European Commission
Directorate C
Public Health and Risk Assessment
Health & Consumer Protection Directorate general
GRANT AGREEMENT
n° 2006116

DYNAMO-HIA

WP-10 on CANCER

Report on data collection

04/01/2010

WP Leader
Andrea Micheli

Document prepared by:
Paolo Baili
Ilaria Casella

Unit of Descriptive Studies and Health Planning
Fondazione IRCCS “Istituto Nazionale dei Tumori” (INT)
Via Venezian, 1
20133 Milan, Italy
Tel. +39 02 2390 2869
Fax +39 02 2390 3528
E-mail lifetable@istitutotumori.mi.it

INDEX

INTRODUCTION

DYNAMO-HIA (DYNAmic MOdel for Health Impact Assessment – http://www.dynamo-hia.eu/) project is an European Commission funded project aiming to develop a web-based tool to assess the health impact of policies in the European Union (EU) through their influence on health determinants, including alcohol consumption.
This document provides information on the project's 10th workpackage: "WP10 – Cancer" (WP-10), led by the Fondazione IRCCS "Istituto Nazionale dei Tumori" in Milan (Italy).
The main activity of the WP-10 on cancer is to deliver age- and gender-specific data on the prevalence, incidence, case fatality and mortality of cancer in as many EU countries as possible (i.e. indicators should be at national level) using existing data sources.

ESTIMATING DATA ON CANCER

1. Selection and definition of cancer sites

The choice of cancer sites to include in the WP-10 activity depended on:
- known relation with risk factors studied in DYNAMO-HIA
- cancer site burden in Europe
- availability of cancer incidence/mortality data in international databases
- known problems about international classification of mortality and/or incidence data. For example:
  - liver cancer: problems refer to identification of primary and not primary tumours
  - bladder cancer: problems refer to identification between benign and malignant tumours
  - pancreatic cancer: similar problems of the liver cancer (in a smaller percentage)

After discussion with DYNAMO-HIA WP-Coordination the final list of cancer sites (for which WP-10 produces data estimates) includes:
- Lung, tracheas and bronchus: ICD-10 C33+C34
- Breast: ICD-10 C50
- Colon, Rectum and Anus: ICD-10 C18-C21
- Oral cavity and pharynx: ICD-10 C00-C14
- Oesophagus: ICD-10 C15

2. General approach for obtaining data

The indicators for which WP-10 produces data estimates (at national level) are:
- Cancer incidence rates by sex and age (each age 0-95)
- Cancer mortality rates by sex and age (each age 0-95)
- Case fatality rates by sex and age (each age 0-95)
- Cancer prevalence proportions by sex and age (each age 0-95)

Epidemiological indicators such as incidence, survival and prevalence are collected routinely by cancer registries (CRs). Cancer registries in some European countries cover the entire population; others cover only limited geographical areas while in others cancer registries are not present. Cancer registries provide *observed data*. The International Agency on Research on Cancer (IARC) regularly publishes the book "Cancer Incidence in Five Continents" [1] which includes cancer incidence *observed* data from all world CRs satisfying specific data quality criteria. Moreover, IARC produces incidence and 5-year prevalence *estimates* at national level: statistical and mathematical models are used when the observed information is incomplete.
Available data (both *observed* and *estimated*) are rarely by single year of age as requested by DYNAMO-HIA.

3. Data collection and estimation methods

As DYNAMO-HIA required data by single year of age, WP-10 decided to estimate cancer data for DYNAMO-HIA using DISMOD [2] a model prepared by WHO able to produce consistently internal incidence, mortality and prevalence data by single year of age.
DISMOD requires input data. We used the best data available:
- Age-specific cancer-site incidence rates from the Cancer Incidence in V Continents – Vol IX [1]. These input data are by CRs, refer to 1998-2002 (for most CRs), and are by 5 year age classes (up to 85+ for most CRs)
- Age-specific cancer-site mortality rates from WHO databank [3]. These input data are by country (that is they are at national level), refer to 2000-2002 (for most countries) and are by 5 year age classes (up to 85+)
- Estimates of remission rates. Assuming cancer as an irreversible disease, total cancer prevalence includes all patients alive in a certain day with a past diagnosis of cancer. To estimate total prevalence DISMOD can be used under the hypothesis that remission rates equal to zero for each age

Table 1. Input data for DISMOD

	Mortality				Incidence			
	Source	**National Coverage**	**Year**	**Age classes**	**Source**	**National Coverage**	**Year**	**Age classes**
A	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
B	WHO	100%	1995-1997	5 yrs up to 85+	CI5C	About 62% [1]	Periods vary by CR between 1998 and 2002	5 yrs up to 80+
BUL*	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
CZ	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
DK	WHO	100%	1999-2001	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
EST	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
FIN	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
F	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	About 13% [2]	1998-2002	5 yrs up to 85+
D	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	About 20% [3]	1998-2002	5 yrs up to 85+
IRE	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
I	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	About 26% [4]	Periods vary by CR between 1998 and 2002	5 yrs up to 85+
LAT	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
LIT	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
MLT	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
NL	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
PL	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	About 9% [5]	1998-2002	5 yrs up to 80+
PT	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	About 57% [6]	Periods vary by CR between 1998 and 2002	5 yrs up to 75+
SVK	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
SLO	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 80+

E	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	About 22% [7]	1998-2002	5 yrs up to 85+
S	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	100%	1998-2002	5 yrs up to 85+
UK	WHO	100%	2000-2002	5 yrs up to 85+	CI5C	About 95% [8]	Periods vary by CR between 1996 and 2002	5 yrs up to 85+

A : Austria ; B: Belgium; BUL: Bulgaria; CZ: Czech Republic; DK: Denmark; EST: Estonia; FIN: Finland; F: France; D: Germany; IRE: Ireland; I: Italy; LAT: Latvia; LIT: Lithuania; MLT: Malta; NL; the Netherlands; PL: Poland; PT: Portugal; SVK: Slovakia; SLO: Slovenia; E: Spain; S: Sweden; UK: United Kingdom
CI5C: Cancer Incidence in 5 Continents. Vol IX [1]
WHO: World Health Organization mortality data bank [3]
[1] Cancer registries (CRs) of Antwerp*, Flanders
[2] CRs of Bas-Rhin, Calvados, Haut-Rhin, Doubs, Herault, Isère, Loire-Atlantique, Manche, Somme, Tarn, Vendee
[3] CRs of Brandenburg, Free State of Saxony, Hamburg, Mecklenburg-Western Pomerania, Munich, Northrhine-Westphalia (Munster), Saarland
[4] CRs of Biella, Brescia, Ferrara, Florence and Prato, Genoa, Macerata, Milan, Modena, Naples, North East, Parma, Ragusa, Reggio Emilia, Romagna, Salerno, Sassari, Sondrio, Syracuse, Torino, Umbria, Varese, Veneto
[5] CRs of Cracow*, Kielce and Warsaw
[6] CRs of South Regional, Porto*
[7] CRs of Albacete, Asturias, Basque Country, Canary Islands, Cuenca, Girona, Granada, Murcia, Navarra, Tarragona, Zaragoza
[8] CRs of Scotland, Northern Ireland, East of England Region, Merseyside and Cheshire, North Western, Northern and Yorkshire, Oxford Region, South and Western Regions, Thames, Trent, West Midlands
* cancer registries for which care should be taken in interpreting the rates for some or all of the cancer sites (CI5C editors considered that these registries have some limitations in determining the number of cases or the population at risk that could affect the ability to make direct comparisons with other registry datasets).

According to requests coming from the WP-Coordination we produced incidence, mortality, case fatality and prevalence estimates for 22 countries: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

Table 1 synthesizes the incidence and mortality input data used for DISMOD software. As mentioned before, mortality data are available at national level while incidence data are available for cancer registry areas. 14 countries have national CR coverage while for the other countries CR coverage is not national and varies between 9% of Poland to 95% for the UK.

Estimates for prevalence refer to *total prevalence* (i.e. remission rates equal to zero given as input to DISMOD).

In next paragraphs we present incidence, mortality, case fatality and prevalence estimates for countries mentioned before by cancer site, sex and age:

- for incidence and mortality, figures show the comparison between input data given to DISMOD and output data produced by DISMOD (using remission equal to zero for all ages)
- for all the figures referring calendar periods are those indicated in Table 1
- figures are by single age class up to age 95

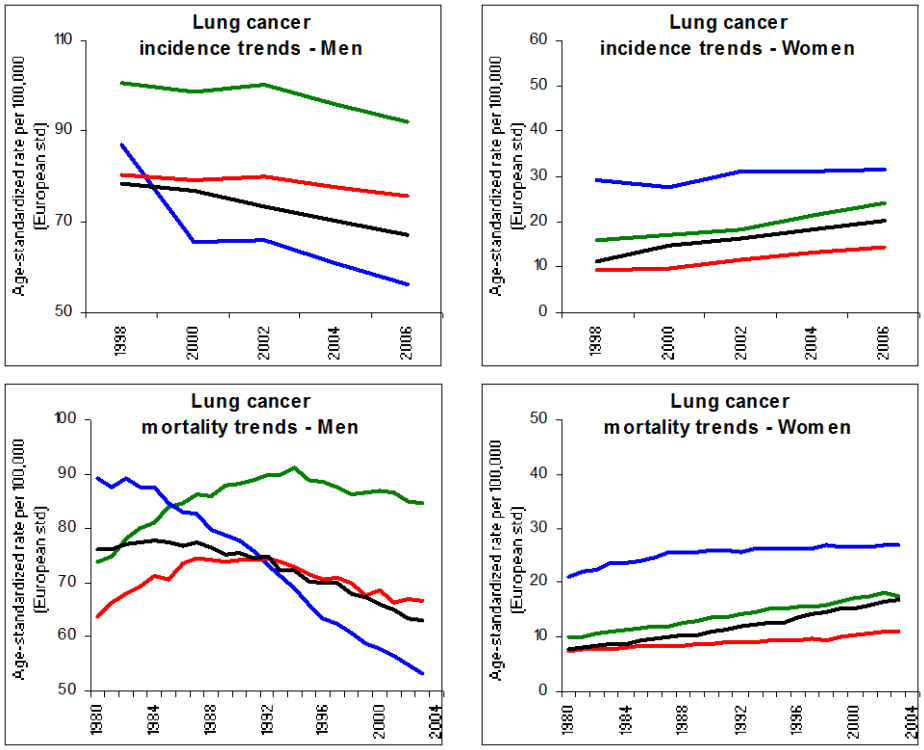
Each paragraph is introduced by a summary with a short description of cancer site epidemiology in Europe.

4.1 Provided data on cancer by country: lung cancer

4.1.1 Lung cancer: epidemiological picture in Europe

In 2006, in Europe there were 386,000 new cases and 335,000 estimated deaths [4]. Worldwide, it is by far the most common cancer of men, while in women incidence rates are lower.
As shown in Figure 1.1 Eastern Europe had maximum levels of incidence and mortality rates for men in 2006, while Northern Europe had the maximum incidence and mortality rates for women.
In men, the majority of European countries have experienced the peak of the lung cancer epidemic, and incidence and mortality rates are now declining for all macro-areas considered as shown in Figures 1.1 In contrast, incidence and mortality are increasing for women. Among women the peak in the incidence of lung cancer had probably not been reached.

Figure 1.1 Trends of lung cancer (ICD10 C33-C34) standardized incidence and mortality rates (European std)



Northern Europe: Sweden, Finland, Denmark, Estonia, Latvia, Lithuania, the United Kingdom, Ireland, Iceland, Norway;
Western Europe: the Netherlands, Belgium, Luxembourg, Germany, France, Austria, Switzerland;
Southern Europe: Italy, Spain, Portugal, Greece, Malta, Slovenia;
Eastern Europe: Slovakia, the Czech Republic, Hungary, Poland, Bulgaria, Romania

Incidence figures. Sources for 1998, 2000, 2002: Globocan [5]. Source for 2006: Ferlay J et al, 2007 [4]

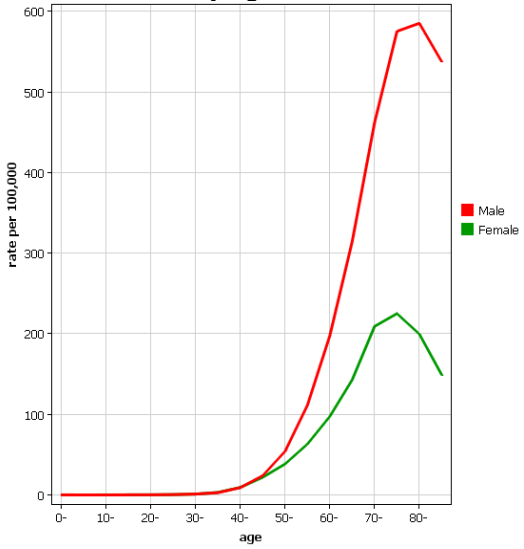
Mortality figures. Source: WHO [3]

4.1.2 Lung cancer: WP-10 estimates

Figure 1.2 shows the distribution of lung cancer incidence by age classes in all the European cancer registries included in Cancer Incidence in Five Continents Vol IX [1]. Rates increase up to ages 75-80 for males and 70-75 years for females and then decrease.

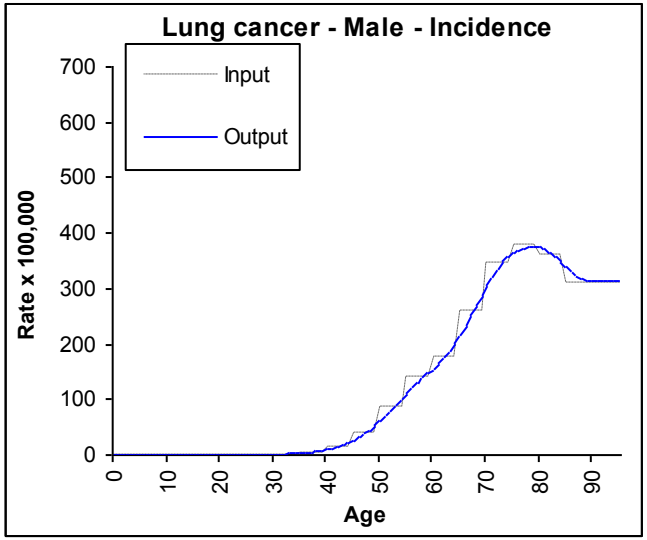
Incidence (Fig. 1.3.a and 1.3.d) and mortality (Fig. 1.3.b and 1.3.e) DISMOD outputs in the majority of ages overlap the input data obtained by Cancer Incidence in Five Continents [1] and WHO-Mortality [3]. Major differences are for older ages for the Netherlands and Belgium in men for incidence and for the Netherlands, Belgium, Malta and Poland for mortality in men.

Figure 1.2. European CRs lung cancer incidence rates by age classes. 1998-2002

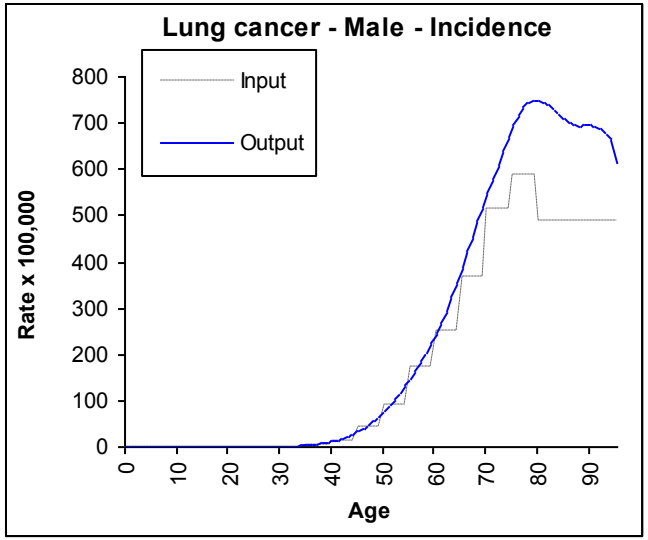


Figures 1.3.a. WP-10 ESTIMATES. Lung, tracheas and bronchus cancer (ICD-10 C33+C34). INCIDENCE. MALE.

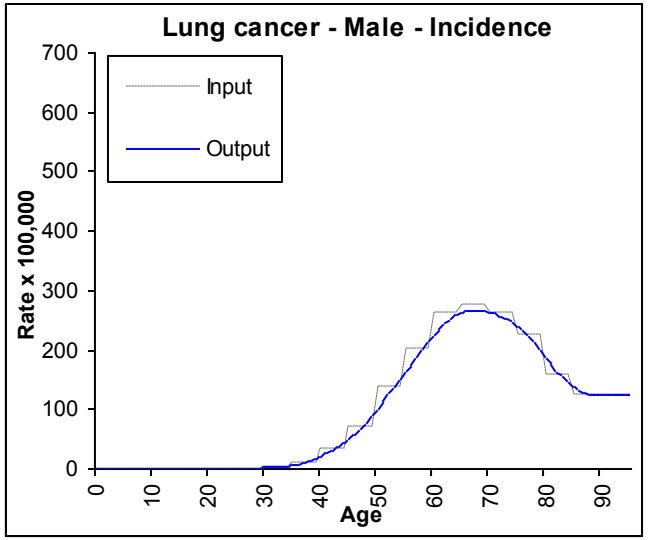
AUSTRIA



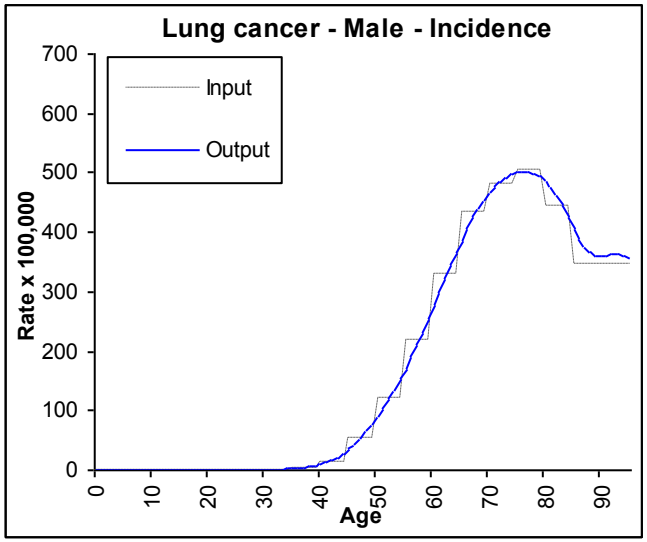
BELGIUM



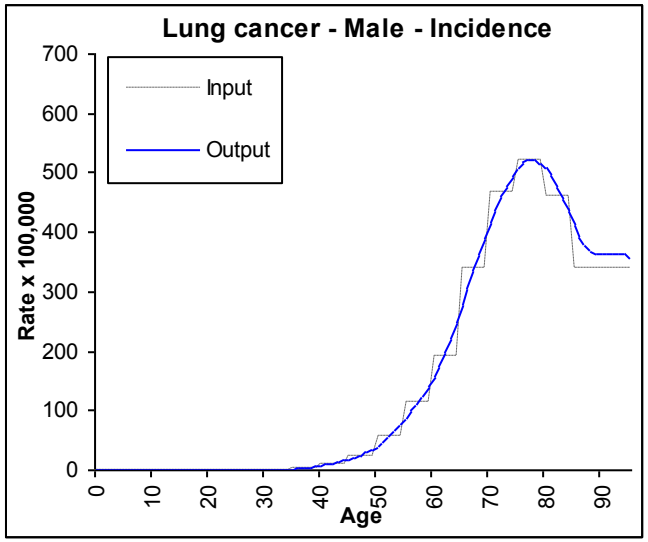
BULGARIA



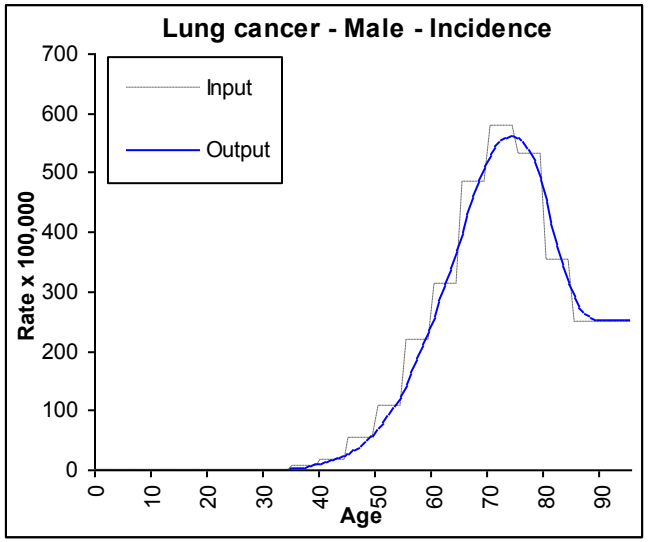
CZECH REPUBLIC



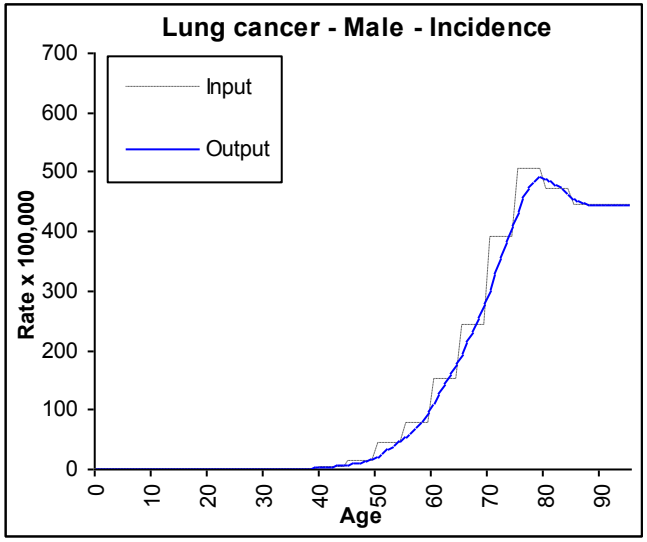
DENMARK



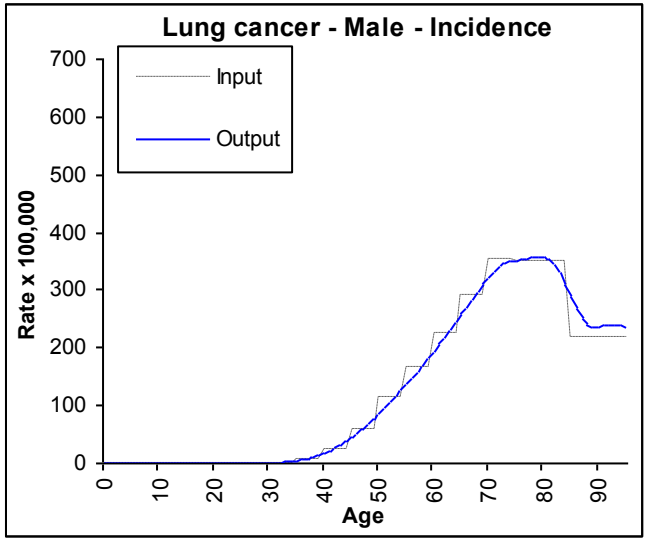
ESTONIA



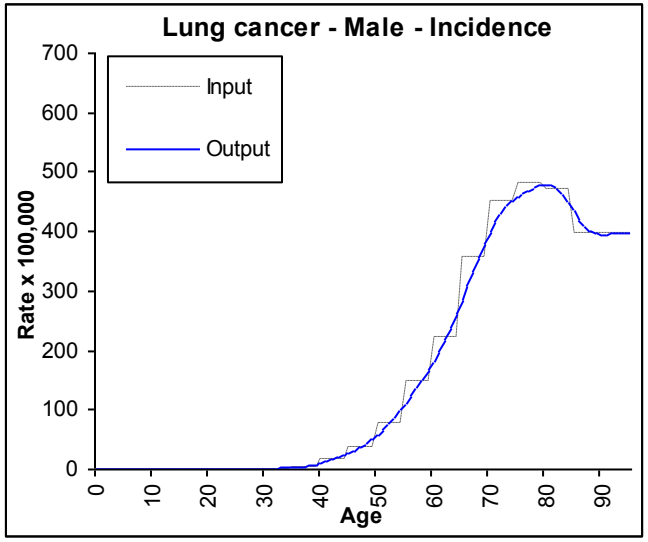
FINLAND



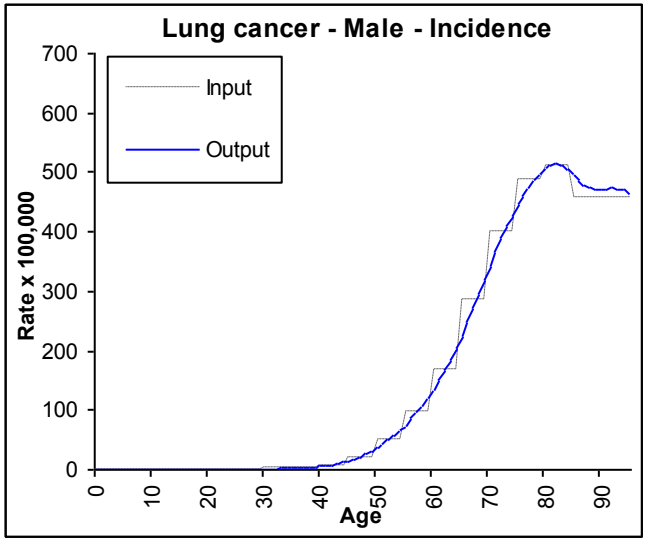
FRANCE



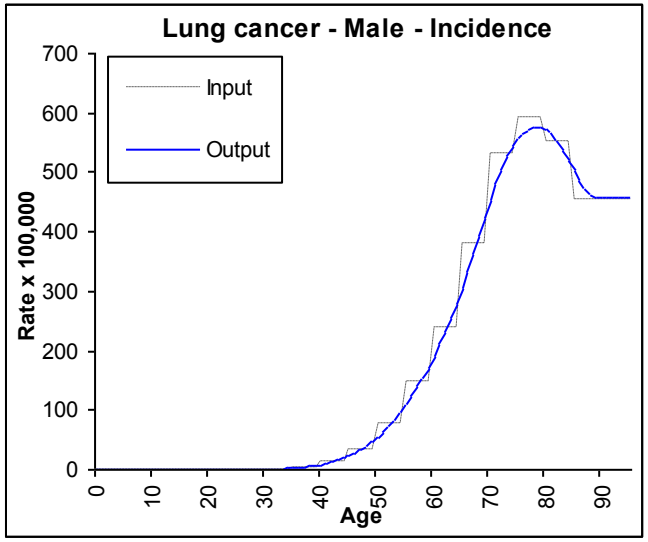
GERMANY



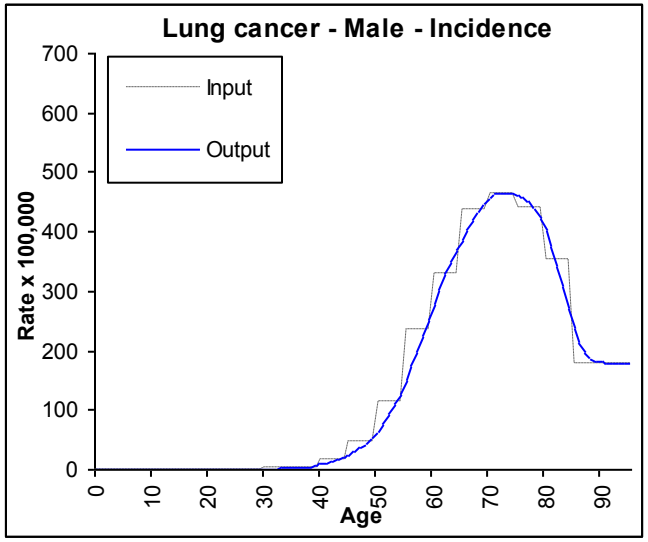
IRELAND



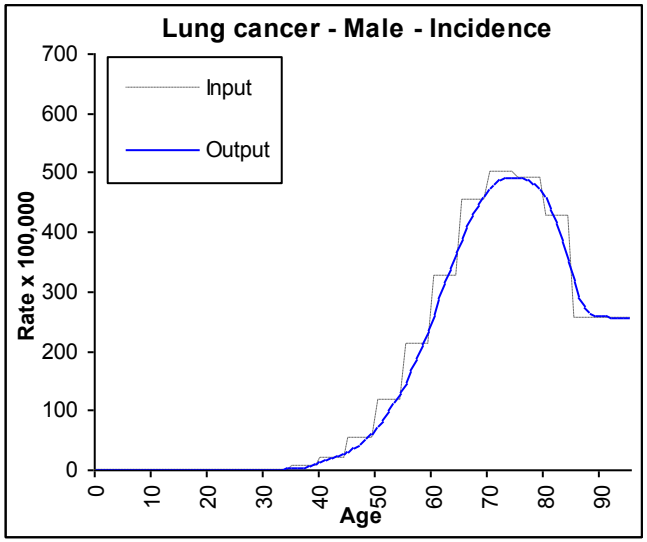
ITALY



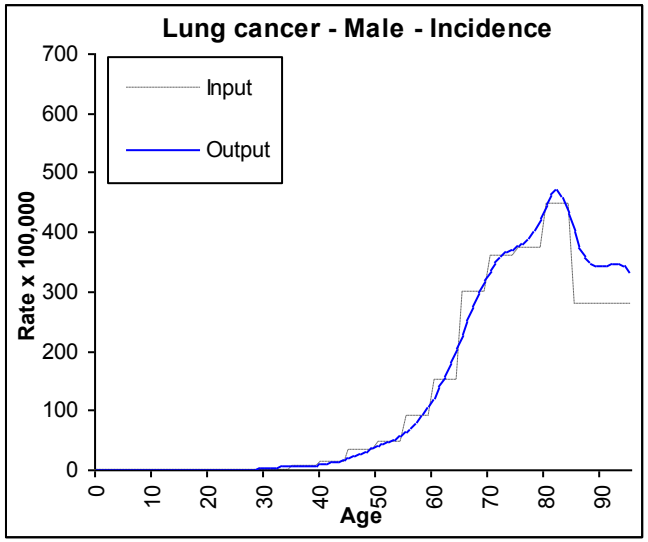
LATVIA



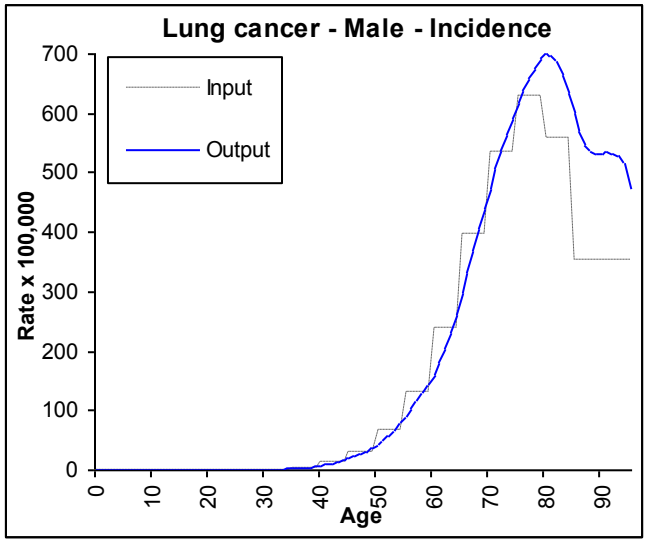
LITHUANIA



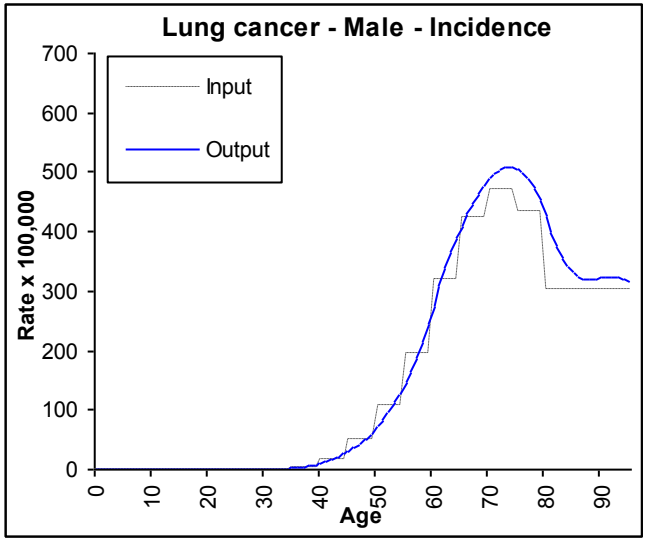
MALTA



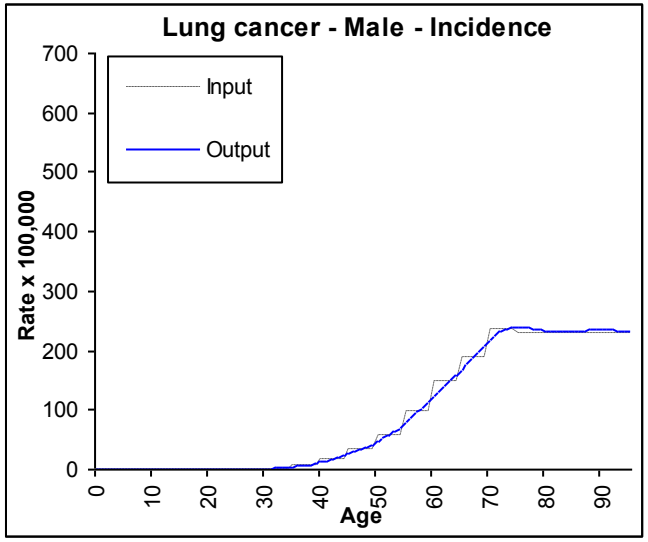
NETHERLANDS



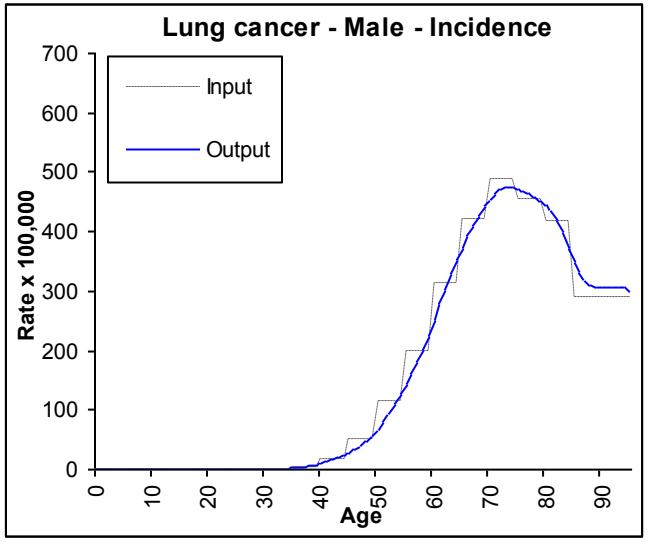
POLAND



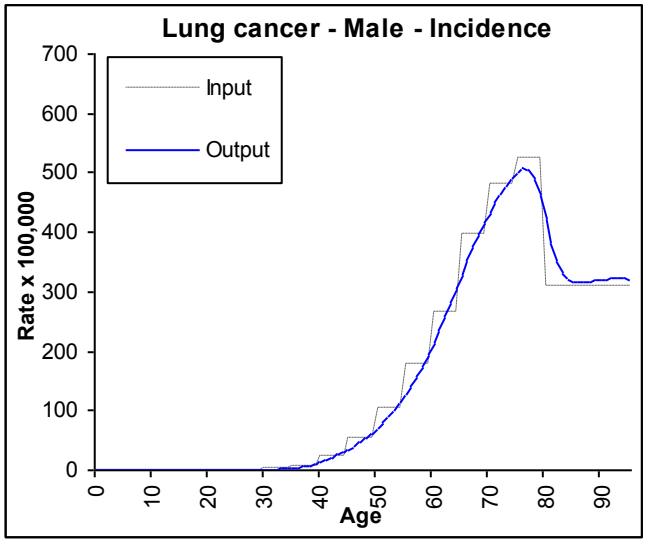
PORTUGAL



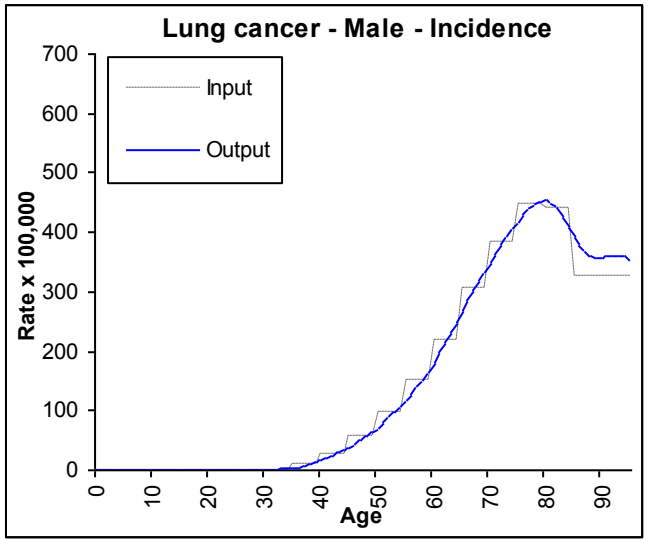
SLOVAKIA



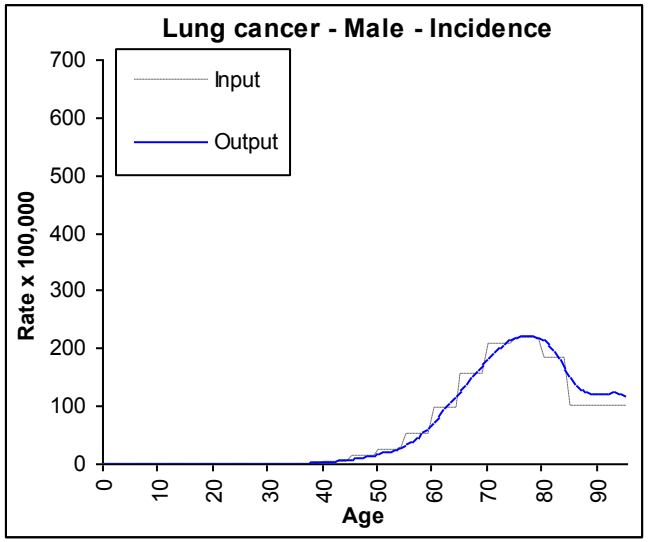
SLOVENIA



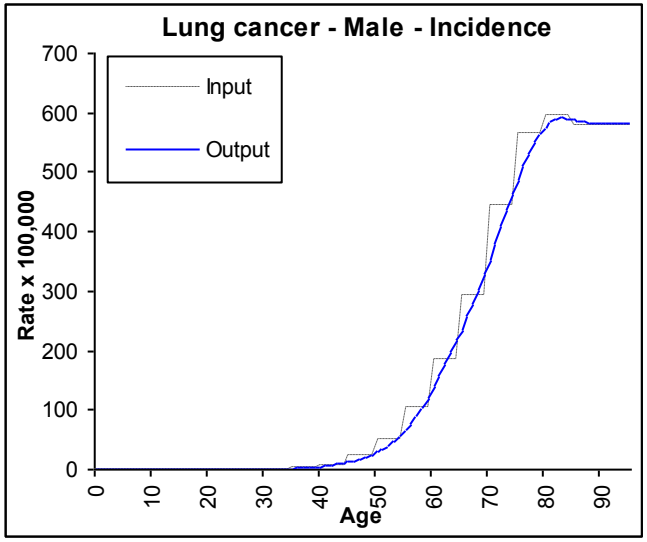
SPAIN



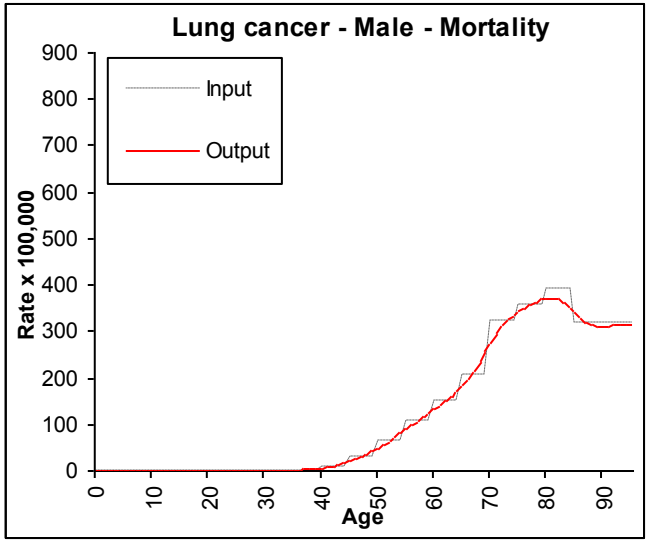
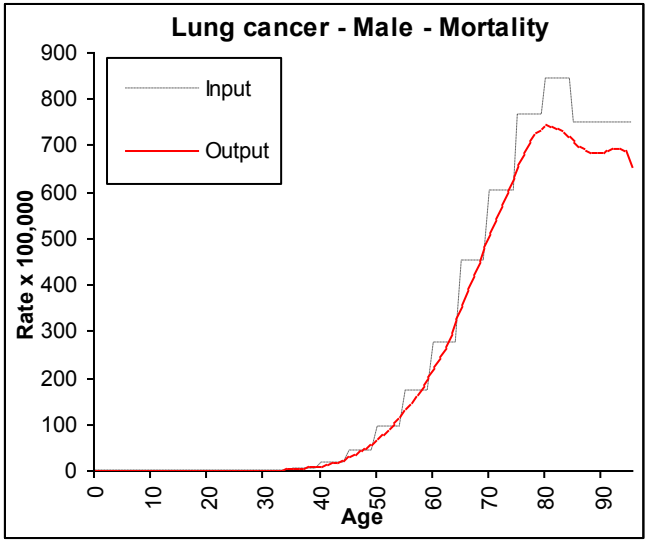
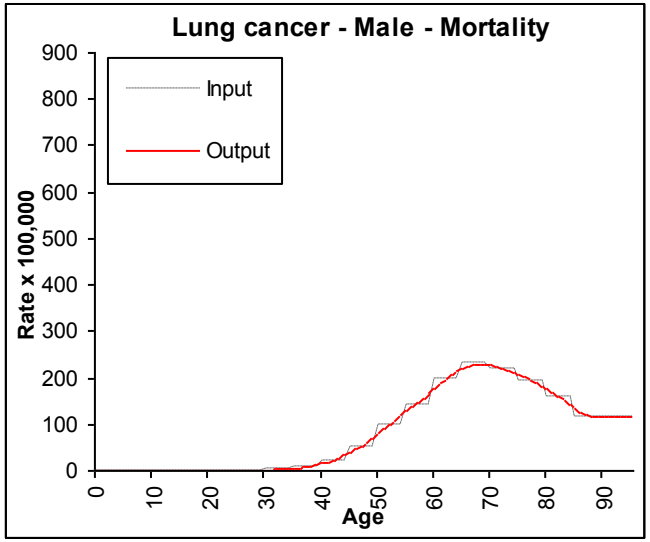
SWEDEN

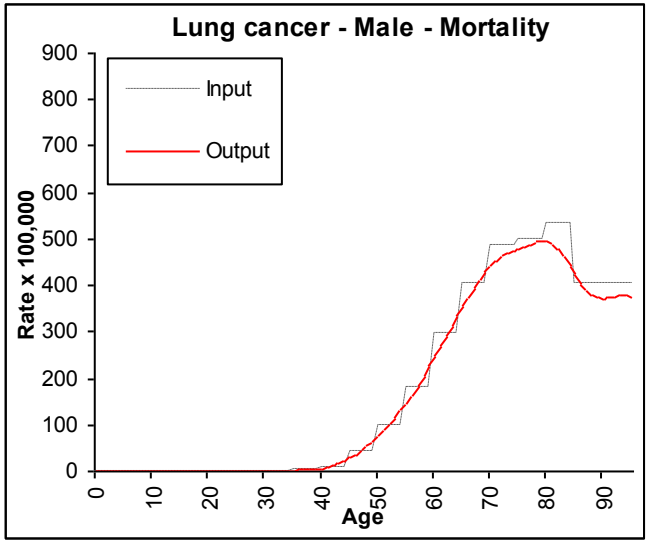
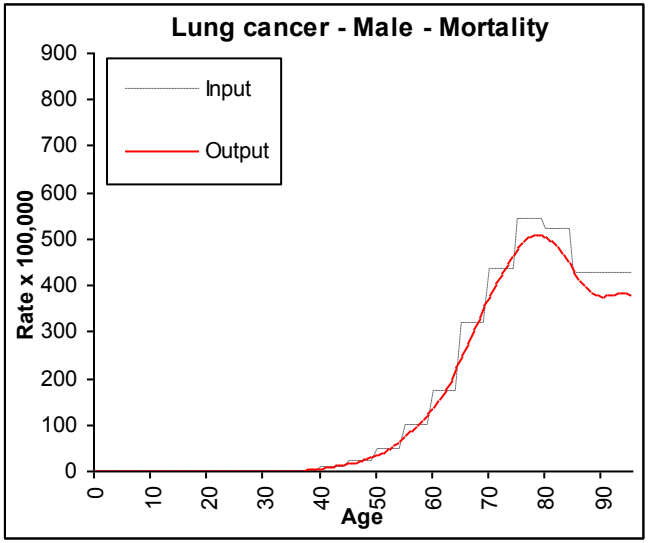
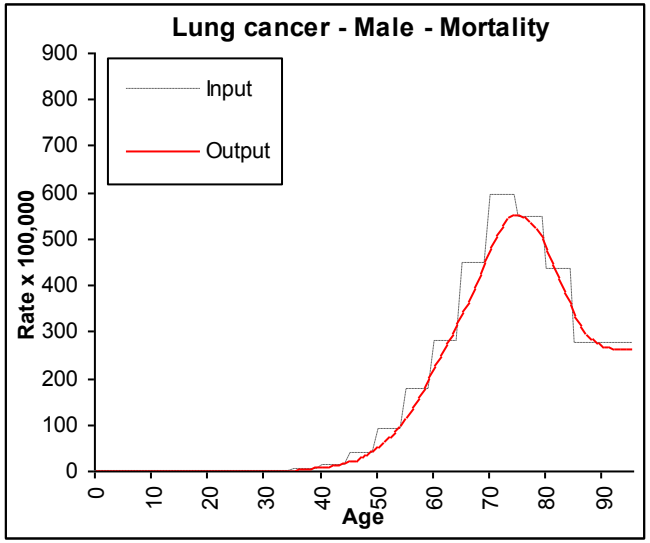


UNITED KINGDOM

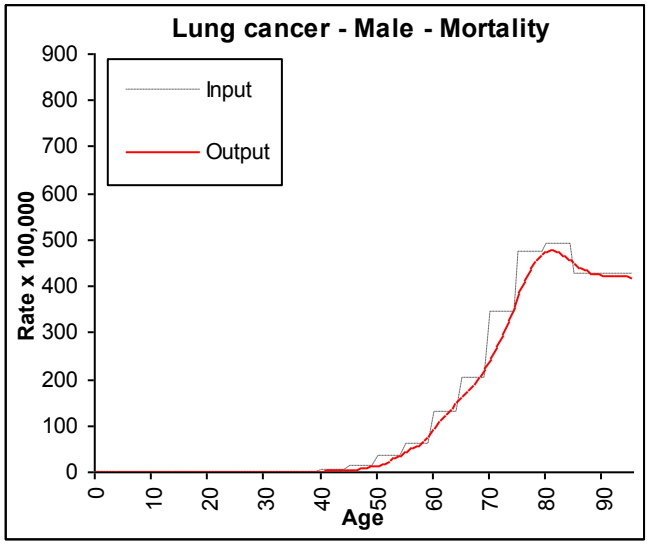


Figures 1.3.b. WP-10 ESTIMATES. Lung, tracheas and bronchus cancer (ICD-10 C33+C34). MORTALITY. MALE.

