

Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1: Joinpoint analysis for thyroid cancer age-standardized incidence rates in EU15+ countries for years 1990-2019 for both sexes.

Country	Trend 1			Trend 2			Trend 3			Trend 4			AAPC		
	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	AAPC (95% CI)	P value
Global	1990-2002	1.5- (1.5-1.6)	<0.001	2002-2010	1.8- (1.7-2)	<0.001	2010-2015	-0.5- (-0.9--0.1)	0.014	2015-2019	0.8- (0.4-1.1)	<0.001	1990-2019	1.1(1.1-1.2)	<0.001
Australia	1990-1994	2.6- (1.2-4.1)	0.001	1994-2009	4.3- (4-4.5)	<0.001	2009-2019	-0.5- (-0.9--0.2)	0.005				1990-2019	2.5(2.3-2.7)	<0.001
Austria	1990-1994	2- (0.6-3.5)	0.009	1994-2000	0.1- (-0.9-1.1)	0.766	2000-2007	-2.9- (-3.6--2.1)	<0.001	2007-2019	-0.5- (-0.7--0.2)	0.001	1990-2019	-0.8(-1.1--0.4)	<0.001
Belgium	1990-1994	1.7- (0.4-3.1)	0.016	1994-2000	-3.6- (-4.5--2.7)	<0.001	2000-2010	1.7- (1.3-2.1)	<0.001	2010-2019	-0.8- (-1.2--0.4)	<0.001	1990-2019	-0.2(-0.6-0.2)	0.236
Denmark	1990-1997	6.5- (5.6-7.5)	<0.001	1997-2009	1.9- (1.4-2.4)	<0.001	2009-2019	-0.2- (-0.7-0.4)	0.482				1990-2019	2.4(2-2.8)	<0.001
Finland	1990-2002	1.8- (1.3-2.3)	<0.001	2002-2010	3- (1.9-4.1)	<0.001	2010-2019	-2.1- (-2.7--1.4)	<0.001				1990-2019	1(0.7-1.3)	<0.001
France	1990-1997	1.4- (0.4-2.4)	0.006	1997-2005	5.3- (4.3-6.3)	<0.001	2005-2014	-5.3- (-6--4.6)	<0.001	2014-2019	-0.3- (-1.8-1.3)	0.735	1990-2019	-0.1(-0.6-0.4)	0.811
Germany	1990-1994	3.2- (2.2-4.3)	<0.001	1994-2002	-1.6- (-2--1.1)	<0.001	2002-2010	1.1- (0.7-1.6)	<0.001	2010-2019	-0.6- (-0.9--0.3)	0.001	1990-2019	0(-0.2-0.1)	0.834
Greece	1990-1992	7- (2.5-11.7)	0.004	1992-2007	1.1- (0.9-1.3)	<0.001	2007-2016	-1.6- (-2.1--1.2)	<0.001	2016-2019	1.3- (-0.9-3.5)	0.236	1990-2019	0.2(0-0.5)	0.058
Ireland	1990-1996	-0.6- (-1.4-0.3)	0.174	1996-2002	2- (0.8-3.1)	0.002	2002-2009	4- (3.1-4.9)	<0.001	2009-2019	-0.1- (-0.5-0.3)	0.535	1990-2019	1.5(1-2.1)	<0.001
Italy	1990-2003	1.2- (1-1.4)	<0.001	2003-2016	-1.7- (-1.9--1.4)	<0.001	2016-2019	0.5- (-1.5-2.6)	0.609				1990-2019	-0.3(-0.4--0.1)	<0.001
Luxembourg	1990-1996	2.5- (2-2.9)	<0.001	1996-2007	0.3- (0.1-0.5)	0.003	2007-2017	-2.2- (-2.4--2)	<0.001	2017-2019	0.2- (-2.4-2.8)	0.871	1990-2019	-0.4(-0.5--0.2)	<0.001
Netherlands	1990-1998	0.7- (0.2-1.2)	0.011	1998-2010	2.3- (2-2.6)	<0.001	2010-2019	0.3- (-0.1-0.8)	0.114				1990-2019	1.4(1.1-1.7)	<0.001
Norway	1990-2011	2- (1.9-2.1)	<0.001	2011-2019	-1.3- (-1.8--0.9)	<0.001							1990-2019	1.1(0.9-1.2)	<0.001
Portugal	1990-1997	3- (2.1-3.9)	<0.001	1997-2005	-2.8- (-3.6--2)	<0.001	2005-2009	3- (-0.3-6.4)	0.072	2009-2019	-0.4- (-0.9-0.2)	0.16	1990-2019	0.2(-0.5-1)	0.563
Spain	1990-2008	1.9- (1.8-2)	<0.001	2008-2016	-1.4- (-1.8--0.9)	<0.001	2016-2019	0.3- (-1.3-1.8)	0.725				1990-2019	0.7(0.6-0.9)	<0.001
Sweden	1990-2000	-0.3- (-0.6-0)	0.028	2000-2011	1.8- (1.5-2.1)	<0.001	2011-2019	-0.7- (-1.2--0.3)	0.001				1990-2019	0.5(0.1-0.9)	0.008
United Kingdom	1990-1997	0.1- (-0.4-0.6)	0.657	1997-2008	1.5- (1.2-1.8)	<0.001	2008-2019	0.9- (0.7-1.2)	<0.001				1990-2019	1(0.9-1.2)	<0.001
Canada	1990-2003	3.1- (2.9-3.2)	<0.001	2003-2010	-0.6- (-1.1-0)	0.048	2010-2013	-3.8- (-6.9--0.5)	0.027	2013-2019	0.1- (-0.5-0.6)	0.854	1990-2019	0.7(0.5-0.9)	<0.001
United States of America	1990-1993	3.4- (1.7-5.2)	<0.001	1993-2001	2- (1.5-2.4)	<0.001	2001-2011	0.8- (0.5-1.1)	<0.001	2011-2019	0- (-0.4-0.3)	0.837	1990-2019	1.2(1-1.3)	<0.001

EAPC indicates estimated annual percentage change, with 95% confidence intervals in brackets. *Significantly different from 0 (P<0.05).

eTable 2: 1990 and 2019 male age-standardized mortality rates (ASMRs), age-standardized incidence rates (ASIRs), mortality-to-incidence indices (MIIs) and disability-adjusted life years (DALYs), with associated percentage changes, for thyroid cancer in the European Union 15+ countries.

