	8
Diseases of the ear and mastoid process	2	2	4	2	2	3	3	3	1	2
Diseases of the circulatory system	29	27	24	32	38	31	30	28	28	14
Diseases of the respiratory system	12	19	18	7	9	8	7	8	10	7
Diseases of the digestive system	16	6	8	7	7	19	6	11	6	5
Diseases of the skin and subcutaneous tissue	27	15	20	31	29	9	17	12	32	20
Diseases of the musculoskeletal system and connective tissue	6	4	22	5	6	5	7	6	9	5
Diseases of the genitourinary system	12	15	13	8	9	13	12	9	10	9
Certain conditions originating in the perinatal period	6	8	8	7	11	14	9	11	11	7
Congenital malformations, deformations and chromosomal abnormalities	4	4	2	5	2	1	4	4	9	2
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	7	16	11	7	5	5	5	3	5	6
Injury, poisoning, and certain other consequences of external causes	9	9	8	9	8	6	10	9	8	10
Factors influencing health status and contact with health services	7	4	11	5	5	4	4	4	4	3

SOURCE: Bermuda Hospitals Board

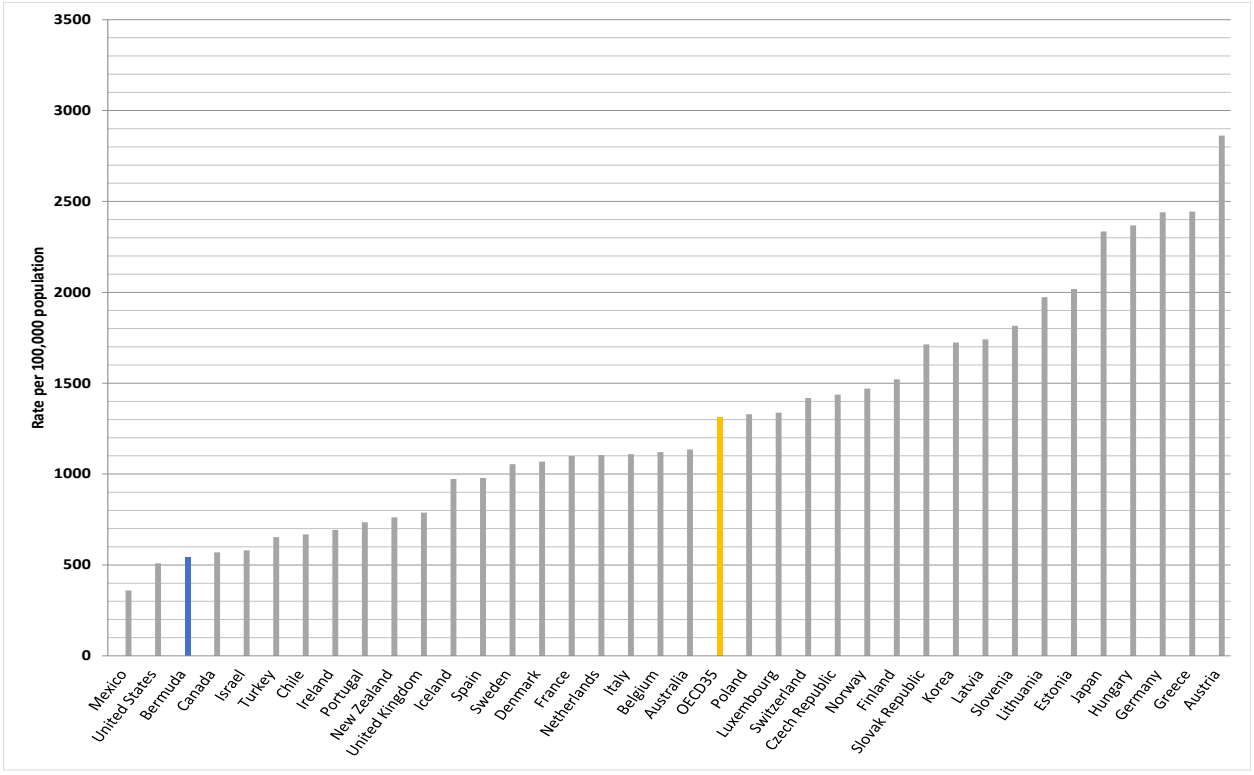
Discharges for Cancer

Figure 4.1.5 Inpatient discharge rates per 100,000 population for neoplasms (cancer), Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

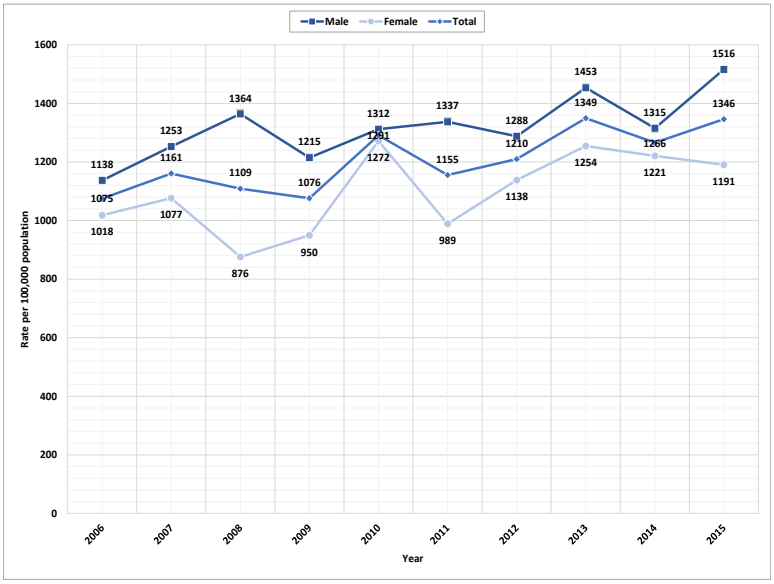
Figure 4.1.6 Inpatient discharge rates per 100,000 population for neoplasms (cancer), OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

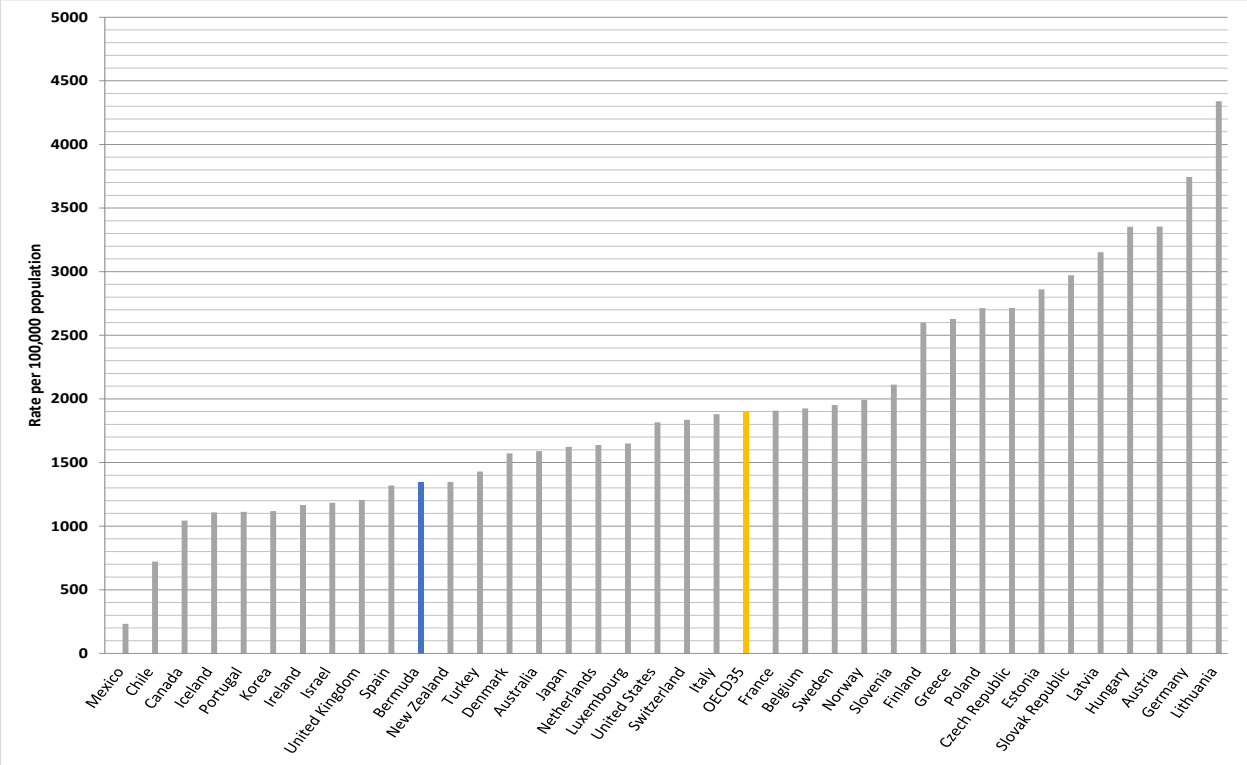
Discharges for Circulatory Diseases

Figure 4.1.7 Inpatient discharge rates per 100,000 population for circulatory diseases, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

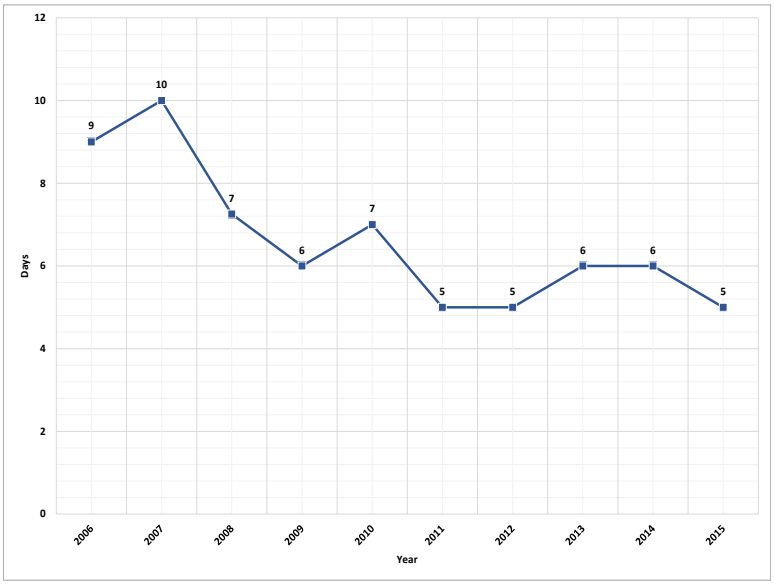
Figure 4.1.8 Inpatient discharge rates per 100,000 population for circulatory diseases, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

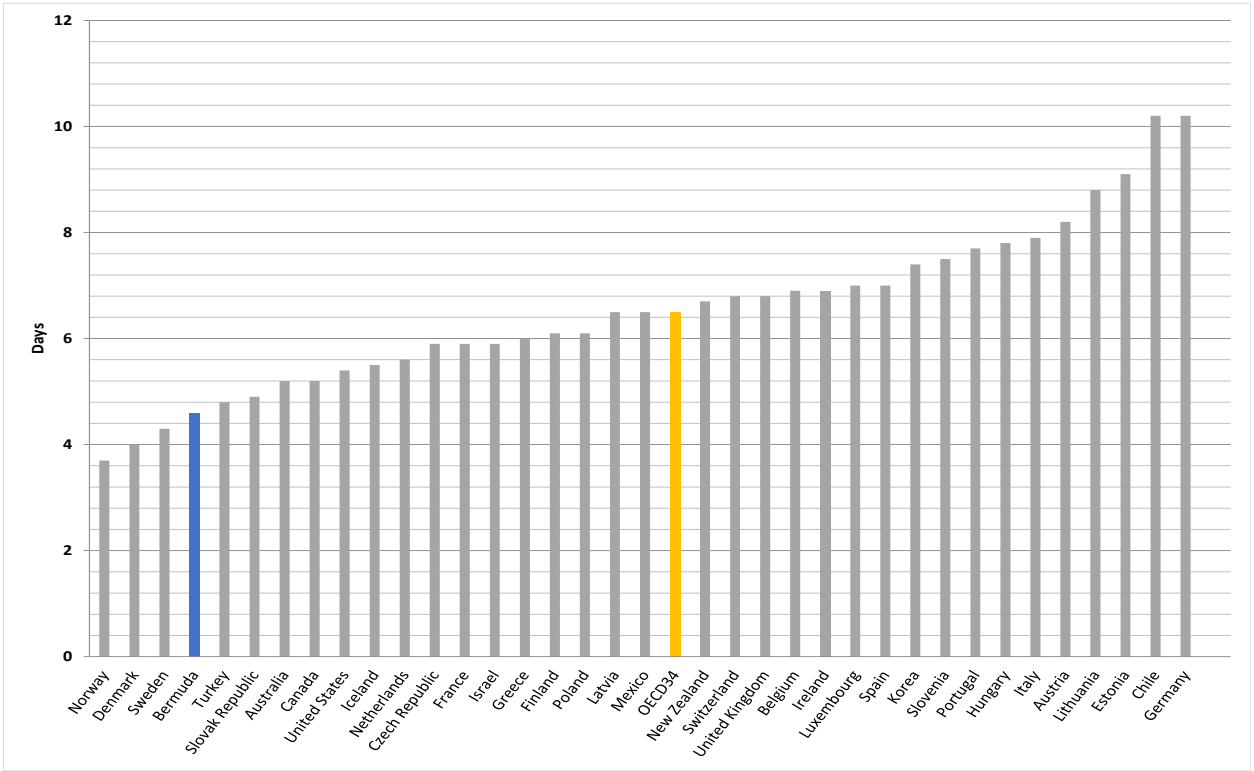
Average Length of Stay following Acute Myocardial Infarction (AMI) [Heart attack]

Figure 4.1.9 Average length of stay in hospital following AMI [Heart Attack], Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

Figure 4.1.10 Average length of stay in hospital following AMI [Heart Attack], OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

4.2 Avoidable Admissions

Primary health care has many functions including health promotion and disease prevention, managing new health complaints, as well as long-term conditions and referring patients to hospital-based services when appropriate. Primary health care aims to keep people well, by providing a consistent point of care over the long-term, tailoring and co-ordinating care for those with multiple health care needs and supporting the patient in self-education and self-management. For some chronic conditions, including respiratory diseases, cardiovascular diseases and diabetes, the evidence for effective treatment is clear and much of it can be delivered at a primary care level. A high-performing primary care system can therefore reduce acute deterioration in people living with these conditions and prevent their admission to hospital.

Respiratory Diseases: Asthma and COPD

Chronic conditions like asthma and chronic obstructive pulmonary disease (COPD) are either preventable or manageable through proper prevention or primary care interventions. Proper management of these chronic conditions in primary care settings can reduce exacerbation and costly hospitalisation. Hospital admission rates serve as a proxy for primary care quality, so high admission rates may point to poor care co-ordination or care continuity. They may also indicate structural constraints such as the availability of primary care and preventive services in the community.

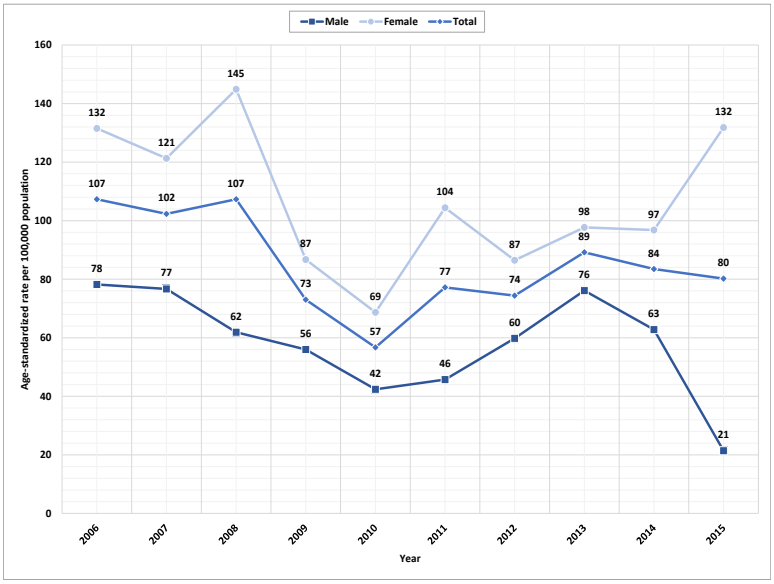
Although consistently higher among females in Bermuda, asthma admission rates have been variable during the period under review. This gender difference is consistent with other countries. COPD admissions are also variable, showing a decline followed by an increase in recent years. Conversely to asthma admissions, COPD admissions are generally higher among males, likely related to differences in smoking behaviours. Bermuda's asthma admission rates are higher than the OECD average, ranking among the top third, while Bermuda's COPD admission rates are well below the OECD average and among the lowest of the OECD countries.

Definition and Comparability

The asthma and COPD indicators are defined as the number of hospital discharges of people aged 15 years and over per 100 000 population, adjusted to take account of the age and sex composition of each country's population structure. Differences in diagnosis and coding between asthma and COPD across countries may limit the precision of the specific disease rates. Differences in disease classification systems, for example between ICD-9 CM and ICD-10 CM, may also affect the comparability of the data. ICD-9CM codes were used for Bermuda.

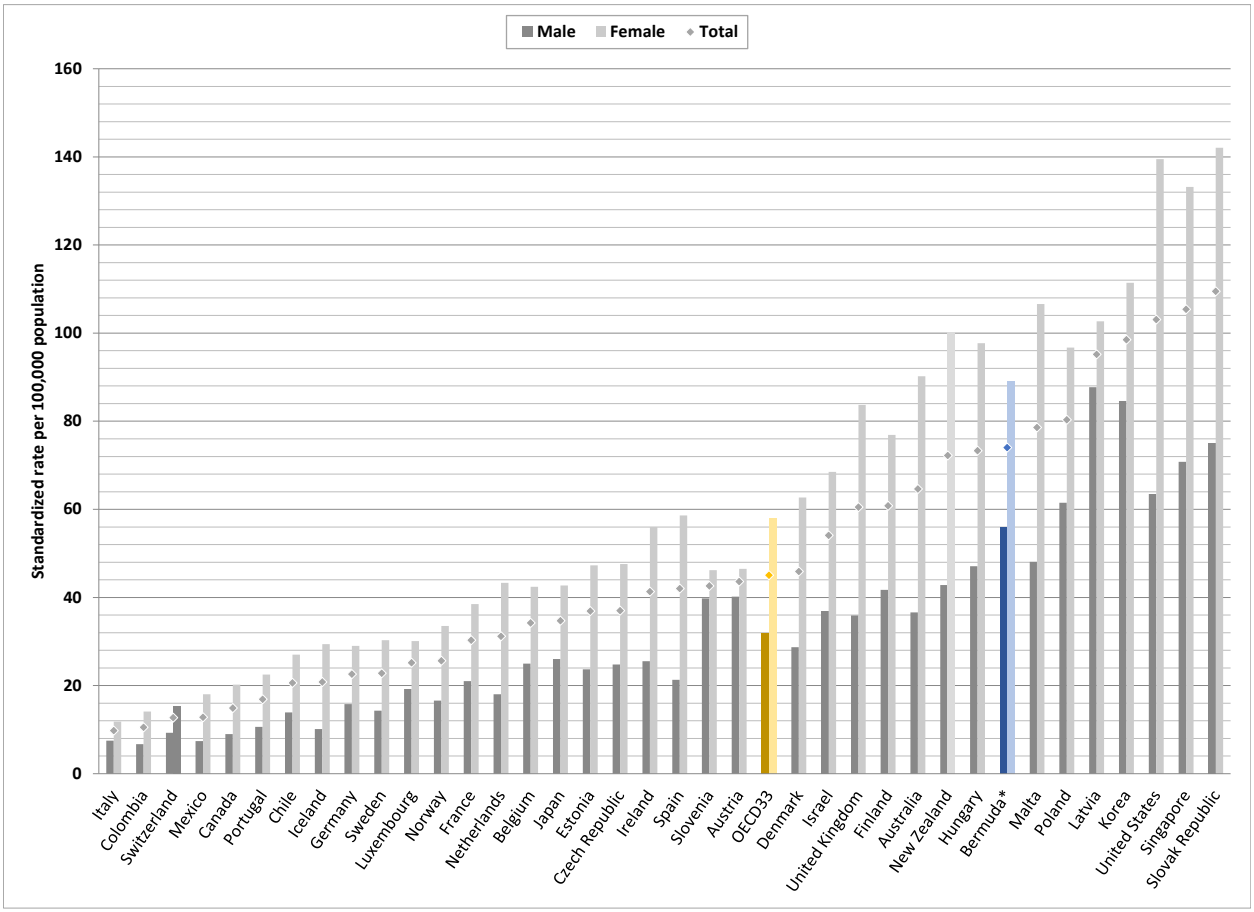
Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data. Aggregate data is presented for comparison to OECD countries.

Figure 4.2.1 Asthma hospital admission rates per 100,000 population aged 15 and older, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

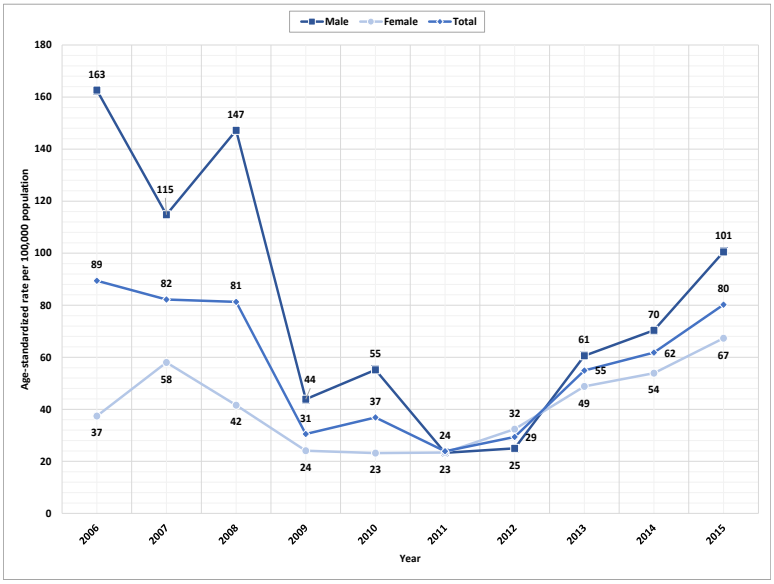
Figure 4.2.2 Asthma hospital admission rates per 100,000 population aged 15 and older, OECD Comparison, 2013 (or nearest prior year available)



*2009-2013 average

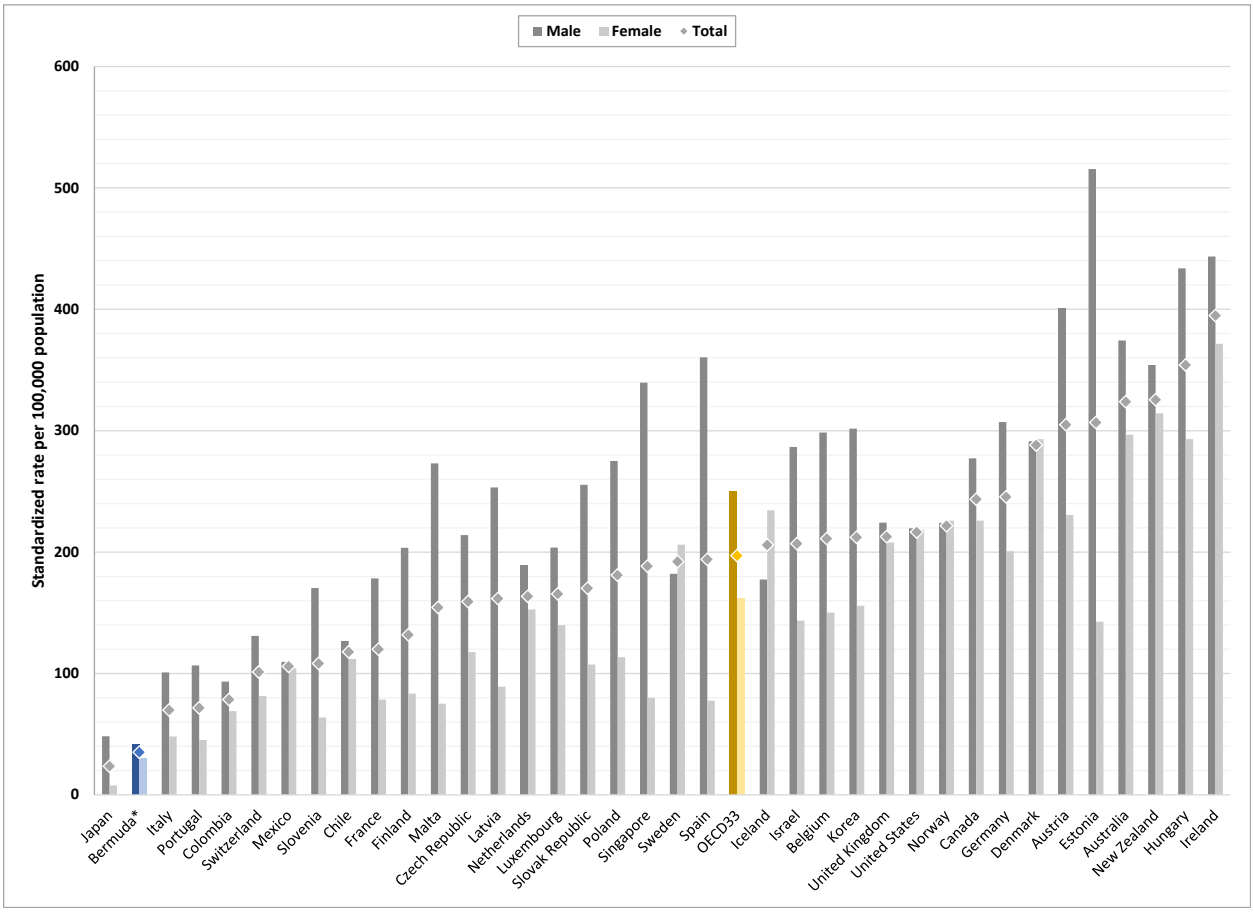
SOURCE: OECD Health Data 2017

Figure 4.2.3 COPD hospital admission rates per 100,000 population aged 15 and older, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

Figure 4.2.4 COPD hospital admission rates per 100,000 population aged 15 and older, OECD Comparison, 2013 (or nearest prior year available)



*2009-2013 average

SOURCE: OECD Health Data 2017

Circulatory Diseases: Congestive Heart Failure and Hypertension

Admissions with a primary diagnosis of hypertension typically indicate hypertensive crises, a condition characterised by very high blood pressure with high risk of acute complications such as heart failure or haemorrhagic stroke. However, hypertension admissions are largely avoidable and are, therefore, an indicator for the quality of primary care. Admissions as a result of congestive heart failure may also be driven by gaps in process of care.

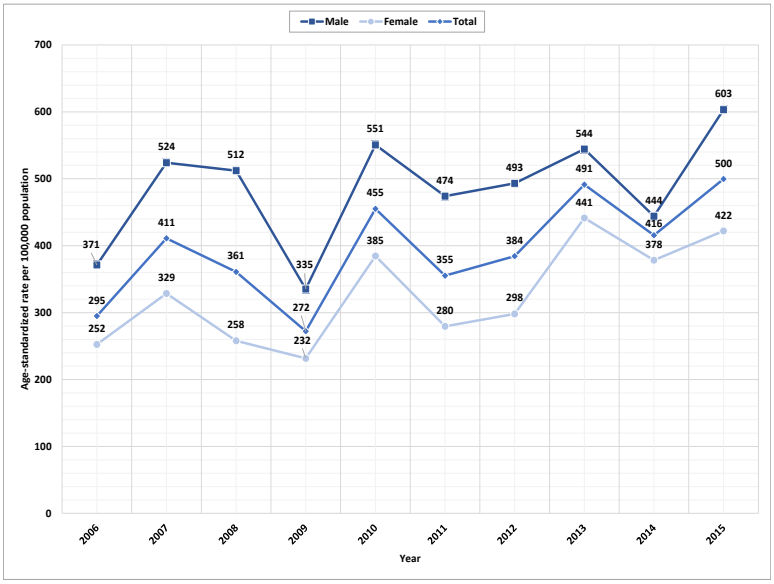
While Bermuda's average hypertension admission rate is around half the OECD average, Bermuda average hospital admission rate for congestive heart failure is nearly double the OECD average. There is no clear gender difference in hypertension admission rates, but males have a higher rate of congestive heart failure admissions than females. This could be linked to higher health risk factors and lower utilization of health care services, including preventive care, among males. Lack of preventive care could then lead to the conditions known to cause CHF, such as diabetes, hypertension, and coronary artery disease, being more often left undiagnosed and untreated for males compared with females.

Definition and Comparability

The congestive heart failure (CHF) and hypertension indicators are defined as the number of hospital discharges for these conditions among people aged 15 years and over per 100,000 population, adjusted to take account of the age and sex composition of each country's population structure. Given the technical definition of these indicators includes the specification of procedure codes, the different classification systems in use across countries may impact on the comparability of the data.