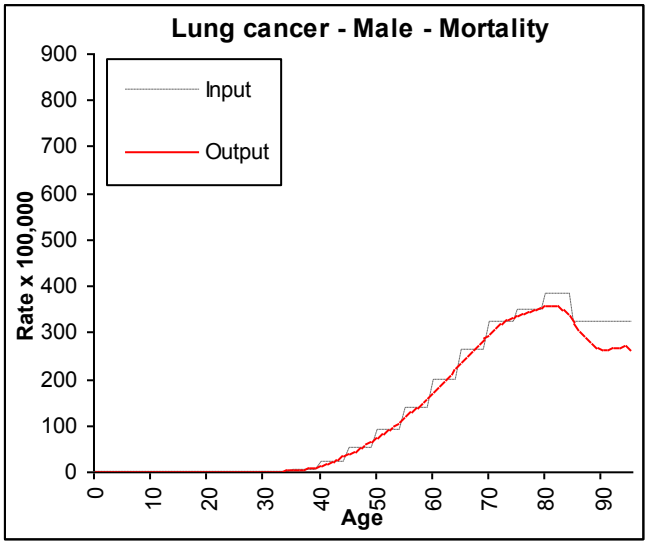
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

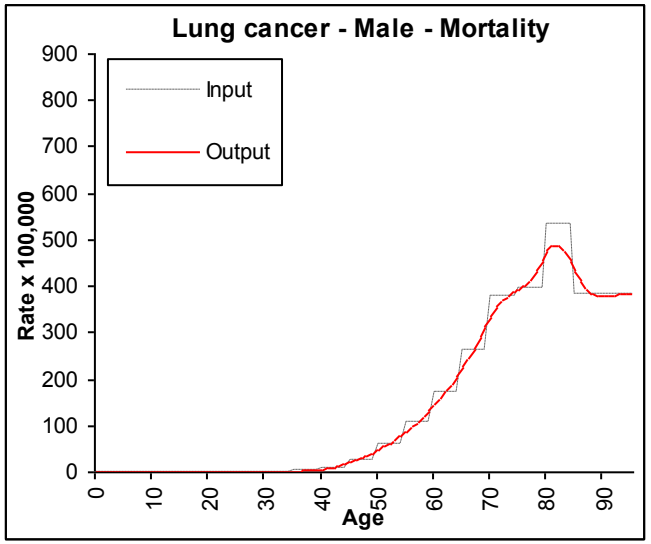
FINLAND



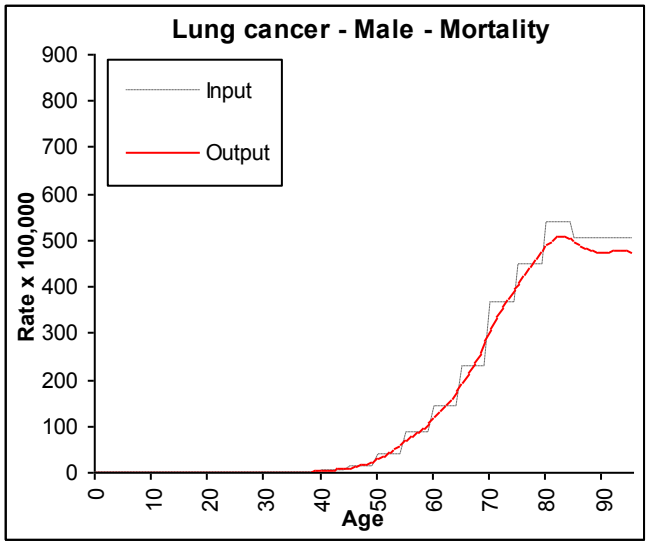
FRANCE



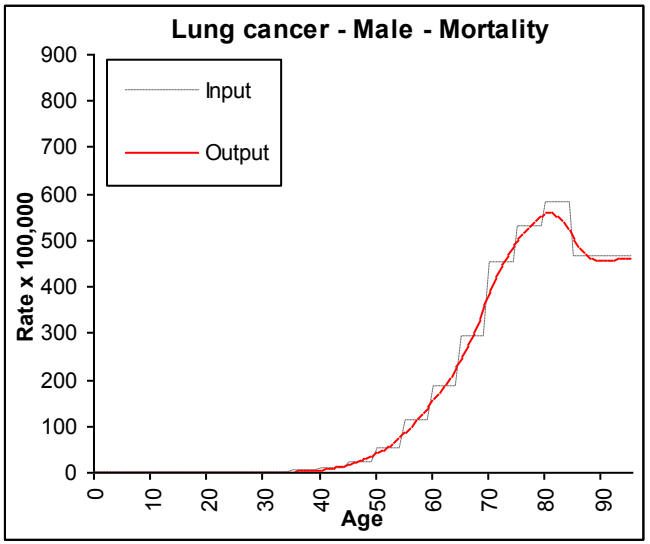
GERMANY



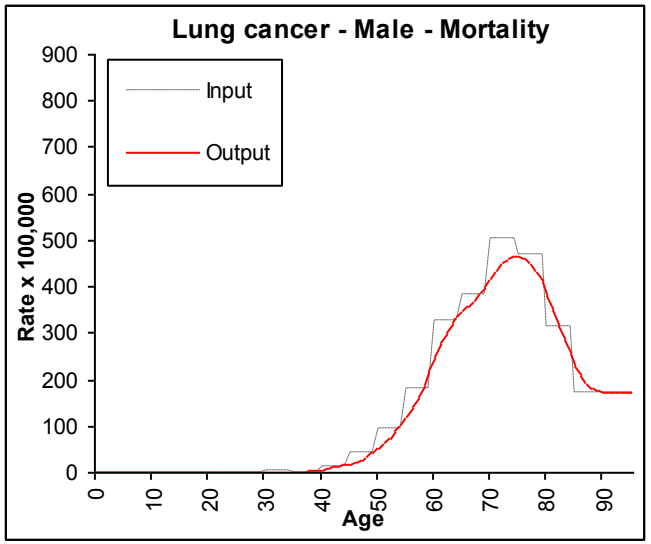
IRELAND



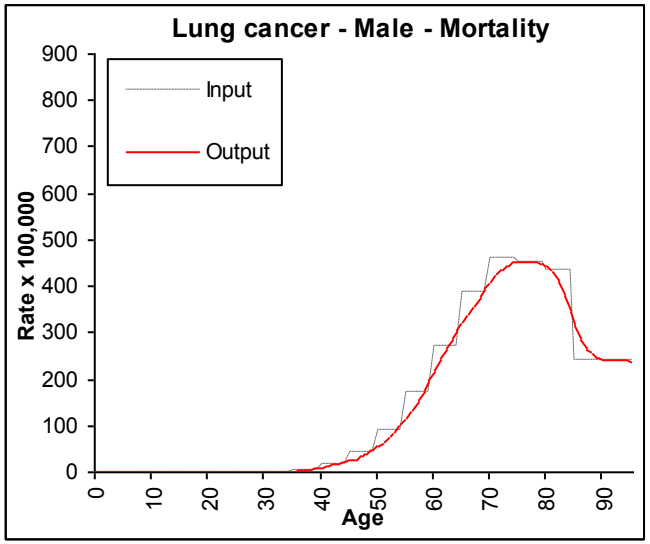
ITALY



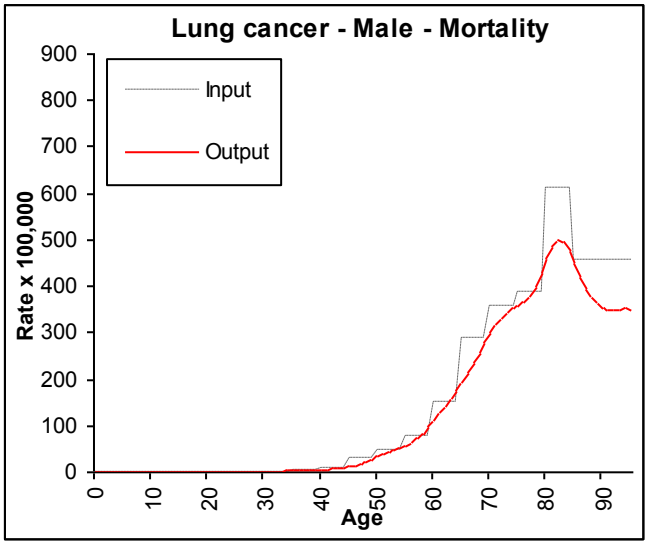
LATVIA



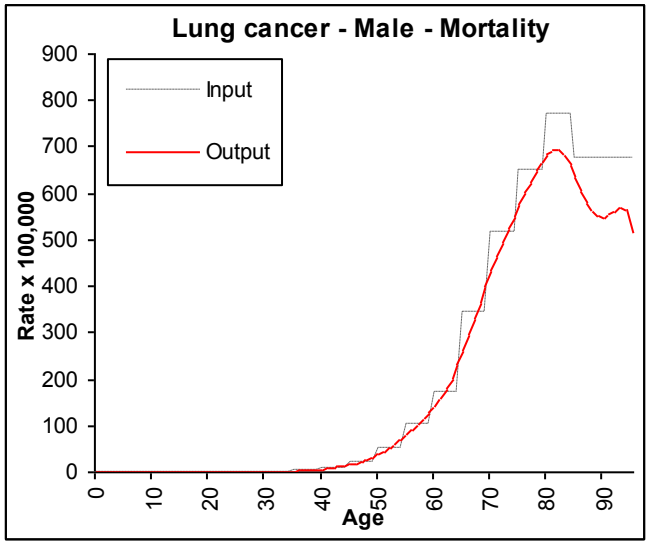
LITHUANIA



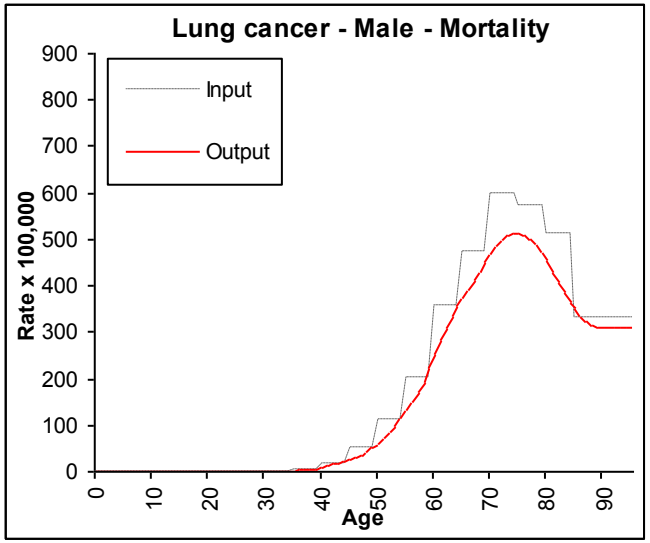
MALTA



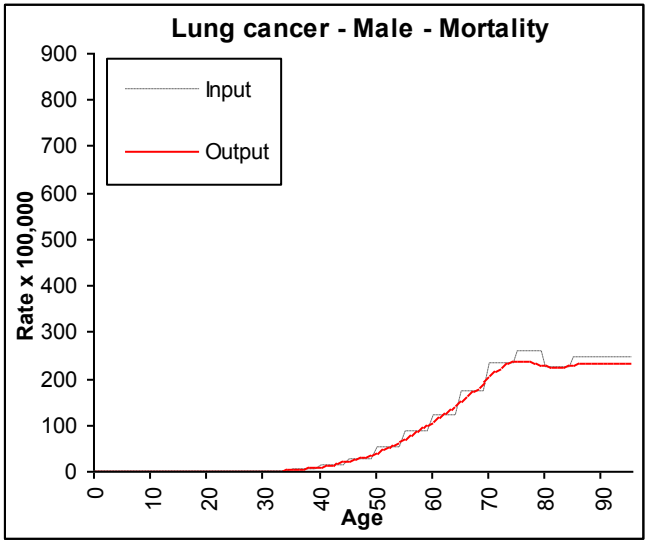
NETHERLANDS



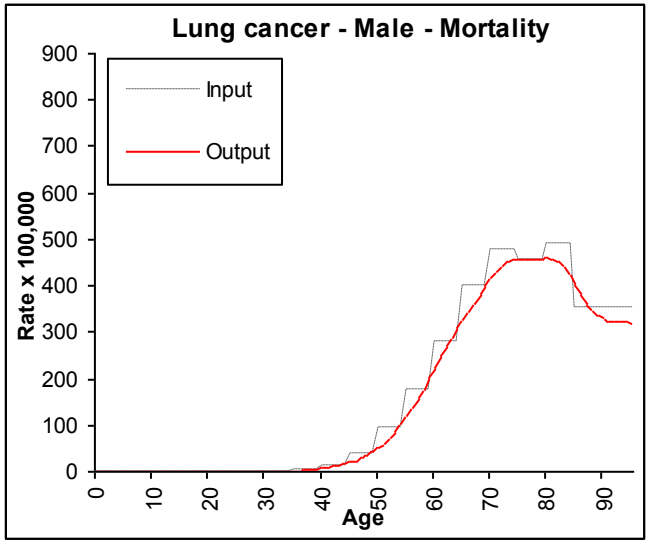
POLAND



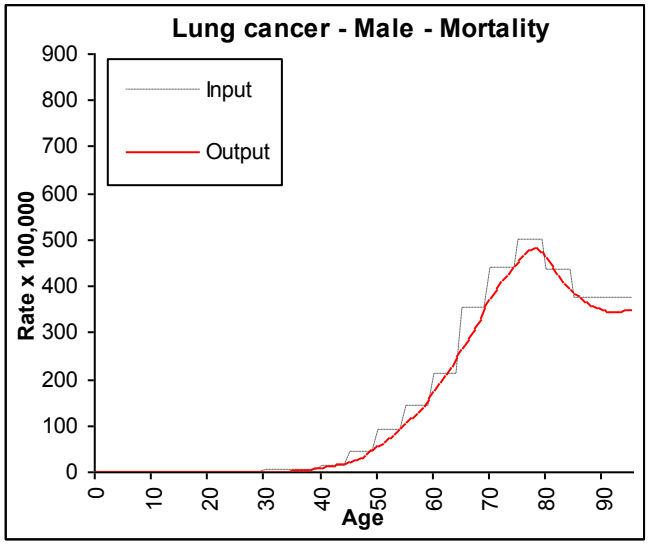
PORTUGAL



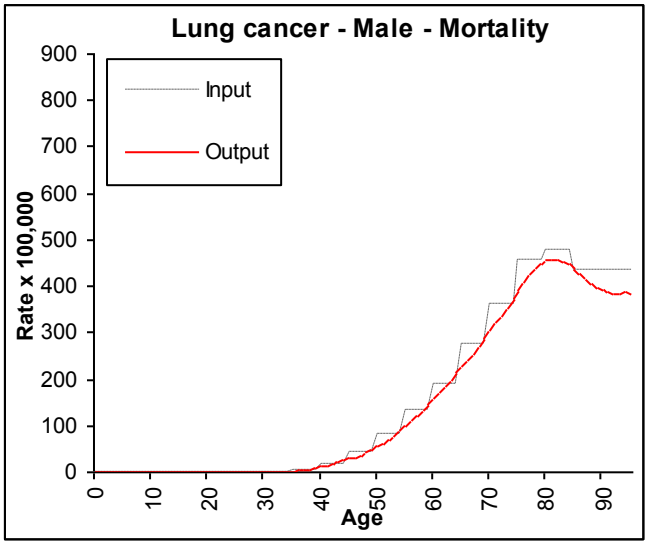
SLOVAKIA



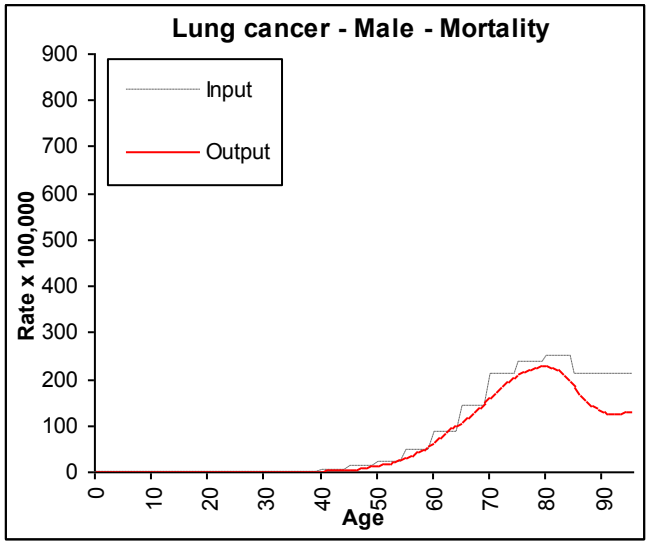
SLOVENIA



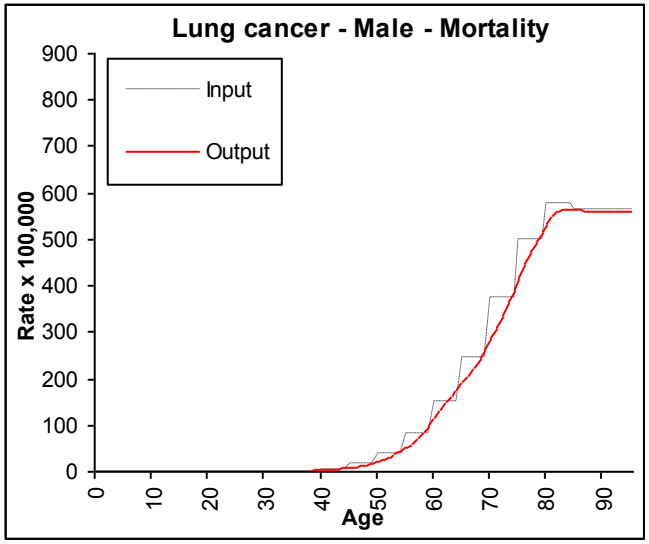
SPAIN



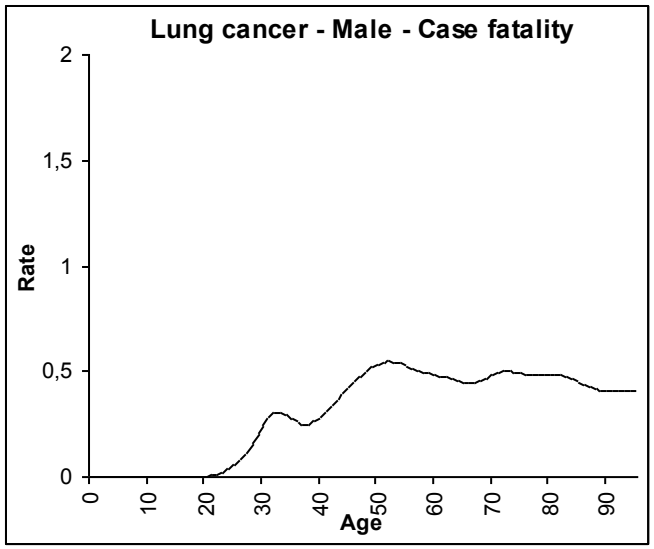
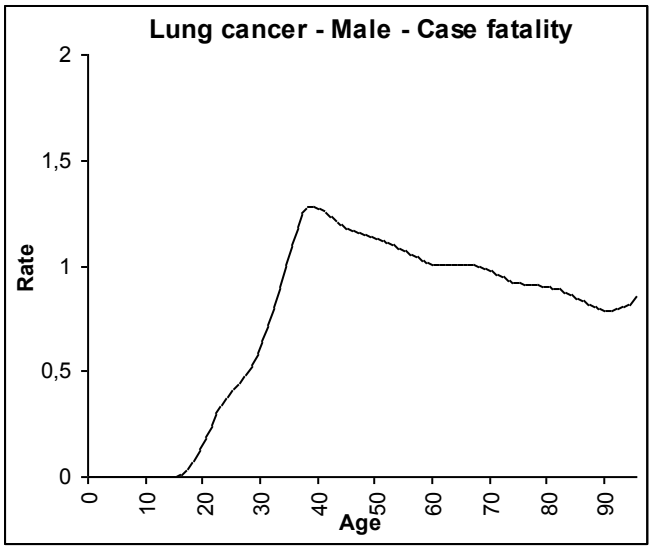
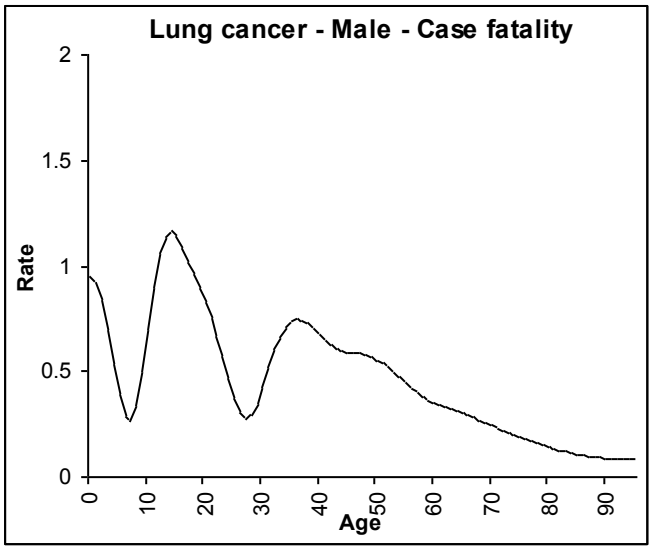
SWEDEN

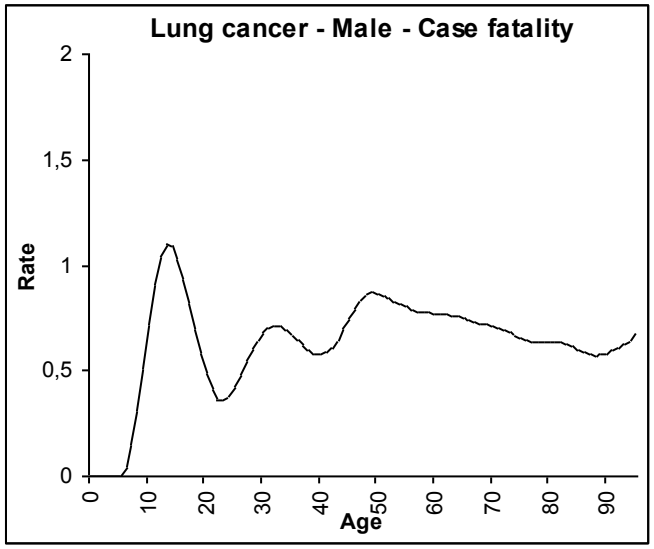
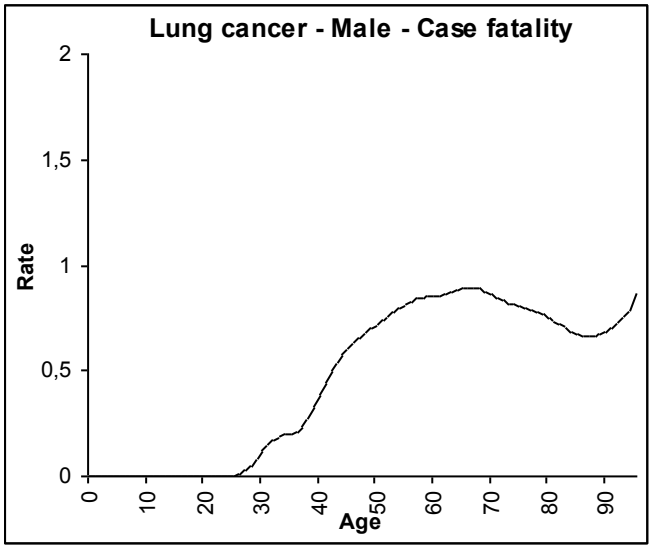
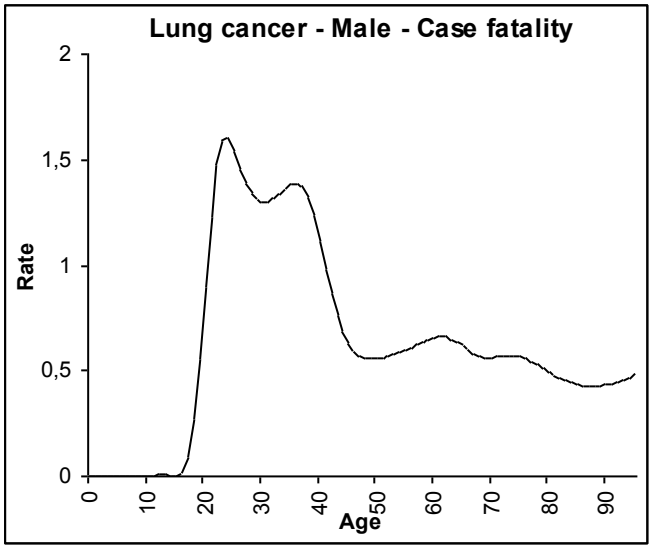


UNITED KINGDOM

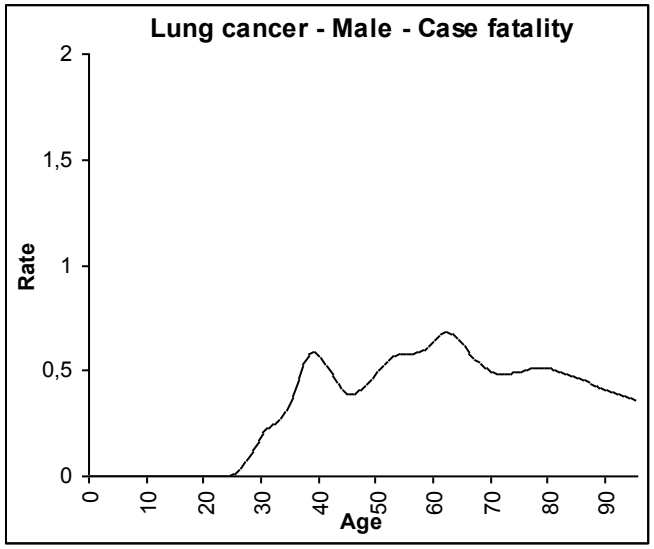


Figures 1.3.c. WP-10 ESTIMATES. Lung, tracheas and bronchus cancer (ICD-10 C33+C34). CASE FATALITY. MALE.

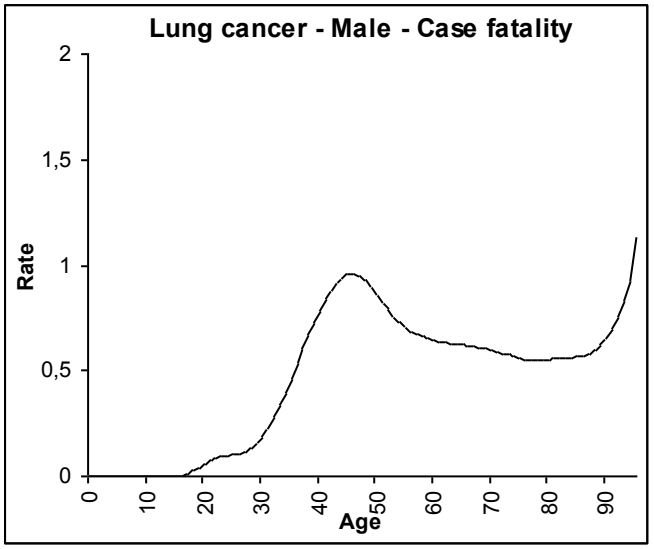
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

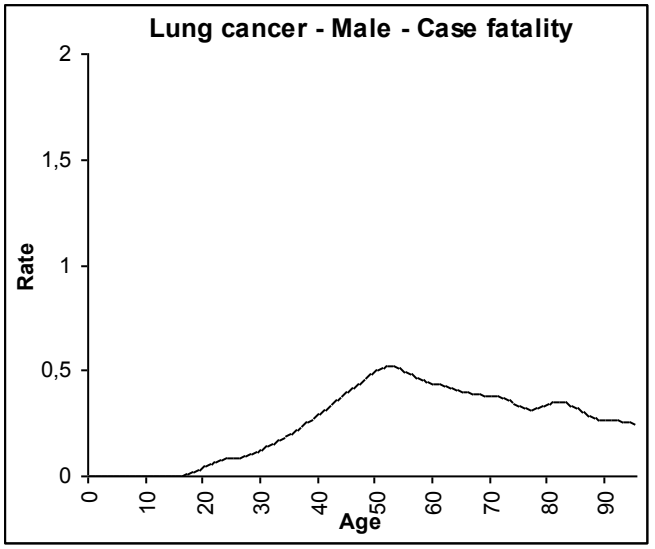
FINLAND



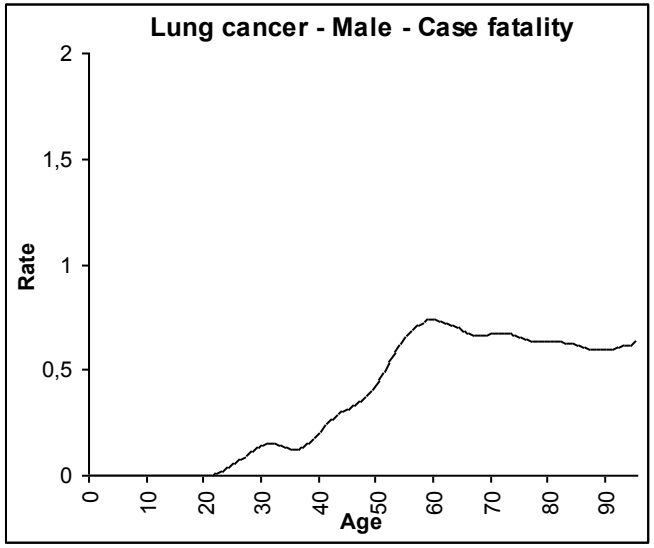
FRANCE



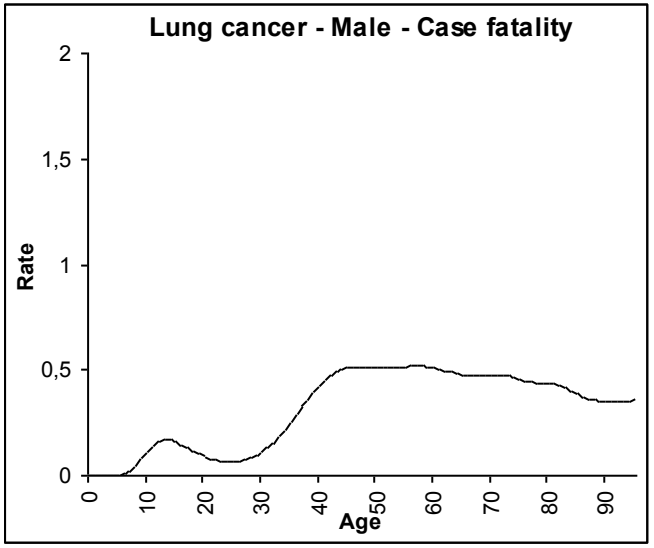
GERMANY



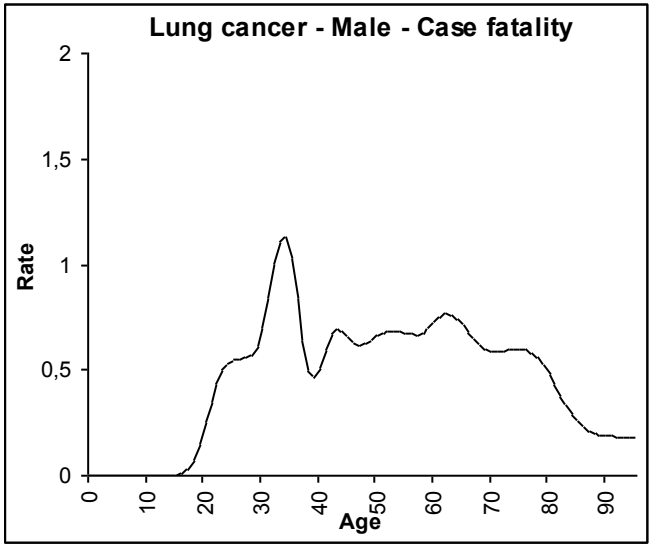
IRELAND



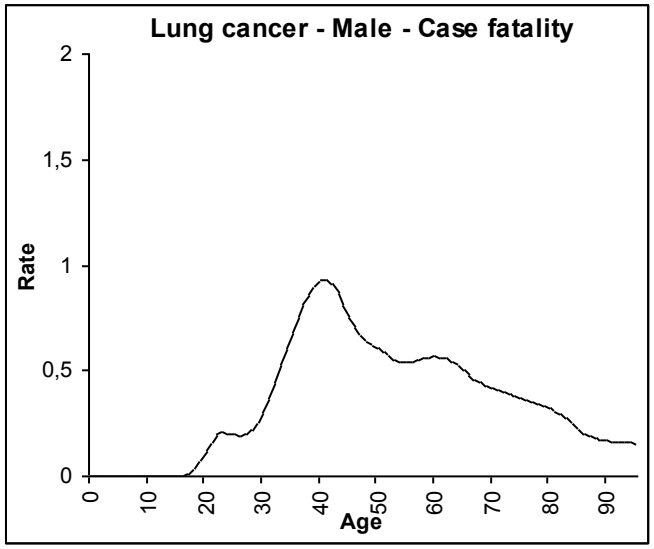
ITALY



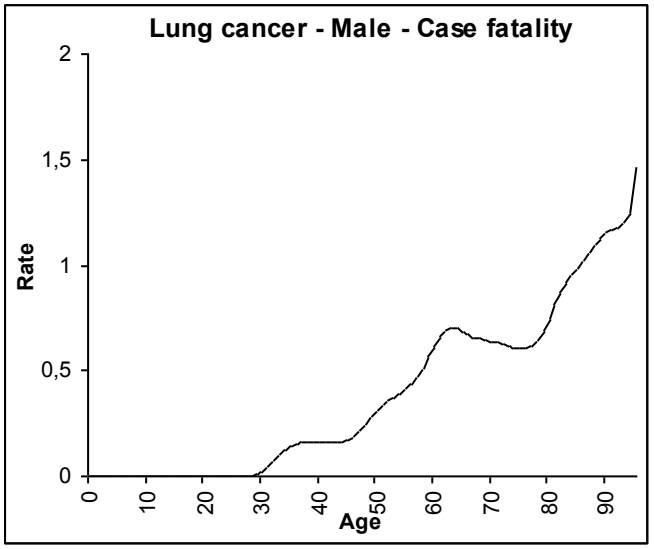
LATVIA



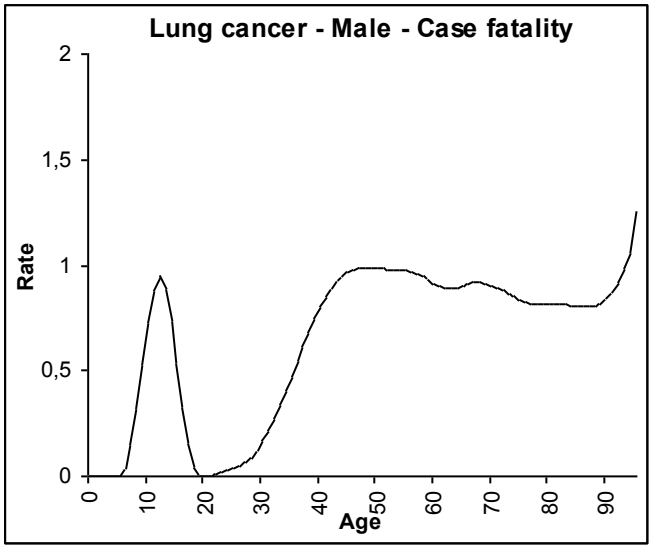
LITHUANIA



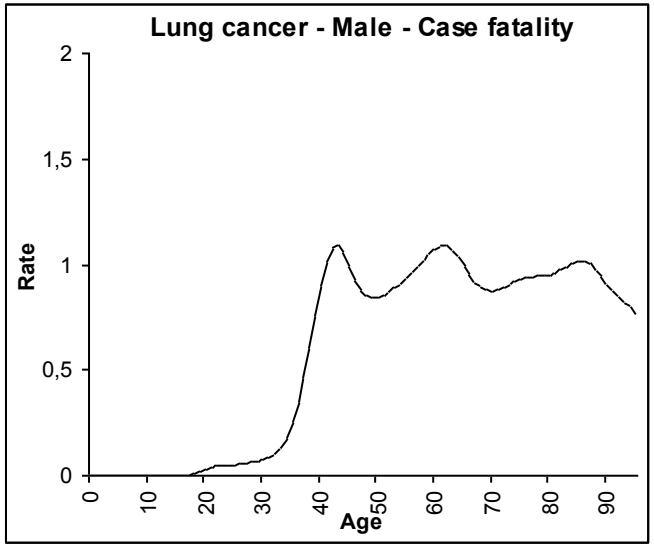
MALTA



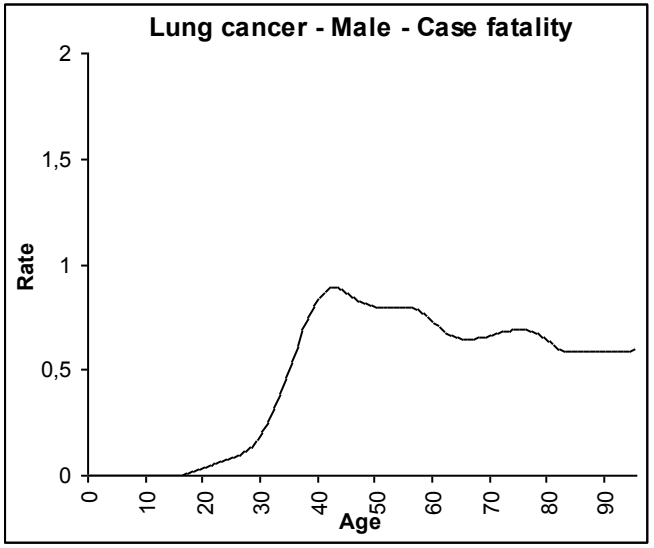
NETHERLANDS



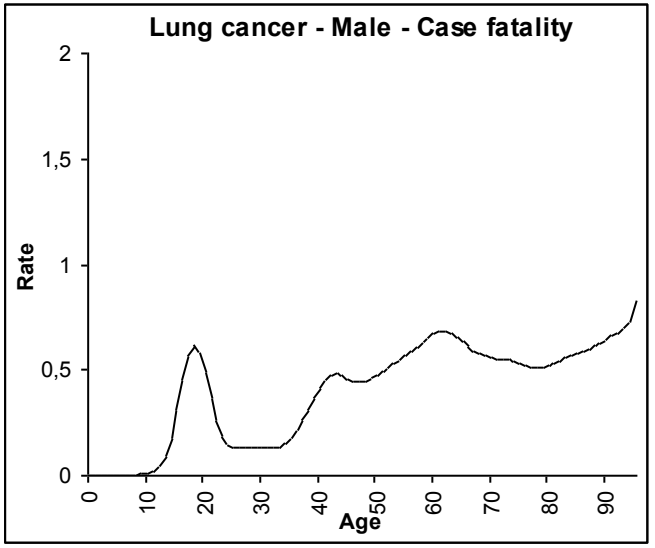
POLAND



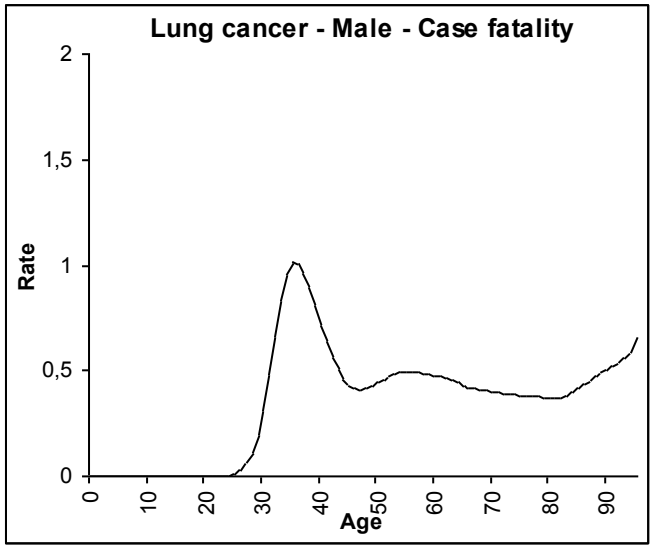
PORTUGAL



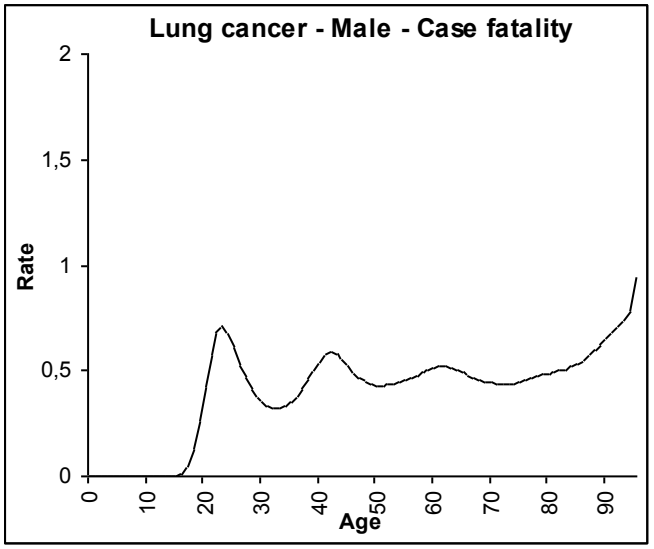
SLOVAKIA



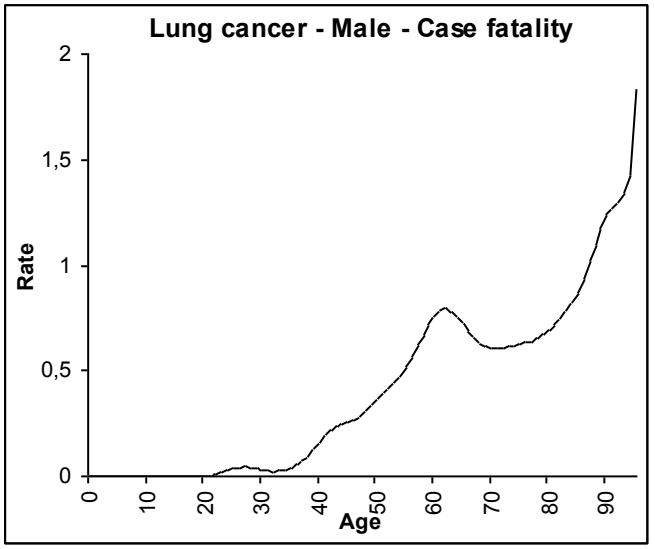
SLOVENIA



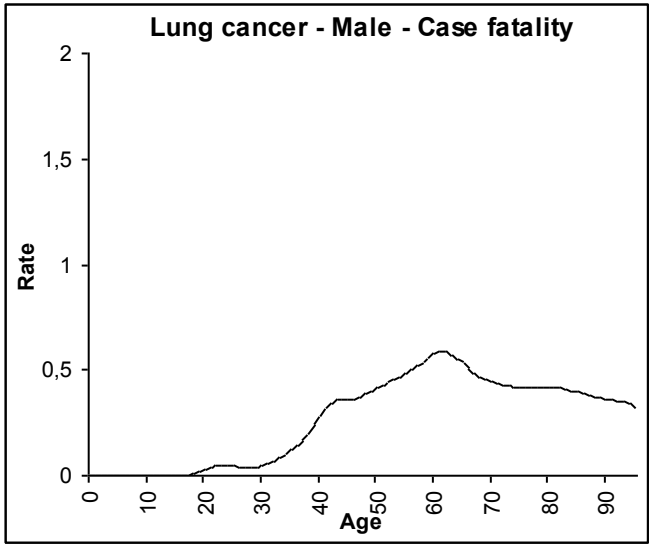
SPAIN



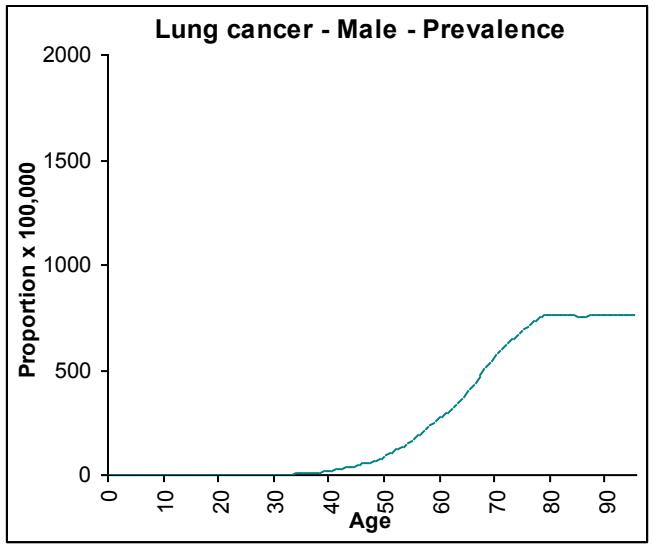
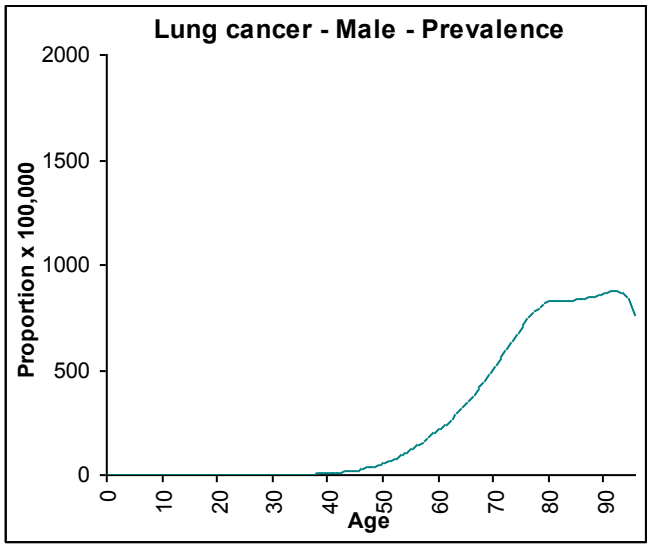
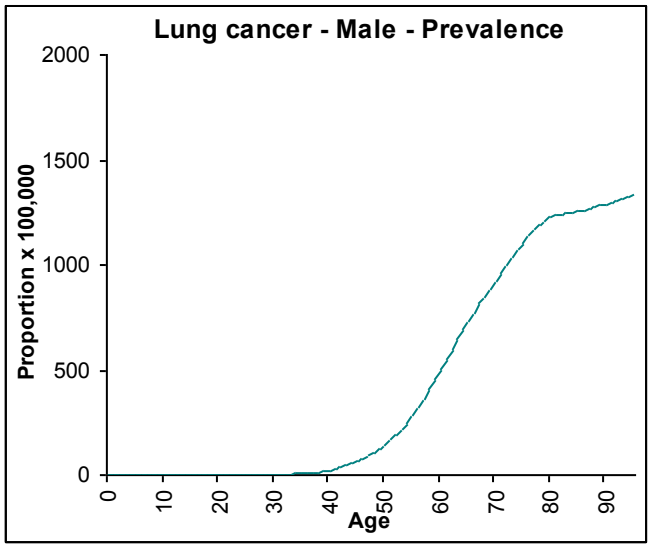
SWEDEN

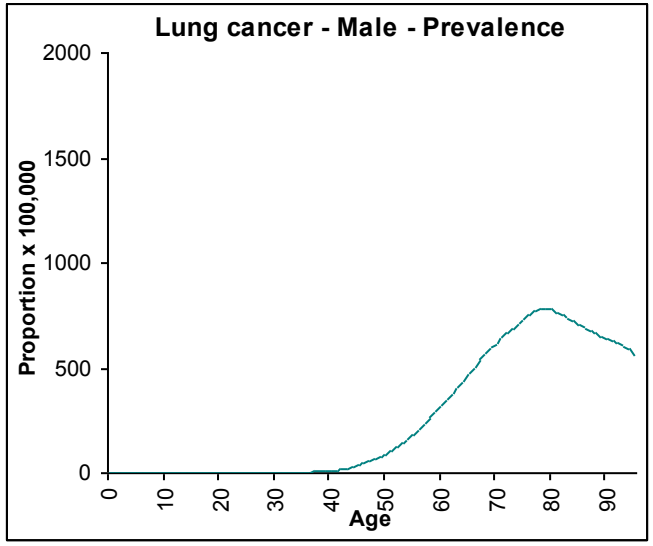
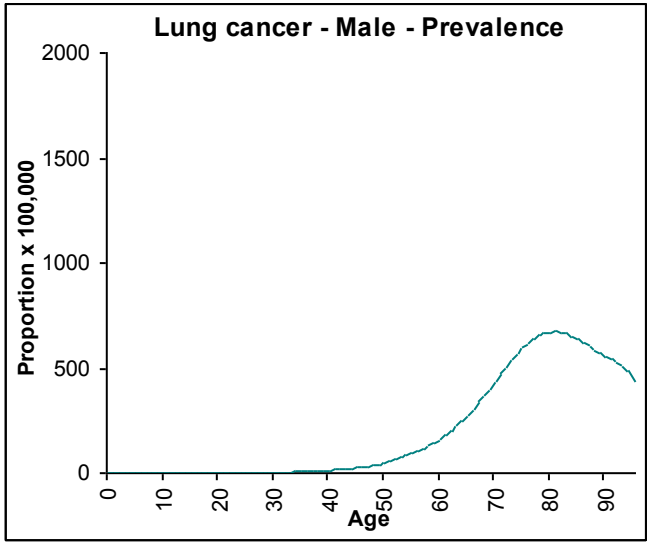
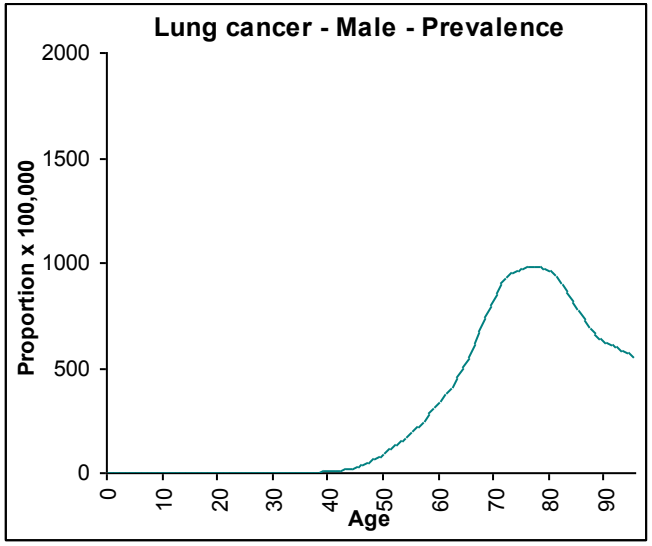


UNITED KINGDOM

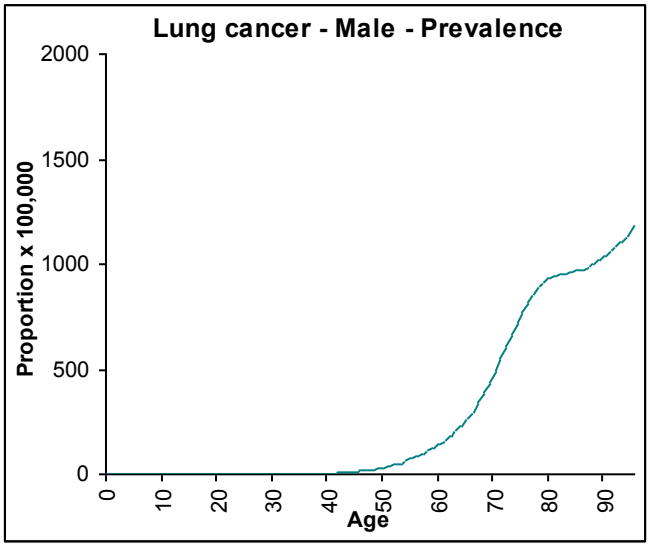


Figures 1.3.d. WP-10 ESTIMATES. Lung, tracheas and bronchus cancer (ICD-10 C33+C34). TOTAL PREVALENCE. MALE

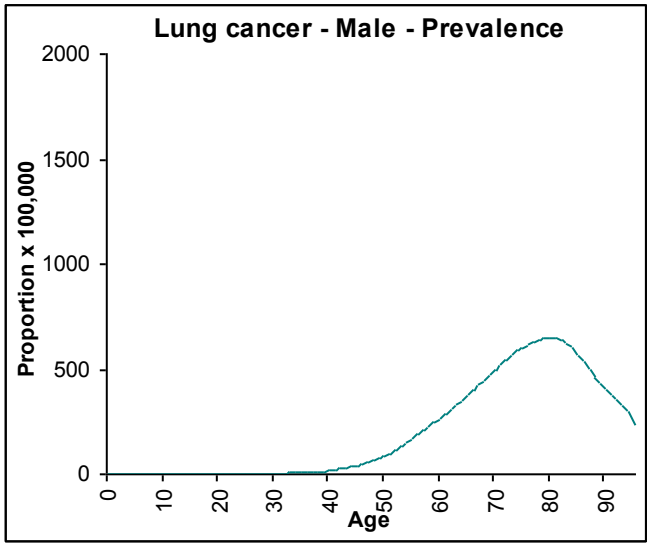
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