Country	ASMRs			ASIR			MIIs			DALYS		
	1990.00	2019.00	% Change	1990.00	2019.00	% Change	1990.00	2019.00	% Change	1990.00	2019.00	% Change
Global	0.43 (0.48-0.39)	0.50 (0.55-0.45)	16.83	1.15 (1.24-1.08)	1.90 (2.07-1.70)	64.19	0.37 (0.38-0.36)	0.26 (0.26-0.26)	-28.85	11.21 (12.63-10.21)	12.92 (14.02-11.69)	15.31
Australia	0.36 (0.40-0.32)	0.43 (0.49-0.31)	19.65	1.66 (1.89-1.46)	3.25 (4.35-2.30)	95.77	0.22 (0.21-0.22)	0.13 (0.11-0.13)	-38.88	9.297 (10.23-8.394)	11.49 (13.28-8.758)	23.69
Austria	0.71 (0.78-0.50)	0.48 (0.56-0.39)	-31.81	3.12 (3.61-2.37)	3.31 (4.41-2.44)	6.05	0.22 (0.21-0.21)	0.14 (0.12-0.16)	-35.70	17.46 (19.32-12.59)	12.09 (14.41-10.19)	-30.74
Belgium	0.67 (0.75-0.53)	0.54 (0.62-0.44)	-19.58	2.63 (3.09-2.02)	3.67 (4.95-2.63)	39.47	0.25 (0.24-0.26)	0.14 (0.12-0.16)	-42.34	16.80 (18.77-13.05)	14.38 (17.03-11.79)	-14.38
Denmark	0.23 (0.32-0.21)	0.34 (0.40-0.27)	42.55	0.97 (1.33-0.83)	2.14 (2.86-1.52)	119.68	0.24 (0.24-0.25)	0.15 (0.13-0.17)	-35.11	6.187 (8.460-5.515)	8.696 (10.48-6.802)	40.53
Finland	0.49 (0.54-0.43)	0.50 (0.58-0.36)	2.38	1.91 (2.23-1.64)	3.10 (4.08-2.24)	62.33	0.25 (0.24-0.26)	0.16 (0.14-0.16)	-36.93	12.39 (13.89-11.01)	12.33 (14.54-9.641)	-0.48
France	0.55 (0.60-0.51)	0.47 (0.54-0.38)	-15.78	2.32 (2.65-1.98)	3.38 (4.58-2.42)	45.83	0.24 (0.22-0.25)	0.13 (0.11-0.15)	-42.25	14.75 (15.95-13.21)	12.76 (15.18-10.45)	-13.49
Germany	0.65 (0.70-0.50)	0.52 (0.58-0.40)	-20.52	2.36 (2.65-1.75)	3.05 (4.13-2.16)	29.10	0.27 (0.26-0.28)	0.17 (0.14-0.18)	-38.44	16.66 (18.00-12.34)	13.25 (15.34-10.36)	-20.45
Greece	0.37 (0.40-0.33)	0.38 (0.43-0.34)	3.62	1.56 (1.81-1.35)	2.44 (3.24-1.79)	56.19	0.23 (0.22-0.24)	0.15 (0.13-0.19)	-33.66	9.198 (10.20-8.278)	10.12 (11.67-8.698)	10.06
Ireland	0.49 (0.55-0.38)	0.38 (0.45-0.27)	-22.91	1.67 (1.93-1.35)	2.47 (3.35-1.70)	47.97	0.29 (0.28-0.28)	0.15 (0.13-0.16)	-47.90	11.63 (12.96-9.255)	9.374 (11.35-6.860)	-19.41
Italy	0.59 (0.61-0.52)	0.47 (0.52-0.37)	-19.61	4.21 (4.76-3.41)	4.93 (6.60-3.53)	17.08	0.14 (0.12-0.15)	0.09 (0.08-0.10)	-31.33	16.61 (17.72-13.79)	13.13 (15.21-10.01)	-20.92
Luxembourg	1.03 (1.15-0.92)	0.70 (0.84-0.57)	-32.51	4.05 (4.64-3.45)	4.60 (6.04-3.54)	13.72	0.25 (0.24-0.26)	0.15 (0.14-0.16)	-40.65	26.38 (29.35-23.15)	17.88 (22.23-14.50)	-32.21
Netherlands	0.40 (0.44-0.32)	0.42 (0.49-0.26)	4.18	1.80 (2.07-1.40)	2.81 (3.82-1.81)	55.85	0.22 (0.21-0.23)	0.15 (0.12-0.14)	-33.15	10.04 (11.13-7.938)	10.40 (12.24-6.660)	3.52
Norway	0.43 (0.46-0.41)	0.41 (0.47-0.34)	-3.42	2.16 (2.46-1.92)	3.36 (4.43-2.55)	55.68	0.20 (0.19-0.21)	0.12 (0.10-0.13)	-37.96	11.19 (12.19-10.58)	10.67 (12.35-9.041)	-4.66
Portugal	0.53 (0.59-0.45)	0.45 (0.52-0.36)	-14.68	1.31 (1.49-1.09)	2.11 (2.90-1.51)	61.49	0.40 (0.39-0.41)	0.21 (0.18-0.24)	-47.17	13.18 (14.60-11.01)	11.51 (13.50-9.291)	-12.65
Spain	0.42 (0.46-0.35)	0.42 (0.48-0.28)	-1.21	1.91 (2.17-1.40)	2.99 (4.17-1.95)	56.74	0.22 (0.21-0.24)	0.14 (0.11-0.14)	-36.97	11.56 (12.69-8.824)	11.11 (13.07-7.325)	-3.96
Sweden	0.46 (0.51-0.41)	0.40 (0.44-0.35)	-13.57	1.75 (2.03-1.57)	1.82 (2.35-1.41)	3.93	0.26 (0.25-0.26)	0.21 (0.19-0.25)	-16.84	10.97 (12.36-10.00)	9.394 (10.53-8.343)	-14.40
United Kingdom	0.38 (0.41-0.35)	0.36 (0.38-0.33)	-6.20	1.64 (1.75-1.52)	2.24 (2.89-1.71)	36.72	0.23 (0.23-0.23)	0.16 (0.13-0.19)	-31.39	9.643 (10.35-8.873)	9.097 (10.04-8.453)	-5.66
Canada	0.36 (0.41-0.33)	0.40 (0.46-0.34)	9.82	1.78 (2.04-1.57)	2.76 (3.66-2.04)	54.39	0.20 (0.20-0.21)	0.14 (0.12-0.17)	-28.87	9.473 (10.52-8.689)	10.39 (11.94-8.911)	9.77
United States of America	0.37 (0.39-0.35)	0.46 (0.48-0.40)	22.14	3.52 (3.68-3.24)	5.10 (6.29-4.07)	44.83	0.10 (0.10-0.10)	0.09 (0.07-0.09)	-15.67	10.90 (11.73-10.03)	12.94 (14.29-11.65)	18.70

All indices are per 100,000 population.

eTable 3: 1990 and 2019 female age-standardized mortality rates (ASMRs), age-standardized incidence rates (ASIRs), mortality-to-incidence indices (MIs) and disability-adjusted life years (DALYs), with associated percentage changes, for thyroid cancer in the European Union 15+ countries.