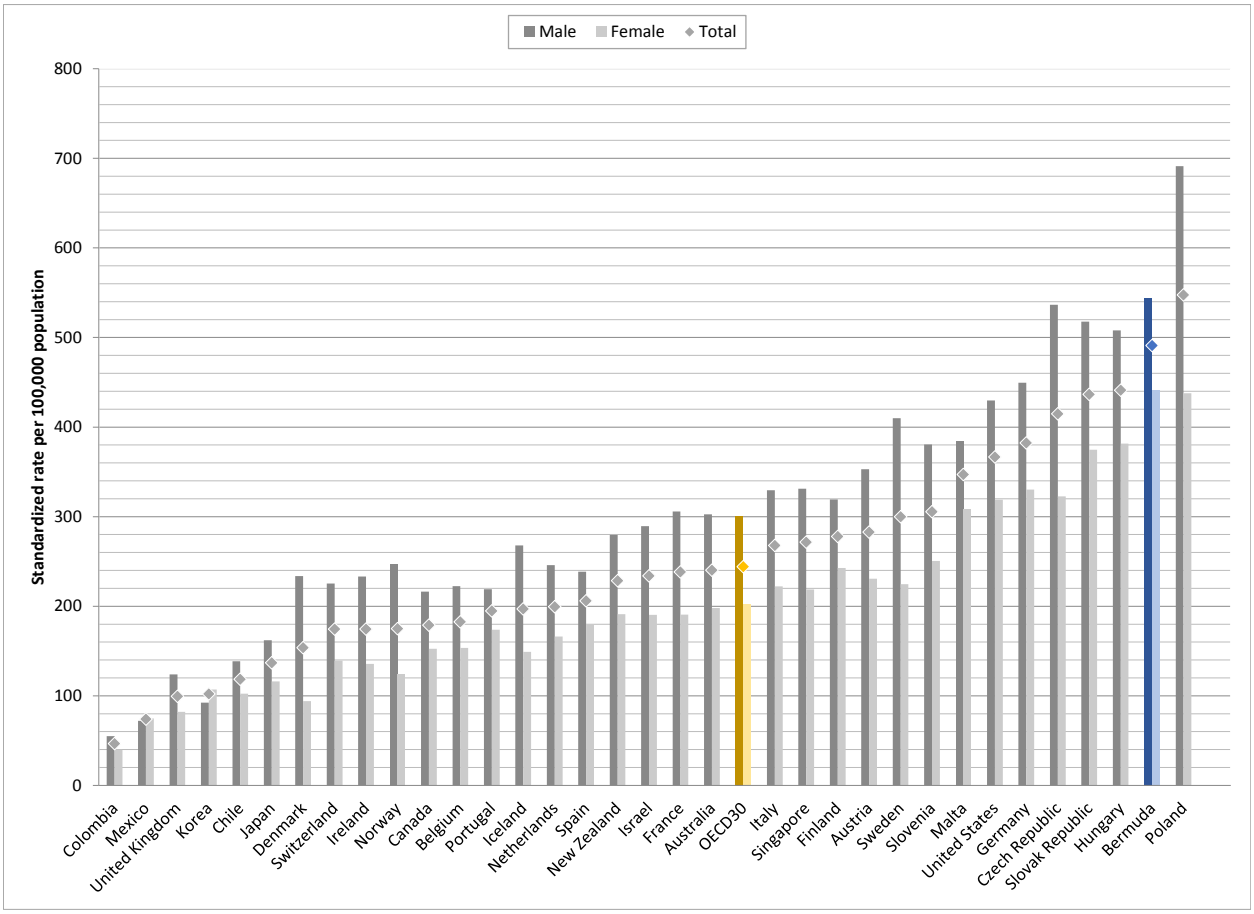
Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data.

Figure 4.2.5 CHF hospital admission rates per 100,000 population aged 15 and older, Bermuda, 2006-2015



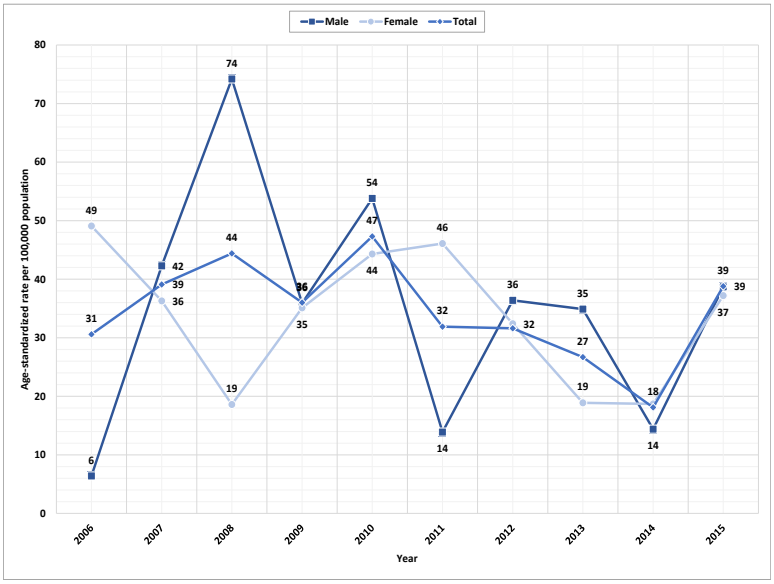
SOURCE: Bermuda Hospitals Board

Figure 4.2.6 CHF hospital admission rates per 100,000 population aged 15 and older, OECD Comparison, 2013 (or nearest prior year available)



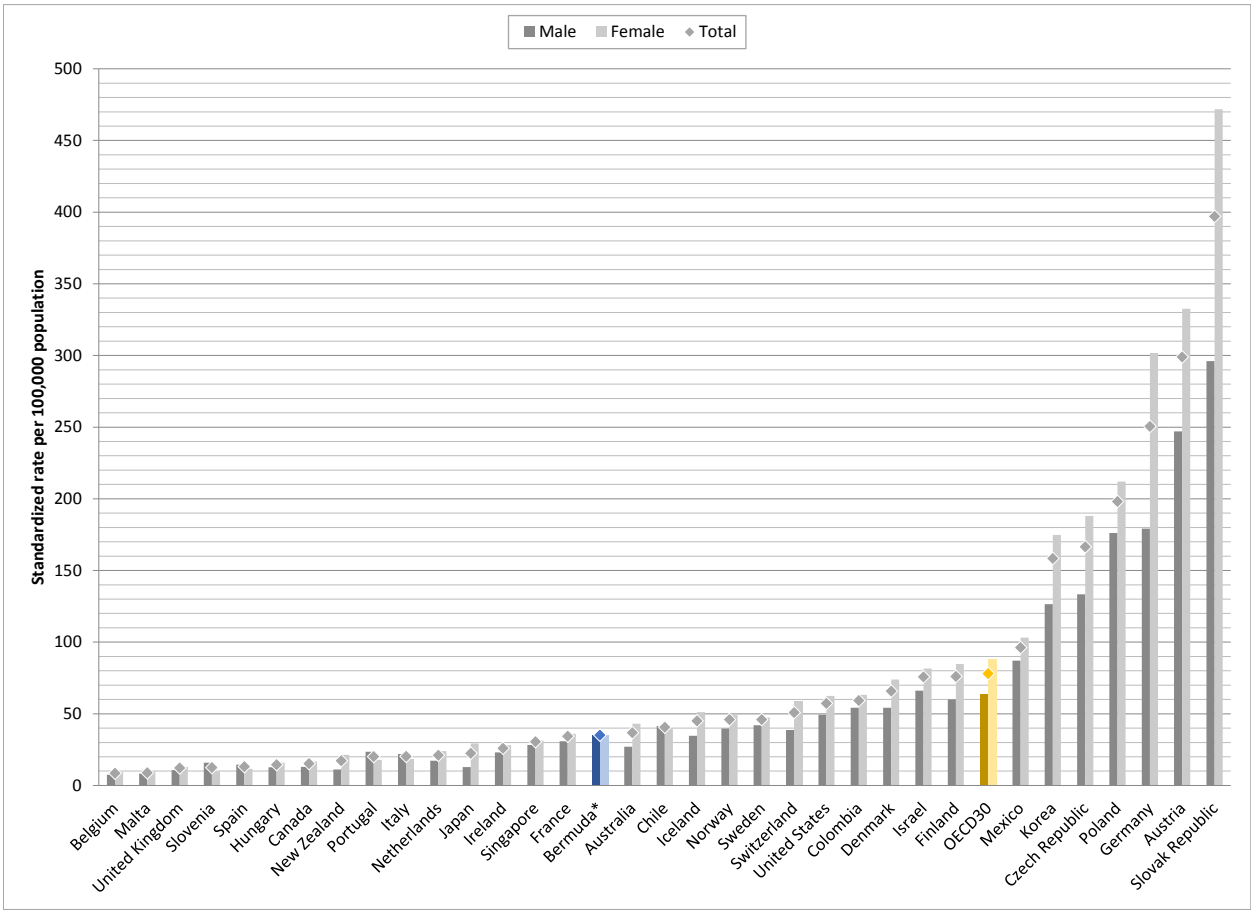
SOURCE: OECD Health Data 2017

Figure 4.2.7 Hypertension hospital admission rates per 100,000 population aged 15 and older, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

Figure 4.2.8 Hypertension hospital admission rates per 100,000 population aged 15 and older, OECD Comparison, 2013 (or nearest prior year available)



*2009-2013 average

SOURCE: OECD Health Data 2017

Diabetes

Hospital admissions for diabetes reflect the quality of long-term diabetes treatment. Appropriate diet, exercise and treatment combined with proper foot care can reduce the risk of lower extremity amputation. Since most related services are delivered or ordered by primary care providers, both admissions for diabetes and lower extremity amputations are suitable measures of the quality of primary care.

Admission rates for diabetes have generally declined from 2006 through 2015, while there has been wide variation in diabetes-related major lower extremity amputation rates. Both of these rates remain higher than the OECD average. On average, Bermuda has a diabetes-related major lower extremity amputation rate around twice as high as the OECD average, although the average is calculated on a smaller subset of countries that does not include the United States, which may have similar rates.

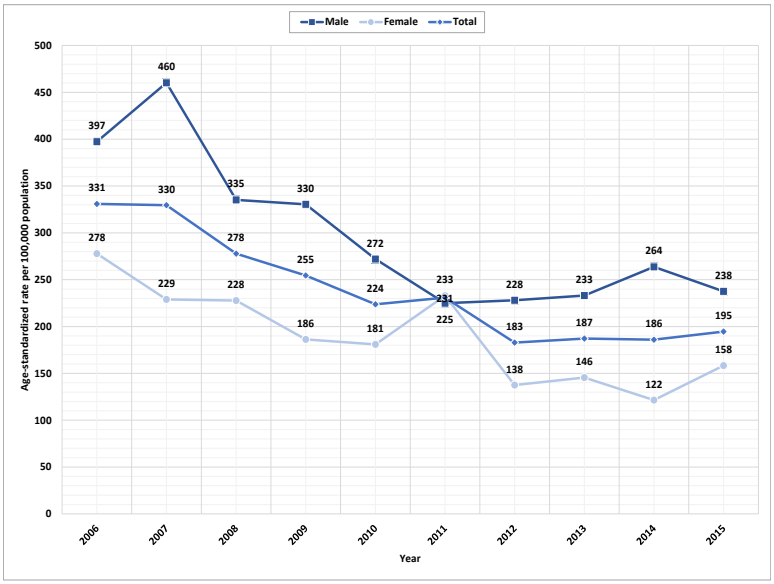
Definition and Comparability

The indicator for diabetes hospital admission is defined as the number of hospital admissions with a primary diagnosis of diabetes among people aged 15 years and over per 100 000 population. The indicator for major lower extremity amputation in adults with diabetes is defined as the number of discharges of people aged 15 years and over per 100 000 population. Rates for both indicators were age-sex standardised to the 2010 OECD population aged 15 and over.

The definition of the major lower extremity amputation indicator does not include amputation of the toes. Minor amputations of the toe do not necessarily indicate poor quality of care, as they may be carried out to prevent major amputations. In addition, given some minor amputations can be performed in certain-primary care settings, clinical practices between countries would also affect indicator rates. As such, major lower extremity amputations, such as above ankle, through knee and up to hip amputations are included in this indicator. Since definitions rely on specific procedure codes, different classification systems in use across countries may impact on the comparability of the data. Additionally, there may also be difference in data definition and coding practices between countries. For example, coding of diabetes as a principal diagnosis versus a secondary diagnosis varies across countries. This is more pronounced for diabetes than other conditions, given that in many cases admission is for the secondary complications of diabetes rather than diabetes itself.

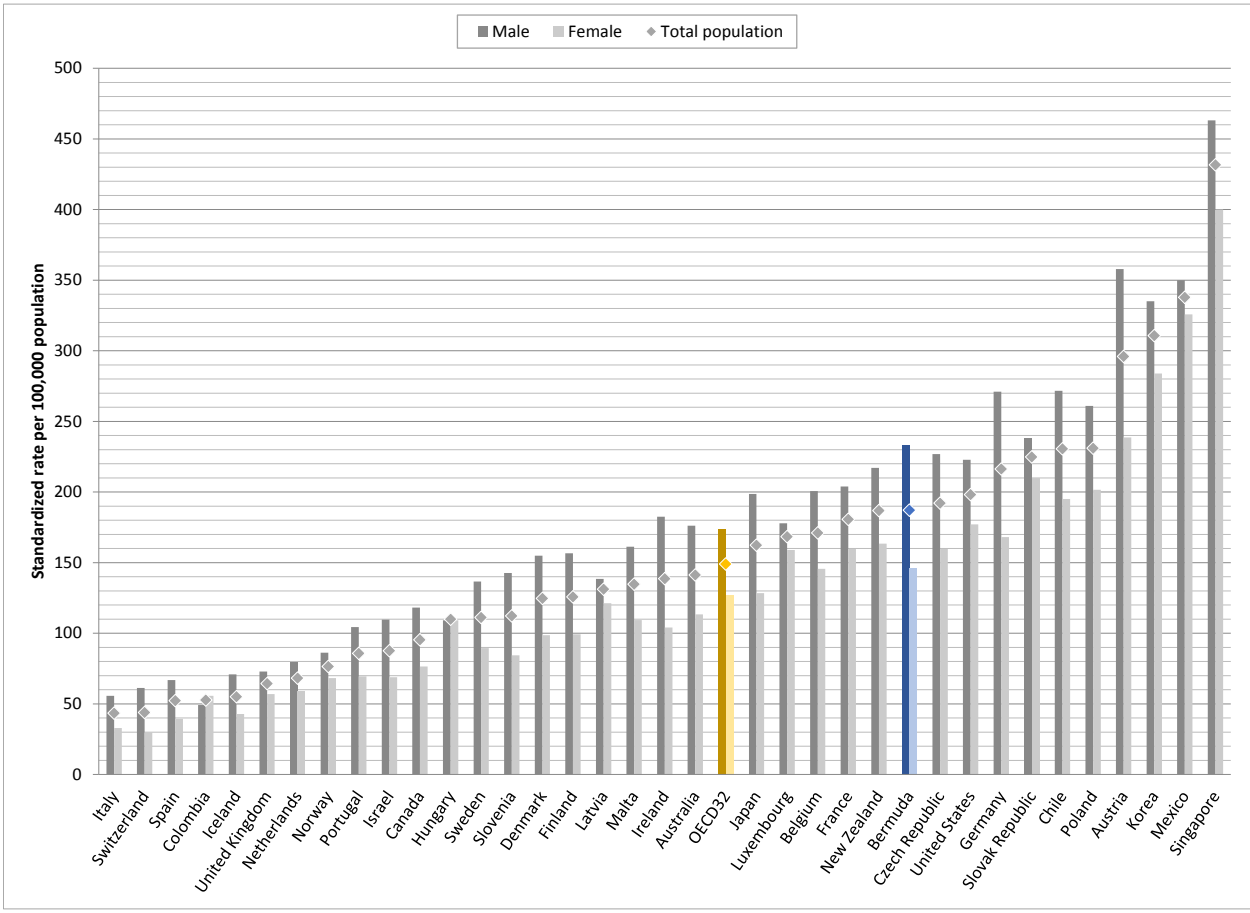
Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data. Aggregate data may be presented for comparison to OECD countries.

Figure 4.2.9 Diabetes hospital admission rates per 100,000 population aged 15 and older, Bermuda, 2006-2015



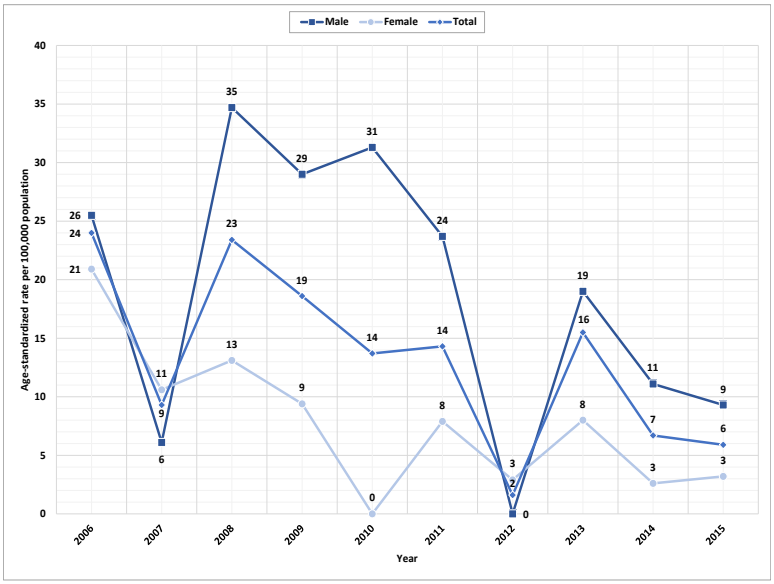
SOURCE: Bermuda Hospitals Board

Figure 4.2.10 Diabetes hospital admission rates per 100,000 population aged 15 and older, OECD Comparison, 2013 (or nearest prior year available)



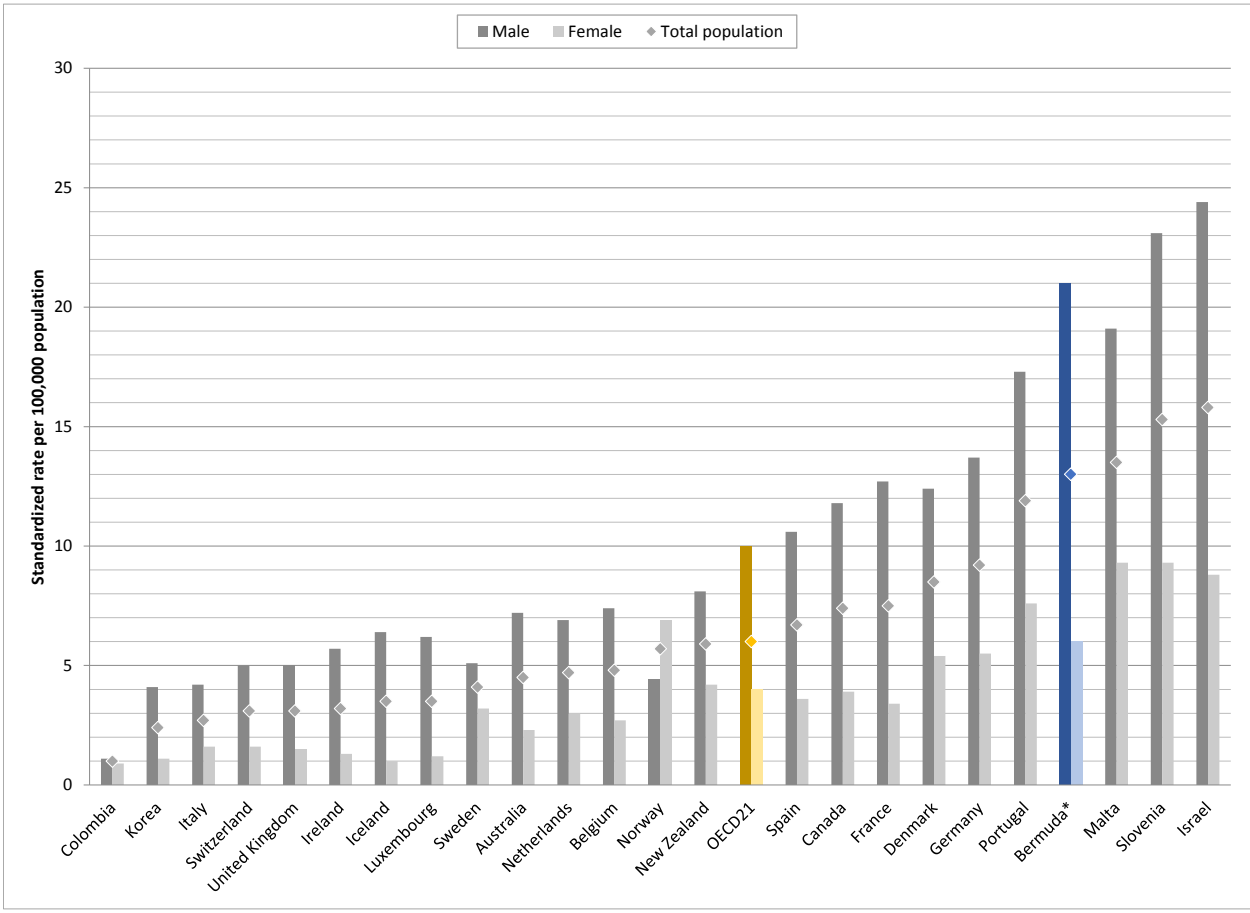
SOURCE: OECD Health Data 2017

Figure 4.2.11 Diabetes major lower amputation rates per 100,000 population aged 15 and older, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

Figure 4.2.12 Diabetes major lower amputation rates per 100,000 population aged 15 and older, OECD Comparison, 2013 (or nearest prior year available)



*2009-2013 average

SOURCE: OECD Health Data 2017

4.3 In-Hospital Mortality

For both acute myocardial infarction (AMI) and stroke, the case-fatality rate (in this case, the percentage of patients who die in hospital within 30 days of admission) is a useful measure of acute care quality as there is a clear link between the processes of care and health outcomes. However, it is important to note that differences in hospital transfers, average length of stay, emergency retrieval times and average severity of AMI or stroke may influence reported 30 day-case fatality rates.

The age-standardised AMI case-fatality rates for Bermuda varied from 3% to 13% during the period under review. The five-year average for 2009-2013 was 4% which compared favourably to the 8% average across the OECD countries for 2013. Lower AMI case-fatality rates reflect better and more reliable processes of care.

The standardised case-fatality rate for ischemic stroke was about 9% on average across OECD countries in 2013; Bermuda's standardised case-fatality rates varied from 5% to 16% during the period under review, with an average of 11% from 2009-2013. The average standardised rate for haemorrhagic stroke was 25%, nearly three times greater than the rate for ischemic stroke, reflecting the more severe effects of intracranial bleeding. The year-to-year differences in Bermuda ranged from 11% to 35% during the period under review, with an average of 18% from 2009-2013.

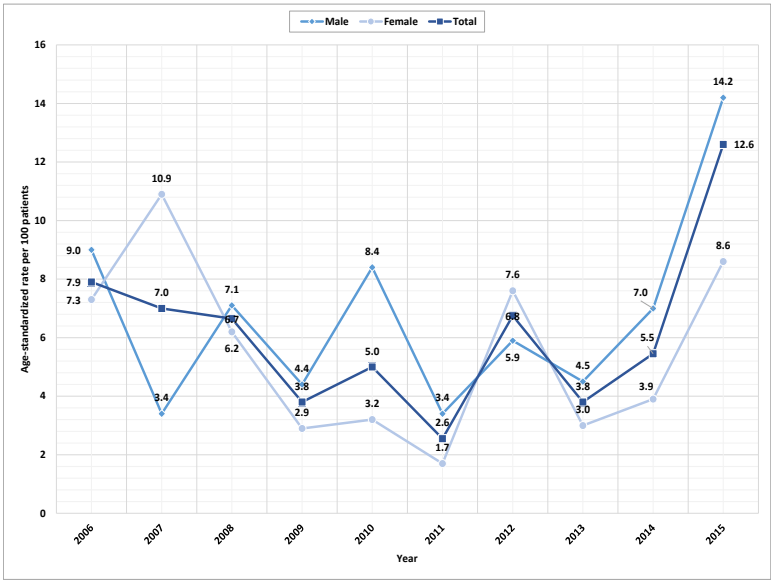
Definition and Comparability

The in-hospital case-fatality rate following AMI, ischaemic and haemorrhagic stroke is defined as the number of people who die within 30 days of being admitted (including same day admissions) to hospital. Ideally, rates would be based on individual patients, however not all countries have the ability to track patients in and out of hospital, across hospitals or even within the same hospital because they do not currently use a unique patient identifier. Therefore, since this indicator is based on unique hospital admissions and restricted to mortality within the same hospital, differences in practices in discharging and transferring patients may influence the findings. Admission-based data may bias case-fatality rates downwards if unstable cardiac patients are commonly transferred to tertiary care centres and the transfer is recorded as a live discharge in a country.

Given that rates based on small numbers may fluctuate dramatically from year to year, even when the variances are not significant, caution should be made in interpreting trends based on annual data. Aggregate data is presented for comparison to OECD countries.

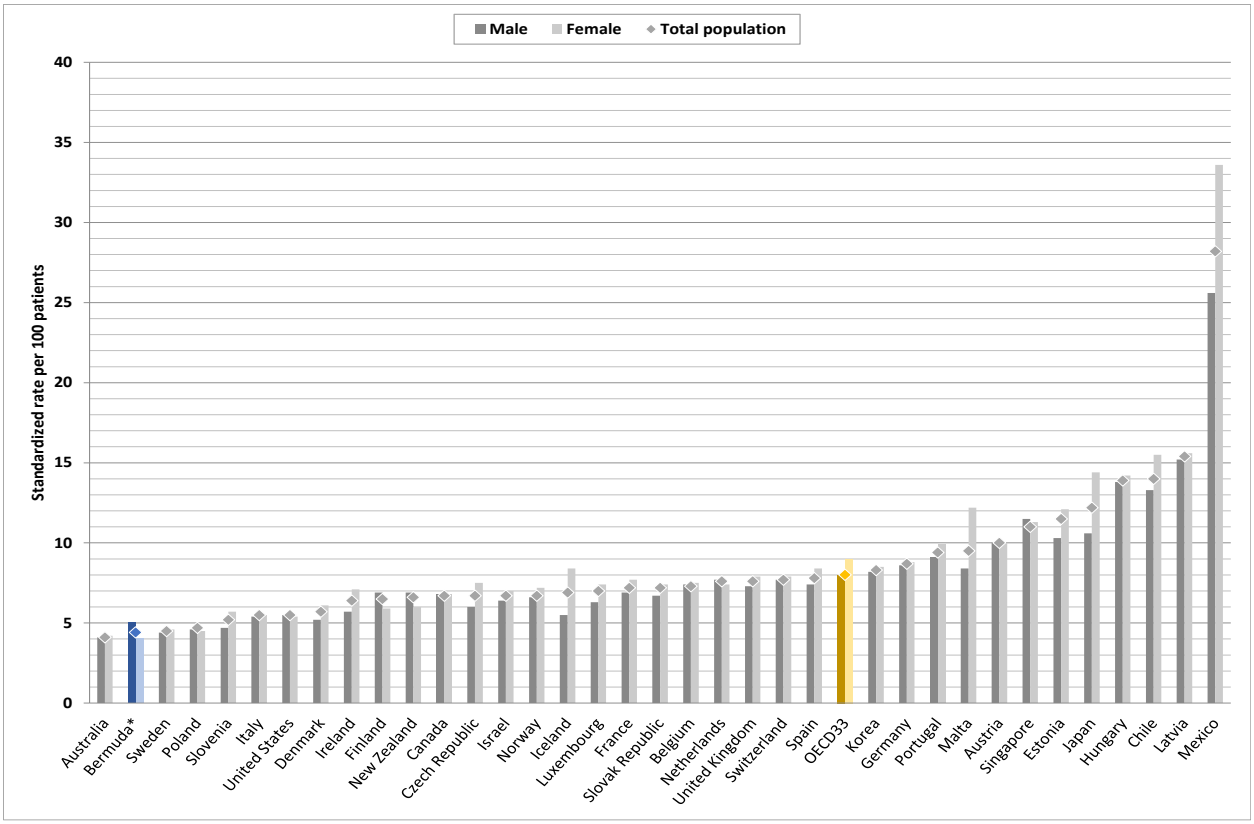
Acute Myocardial Infarction

Figure 4.3.1 In-hospital case-fatality rates within 30 days after admission for acute myocardial infarction (AMI) among patients aged 45 years and older, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

Figure 4.3.2 In-hospital case-fatality rates within 30 days after admission for AMI among patients aged 45 years and older, OECD Comparison, 2013 (or nearest prior year available)