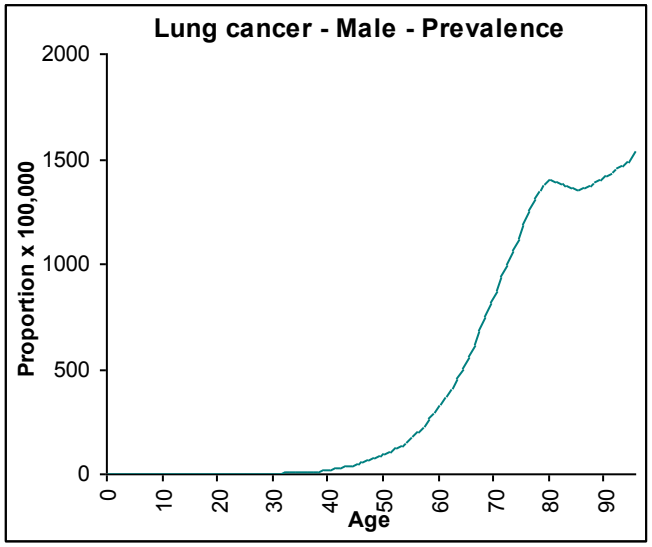
FINLAND



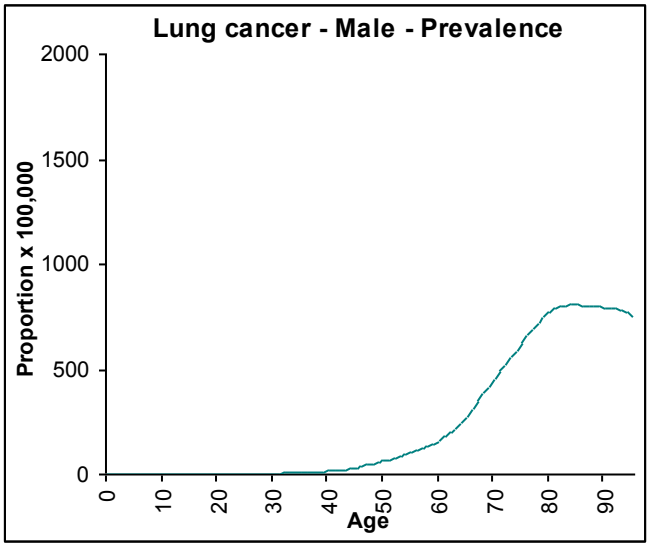
FRANCE



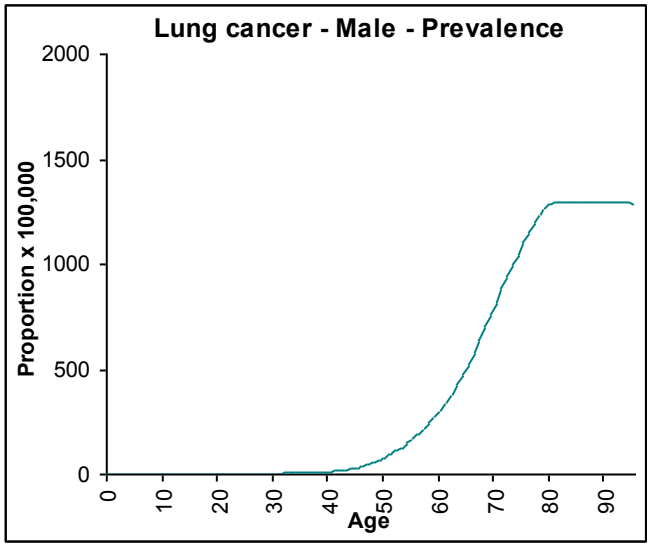
GERMANY



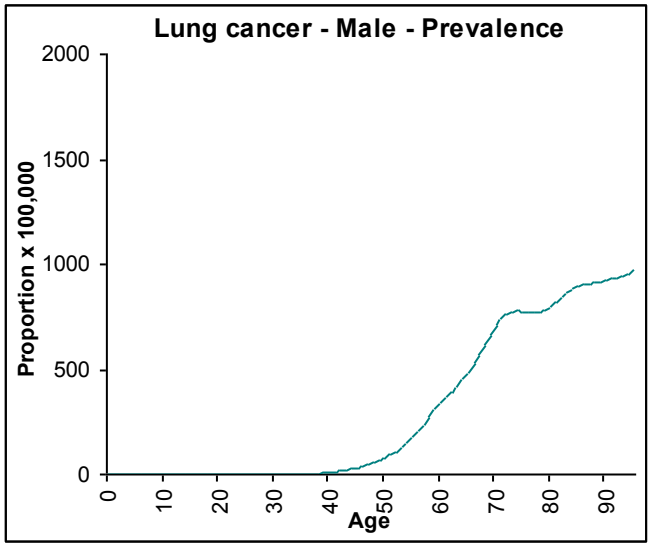
IRELAND



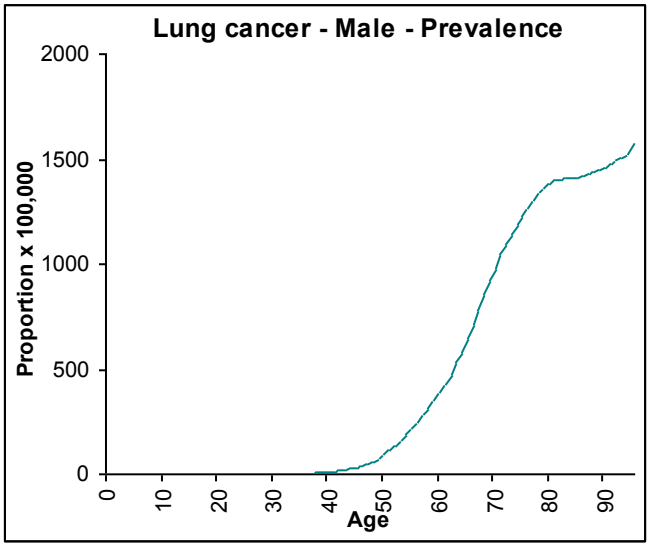
ITALY



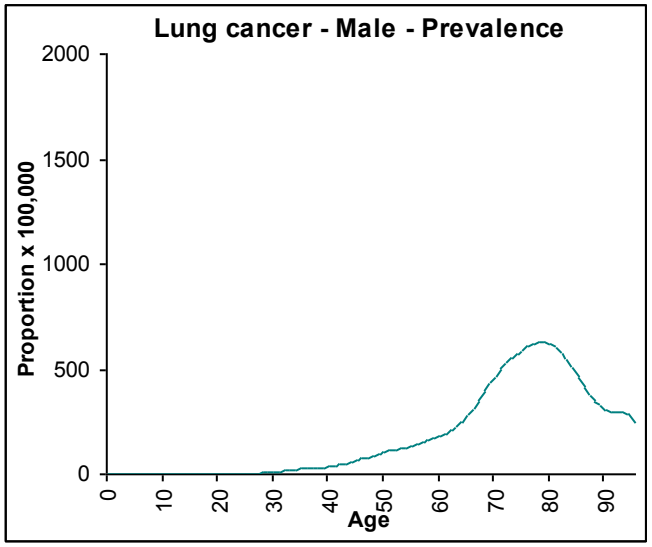
LATVIA



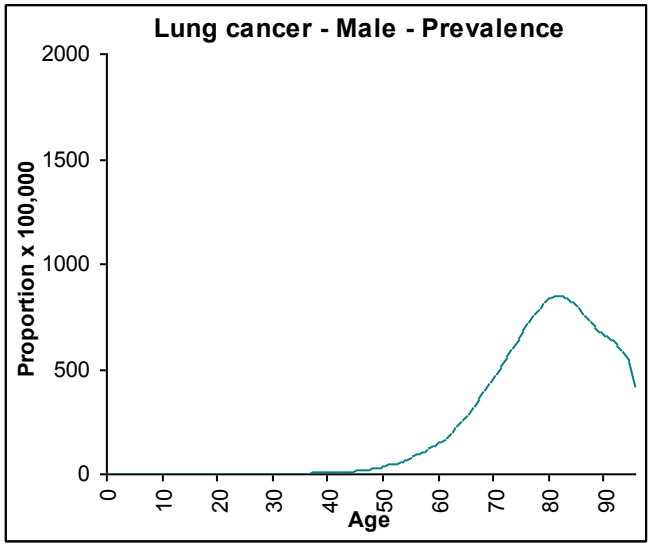
LITHUANIA



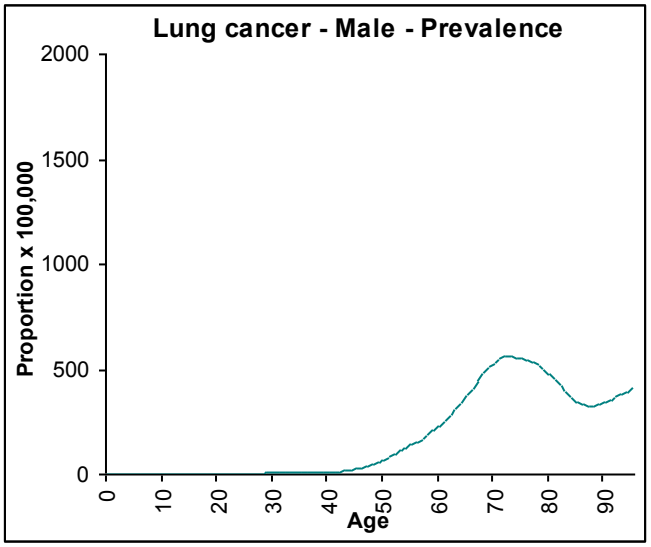
MALTA



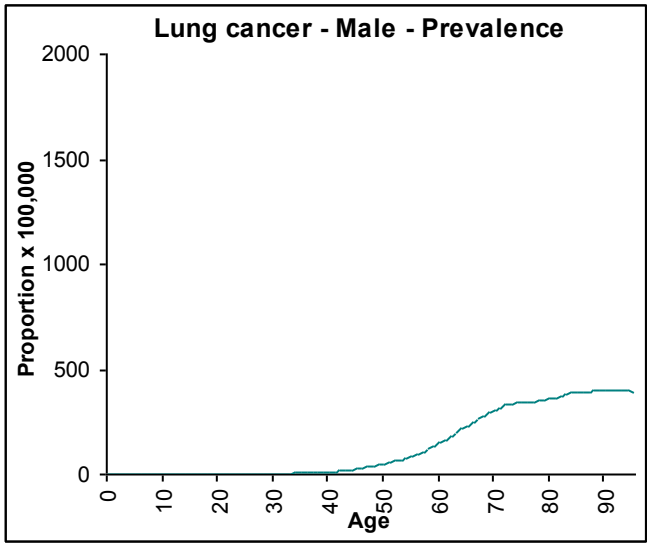
NETHERLANDS



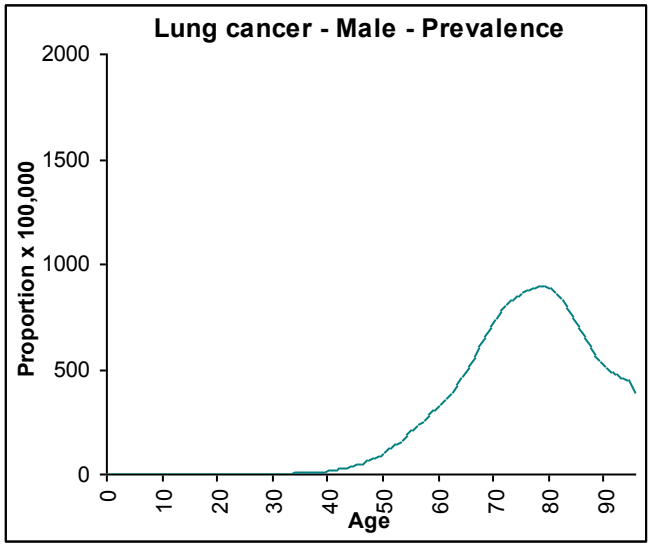
POLAND



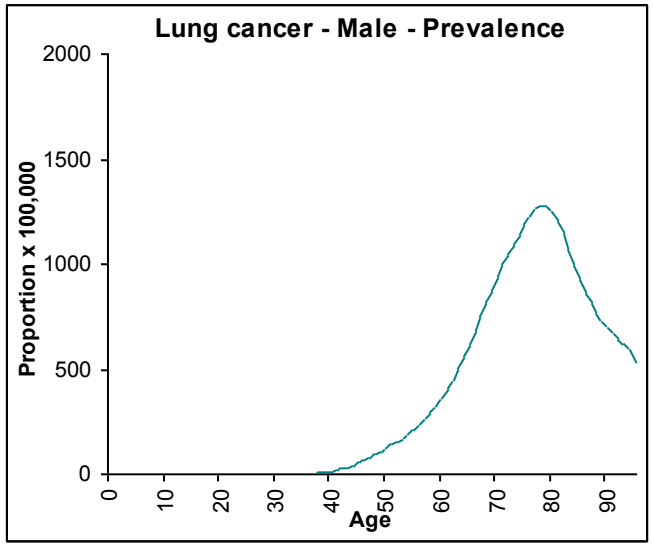
PORTUGAL



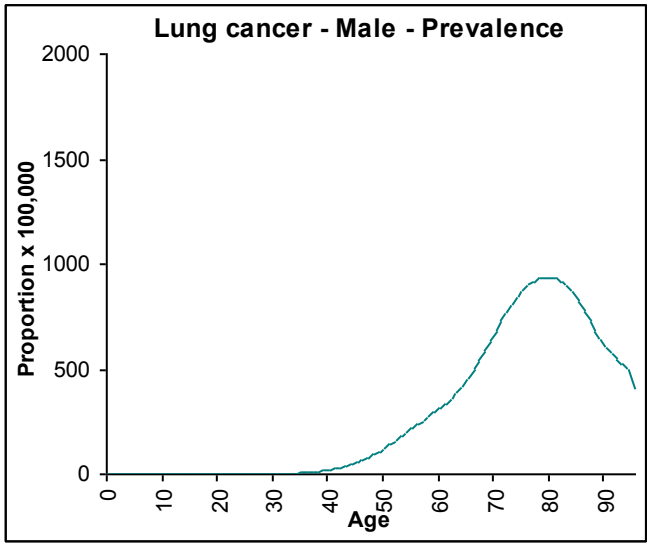
SLOVAKIA



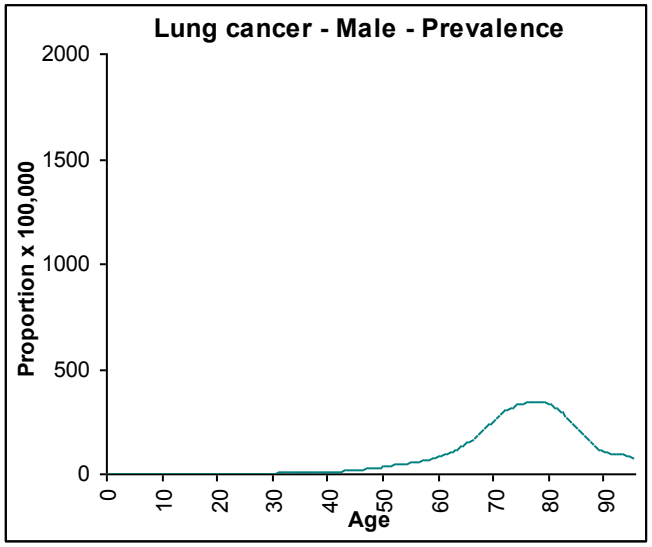
SLOVENIA



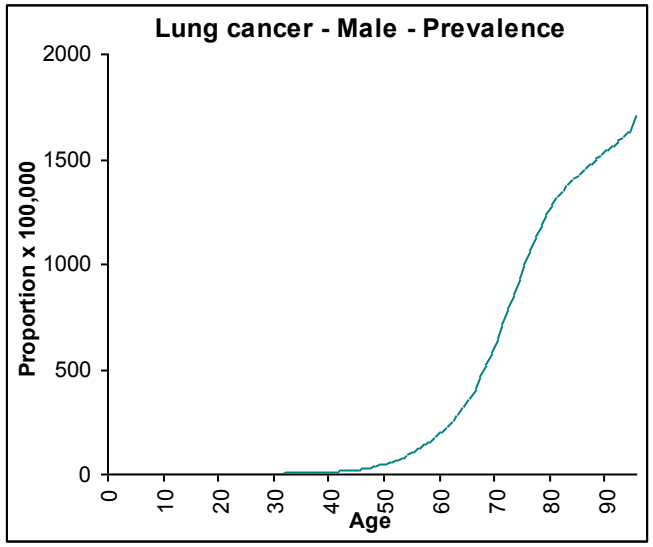
SPAIN



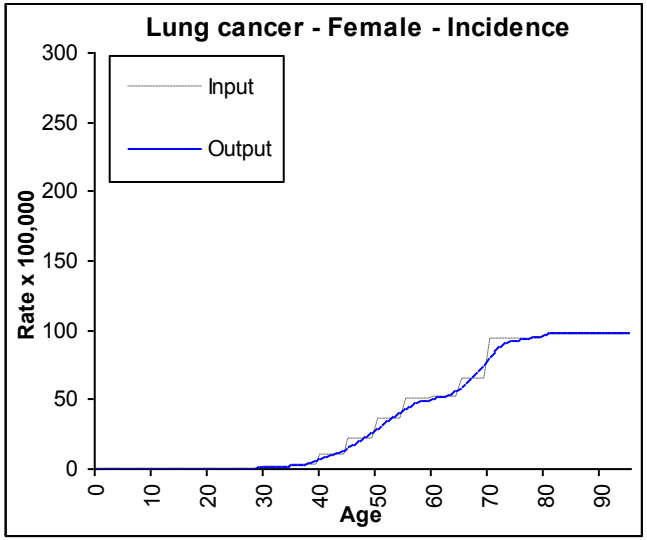
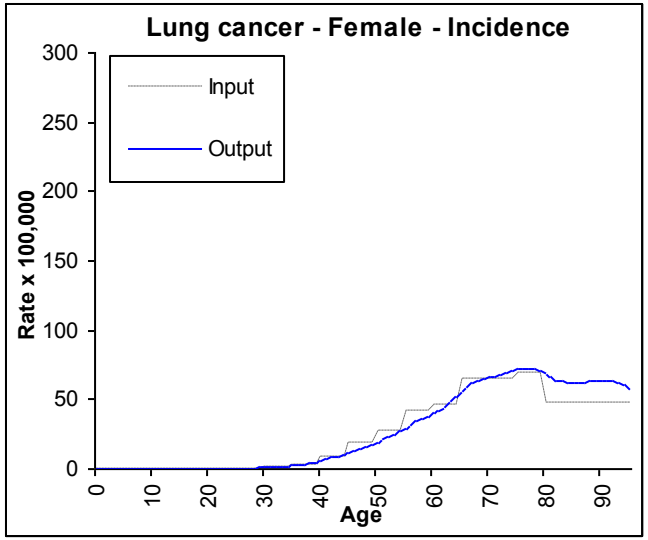
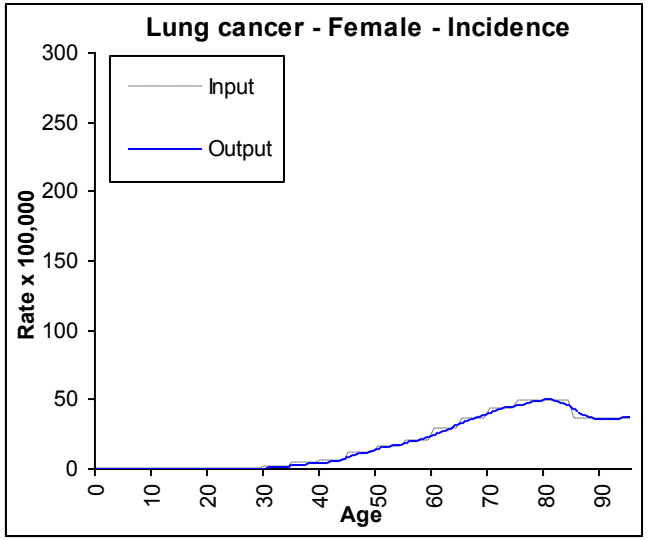
SWEDEN

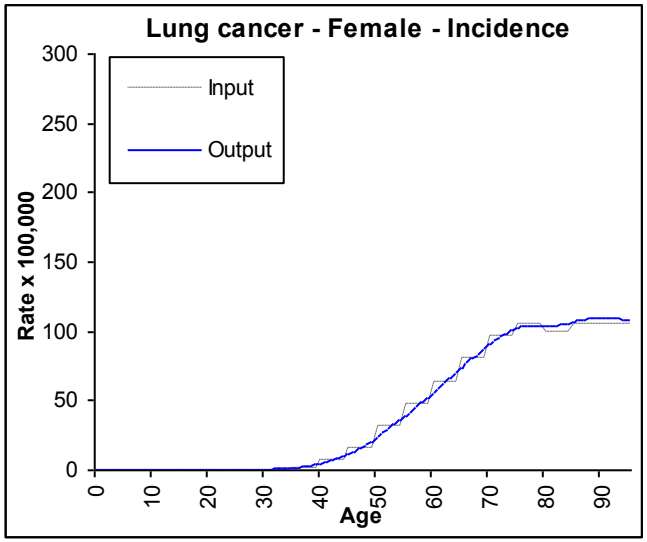
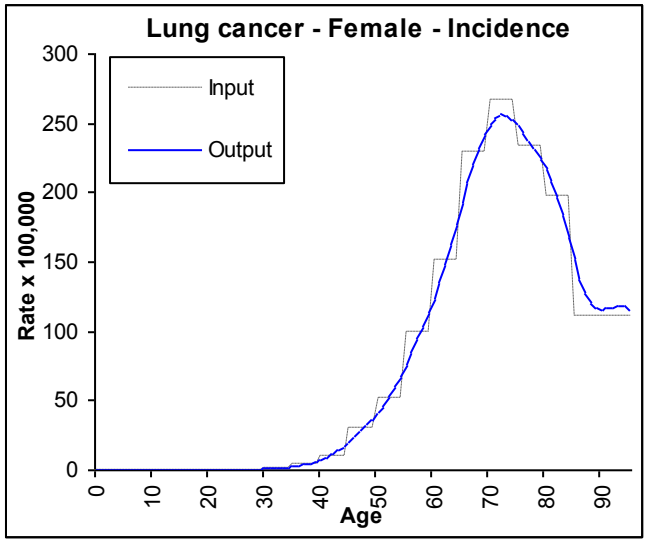
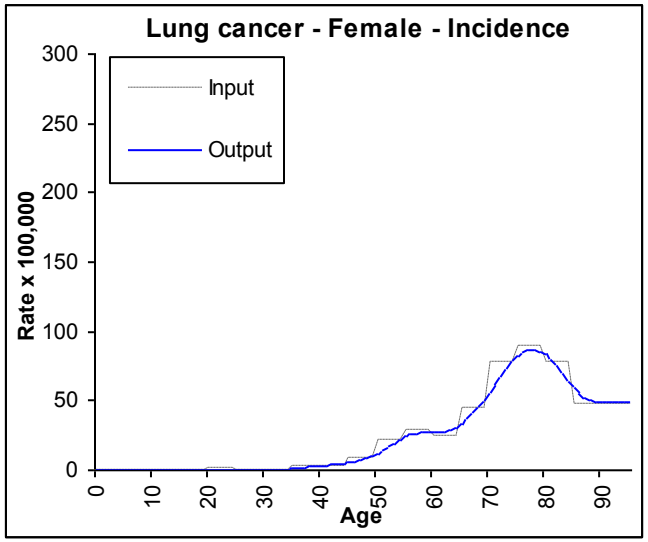


UNITED KINGDOM

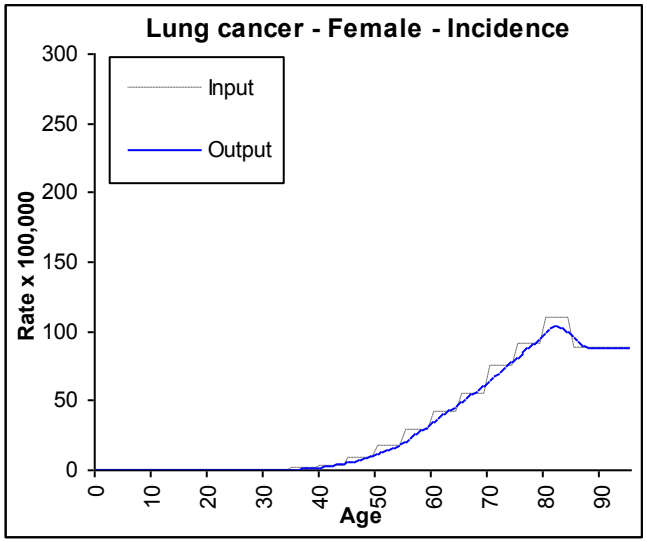


Figures 1.3.e. WP-10 ESTIMATES. Lung, tracheas and bronchus cancer (ICD-10 C33+C34). INCIDENCE. FEMALE

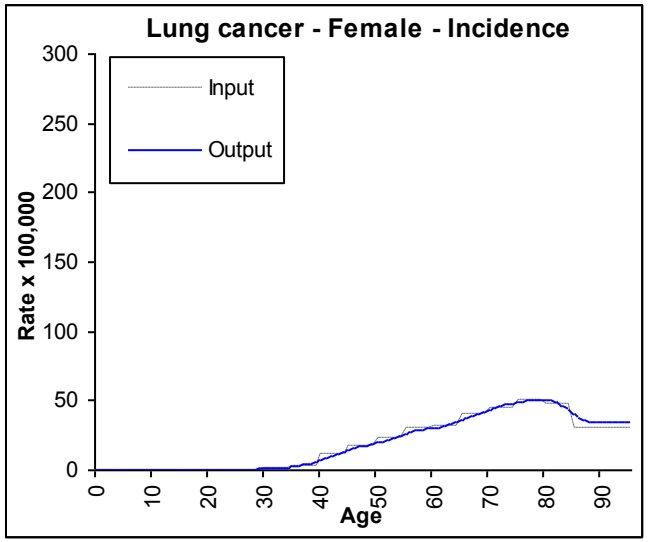
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

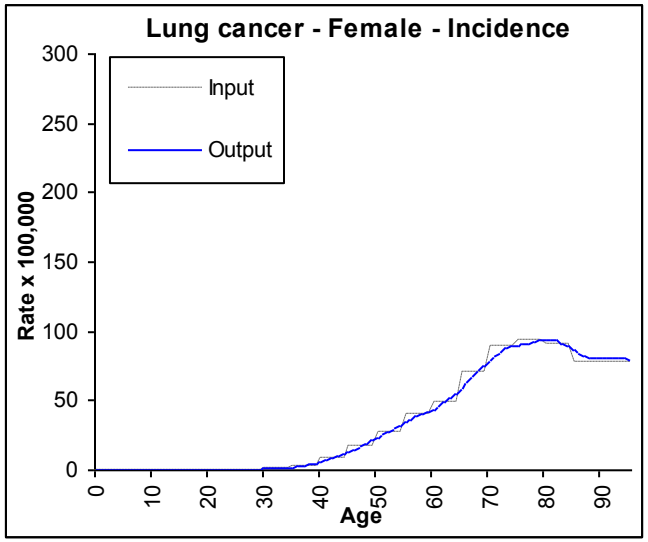
FINLAND



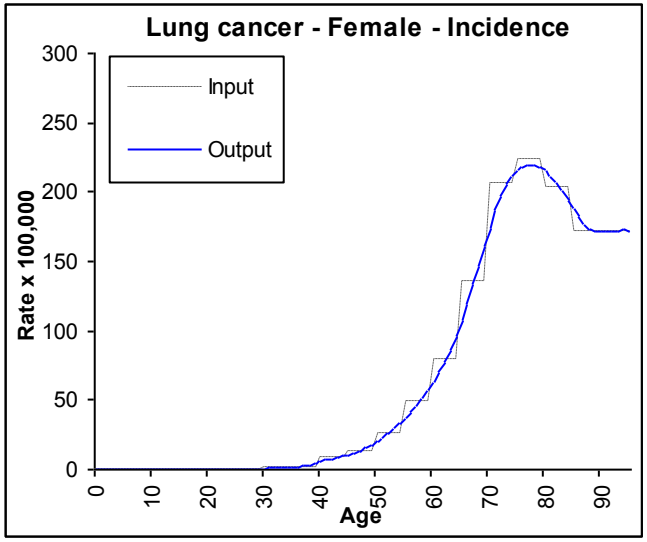
FRANCE



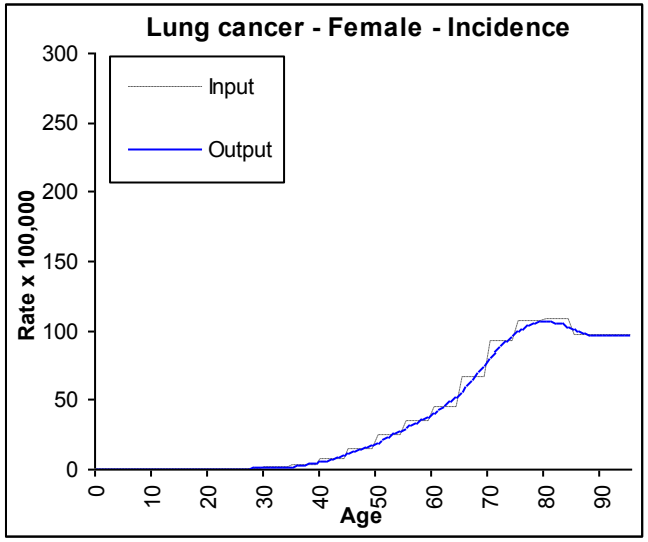
GERMANY



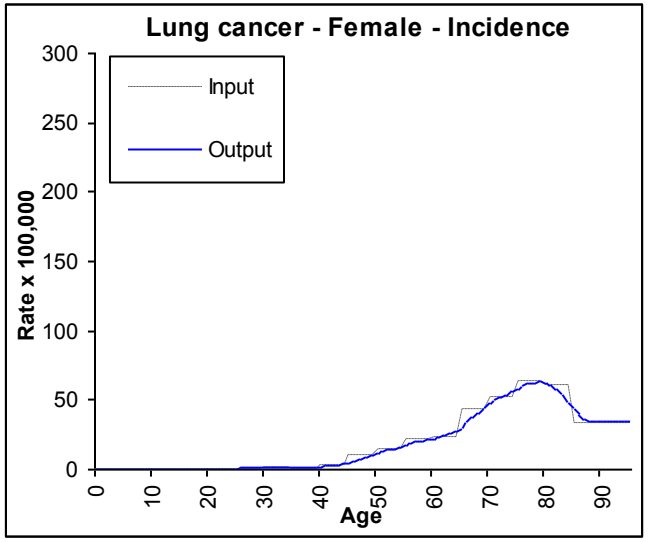
IRELAND



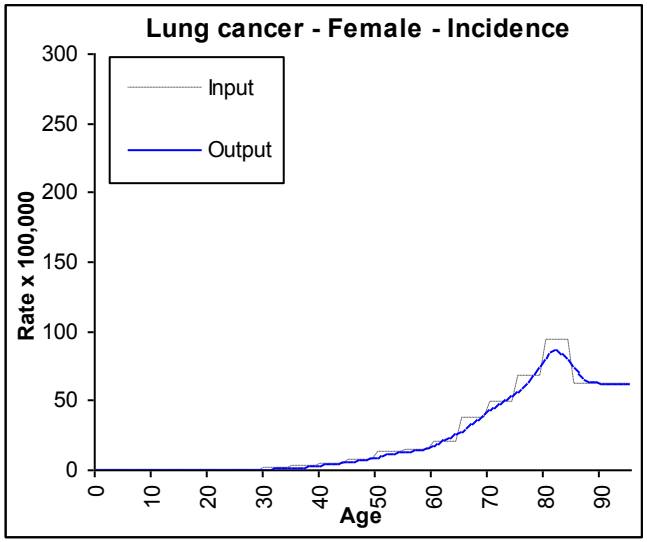
ITALY



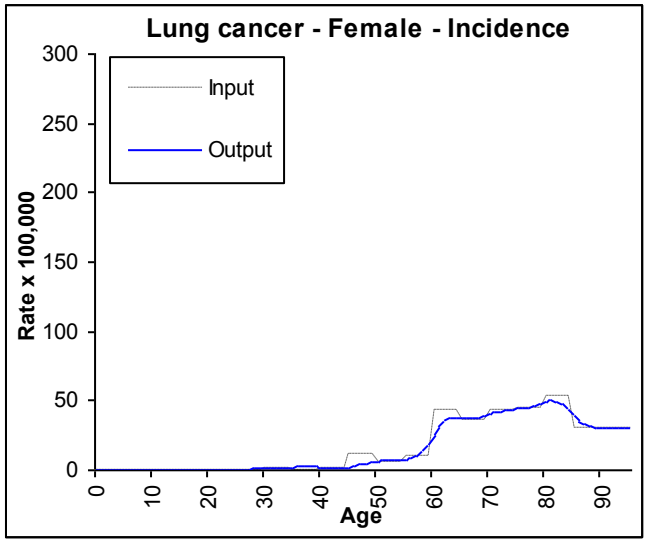
LATVIA



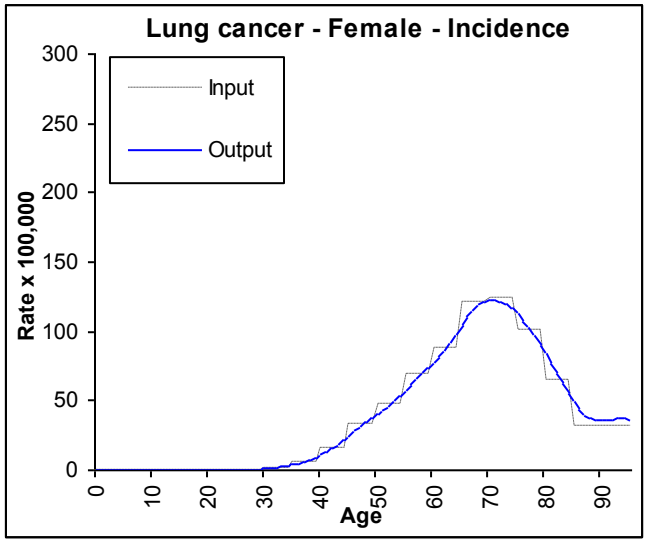
LITHUANIA



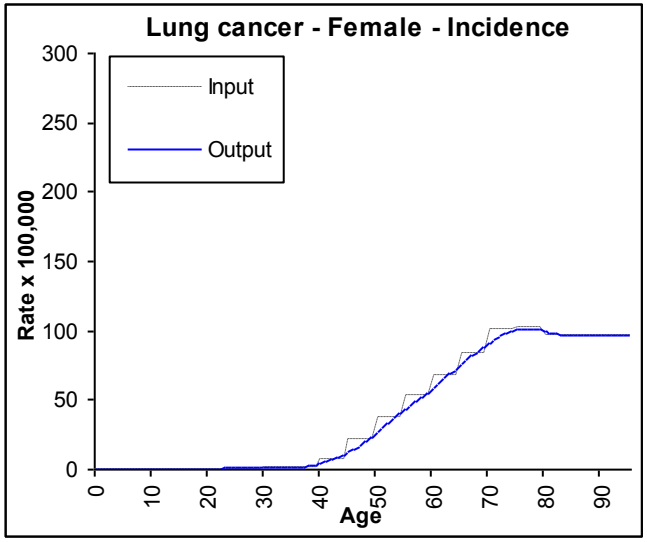
MALTA



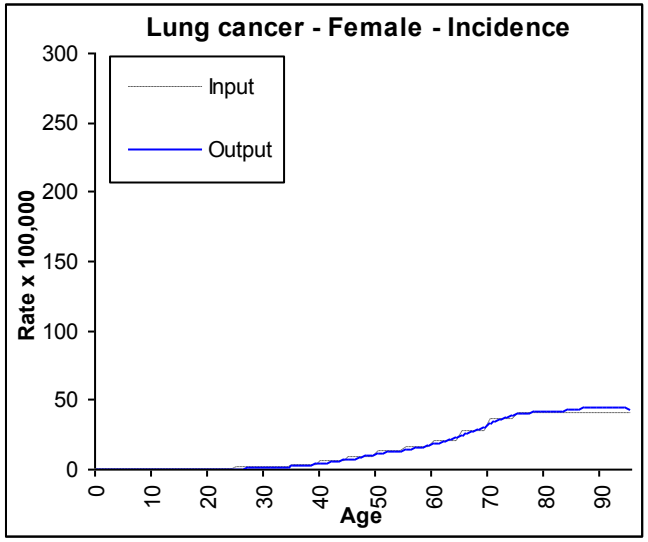
NETHERLANDS



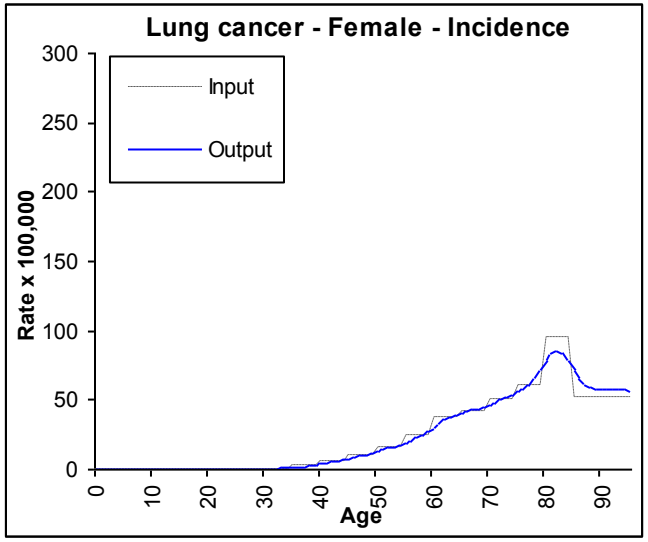
POLAND



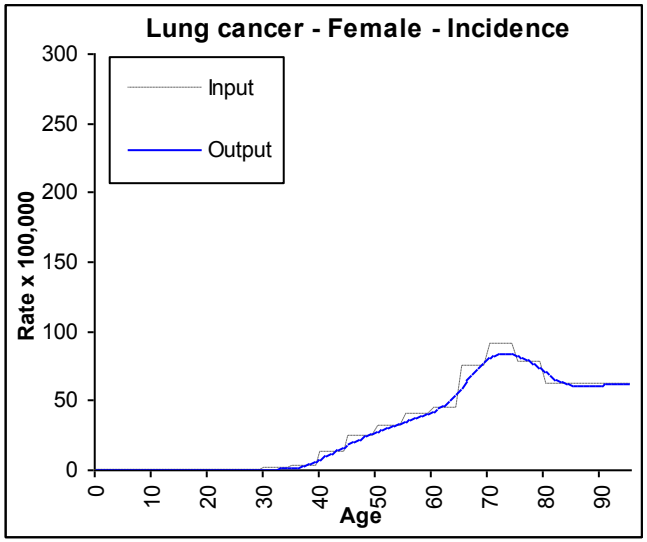
PORTUGAL



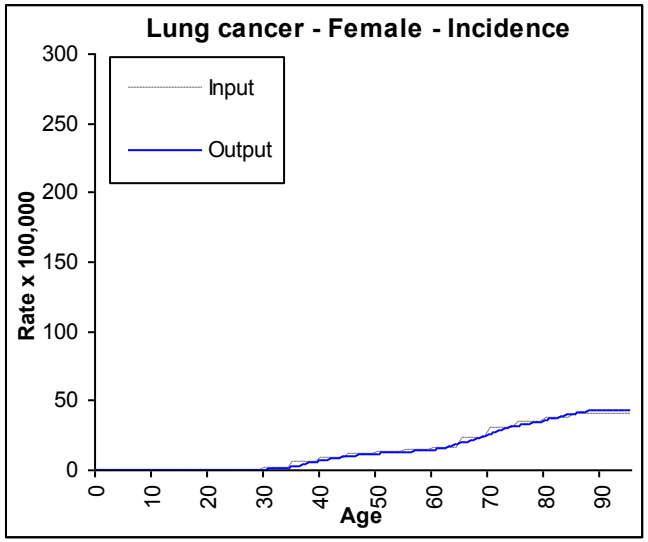
SLOVAKIA



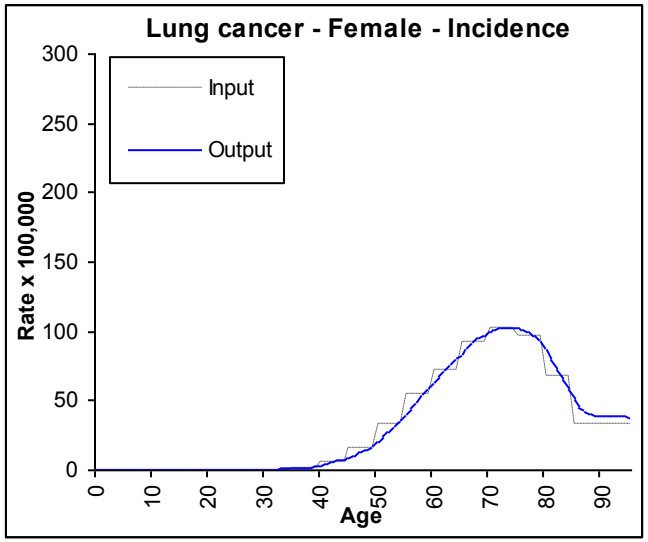
SLOVENIA



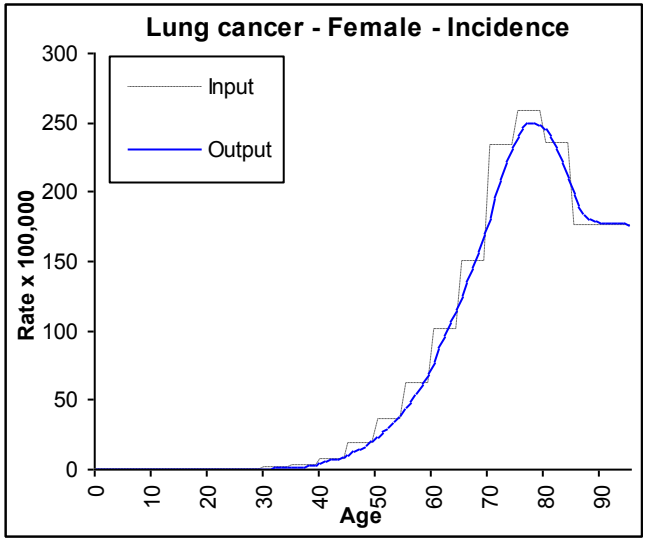
SPAIN



SWEDEN

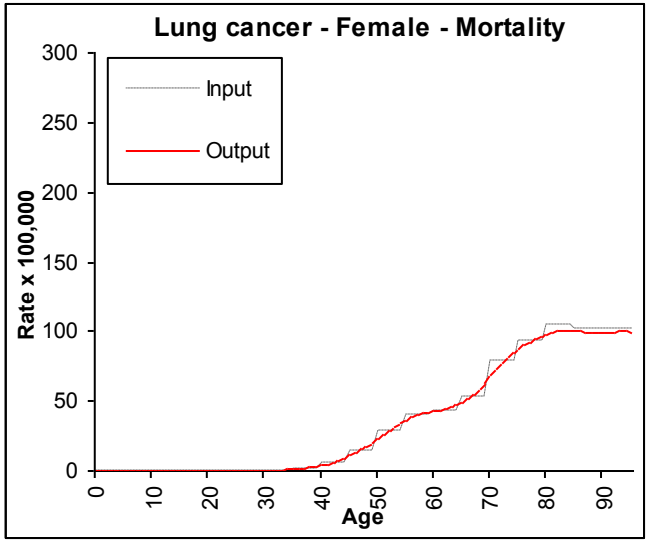


UNITED KINGDOM

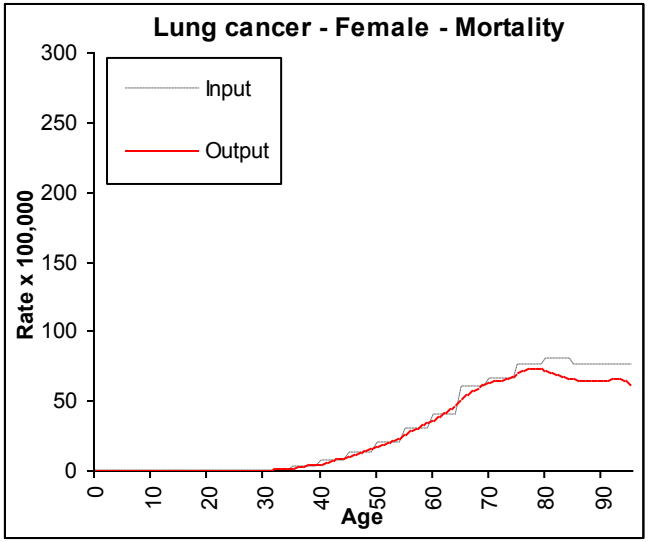


Figures 1.3.f. WP-10 ESTIMATES. Lung, tracheas and bronchus cancer (ICD-10 C33+C34). MORTALITY. FEMALE

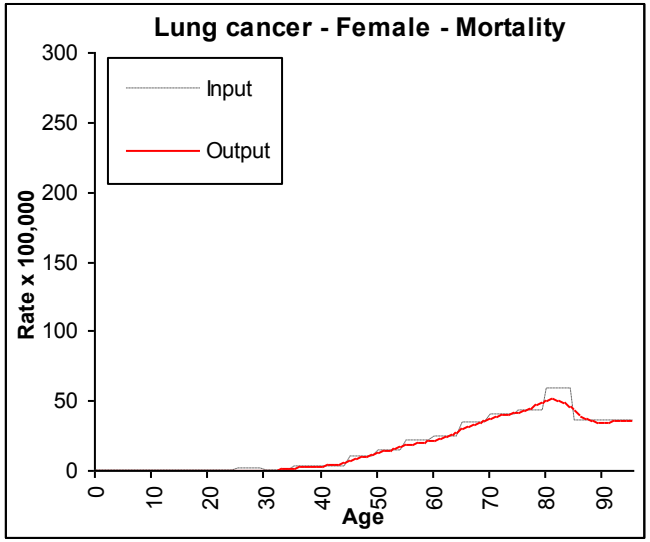
AUSTRIA



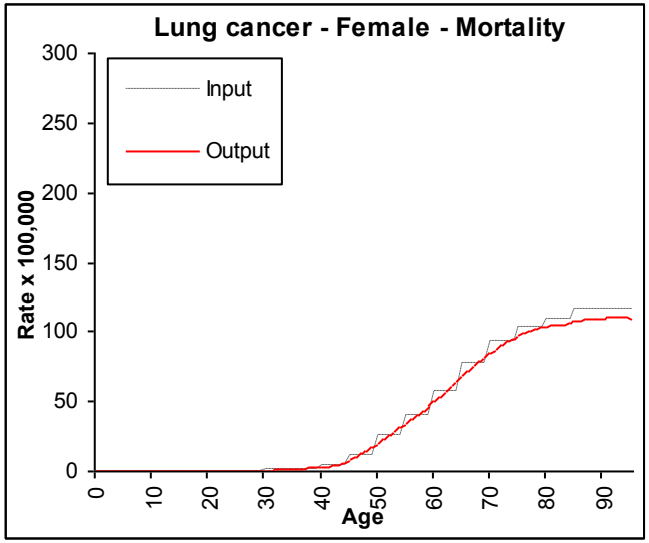
BELGIUM



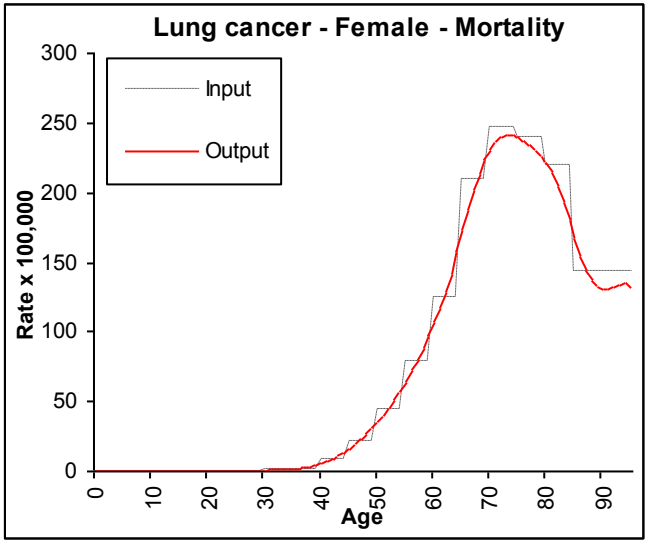
BULGARIA



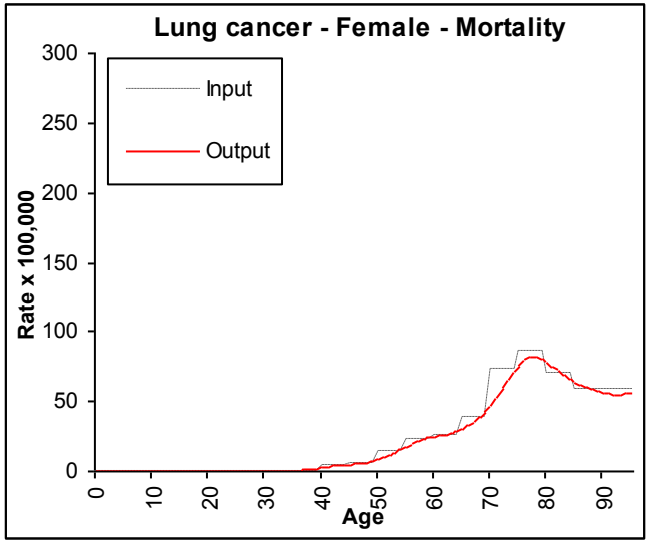
CZECH REPUBLIC



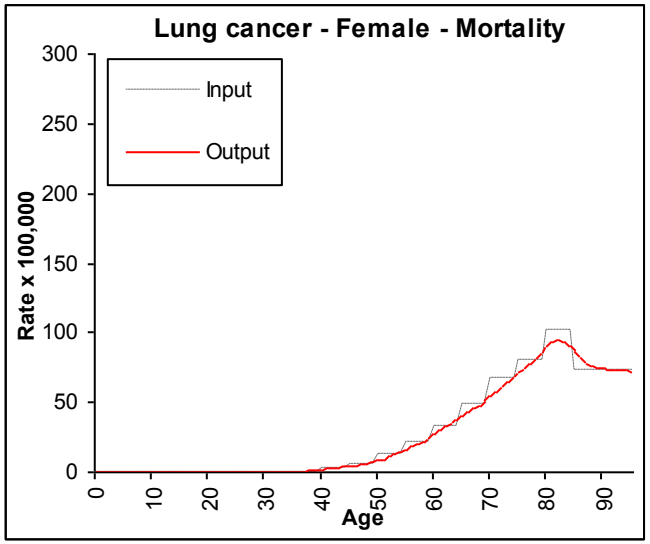
DENMARK



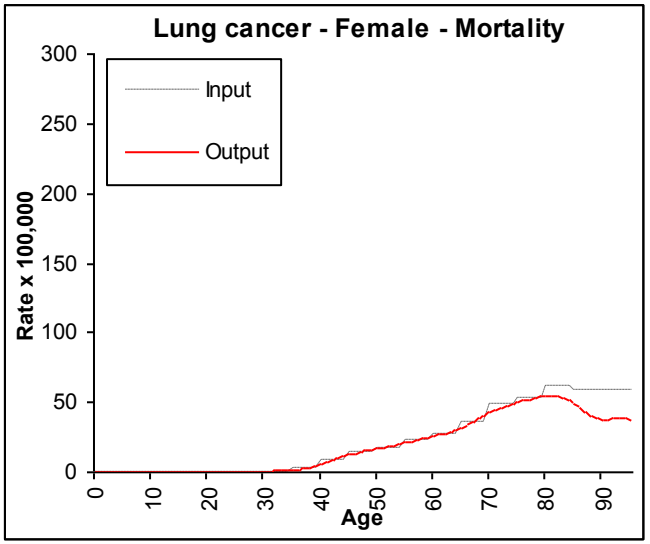
ESTONIA



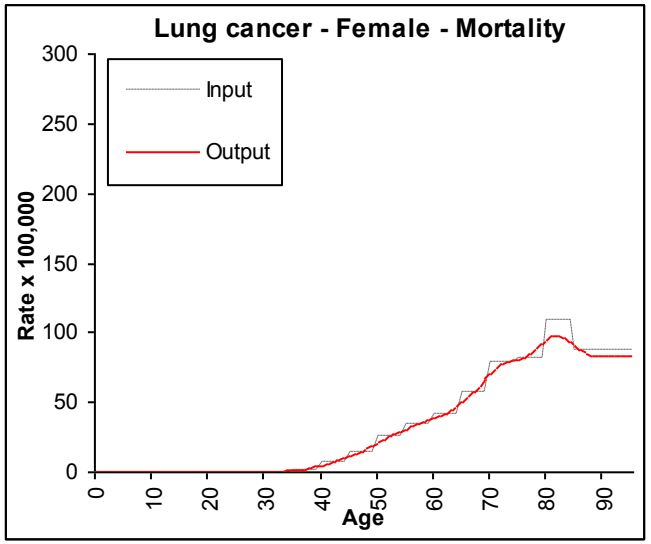
FINLAND



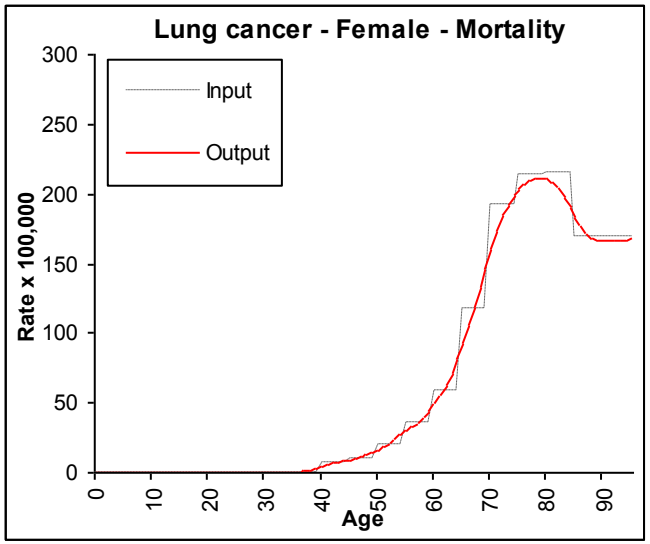
FRANCE



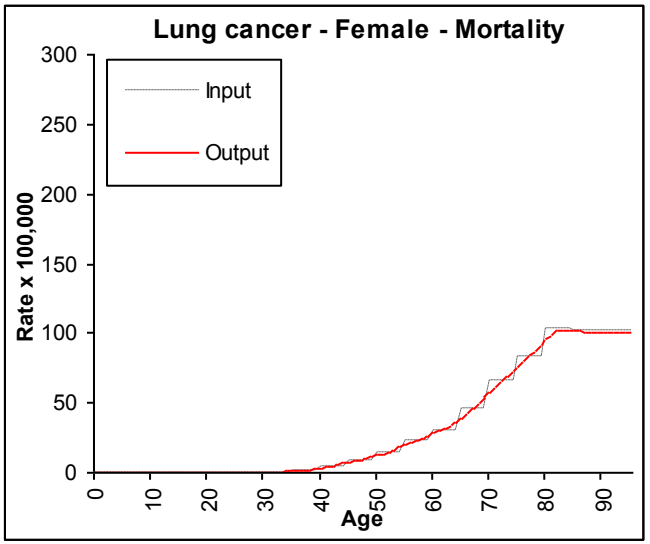
GERMANY



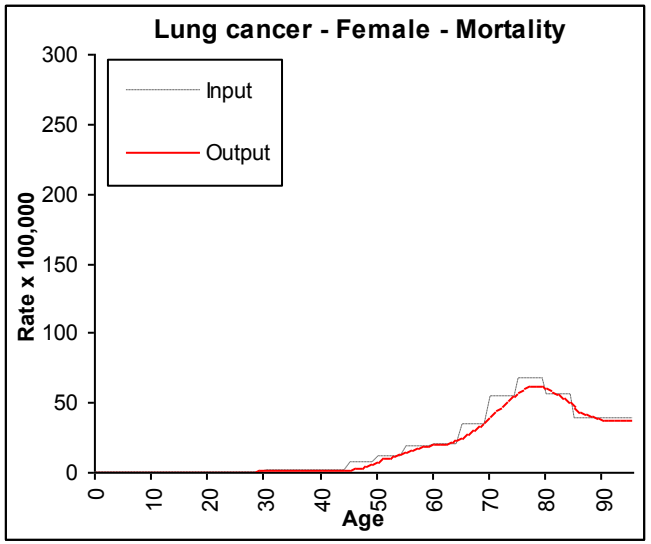
IRELAND



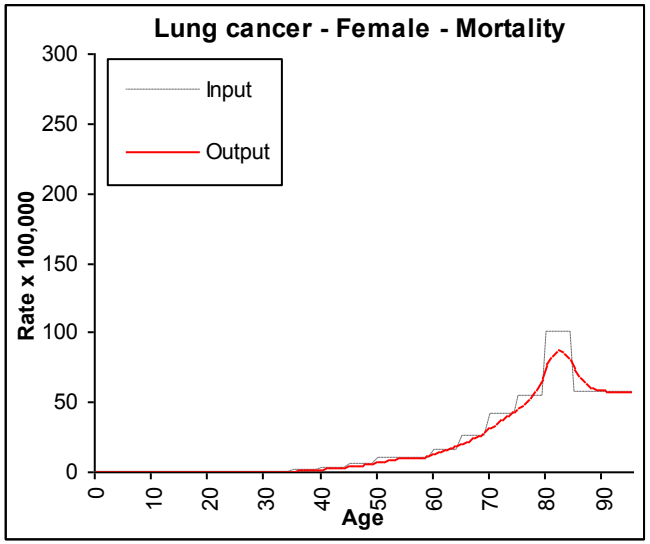
ITALY



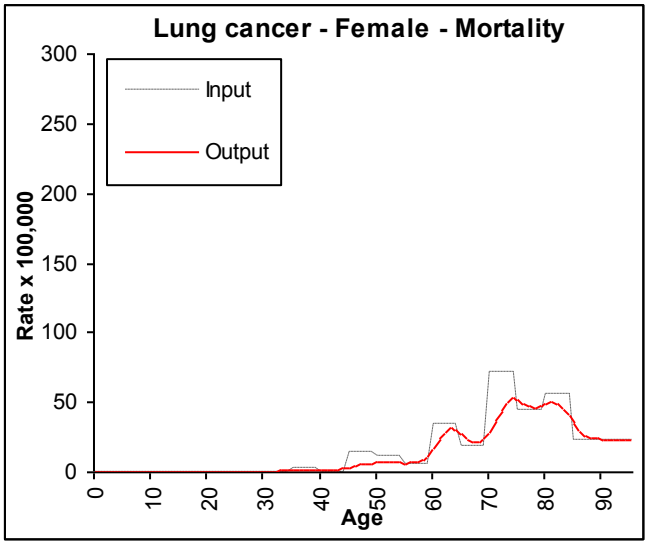
LATVIA



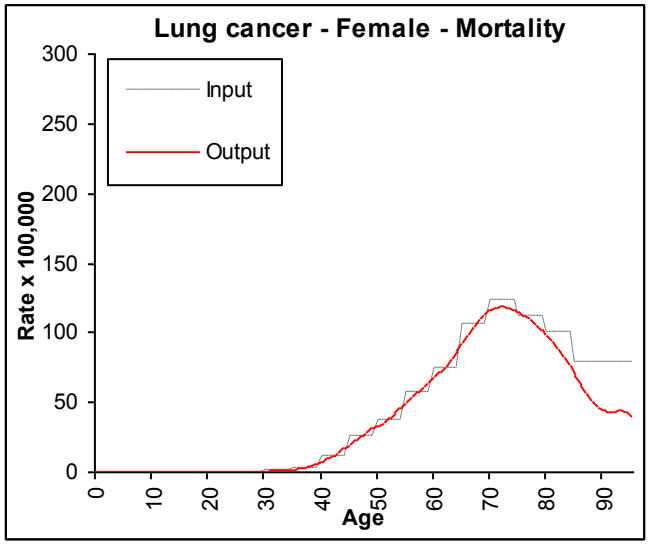
LITHUANIA



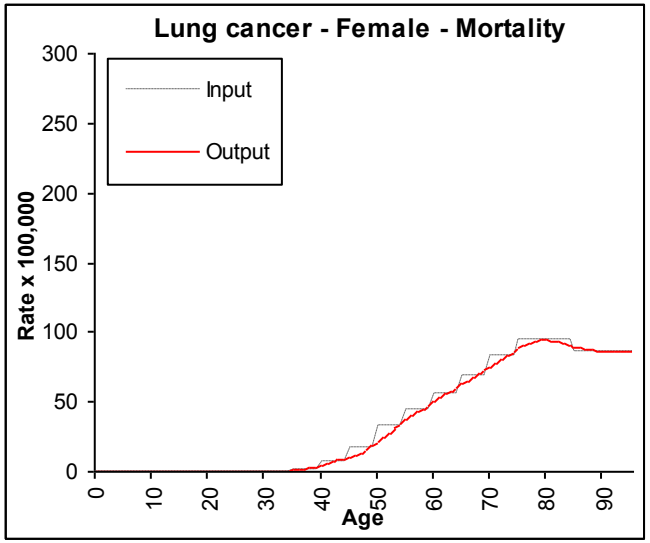
MALTA



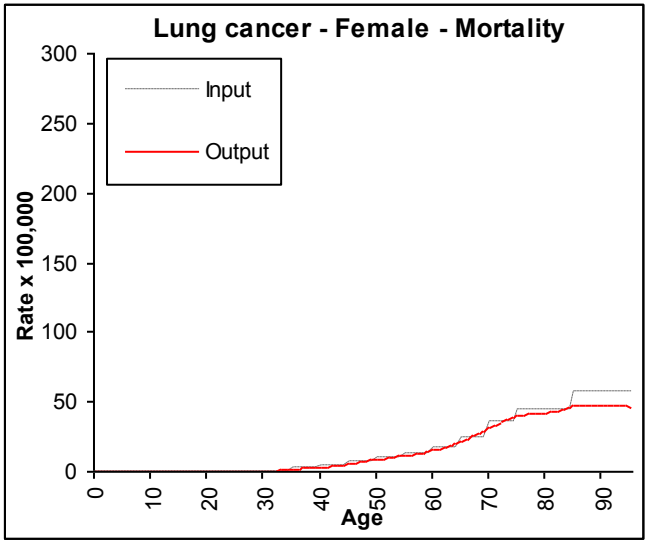
NETHERLANDS



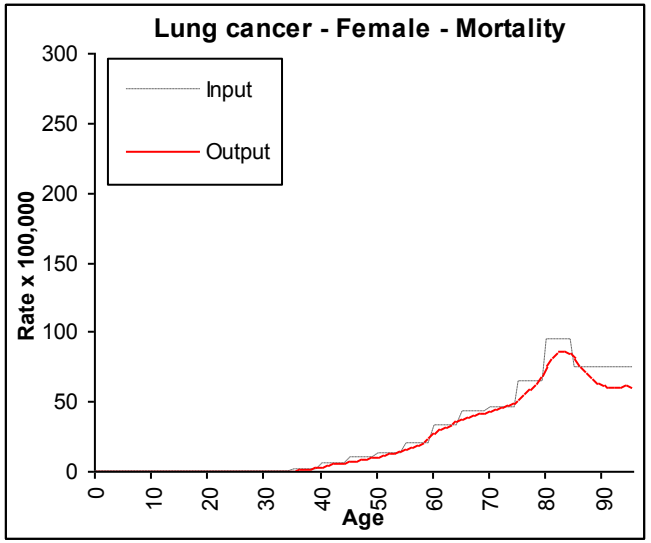
POLAND



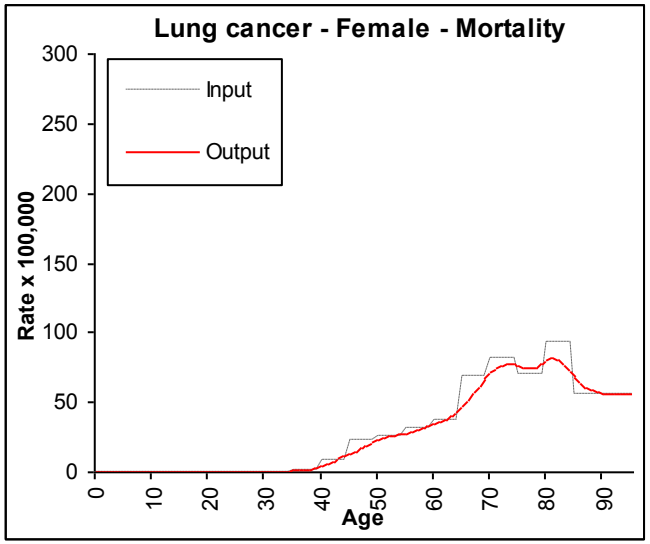
PORTUGAL



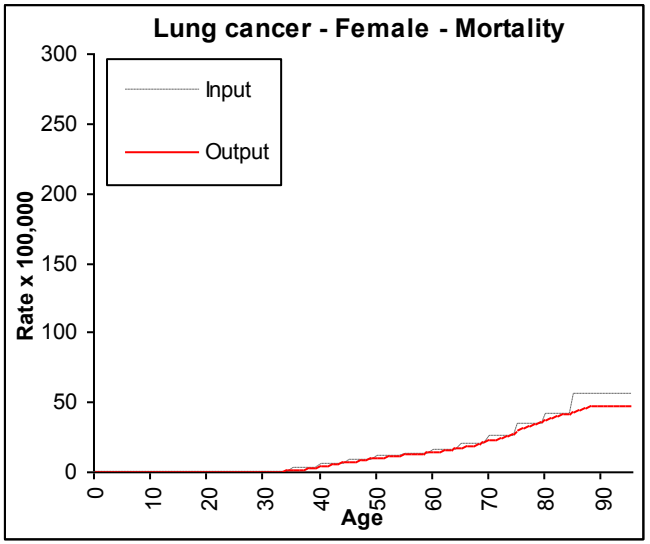
SLOVAKIA



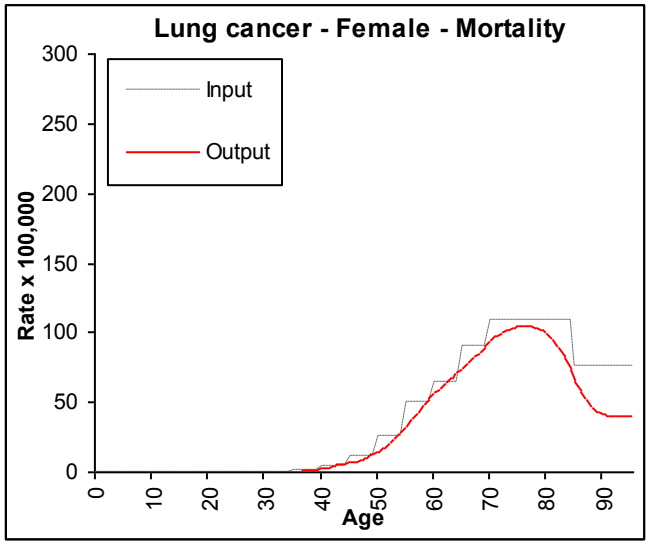
SLOVENIA



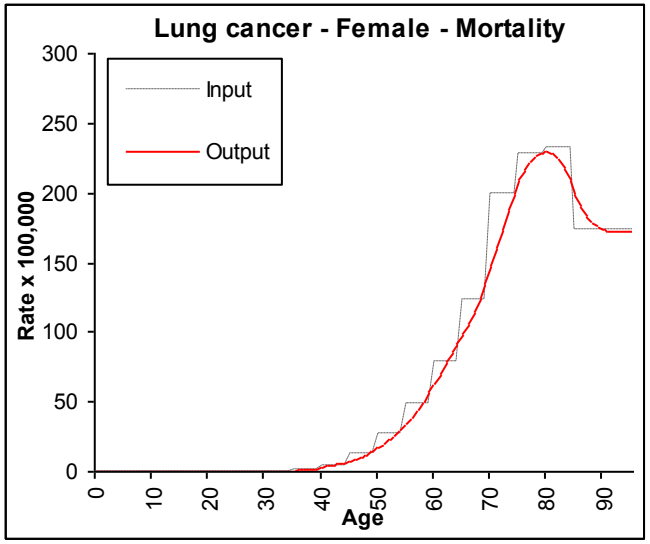
SPAIN



SWEDEN

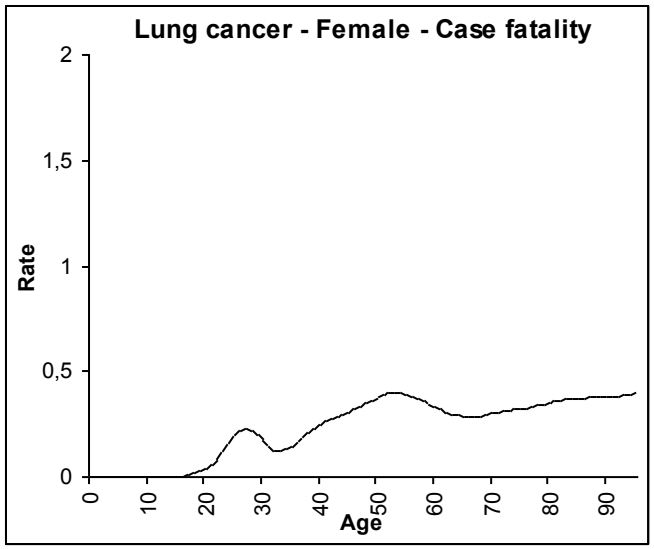


UNITED KINGDOM

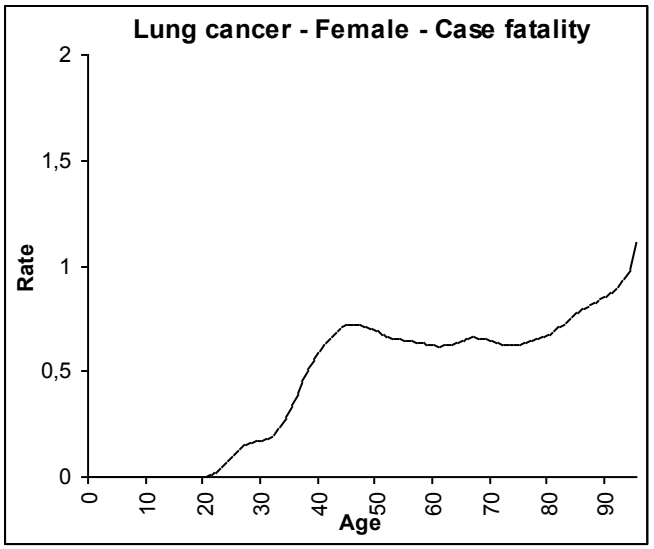


Figures 1.3.g. WP-10 ESTIMATES. Lung, tracheas and bronchus cancer (ICD-10 C33+C34). CASE FATALITY. FEMALE