Country	ASMRs			ASIR			MIs			DALYS		
	1990.00	2019.00	% Change	1990.00	2019.00	% Change	1990.00	2019.00	% Change	1990.00	2019.00	% Change
Global	0.72 (0.81-0.66)	0.62 (0.67-0.54)	-14.65	2.82 (3.01-2.60)	3.73 (4.09-3.32)	32.44	0.25 (0.27-0.25)	0.16 (0.16-0.16)	-35.55	19.47 (21.70-17.32)	16.94 (18.61-14.71)	-13.01
Australia	0.43 (0.47-0.40)	0.44 (0.50-0.38)	2.10	3.25 (3.67-2.85)	6.26 (8.44-4.68)	92.63	0.13 (0.13-0.13)	0.07 (0.05-0.08)	-47.00	11.79 (13.13-10.67)	13.07 (15.52-11.13)	10.84
Austria	0.89 (0.97-0.80)	0.45 (0.51-0.38)	-49.43	6.91 (7.89-5.88)	5.30 (6.80-3.98)	-23.30	0.12 (0.12-0.13)	0.08 (0.07-0.09)	-34.07	22.52 (24.93-20.00)	11.66 (13.66-9.906)	-48.21
Belgium	1.14 (1.25-1.00)	0.40 (0.46-0.34)	-64.45	4.35 (4.89-3.82)	3.16 (4.25-2.33)	-27.21	0.26 (0.25-0.26)	0.12 (0.10-0.14)	-51.15	23.15 (25.36-20.98)	9.448 (11.02-8.201)	-59.21
Denmark	0.40 (0.45-0.36)	0.49 (0.56-0.42)	21.06	2.00 (2.30-1.76)	3.47 (4.63-2.54)	73.54	0.20 (0.19-0.20)	0.14 (0.12-0.16)	-30.24	10.63 (11.80-9.568)	12.14 (14.17-10.29)	14.19
Finland	0.79 (0.86-0.71)	0.55 (0.63-0.48)	-29.67	4.14 (4.67-3.65)	5.25 (6.98-3.90)	26.69	0.19 (0.18-0.19)	0.10 (0.09-0.12)	-44.49	19.03 (20.90-17.29)	13.83 (16.06-11.68)	-27.32
France	0.86 (0.92-0.77)	0.37 (0.42-0.31)	-56.58	4.00 (4.47-3.58)	3.23 (4.47-2.38)	-19.30	0.21 (0.20-0.21)	0.11 (0.09-0.13)	-46.20	19.90 (21.37-18.40)	9.081 (10.63-7.771)	-54.38
Germany	0.89 (0.95-0.82)	0.48 (0.53-0.42)	-46.05	5.43 (6.01-4.84)	5.33 (7.18-3.89)	-2.01	0.16 (0.15-0.17)	0.09 (0.07-0.10)	-44.94	22.07 (23.84-20.36)	12.73 (14.82-10.99)	-42.34
Greece	0.73 (0.80-0.64)	0.41 (0.45-0.35)	-43.94	2.93 (3.27-2.62)	2.93 (3.82-2.22)	0.00	0.24 (0.24-0.24)	0.13 (0.11-0.16)	-43.94	14.51 (15.68-13.22)	9.133 (10.40-8.047)	-37.09
Ireland	0.68 (0.75-0.61)	0.43 (0.49-0.37)	-36.16	3.41 (3.89-2.96)	4.65 (6.23-3.38)	36.49	0.20 (0.19-0.20)	0.09 (0.08-0.10)	-53.23	16.77 (18.53-15.08)	11.58 (13.74-9.687)	-30.96
Italy	0.82 (0.85-0.77)	0.46 (0.50-0.41)	-43.25	8.88 (9.83-7.95)	7.73 (10.1-5.82)	-12.96	0.09 (0.08-0.09)	0.06 (0.05-0.07)	-34.80	22.93 (24.89-21.24)	13.47 (15.80-11.66)	-41.27
Luxembourg	0.99 (1.09-0.88)	0.46 (0.55-0.38)	-53.77	4.49 (5.10-3.91)	3.80 (4.76-2.99)	-15.45	0.22 (0.21-0.22)	0.12 (0.11-0.12)	-45.32	22.89 (25.17-20.51)	11.08 (13.43-9.372)	-51.59
Netherlands	0.56 (0.61-0.51)	0.49 (0.56-0.42)	-11.89	3.27 (3.68-2.90)	4.69 (6.15-3.45)	43.25	0.17 (0.16-0.17)	0.10 (0.09-0.12)	-38.49	13.73 (15.08-12.51)	12.35 (14.22-10.58)	-10.09
Norway	0.61 (0.64-0.57)	0.53 (0.59-0.47)	-12.78	3.30 (3.64-2.99)	4.16 (5.22-3.23)	25.98	0.18 (0.17-0.19)	0.12 (0.11-0.14)	-30.77	15.10 (15.99-14.26)	12.59 (14.01-11.35)	-16.65
Portugal	1.17 (1.29-1.04)	0.45 (0.51-0.38)	-61.33	5.70 (6.39-4.97)	5.77 (7.66-4.24)	1.31	0.20 (0.20-0.20)	0.07 (0.06-0.09)	-61.83	24.27 (26.62-21.77)	11.55 (13.91-9.754)	-52.39
Spain	0.59 (0.63-0.54)	0.40 (0.46-0.35)	-31.28	3.18 (3.55-2.83)	3.69 (4.98-2.69)	15.96	0.18 (0.17-0.19)	0.11 (0.09-0.12)	-40.74	14.97 (16.15-13.78)	10.30 (12.03-8.798)	-31.17
Sweden	0.66 (0.72-0.59)	0.46 (0.52-0.40)	-29.91	2.50 (2.79-2.25)	3.01 (3.88-2.35)	20.27	0.26 (0.25-0.26)	0.15 (0.13-0.17)	-41.72	14.07 (15.33-12.78)	10.63 (11.95-9.397)	-24.48
United Kingdom	0.49 (0.51-0.45)	0.40 (0.43-0.37)	-17.24	2.63 (2.76-2.46)	3.41 (4.37-2.64)	29.51	0.18 (0.18-0.18)	0.11 (0.09-0.14)	-36.09	11.85 (12.54-11.04)	10.06 (11.11-9.246)	-15.06
Canada	0.48 (0.51-0.44)	0.41 (0.47-0.35)	-13.20	4.17 (4.69-3.65)	4.81 (6.38-3.54)	15.26	0.11 (0.11-0.12)	0.08 (0.07-0.10)	-24.69	13.04 (14.37-11.79)	11.22 (13.05-9.527)	-14.00
United States of America	0.39 (0.40-0.36)	0.41 (0.43-0.37)	5.55	4.54 (4.74-4.36)	6.06 (7.46-4.90)	33.31	0.08 (0.08-0.08)	0.06 (0.05-0.07)	-20.83	11.04 (12.03-10.16)	11.89 (13.31-10.71)	7.68

All indices are per 100,000 population.

eTable 4: Joinpoint analysis for thyroid cancer age-standardized incidence rates in EU15+ countries for years 1990-2019 in males (A), females (B).