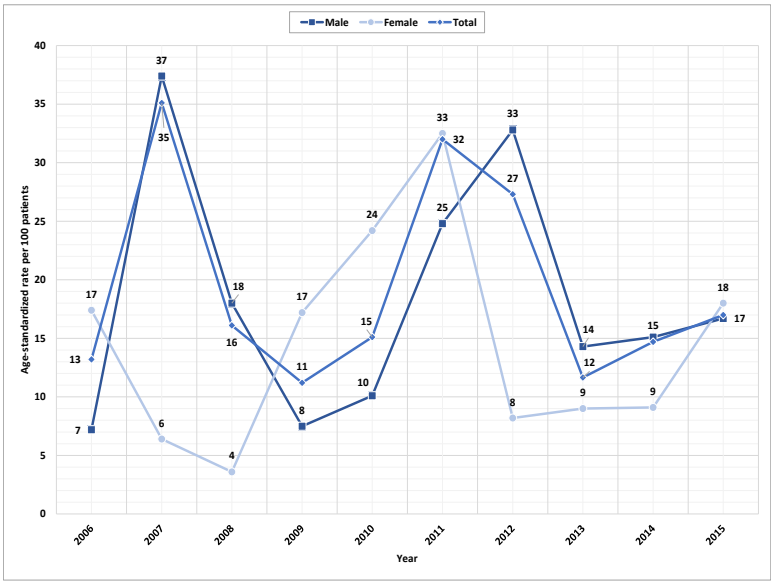


*2009-2013 average

SOURCE: OECD Health Data 2017

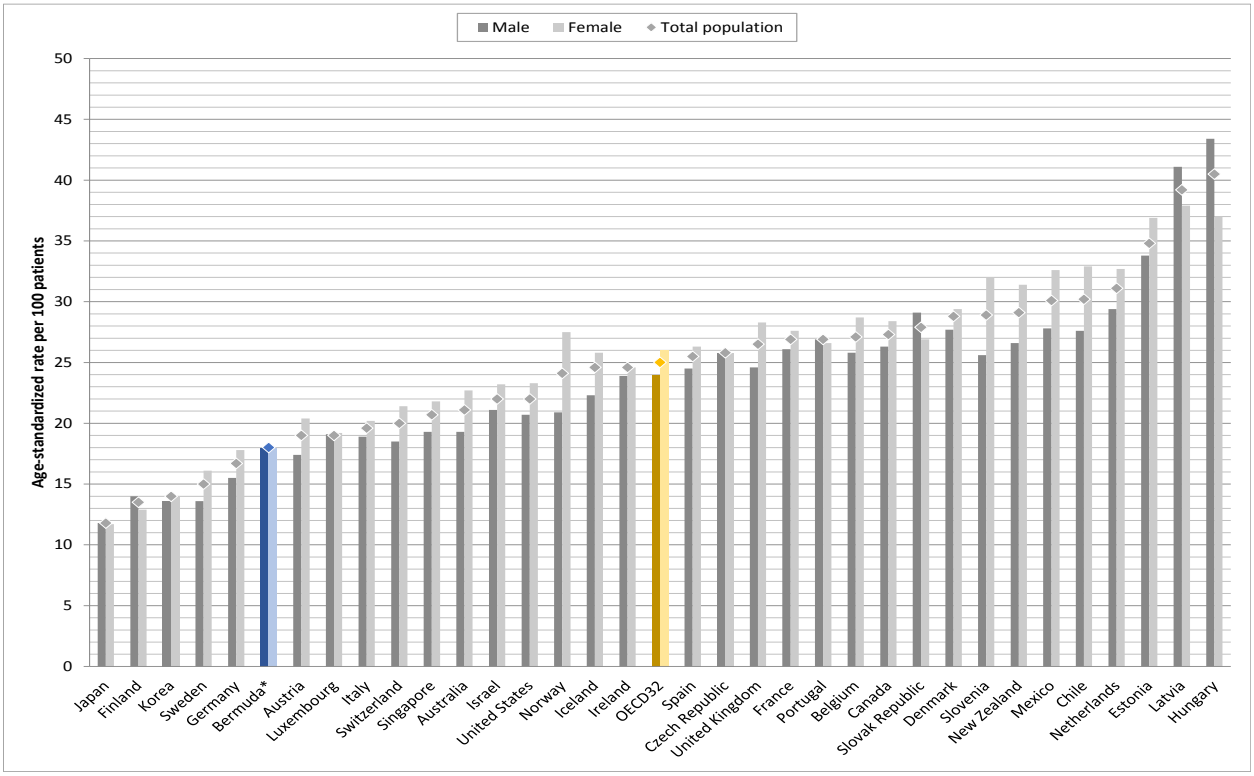
Haemorrhagic Stroke

Figure 4.3.3 In-hospital case-fatality rates within 30 days after admission for haemorrhagic stroke among patients aged 45 years and older, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

Figure 4.3.4 In-hospital case-fatality rates within 30 days after admission for haemorrhagic stroke among patients aged 45 years and older, OECD Comparison, 2013 (or nearest prior year available)

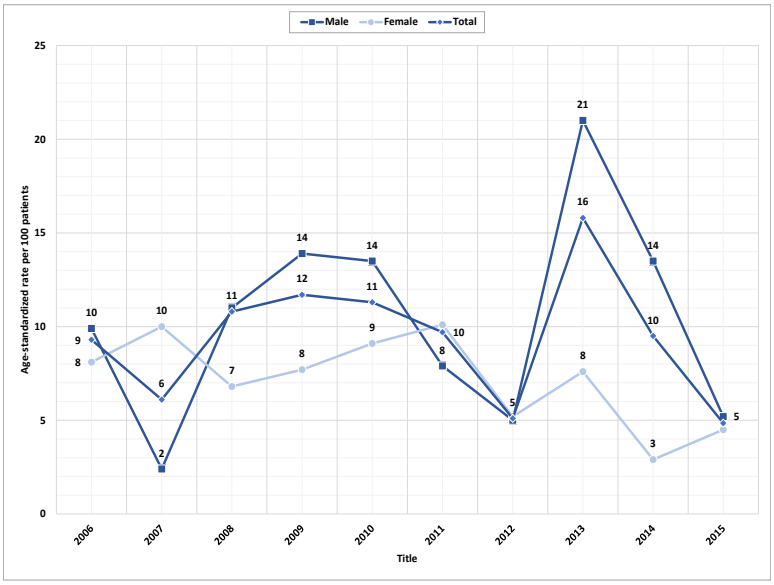


*2009-2013 average

SOURCE: OECD Health Data 2017

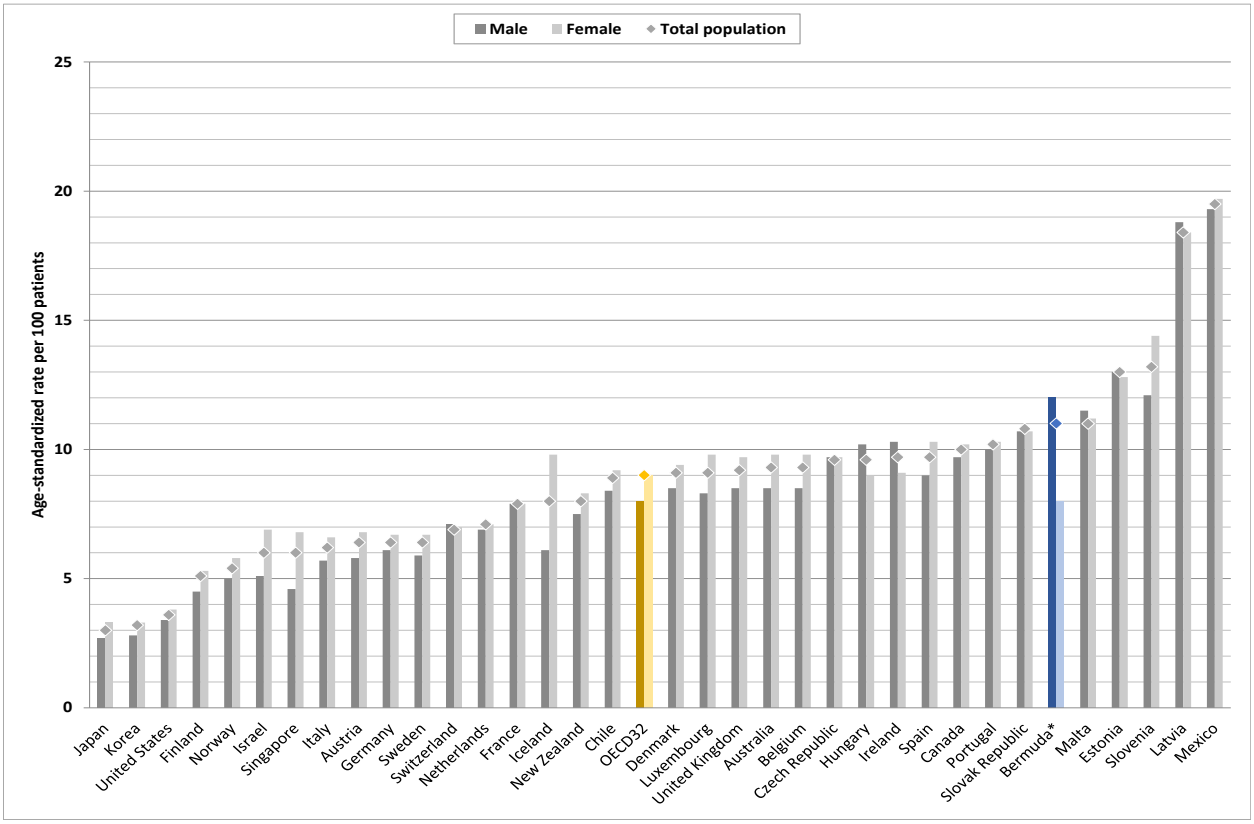
Ischaemic Stroke

Figure 4.3.5 In-hospital case-fatality rates within 30 days after admission for ischaemic stroke among patients aged 45 years and older, Bermuda, 2006-2015



SOURCE: Bermuda Hospitals Board

Figure 4.3.6 In-hospital case-fatality rates within 30 days after admission for ischaemic stroke among patients aged 45 years and older, OECD Comparison, 2013 (or nearest prior year available)



*2009-2013 average

SOURCE: OECD Health Data 2017

4.4 Curative (Acute) Care

Curative care comprises health care contacts during which the principal intent is to relieve symptoms of illness or injury, to reduce the severity of an illness or injury, or to protect against exacerbation and/or complication of an illness or injury that could threaten life or normal function. This includes all components of curative care of illness (including both physical and mental/psychiatric illnesses) or treatment of injury, diagnostic, therapeutic and surgical procedures, and obstetric services. It does not include other functions of care (such as rehabilitative care, long-term care and palliative care). Data are collected for curative (acute) care discharge, bed-days, average length of stay, and occupancy rates.

Bermuda's curative (acute) care discharge rates and bed-days per capita are lower than all of the comparison countries. However, the average length of stay and occupancy rates are higher. This is also reflective of the availability of acute care beds, which has been reduced in Bermuda in recent years.

Definition and Comparability

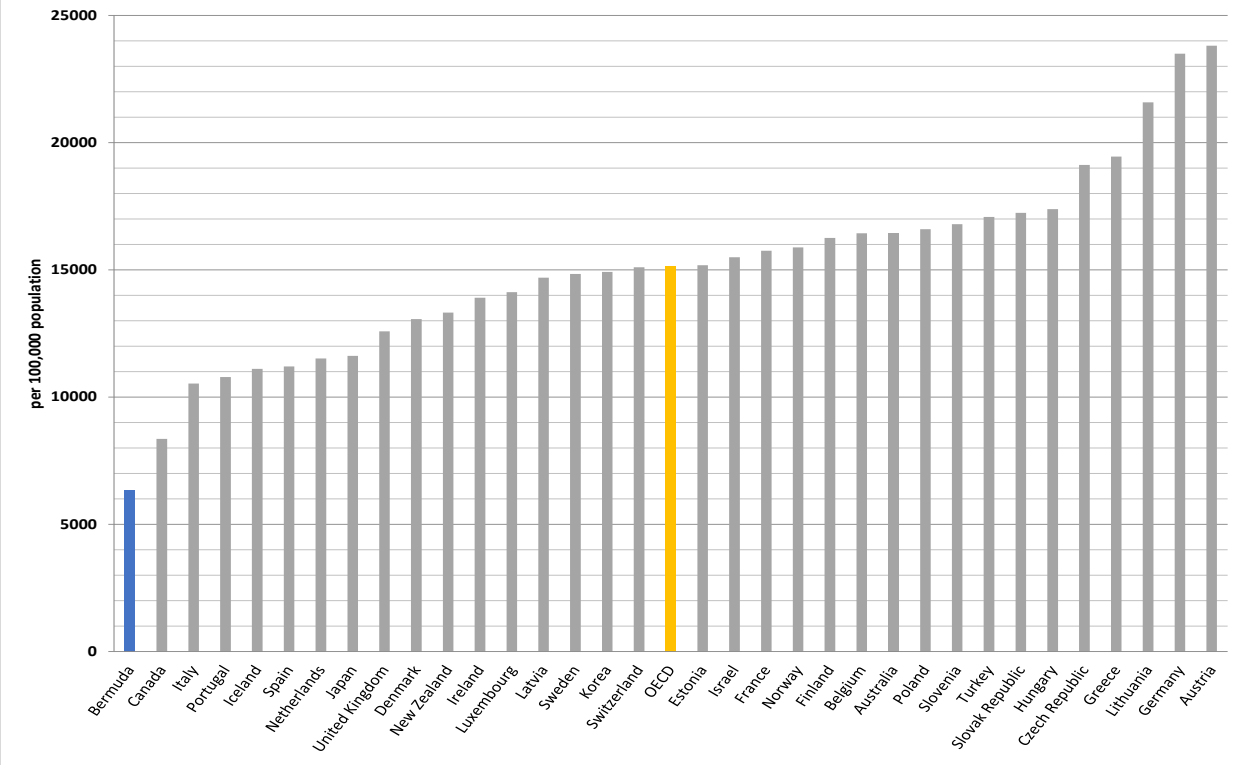
A discharge is defined as the release of a patient who has stayed at least one night in hospital, including discharges following normal childbirth. It includes deaths in hospital following inpatient care. Same-day separations are usually excluded.

A bed-day is a day during which a person is confined to a bed and in which the patient stays overnight in a hospital. Day cases (patients admitted for a medical procedure or surgery in the morning and released before the evening) should be excluded.

Average length of stay refers to the average number of days that patients spend in hospital. It is generally measured by dividing the total number of days stayed by all inpatients during a year by the number of admissions or discharges. Day cases are excluded.

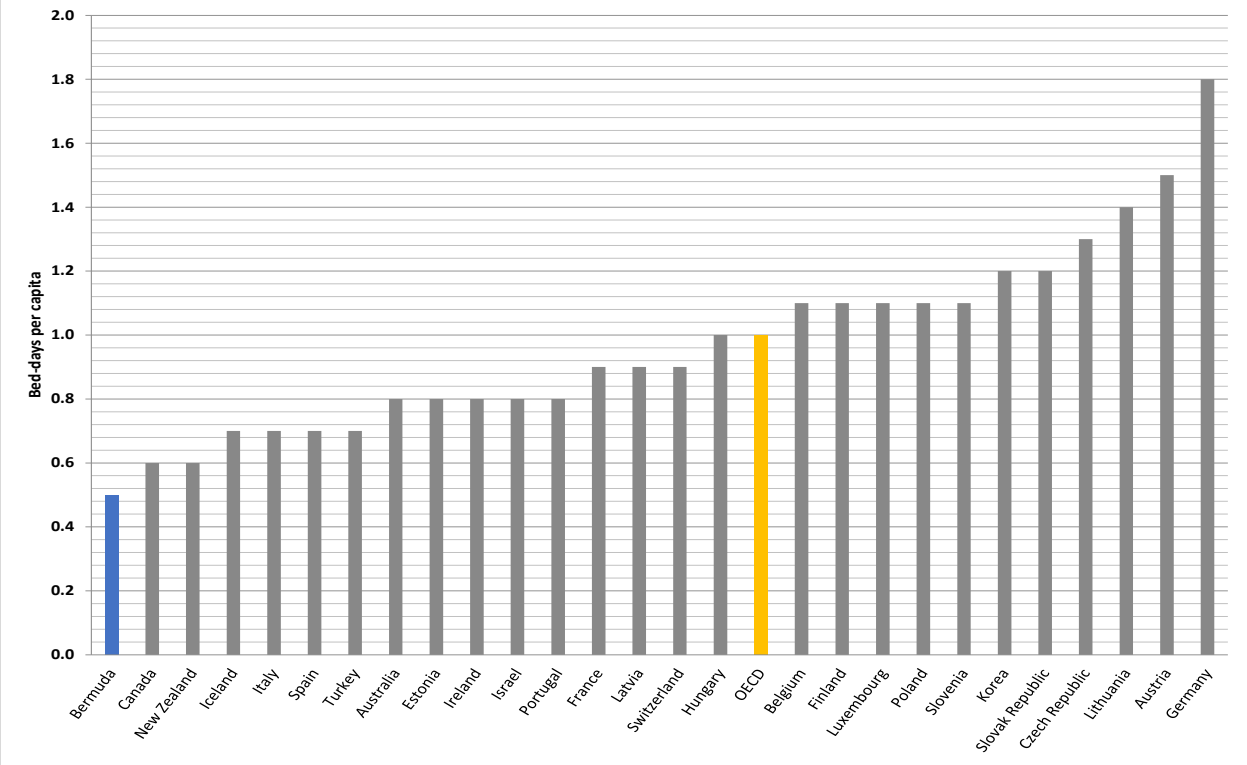
The occupancy rate is calculated as the number of beds effectively occupied (bed-days) for curative care (divided by the number of beds available for curative care multiplied by 365 days, with the ratio multiplied by 100.

Figure 4.4.1 Curative (acute) care discharges, OECD Comparison, 2015 (or nearest prior year available)



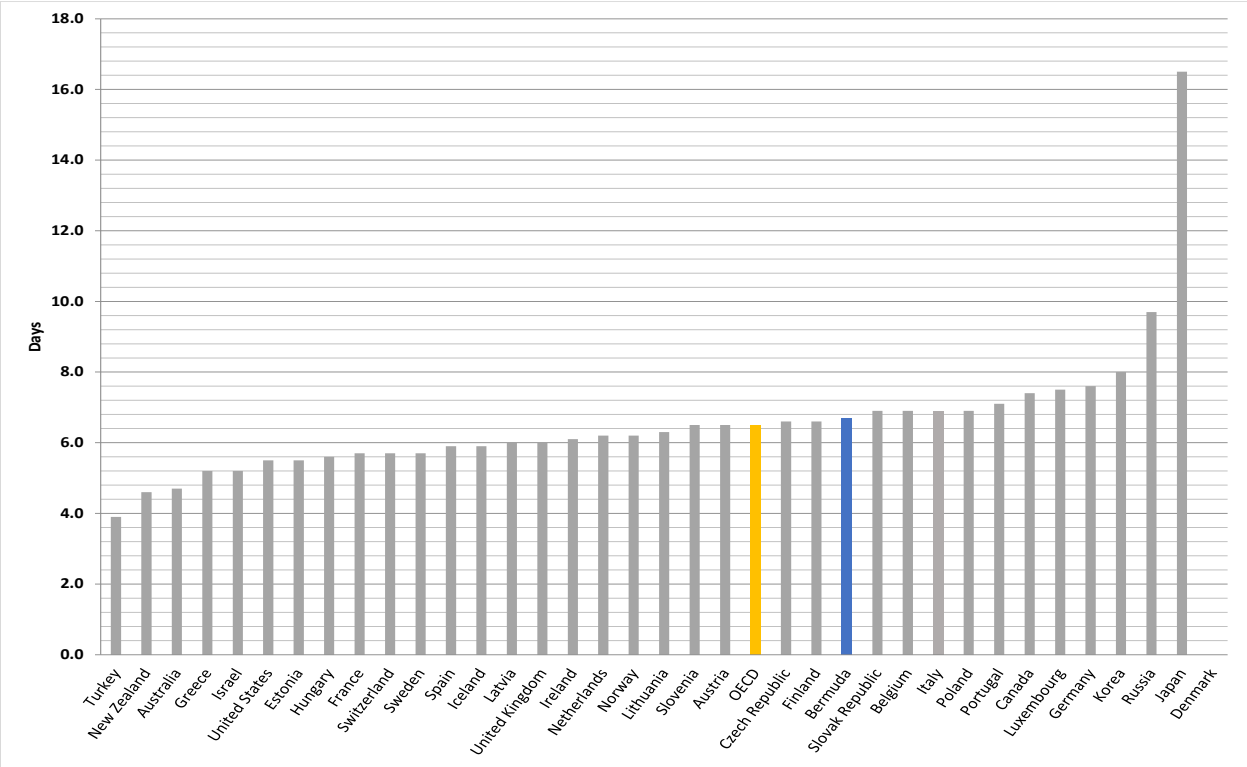
SOURCE: OECD Health Data 2017

Figure 4.4.2 Curative (acute) care hospitalizations, bed-days per capita, OECD Comparison, 2015 (or nearest prior year available)



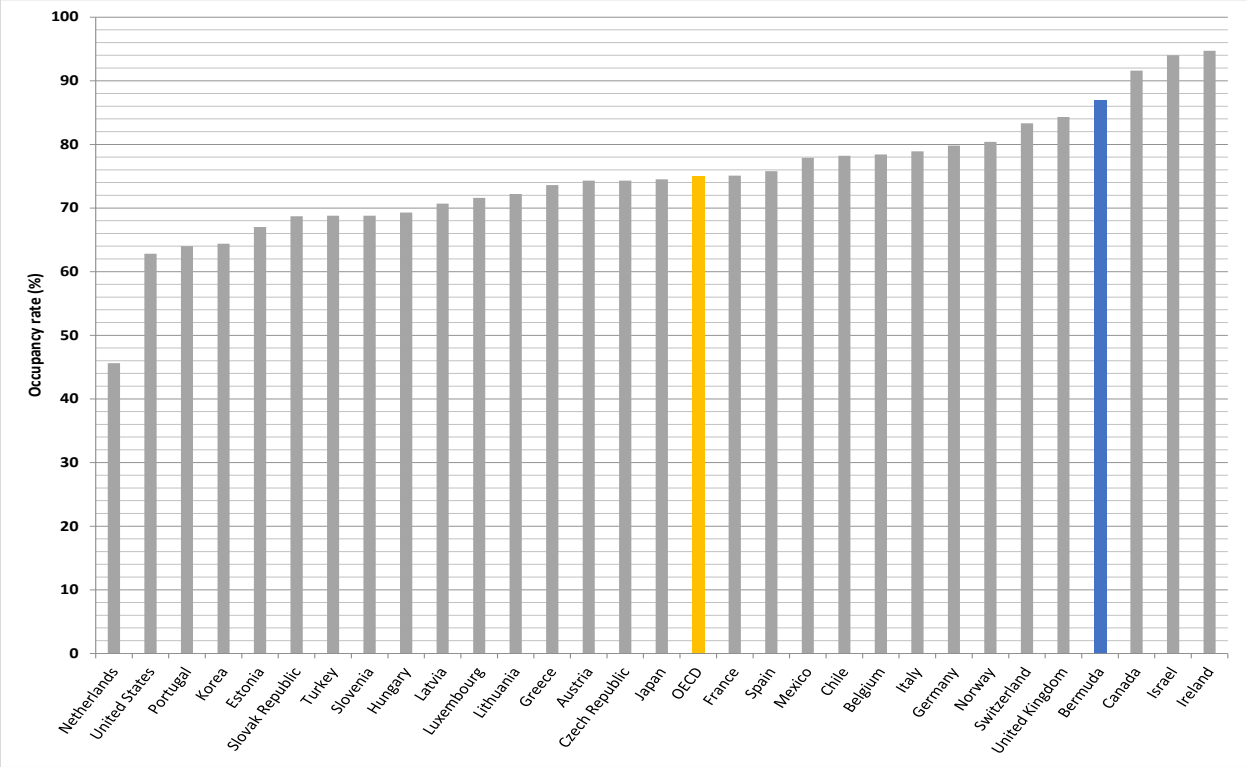
SOURCE: OECD Health Data 2017

Figure 4.4.3 Curative (acute) care hospitalizations, average length of stay, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Figure 4.4.4 Curative (acute) care hospitalizations, occupancy rates, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

4.5 Surgical Procedures

Cataract surgeries and caesarean sections are selected as both reflect how availability of certain surgical procedures can impact the demand for them. Advances in medical technologies have resulted in improved patient safety and health outcomes for patients, and, in the case of cataract surgeries, reduced the cost of surgery by circumventing the need for hospitalization.

Cataract Surgery

Cataract surgery provides a good example of a high-volume surgery which is now carried out predominantly on a same-day basis in most OECD countries and Bermuda. From a medical point of view, a cataract surgery using modern techniques should not normally require hospitalisation, except in some specific cases (e.g., general anaesthesia or severe comorbidities). Day surgery now accounts for over 90% of all cataract surgeries in a majority of countries. In Bermuda, over 99% of cataract surgeries are performed as outpatient procedures.

The total number of cataract surgeries performed in Bermuda remains high and is slightly higher than the OECD average. The higher rates are impacted by population ageing and the proven success, safety and cost-effectiveness of outpatient cataract surgery.

Definition and Comparability

This indicator measures the number of cataract surgeries performed in hospitals, including outpatients/day-cases, per 100,000 population. The method to count procedures should be based on a count of the number of patients who have received a given procedure or on a count of only one code per procedure category for each patient, in order to avoid double-counting procedures for which more than one code may be used in certain national classification systems. (For example, if a cataract surgery is performed on the two eyes, only one patient/procedure should be counted. However, if a patient gets the same procedure at two different dates in a given year, then this procedure should be counted twice.)

Caesarean Section

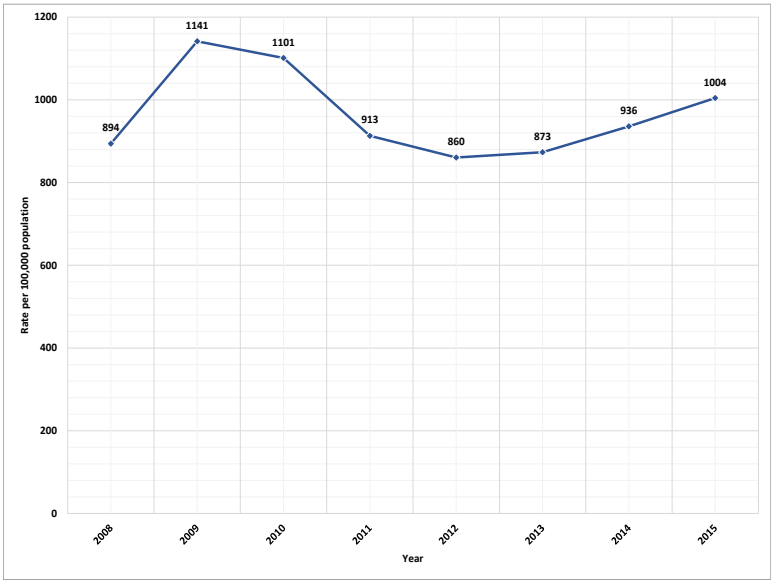
Caesarean section rates have long been used as an indicator of access to and use of health care services during pregnancy and childbirth, as caesarean sections were usually performed only when vaginal delivery would put the mother or baby's life or health at risk. However, recent years have seen a shift to caesarean births due to reasons that may or may not be medically indicated leading to an increase in caesarean section rates. Reasons for the increase include the rise in first births among older women, increases in multiple births resulting from assisted reproduction, malpractice liability concerns, scheduling convenience for both physicians and patients, and the personal preferences of the pregnant woman.

During the period under review, around a quarter to a third of all live births were delivered by caesarean section. The most recent available data indicates that Bermuda's caesarean section rate is higher than the OECD average. A number of countries have taken different measures to reduce unnecessary caesarean sections. Public reporting, provider feedback, the development of clearer clinical guidelines, and adjustments to financial incentives have been used to try to reduce any inappropriate use of caesareans. In Bermuda, the reason for higher caesarean section rates has not been assessed.

Definition and Comparability

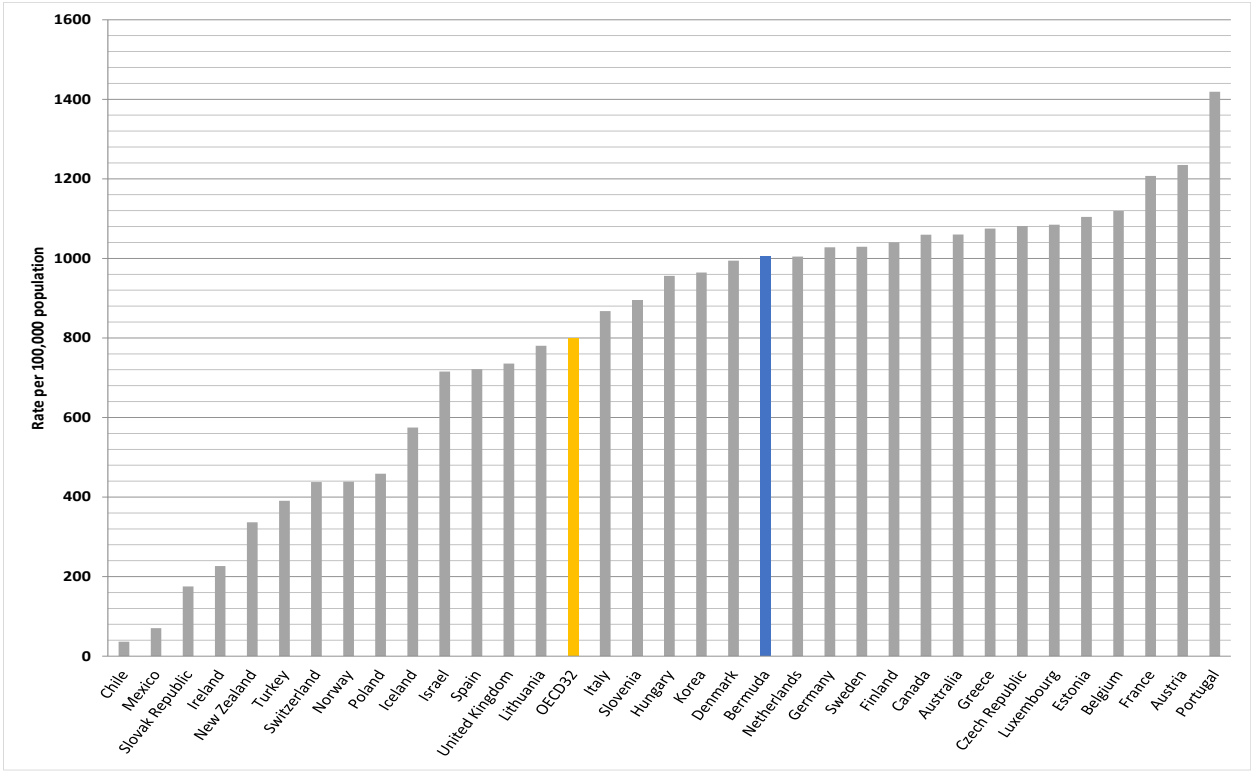
This caesarean section rate is the number of caesarean deliveries performed per 1000 live births.