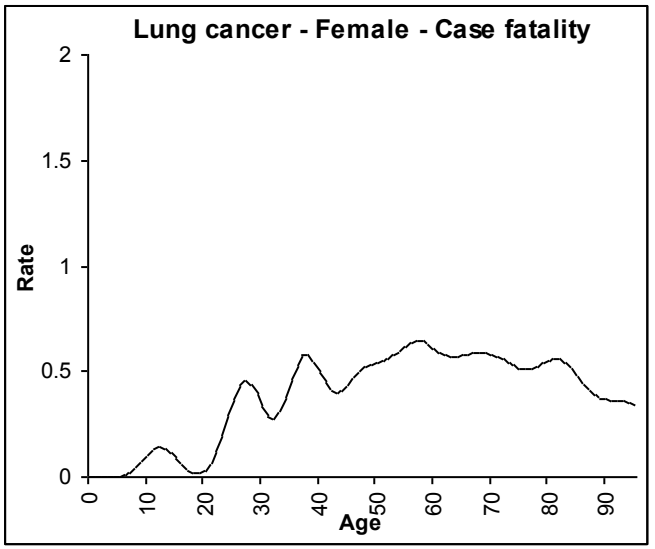
AUSTRIA



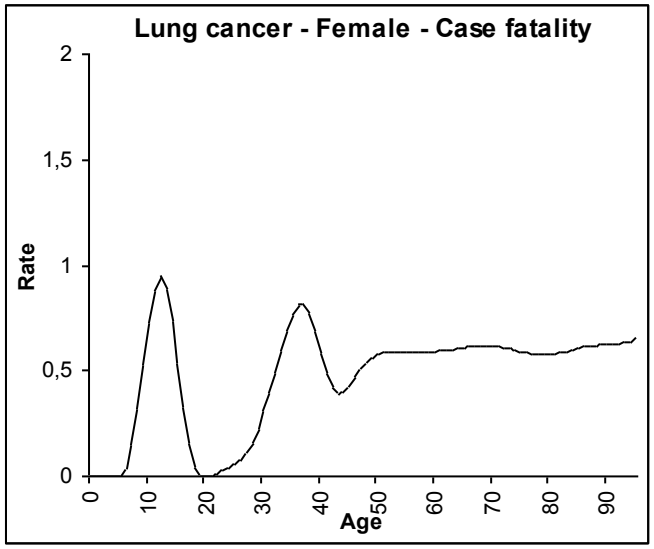
BELGIUM



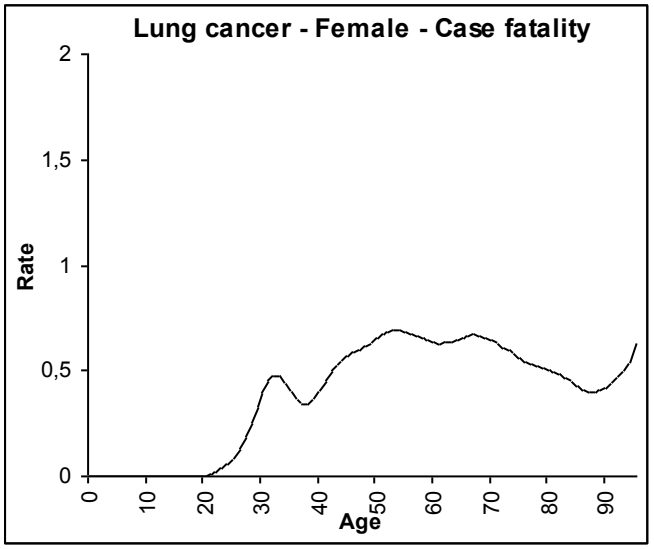
BULGARIA



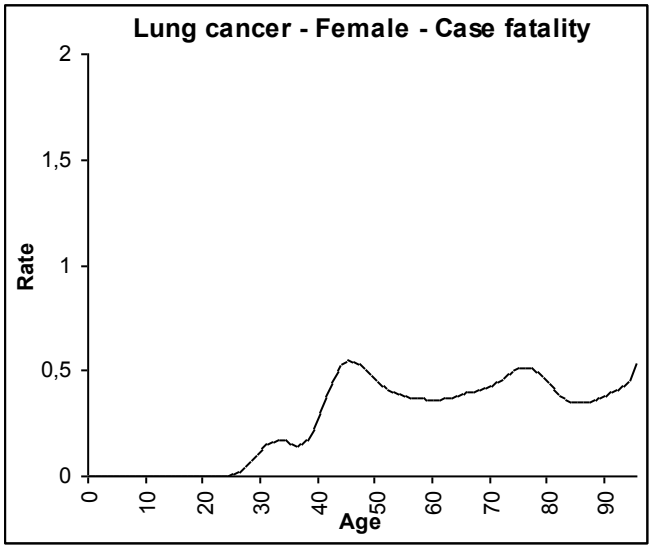
CZECH REPUBLIC



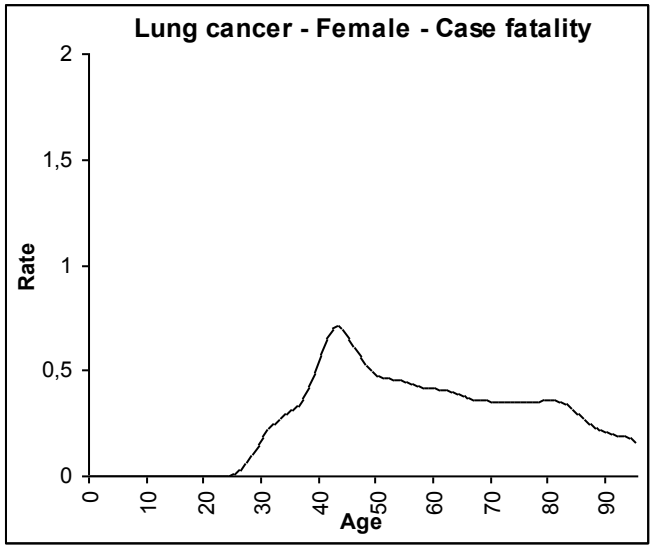
DENMARK



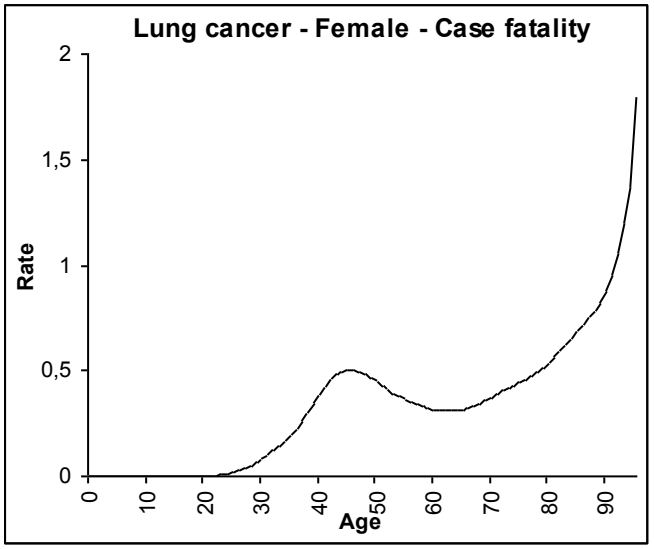
ESTONIA



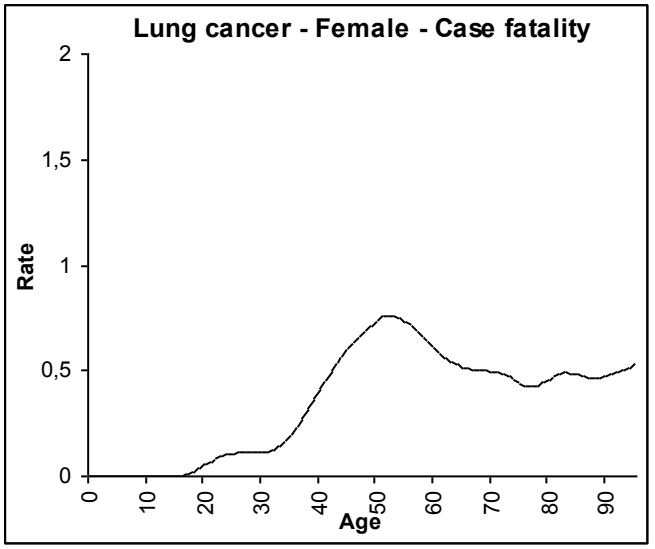
FINLAND



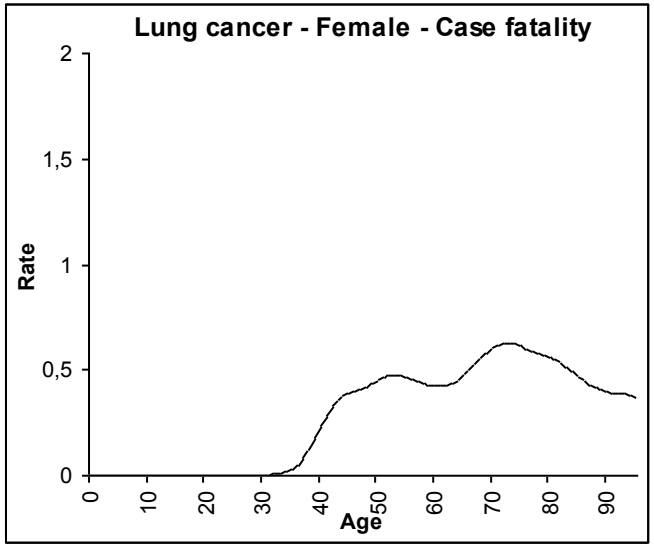
FRANCE



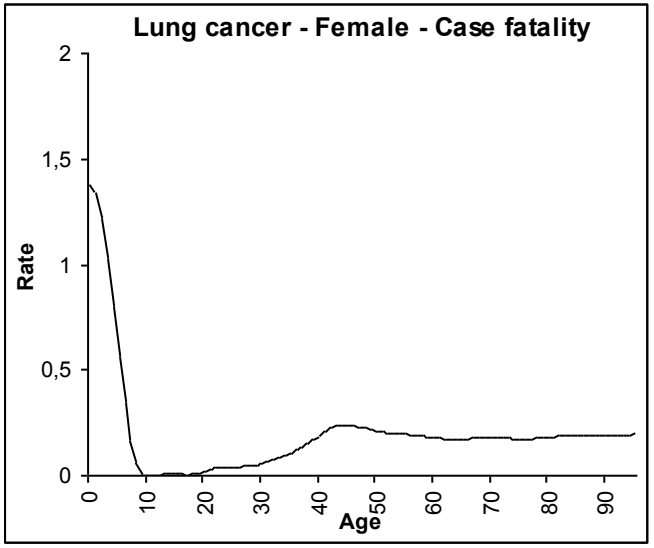
GERMANY



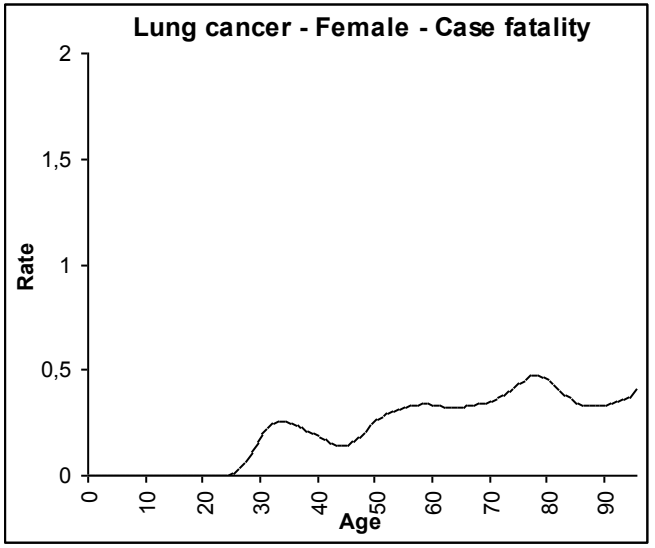
IRELAND



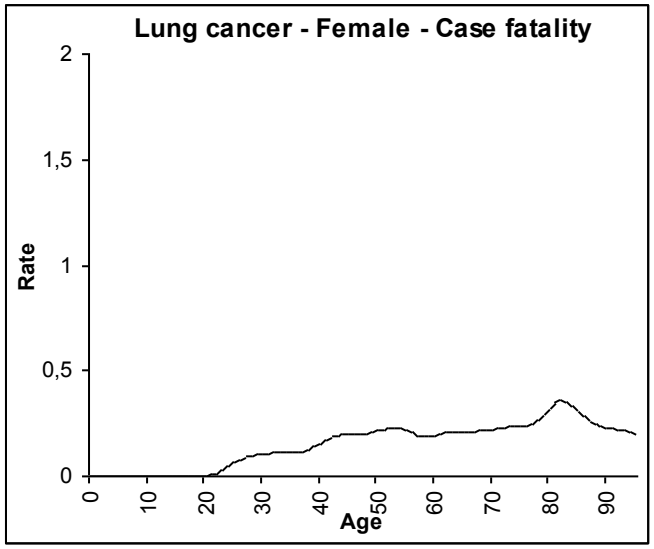
ITALY



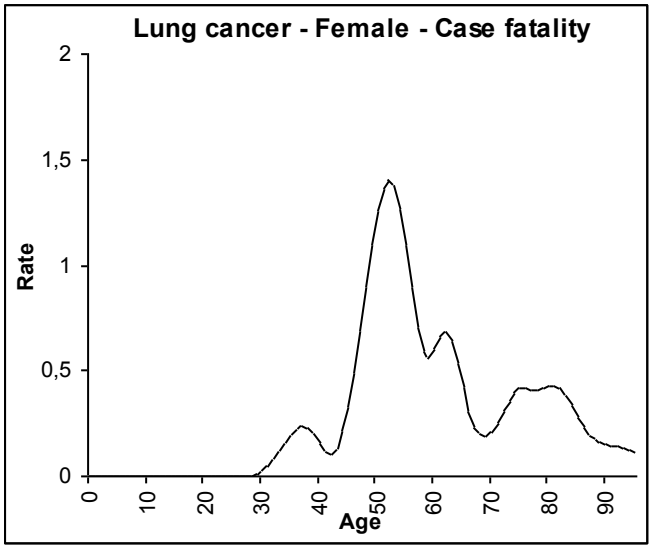
LATVIA



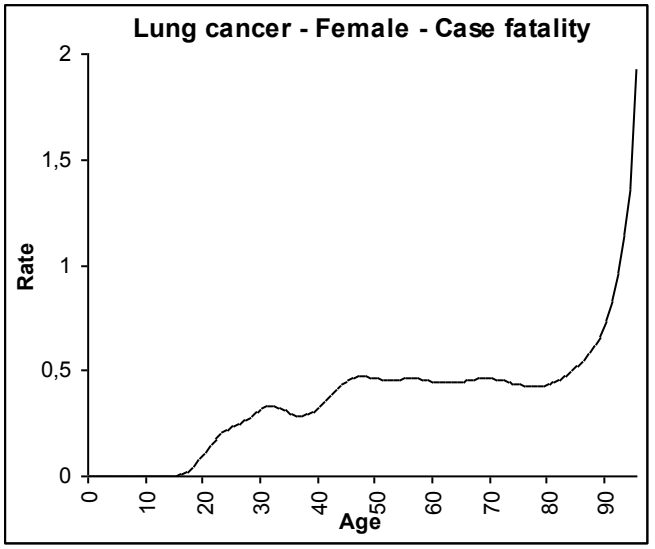
LITHUANIA



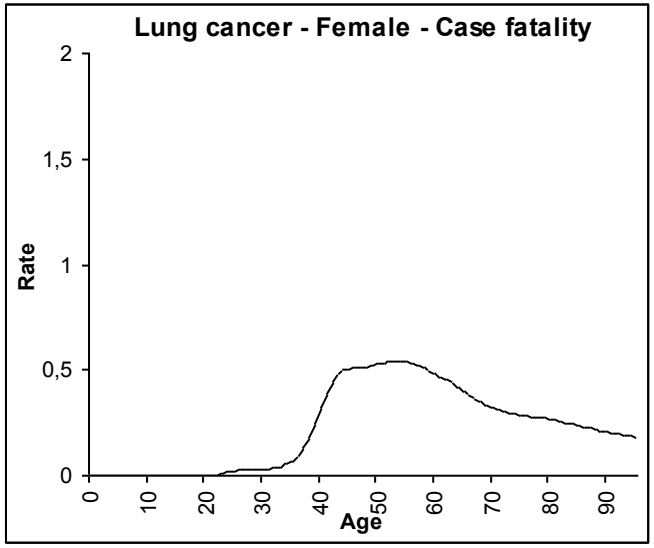
MALTA



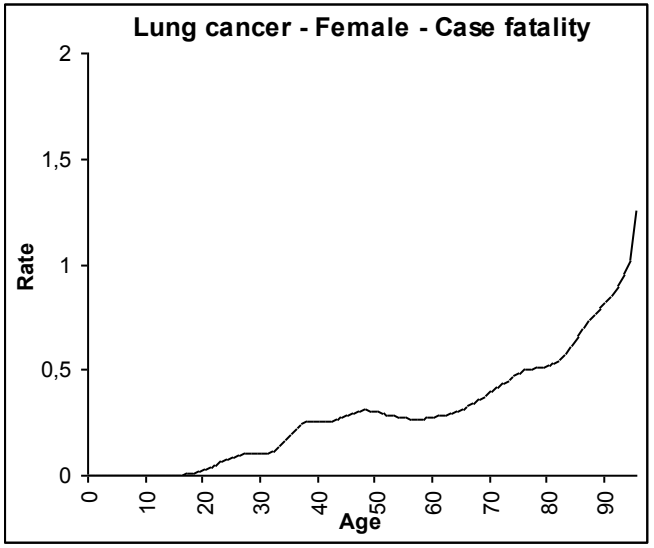
NETHERLANDS



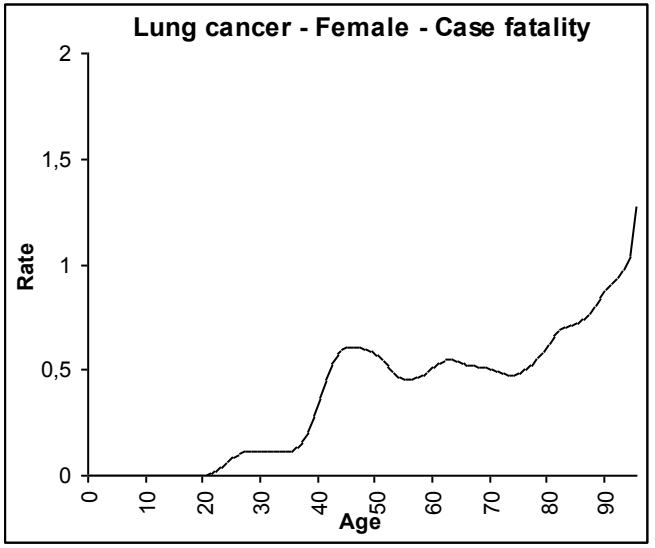
POLAND



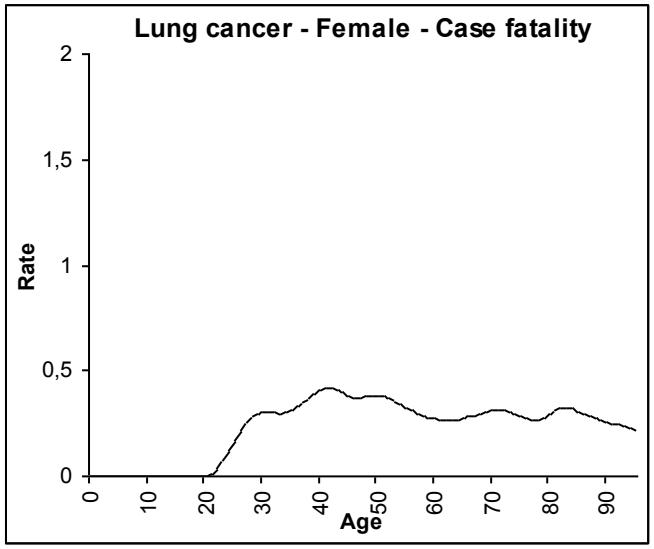
PORTUGAL



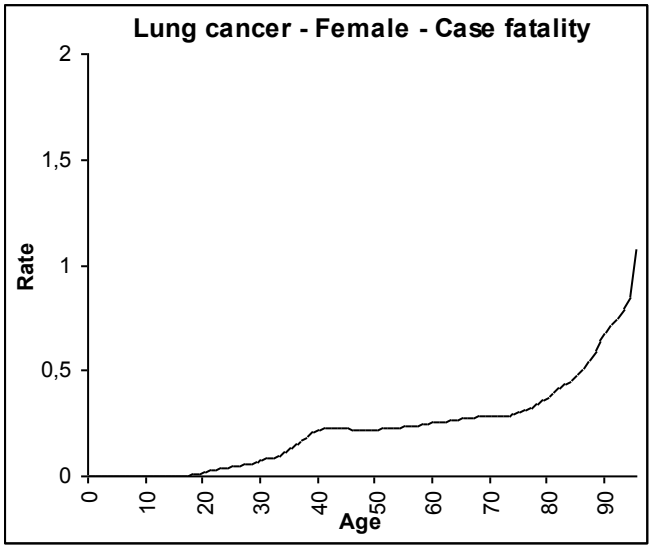
SLOVAKIA



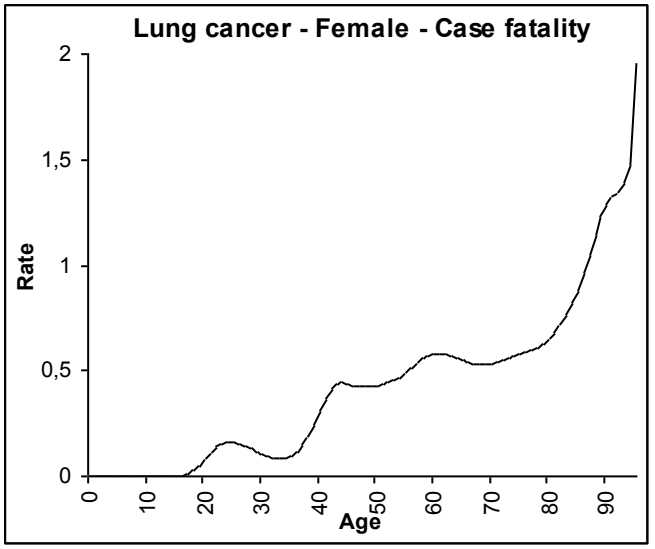
SLOVENIA



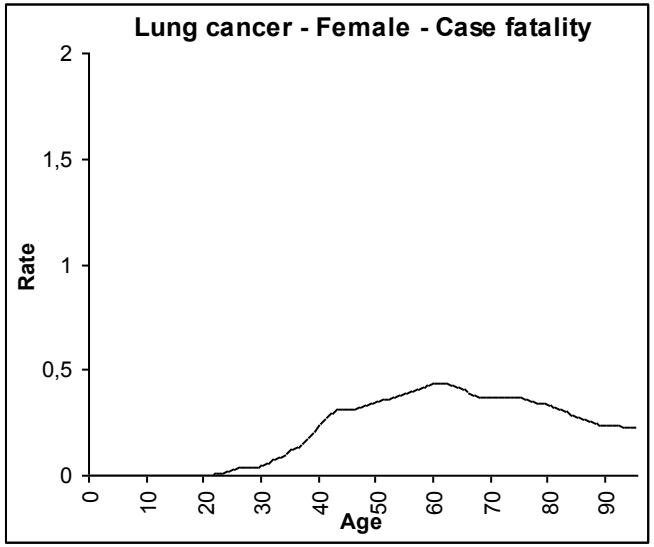
SPAIN



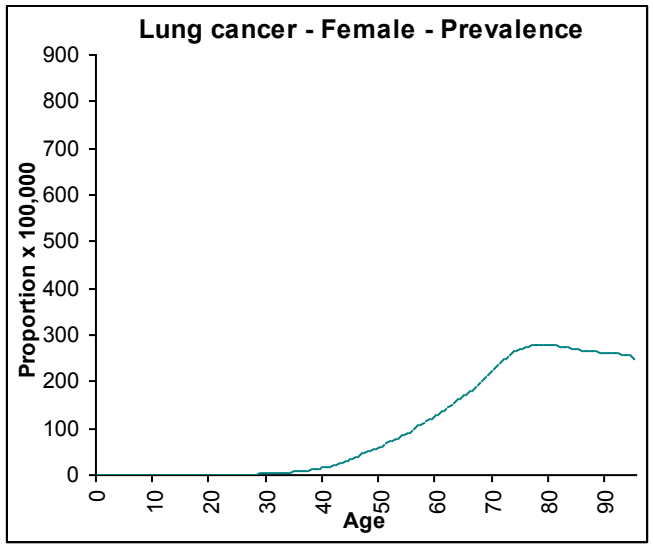
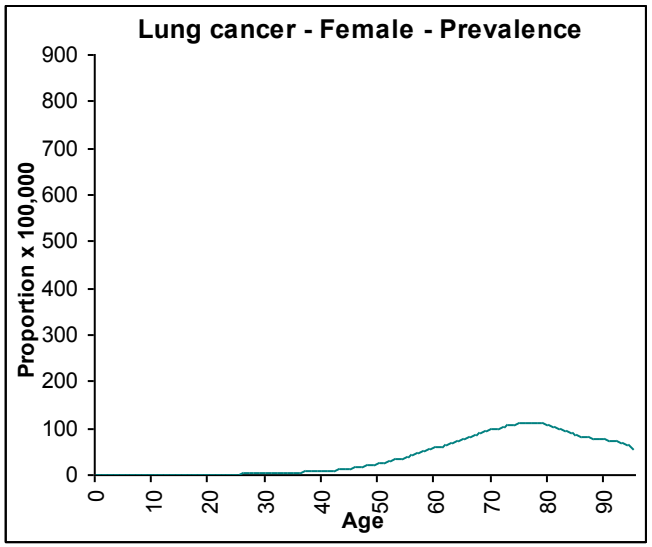
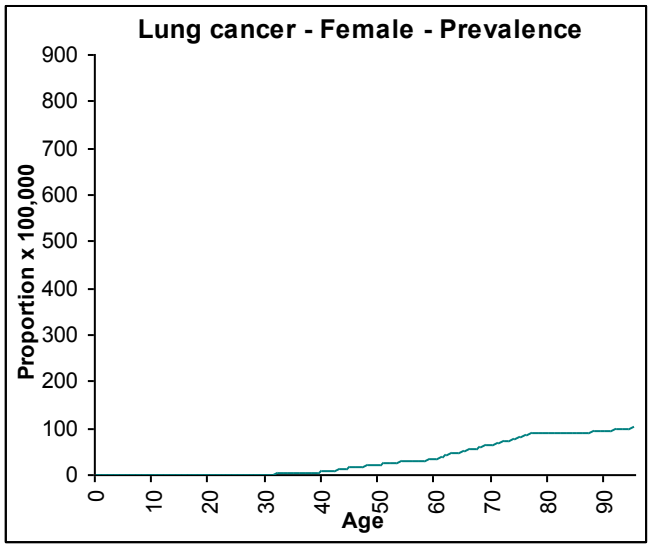
SWEDEN

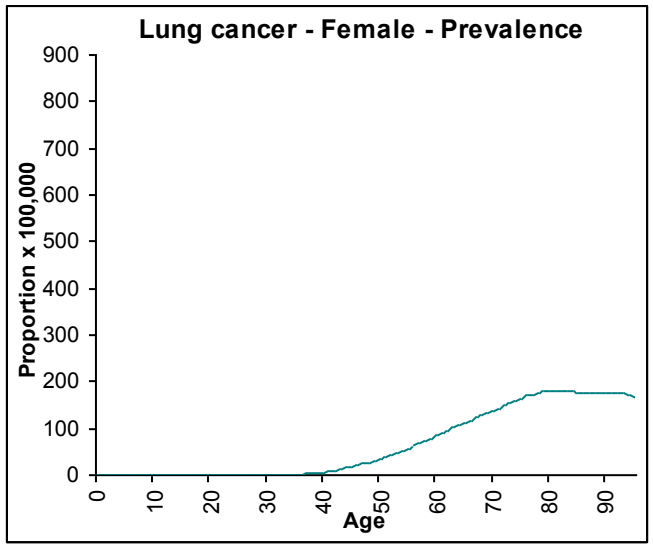
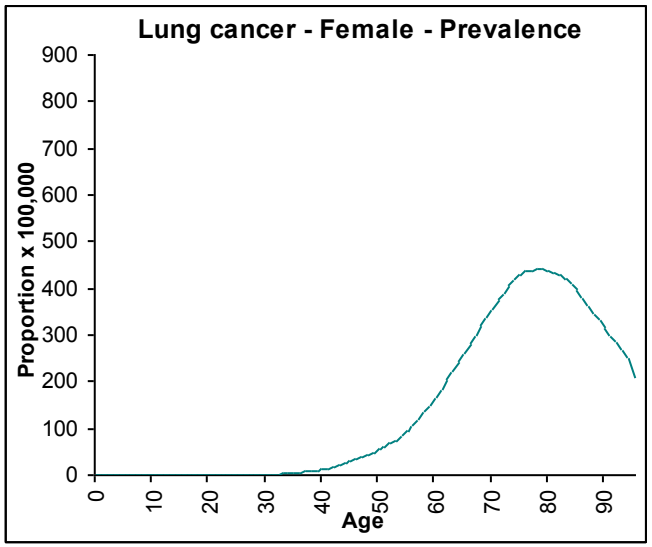
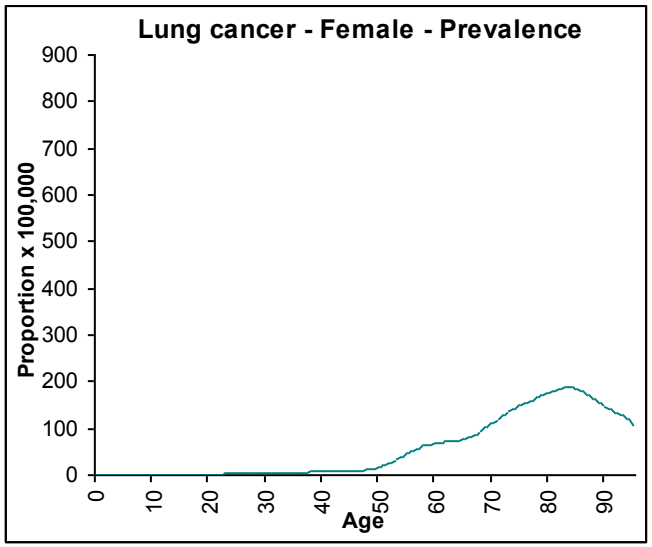


UNITED KINGDOM

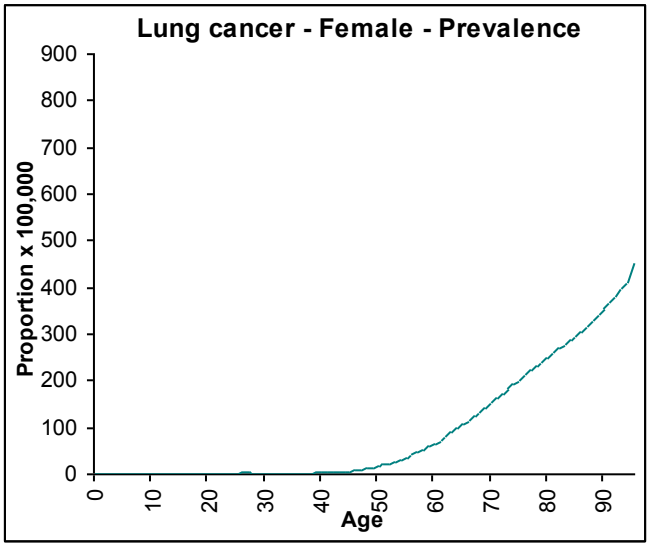


Figures 1.3.h. WP-10 ESTIMATES. Lung, tracheas and bronchus cancer (ICD-10 C33+C34). TOTAL PREVALENCE. FEMALE

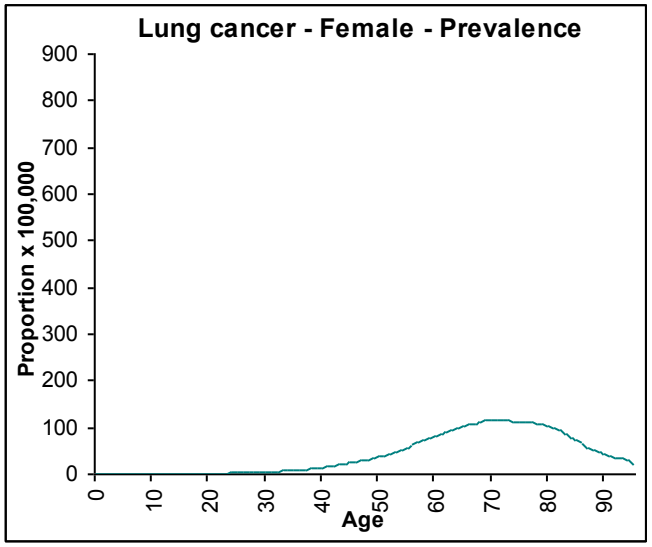
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

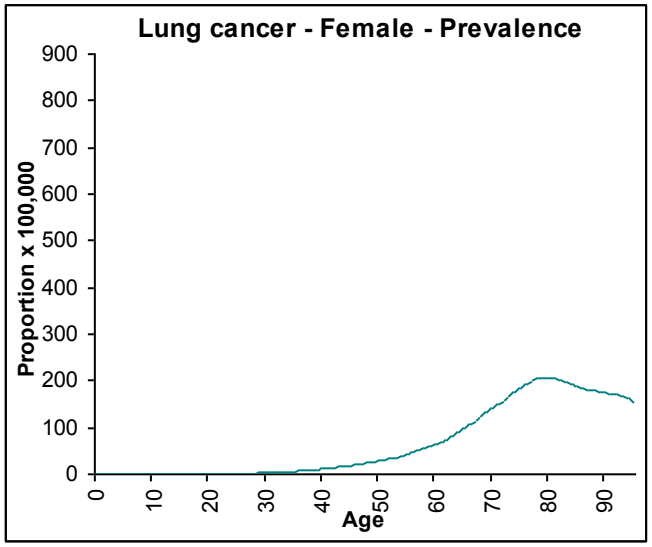
FINLAND



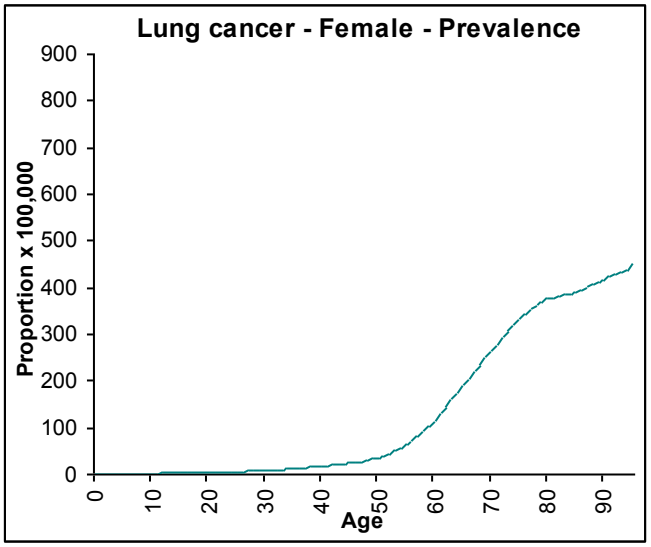
FRANCE



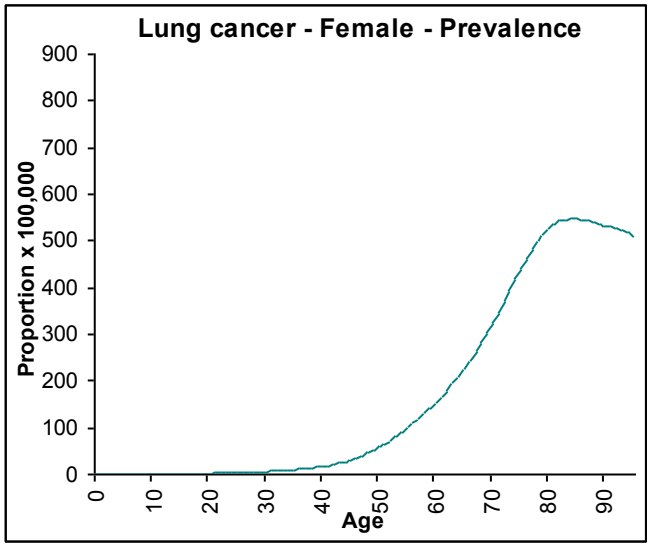
GERMANY



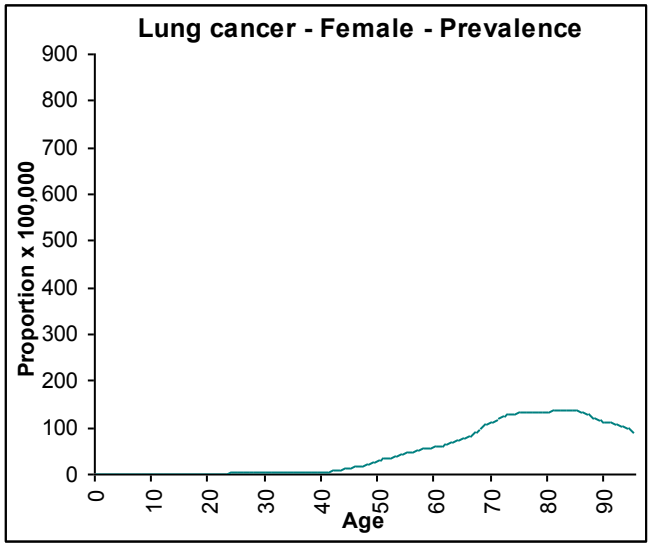
IRELAND



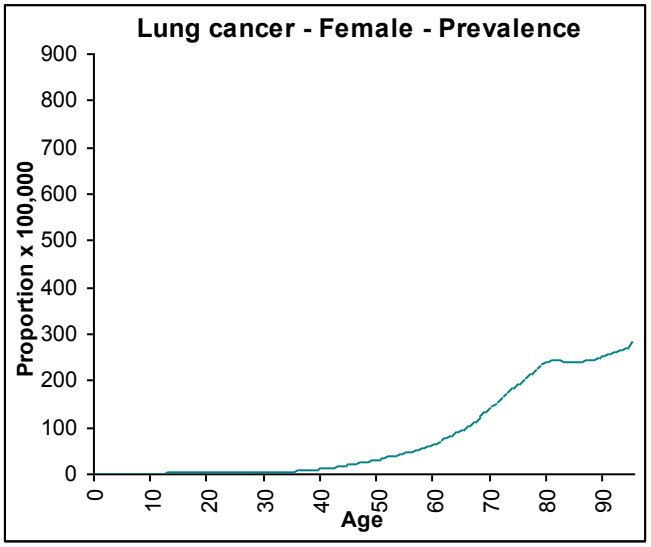
ITALY



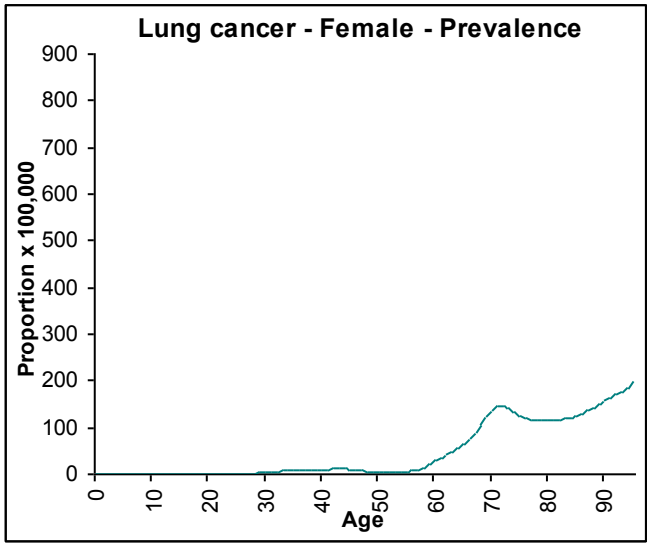
LATVIA



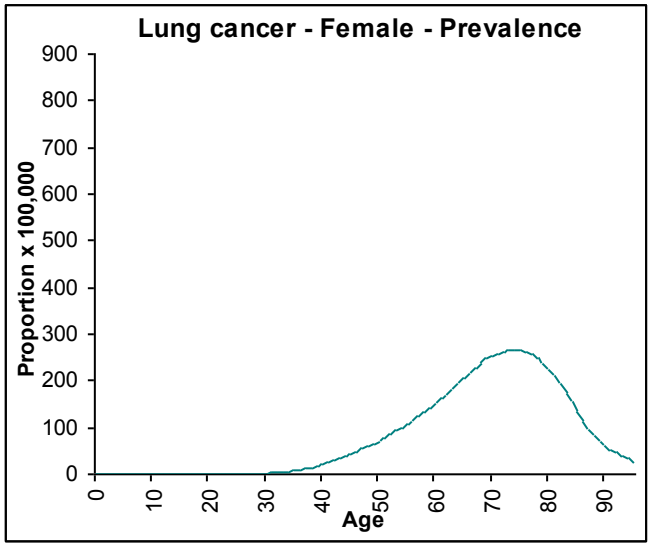
LITHUANIA



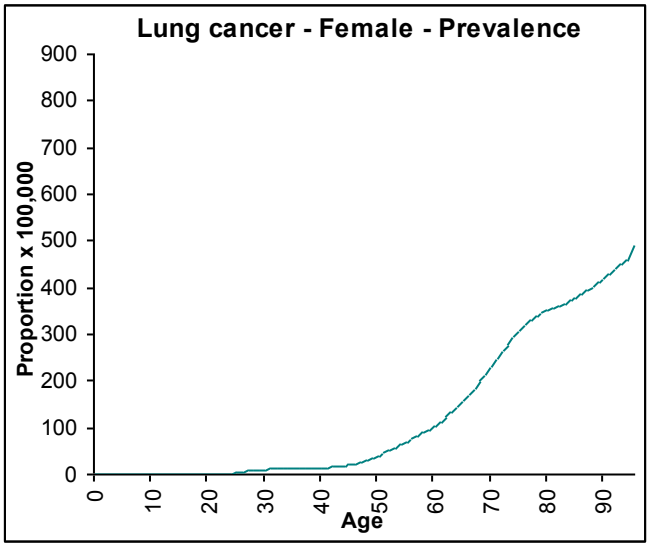
MALTA



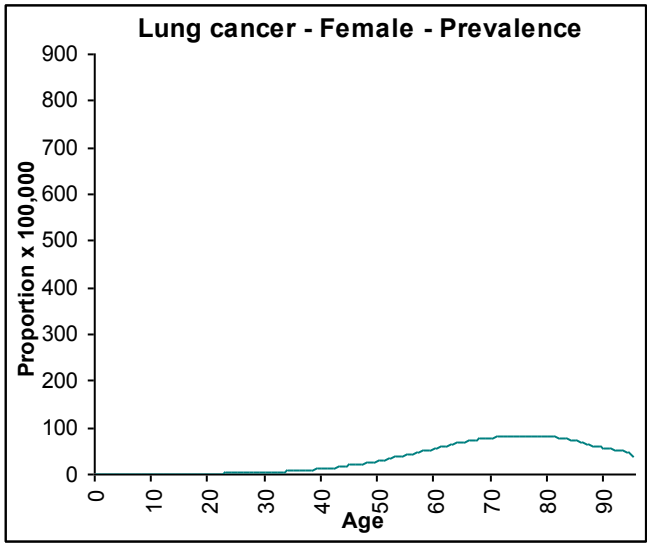
NETHERLANDS



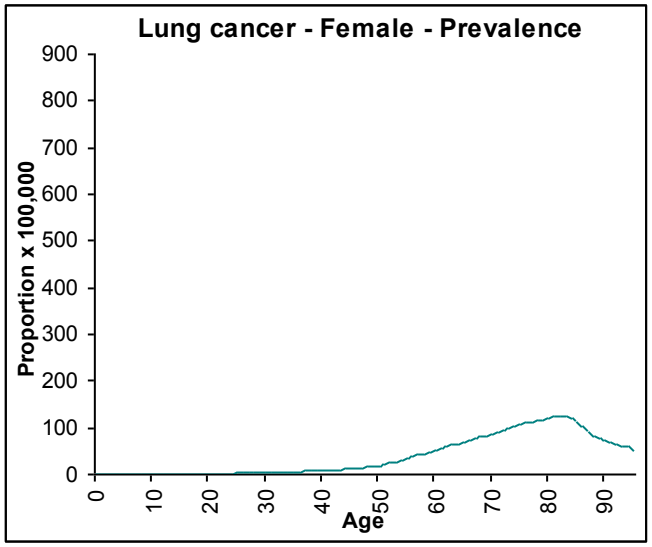
POLAND



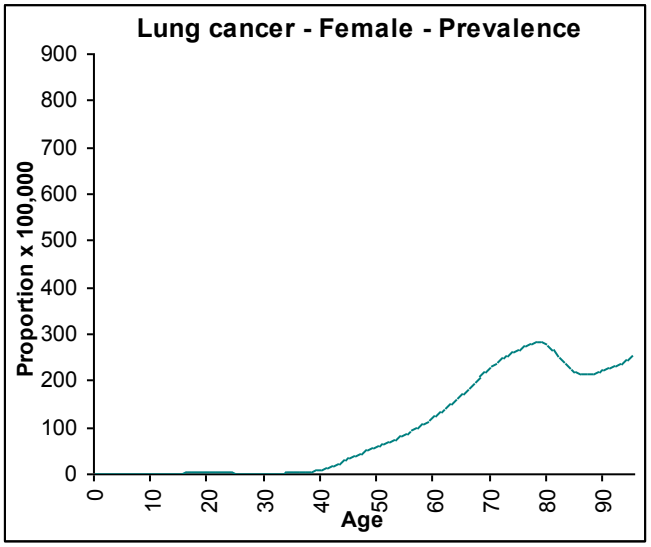
PORTUGAL



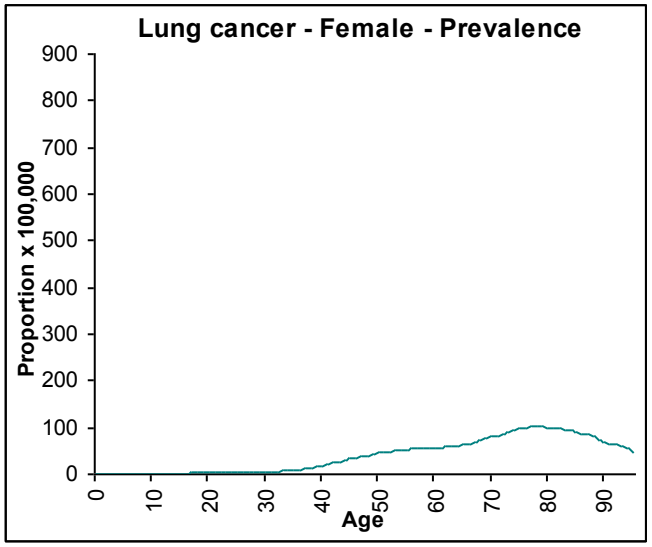
SLOVAKIA



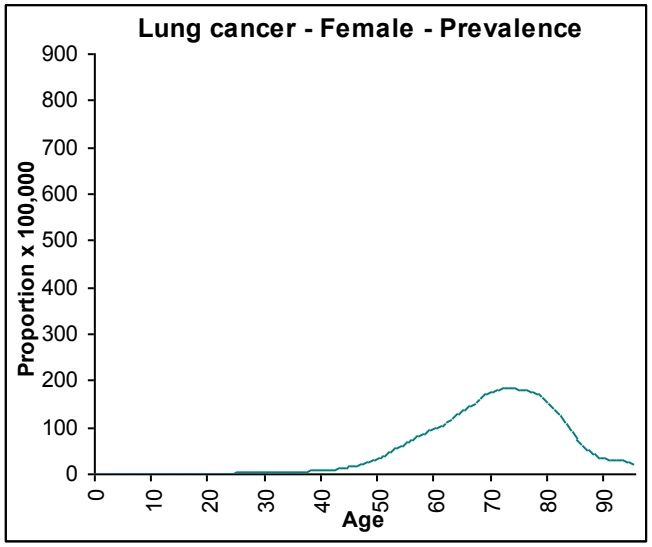
SLOVENIA



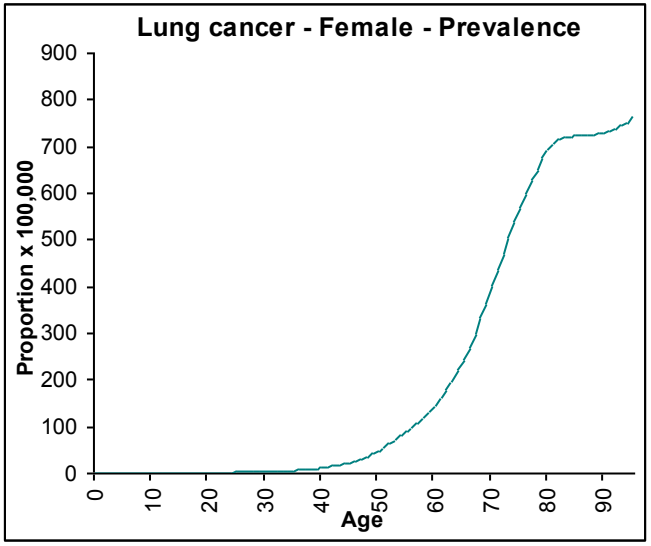
SPAIN



SWEDEN



UNITED KINGDOM

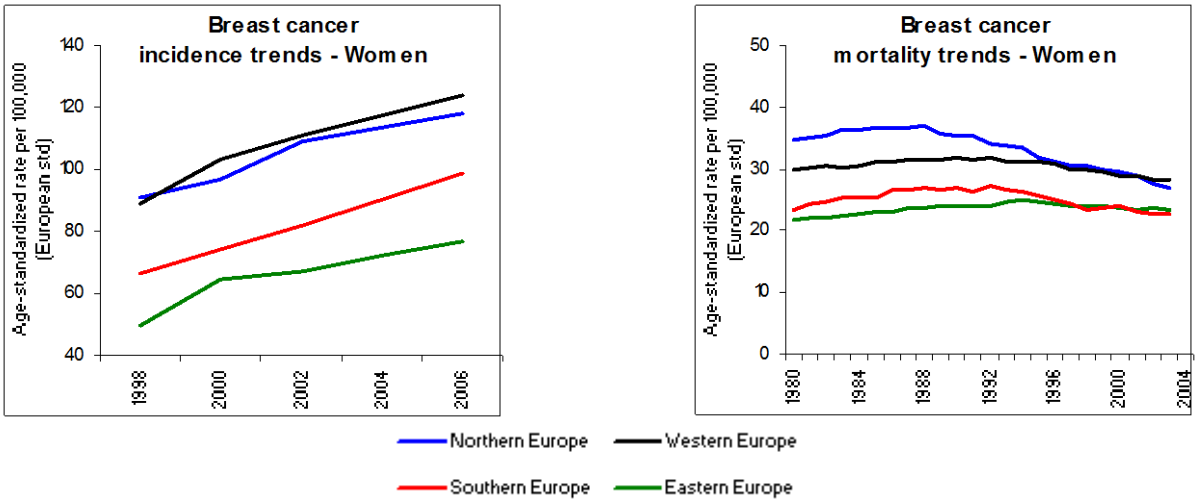


4.2 Provided data on cancer by country: female breast cancer

4.2.1 Breast cancer: epidemiological picture in Europe

Breast cancer is by far the most frequent cancer of women with an estimated 430,000 new cases and 132,000 deaths in 2006 for the entire Europe [4]. The high incidence rates in recent years in the more affluent world areas as for Europe could also depend by the different introduction of screening programs in various countries that anticipate incidence detecting early invasive cancers [6]. The screening effect on the incidence trends is in fact an anticipation of incidence in the years after the full screening implementation.
Ferlay [4] shows that maximum incidence rate in 2006 was estimated in Belgium (European standardized incidence rate: 138 new cases per 100,000) and the maximum mortality rate was in Denmark (European standardized incidence rate: 34.5 deaths per 100,000). Mortality trends as shown in figure 2.1 are decreasing in Northern Europe, Western Europe and Southern Europe, and are constant in Eastern Europe.