A)

Country	Trend 1			Trend 2			Trend 3			Trend 4			AAPC		
	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	AAPC (95% CI)	P value
Global	1990-2004	2 (1.9-2)	<0.001	2004-2010	3 (2.6-3.4)	<0.001	2010-2019	0.4 (0.3-0.6)	<0.001				1990-2019	1.9 (1.8-2)	<0.001
Australia	1990-1995	1.4 (0.3-2.6)	<0.001	1995-2009	4 (3.8-4.3)	<0.001	2009-2014	1.9 (0.3-3.5)	<0.001	2014-2019	-0.7 (-1.8-0.4)	0.2	1990-2019	3 (2.7-3.2)	<0.001
Austria	1990-1996	4.6 (3.9-5.4)	<0.001	1996-2002	-2.1 (-3.1--1.2)	<0.001	2002-2014	-0.9 (-1.2--0.6)	<0.001	2014-2019	0.4 (-0.6-1.4)	0.4	1990-2019	-0.4 (-0.7--0.2)	0.002
Belgium	1990-2006	1.2 (0.9-1.5)	<0.001	2006-2012	3.5 (1.5-5.6)	<0.001	2012-2019	-0.8 (-1.9-0.4)	0.2				1990-2019	1.5 (1.3-1.7)	<0.001
Denmark	1990-1997	7.9 (6.8-9)	<0.001	1997-2008	3.4 (2.8-4)	<0.001	2008-2015	-1.6 (-2.8--0.3)	<0.001	2015-2019	1.2 (-1.2-3.6)	0.3	1990-2019	2.6 (1.9-3.2)	<0.001
Finland	1990-1993	0.2 (-3.1-3.7)	0.9	1993-2011	3 (2.8-3.3)	<0.001	2011-2019	-0.8 (-1.6--0.1)	<0.001				1990-2019	2.2 (1.9-2.5)	<0.001
France	1990-1996	1.4 (-0.8-3.6)	0.2	1996-2005	10.2 (8.7-11.7)	<0.001	2005-2014	-7.3 (-8.6--6)	<0.001	2014-2019	1.8 (-1-4.8)	0.2	1990-2019	1.3 (0.1-2.5)	0.03
Germany	1990-1994	4.6 (2.9-6.2)	<0.001	1994-2004	-1.4 (-1.9--1)	<0.001	2004-2011	3.5 (2.6-4.3)	<0.001	2011-2019	-0.3 (-0.9-0.2)	0.2	1990-2019	0.7 (0.5-1)	<0.001
Greece	1990-1993	6.9 (3.9-10)	<0.001	1993-2006	2.5 (2.2-2.9)	<0.001	2006-2019	-0.8 (-1.1--0.5)	<0.001				1990-2019	1.3 (0.9-1.7)	<0.001
Ireland	1990-1997	-1.1 (-2--0.1)	<0.001	1997-2011	3.6 (3.2-3.9)	<0.001	2011-2019	-0.5 (-1.2-0.3)	0.2				1990-2019	2 (1.7-2.3)	<0.001
Italy	1990-2003	1.7 (1.4-1.9)	<0.001	2003-2019	-0.4 (-0.6--0.2)	<0.001							1990-2019	0.5 (0.3-0.7)	<0.001
Luxembourg	1990-1995	3.7 (3.1-4.4)	<0.001	1995-2005	1.8 (1.5-2.1)	<0.001	2005-2016	-2.3 (-2.5--2)	<0.001	2016-2019	0.7 (-0.8-2.1)	0.3	1990-2019	0.1 (-0.3-0.5)	0.548
Netherlands	1990-2004	0.7 (0.4-1.1)	<0.001	2004-2012	3.7 (2.7-4.8)	<0.001	2012-2019	0.5 (-0.5-1.5)	0.3				1990-2019	1.8 (1.6-2)	<0.001
Norway	1990-2005	2.2 (1.9-2.5)	<0.001	2005-2009	5.5 (2.3-8.9)	<0.001	2009-2019	-0.6 (-1.1--0.1)	<0.001				1990-2019	2 (1.8-2.3)	<0.001
Portugal	1990-2002	2.7 (2.2-3.2)	<0.001	2002-2005	-1.2 (-8.5-6.6)	0.7	2005-2009	4.8 (0.8-8.8)	<0.001	2009-2019	-0.2 (-0.7-0.4)	0.6	1990-2019	1.7 (1.5-1.9)	<0.001
Spain	1990-2008	2.5 (2.4-2.6)	<0.001	2008-2019	-0.1 (-0.3-0.1)	0.3							1990-2019	1.6 (1.4-1.9)	<0.001
Sweden	1990-1996	0.3 (-0.6-1.1)	0.5	1996-2003	-1.9 (-2.7--1.1)	<0.001	2003-2011	2.4 (1.7-3.1)	<0.001	2011-2019	-0.4 (-0.9-0.2)	0.2	1990-2019	0.3 (0.1-0.5)	0.015
United Kingdom	1990-2000	0.6 (0.3-1)	<0.001	2000-2008	2.2 (1.6-2.9)	<0.001	2008-2019	0.7 (0.4-1)	<0.001				1990-2019	1.3 (1.2-1.4)	<0.001
Canada	1990-2006	2.9 (2.7-3.1)	<0.001	2006-2019	0 (-0.2-0.3)	0.9							1990-2019	1.7 (1.4-2)	<0.001
United States of America	1990-1994	3.8 (2.6-5.1)	<0.001	1994-2001	2 (1.4-2.7)	<0.001	2001-2004	-1 (-4.7-2.9)	0.6	2004-2019	0.9 (0.8-1.1)	<0.001	1990-2019	1.1 (0.9-1.3)	<0.001

EAPC indicates estimated annual percentage change, with 95% confidence intervals in brackets. *Significantly different from 0 (P<0.05).

B)