Figure 4.5.1 Cataract surgeries per 100,000 population, Bermuda, 2008-2015



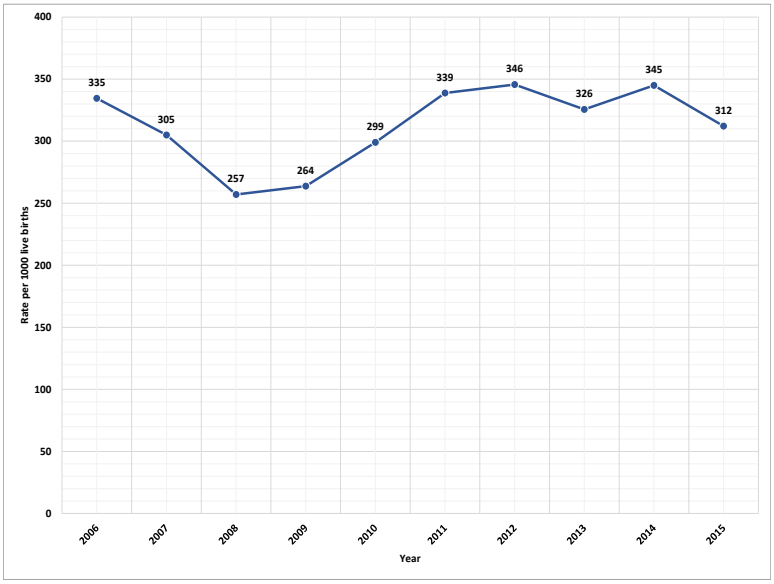
SOURCE: Bermuda Hospitals Board

Figure 4.5.2 Cataract surgeries per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



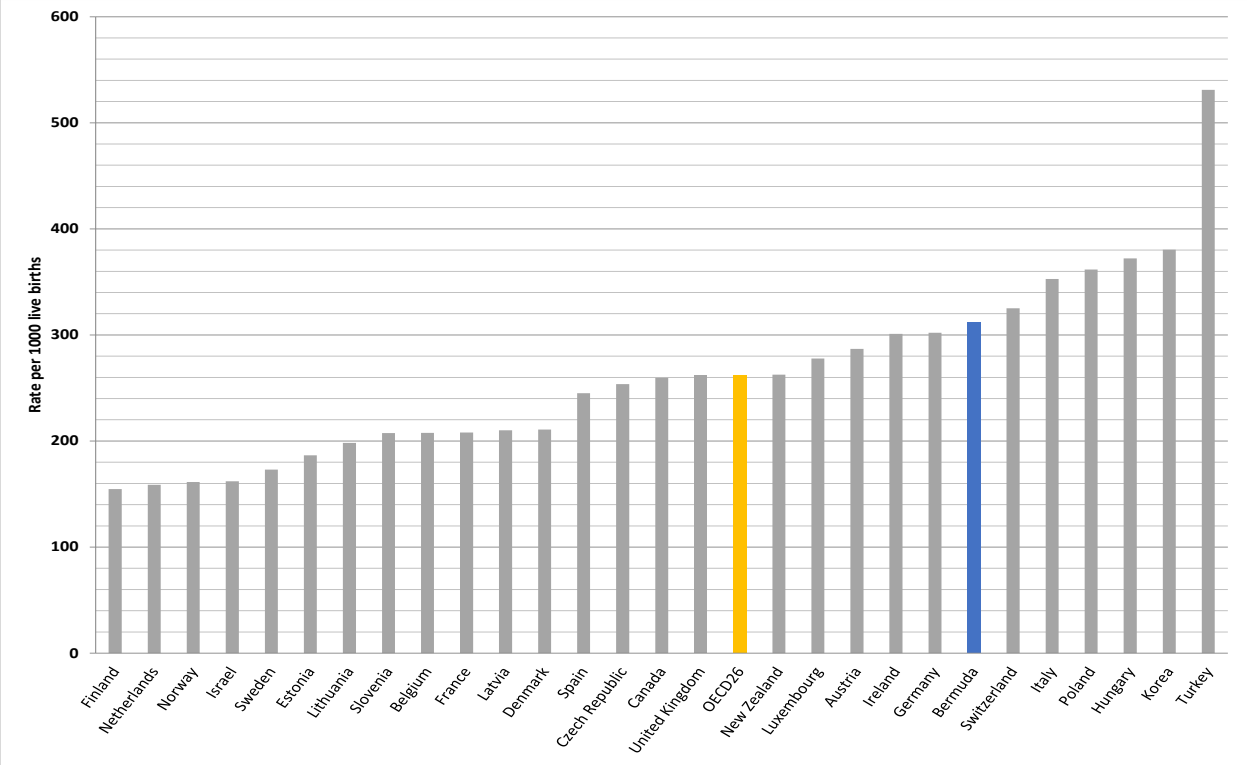
SOURCE: OECD Health Data 2017

Figure 4.5.3 Caesarean sections per 1000 live births, Bermuda, 2008-2015



SOURCE: Bermuda Hospitals Board

Figure 4.5.4 Caesarean sections per 1000 live births, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

5.1 Health Workforce

The health and social sectors employ a large and growing number of people in OECD countries, and Bermuda, and includes not only people working in the health sector but also those working in the social sector (including long-term care, child care and other types of social work). The data include professionals providing direct services to people together with administrative and other support staff.

In Bermuda, employment in the health and social sectors grew from 37 per 1000 population in 2006 to 46 per 1000 population in 2015, which is nearly on par with the OECD average of 49 per 1000 population. The health workforce by broad category (physician, nurses, dentists, pharmacists, and physiotherapists) has also shown an increase from 2006 to 2015, however all remain slightly below the OECD average.

The number of physicians increased in Bermuda from 2.0 per 1000 population in 2006 to 2.7 per 1000 population in 2015, which is on par with both Canada and the United States (2.6 per 1000 population) and the United Kingdom (2.8 per 1000 population). All are below the OECD average of 3.3 per 1000 population. By specific category, in 2015, Bermuda had 1.0 general practitioners (GPs) per 1000 population which is above the OECD average of 0.7 per 1000 population. However, there were 0.1 paediatricians and psychiatrists per 1000 population compared to 0.2 per 1000 population for these categories on average across the OECD countries. At 1.0 per 1000 population, Bermuda equals the OECD average. When looking at obstetricians per 1000 live births, at 15.4, Bermuda is slightly higher than the OECD average of 14.0.

Nurses are usually the most numerous health profession, outnumbering physicians on average across OECD countries by almost three to one, with Bermuda following the same pattern. From 2006 to 2015, the number of nurses increased from 7 to 8 per 1000 population. This is in line with the United Kingdom but below the OECD average of 9 per 1000 population.

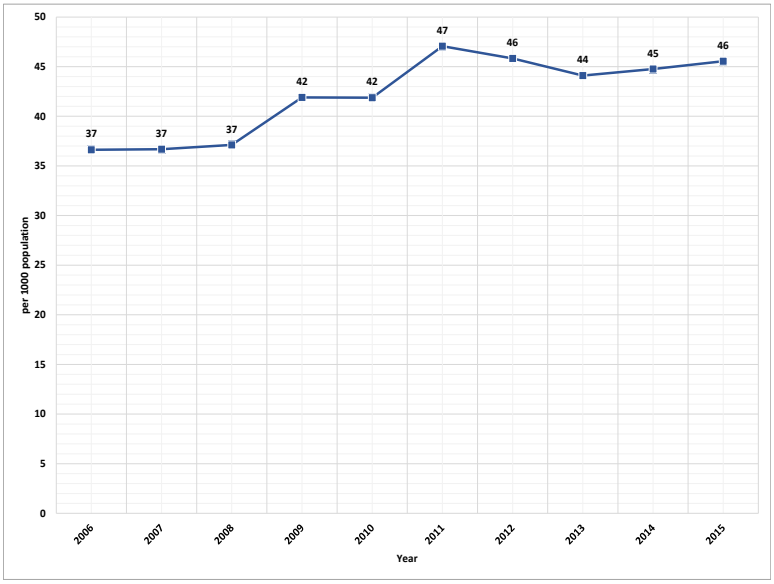
There were also slight increases in the number of dentists, pharmacists and physiotherapists in Bermuda from 2006 to 2015. Per 1000 population, dentists increased from 0.5 to 0.6, pharmacists from 0.6 to 0.7 and physiotherapists showed the greatest increase from 0.5 to 0.8. However, all remained slightly below the respective OECD averages of 0.7, 0.8 and 1.0 per 1000 population respectively.

Definition and Comparability

Employment in the health and social sectors includes people working in the following groups of the International Standard Industrial Classification (ISIC) Rev. 3: 851 (Human health activities), 852 (Veterinary activities) and 853 (Social work activities). The data are based on head counts, not taking into account whether people are working full-time or part-time. Data for all countries come from labour force surveys, so as to achieve greater comparability. In many countries, surveys of health facilities or health professionals, and registers of health practitioners can also provide more specific data on employment in the health sector and for specific occupations. For Bermuda, employment survey data was used for physicians, nurses, dentists, pharmacists and physiotherapists while register data was used for general practitioners, paediatricians, psychiatrists and obstetricians/gynaecologists.

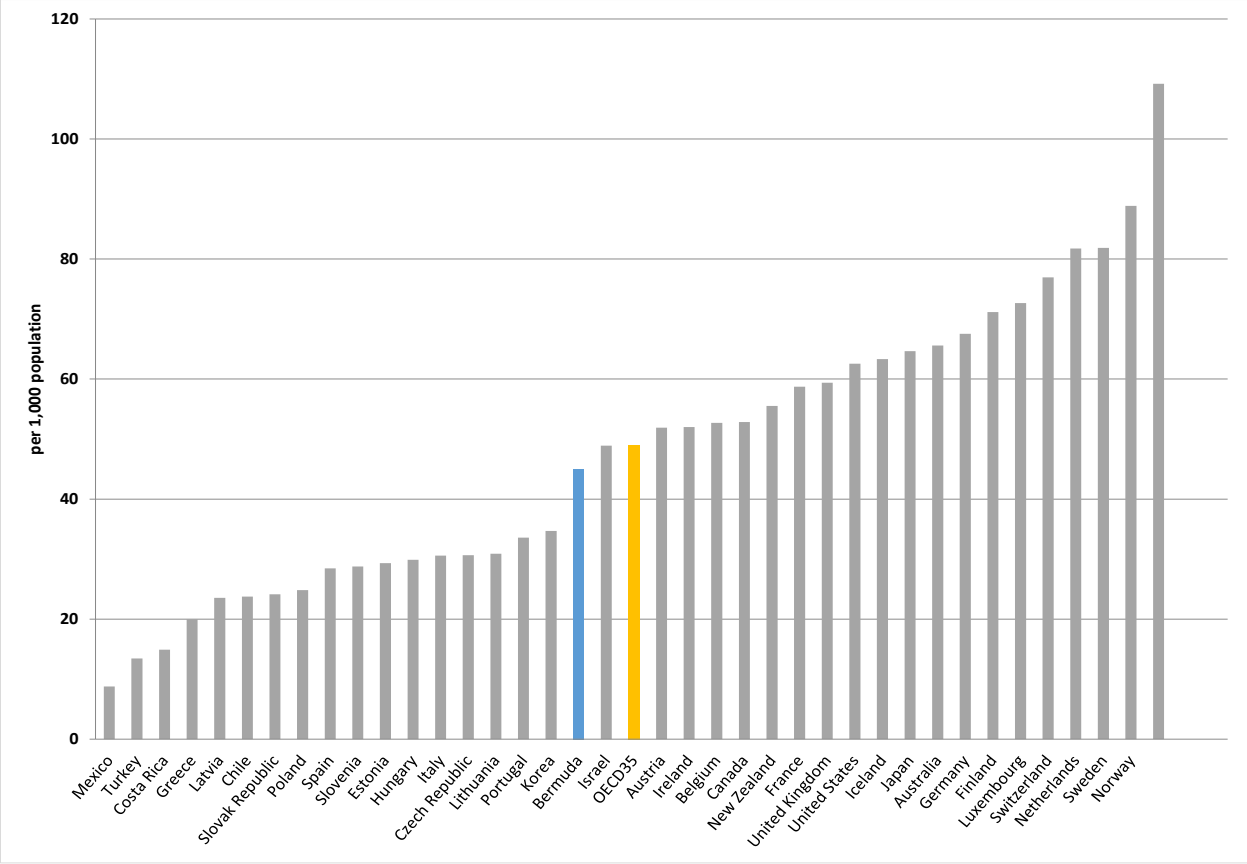
Employment in Health and Social Sectors

Figure 5.1.1 Employment in the health and social sector per 1000 population, Bermuda, 2006-2015



SOURCE: Department of Statistics, Government of Bermuda

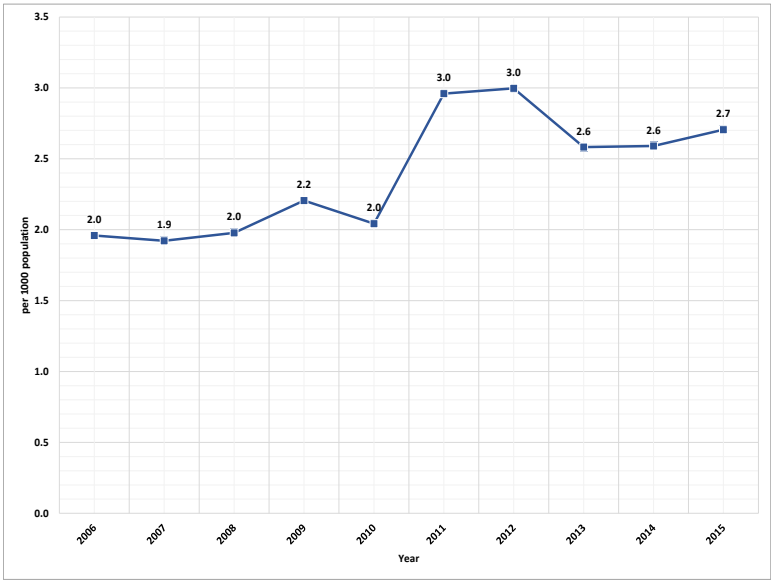
Figure 5.1.2 Employment in the health and social sector per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

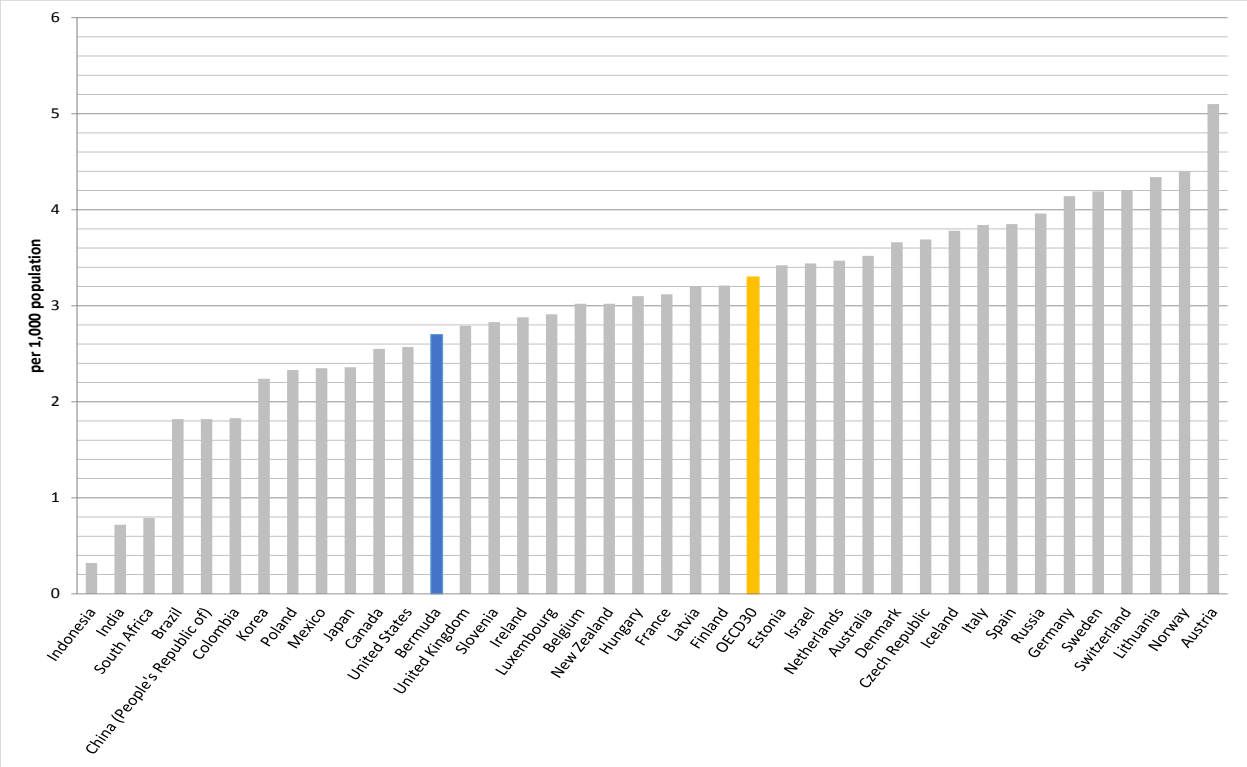
Practicing Physicians

Figure 5.1.3 Physicians per 1000 population, Bermuda 2006-2015



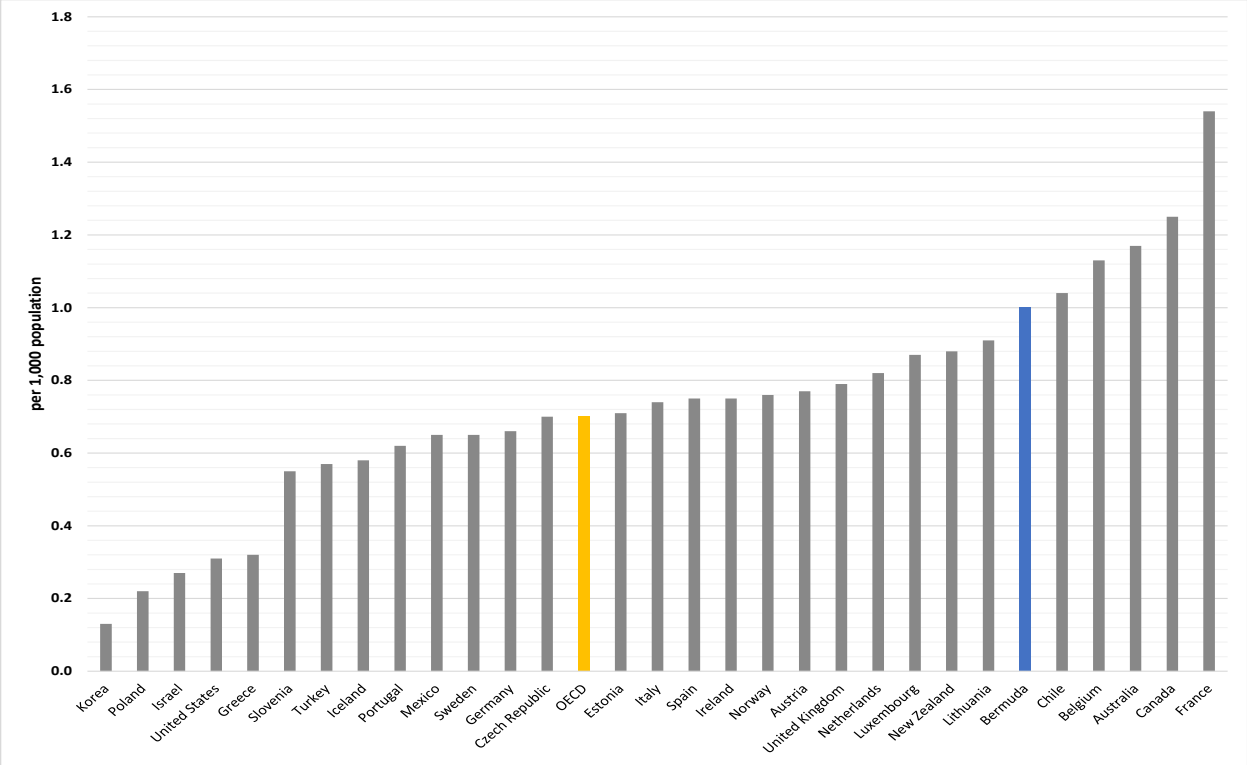
SOURCE: Department of Statistics, Government of Bermuda

Figure 5.1.4 Physicians per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



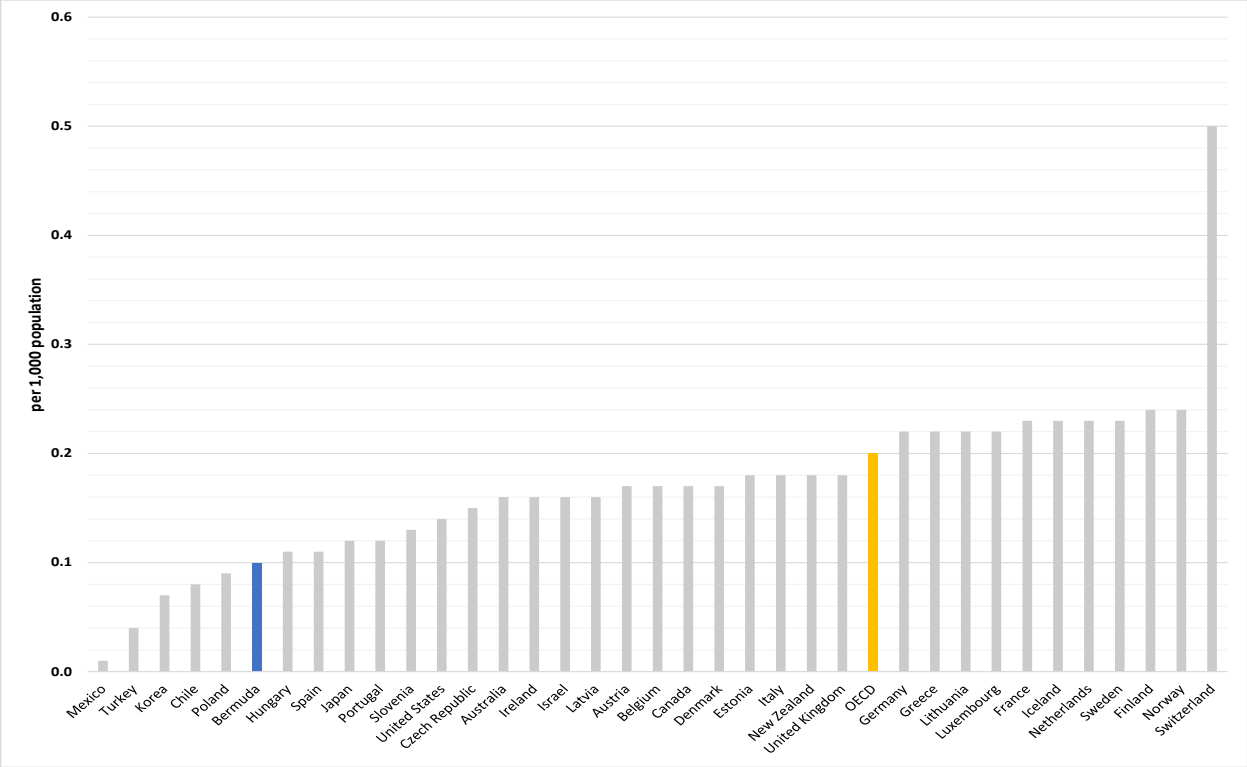
SOURCE: OECD Health Data 2017

Figure 5.1.5 General practitioners per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



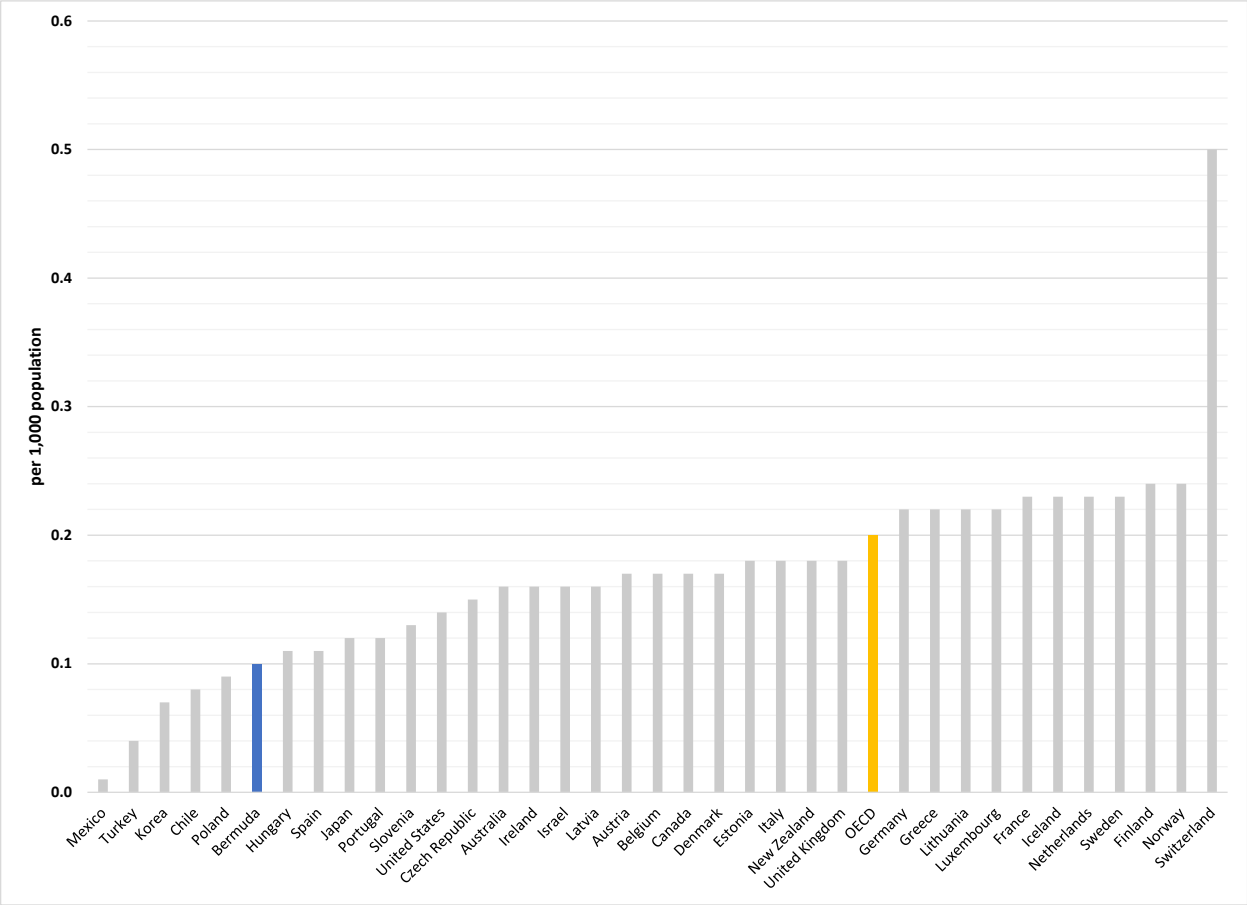
SOURCE: OECD Health Data 2017

Figure 5.1.6 Paediatricians per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