Figure 2.1 Trends of female breast cancer (ICD10 C50) standardized incidence and mortality rate (European std)



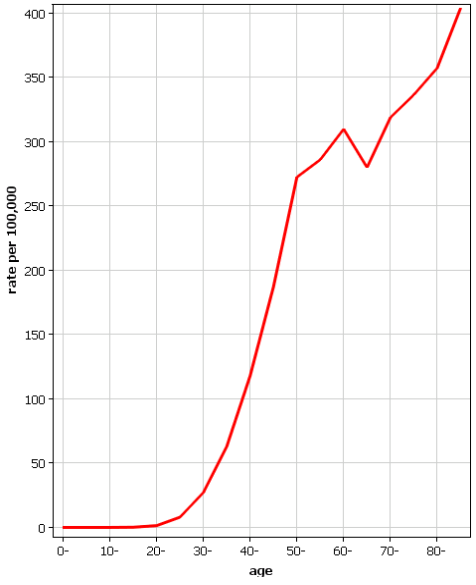
Incidence figures. Sources for 1998, 2000, 2002: Globocan [5]. Source for 2006: Ferlay J et al, 2007 [4] Mortality figures. Source: WHO [3]
Northern Europe: Sweden, Finland, Denmark, Estonia, Latvia, Lithuania, the United Kingdom, Ireland, Iceland, Norway; *Western Europe*: the Netherlands, Belgium, Luxembourg, Germany, France, Austria, Switzerland; *Southern Europe*: Italy, Spain, Portugal, Greece, Malta, Slovenia; *Eastern Europe*: Slovakia, the Czech Republic, Hungary, Poland, Bulgaria, Romania

4.2.2 Breast cancer: WP-10 estimates

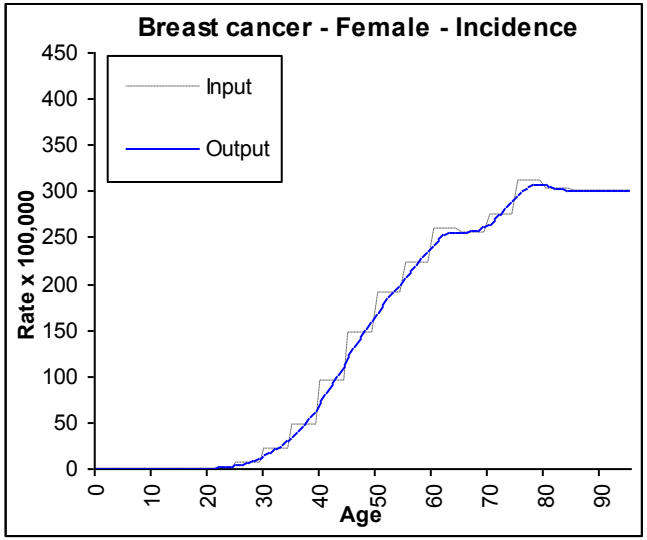
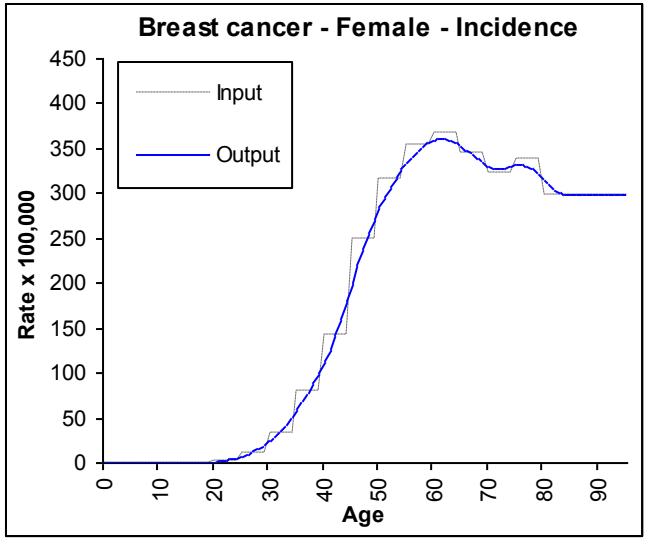
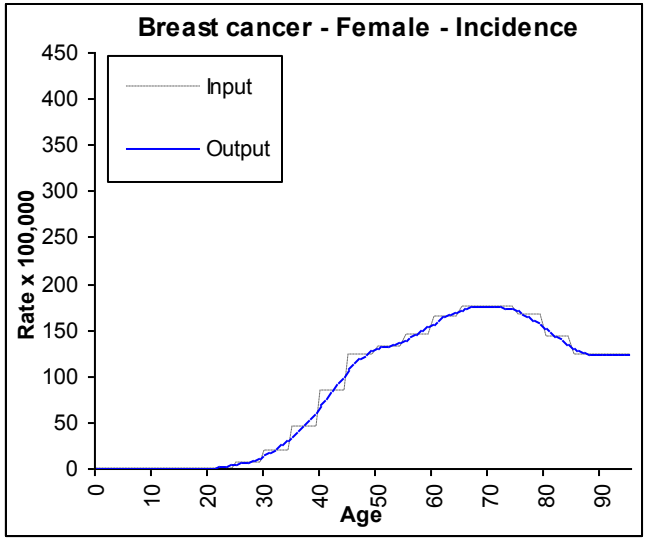
Figure 2.2 shows the distribution of female breast cancer incidence by age classes in all the European cancer registries included in Cancer Incidence in Five Continents Vol IX [1]. Rates increase with age reaching the peak at around ages 60. After that there can be a short reduction of incidence (or a plateau) followed by a restarting increase of rates.

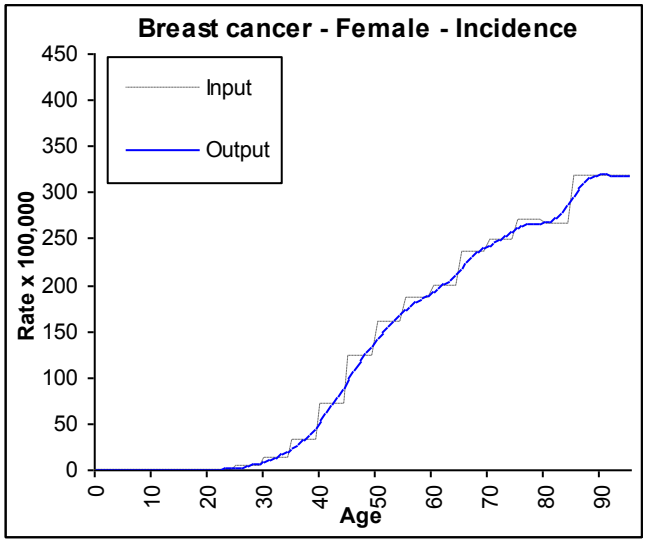
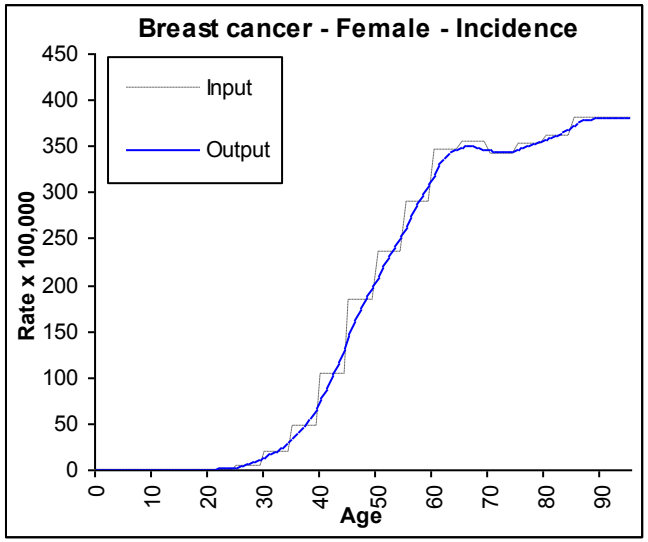
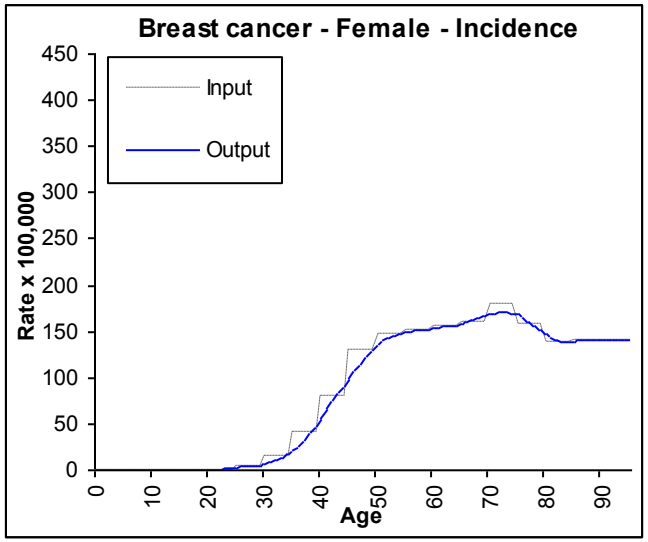
Incidence (Fig. 2.3.a) and mortality (Fig. 2.3.b) DISMOD outputs perfectly overlap the input data obtained by Cancer Incidence in Five Continents [1] and WHO-Mortality [3].

Figure 2.2. European CRs breast cancer incidence rates by age classes. 1998-2002

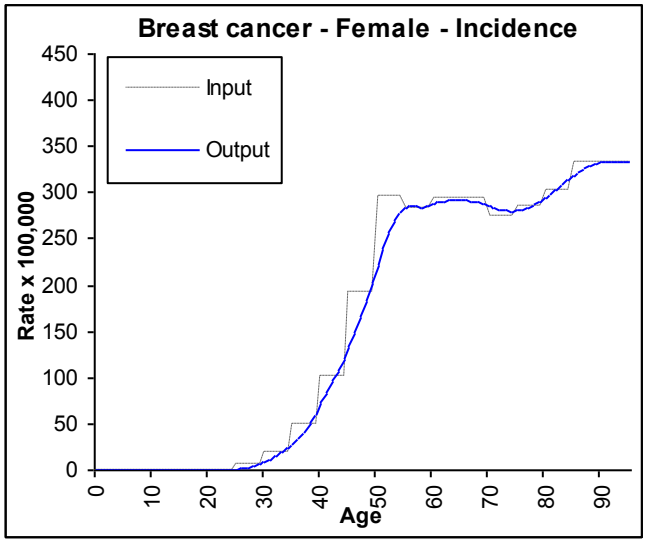


Figures 2.3.a. WP-10 ESTIMATES. Breast cancer (ICD-10 C50). INCIDENCE. FEMALE

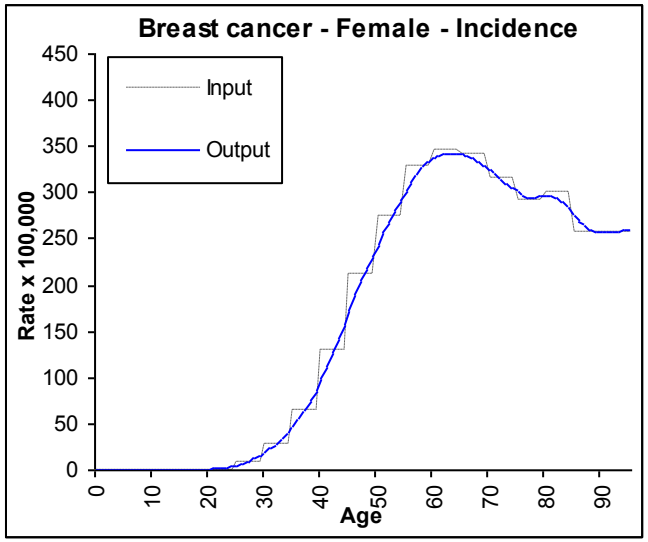
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

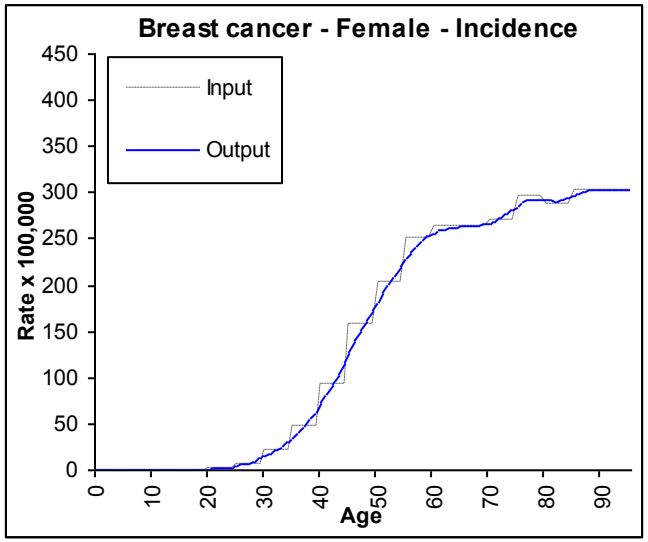
FINLAND



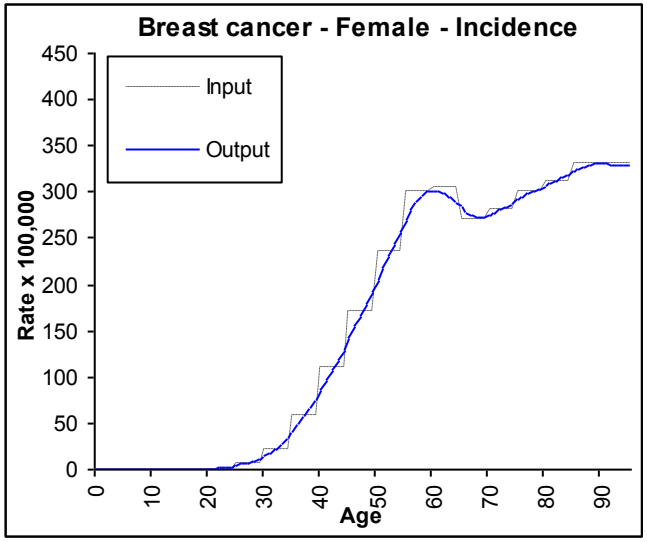
FRANCE



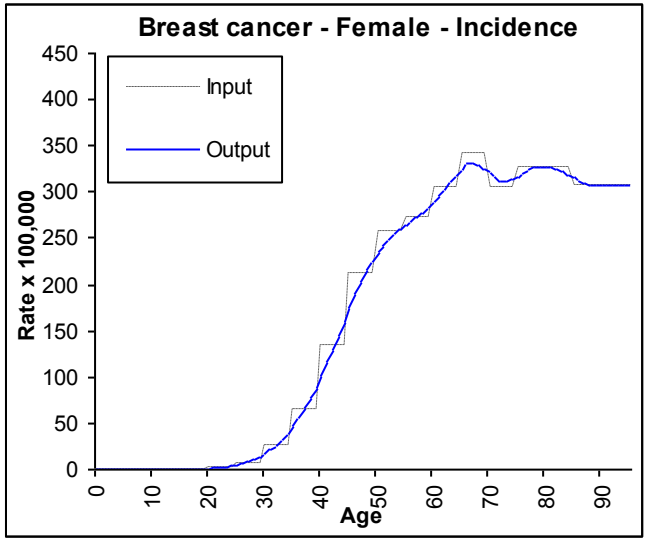
GERMANY



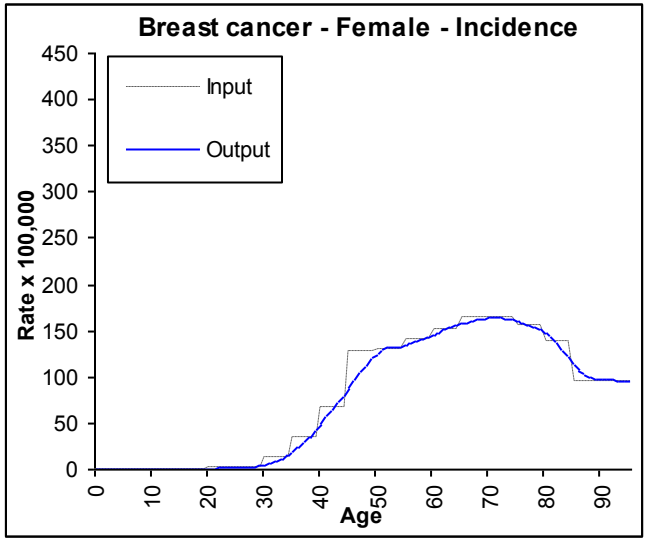
IRELAND



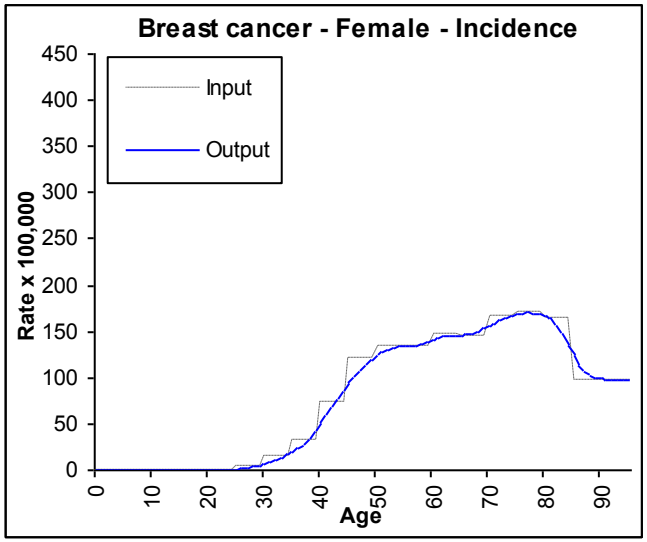
ITALY



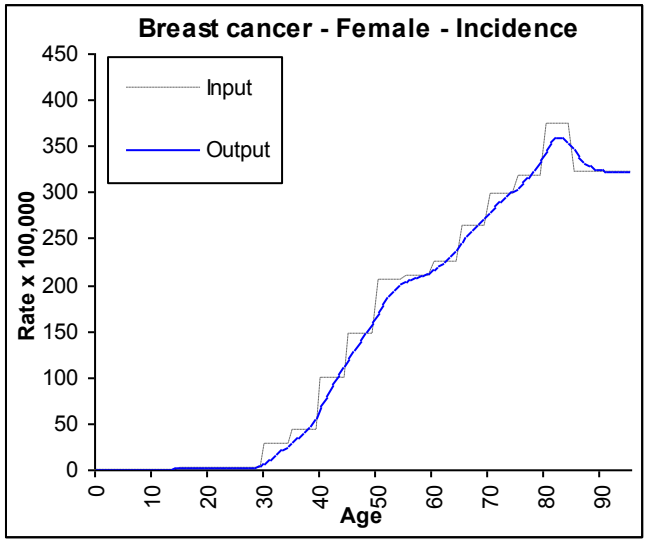
LATVIA



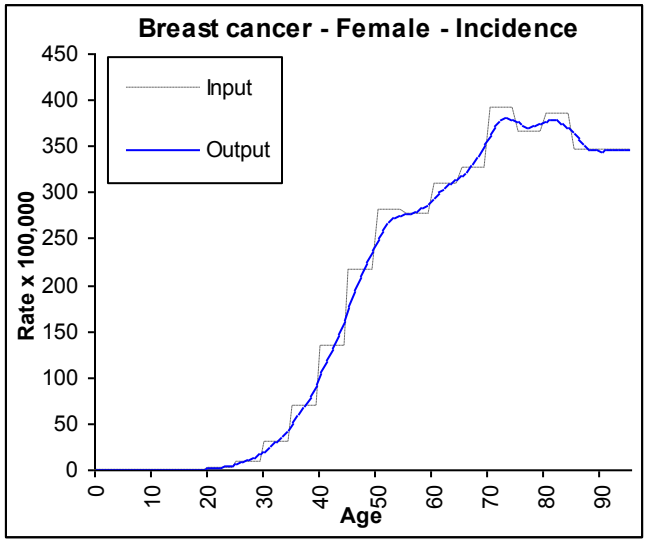
LITHUANIA



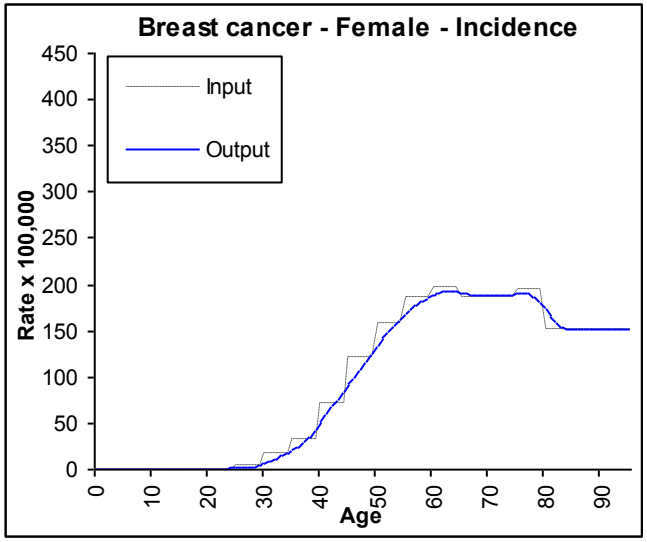
MALTA



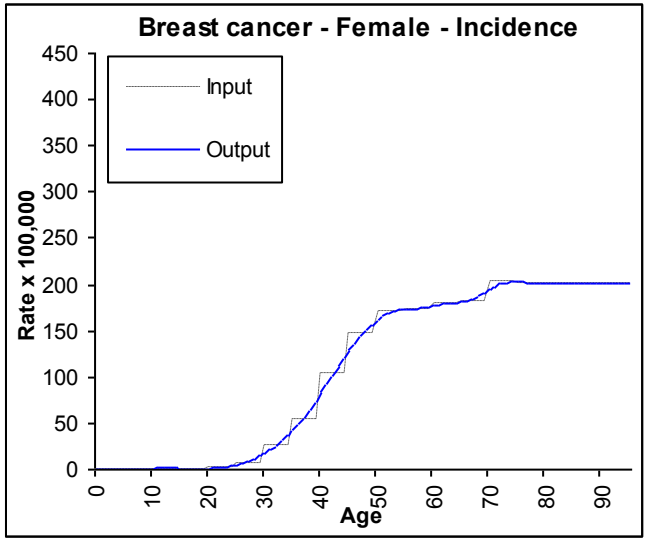
NETHERLANDS



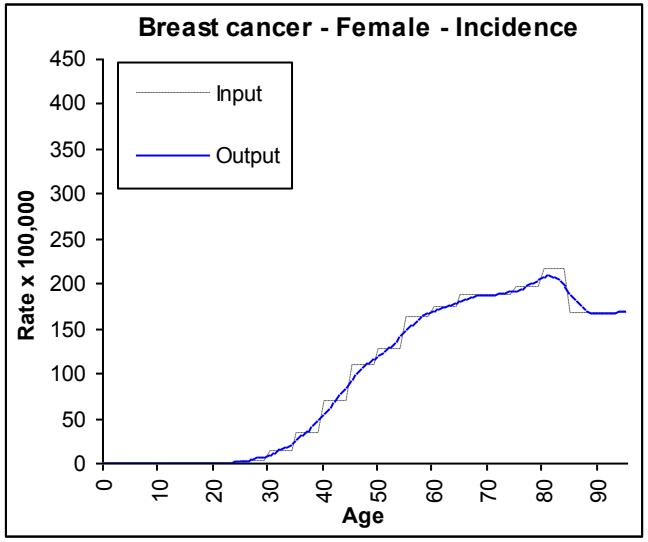
POLAND



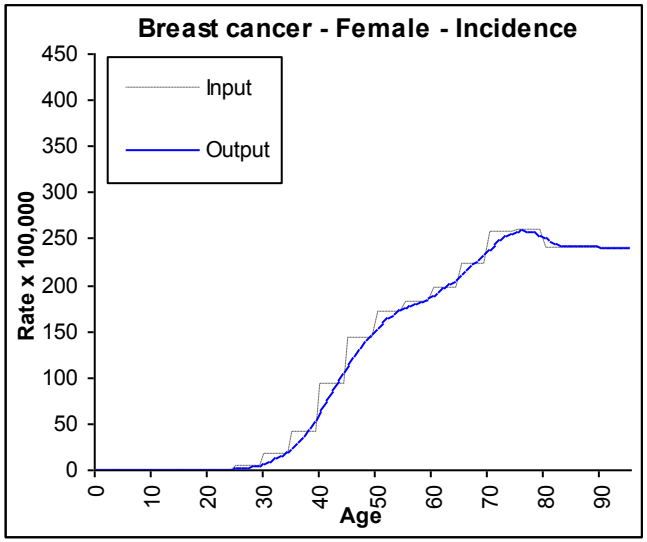
PORTUGAL



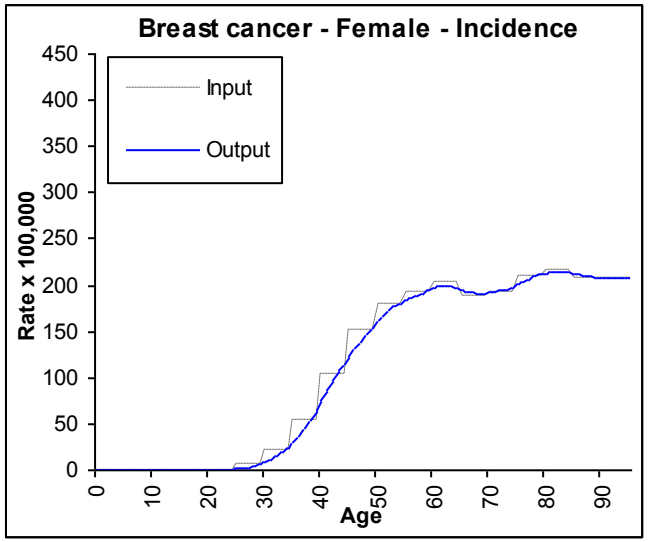
SLOVAKIA



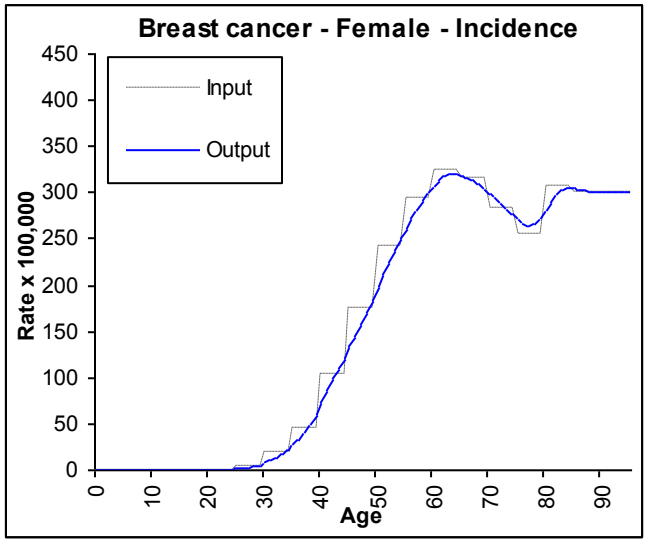
SLOVENIA



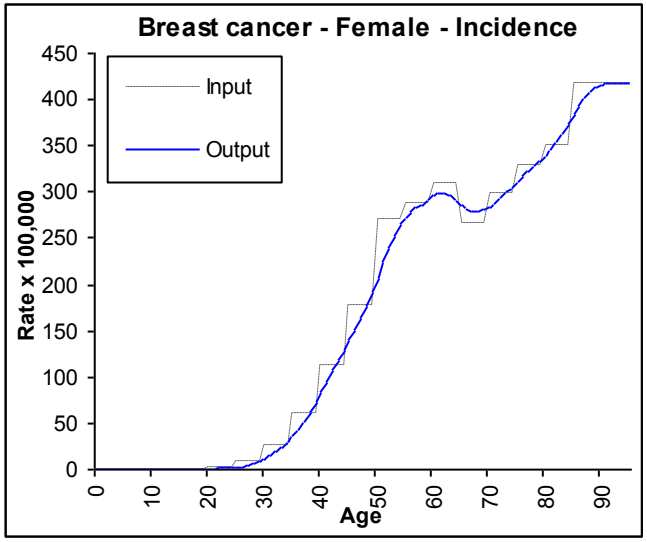
SPAIN



SWEDEN

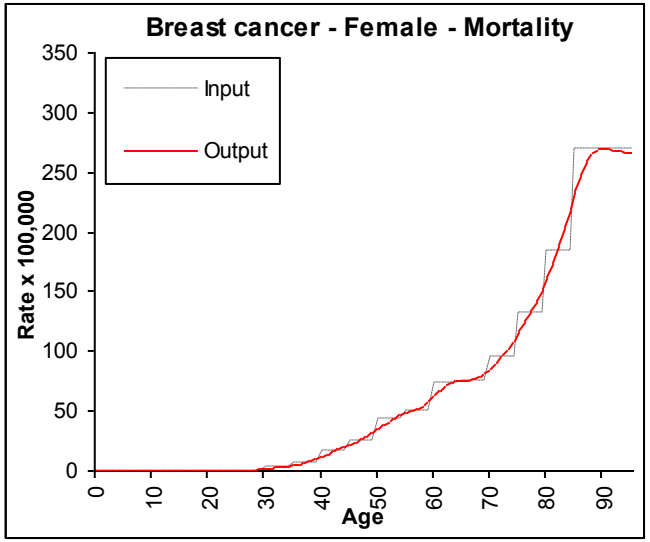


UNITED KINGDOM

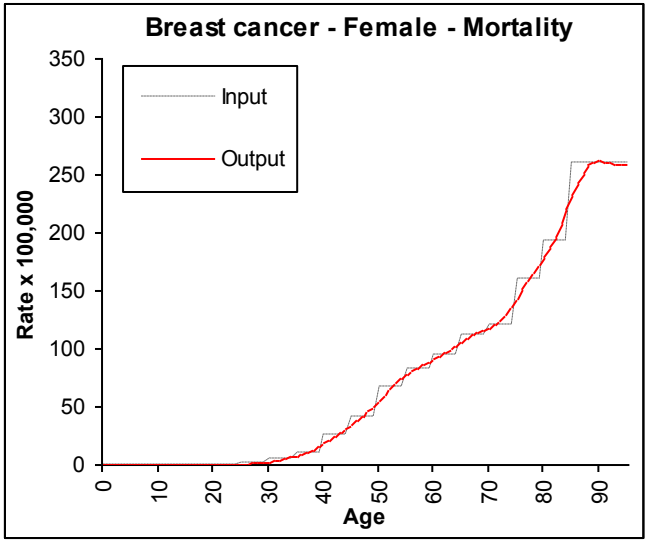


Figures 2.3.b. WP-10 ESTIMATES. Breast cancer (ICD-10 C50). MORTALITY. FEMALE

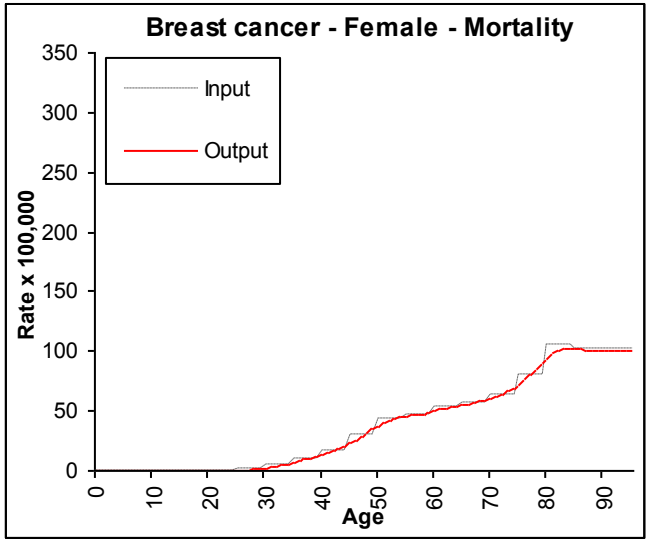
AUSTRIA



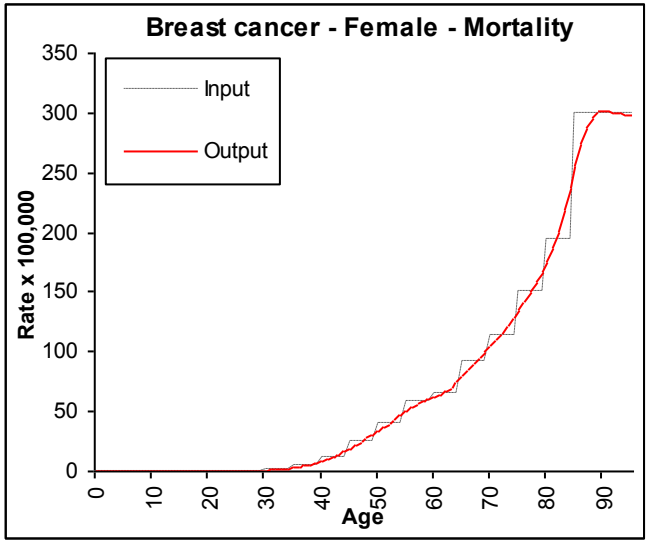
BELGIUM



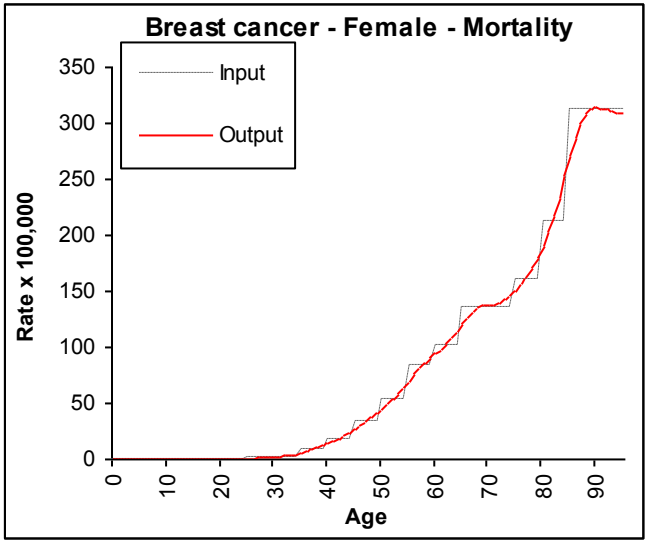
BULGARIA



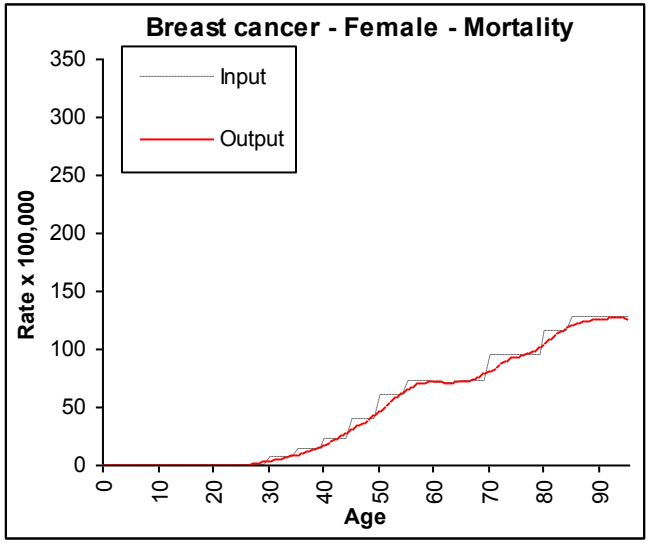
CZECH REPUBLIC



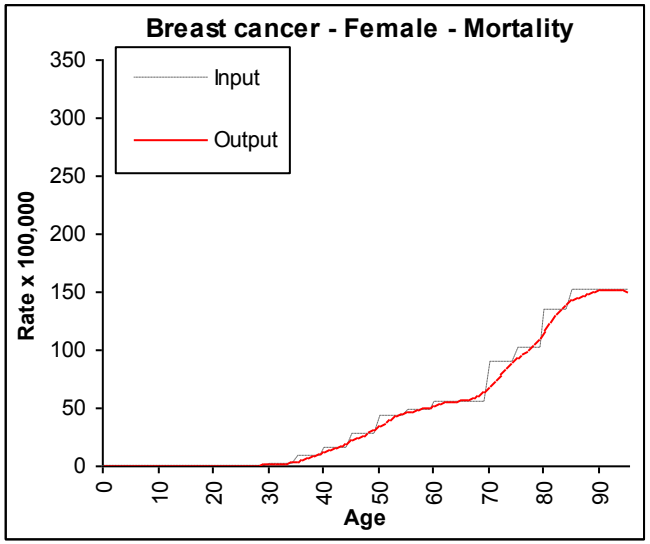
DENMARK



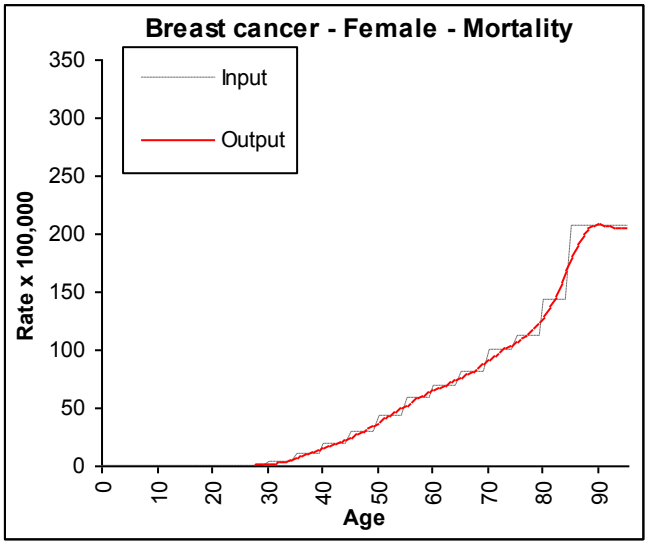
ESTONIA



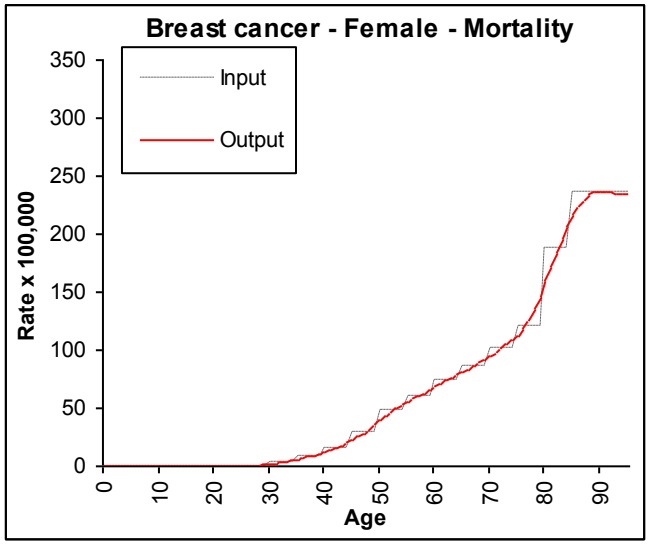
FINLAND



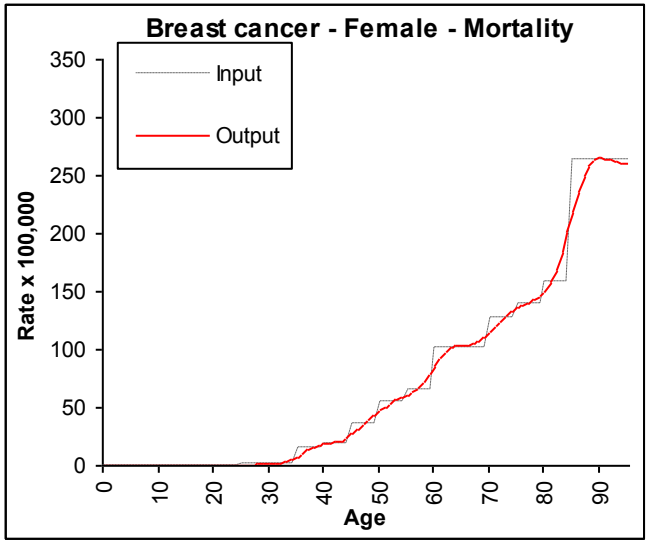
FRANCE



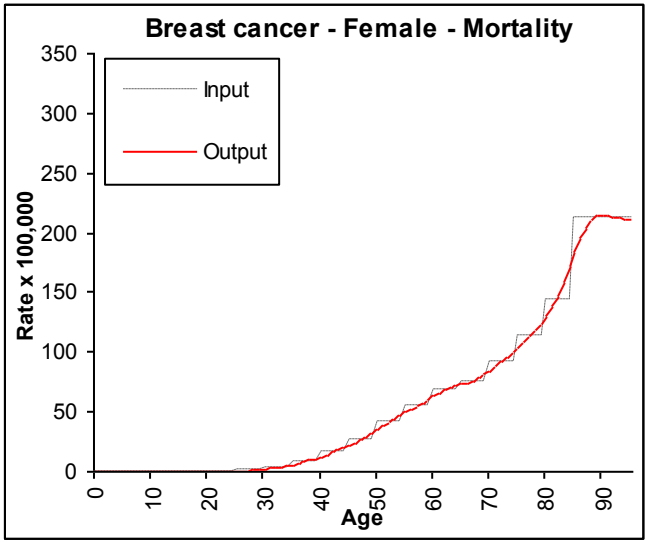
GERMANY



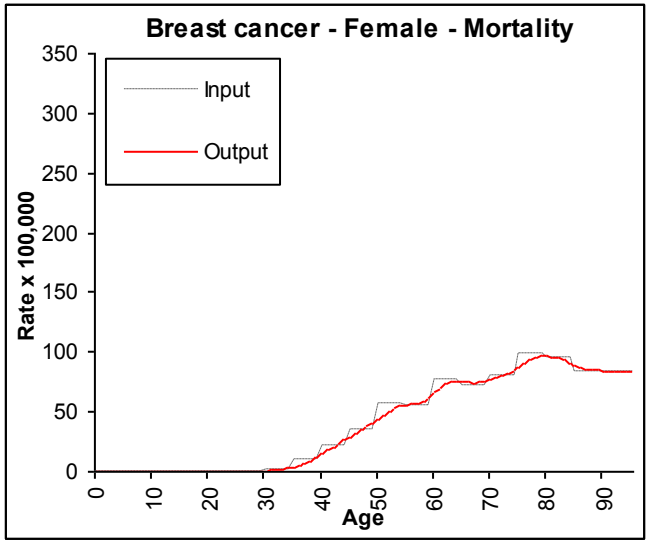
IRELAND



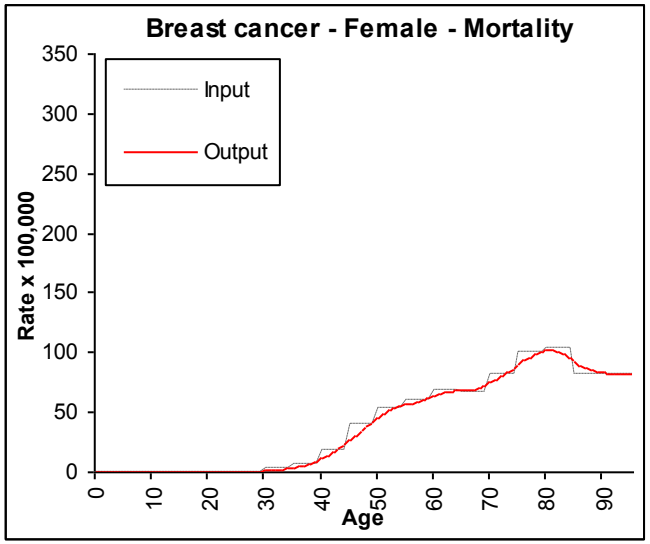
ITALY



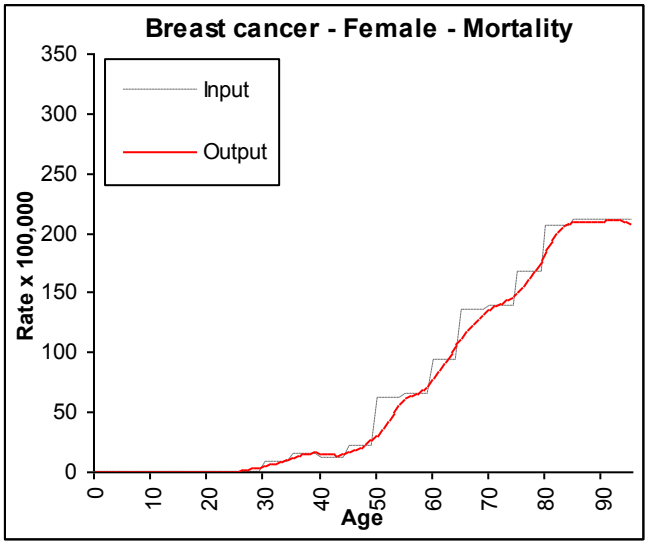
LATVIA



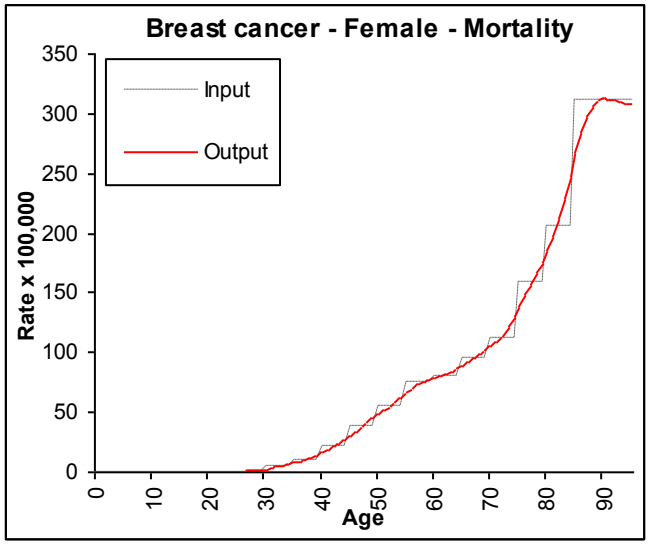
LITHUANIA



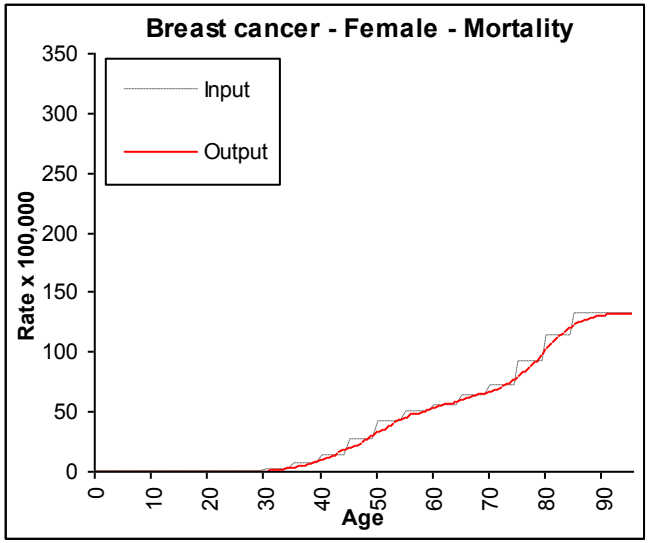
MALTA



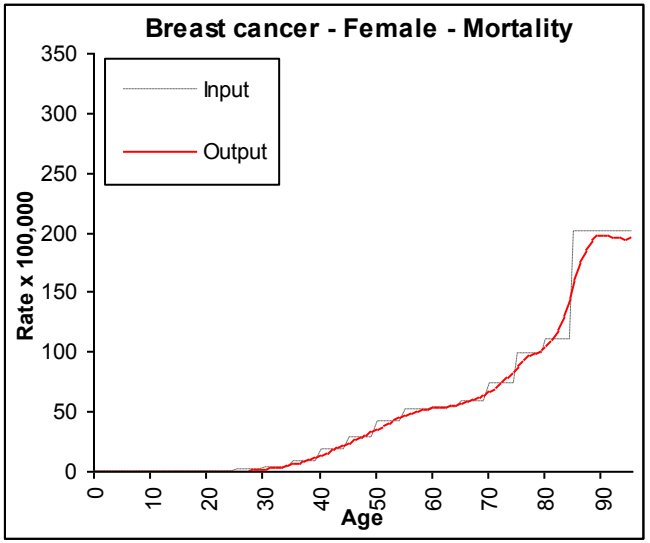
NETHERLANDS



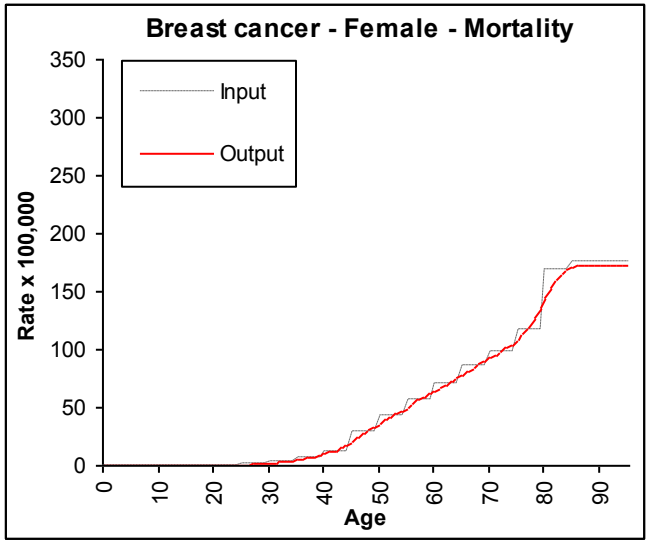
POLAND



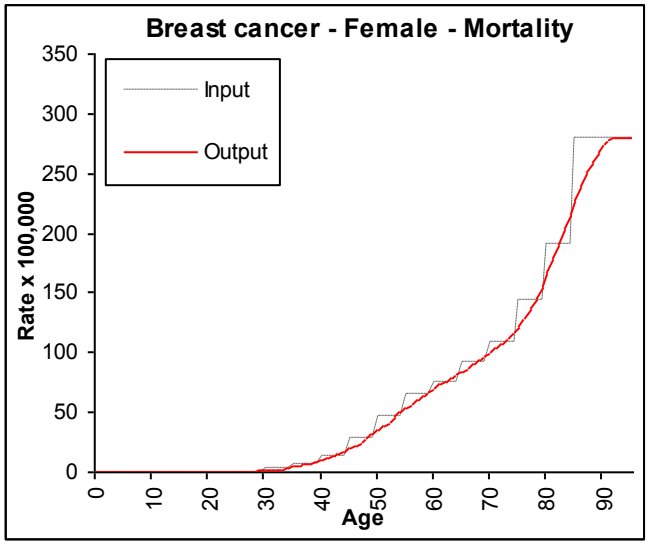
PORTUGAL



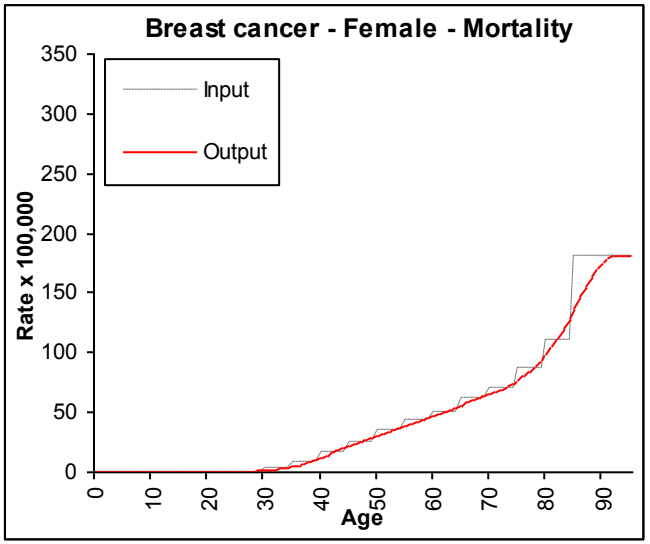
SLOVAKIA



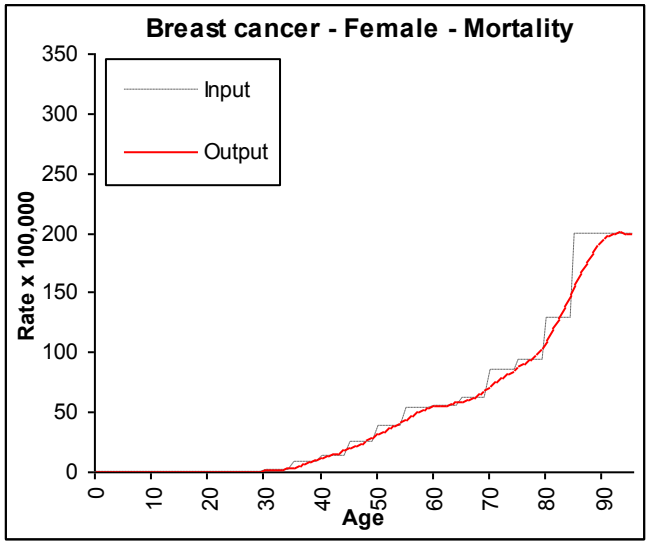
SLOVENIA



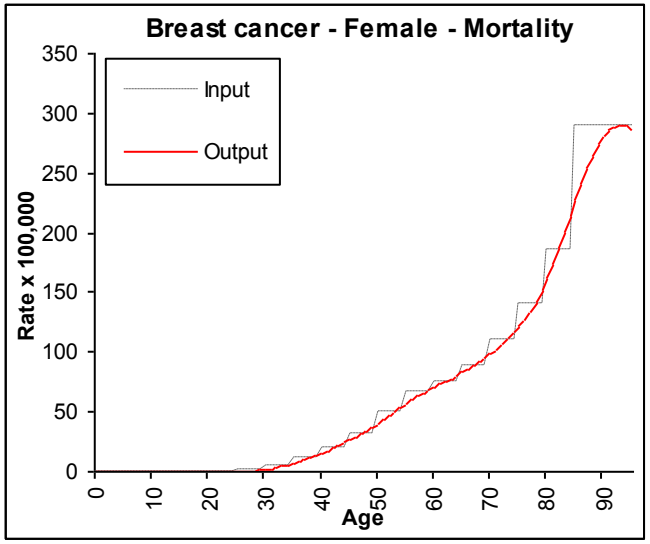
SPAIN



SWEDEN

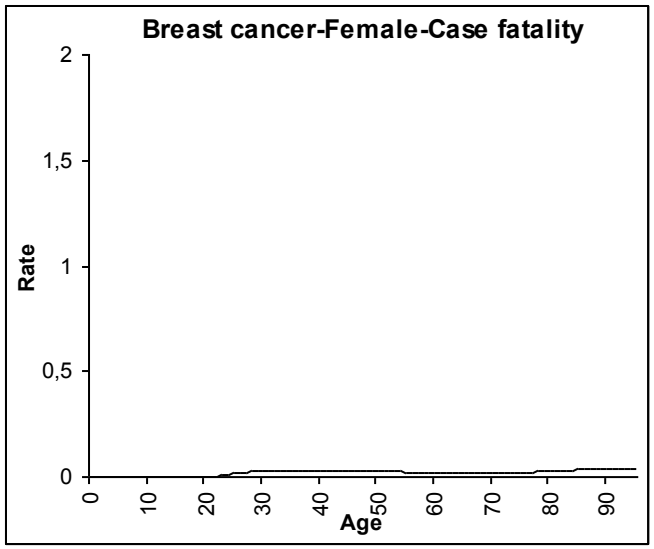


UNITED KINGDOM

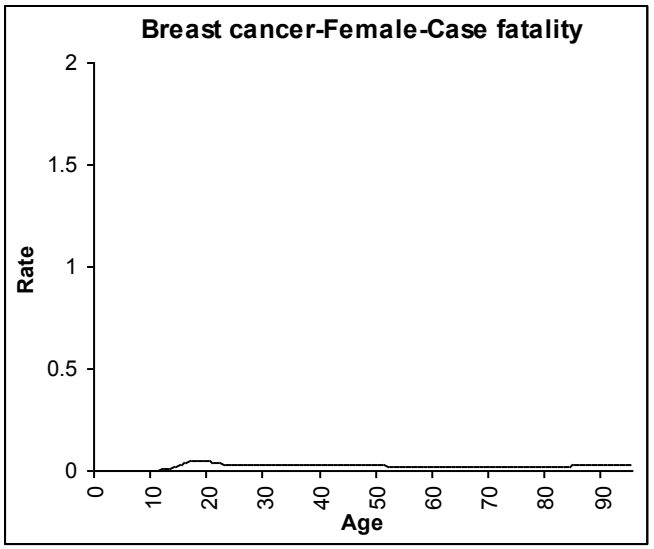


Figures 2.3.c. WP-10 ESTIMATES. Breast cancer (ICD-10 C50). CASE FATALITY. FEMALE