Country	Trend 1			Trend 2			Trend 3			Trend 4			AAPC		
	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	AAPC (95% CI)	P value
Global	1990-2010	1.4 (1.4-1.5)	<0.001	2010-2014	-1.1 (-1.8--0.4)	<0.001	2014-2019	0.6 (0.2-0.9)	<0.001				1990-2019	1 (0.8-1.1)	<0.001
Australia	1990-1996	3.4 (2.6-4.1)	<0.001	1996-2000	5.5 (3.2-7.9)	<0.001	2000-2009	3.9 (3.4-4.5)	<0.001	2009-2019	-1 (-1.4--0.7)	<0.001	1990-2019	2.7 (2.2-3.2)	<0.001
Austria	1990-2000	0.5 (0-0.9)	<0.001	2000-2007	-3.5 (-4.5--2.5)	<0.001	2007-2019	-0.5 (-0.9--0.2)	<0.001				1990-2019	-1.3 (-1.5--1.1)	<0.001
Belgium	1990-1994	2 (-0.6-4.5)	0.1	1994-2001	-5.5 (-6.8--4.3)	<0.001	2001-2007	2.9 (1.1-4.7)	<0.001	2007-2019	-1.7 (-2.2--1.3)	<0.001	1990-2019	-1.2 (-1.6--0.9)	<0.001
Denmark	1990-1997	6.2 (5.2-7.2)	<0.001	1997-2005	0.6 (-0.3-1.6)	0.2	2005-2010	2.5 (0.2-4.9)	<0.001	2010-2019	-0.1 (-0.7-0.6)	0.8	1990-2019	1.8 (1.4-2.1)	<0.001
Finland	1990-2012	2.1 (1.9-2.3)	<0.001	2012-2016	-5.9 (-9.8--1.8)	<0.001	2016-2019	1.5 (-2.7-5.8)	0.5				1990-2019	1.1 (0.7-1.5)	<0.001
France	1990-2004	1.1 (0.9-1.3)	<0.001	2004-2009	-1.3 (-2.6--0.1)	<0.001	2009-2014	-4.7 (-5.9--3.5)	<0.001	2014-2019	-1.4 (-2.3--0.6)	<0.001	1990-2019	-0.9 (-1.3--0.5)	<0.001
Germany	1990-1994	2.9 (1.5-4.4)	<0.001	1994-2001	-1.5 (-2.2--0.7)	<0.001	2001-2008	0.5 (-0.2-1.3)	0.2	2008-2019	-0.8 (-1.1--0.5)	<0.001	1990-2019	-0.3 (-0.4--0.2)	<0.001
Greece	1990-1992	7.8 (0.8-15.2)	<0.001	1992-2000	-0.6 (-1.5-0.3)	0.2	2000-2004	2 (-1.3-5.5)	0.2	2004-2019	-1.3 (-1.6--1.1)	<0.001	1990-2019	-0.3 (-0.6--0.1)	0.006
Ireland	1990-1998	-0.1 (-0.8-0.7)	0.9	1998-2009	3.2 (2.7-3.8)	<0.001	2009-2019	-0.2 (-0.7-0.4)	0.5				1990-2019	1.6 (1.4-1.9)	<0.001
Italy	1990-2003	1 (0.8-1.3)	<0.001	2003-2016	-2.3 (-2.6--2.1)	<0.001	2016-2019	0.9 (-1.4-3.3)	0.4				1990-2019	-0.8 (-1.1--0.5)	<0.001
Luxembourg	1990-1998	1.3 (0.7-1.8)	<0.001	1998-2003	-1.7 (-3.2--0.1)	<0.001	2003-2010	0.2 (-0.6-1)	0.7	2010-2019	-2.7 (-3.2--2.3)	<0.001	1990-2019	-0.7 (-1--0.5)	<0.001
Netherlands	1990-2000	1.2 (0.8-1.5)	<0.001	2000-2003	4.4 (-0.5-9.6)	0.1	2003-2010	1.5 (0.6-2.3)	<0.001	2010-2019	-0.1 (-0.5-0.4)	0.7	1990-2019	1.4 (1.2-1.6)	<0.001
Norway	1990-2010	1.7 (1.5-1.8)	<0.001	2010-2019	-1.4 (-1.9--0.9)	<0.001							1990-2019	0.9 (0.7-1.2)	<0.001
Portugal	1990-1998	3 (2-4)	<0.001	1998-2002	-6.1 (-10.2--1.9)	<0.001	2002-2019	0.1 (-0.2-0.4)	0.4				1990-2019	-0.5 (-0.8--0.2)	0.002
Spain	1990-2009	1.6 (1.4-1.7)	<0.001	2009-2016	-2.7 (-3.4--2)	<0.001	2016-2019	0.4 (-1.7-2.6)	0.7				1990-2019	0.5 (0.1-0.8)	0.006
Sweden	1990-1998	-0.5 (-1-0)	0.1	1998-2004	3.1 (2-4.2)	<0.001	2004-2012	1.2 (0.6-1.9)	<0.001	2012-2019	-1.2 (-1.8--0.6)	<0.001	1990-2019	1 (0.8-1.3)	<0.001
United Kingdom	1990-1997	0.3 (-0.3-0.8)	0.3	1997-2019	1.2 (1.1-1.3)	<0.001							1990-2019	1.1 (1-1.2)	<0.001
Canada	1990-2002	3.3 (3-3.6)	<0.001	2002-2010	-1.1 (-1.6--0.5)	<0.001	2010-2013	-5.4 (-9.2--1.3)	<0.001	2013-2019	0.1 (-0.6-0.8)	0.8	1990-2019	0.2 (-0.3-0.7)	0.474
United States of America	1990-2002	2.1 (1.9-2.3)	<0.001	2002-2009	1.2 (0.7-1.7)	<0.001	2009-2019	-0.4 (-0.7--0.2)	<0.001				1990-2019	1.1 (0.9-1.3)	<0.001

EAPC indicates estimated annual percentage change, with 95% confidence intervals in brackets. *Significantly different from 0 (P<0.05).

eTable 5: Joinpoint analysis for thyroid cancer age-standardized mortality rates in EU15+ countries for years 1990-2019 for both sexes.

Country	Trend 1			Trend 2			Trend 3			Trend 4			AAPC		
	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	AAPC (95% CI)	P value
Global	1990-2004	-0.1 (-0.2--0.1)	<0.001	2004-2010	0.2 (0-0.4)	0.055	2010-2017	-0.6 (-0.8--0.5)	<0.001	2017-2019	-0.1 (-0.9-0.8)	0.82	1990-2019	-0.2(-0.2--0.1)	<0.001
Australia	1990-1997	-0.9 (-1.4--0.5)	<0.001	1997-2011	1.8 (1.6-2)	<0.001	2011-2019	-1.2 (-1.6--0.8)	<0.001				1990-2019	0.6(0.2-1)	0.004
Austria	1990-1998	-1.2 (-1.5--0.9)	<0.001	1998-2008	-3.3 (-3.5--3)	<0.001	2008-2014	-1.9 (-2.4--1.3)	<0.001	2014-2019	-0.5 (-1-0.1)	0.096	1990-2019	-2.1(-2.4--1.8)	<0.001
Belgium	1990-1993	-0.7 (-3.9-2.6)	0.671	1993-2003	-6.6 (-7.1--6)	<0.001	2003-2012	0.7 (0-1.4)	0.05	2012-2019	-1.5 (-2.3--0.6)	0.002	1990-2019	-2.7(-3.1--2.3)	<0.001
Denmark	1990-1997	5.6 (5-6.1)	<0.001	1997-2003	-0.5 (-1.4-0.3)	0.212	2003-2011	0.3 (-0.2-0.8)	0.264	2011-2019	-1.5 (-2--1.1)	<0.001	1990-2019	1(0.8-1.3)	<0.001
Finland	1990-2003	-1.2 (-1.4--0.9)	<0.001	2003-2011	0.5 (-0.1-1.2)	0.112	2011-2019	-2.1 (-2.6--1.6)	<0.001				1990-2019	-0.8(-1.1--0.5)	<0.001
France	1990-1997	-2.2 (-2.8--1.7)	<0.001	1997-2005	0.5 (0-1.1)	0.065	2005-2014	-5.1 (-5.6--4.7)	<0.001	2014-2019	-0.1 (-1-0.8)	0.802	1990-2019	-2.2(-2.6--1.8)	<0.001
Germany	1990-1997	-1.1 (-1.5--0.8)	<0.001	1997-2001	-5.2 (-6.4--4)	<0.001	2001-2005	-3.1 (-4.3--1.9)	<0.001	2005-2019	-0.4 (-0.5--0.3)	<0.001	1990-2019	-1.8(-2.1--1.6)	<0.001
Greece	1990-1993	2.8 (-0.4-6)	0.081	1993-2004	-0.9 (-1.3--0.4)	0.001	2004-2014	-3.7 (-4.2--3.1)	<0.001	2014-2019	0.7 (-0.7-2.1)	0.339	1990-2019	-1.7(-2.1--1.3)	<0.001
Ireland	1990-1996	-3.8 (-4.3--3.3)	<0.001	1996-2003	-1.8 (-2.3--1.3)	<0.001	2003-2014	0.3 (0.1-0.6)	0.008	2014-2019	-1.5 (-2.2--0.8)	<0.001	1990-2019	-1.2(-1.3--1)	<0.001
Italy	1990-1999	-1.4 (-1.6--1.3)	<0.001	1999-2016	-1.8 (-1.9--1.7)	<0.001	2016-2019	0.1 (-0.9-1.2)	0.823				1990-2019	-1.5(-1.7--1.4)	<0.001
Luxembourg	1990-1996	-1.3 (-1.6--1.1)	<0.001	1996-2013	-2.3 (-2.4--2.3)	<0.001	2013-2016	-3.7 (-5.2--2.2)	<0.001	2016-2019	0 (-0.8-0.8)	0.988	1990-2019	-2.1(-2.3--2)	<0.001
Netherlands	1990-2003	-0.9 (-1.2--0.7)	<0.001	2003-2014	0.6 (0.2-0.9)	0.003	2014-2019	-0.7 (-1.7-0.3)	0.156				1990-2019	-0.3(-0.4--0.1)	0.002
Norway	1990-2004	-0.4 (-0.5--0.3)	<0.001	2004-2011	0.7 (0.2-1.2)	0.005	2011-2019	-1.2 (-1.5--0.9)	<0.001				1990-2019	-0.3(-0.5--0.1)	0.002
Portugal	1990-1998	-2.8 (-3.4--2.1)	<0.001	1998-2005	-6.6 (-7.5--5.7)	<0.001	2005-2009	2.4 (-0.5-5.5)	0.101	2009-2019	-1.4 (-1.9--1)	<0.001	1990-2019	-2.7(-3--2.3)	<0.001
Spain	1990-1999	-0.7 (-0.9--0.5)	<0.001	1999-2002	-2.1 (-3.9--0.2)	0.031	2002-2007	-0.4 (-1-0.2)	0.194	2007-2019	-0.8 (-0.9--0.7)	<0.001	1990-2019	-0.9(-0.9--0.8)	<0.001
Sweden	1990-2004	-2.1 (-2.2--2)	<0.001	2004-2011	1.1 (0.7-1.5)	<0.001	2011-2019	-1 (-1.3--0.7)	<0.001				1990-2019	-0.9(-1.1--0.7)	<0.001
United Kingdom	1990-1997	-1.4 (-1.7--1.1)	<0.001	1997-2011	-0.5 (-0.7--0.4)	<0.001	2011-2019	0.3 (0-0.5)	0.036				1990-2019	-0.6(-0.7--0.5)	<0.001
Canada	1990-2006	0.9 (0.8-1.1)	<0.001	2006-2015	-2.2 (-2.6--1.8)	<0.001	2015-2019	-0.1 (-1.3-1.1)	0.8				1990-2019	-0.3(-0.5--0.2)	<0.001
United States of America	1990-2002	0.8 (0.7-0.9)	<0.001	2002-2019	0.2 (0.1-0.3)	<0.001							1990-2019	0.4(0.4-0.5)	<0.001