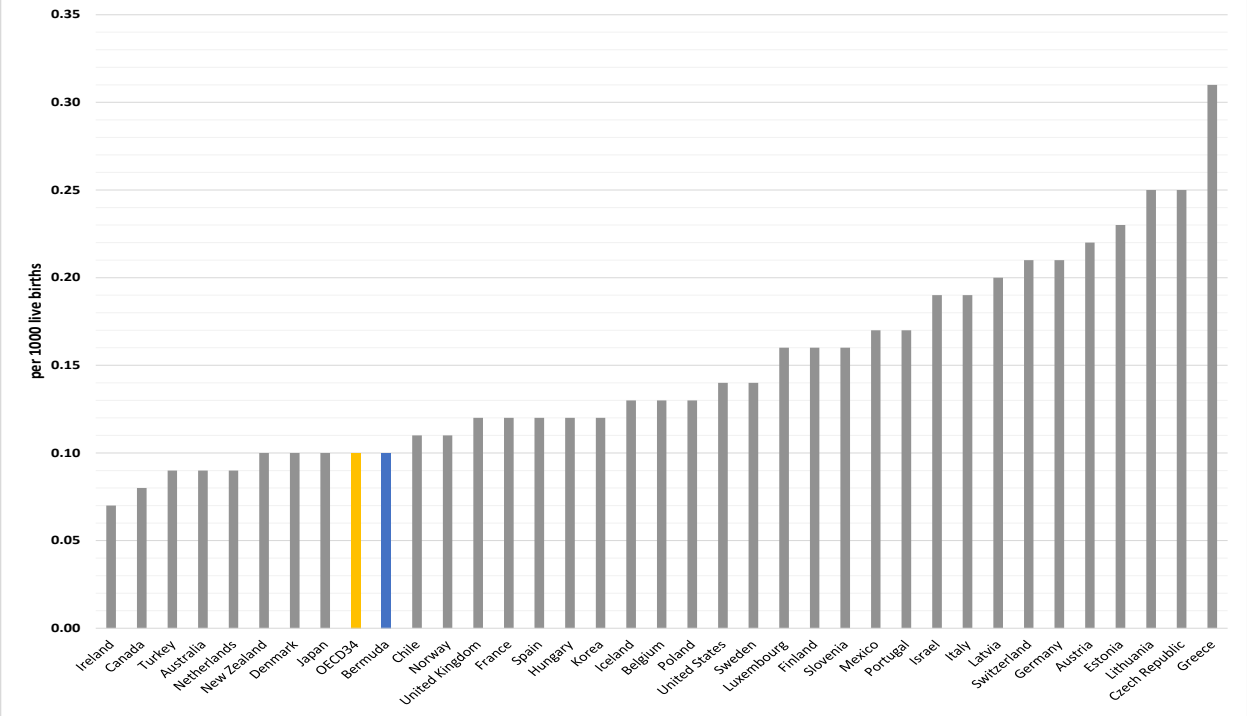
SOURCE: OECD Health Data 2017

Figure 5.1.7 Psychiatrists per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



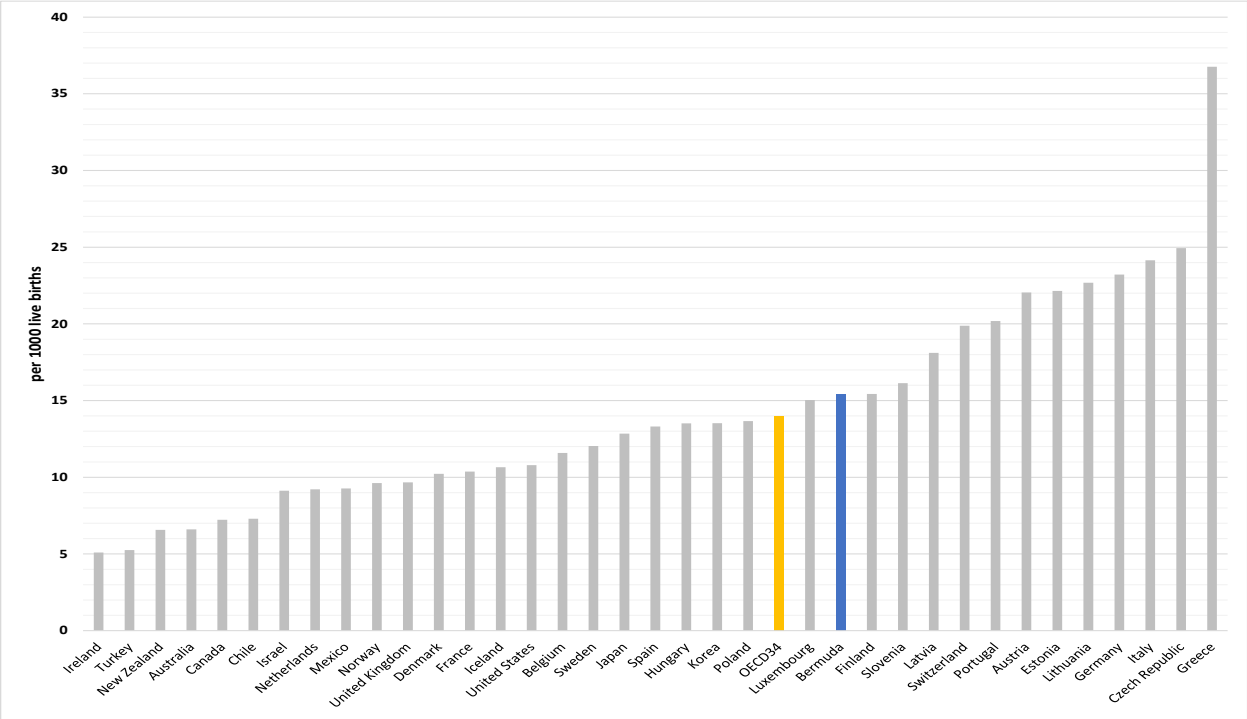
SOURCE: OECD Health Data 2017

Figure 5.1.8 Obstetricians and gynaecologists per 1000 population and per 1000 live births, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2016

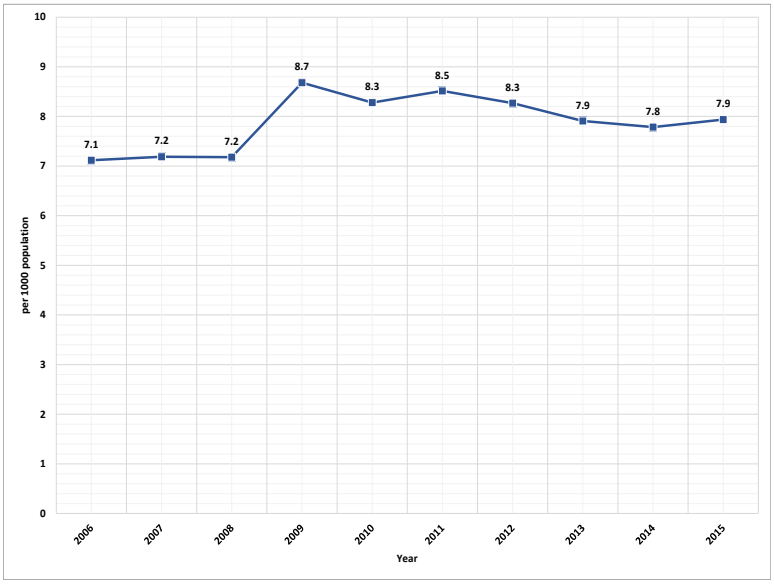
Figure 5.1.9 Obstetricians and gynaecologists per 1000 population and per 1000 live births, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2016

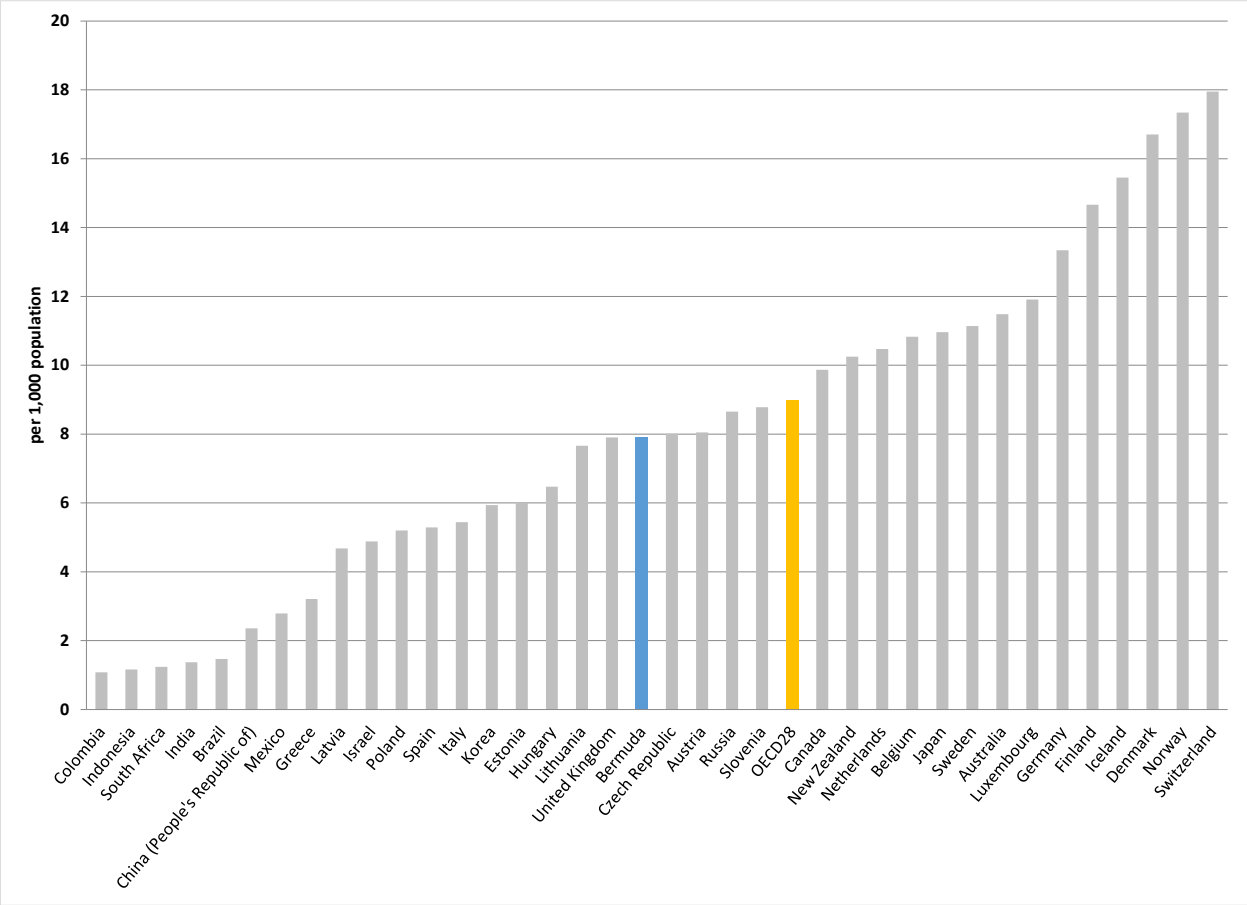
Practicing Nurses

Figure 5.1 .10 Nurses per 1000 population, Bermuda 2006-2015



SOURCE: Department of Statistics, Government of Bermuda

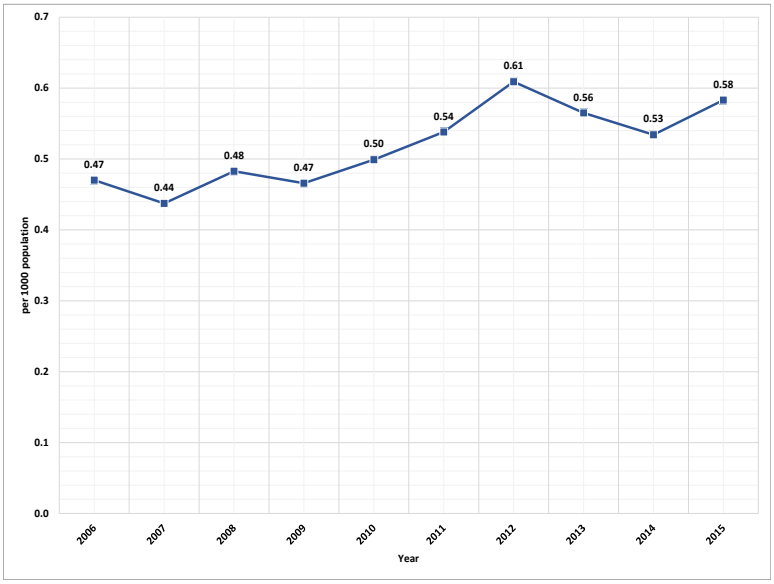
Figure 5.1.11 Nurses per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

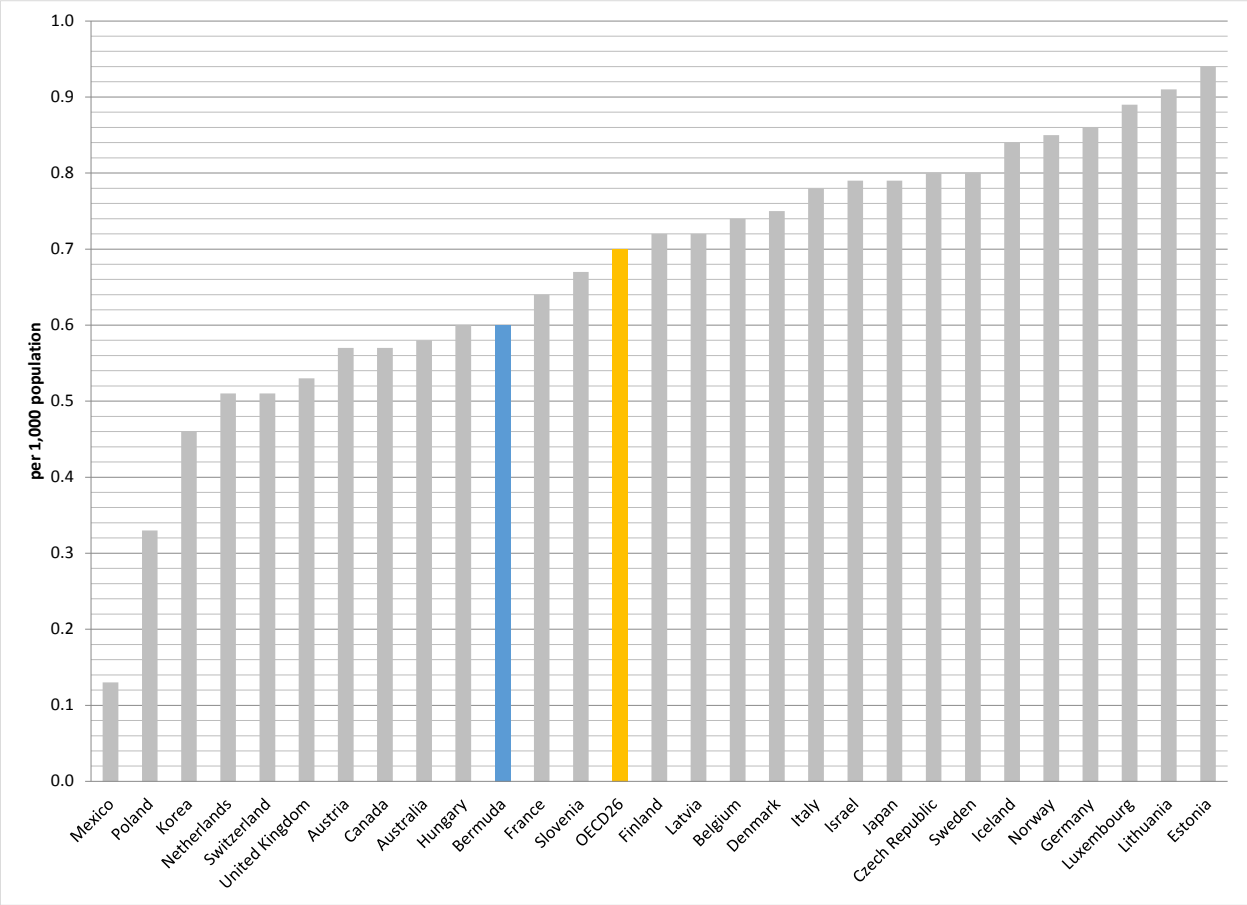
Practicing Dentists

Figure 5.1 .12 Dentists per 1000 population, Bermuda 2006-2015



SOURCE: Department of Statistics, Government of Bermuda

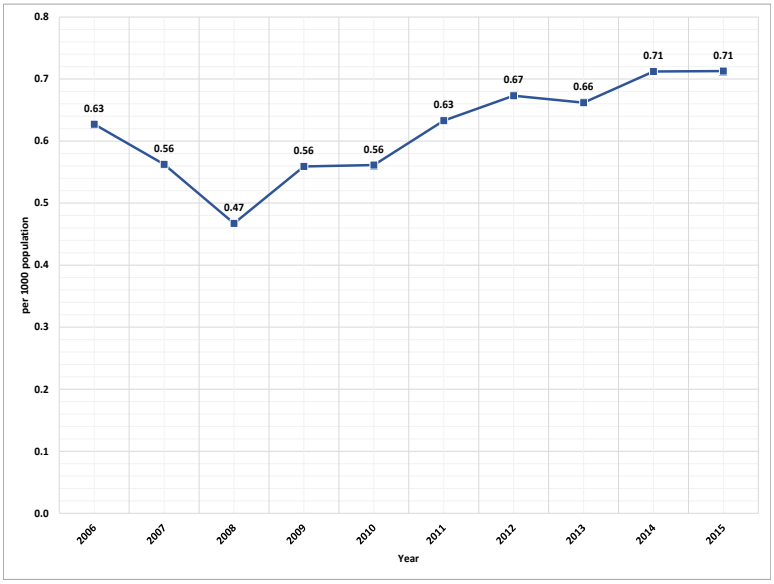
Figure 5.1.13 Dentists per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

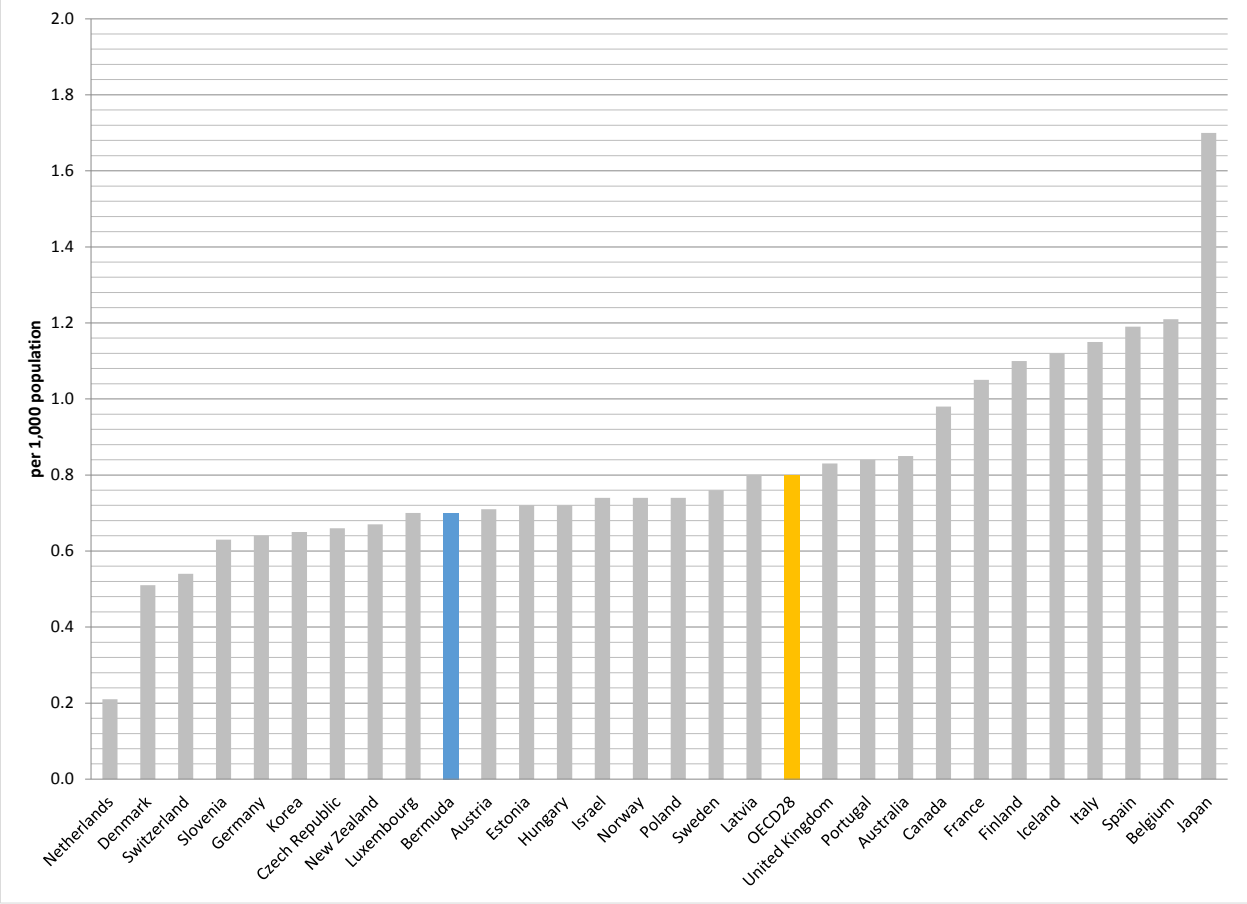
Practicing Pharmacists

Figure 5.1.14 Pharmacists per 1000 population, Bermuda 2006-2015



SOURCE: Department of Statistics, Government of Bermuda

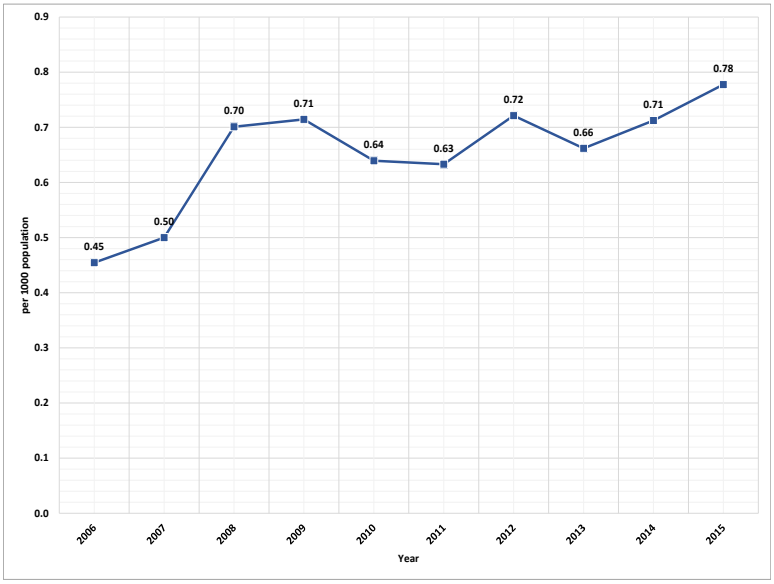
Figure 5.1.15 Pharmacists per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

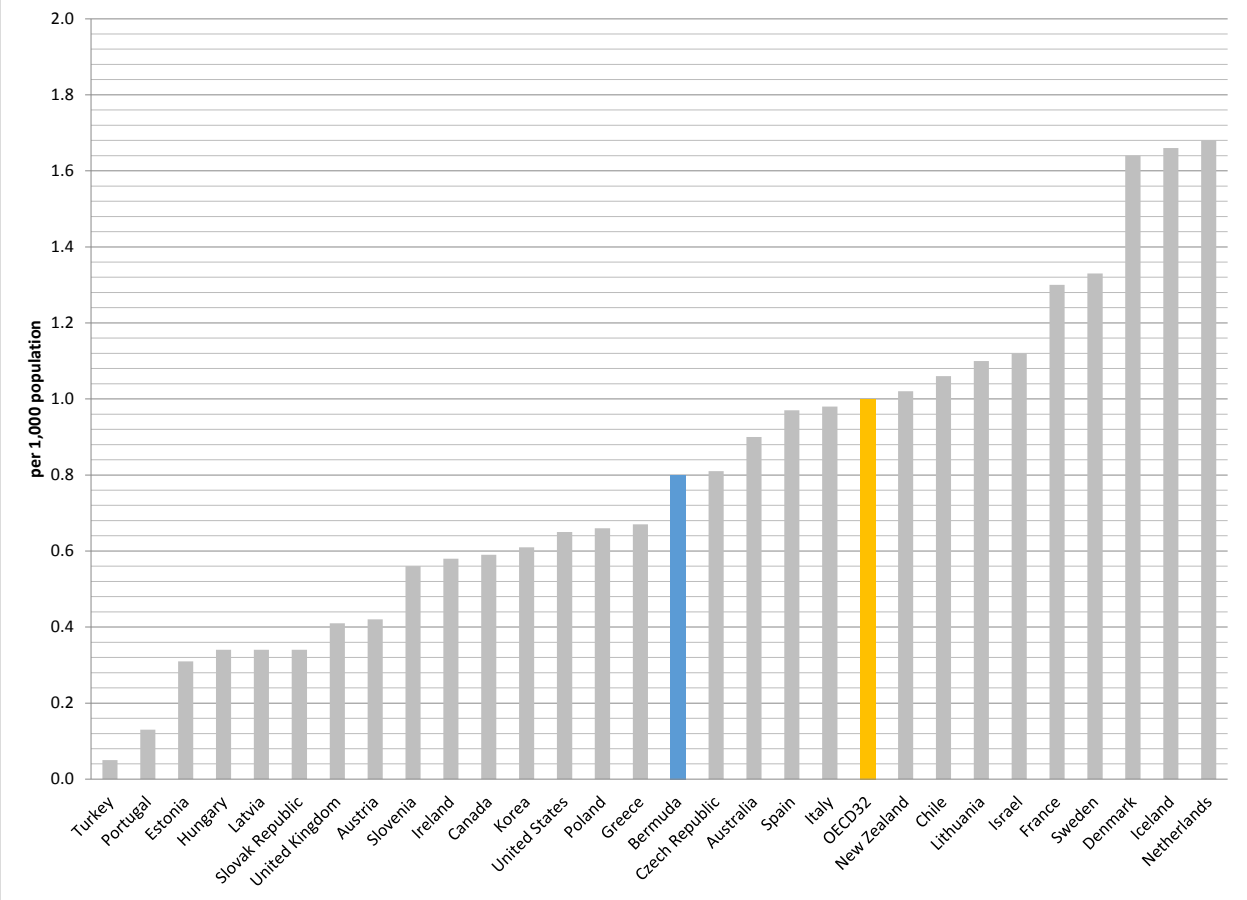
Practicing Physiotherapists

Figure 5.1.16 Physiotherapists per 1000 population, Bermuda 2006-2015



SOURCE: Department of Statistics, Government of Bermuda

Figure 5.1.17 Physiotherapists per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

5.2 Physical and Technical Resources

Hospital Beds

The number of hospital beds provides a measure of the resources available for delivering services to inpatients in hospitals.

In Bermuda, the number of hospital beds per capita decreased from 6.8 per 1000 population in 2006 to 5.8 per 1000 population in 2015. The decrease was mainly due to changes within the structure of the hospital. The new 90-bed acute care inpatient wing opened in September 2014 accompanied by a 117-bed reduction in the general inpatient wing. An alternate level of care ward also opened in September 2014 with 49 beds. The continuing care units underwent restructuring in April 2015 reducing the number of beds from 121 to 68. This reduction is not unlike reductions seen in other OECD which are partly related to progress in medical technology which has allowed for greater utilization of day surgeries, less need for hospitalization and policies to reduce health spending. Bed reduction is often accompanied by increases in occupancy rates – the occupancy rate for the new acute care wing increased from 87% in 2014/2015 and 2015/2016 to 92% in 2016/2017. Although Bermuda's total hospital beds per capita is higher than the OECD average of 4.7 per 1000 population, the availability of acute care beds at 1.8 per 1000 population is around half of the OECD average of 3.7 per 1000 population.

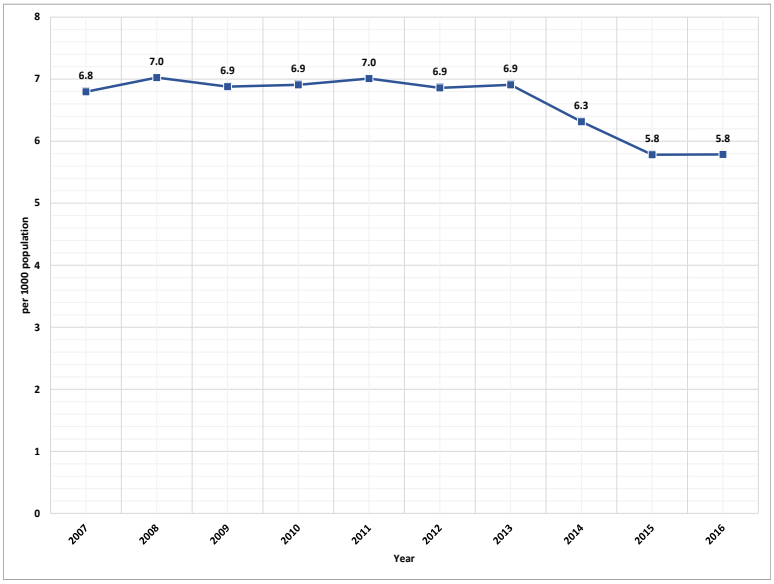
The number of beds in long-term care (LTC) departments in hospitals provides a measure of the resources available for delivering LTC services to individuals outside of their home. On average across OECD countries, there were around 4 beds in LTC departments in hospitals per 1000 persons aged 65 and over. Bermuda has among the highest number of LTC beds in hospital, with around 11 beds per 1000 persons aged 65.While most countries allocate very few beds for LTC in hospitals, others still use hospital beds quite extensively for LTC purposes. In general, there has been a move towards replacing hospital beds with institutional facilities, which are often cheaper and provide a better living environment for people with LTC needs. Additionally, LTC users generally prefer to remain at home and most countries have taken steps in recent years to support this preference and promote community care. It is therefore important that countries retain an appropriate level of residential LTC capacity, and that care institutions develop and apply models of care that promote dignity and autonomy.

Definition and Comparability

Hospital beds are defined as all beds that are regularly maintained and staffed and are immediately available for use. They include beds in general hospitals, mental health hospitals, and other specialty hospitals. Beds in residential long-term care facilities are excluded. As such, all hospital beds are provided by the Bermuda Hospitals Board which comprises King Edward VII Memorial Hospital (KEMH), Mid-Atlantic Wellness Institute (MWI) and the Lamb Foggo Urgent Care Centre. Data is reported by calendar year using the average number of available beds per year.