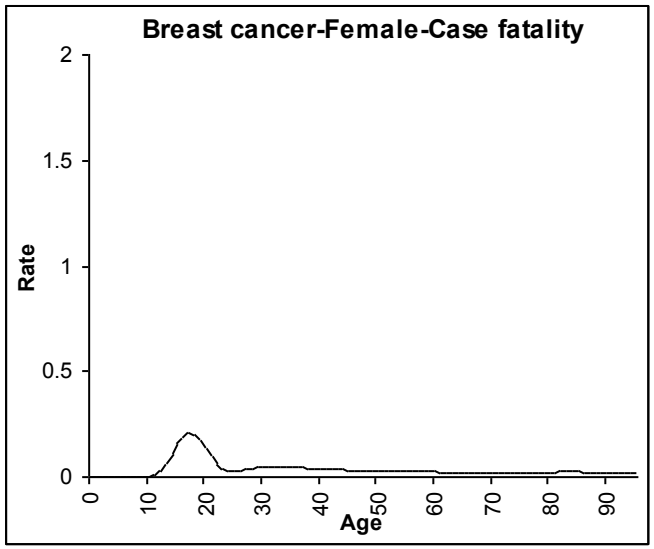
AUSTRIA



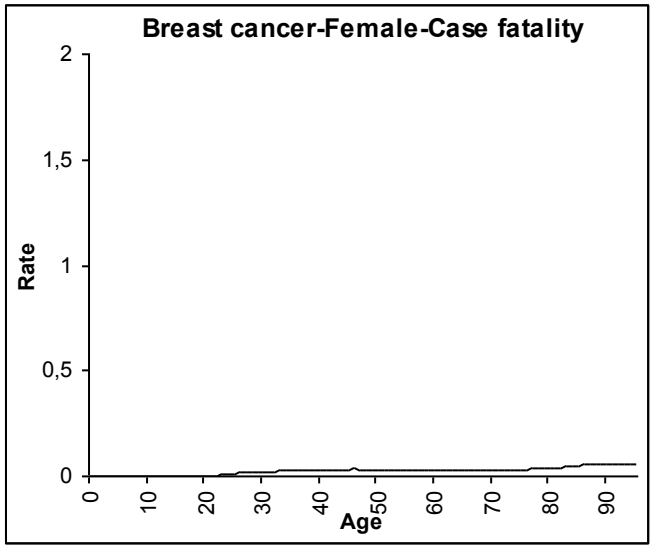
BELGIUM



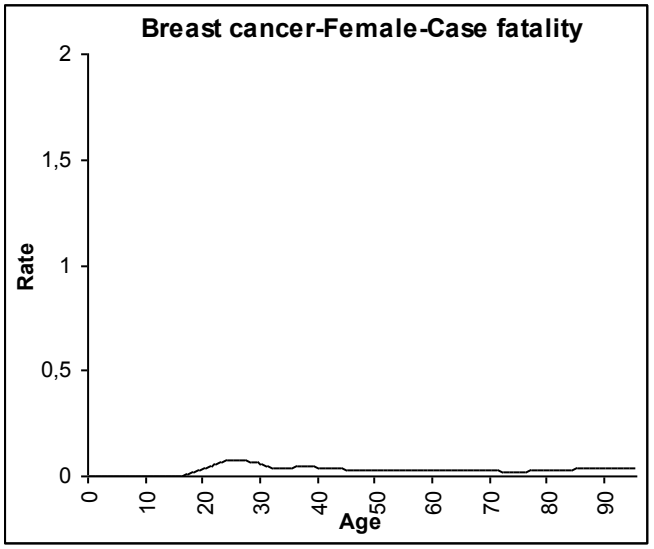
BULGARIA



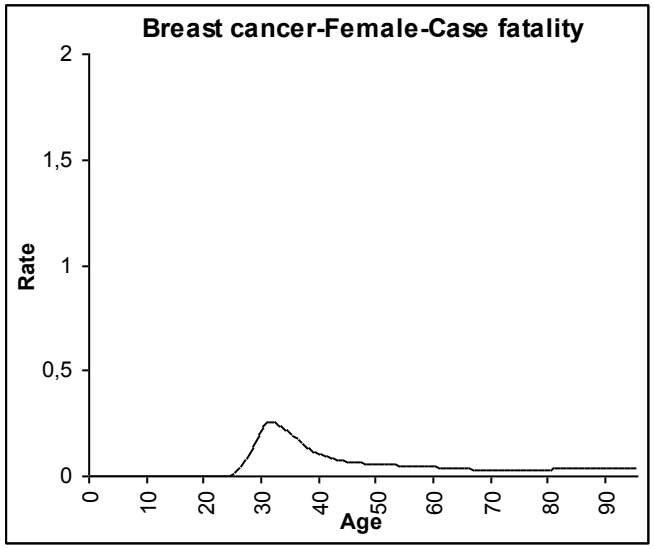
CZECH REPUBLIC



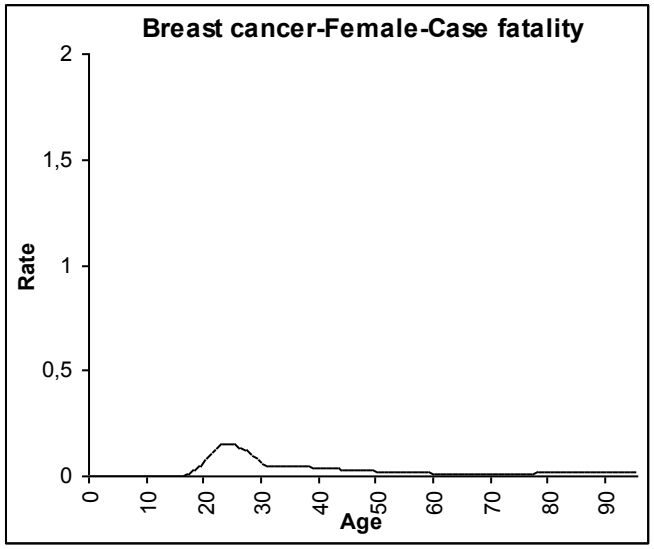
DENMARK



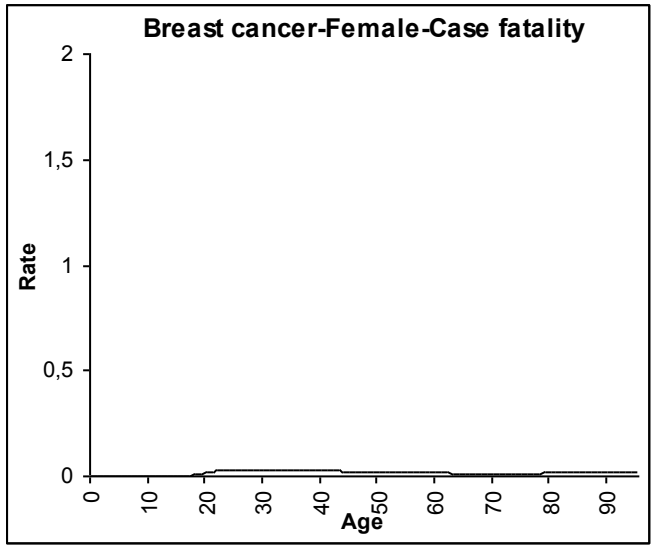
ESTONIA



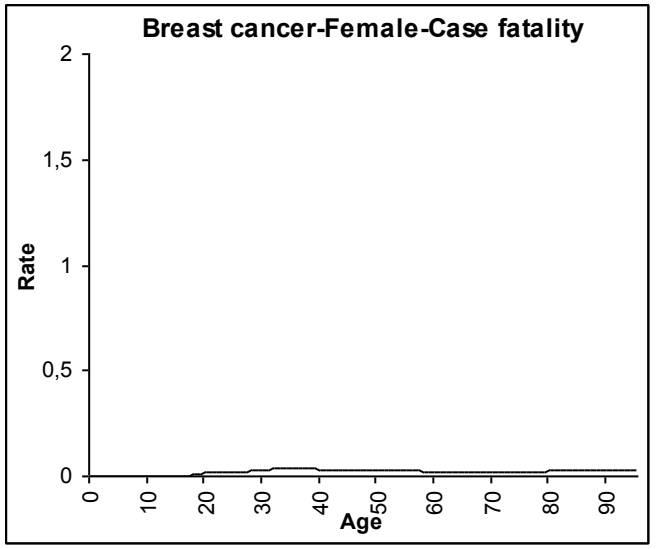
FINLAND



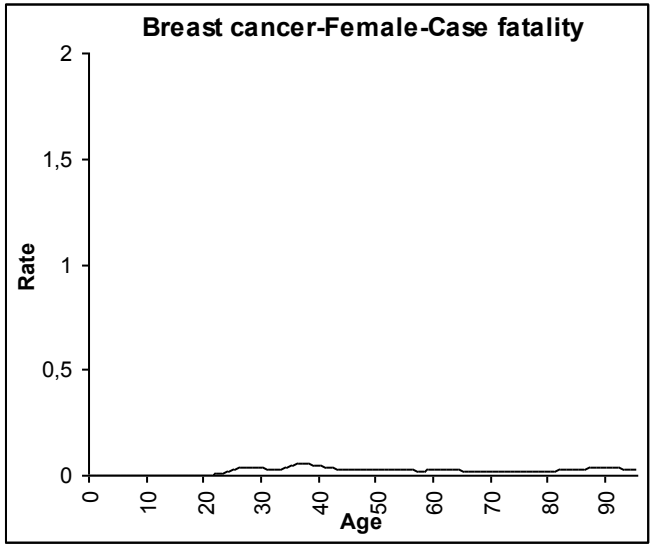
FRANCE



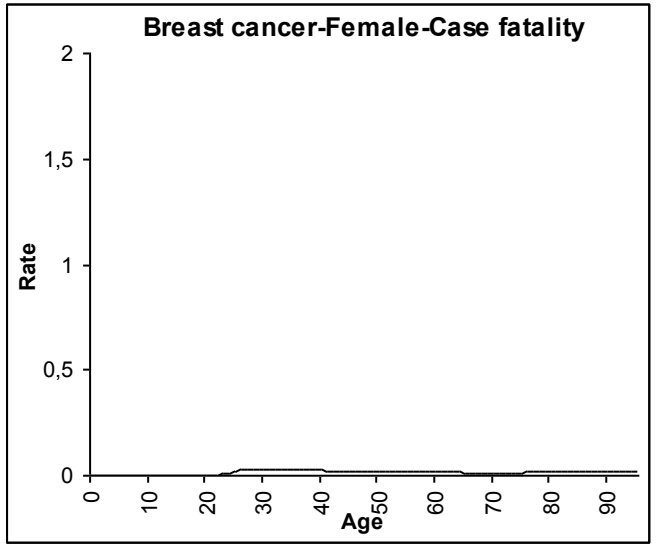
GERMANY



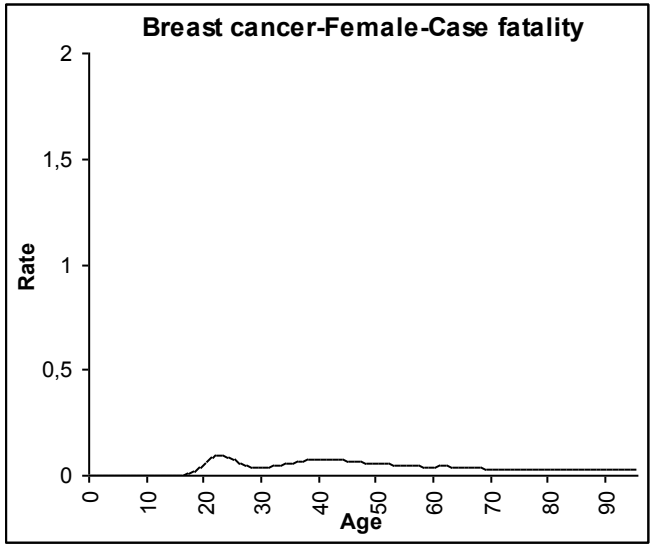
IRELAND



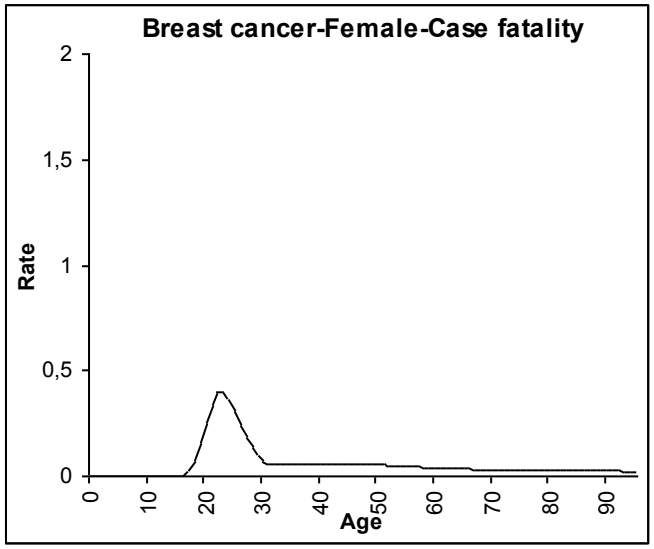
ITALY



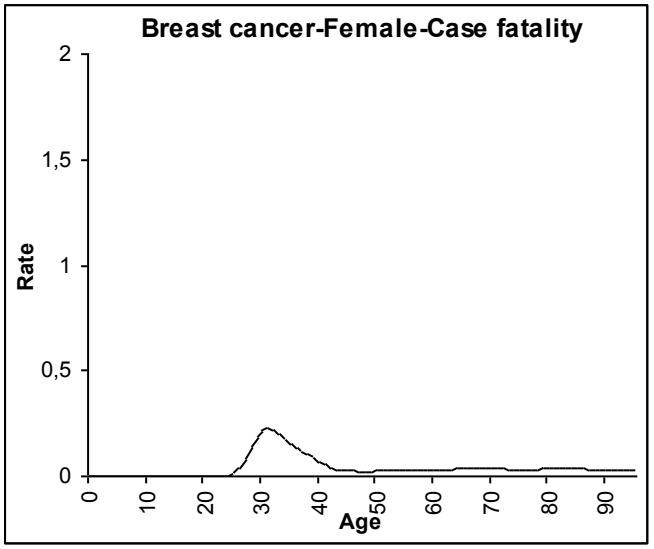
LATVIA



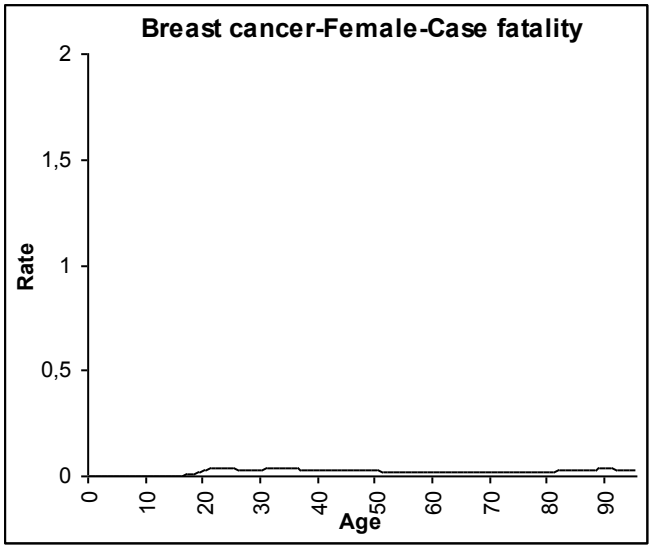
LITHUANIA



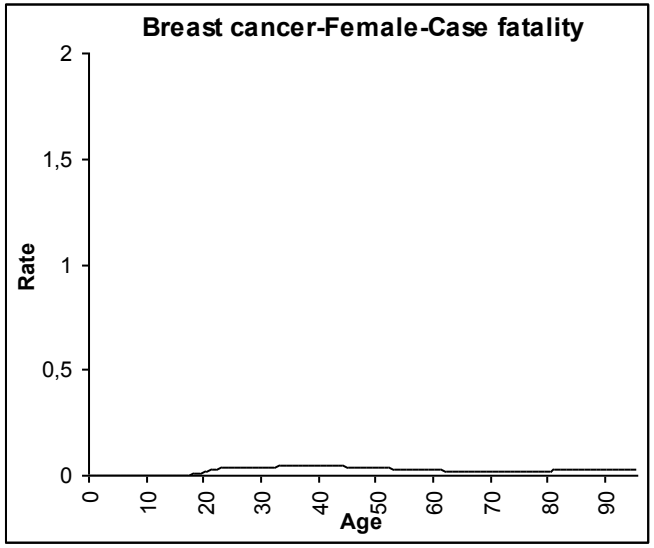
MALTA



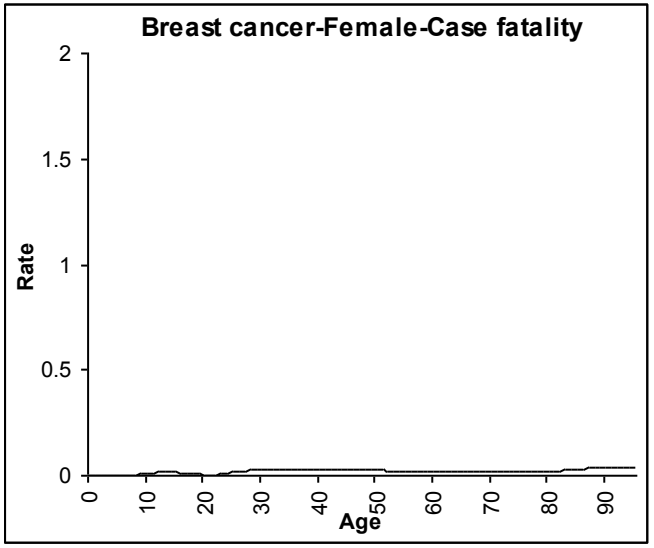
NETHERLANDS



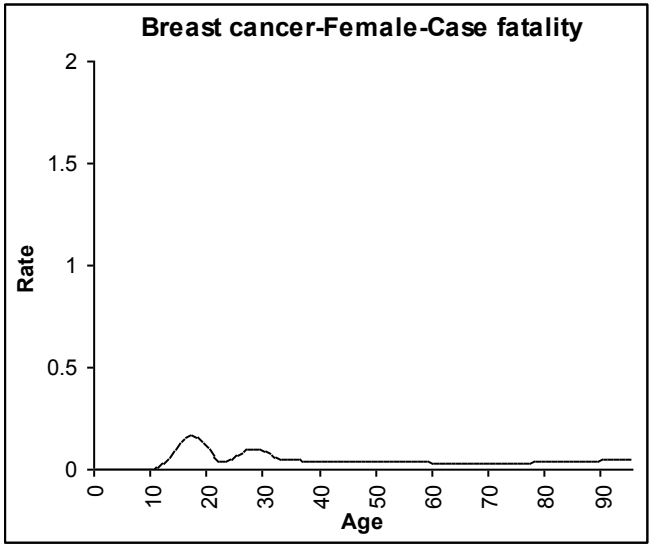
POLAND



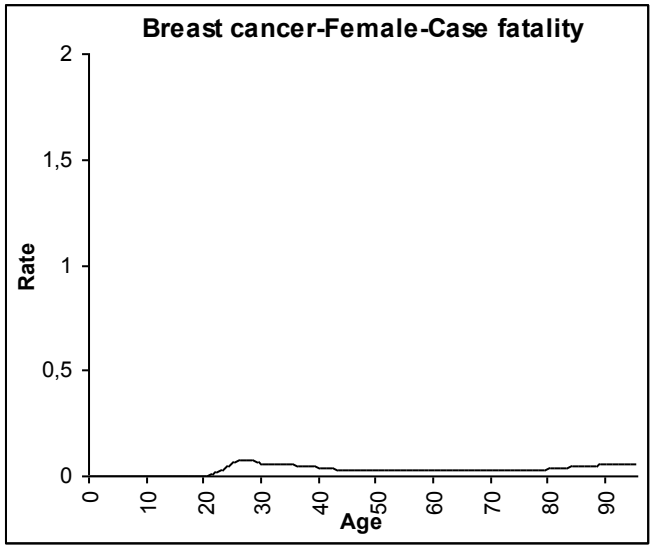
PORTUGAL



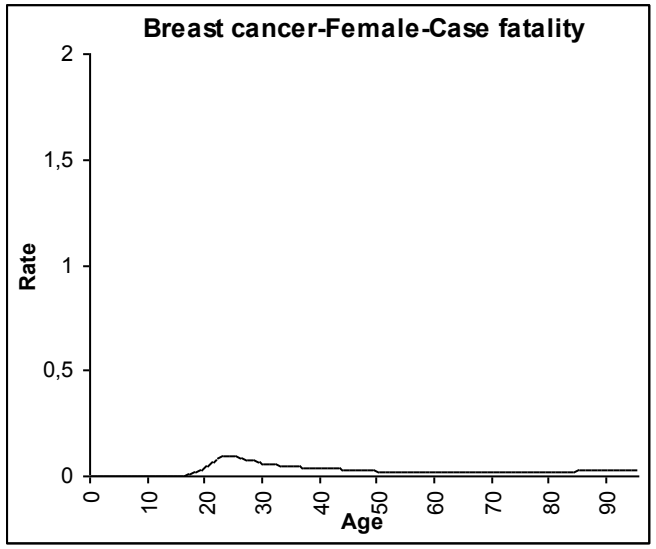
SLOVAKIA



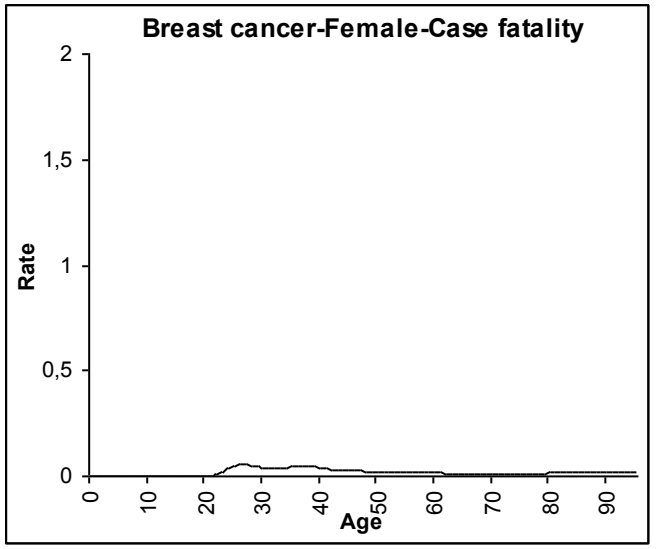
SLOVENIA



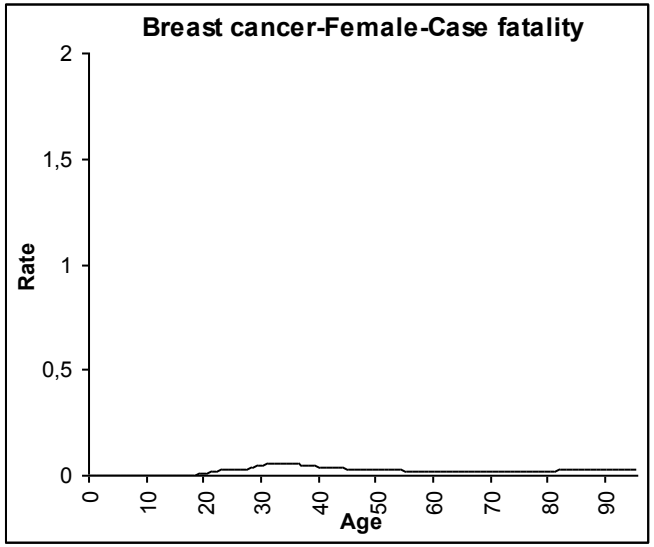
SPAIN



SWEDEN

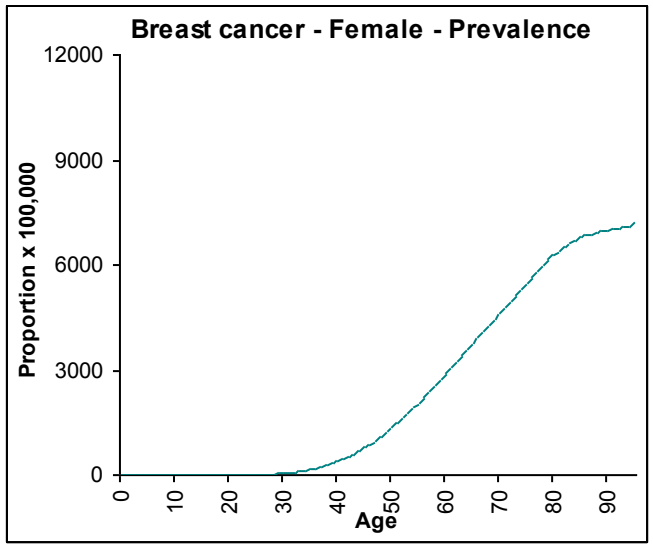


UNITED KINGDOM

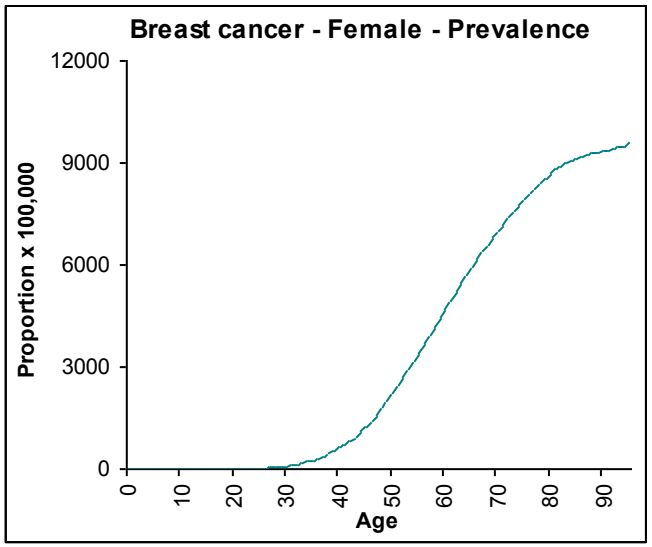


Figures 2.3.d. WP-10 ESTIMATES. Breast cancer (ICD-10 C50). TOTAL PREVALENCE. FEMALE

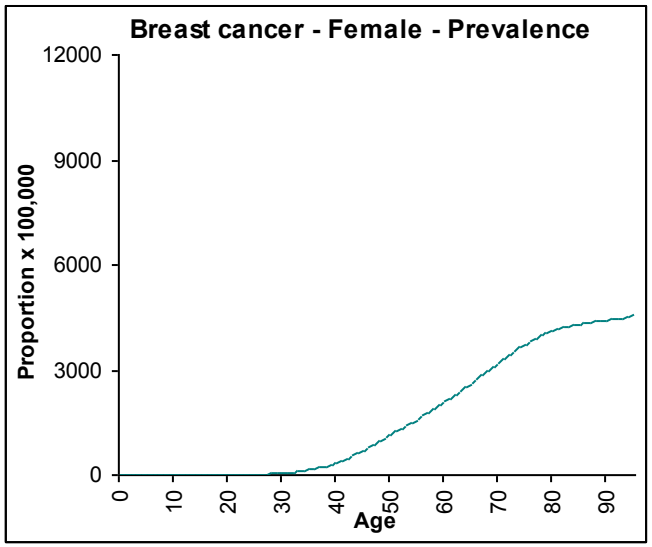
AUSTRIA



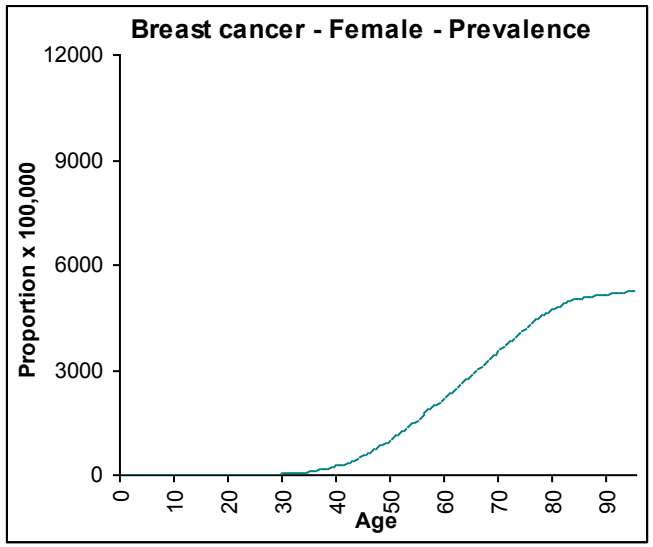
BELGIUM



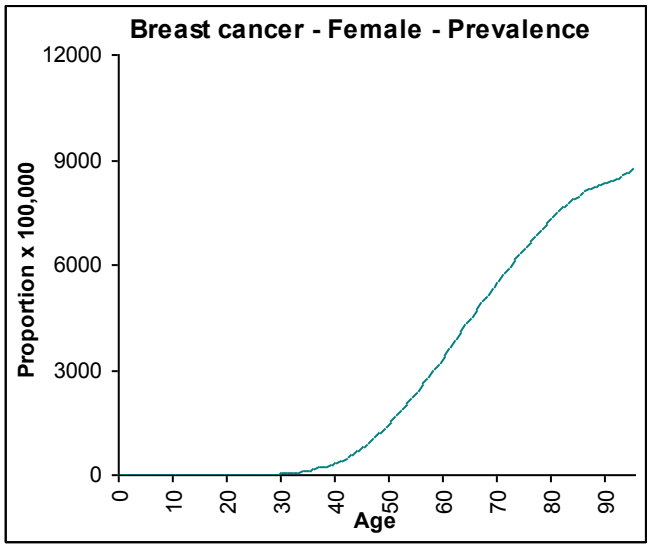
BULGARIA



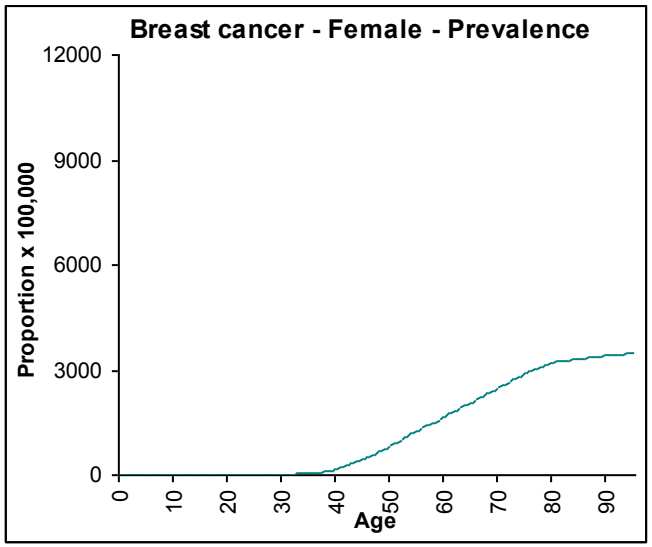
CZECH REPUBLIC



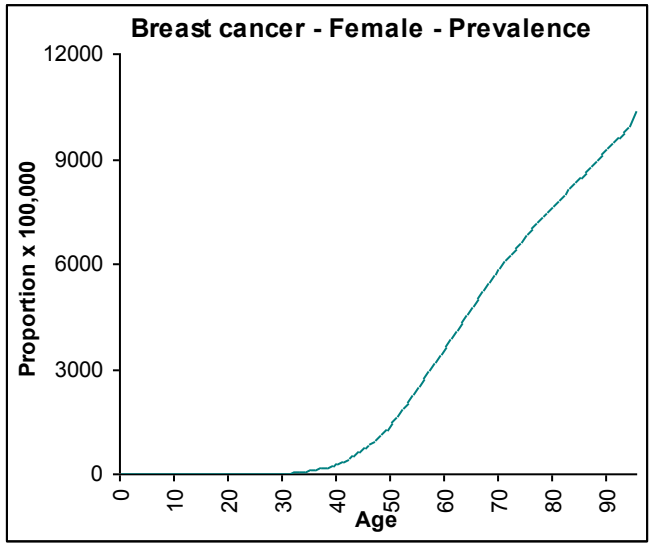
DENMARK



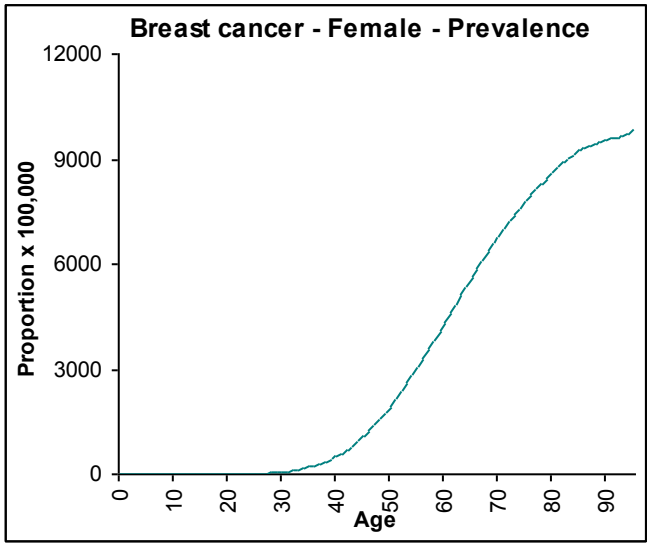
ESTONIA



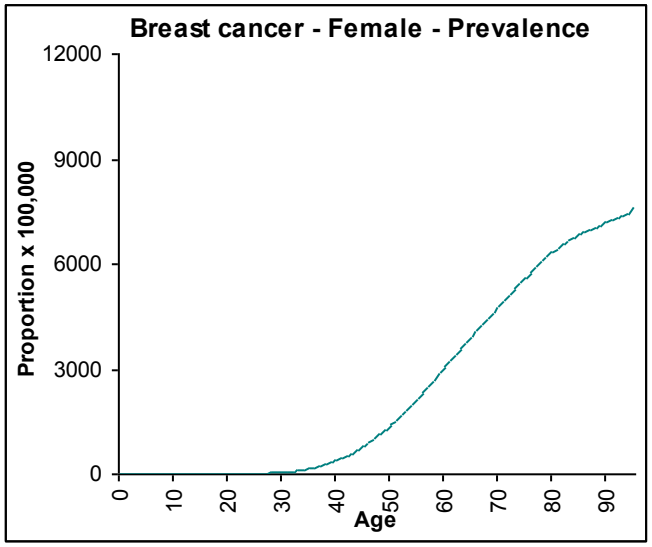
FINLAND



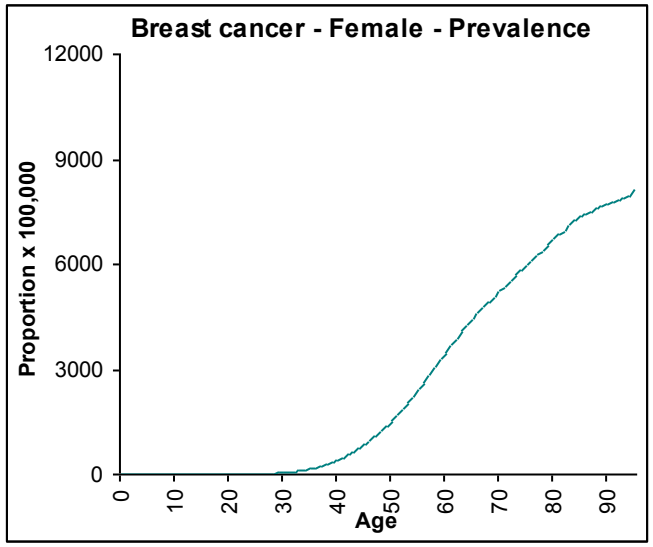
FRANCE



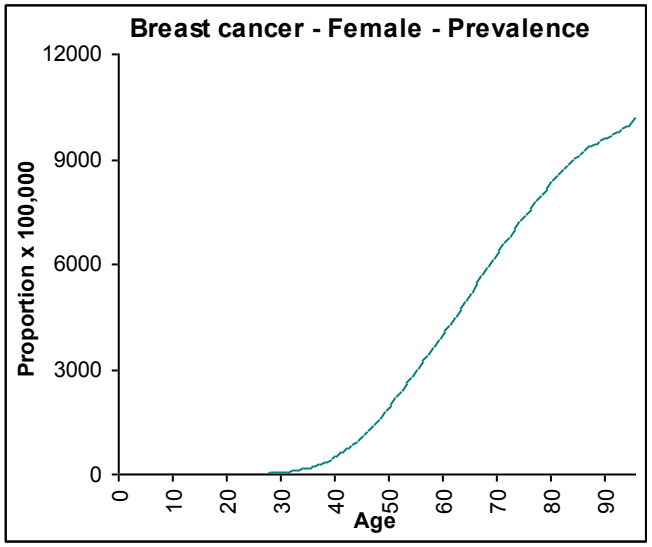
GERMANY



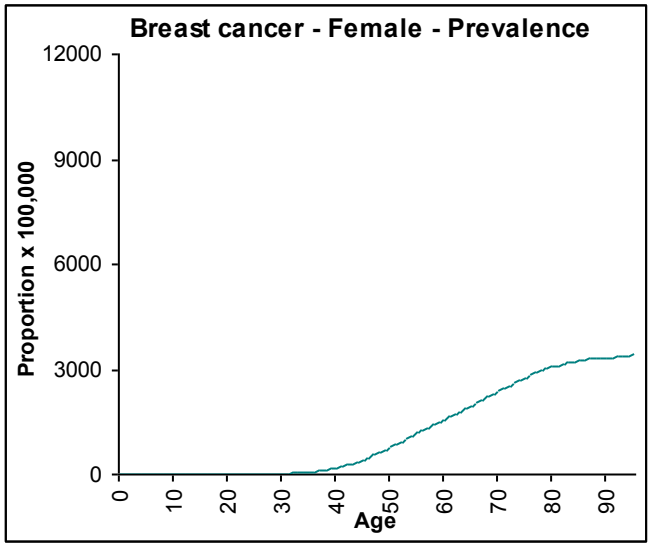
IRELAND



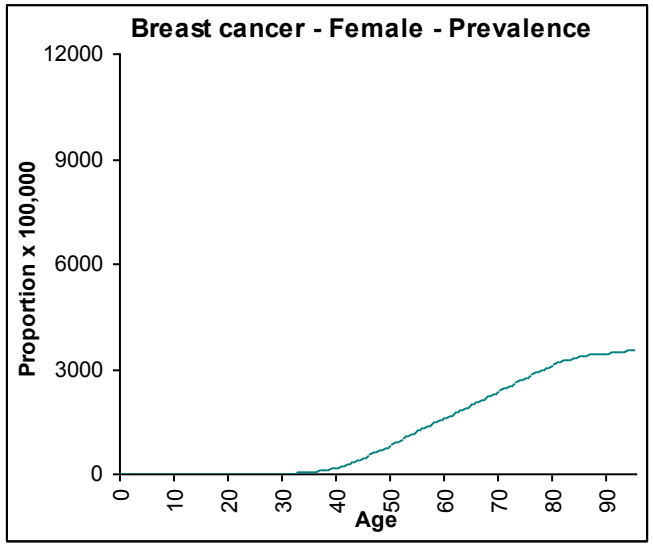
ITALY



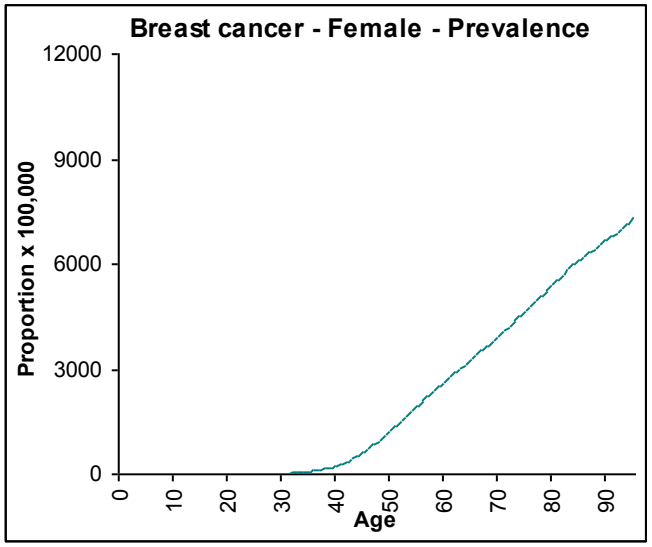
LATVIA



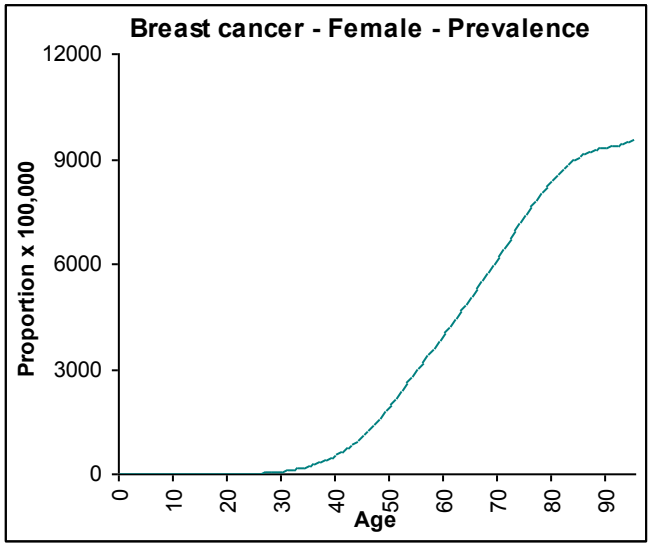
LITHUANIA



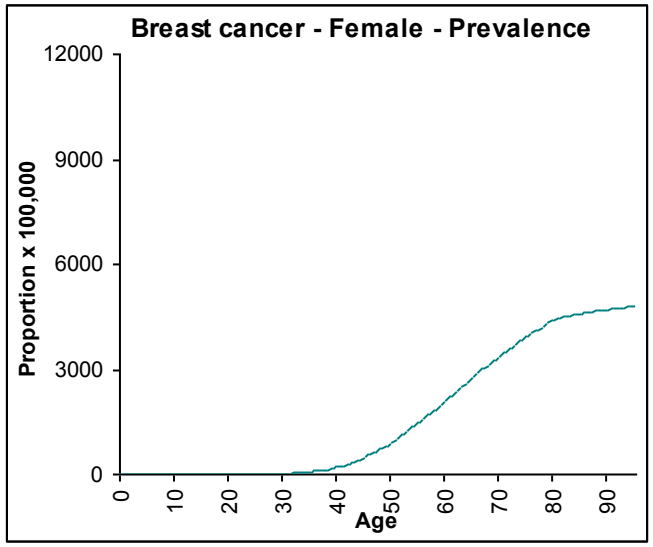
MALTA



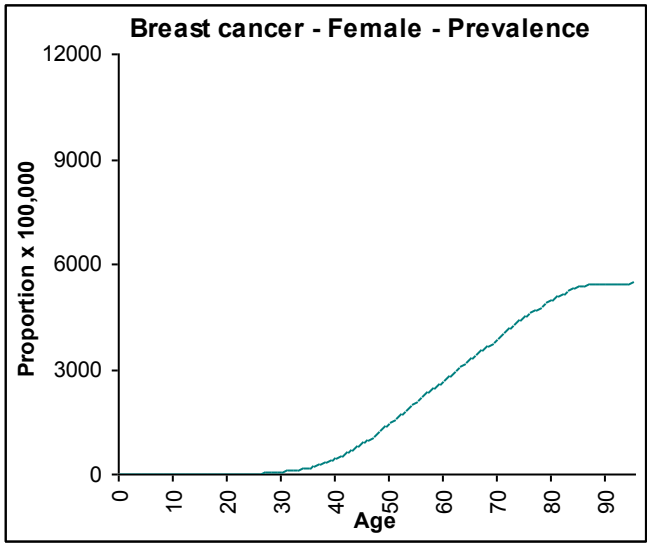
NETHERLANDS



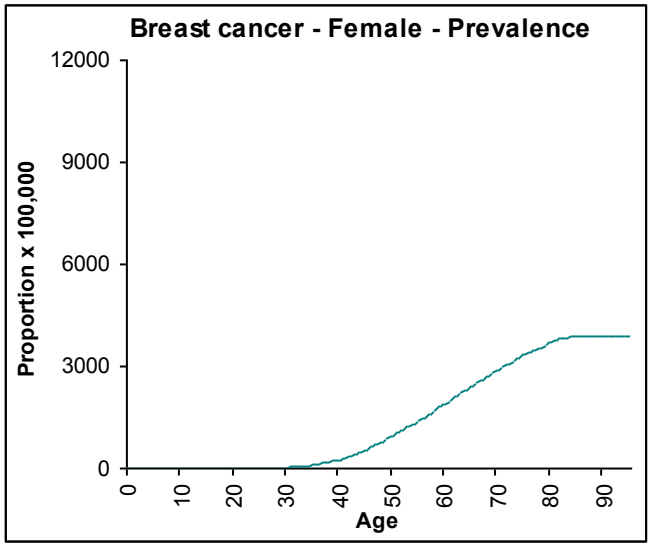
POLAND



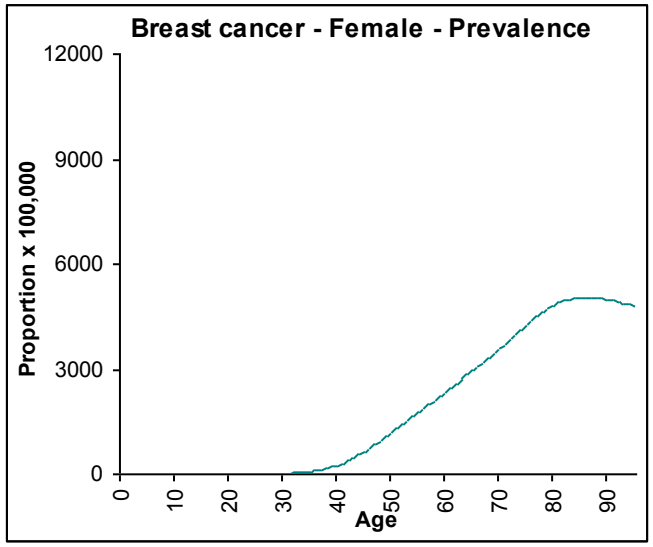
PORTUGAL



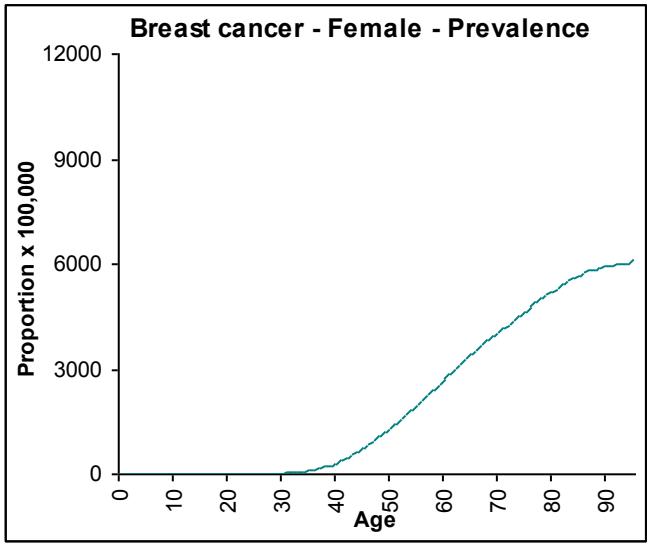
SLOVAKIA



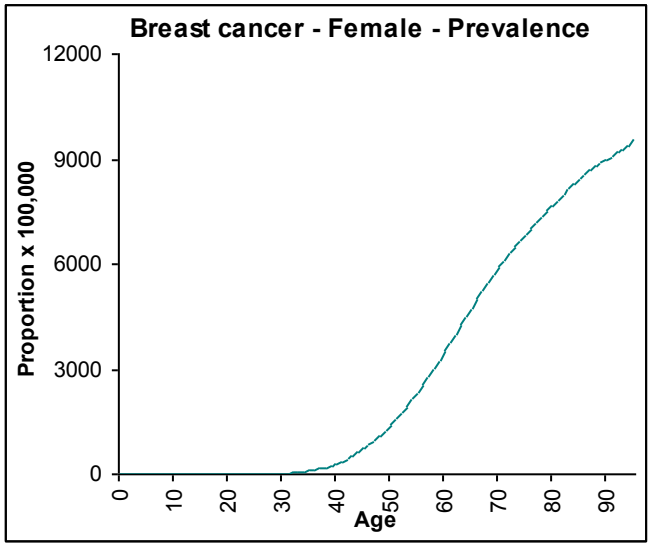
SLOVENIA



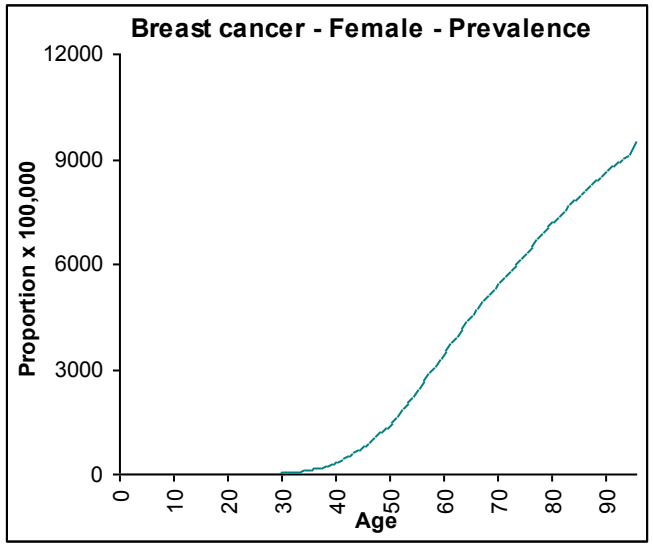
SPAIN



SWEDEN



UNITED KINGDOM

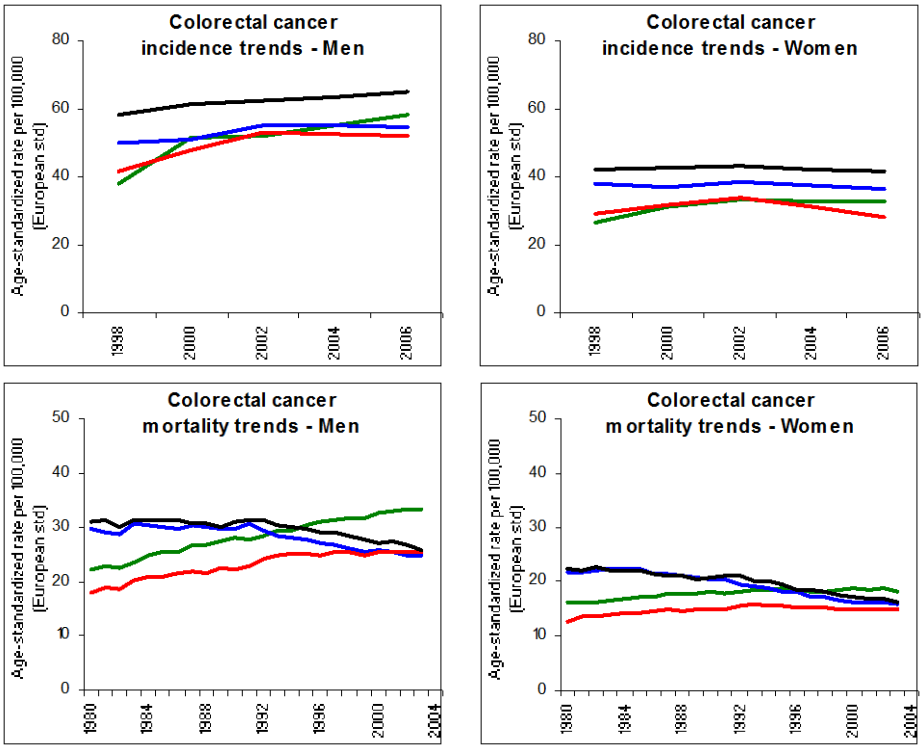


4.3 Provided data on cancer by country: colorectal cancer

4.3.1 Colorectal cancer: epidemiological picture in Europe

For the entire Europe in 2006, 413,000 new cases and 207,000 deaths were estimated for colorectal cancer [4]. In 2006 Western Europe had maximum levels of incidence estimated rates (in respect with all the other macro-areas) both for men and women (Figures 3.1). Colorectal cancer incidence rates are increasing rather rapidly in Western and Eastern Europe mainly for men (Figure 3.1). Male mortality rates (Figure 3.1) are declining in Western and Northern Europe, while they are increasing in Eastern and Southern Europe.