EAPC indicates estimated annual percentage change, with 95% confidence intervals in brackets. *Significantly different from 0 (P<0.05).

eTable 6: Joinpoint analysis for thyroid cancer age-standardized mortality rates in EU15+ countries for years 1990-2019 in males (A), females (B).

A)

Country	Trend 1			Trend 2			Trend 3			Trend 4			AAPC		
	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	AAPC (95% CI)	P value
Global	1990-2004	0.6 (0.5-0.6)	<0.001	2004-2011	1.4 (1.3-1.6)	<0.001	2011-2019	-0.3 (-0.4--0.2)	<0.001				1990-2019	0.7 (0.6-0.8)	<0.001
Australia	1990-1994	-1.3 (-2.3--0.3)	<0.001	1994-2003	1.1 (0.8-1.5)	<0.001	2003-2012	2.2 (1.8-2.5)	<0.001	2012-2019	-0.9 (-1.3--0.5)	<0.001	1990-2019	1.1 (0.9-1.3)	<0.001
Austria	1990-1996	1.6 (0.9-2.3)	<0.001	1996-2001	-3.8 (-5.1--2.5)	<0.001	2001-2011	-2.3 (-2.7--1.9)	<0.001	2011-2019	-0.8 (-1.2--0.3)	<0.001	1990-2019	-1.8 (-2--1.6)	<0.001
Belgium	1990-2006	-1.6 (-1.9--1.3)	<0.001	2006-2012	3 (1.1-4.9)	<0.001	2012-2019	-1.6 (-2.6--0.5)	<0.001				1990-2019	-0.4 (-0.7--0.1)	0.006
Denmark	1990-1997	6.4 (5.7-7.1)	<0.001	1997-2008	1 (0.6-1.3)	<0.001	2008-2015	-2.1 (-3--1.3)	<0.001	2015-2019	-0.3 (-1.9-1.2)	0.7	1990-2019	0.9 (0.3-1.4)	0.002
Finland	1990-1993	-1.1 (-3.5-1.4)	0.4	1993-2011	0.9 (0.7-1)	<0.001	2011-2019	-1.2 (-1.8--0.7)	<0.001				1990-2019	0.4 (0.2-0.5)	<0.001
France	1990-1996	-1.1 (-2.6-0.4)	0.1	1996-2004	6.1 (4.8-7.4)	<0.001	2004-2014	-6.1 (-6.9--5.3)	<0.001	2014-2019	0.8 (-1.2-2.9)	0.4	1990-2019	-0.7 (-1.5-0.1)	0.07
Germany	1990-1996	0.4 (-0.1-0.9)	0.1	1996-2005	-3.7 (-4--3.4)	<0.001	2005-2013	1.9 (1.5-2.3)	<0.001	2013-2019	-1.2 (-1.8--0.7)	<0.001	1990-2019	-1 (-1.3--0.6)	<0.001
Greece	1990-1992	4.5 (-0.2-9.3)	0.1	1992-2001	1.4 (0.9-1.9)	<0.001	2001-2013	-1.5 (-1.8--1.1)	<0.001	2013-2019	0.2 (-0.5-1)	0.5	1990-2019	-0.3 (-0.5-0)	0.029
Ireland	1990-1996	-3.6 (-4.2--3)	<0.001	1996-2006	-0.6 (-0.9--0.2)	<0.001	2006-2013	1 (0.4-1.7)	<0.001	2013-2019	-1.3 (-1.9--0.7)	<0.001	1990-2019	-0.5 (-0.8--0.3)	<0.001
Italy	1990-2012	-0.7 (-0.7--0.6)	<0.001	2012-2016	-1.8 (-3.2--0.5)	<0.001	2016-2019	0 (-1.3-1.4)	0.9				1990-2019	-0.8 (-0.8--0.7)	<0.001
Luxembourg	1990-2004	-0.3 (-0.4--0.2)	<0.001	2004-2016	-2.9 (-3.1--2.8)	<0.001	2016-2019	-0.1 (-1.2-1)	0.8				1990-2019	-1.6 (-1.8--1.3)	<0.001
Netherlands	1990-2004	-1 (-1.3--0.7)	<0.001	2004-2016	1.4 (1-1.9)	<0.001	2016-2019	-1.4 (-4.5-1.8)	0.4				1990-2019	0.2 (-0.1-0.4)	0.152
Norway	1990-2004	-0.3 (-0.5--0.1)	<0.001	2004-2008	3.2 (1.2-5.3)	<0.001	2008-2019	-0.9 (-1.2--0.6)	<0.001				1990-2019	0.2 (0-0.3)	0.029
Portugal	1990-2002	-0.3 (-0.7-0.1)	0.1	2002-2005	-4.5 (-10.6-2)	0.2	2005-2009	2.8 (-0.5-6.2)	0.1	2009-2019	-1.1 (-1.6--0.6)	<0.001	1990-2019	-0.6 (-0.7--0.4)	<0.001
Spain	1990-1994	-0.8 (-1.4--0.1)	<0.001	1994-2014	0.2 (0.2-0.3)	<0.001	2014-2019	-0.6 (-1.1--0.1)	<0.001				1990-2019	0.1 (0-0.1)	0.001
Sweden	1990-1996	-0.4 (-1.1-0.3)	0.3	1996-2003	-2.8 (-3.5--2.1)	<0.001	2003-2011	1.9 (1.3-2.5)	<0.001	2011-2019	-0.8 (-1.3--0.4)	<0.001	1990-2019	-0.4 (-0.6--0.1)	0.005
United Kingdom	1990-2001	-0.8 (-1--0.7)	<0.001	2001-2008	0.5 (0.1-0.9)	<0.001	2008-2011	-1 (-3.4-1.4)	0.4	2011-2019	0.3 (0-0.5)	0.1	1990-2019	-0.2 (-0.3--0.1)	<0.001
Canada	1990-2002	0.9 (0.7-1.1)	<0.001	2002-2005	2.8 (-0.6-6.2)	0.1	2005-2019	-0.8 (-1--0.6)	<0.001				1990-2019	0.4 (0.2-0.6)	<0.001
United States of America	1990-2001	1.4 (1.2-1.5)	<0.001	2001-2004	-1.3 (-3.3-0.7)	0.2	2004-2019	0.6 (0.6-0.7)	<0.001				1990-2019	0.6 (0.5-0.7)	<0.001