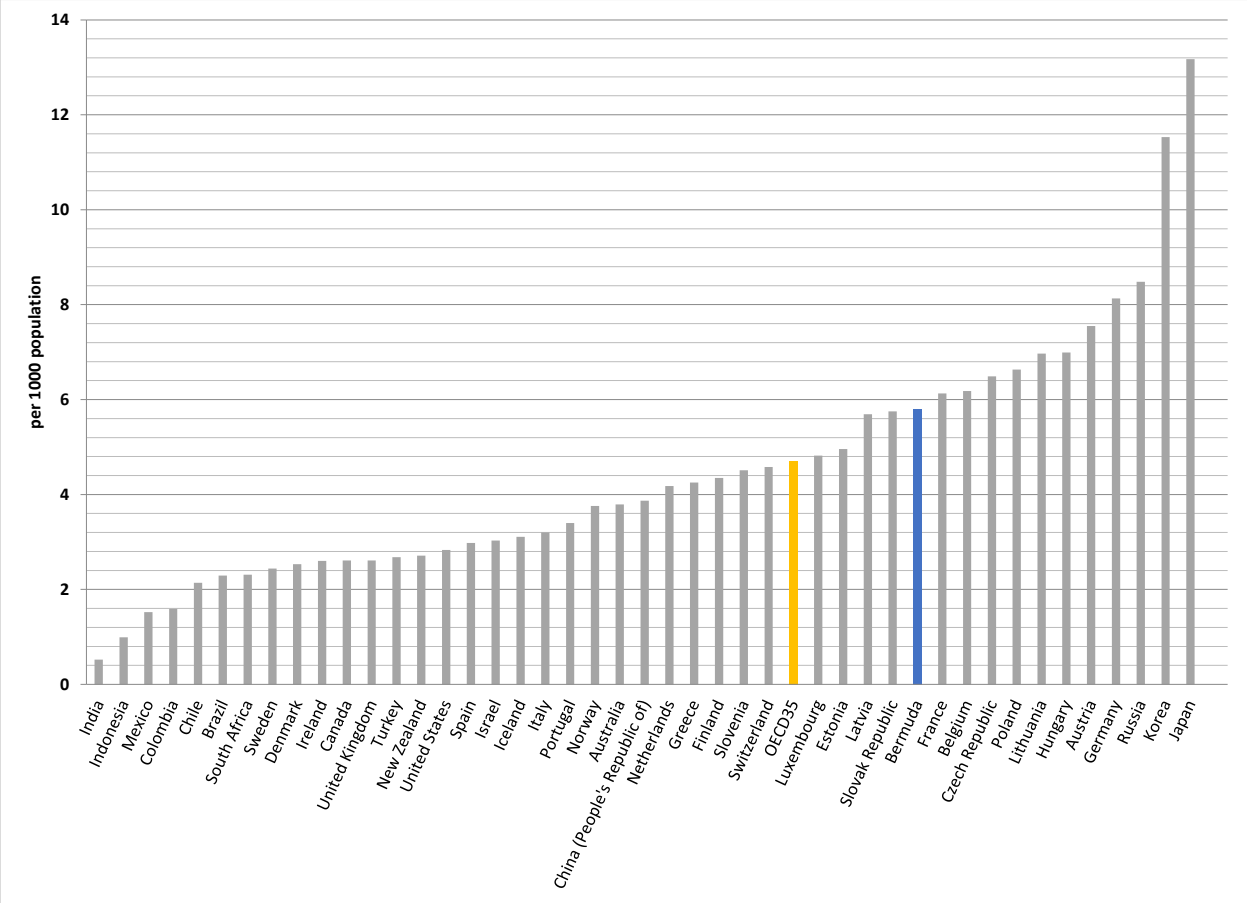
Curative care beds are accommodating patients where the principal intent is to do one or more of the following: manage labour (obstetric), treat mental and non-mental illness or injury, and perform surgery, diagnostic or therapeutic procedures. Psychiatric care beds are accommodating patients with mental health problems. They include beds in psychiatric departments of general hospitals, and all beds in mental health hospitals. Long-term care beds are accommodating patients requiring long-term care due to chronic impairments and a reduced degree of independence in activities of daily living. They include beds in long-term care departments of general hospitals, beds for long-term care in specialty hospitals, and beds for palliative care.

Figure 5.2.1 Total hospital beds per 1000 population, Bermuda 2007-2016



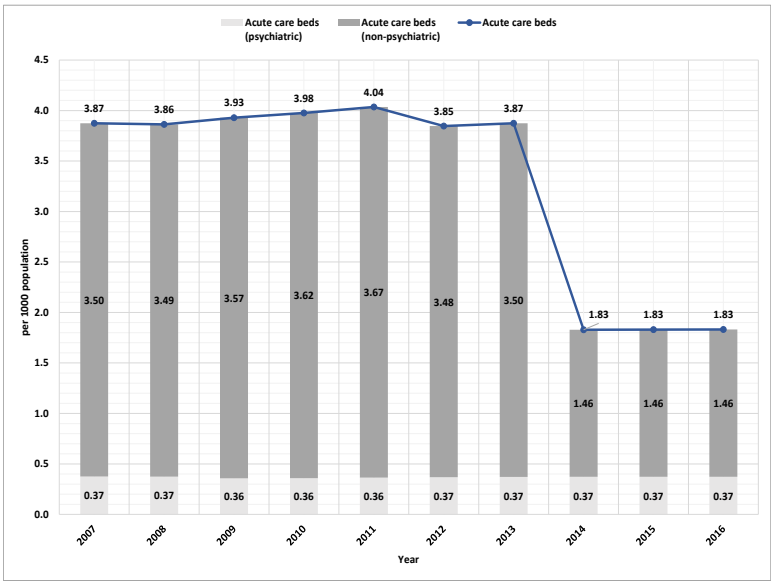
SOURCE: Bermuda Hospitals Board

Figure 5.2.2 Total hospital beds per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



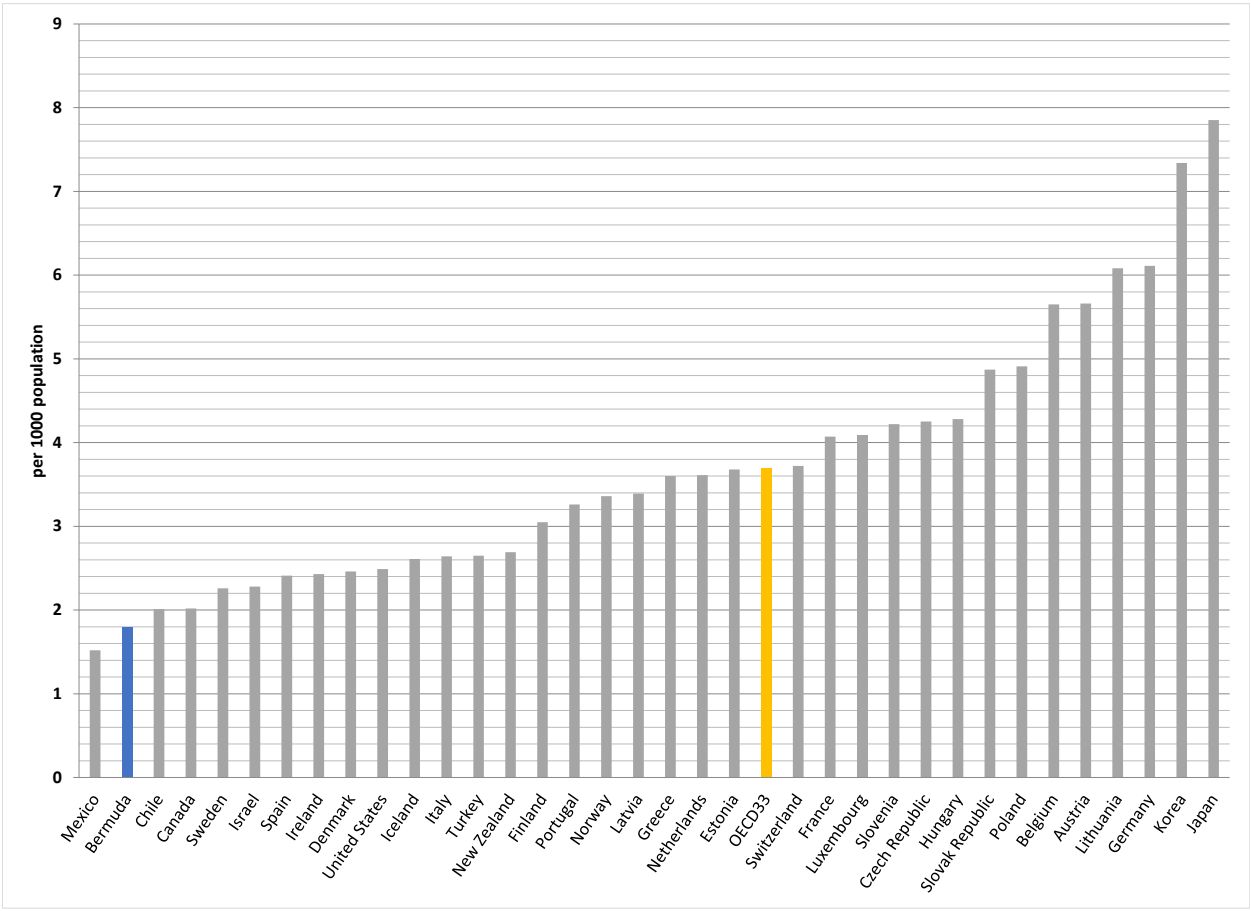
SOURCE: OECD Health Data 2017

Figure 5.2.3 Curative (acute) care beds per 1000 population, Bermuda 2007-2016



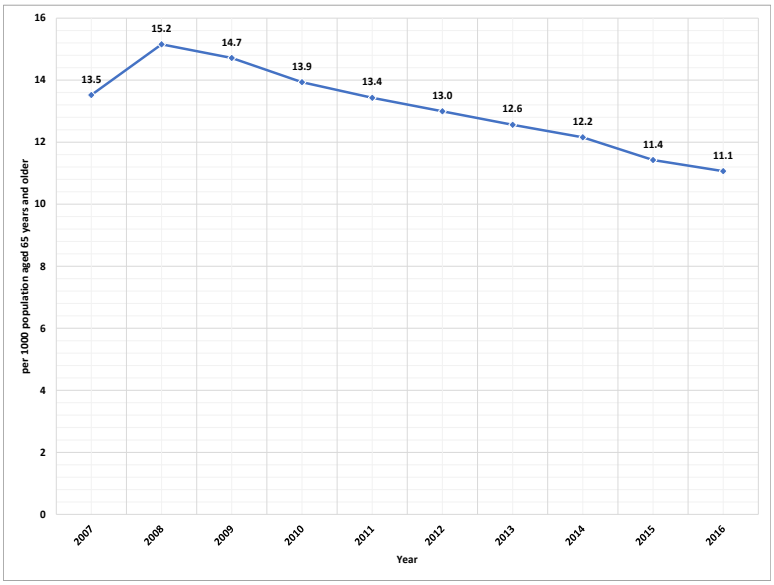
SOURCE: Bermuda Hospitals Board

Figure 5.2.4 Curative (acute) care beds per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



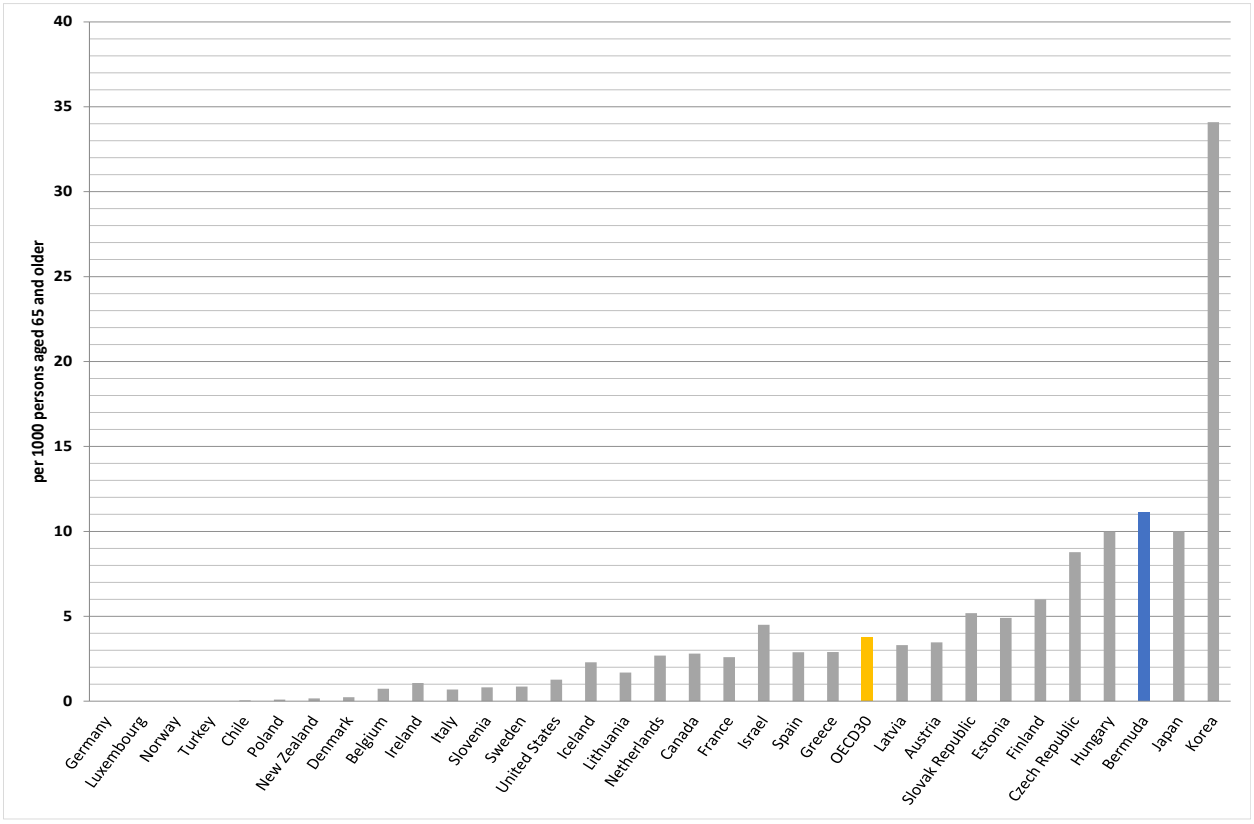
SOURCE: OECD Health Data 2017

Figure 5.2.5 Long-term care beds (non-psychiatric) per 1000 persons aged 65 years and older, Bermuda 2007-2016



SOURCE: Bermuda Hospitals Board

Figure 5.2.6 Long-term care beds per 1000 persons aged 65 years and older, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

5.3 Medical Technologies

Medical technologies improve diagnosis and treatment, but may also increase health spending. CT and MRI exams help physicians diagnose a range of conditions. There is no general guideline or benchmark regarding the ideal number of CT scanners or MRI units per population. However, too few units may lead to access problems in terms of waiting times and too many units may result in an overuse of these costly diagnostic procedures, with limited benefit for patients. Several OECD countries are developing clinical guidelines and recommendations to promote a more rational use of MRI and CT exams.

Bermuda has maintained two CT scanners and MRI units during the period under review, one each in the hospital and one each in the ambulatory sector (private practice). This equates to 32 per million population. For OECD comparison, the availability of CT scanners is slightly higher than the OECD average of 26 per million population and the availability of MRI units is twice as high as the OECD average of 16 per million population.

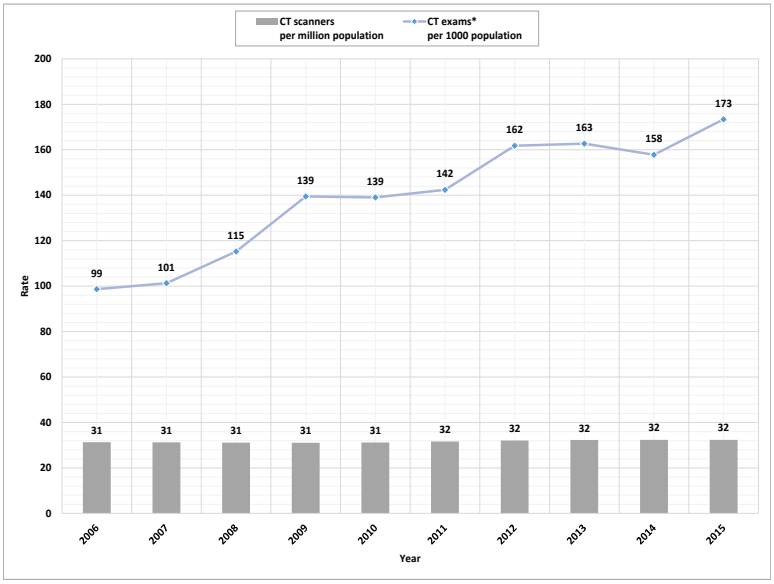
Data on the use of these diagnostic scanners are available for a smaller group of countries. Data availability is restricted to in-hospital use only (i.e. for one CT scanner and one MRI unit in Bermuda). Based on this more limited country coverage, the number of CT scans and MRI exams per capita (173 per 1000 population and 61 per 1000 population, respectively) are higher than the corresponding OECD averages (97 per 1000 population and 33 per 1000 population). There are large variations in the use of CT and MRI scanners not only across countries, but also within countries. On average, across OECD countries, and in Bermuda, in-hospital MRI usage is around three times as high as CT usage.

Definition and Comparability

For MRI units and CT scanners, the numbers of equipment per million population are reported. MRI exams and CT exams relate to the number of in-hospital exams per 1 000 population. Data is reported by calendar year using the average number of available CT scanners and MRI units per year.

Computed Tomography [CT] and Magnetic Resonance Imaging [MRI]

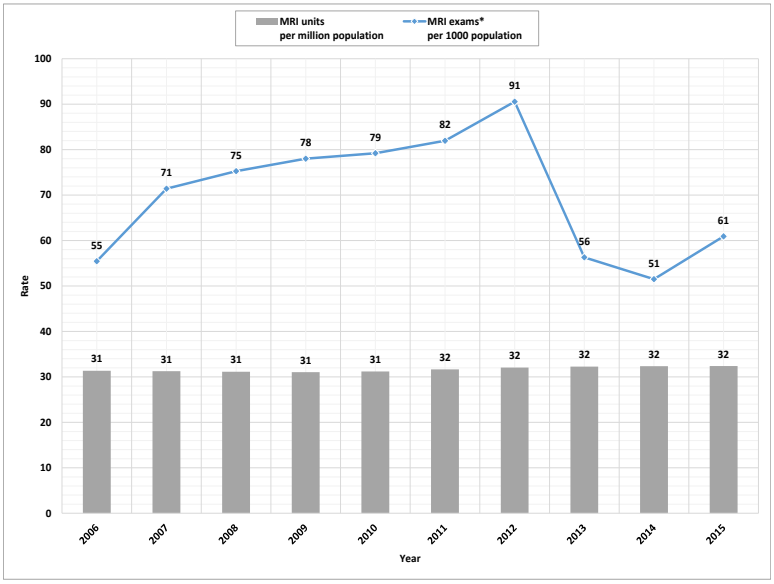
Figure 5.3.1 CT scanners per million population and CT exams per 1000 population, Bermuda, 2006-2015



*in hospital only

SOURCE: Ministry of Health and Bermuda Hospitals Board

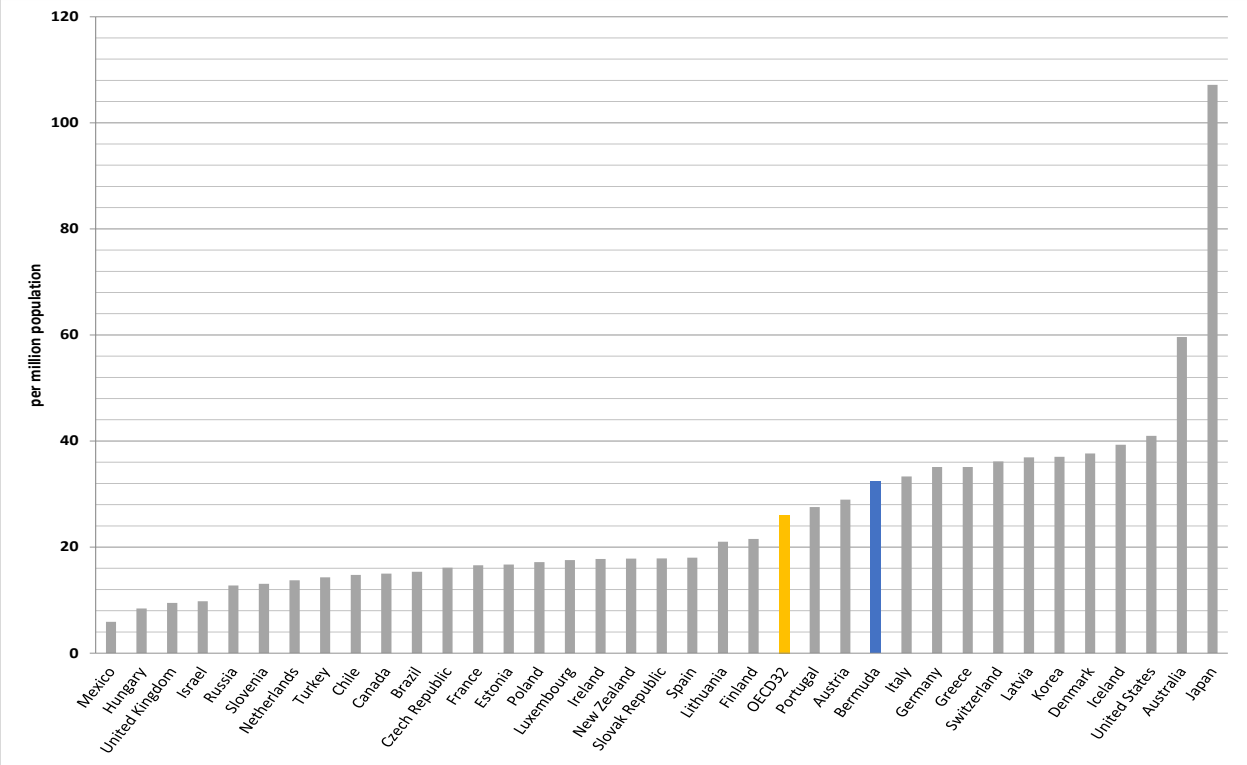
Figure 5.3.2 MRI units per million population and MRI exams per 1000 population, Bermuda, 2006-2015



*in hospital only

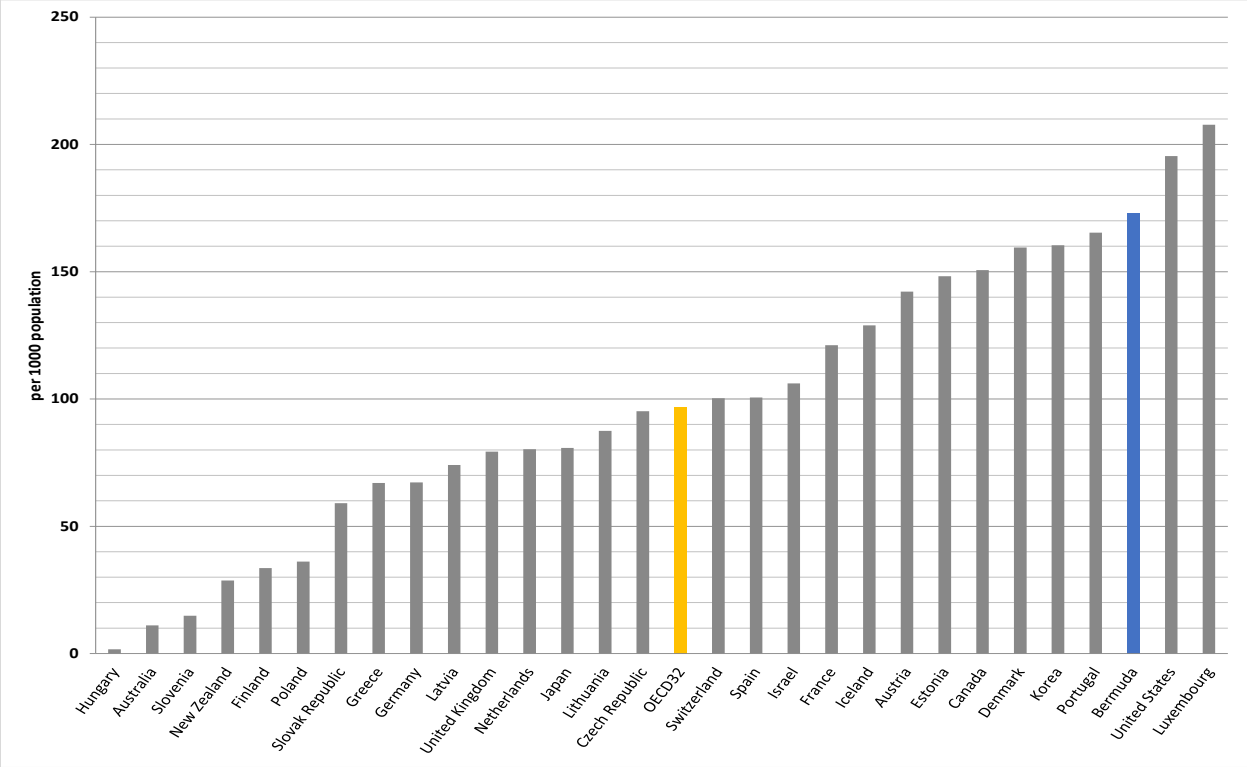
SOURCE: Ministry of Health and Bermuda Hospitals Board

Figure 5.3.3 CT scanners per million population, OECD Comparison, 2015 (or nearest prior year available)



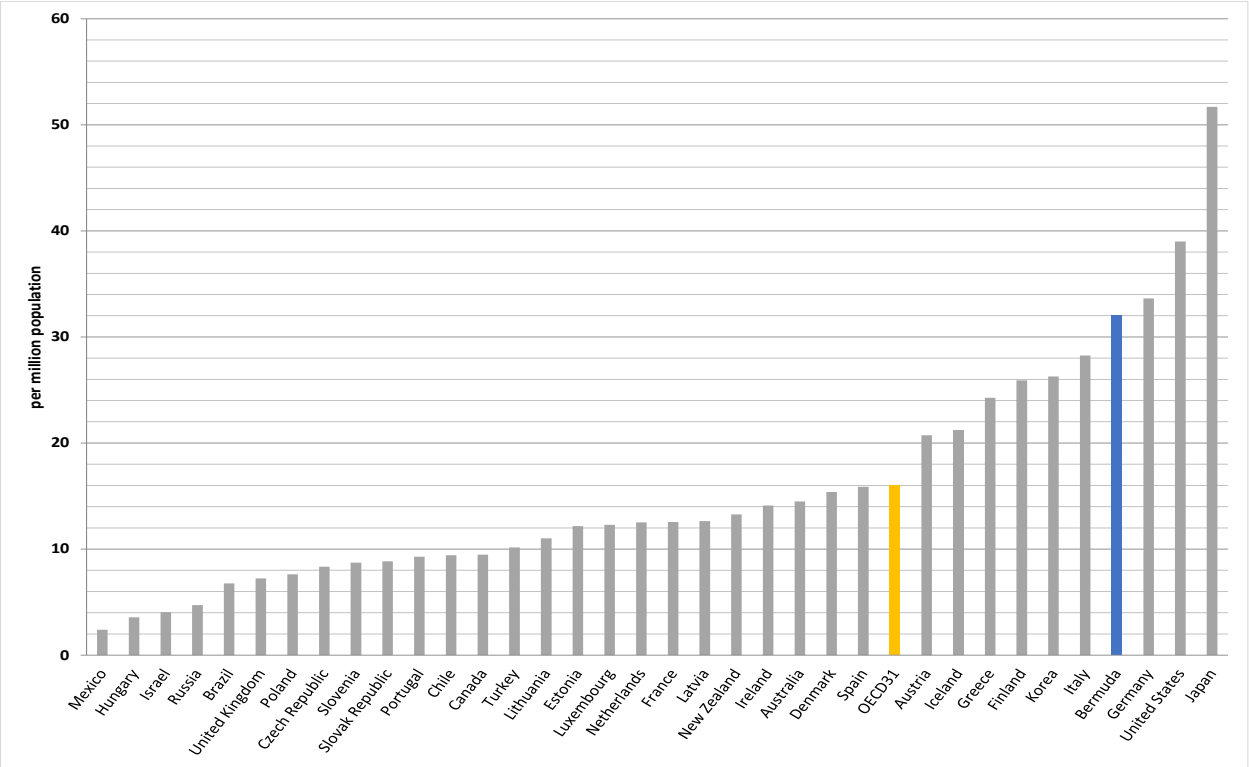
SOURCE: OECD Health Data 2017

Figure 5.3.4 CT scans in hospital per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



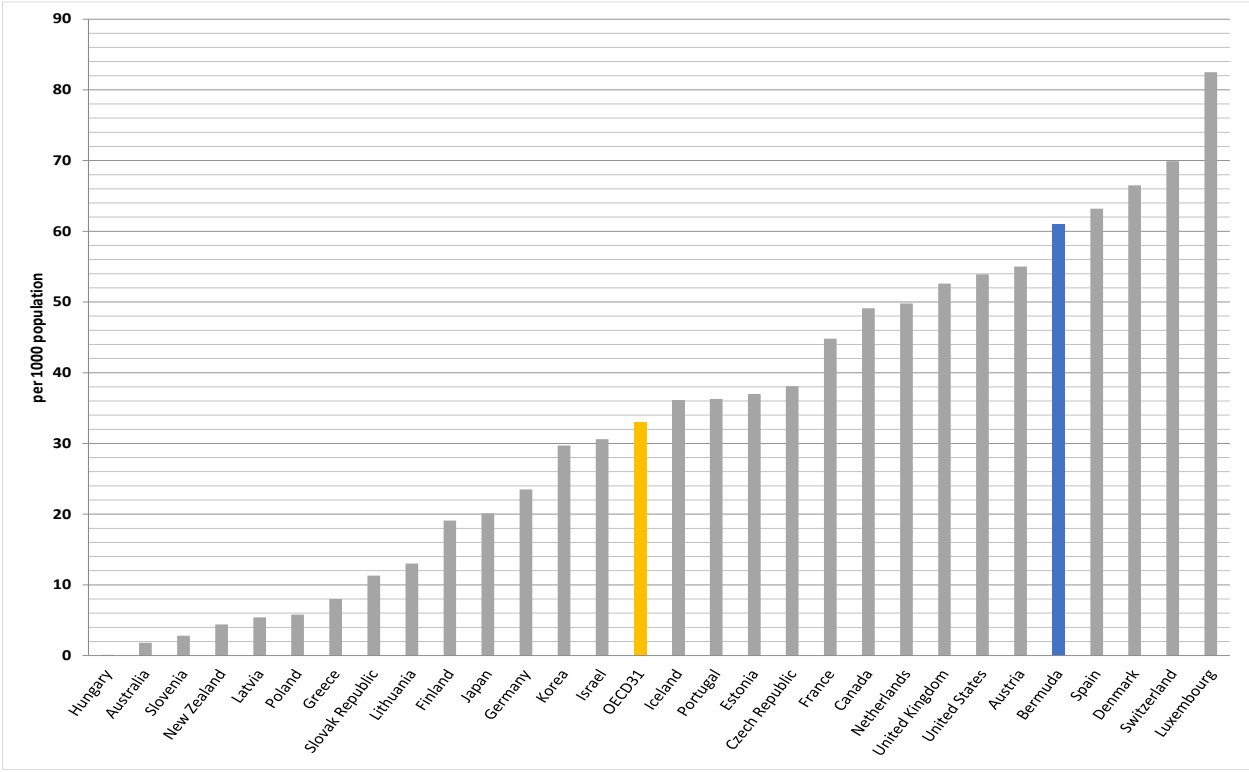
SOURCE: OECD Health Data 2017

Figure 5.3.5 MRI units per million population, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Figure 5.3.6 MRI exams in hospital per 1000 population, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

5.4 Health Expenditure

Total health expenditure per capita is the total amount spent on healthcare on average per person. It includes all health expenditure - private health providers, Government services, hospitals, overseas care, charities, and any associated administration. In Bermuda, public sector expenditure includes the Bermuda Hospitals Board and the Ministry of Health while private sector expenditure comprises of costs for private physicians, dentists, other healthcare providers and health services, prescription drugs, appliances, overseas care and health insurance administration. The total health expenditure can also be shown as the share of Gross Domestic Product (GDP) which expresses the percentage of economic activity which is attributed to a country's healthcare system. A country's Gross Domestic Product can also impact health status.