Figure 3.1 Trends of colorectal cancer (ICD10 C18-C20) standardized incidence and mortality rate(European std)



Northern Europe: Sweden, Finland, Denmark, Estonia, Latvia, Lithuania, the United Kingdom, Ireland, Iceland, Norway;
Western Europe: the Netherlands, Belgium, Luxembourg, Germany, France, Austria, Switzerland;
Southern Europe: Italy, Spain, Portugal, Greece, Malta, Slovenia;
Eastern Europe: Slovakia, the Czech Republic, Hungary, Poland, Bulgaria, Romania

Incidence figures. Sources for 1998, 2000, 2002: Globocan [5]. Source for 2006: Ferlay J et al, 2007 [4]

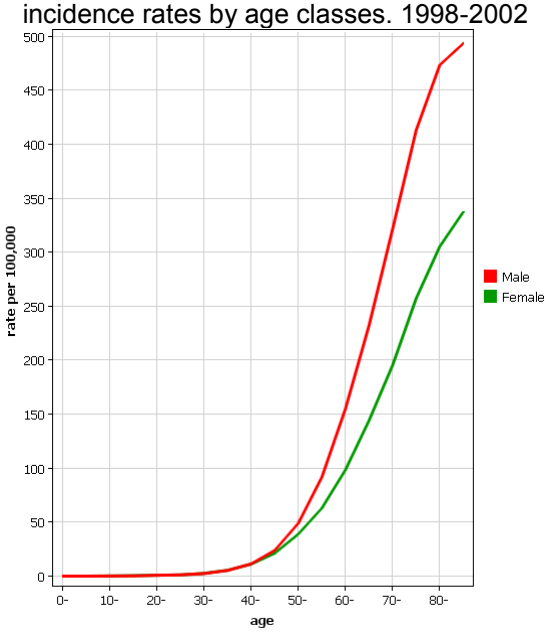
Mortality figures. Source: WHO [3]

4.3.2 Colorectal cancer: WP-10 estimates

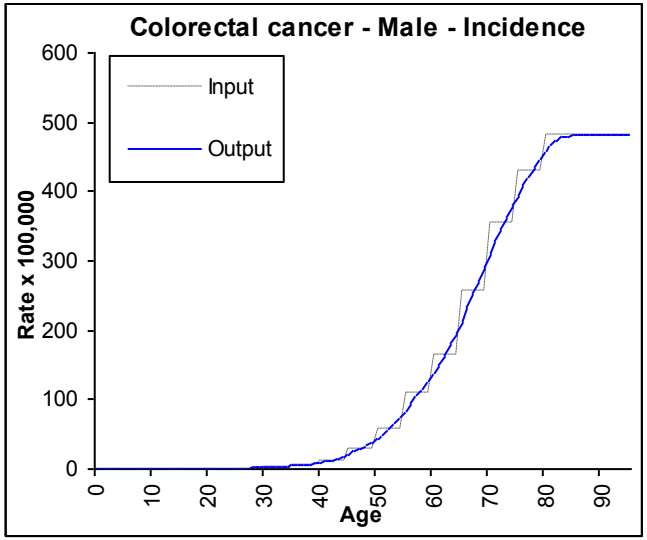
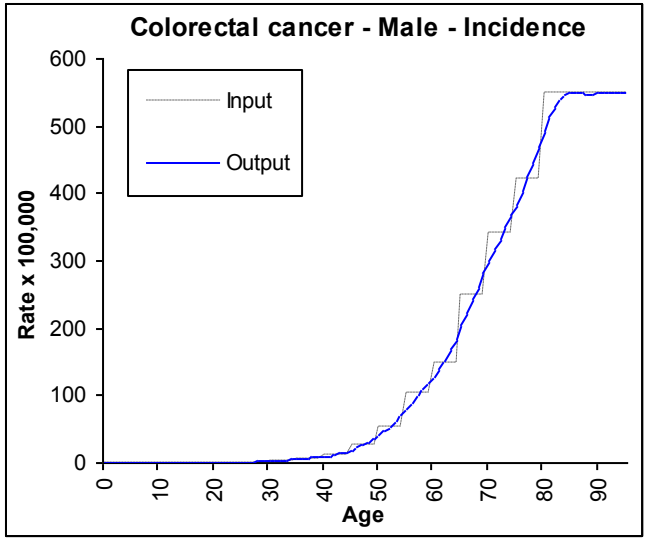
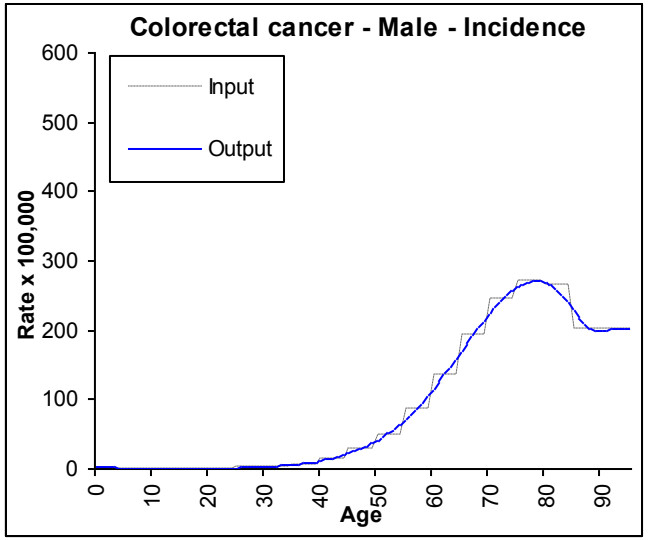
Figure 3.2 shows the distribution of colorectal cancer incidence by age classes in all the European cancer registries included in Cancer Incidence in Five Continents Vol IX [1]. Rates continuously increase up to age 85.

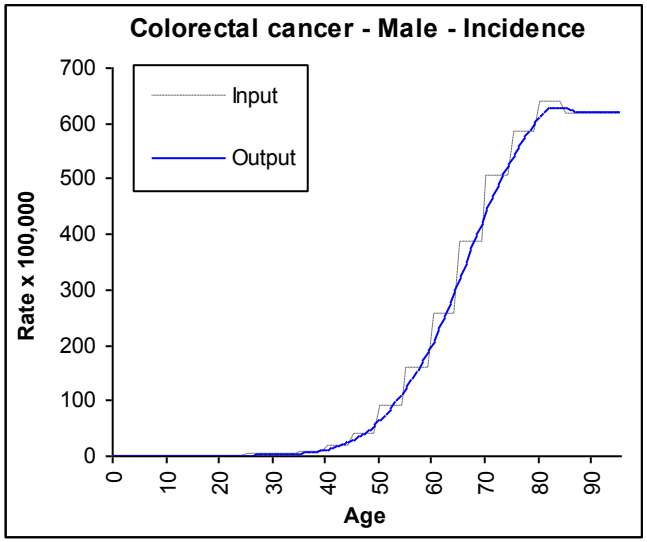
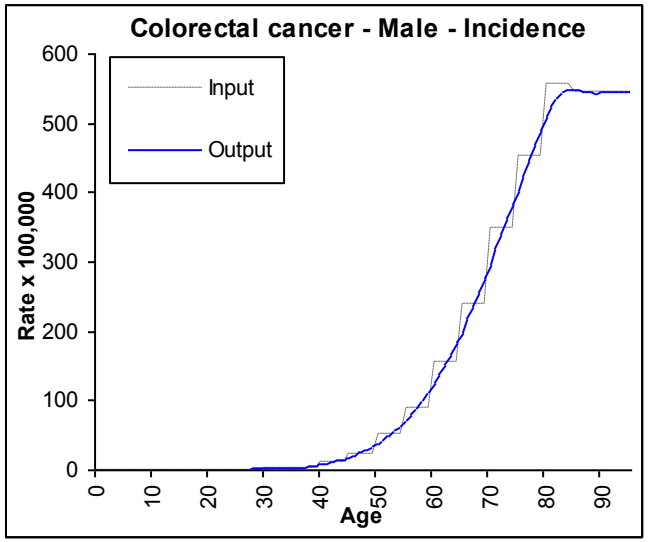
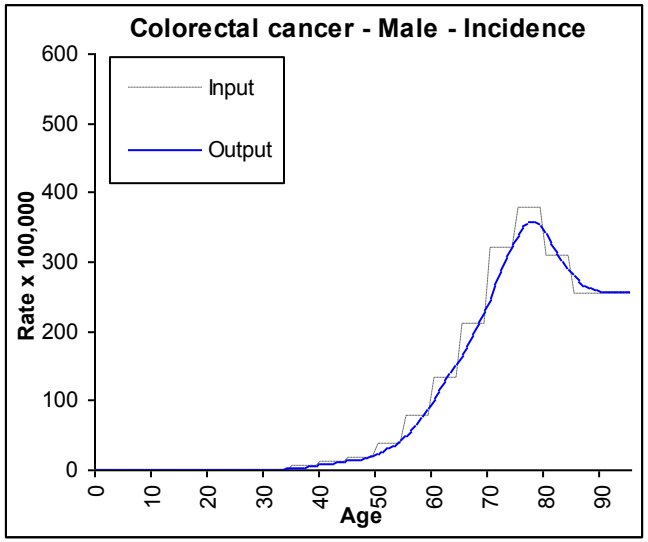
Incidence (Fig. 3.3.a and 3.3.d) and mortality (Fig. 3.3.b and 3.3.e) DISMOD outputs perfectly overlap the input data obtained by Cancer Incidence in Five Continents [1] and WHO-Mortality [3].

Figure 3.2. European CRs colorectal cancer incidence rates by age classes. 1998-2002

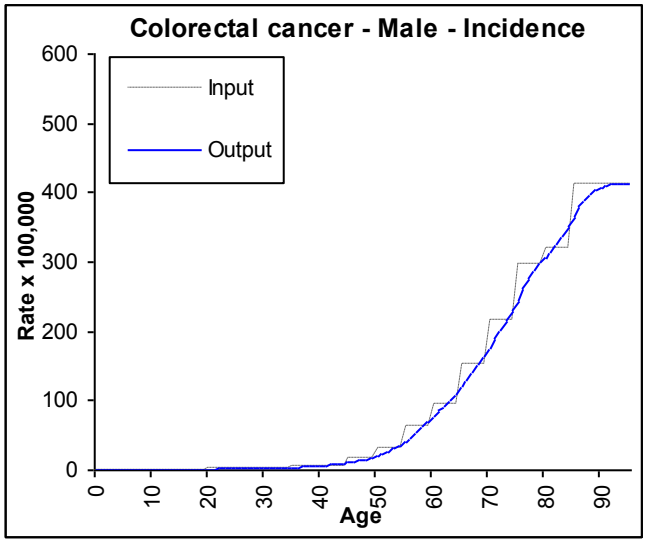


Figures 3.3.a. WP-10 ESTIMATES. Colorectal and anus cancer (ICD-10 C18-C21). INCIDENCE. MALE

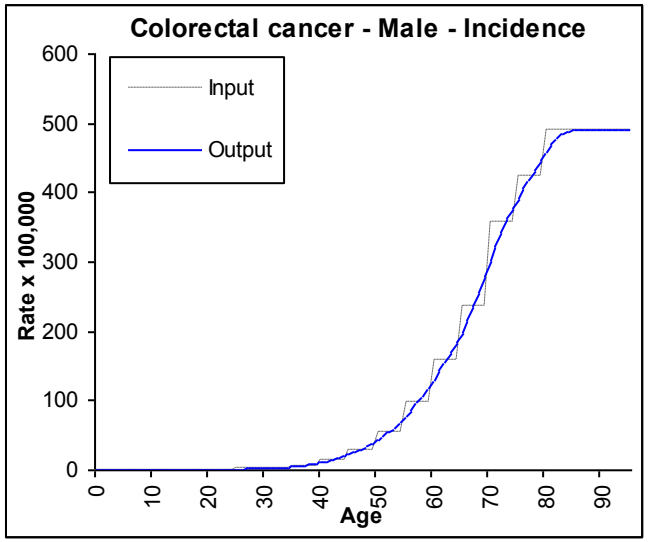
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

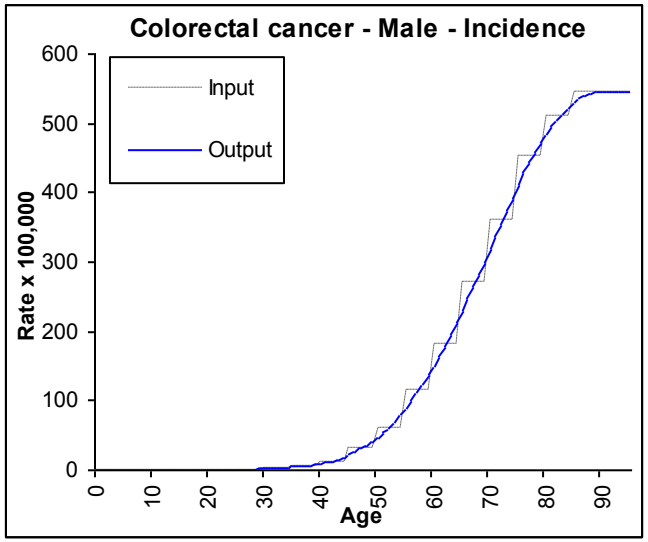
FINLAND



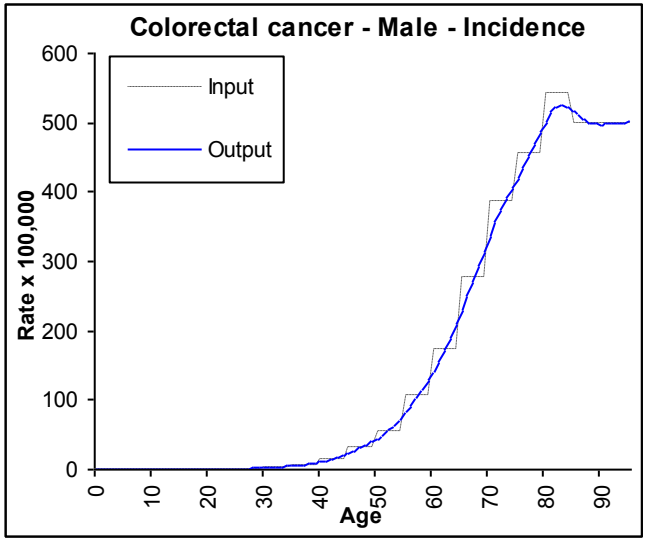
FRANCE



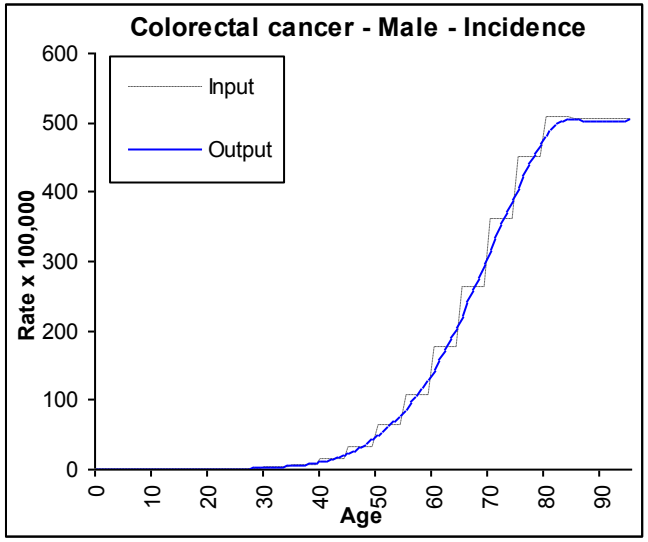
GERMANY



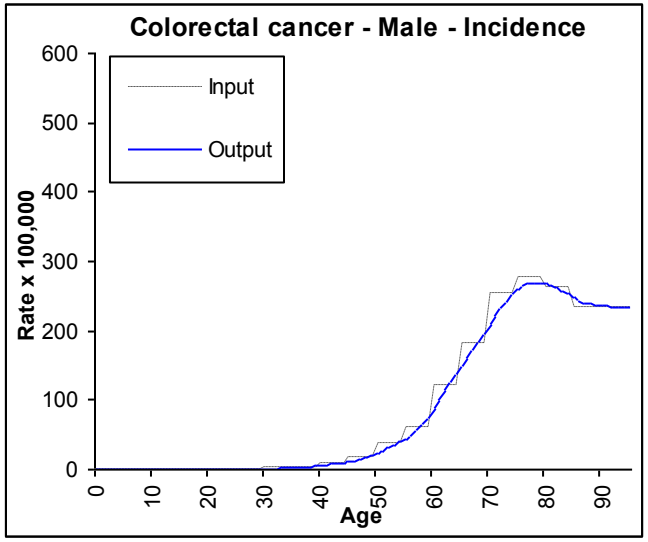
IRELAND



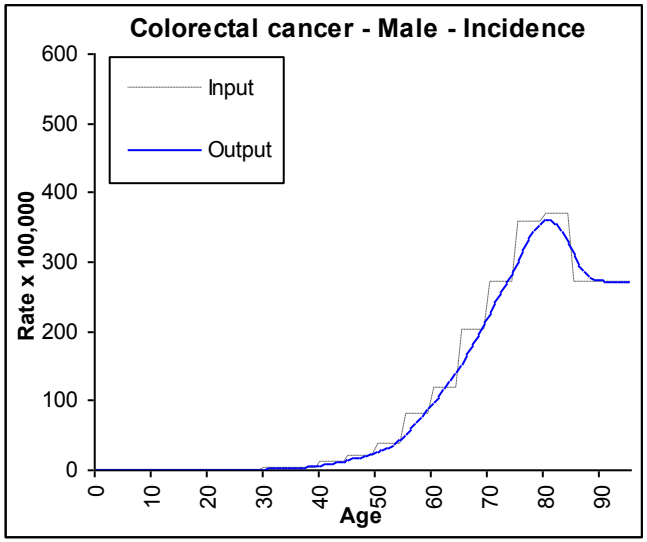
ITALY



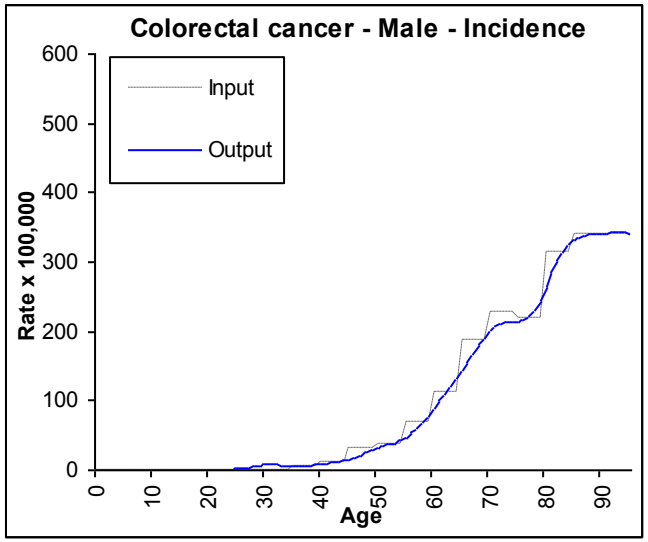
LATVIA



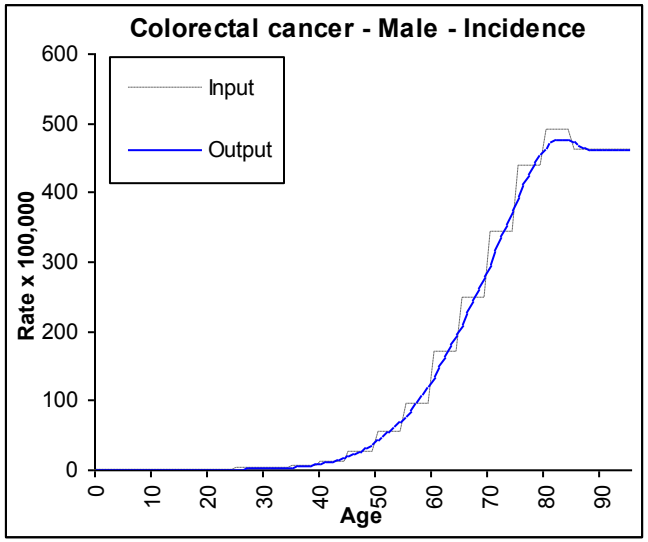
LITHUANIA



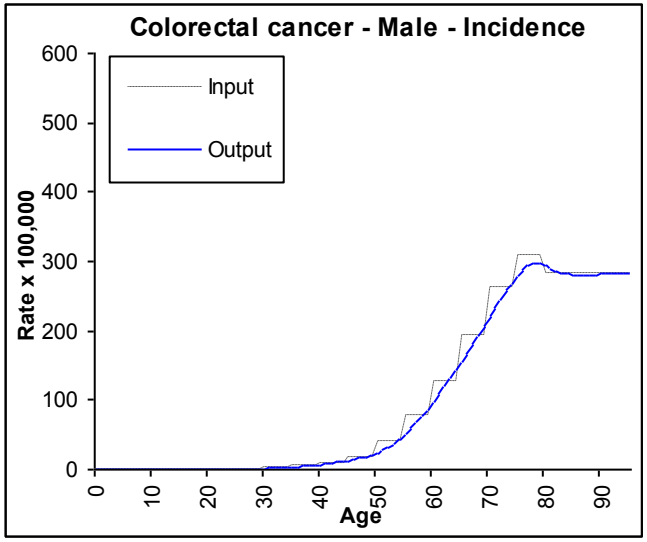
MALTA



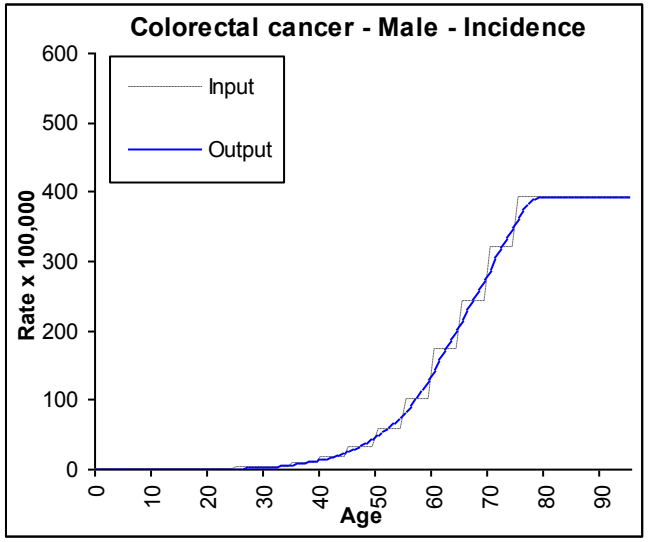
NETHERLANDS



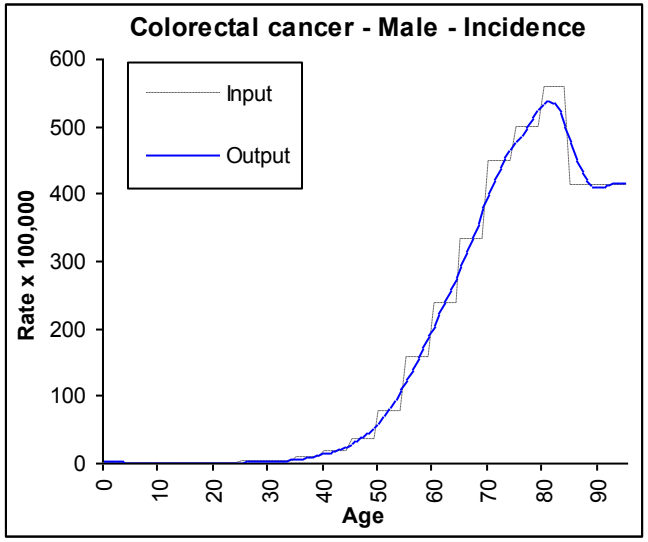
POLAND



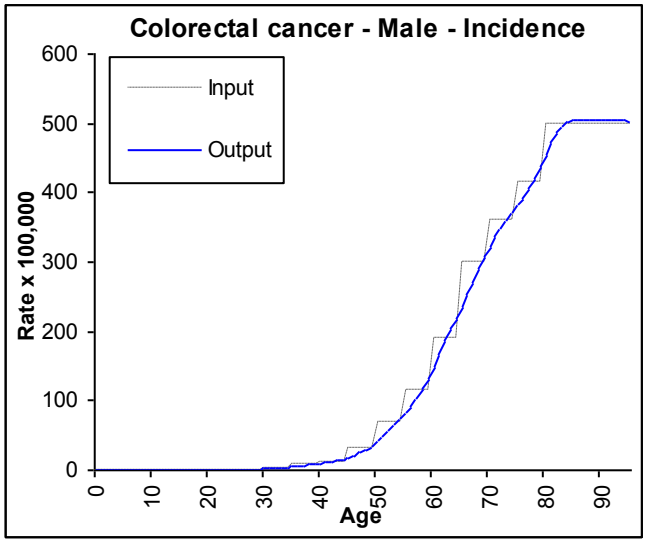
PORTUGAL



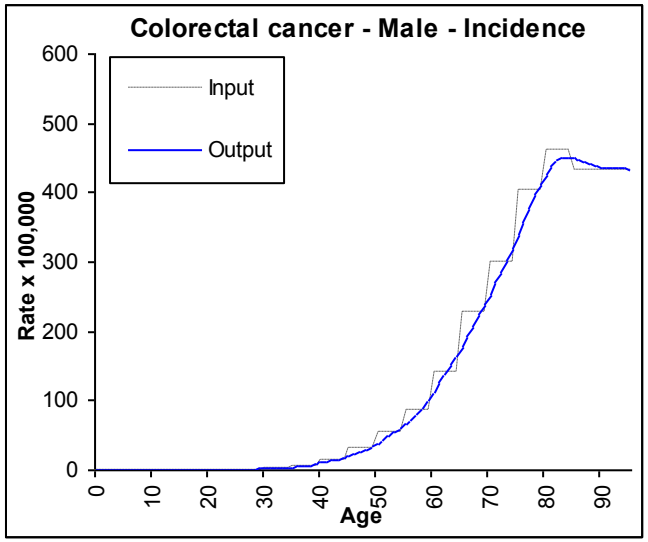
SLOVAKIA



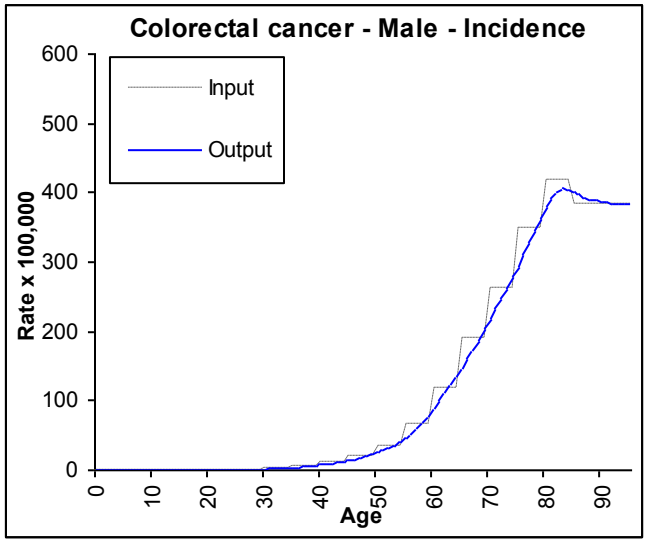
SLOVENIA



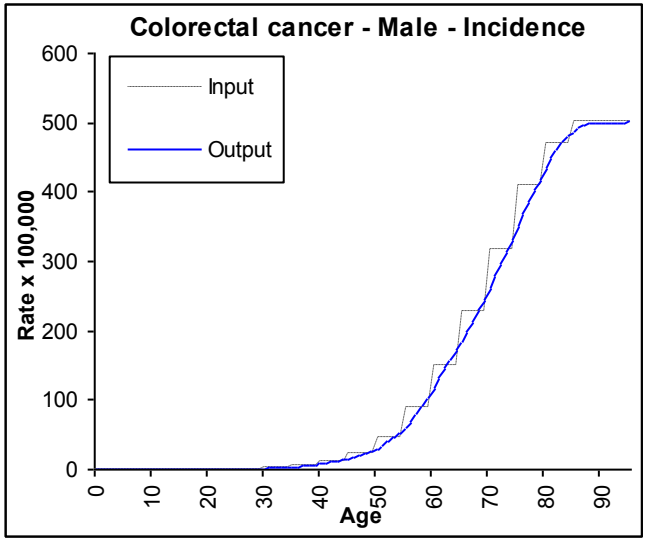
SPAIN



SWEDEN

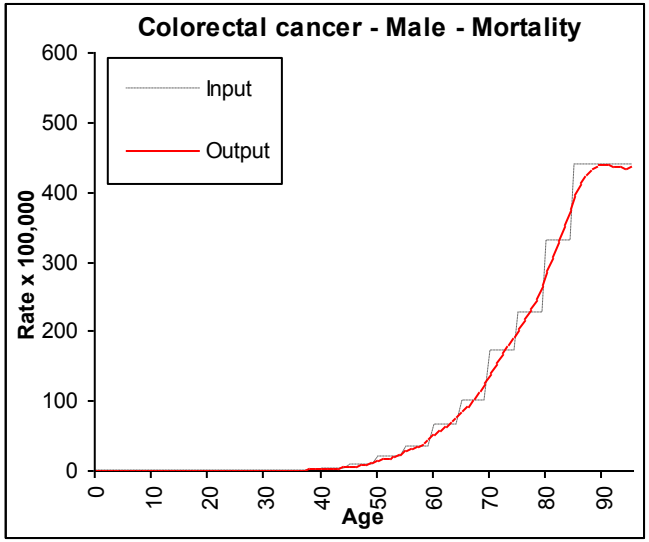


UNITED KINGDOM

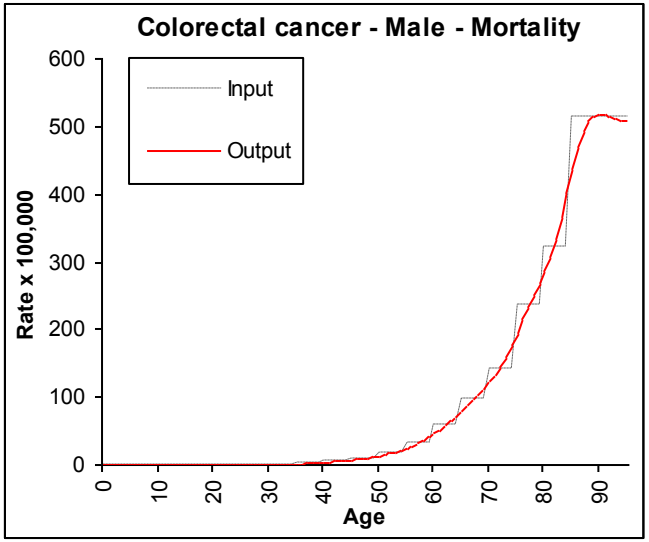


Figures 3.3.b. WP-10 ESTIMATES. Colorectal and anus cancer (ICD-10 C18-C21). MORTALITY. MALE

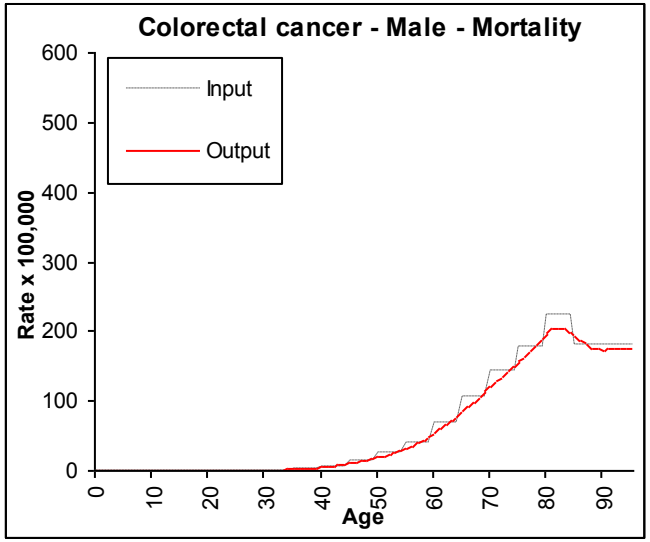
AUSTRIA



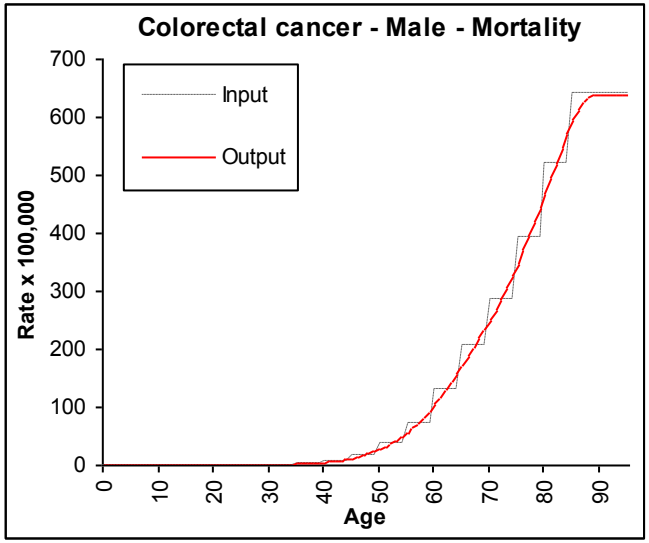
BELGIUM



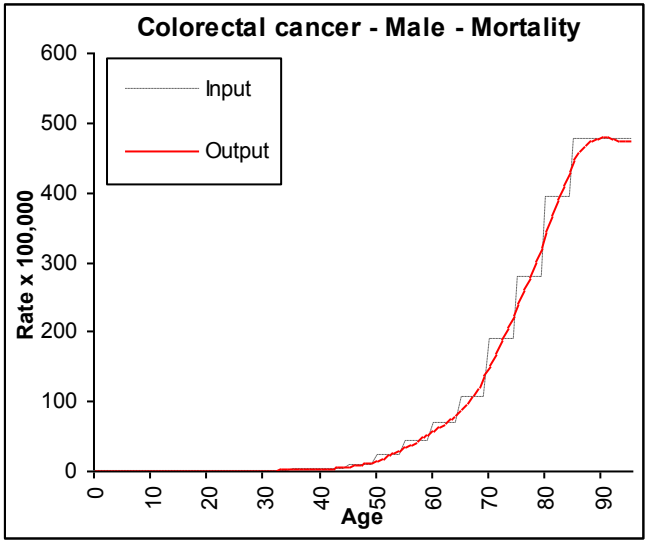
BULGARIA



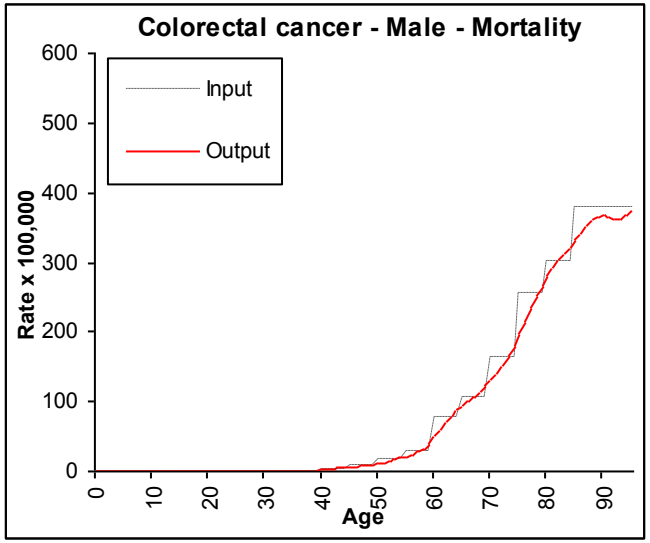
CZECH REPUBLIC



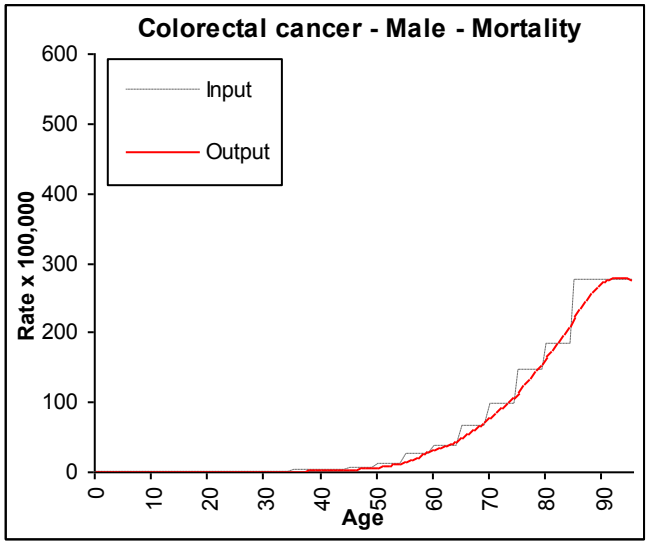
DENMARK



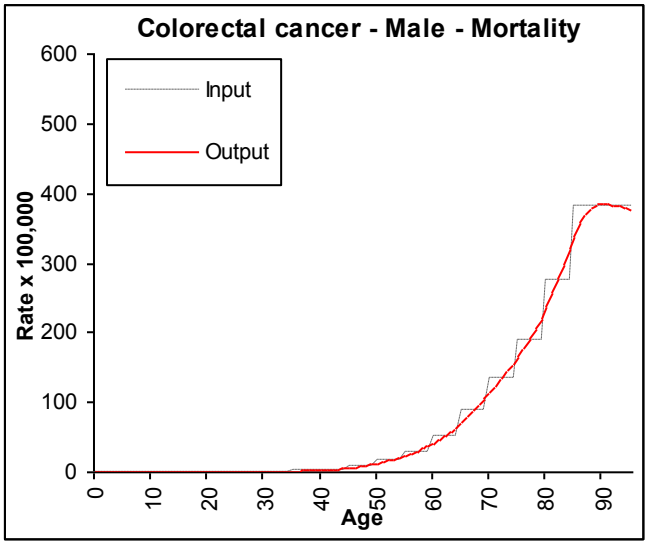
ESTONIA



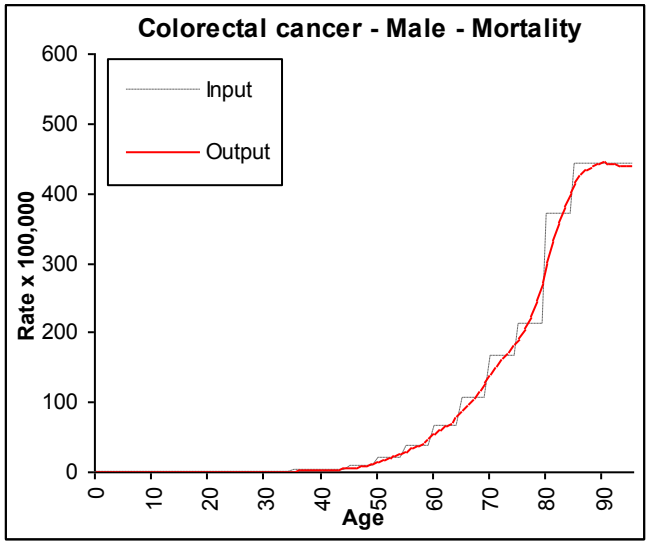
FINLAND



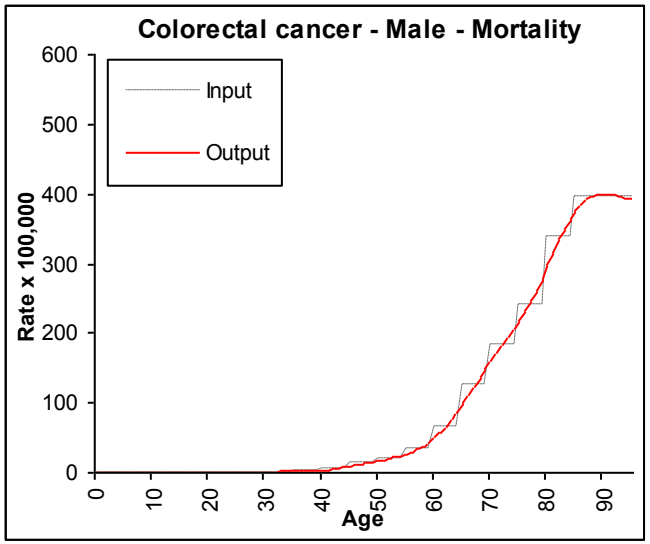
FRANCE



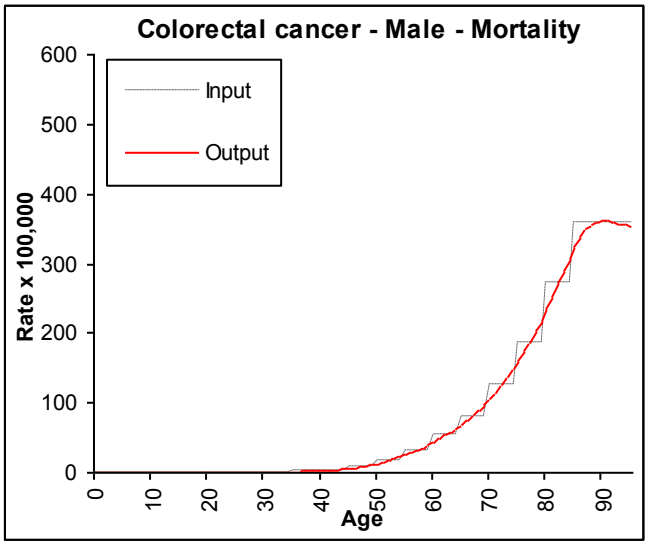
GERMANY



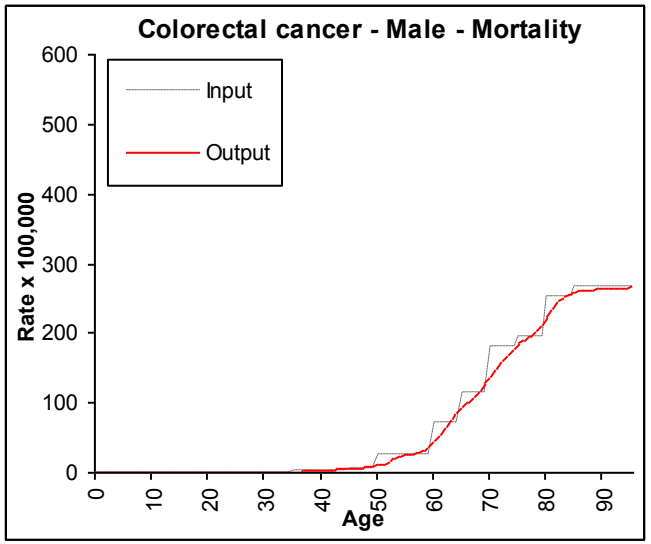
IRELAND



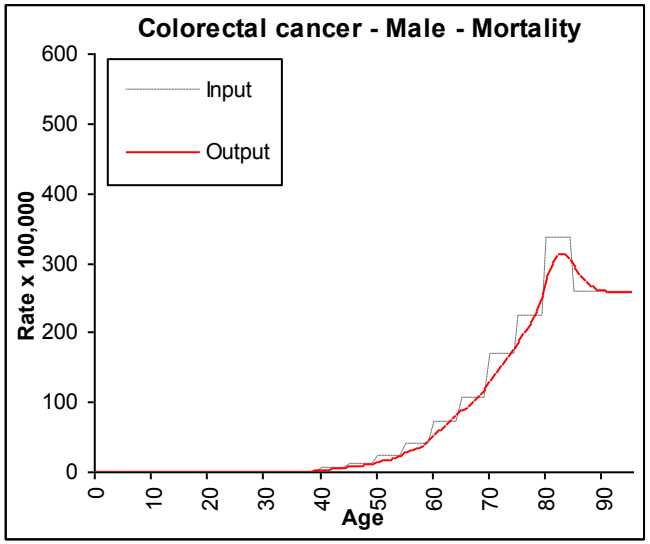
ITALY



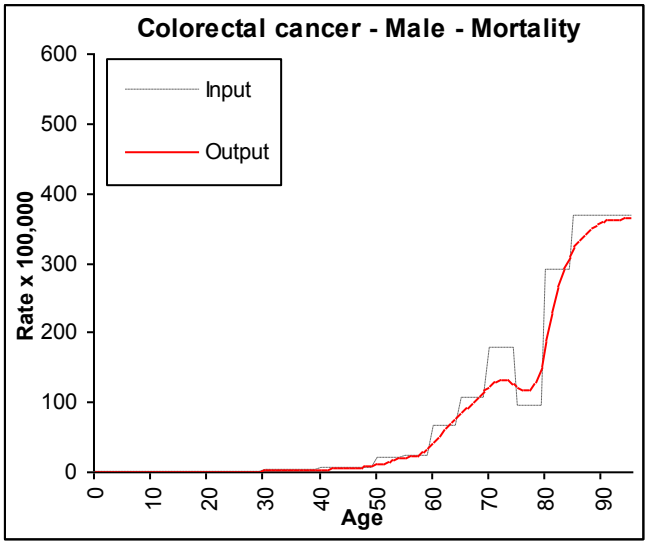
LATVIA



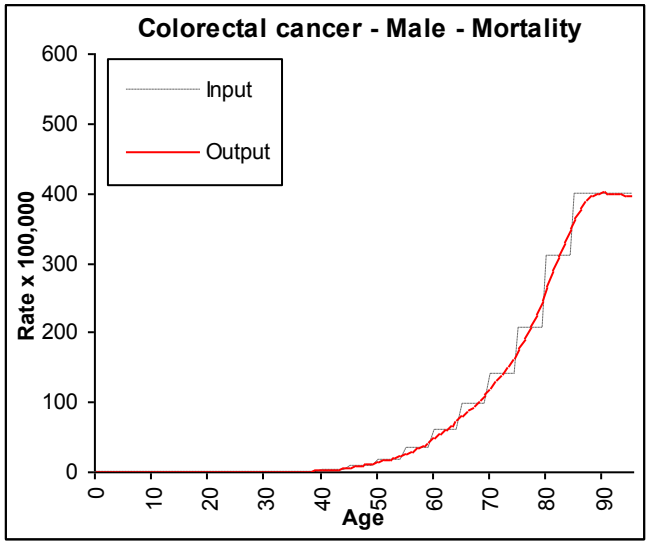
LITHUANIA



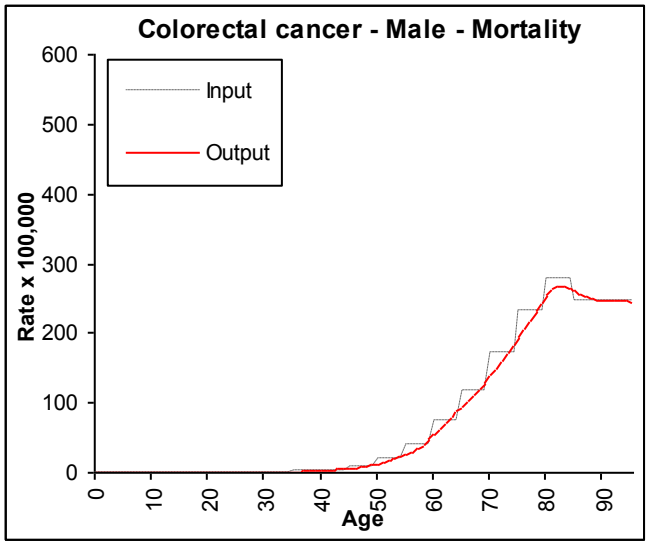
MALTA



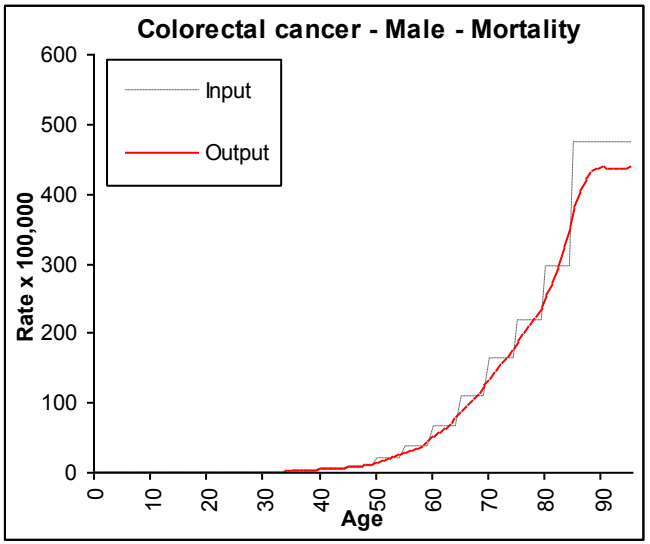
NETHERLANDS



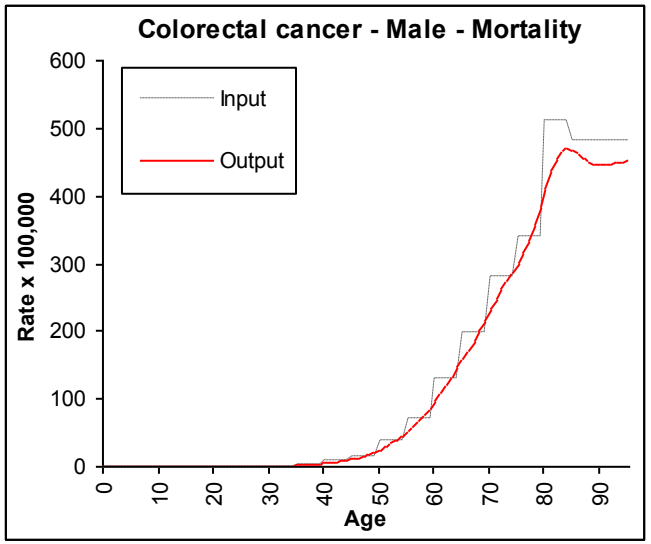
POLAND



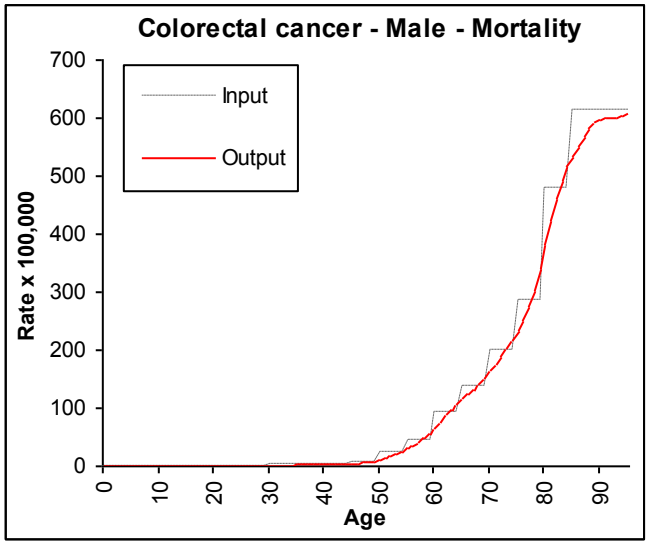
PORTUGAL



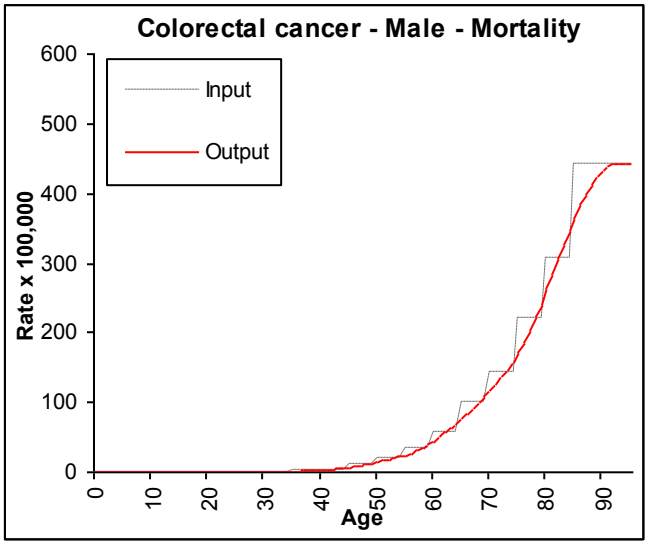
SLOVAKIA



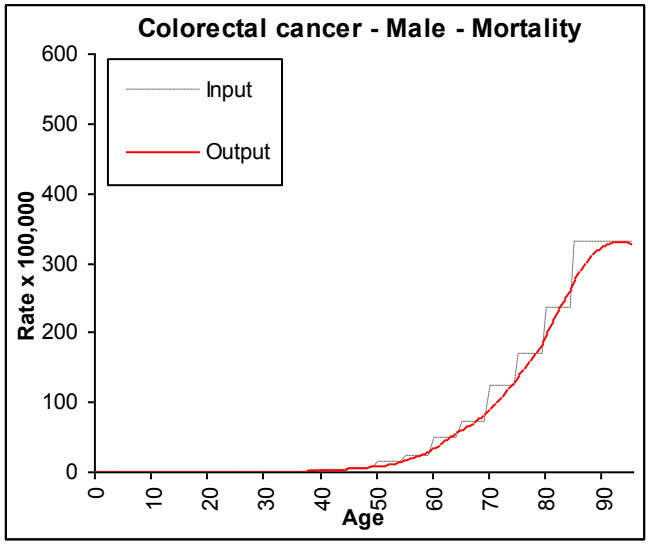
SLOVENIA



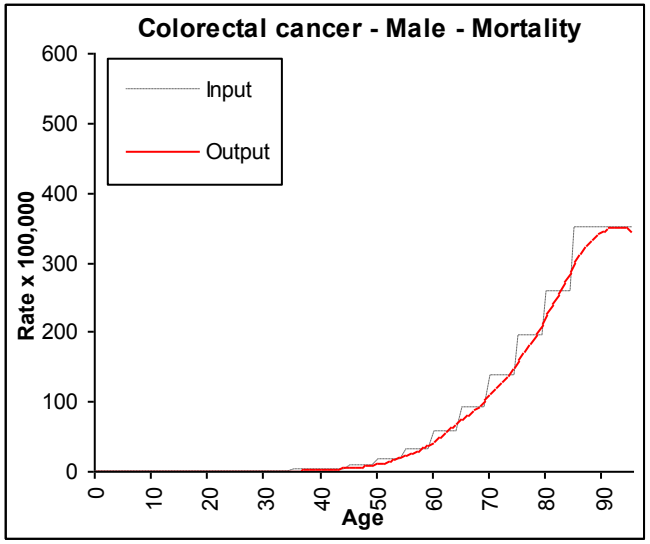
SPAIN



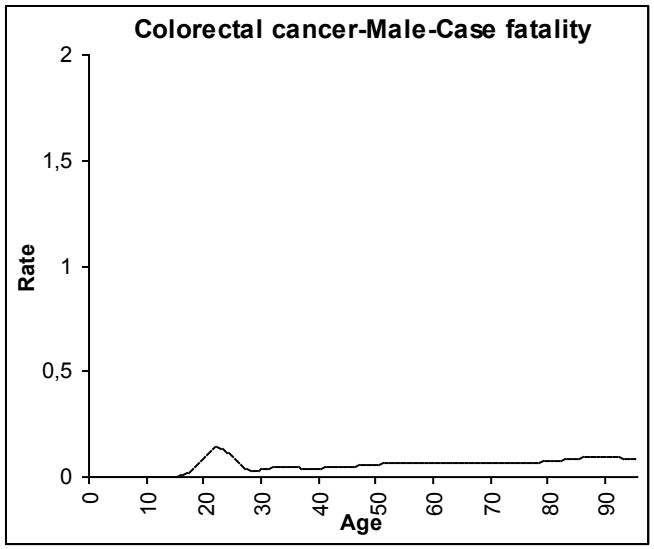
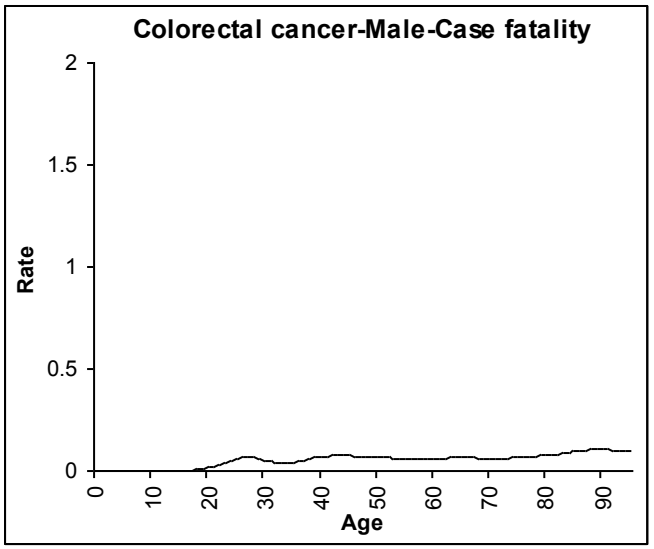
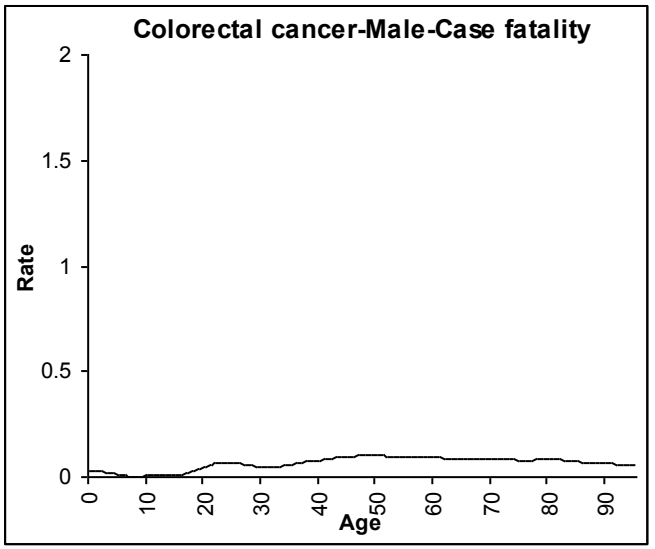
SWEDEN