EAPC indicates estimated annual percentage change, with 95% confidence intervals in brackets. *Significantly different from 0 (P<0.05).

B)

Country	Trend 1			Trend 2			Trend 3			Trend 4			AAPC		
	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	EAPC (95% C.I)	P-Value	Years	AAPC (95% CI)	P value
Global	1990-1993	0.1 (-0.3-0.4)	0.7	1993-2009	-0.5 (-0.5--0.5)	<0.001	2009-2014	-1.1 (-1.3--0.8)	<0.001	2014-2019	-0.5 (-0.7--0.3)	<0.001	1990-2019	-0.6 (-0.6--0.6)	<0.001
Australia	1990-1997	-1.3 (-1.7--0.9)	<0.001	1997-2010	1.9 (1.7-2.1)	<0.001	2010-2019	-1.5 (-1.8--1.2)	<0.001				1990-2019	0.6 (0.3-0.8)	<0.001
Austria	1990-1996	-3.1 (-3.7--2.4)	<0.001	1996-1999	0 (-3.8-4)	1	1999-2009	-3.8 (-4.2--3.5)	<0.001	2009-2019	-1.2 (-1.5--0.9)	<0.001	1990-2019	-2.6 (-2.7--2.4)	<0.001
Belgium	1990-1994	-0.8 (-2.9-1.3)	0.4	1994-2001	-10.7 (-11.7--9.7)	<0.001	2001-2019	-1.2 (-1.4--1)	<0.001				1990-2019	-3.8 (-4.5--3.2)	<0.001
Denmark	1990-1997	5 (4.4-5.6)	<0.001	1997-2008	-0.8 (-1.2--0.5)	<0.001	2008-2011	2.8 (-1.4-7.3)	0.2	2011-2019	-1.6 (-2.1--1.2)	<0.001	1990-2019	0.4 (0-0.7)	0.031
Finland	1990-2002	-1.9 (-2.2--1.5)	<0.001	2002-2012	0.1 (-0.4-0.7)	0.5	2012-2016	-4 (-6.6--1.4)	<0.001	2016-2019	-0.3 (-3-2.5)	0.8	1990-2019	-1.1 (-1.3--1)	<0.001
France	1990-2016	-3.2 (-3.3--3.1)	<0.001	2016-2019	-0.1 (-1.6-1.4)	0.9							1990-2019	-3.1 (-3.2--3)	<0.001
Germany	1990-1997	-1.7 (-2--1.4)	<0.001	1997-2001	-5.5 (-6.6--4.3)	<0.001	2001-2007	-3 (-3.6--2.5)	<0.001	2007-2019	-0.9 (-1--0.7)	<0.001	1990-2019	-2.4 (-2.7--2.2)	<0.001
Greece	1990-1992	4.3 (-2.1-11.1)	0.2	1992-2004	-1.4 (-1.8--1)	<0.001	2004-2015	-4.7 (-5.2--4.3)	<0.001	2015-2019	1.7 (-0.3-3.7)	0.1	1990-2019	-2.7 (-3--2.4)	<0.001
Ireland	1990-1994	-4.3 (-5.3--3.2)	<0.001	1994-2002	-2.9 (-3.3--2.4)	<0.001	2002-2015	0.1 (-0.1-0.3)	0.4	2015-2019	-1.7 (-2.8--0.6)	<0.001	1990-2019	-1.2 (-1.5--0.9)	<0.001
Italy	1990-2000	-1.9 (-2.1--1.8)	<0.001	2000-2014	-2.5 (-2.6--2.4)	<0.001	2014-2017	-1 (-2.5-0.6)	0.2	2017-2019	0.6 (-0.9-2.2)	0.4	1990-2019	-2.2 (-2.3--2.1)	<0.001
Luxembourg	1990-1996	-2.1 (-2.8--1.4)	<0.001	1996-2003	-4.2 (-4.8--3.5)	<0.001	2003-2019	-2.3 (-2.5--2.2)	<0.001	1990-1998	-1.3 (-1.8--0.9)	<0.001	1990-2019	-2.9 (-3--2.7)	<0.001
Netherlands	1998-2014	0 (-0.1-0.2)	0.6	2014-2019	-0.9 (-1.8-0)	<0.001							1990-2019	-0.3 (-0.4--0.2)	<0.001
Norway	1990-2004	-0.4 (-0.6--0.3)	<0.001	2004-2012	0.1 (-0.2-0.5)	0.5	2012-2019	-1.2 (-1.5--0.8)	<0.001				1990-2019	-0.4 (-0.4--0.3)	<0.001
Portugal	1990-1998	-3 (-3.8--2.1)	<0.001	1998-2003	-10.7 (-12.9--8.4)	<0.001	2003-2019	-0.9 (-1.3--0.6)	<0.001				1990-2019	-3.7 (-4.2--3.1)	<0.001
Spain	1990-1999	-1 (-1.3--0.7)	<0.001	1999-2002	-3.4 (-6.4--0.2)	<0.001	2002-2007	-0.8 (-1.8-0.3)	0.1	2007-2019	-1.4 (-1.6--1.3)	<0.001	1990-2019	-1.4 (-1.5--1.4)	<0.001
Sweden	1990-1998	-2.8 (-3.2--2.5)	<0.001	1998-2005	-1.2 (-1.7--0.7)	<0.001	2005-2011	0.4 (-0.3-1.1)	0.2	2011-2019	-1 (-1.4--0.7)	<0.001	1990-2019	-1 (-1.2--0.8)	<0.001
United Kingdom	1990-1995	-1.6 (-2.3--1)	<0.001	1995-2010	-0.9 (-1--0.7)	<0.001	2010-2019	0.3 (0-0.6)	<0.001				1990-2019	-0.7 (-0.8--0.5)	<0.001
Canada	1990-2005	0.9 (0.7-1.2)	<0.001	2005-2015	-2.9 (-3.4--2.5)	<0.001	2015-2019	-0.1 (-1.7-1.6)	0.9				1990-2019	-0.7 (-1.1--0.4)	<0.001
United States of America	1990-1996	0.1 (-0.2-0.4)	0.5	1996-2007	0.8 (0.7-1)	<0.001	2007-2019	-0.3 (-0.4--0.2)	<0.001				1990-2019	0.3 (0.2-0.4)	<0.001