Bermuda's GDP per capita is substantially higher than the OECD average. Bermuda also spends a higher proportion of GDP on health than nearly all of the OECD countries. This total health expenditure increased rapidly from 2007 through 2011, steadied in 2012, increased in 2013 and has shown a moderate decline through 2015, However, Bermuda's total health expenditure in 2015 of USD PPP $6915 was among the highest of the OECD countries and well above the OECD average of USD PPP $3848. Recent years have seen a relatively even distribution of total health expenditure between the public and private sector and moderate declines in the share of GDP for health.

High health spending is not always associated with greater access to care or higher quality of care, as shown by the lack of any consistent correlation in countries' relative position between health spending and various indicators of access or quality of care. For this report, the relationship between GDP, health expenditure and life expectancy is examined. In general, higher GDP per capita is associated with higher life expectancy at birth. However, this relationship is less pronounced at the highest levels, as seen in the case of Bermuda which has a lower life expectancy than would be predicted by GDP per capita alone. Likewise, higher health spending per capita is generally associated with higher life expectancy at birth. Again, this relationship tends to be less pronounced in countries with the highest health spending per capita. Bermuda is among the countries having relatively low life expectancies, given their levels of health spending. It is important to note that variation in life expectancy across countries can be explained by many factors beyond GDP and total health expenditure.

Definition and Comparability

The gross domestic product (GDP) is one of the primary indicators used to gauge the strength of a country's economy. It represents the total dollar value of all goods and services produced over a specific time period. Annual GDP figures are often considered the benchmark for the size of the economy.

Total expenditure on health measures the final consumption of health goods and services (i.e. current health expenditure) plus capital investment in health care infrastructure. This includes spending by both public and private sources on medical services and goods, public health and prevention programmes and administration. Countries' health expenditures are converted to a common currency (US dollar) and adjusted to take account of the different purchasing power of the national currencies, in order to compare spending levels. Economy-wide (GDP) PPPs are used as the most available and reliable conversion rates.

GDP Per Capita

Figure 5.4.1 GDP per capita, (USD PPP), OECD Comparison, 2015 (or nearest prior year available)

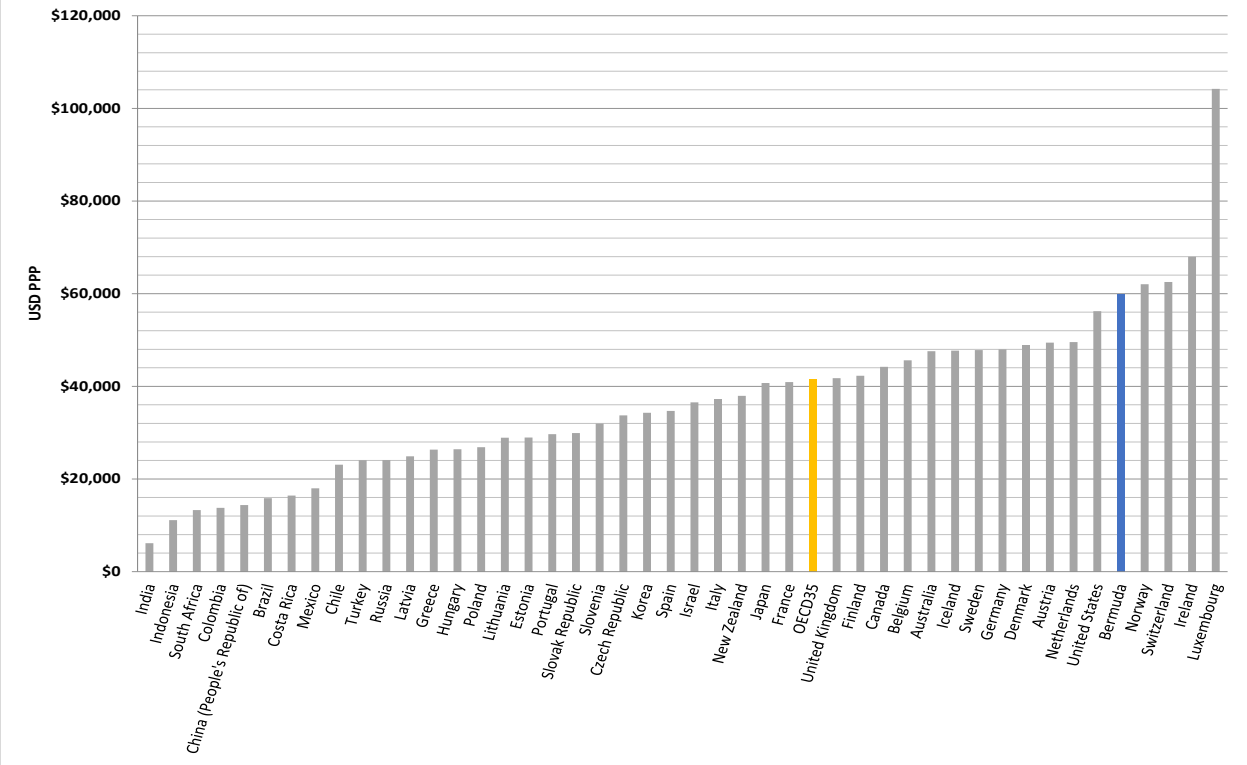
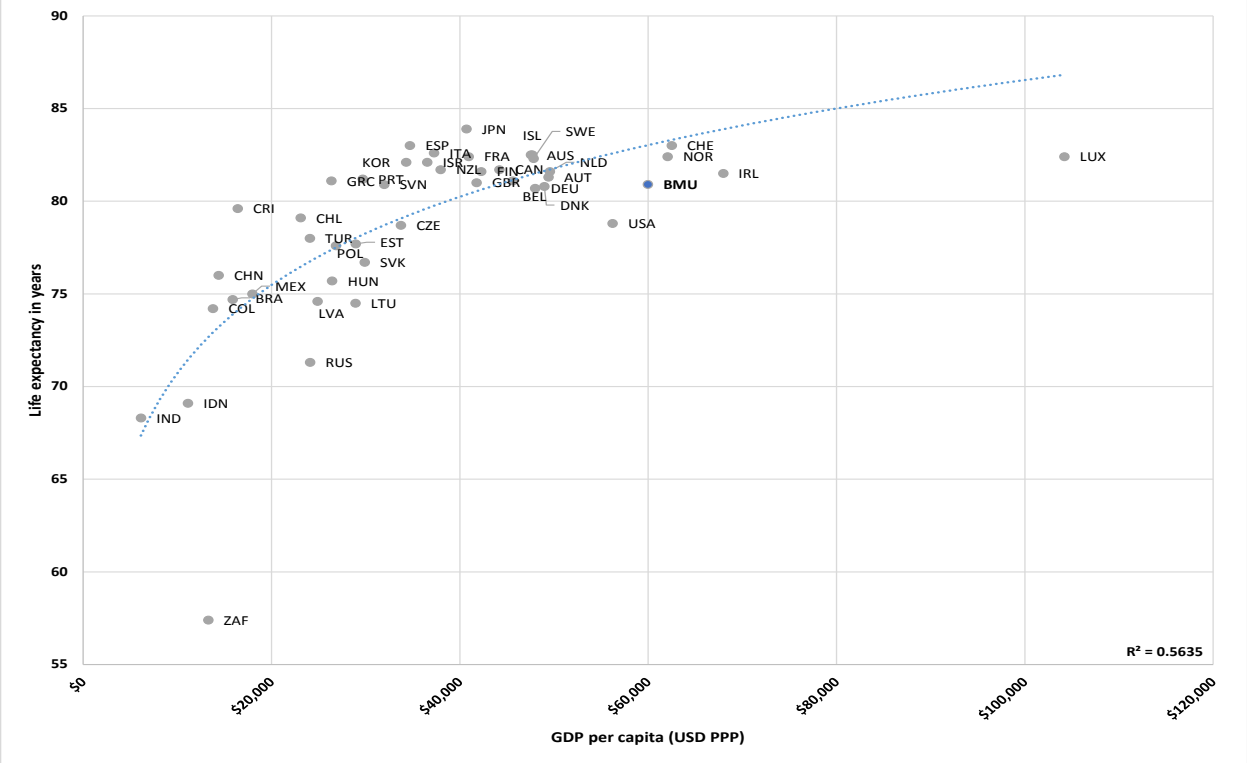


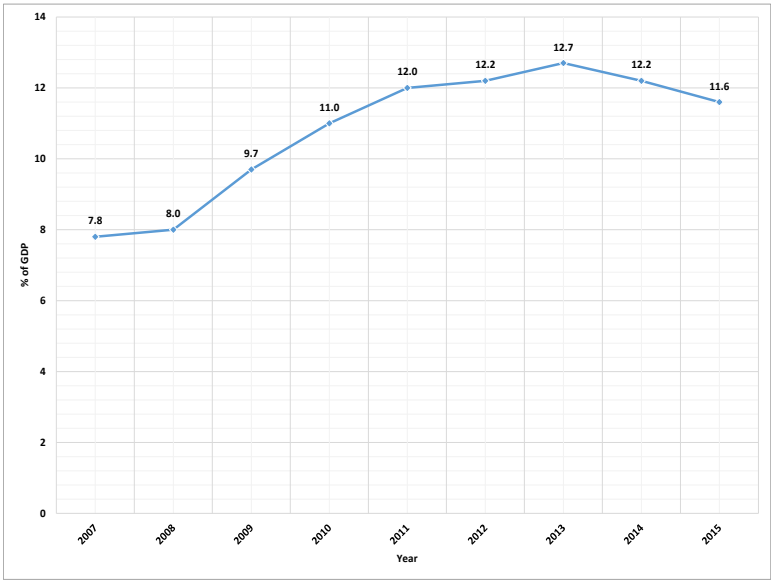
Figure 5.4.2 GDP per capita and life expectancy, OECD comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

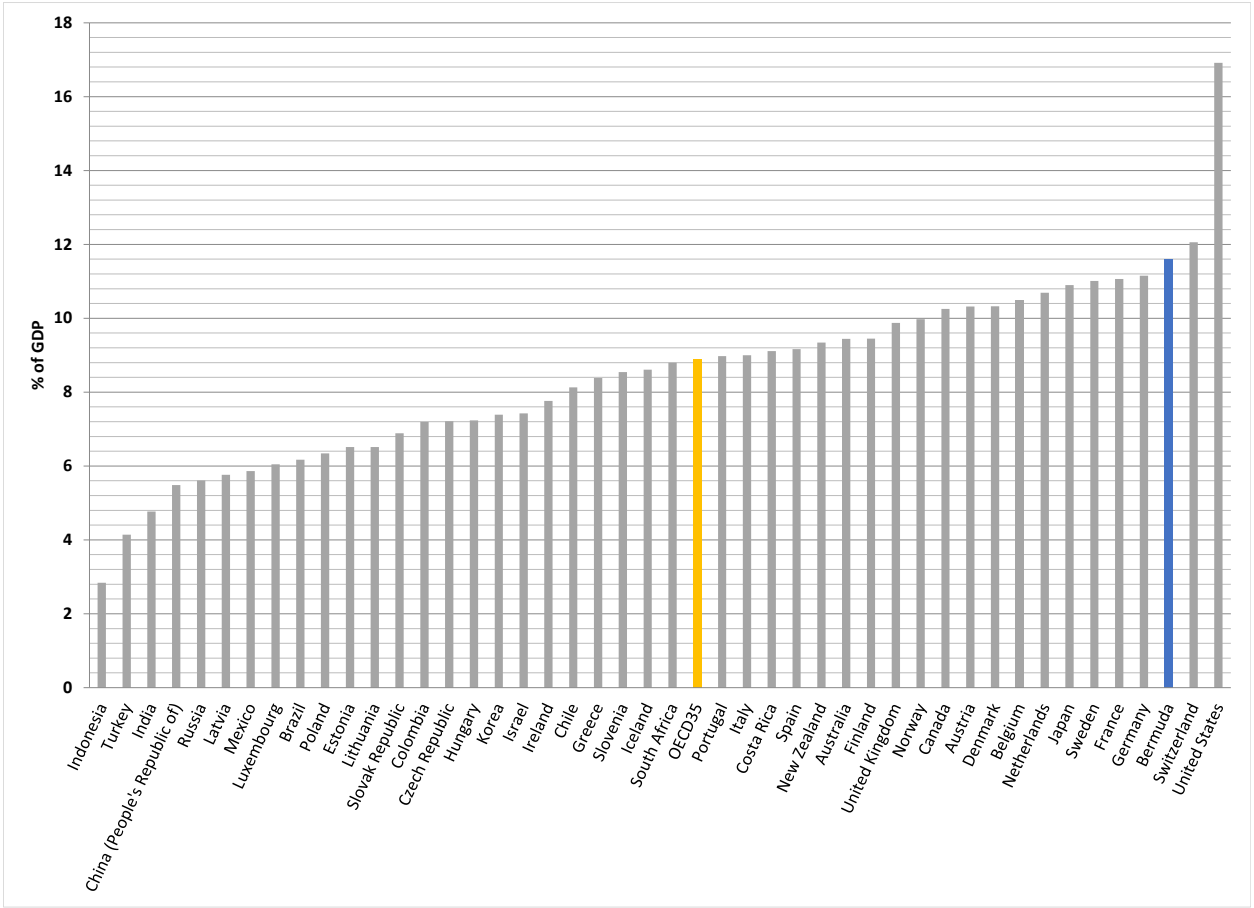
Health Expenditure As Share Of GDP

Figure 5.4.3 Total health expenditure as share of GDP, Bermuda, 2007-2015



SOURCE: Bermuda Health Council

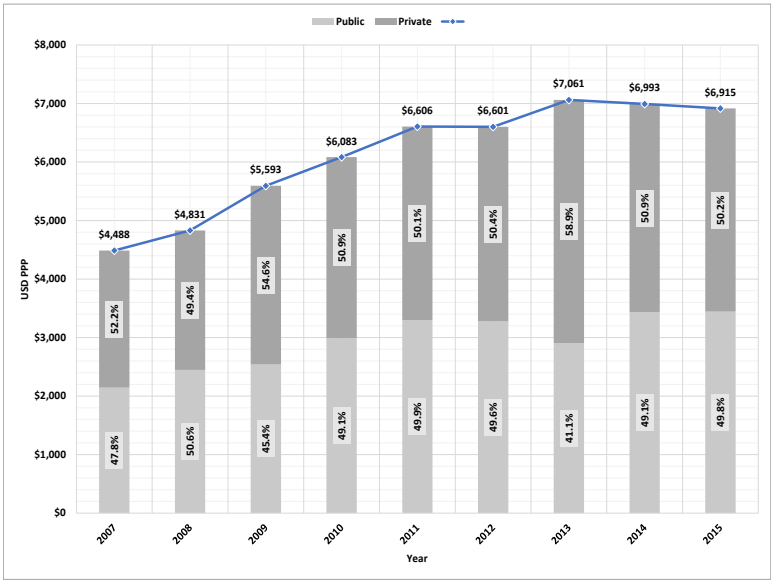
Figure 5.4.4 Total health expenditure as share of GDP, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

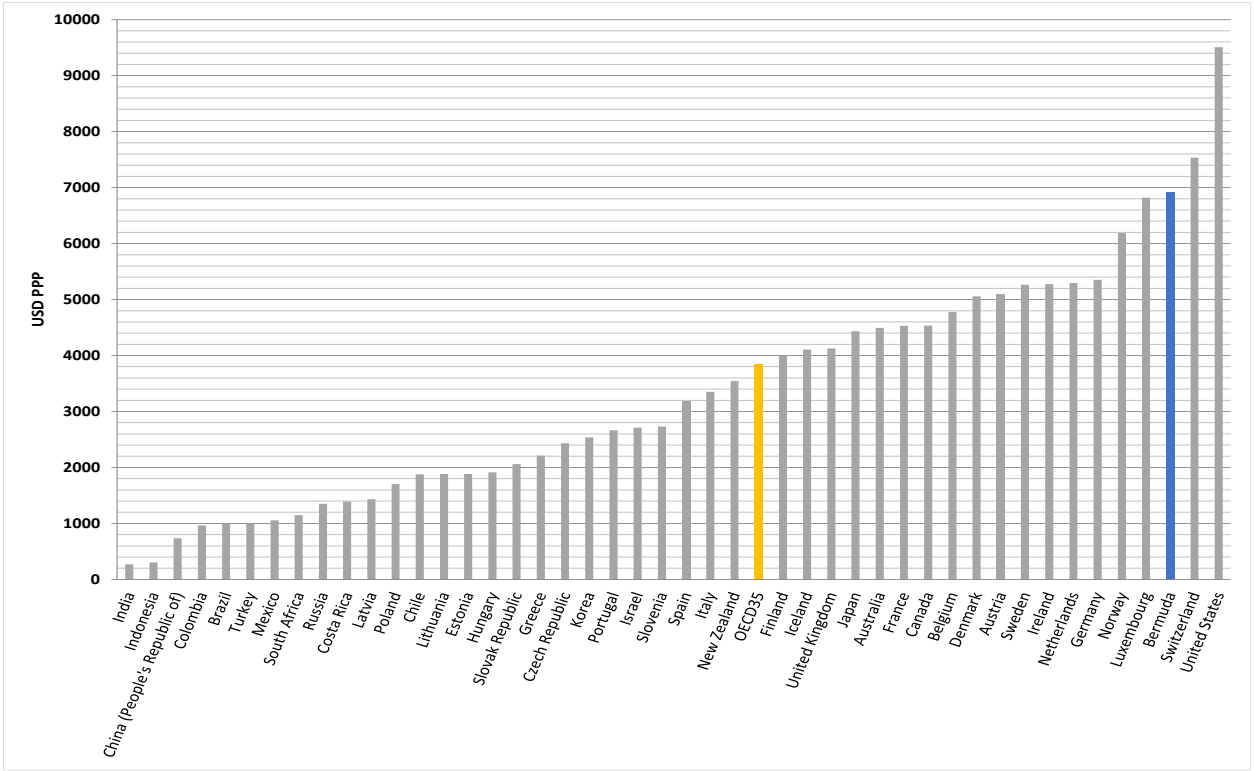
Health Expenditure Per Capita

Figure 5.4.5 Total health expenditure per capita, (USD PPP), Bermuda, 2007-2015



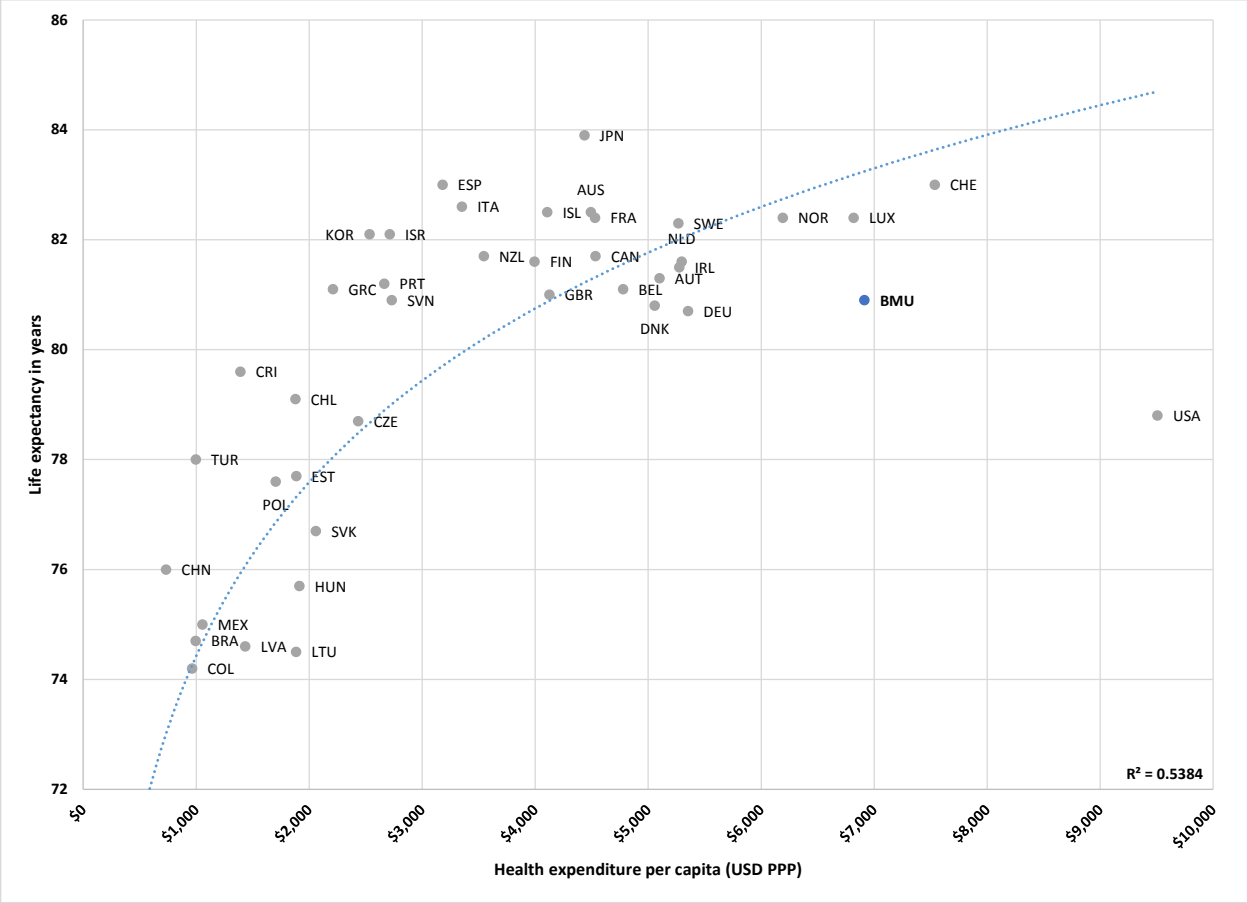
SOURCE: Bermuda Health Council

Figure 5.4.6 Total health expenditure per capita, (USD PPP), OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

Figure 5.4.7 Total health expenditure per capita, (USD PPP) and life expectancy, OECD comparison, 2015 or nearest prior year available)



SOURCE: OECD Health Data 2017

6.1 Population

Population can be considered the main demographic indicator. It is important by itself and required for the calculation of many of the other indicators. The age structure and gender distribution of a population is essential for public health planning.

It appears that Bermuda's population has been steadily decreasing from 2010 through 2016. There are consistently more females than males in the population. Bermuda's population is ageing and at the end of 2016 it was estimated that 17.1% were over the age of 65 years.

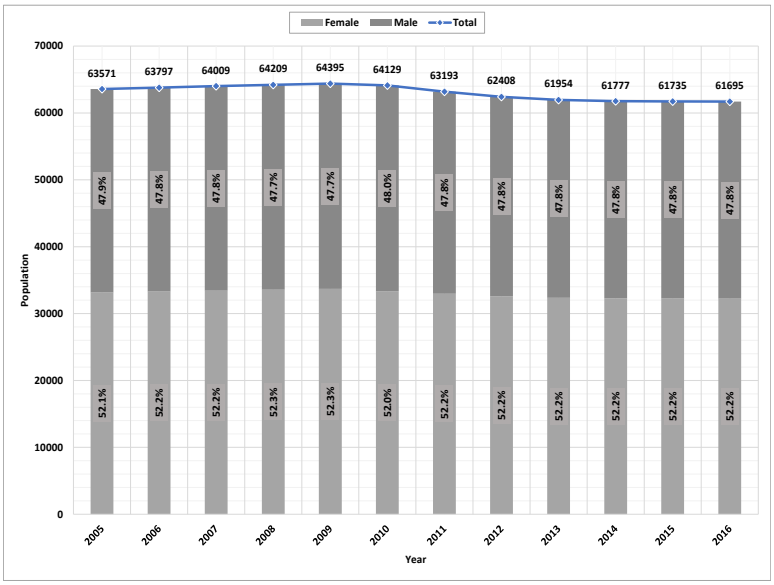
Bermuda's population is very low compared to all of the OECD countries. Age-standardization, and aggregate data, is used to improve comparability when necessary, due to differences in population size and structure. Older age distribution is similar to the OECD averages.

Definition and Comparability

Population refers to all the inhabitants of a country, territory, or geographic area, total or for a given sex and/or age group, at a specific point of time. The mid-year population is used and refers to the actual or estimated population at July 1st. Population estimates or projections have limitations as they are illustrations of how the structure, size and characteristics of a population would change if certain assumptions on fertility, mortality and migration are held true over the projection period. While the assumptions are based upon an assessment of short-term and long-term demographic trends, there is no certainty that any of the assumptions will be realised. The projections do not take into account future non-demographic factors (e.g. major government policy decisions, economic factors, natural disasters, etc.) which may diminish the accuracy of the projections.

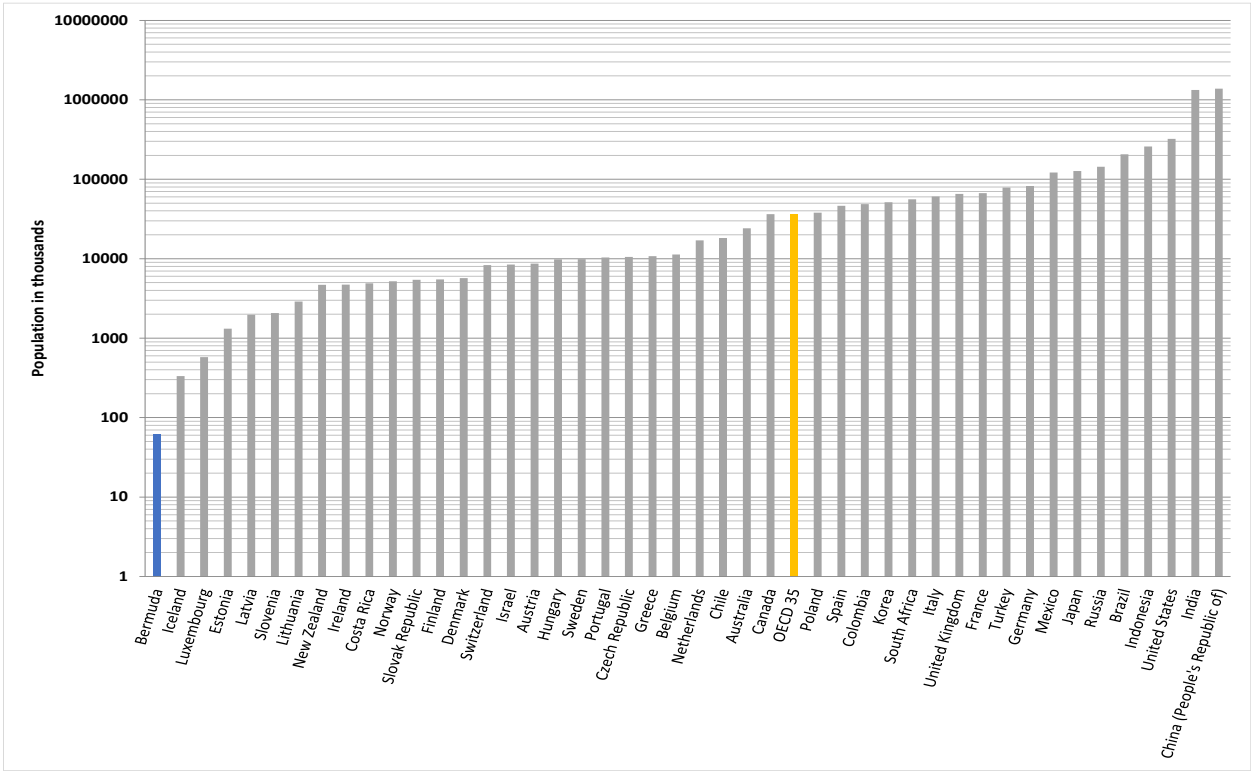
Historically, Bermuda's projections are updated every decade after the decennial census so that new information about demographic trends can be included.