EAPC indicates estimated annual percentage change, with 95% confidence intervals in brackets. *Significantly different from 0 (P<0.05).

eTable 7: Joinpoint analysis for thyroid cancer age-standardized DALYs in EU15+ countries for years 1990-2019 in both sexes.

Country	Trend 1			Trend 2			Trend 3			Trend 4			AAPC		
	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	EAPC (95% CI)	P-Value	Years	AAPC (95% CI)	P value
Global	1990-2011	0(-0.1-0)	0.259	2011-2015	-0.9(-1.5--0.2)	0.009	2015-2019	-0.1(-0.5-0.3)	0.665				1990-2019	-0.2(-0.2--0.1)	<0.001
Australia	1990-1995	-0.9(-1.6--0.2)	0.012	1995-2005	1.6(1.3-1.9)	<0.001	2005-2009	3.2(1.6-4.9)	0.001	2009-2019	-0.8(-1.1--0.6)	<0.001	1990-2019	0.8(0.5-1.1)	<0.001
Austria	1990-1998	-0.9(-1.2--0.6)	<0.001	1998-2007	-3.5(-3.8--3.2)	<0.001	2007-2014	-1.8(-2.2--1.4)	<0.001	2014-2019	-0.5(-1.1-0.1)	0.111	1990-2019	-2(-2.4--1.7)	<0.001
Belgium	1990-1994	-1.6(-3.4-0.2)	0.079	1994-2002	-5.4(-6.1--4.7)	<0.001	2002-2011	0.5(-0.2-1.1)	0.137	2011-2019	-1.4(-2--0.8)	<0.001	1990-2019	-2.1(-2.4--1.7)	<0.001
Denmark	1990-1997	5.1(4.4-5.8)	<0.001	1997-2010	-0.2(-0.4-0.1)	0.265	2010-2019	-1.3(-1.7--0.9)	<0.001				1990-2019	0.9(0.6-1.1)	<0.001
Finland	1990-2002	-0.9(-1.2--0.7)	<0.001	2002-2011	0.9(0.4-1.4)	0.002	2011-2016	-3.4(-4.8--1.9)	<0.001	2016-2019	-0.3(-2.7-2.1)	0.769	1990-2019	-0.7(-1--0.4)	<0.001
France	1990-1996	-2(-3--1)	0.001	1996-2005	2.1(1.4-2.7)	<0.001	2005-2014	-6.1(-6.7--5.5)	<0.001	2014-2019	-0.1(-1.5-1.2)	0.825	1990-2019	-1.9(-2.4--1.4)	<0.001
Germany	1990-1996	-0.8(-1.3--0.4)	0.001	1996-2004	-3.8(-4.2--3.5)	<0.001	2004-2012	-0.2(-0.5-0.2)	0.275	2012-2019	-0.9(-1.2--0.6)	<0.001	1990-2019	-1.7(-1.9--1.4)	<0.001
Greece	1990-1992	4.4(1.2-7.7)	0.01	1992-2005	-0.8(-0.9--0.6)	<0.001	2005-2014	-2.4(-2.7--2.1)	<0.001	2014-2019	0.3(-0.4-1)	0.358	1990-2019	-0.9(-1.3--0.6)	<0.001
Ireland	1990-1996	-3.3(-3.9--2.8)	<0.001	1996-2003	-1.2(-1.8--0.7)	<0.001	2003-2012	0.6(0.2-1)	0.002	2012-2019	-1.2(-1.6--0.8)	<0.001	1990-2019	-1(-1.2--0.7)	<0.001
Italy	1990-2001	-1.2(-1.3--1)	<0.001	2001-2016	-1.9(-2--1.8)	<0.001	2016-2019	0.3(-0.8-1.5)	0.593				1990-2019	-1.6(-1.7--1.4)	<0.001
Luxembourg	1990-1996	-1(-1.2--0.8)	<0.001	1996-2006	-2(-2.1--1.8)	<0.001	2006-2016	-2.7(-2.9--2.6)	<0.001	2016-2019	-0.4(-1-0.3)	0.263	1990-2019	-2(-2.1--1.9)	<0.001
Netherlands	1990-2000	-0.9(-1.3--0.6)	<0.001	2000-2019	0.2(0-0.3)	0.011							1990-2019	-0.2(-0.3--0.1)	0.007
Norway	1990-2004	-0.3(-0.5--0.2)	<0.001	2004-2010	0.8(0.1-1.5)	0.022	2010-2019	-1.5(-1.8--1.2)	<0.001				1990-2019	-0.4(-0.6--0.2)	<0.001
Portugal	1990-1998	-1.5(-2.1--1)	<0.001	1998-2005	-5.4(-6.3--4.6)	<0.001	2005-2009	2.2(-0.4-4.9)	0.094	2009-2019	-1.4(-1.8--1)	<0.001	1990-2019	-2.1(-2.4--1.7)	<0.001
Spain	1990-2005	-0.7(-0.8--0.6)	<0.001	2005-2008	0(-1.9-2)	0.983	2008-2016	-1.6(-1.8--1.3)	<0.001	2016-2019	-0.1(-1.1-0.8)	0.755	1990-2019	-0.9(-0.9--0.8)	<0.001
Sweden	1990-2000	-2.2(-2.3--2)	<0.001	2000-2005	-0.2(-1-0.5)	0.549	2005-2011	1.2(0.6-1.7)	<0.001	2011-2019	-1.2(-1.4--0.9)	<0.001	1990-2019	-0.7(-0.9--0.5)	<0.001
United Kingdom	1990-2000	-1.1(-1.3--0.9)	<0.001	2000-2008	0(-0.3-0.3)	0.942	2008-2011	-1.2(-3.6-1.2)	0.303	2011-2019	0.4(0.1-0.6)	0.009	1990-2019	-0.5(-0.6--0.4)	<0.001
Canada	1990-2005	1.2(1-1.4)	<0.001	2005-2015	-2.2(-2.6--1.9)	<0.001	2015-2019	-0.1(-1.4-1.2)	0.862				1990-2019	-0.3(-0.5--0.1)	<0.001
United States of America	1990-2001	1(0.9-1.2)	<0.001	2001-2019	0.1(0-0.2)	0.009							1990-2019	0.4(0.4-0.5)	<0.001

EAPC indicates estimated annual percentage change, with 95% confidence intervals in brackets. *Significantly different from 0 (P<0.05).