Figure 6.1.1 Population, Bermuda, 2005-2016



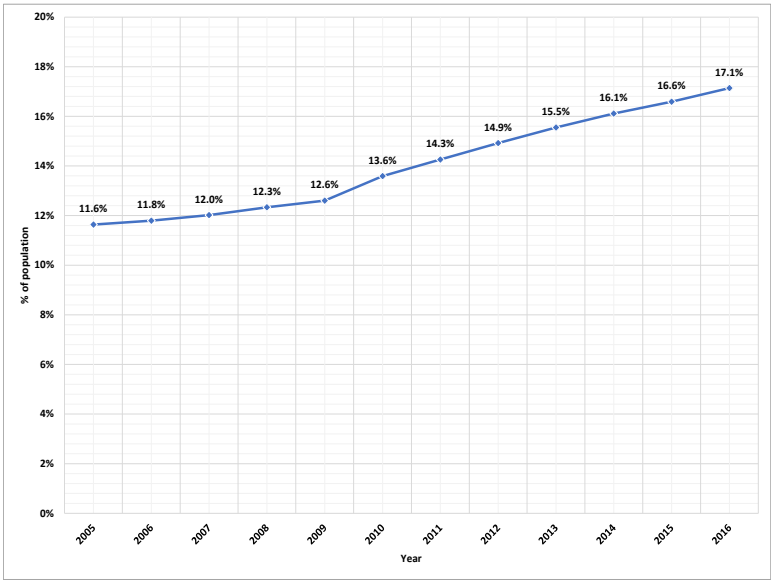
SOURCE: Department of Statistics, Government of Bermuda

Figure 6.1.2 Estimated total population in thousands, OECD Comparison, 2016 (or nearest prior year available)



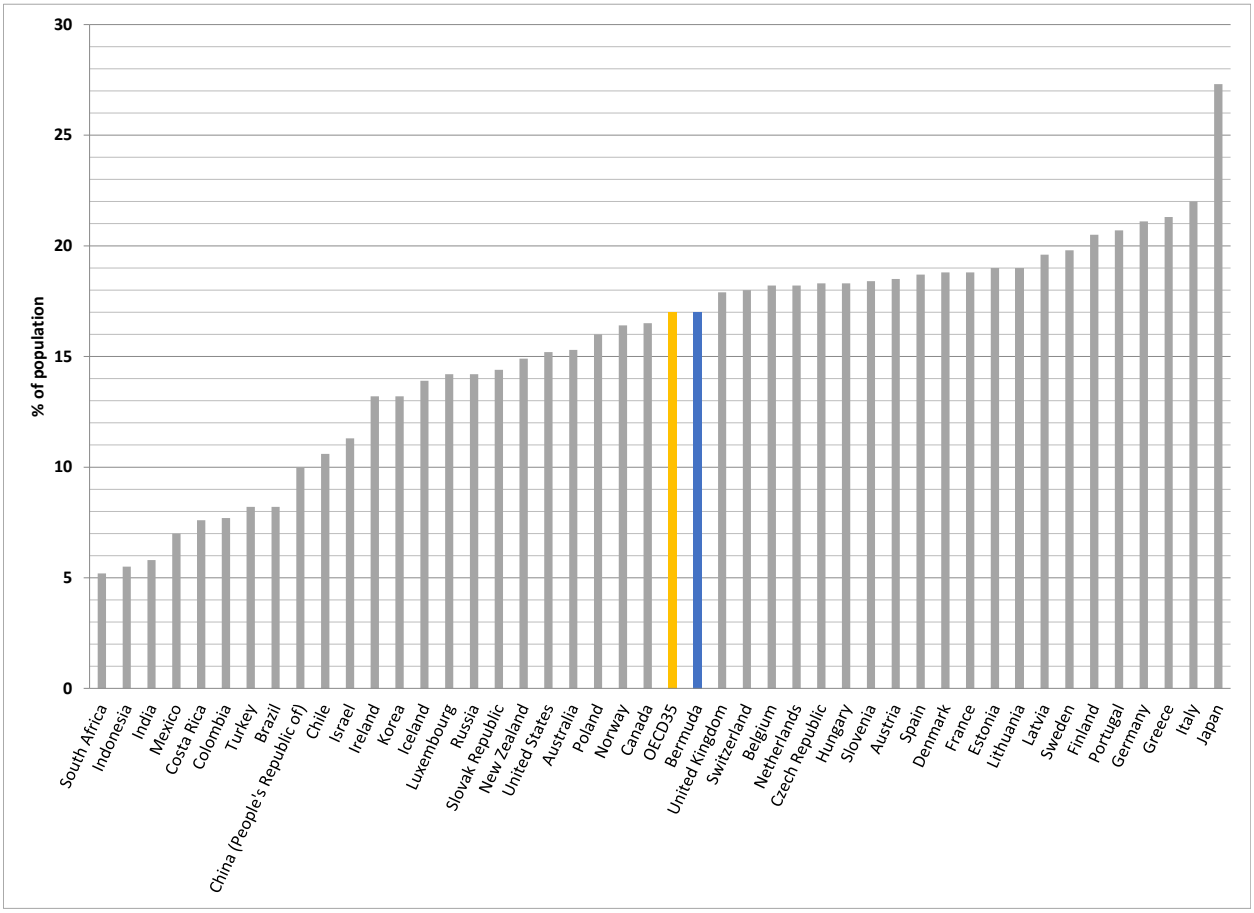
SOURCE: OECD Health Data 2017

Figure 6.1.3 Population: 65 years and older, Bermuda, 2005-2016



SOURCE: Department of Statistics, Government of Bermuda

Figure 6.1.4 Population: 65 years and older, OECD Comparison, 2016 (or nearest prior year available)



SOURCE: OECD Health Data 2017

6.2 Fertility

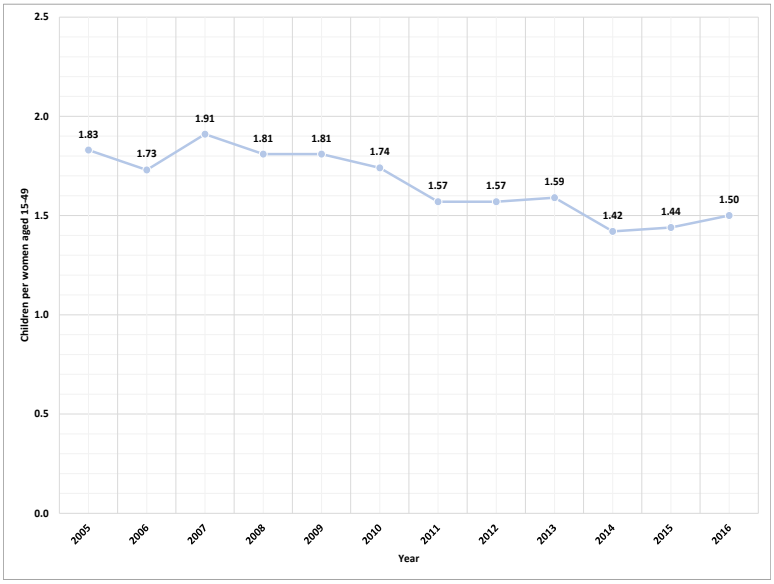
Bermuda's total fertility rate and crude birth rate have been declining over the past decade. Throughout the decade, and for many years prior, the total fertility rate did not reach replacement level. With a total fertility rate of 1.44 in 2015, Bermuda is below the OECD average of 1.68 and among the lowest fertility rates of the comparison countries. The comparative situation is similar with the crude birth rates with Bermuda having a crude birth rate of 9.4 in 2015, compared to 11.3 for the OECD average. The low fertility rates and crude birth rates have implications for population structure and growth.

Definition and Comparability

Fertility rates express the average number of children a woman would have if she lived to the end of her childbearing years (conventionally considered to be 15-44 but sometimes 15-49) and bore children at the prevailing rate for each age during that period. The total fertility rate is also used as a measure for population growth. Replacement level fertility, or the fertility required to compensate for mortality loss, in developed countries is considered to be 2.1 children per woman.

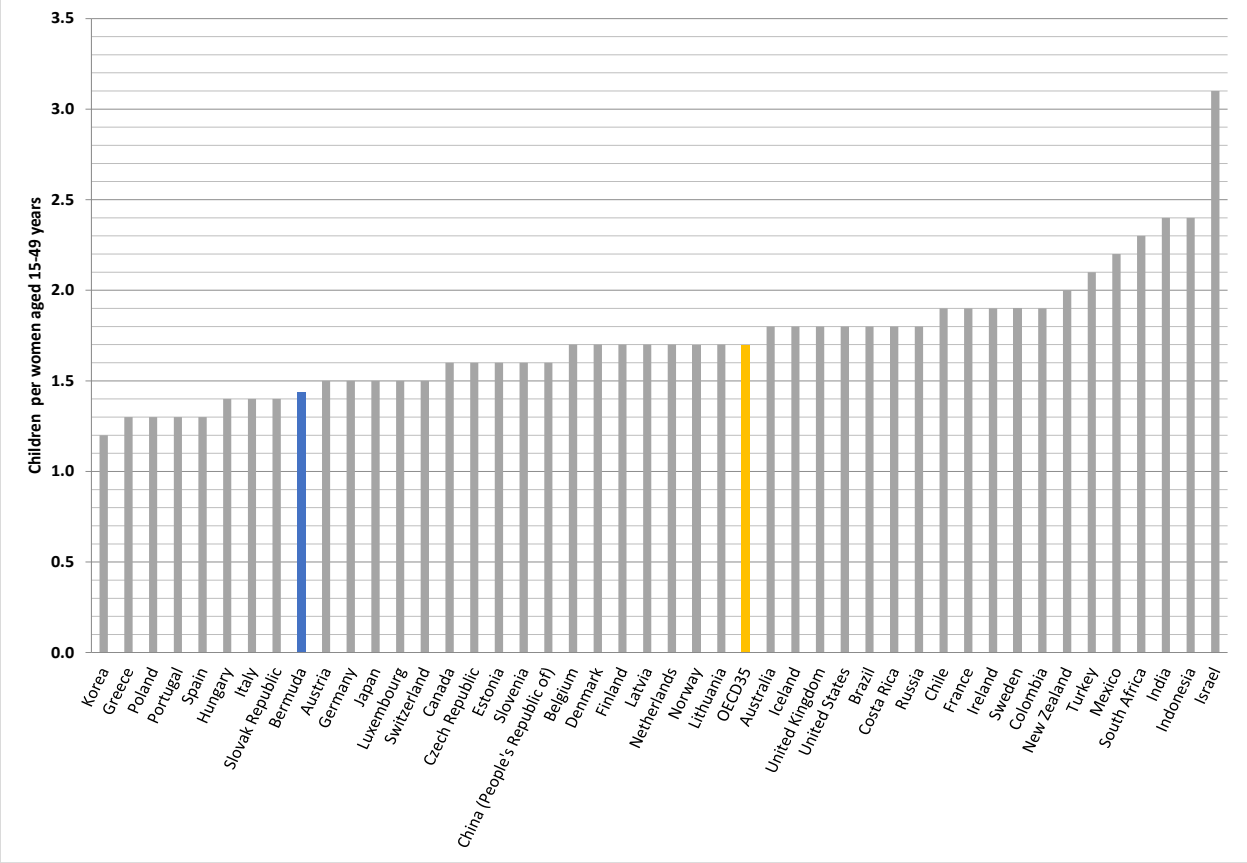
The crude birth rate is the number of live births occurring among the population of a given geographical area during a given year, per 1,000 mid-year total population of the given geographical area during the same year.

Figure 6.2.1 Total fertility rate, Bermuda, 2005-2016



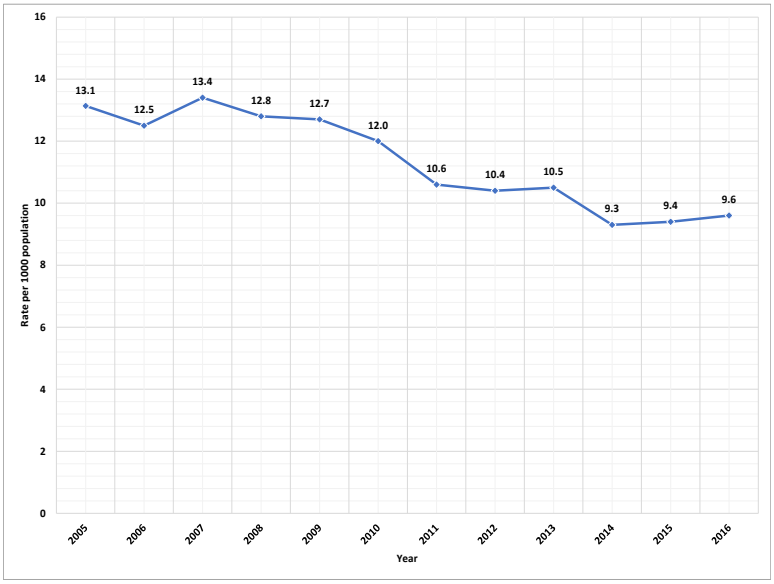
SOURCE: Department of Statistics, Government of Bermuda

Figure 6.2.2 Total fertility rate, OECD Comparison, 2015 (or nearest prior year available)



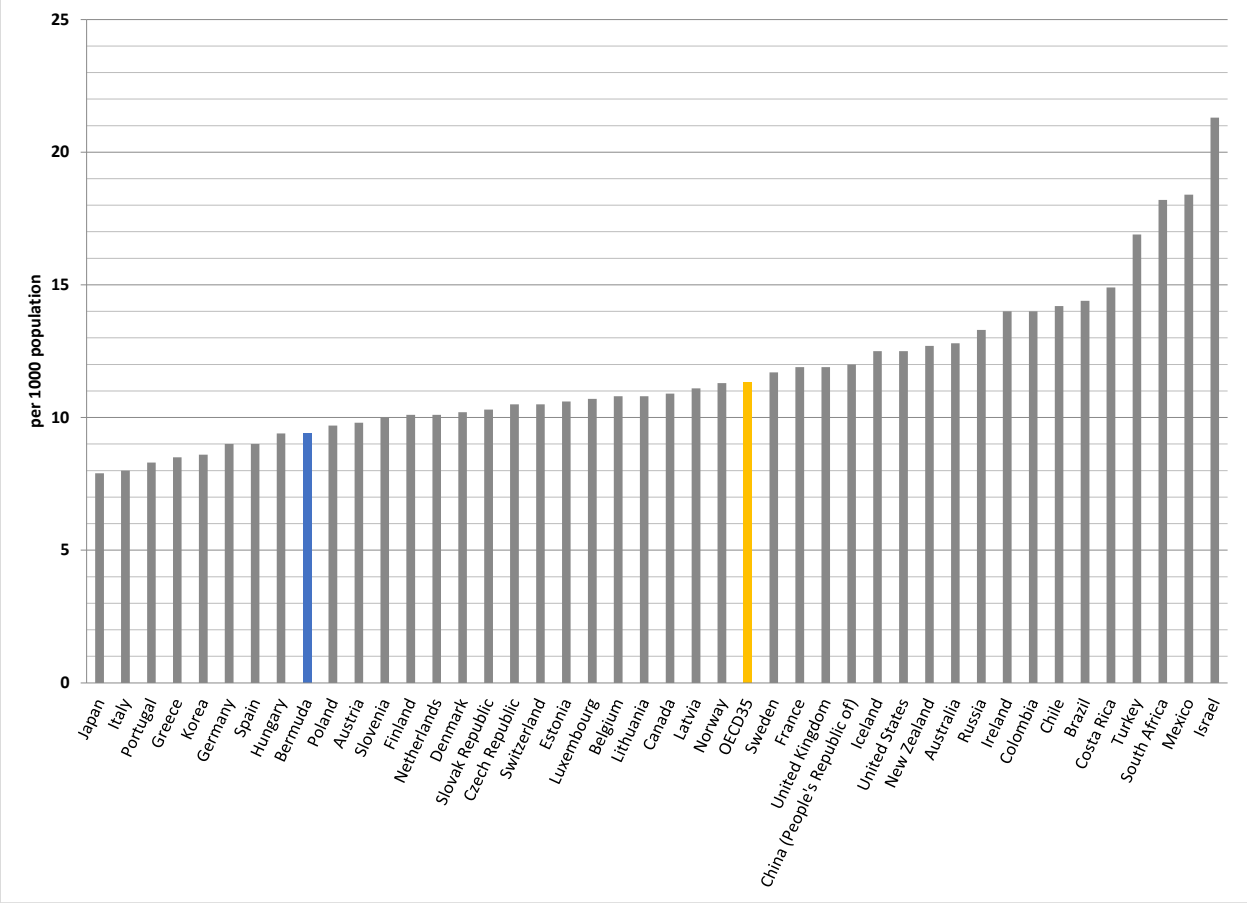
SOURCE: OECD Health Data 2017

Figure 6.2.3 Crude birth rate, Bermuda, 2005-2016



SOURCE: Department of Statistics, Government of Bermuda

Figure 6.2.4 Crude birth rate, OECD Comparison, 2015 (or nearest prior year available)



SOURCE: OECD Health Data 2017

This section compares Bermuda to the Non-Latin Caribbean countries of the Pan-American Health Organization (PAHO). For most indicators, Bermuda compares favourably. For example, Bermuda's life expectancy at birth is well above the Non-Latin Caribbean average, regardless of gender. This is likely related to more favourable socio-economic conditions and greater development. Bermuda's Gross National Income in US$ per capita of $66,560 is over four times greater than the non-Latin Caribbean average of $15,338. Additionally, 100% of Bermuda's fully urban population has access to improved drinking water sources and improved sanitation. For the Non-Latin Caribbean, on average 94% of the rural population and 98% of the urban population have access to improved drinking water sources and 86 % of the rural and 84% of the urban populations have access to improved sanitation.

Although Bermuda is performing slightly above average for immunization rates for polio and DTP (diphtheria, tetanus, and pertussis) under one year of age, Bermuda is performing below average for MMR (measles, mumps, and rubella) immunization at 1 year of age.

Bermuda's mortality rates for infant mortality, under-five mortality and general mortality compare favourably to the non-Latin Caribbean averages as do rates for communicable and non-communicable diseases, including diabetes and heart diseases. Lung cancer mortality for both sexes, and colorectal cancer mortality for men is higher than the non-Latin Caribbean average while colorectal cancer and breast cancer for females, and prostate cancer for males is lower than the non-Latin Caribbean average. In terms of external causes, Bermuda's rates are less than half of the non-Latin Caribbean average overall but higher for land transport accidents.

Definition and Comparability

The data in this section is taken directly from Health in the Americas: Core Health Indicators 2016 as produced by the technical team of the Health Information and Analysis Unit in conjunction with other technical teams at PAHO based on available data from countries in the Americas, including Bermuda.

Statistics presented here can differ from national statistics for numerous reasons, including differences in methodology. All mortality rates are age-adjusted death rates with the WHO World Standard Population and are presented for calendar year 2014 or the nearest prior year available. Rates were calculated based on population data from World Population Prospects (WPP) and the US Census Bureau International databases.

Rates of the following countries should be viewed with caution due to small number of events: Anguilla, Antigua and Barbuda, Aruba, Barbados, Bermuda, Cayman Islands, Curacao, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Sint Maarten, Saint Lucia, Turks and Caicos Islands, Virgin Islands (UK) and Virgin Islands (US). The sub-regional aggregates for rates (Non-Latin Caribbean, in this case) are weighted averages.

	Life Expectancy at Birth (years)			Mortality rates (per 1000 live births)		General Mortality Rate			Communicable Disease Mortality			Immunization coverage (%)		
Country	Total	Female	Male	Infant	Under-five	Total	Female	Male	Total	Female	Male	Polio	DTP3-cv	MMR-1
Anguilla	81.4	84.1	78.8	12.1	12.1	3.5	2.1	4.9	34	10	57	**100**	**100**	**97**
Antigua & Barbuda	76.5	78.8	74.4	13.8	14.7	6.5	5.0	8.5	77	63	93	89	100	100
Aruba	76.8	79.9	73.7	1.8	1.8	4.7	3.8	5.8	31	20	48	92	92	92
Bahamas	75.7	78.6	72.6	19.4	26.8	5.5	4.3	6.8	75	68	83	95	95	94
Barbados	75.3	77.7	73.0	11.6	12.0	6.4	5.4	8.0	78	65	96	97	97	96
Bermuda	**81.1**	**84.9**	**77.3**	**1.7**	**1.7**	**3.5**	**2.6**	**4.5**	**10**	**5**	**16**	**95**	**95**	**89**
Cayman Islands	81.2	84.0	78.5	0.0	0.0	2.5	2.4	2.7	30	40	19	93	93	81
Curacao	78.3	80.7	76.0	11.3	12.3									
Dominica	77.0	80.1	74.0	19.7	23.2	6.5	5.5	7.7	115	107	124	98	98	96
Grenada	74.3	77.1	71.7	14.9	15.5	7.9	6.7	9.3	127	110	144	99	92	99
Guyana	66.6	69.0	64.3	23.3	23.9	10.6	9.0	12.4	176	146	207	92	95	100
Jamaica	75.9	78.4	73.6	19.1	20.4							91	91	91
Montserrat	74.4	72.9	75.8	62.5	62.5	7.5	8.5	8.6	68	0	97	100	100	100
Non-Latin Caribbean	**73.8**	**76.7**	**71.2**	**17.2**	**15.8**	**7.2**	**5.9**	**8.9**	**105**	**87**	**126**	**91**	**93**	**93**
Saint Kitts & Nevis	75.7	78.2	73.3	23.3	23.3							91	94	95
Saint Lucia	77.8	80.7	75.0	16.3	16.8	6.2	4.7	7.8	68	53	83	100	100	97
Saint Vincent & the Grenadines	75.3	77.4	73.3	15.5	17.1	8.8	7.1	10.7	124	108	143	100	100	100
Sint Maarten (Dutch)	78.1	80.6	75.8	16.0	16.0							100	100	98
Suriname	71.4	74.7	68.3	15.9	18.5	6.5	5.1	8.2	96	78	120	89	89	94
Trinidad and Tobago	70.6	74.3	67.2	12.0	14.5							88	96	89
Turks and Caicos Islands	79.8	82.7	77.1	2.3	2.3	2.2	1.3	3.3	16	6	29	94	94	95
Virgin Islands (UK)	78.6	80.1	77.2	11.3	11.3							95	97	100
Virgin Islands (US)	80.0	83.2	77.0			4.6	3.0	6.5	29	23	39			

	Non-Communicable Disease Mortality			Diabetes Mortality			Ischaemic Heart Disease Mortality			Cerebrovascular Disease Mortality		
Country	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Anguilla	271	202	350	37	42	35	10	0	23	59	57	61
Antigua & Barbuda	541	426	698	51	39	64	56	39	78	**65**	**59**	**73**
Aruba	388	321	472	25	24	24	36	20	57	39	39	37
Bahamas	399	335	486	27	26	28	53	35	75	40	34	47
Barbados	522	448	638	54	51	58	50	38	66	61	54	70
Bermuda	**305**	**245**	**380**	**13**	**12**	**15**	**55**	**44**	**66**	**24**	**21**	**29**
Cayman Islands	185	181	188	11	14	7	15	12	19	10	7	12
Curacao												
Dominica	476	416	554	26	28	23	30	35	26	68	51	86
Grenada	622	535	721	82	90	70	80	53	106	79	79	81
Guyana	760	694	833	91	99	80	132	109	157	122	117	128
Jamaica												
Montserrat	613	848	636	89	193	58	112	96	127	68	193	39
Non-Latin Caribbean	**528**	**454**	**622**	**55**	**57**	**53**	**73**	**56**	**94**	**74**	**67**	**84**
Saint Kitts & Nevis												
Saint Lucia	475	388	574	54	60	47	41	28	55	54	47	62
Saint Vincent & the Grenadines	681	582	800	95	99	93	116	109	126	96	70	124
Sint Maarten (Dutch)												
Suriname	421	338	530	41	41	40	51	33	72	74	61	91
Trinidad and Tobago												
Turks and Caicos Islands	165	115	233	15	13	17	52	27	82	12	20	4
Virgin Islands (UK)												
Virgin Islands (US)	291	231	368	20	15	27	39	27	53	16	15	18

	Lung Cancer Mortality			Colorectal Cancer Mortality			Sex-specific Cancer Mortality	
Country	Total	Female	Male	Total	Female	Male	Breast	Prostate
Anguilla	0	0	0	5	0	11	0	35
Antigua & Barbuda	3	4	2	18	15	21	28	100
Aruba	13	8	18	15	21	8	17	28
Bahamas	6	5	9	14	11	18	29	32
Barbados	7	5	10	20	17	24	27	65
Bermuda	**21**	**10**	**36**	**10**	**6**	**14**	**8**	**34**
Cayman Islands	10	3	17	7	5	9	7	17
Curacao								
Dominica	8	5	14	11	15	7	12	57
Grenada	16	7	25	15	15	15	26	47
Guyana	2	2	2	4	5	4	12	36
Jamaica								
Montserrat	0	0	0	0	0	0	0	119
Non-Latin Caribbean	**7**	**4**	**11**	**10**	**9**	**11**	**18**	**39**
Saint Kitts & Nevis								
Saint Lucia	7	2	13	11	12	11	14	37
Saint Vincent & the Grenadines	4	5	2	10	11	11	28	69
Sint Maarten (Dutch)								
Suriname	13	7	21	8	6	10	14	25
Trinidad and Tobago								
Turks and Caicos Islands	10	6	18	0	0	0	0	7
Virgin Islands (UK)								
Virgin Islands (US)	9	5	13	10	6	15	15	29

	External Cause Mortality			Land Transport Accident Mortality		Homicide		Suicide	
Country	Total	Female	Male	Female	Male	Female	Male	Female	Male
Anguilla	43	0	87	0	15	0	0	0	0
Antigua & Barbuda	35	12	61	0	0	0	0	0	0
Aruba	29	16	43	2	11	0	5	3	7
Bahamas	65	24	107	6	18	6	57	1	2
Barbados	33	18	49	1	10	0	1	0	0
Bermuda	**32**	**11**	**55**	**4**	**36**	**2**	**12**	**0**	**2**
Cayman Islands	31	7	54	3	12	0	19	0	3
Curacao									
Dominica	41	14	67	4	11	5	16	0	8
Grenada	31	11	51	0	4	2	6	0	0
Guyana	114	48	181	2	30	4	21	15	46
Jamaica									
Montserrat	65	0	125	0	0	0	0	0	0
Non-Latin Caribbean	**70**	**28**	**114**	**3**	**20**	**3**	**26**	**7**	**22**
Saint Kitts & Nevis									
Saint Lucia	63	15	114	1	25	0	42	4	14
Saint Vincent & the Grenadines	67	13	119	2	20	6	66	0	4
Sint Maarten (Dutch)									
Suriname	63	34	93	6	20	5	10	14	35
Trinidad and Tobago									
Turks and Caicos Islands	22	3	41	0	14	0	8	0	3
Virgin Islands (UK)									
Virgin Islands (US)	112	26	220	9	23	4	145	6	17

Age Group	OECD	WHO World Standard	Segi ("world") standard
0	1.28	8.86	12.00
1-4	5.04		
5-9	6.16	8.69	10.00
10-14	6.20	8.60	9.00
15-19	6.62	8.47	9.00
20-24	6.77	8.22	8.00
25-29	7.01	7.93	8.00
30-34	6.94	7.61	6.00
35-39	7.17	7.15	6.00
40-44	7.10	6.59	6.00
45-49	7.11	6.04	6.00
50-54	6.60	5.37	5.00
55-59	5.98	4.55	4.00
60-64	5.40	3.72	4.00
65-69	4.21	2.96	3.00
70-74	3.58	2.21	2.00
75-79	2.88	1.52	1.00
80-84	2.13	0.91	0.50
85+	1.82	0.63	0.50
Total	**100**	**100**	**100**

The OECD Standard Population (2010) puts greater weight on the older age groups than the WHO World Standard Population and the Segi World Standard Population. This weighting and the distribution of deaths in the population will affect comparisons across different standard populations.

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