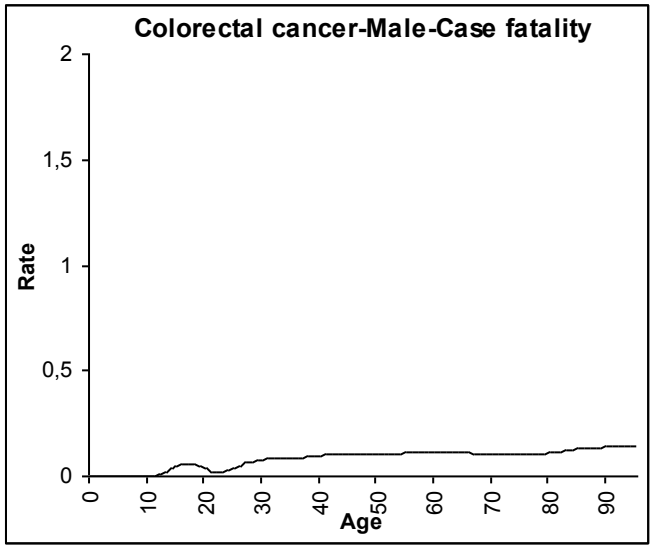
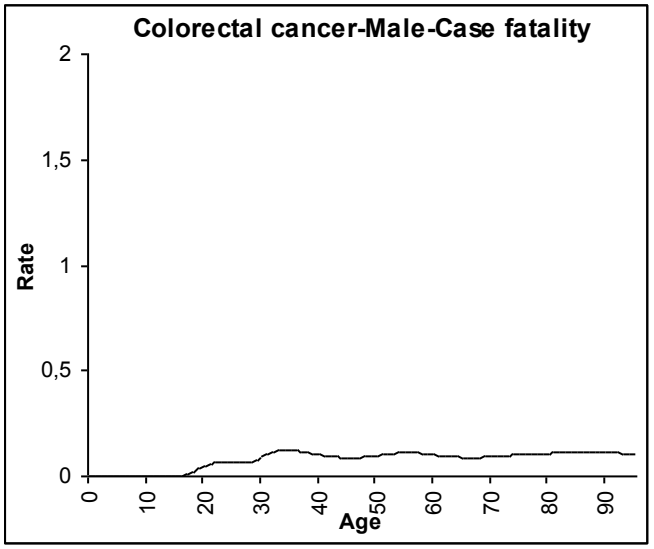
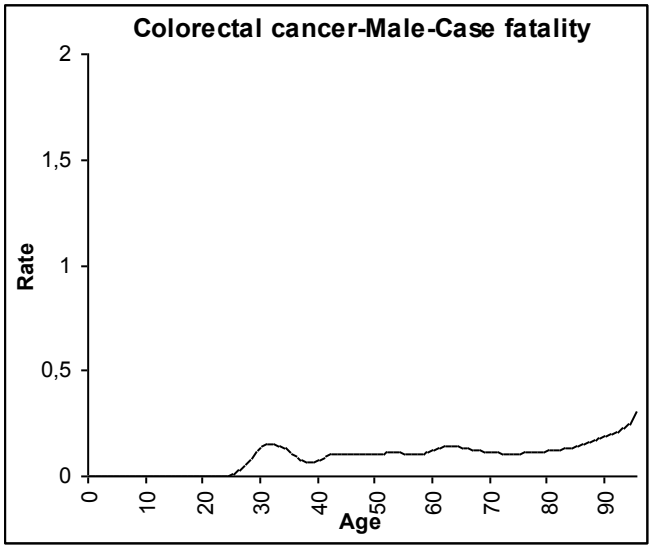


UNITED KINGDOM

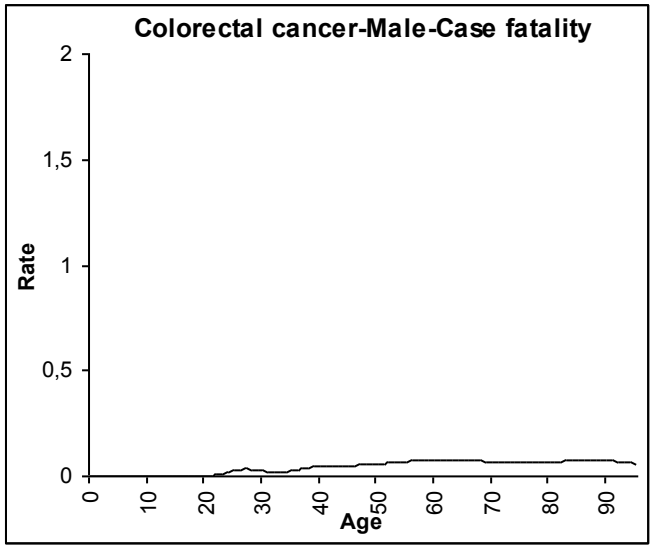


Figures 3.3.c. WP-10 ESTIMATES. Colorectal and anus cancer (ICD-10 C18-C21). CASE FATALITY. MALE

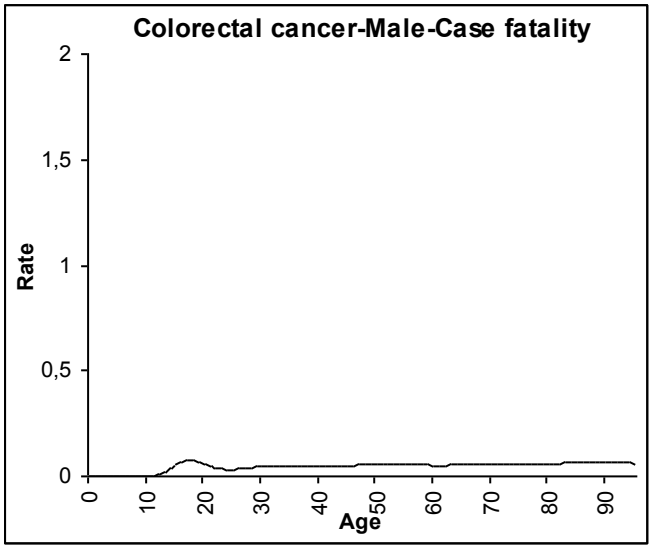
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

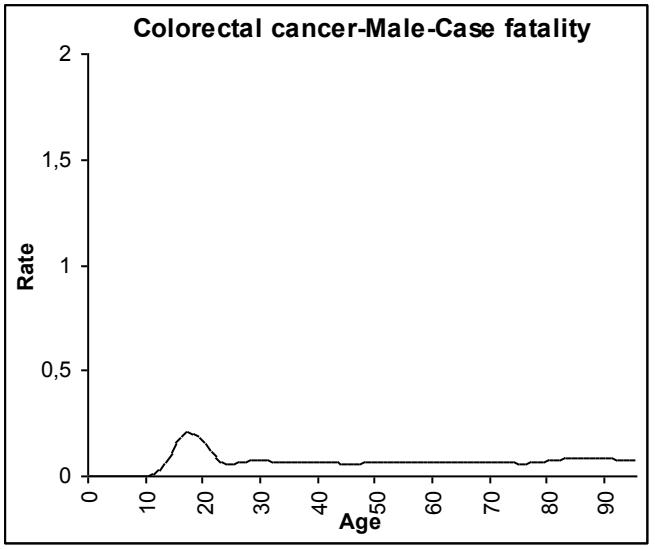
FINLAND



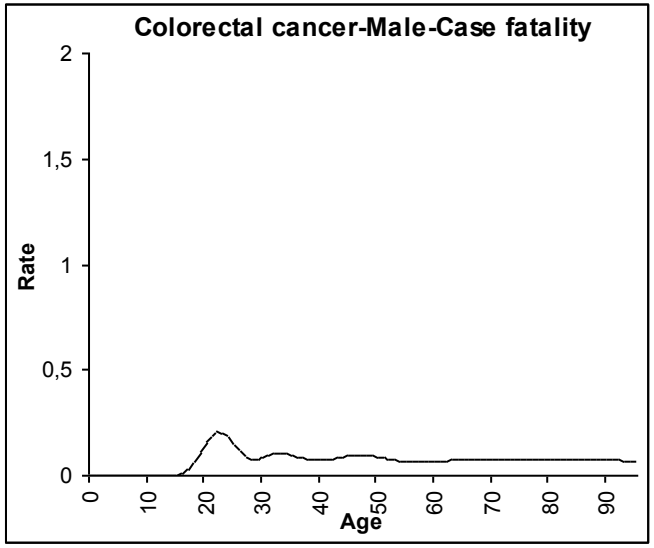
FRANCE



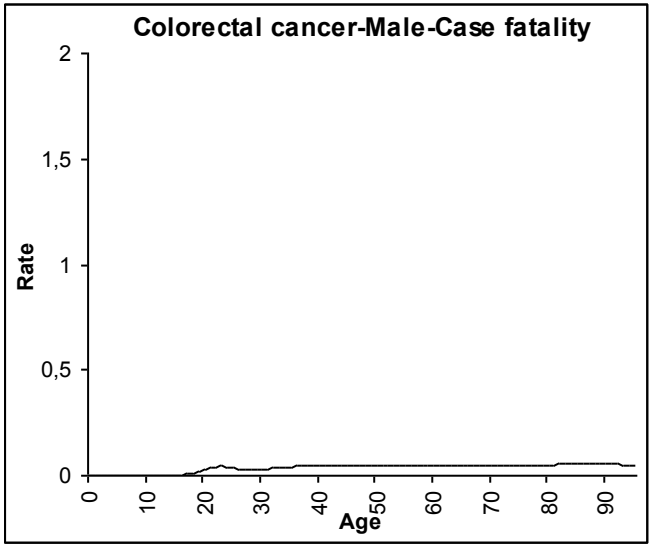
GERMANY



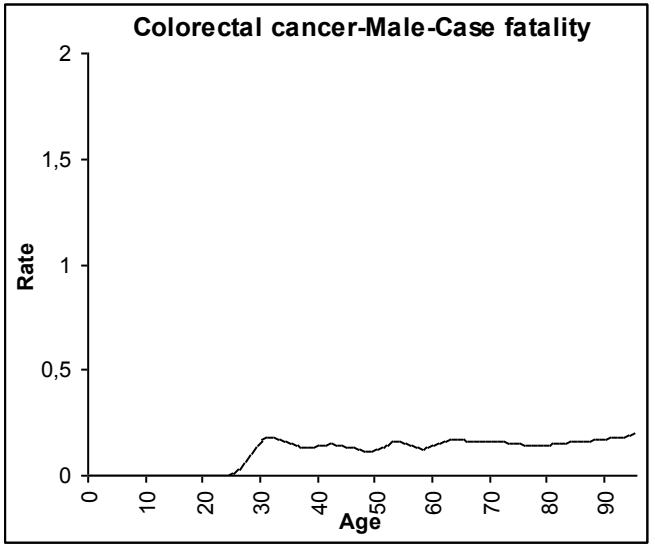
IRELAND



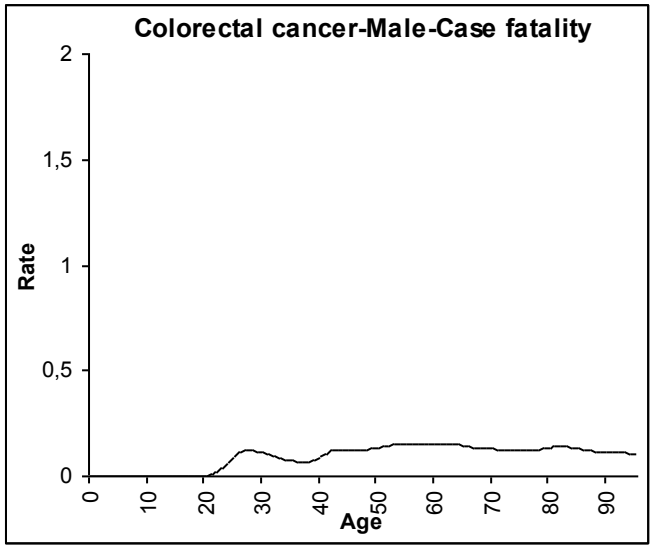
ITALY



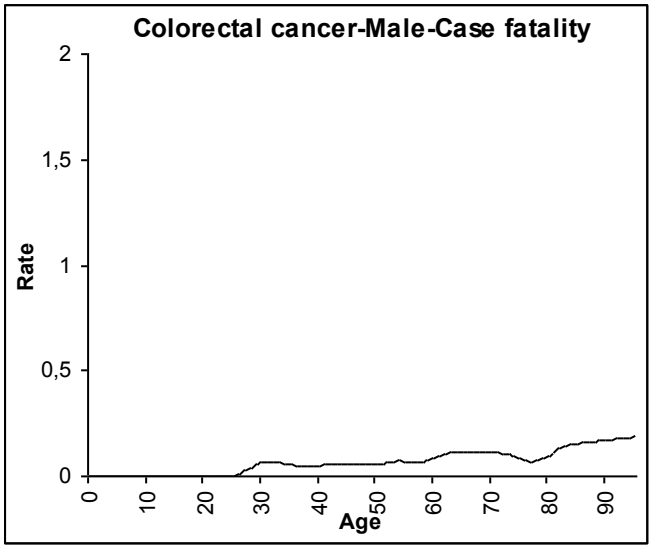
LATVIA



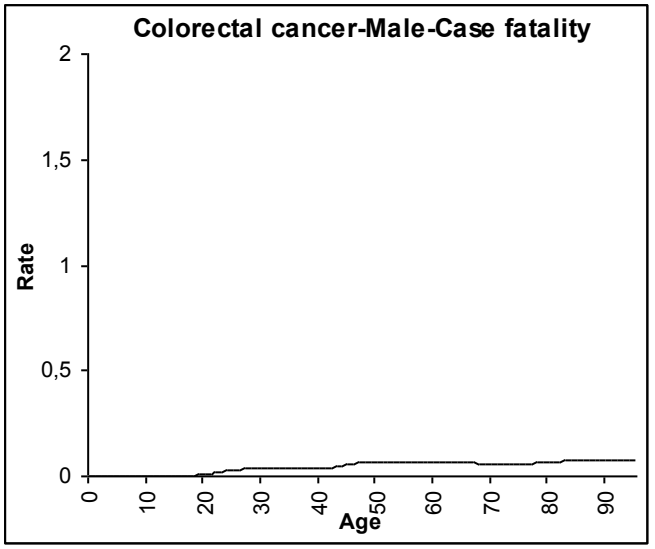
LITHUANIA



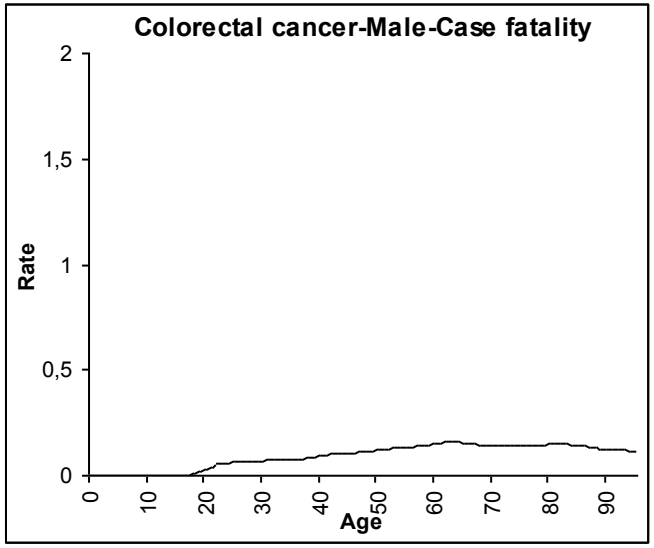
MALTA



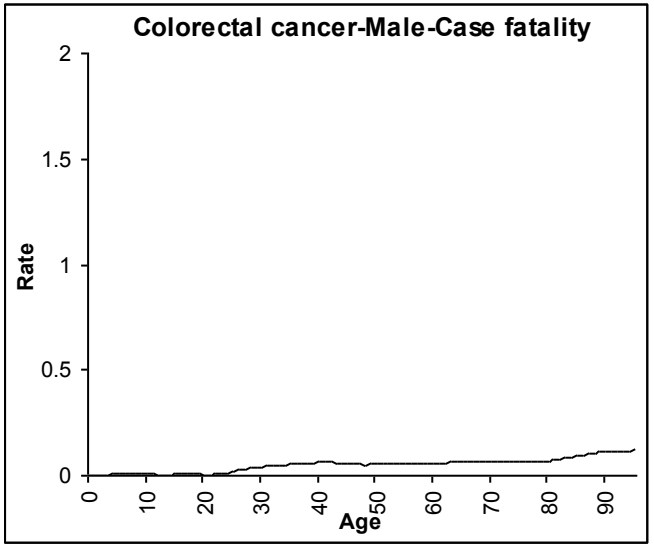
NETHERLANDS



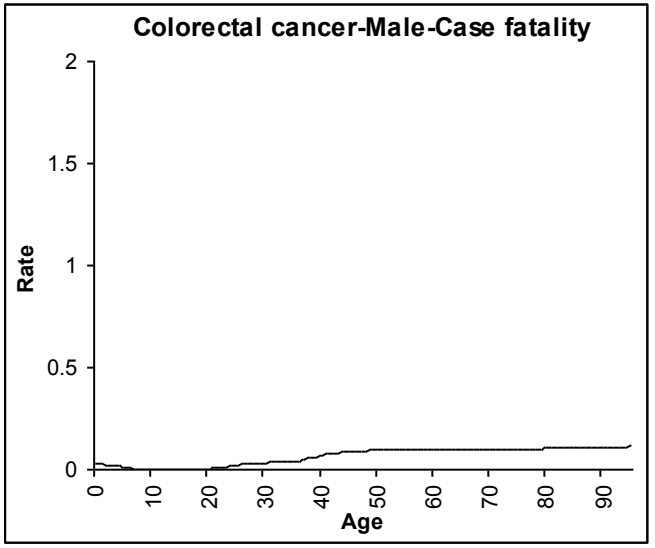
POLAND



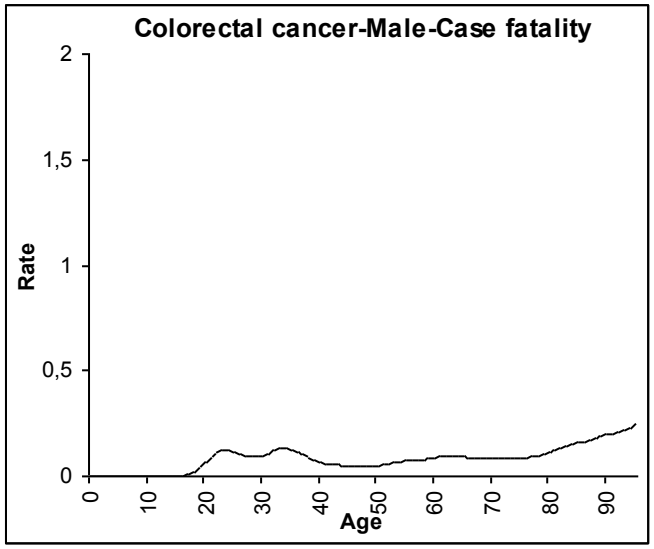
PORTUGAL



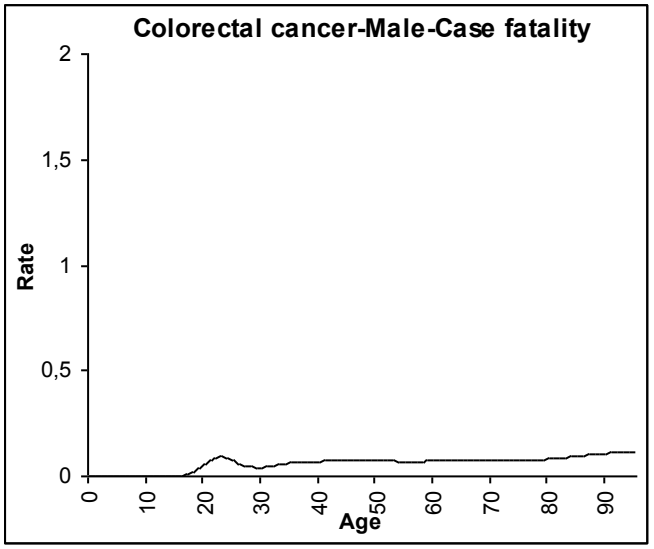
SLOVAKIA



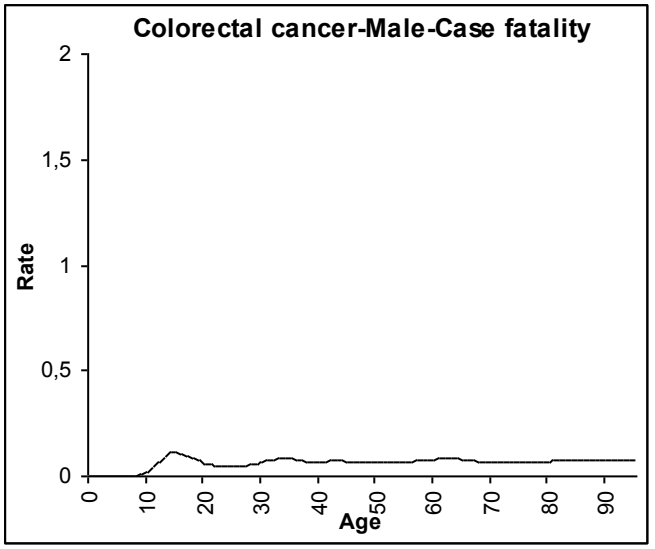
SLOVENIA



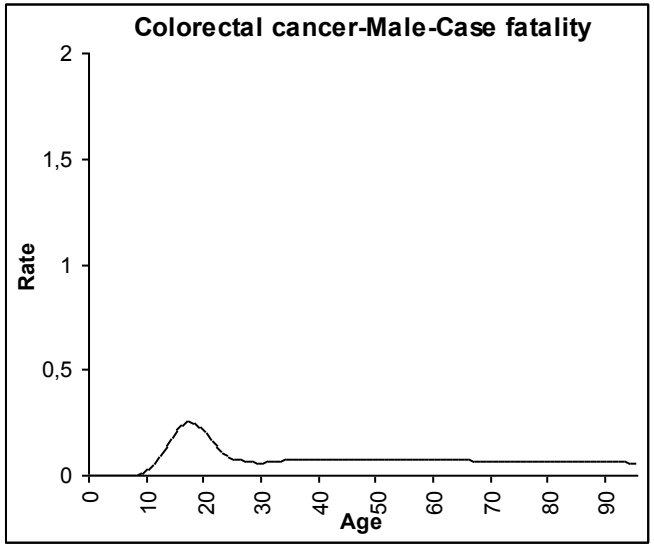
SPAIN



SWEDEN

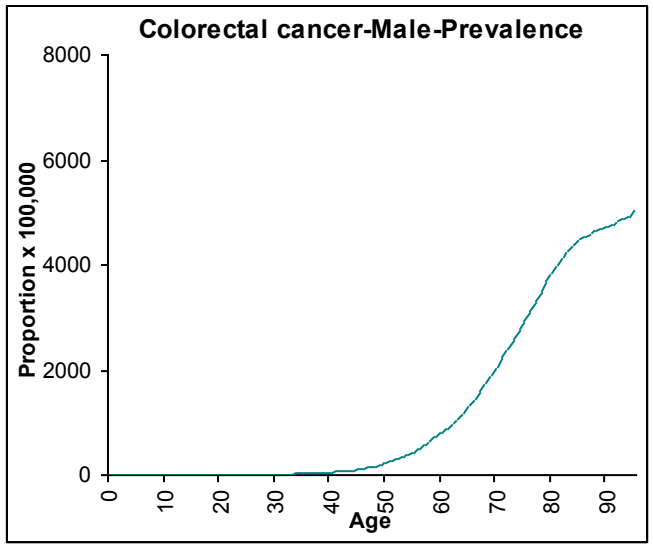


UNITED KINGDOM

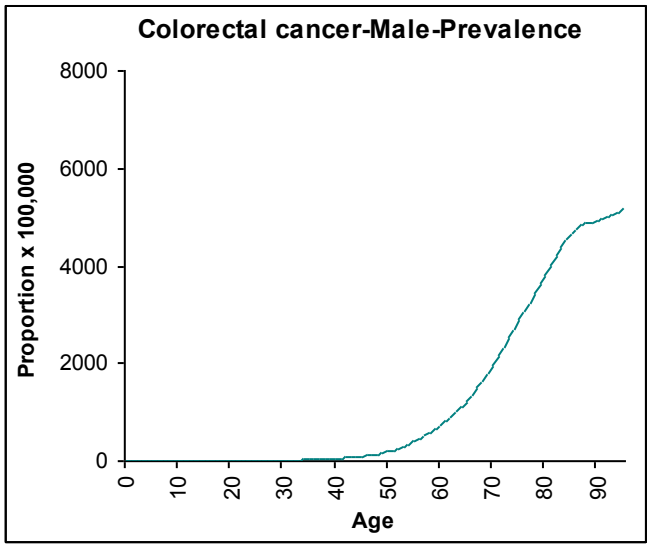


Figures 3.3.d. WP-10 ESTIMATES. Colorectal and anus cancer (ICD-10 C18-C21). TOTAL PREVALENCE. MALE

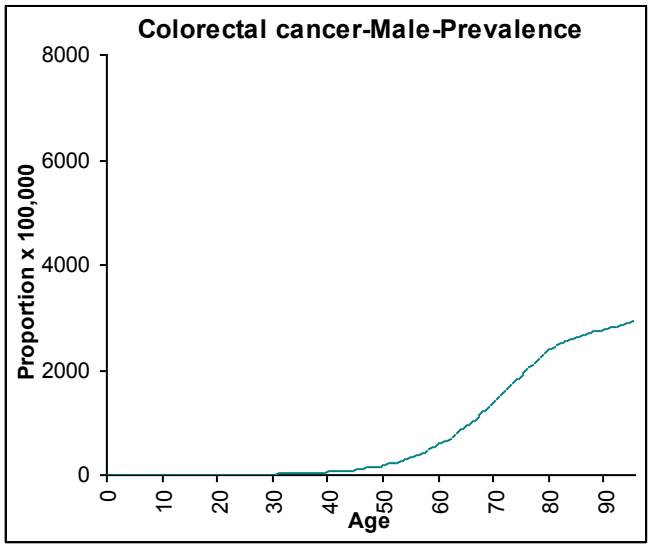
AUSTRIA



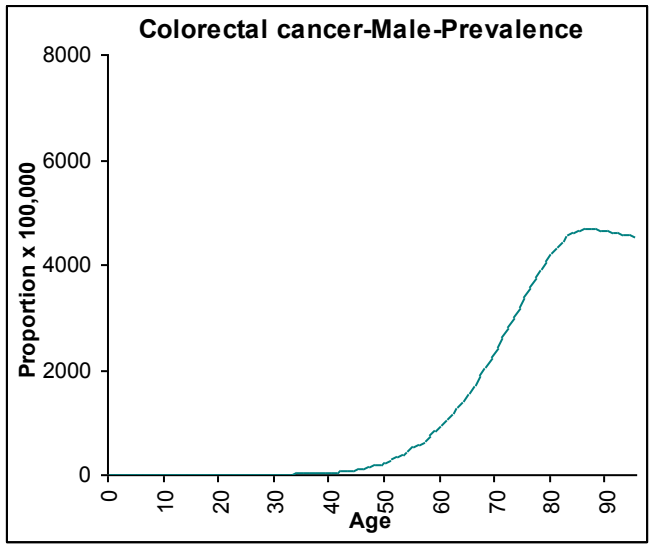
BELGIUM



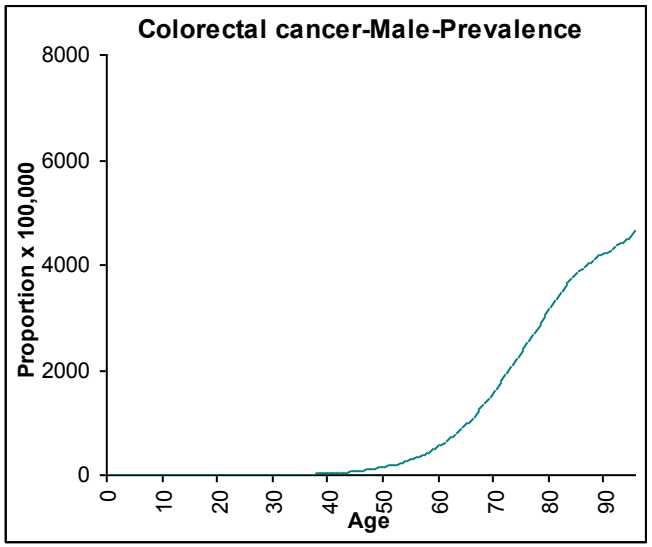
BULGARIA



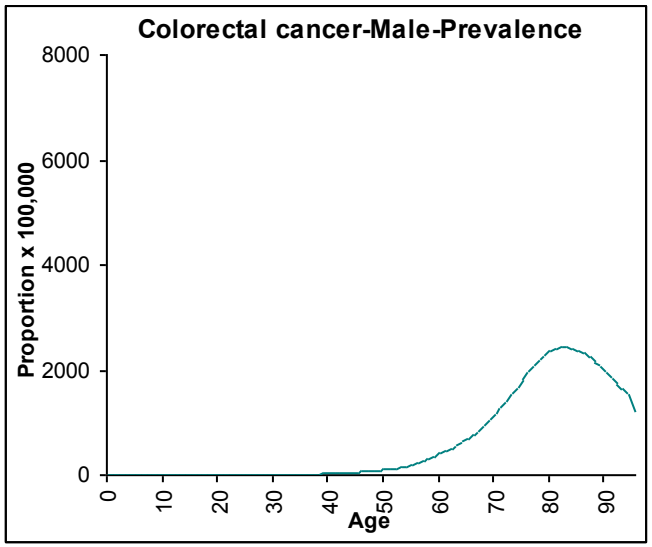
CZECH REPUBLIC



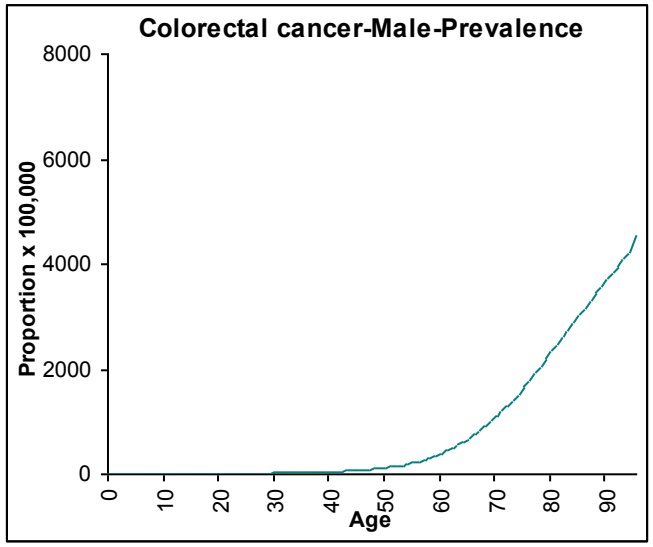
DENMARK



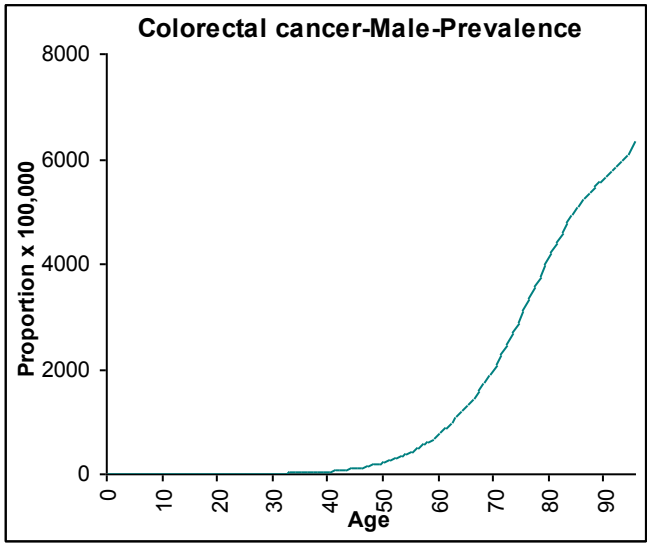
ESTONIA



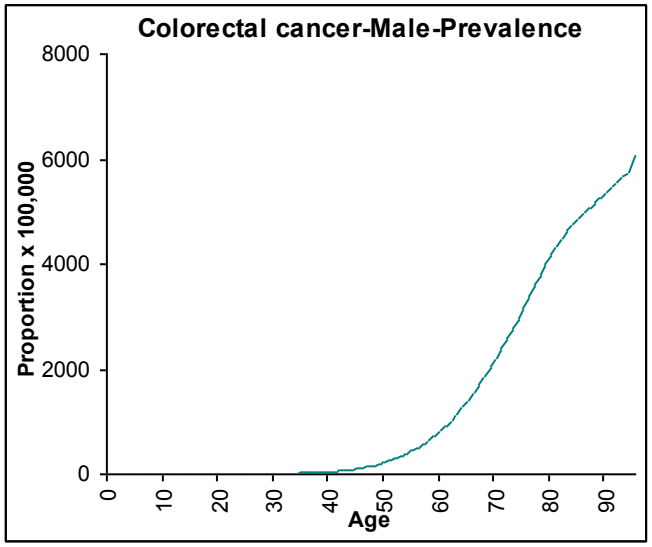
FINLAND



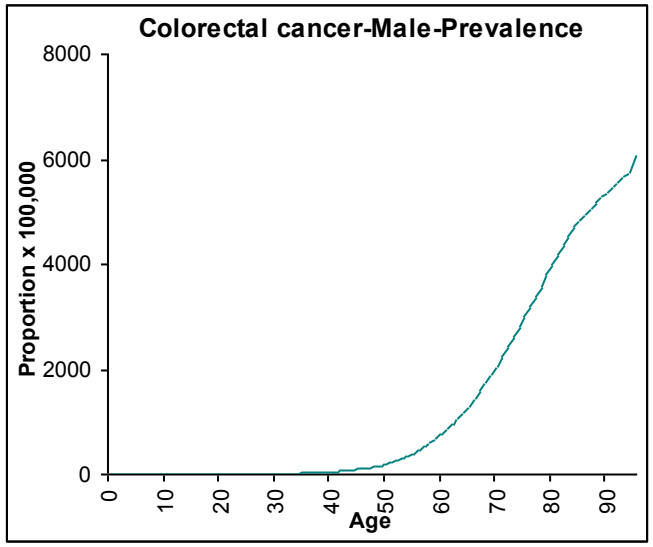
FRANCE



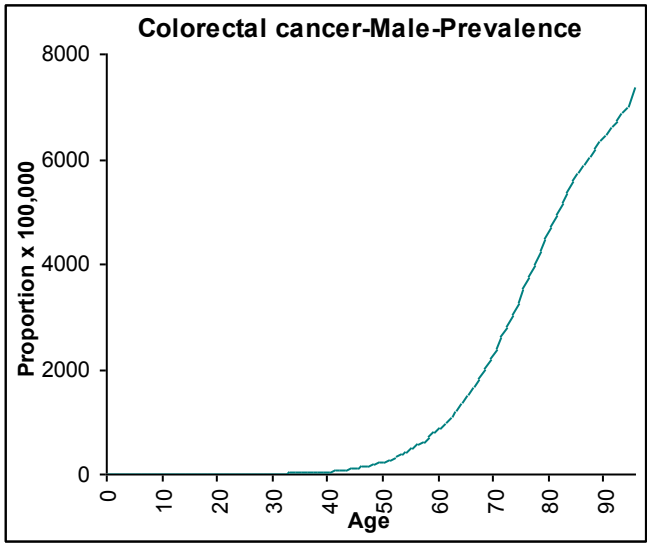
GERMANY



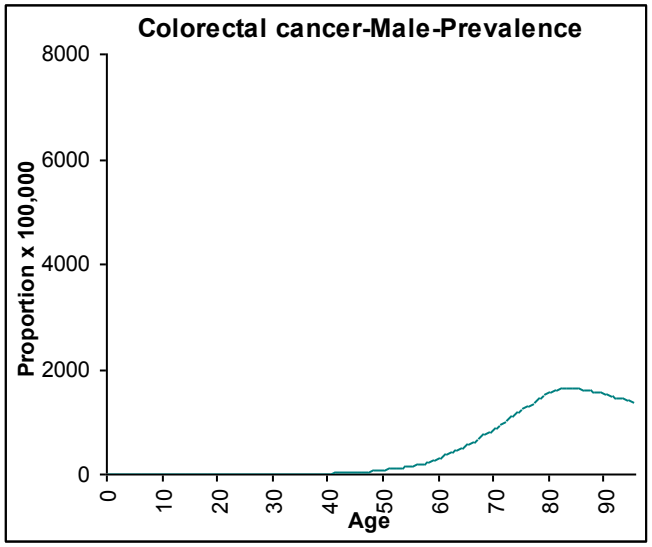
IRELAND



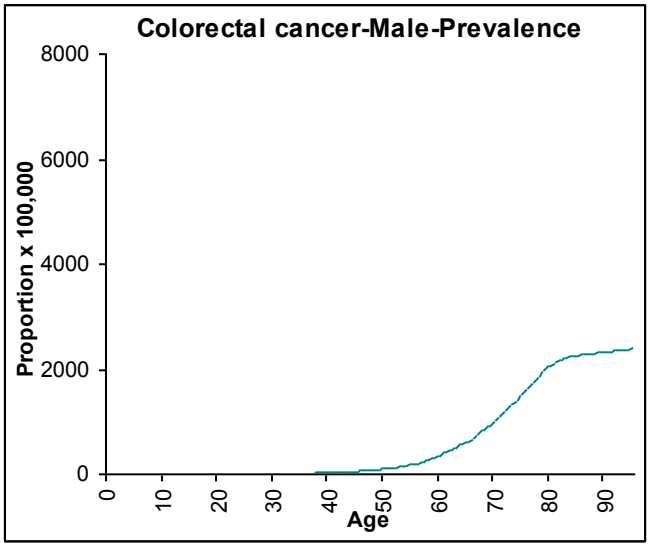
ITALY



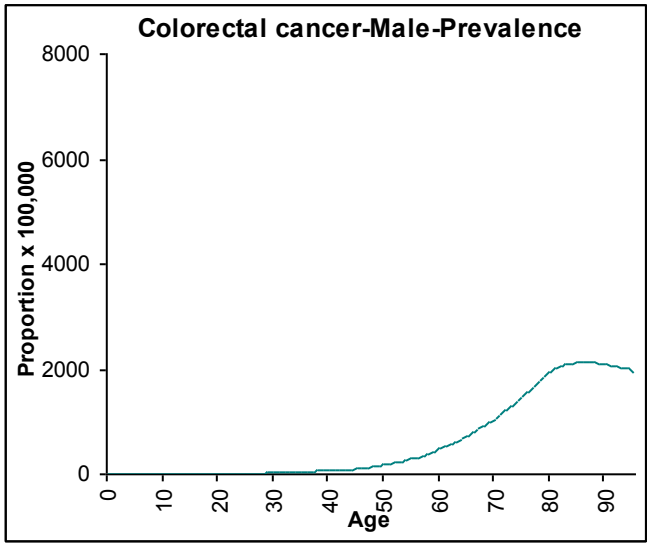
LATVIA



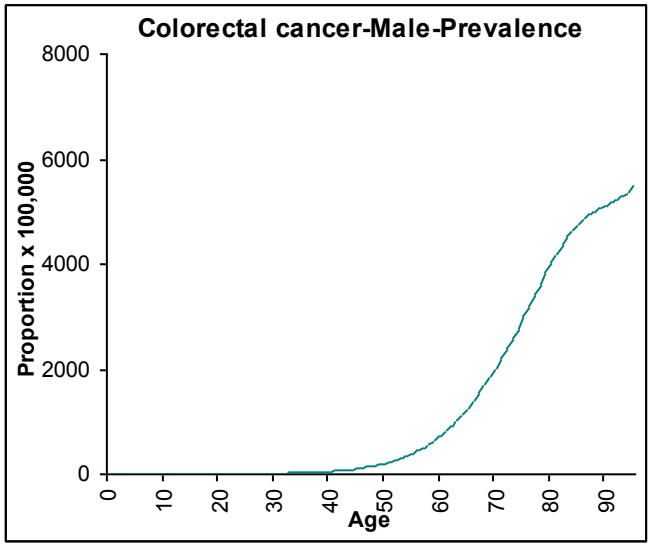
LITHUANIA



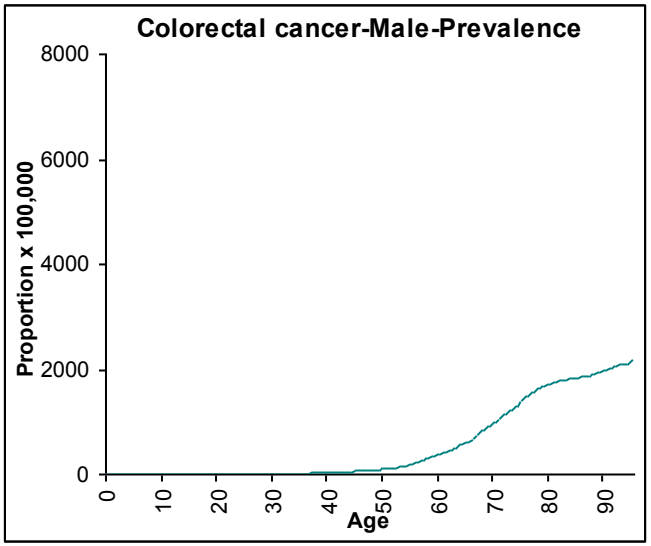
MALTA



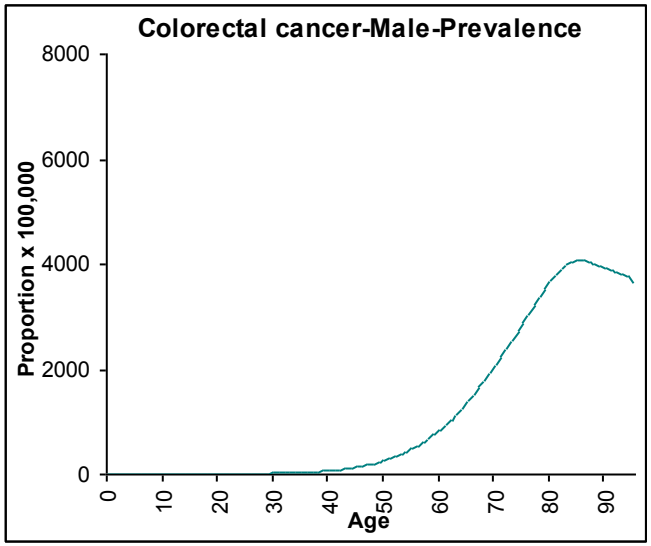
NETHERLANDS



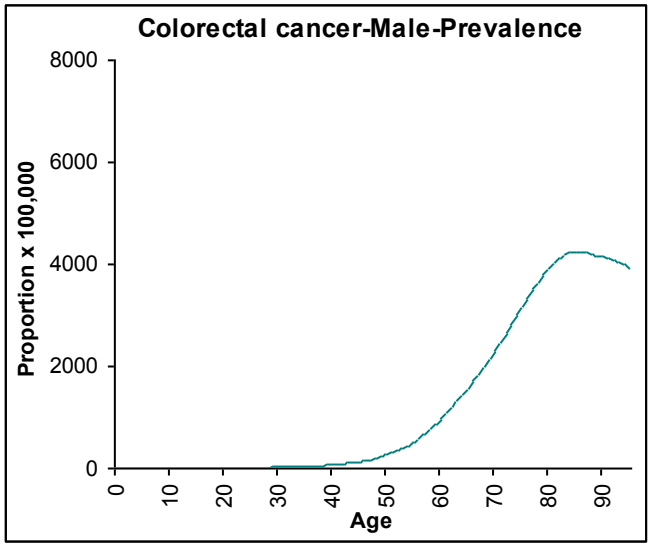
POLAND



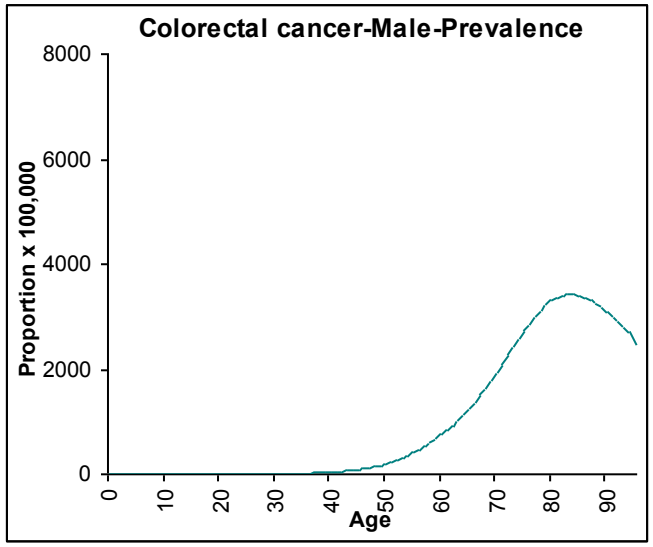
PORTUGAL



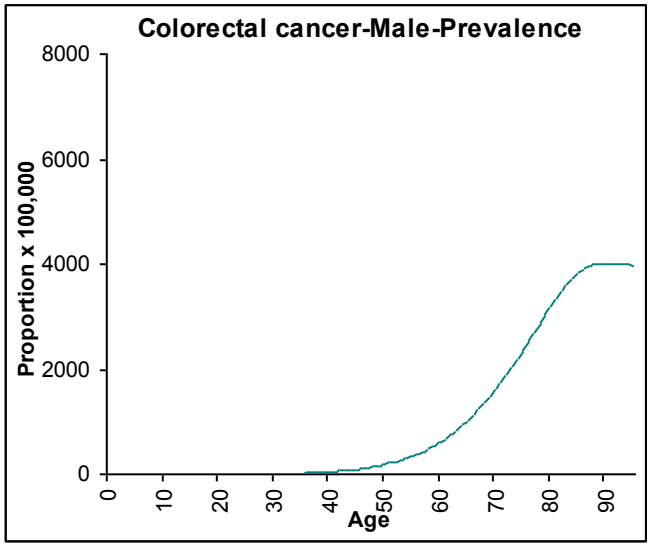
SLOVAKIA



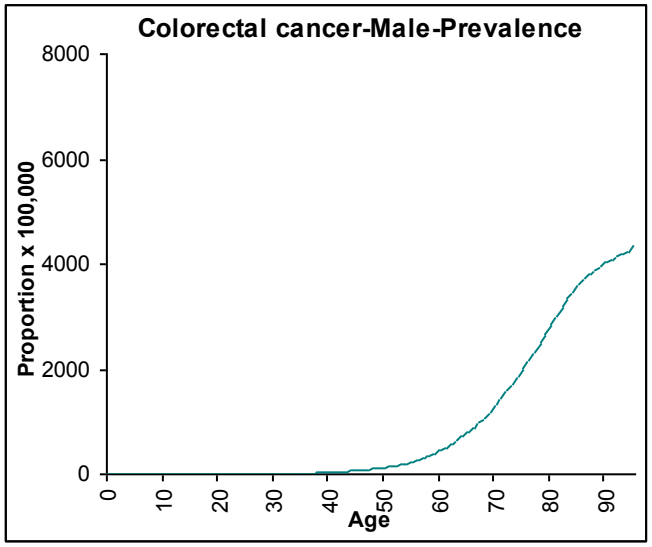
SLOVENIA



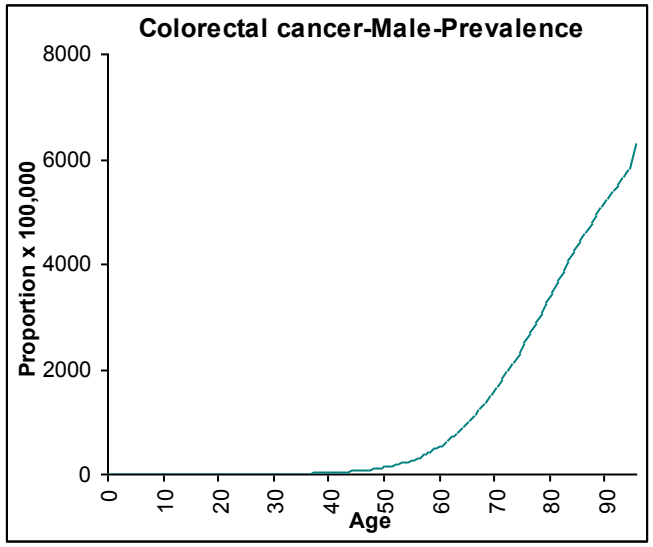
SPAIN



SWEDEN

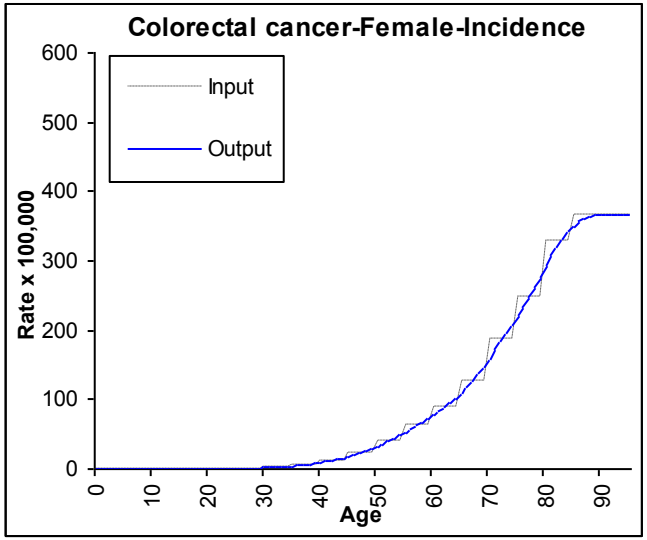


UNITED KINGDOM

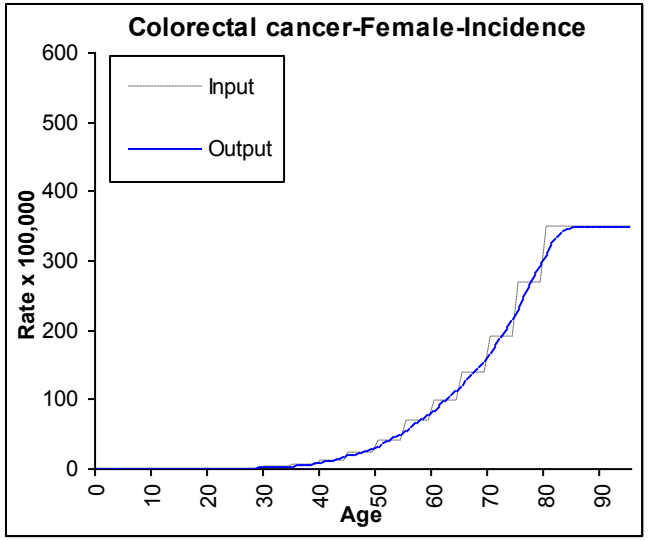


Figures 3.3.e. WP-10 ESTIMATES. Colorectal and anus cancer (ICD-10 C18-C21). INCIDENCE. FEMALE

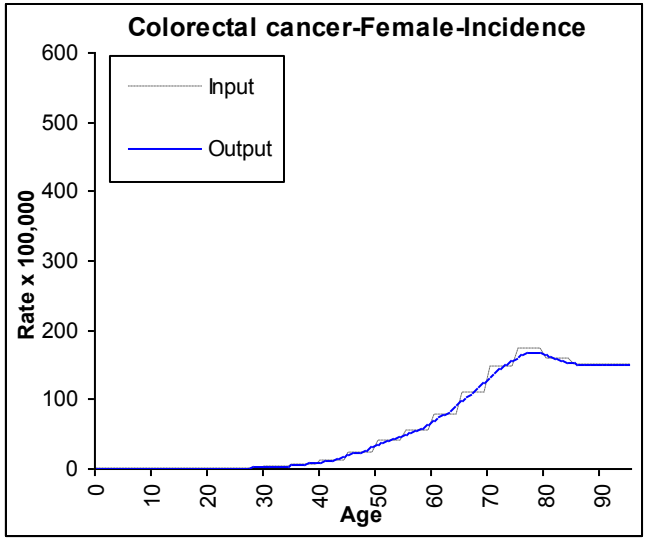
AUSTRIA



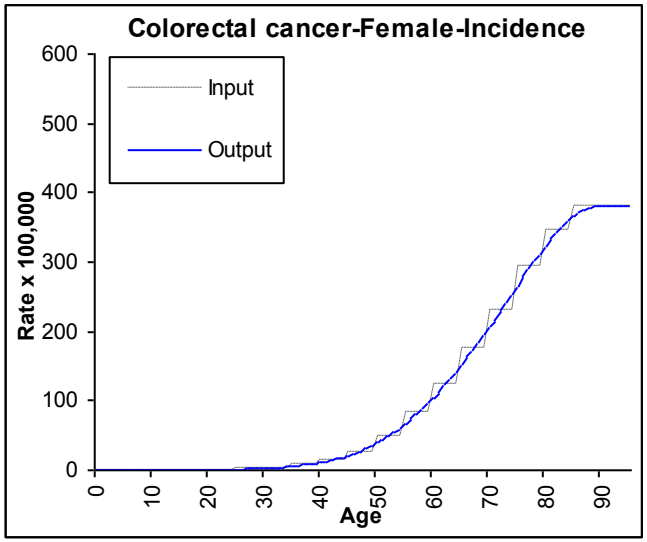
BELGIUM



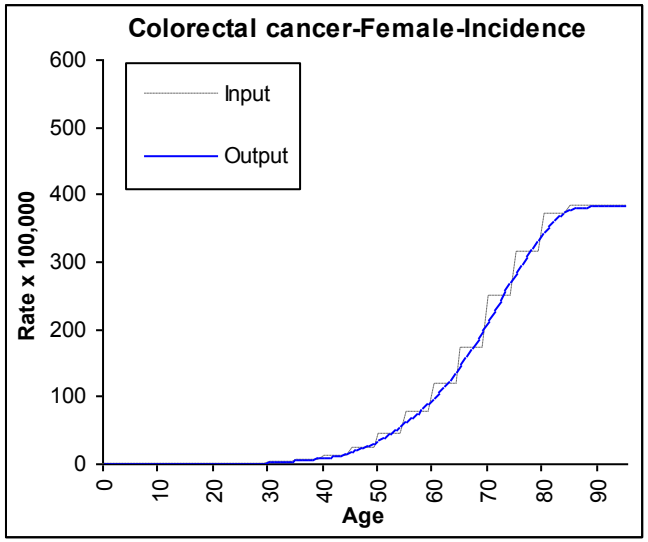
BULGARIA



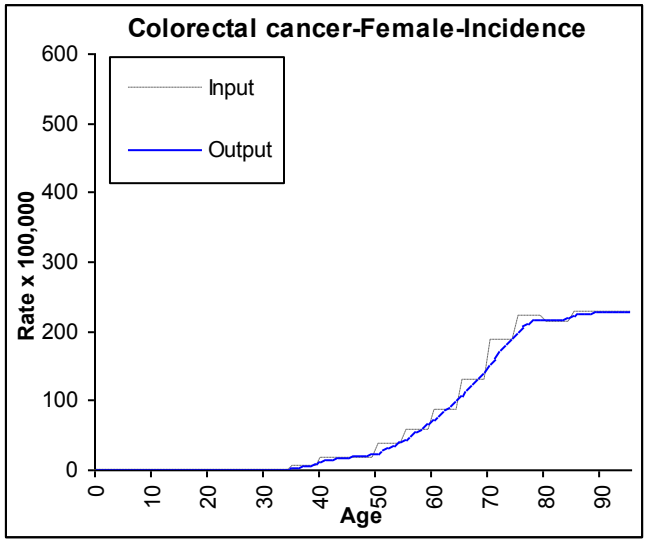
CZECH REPUBLIC



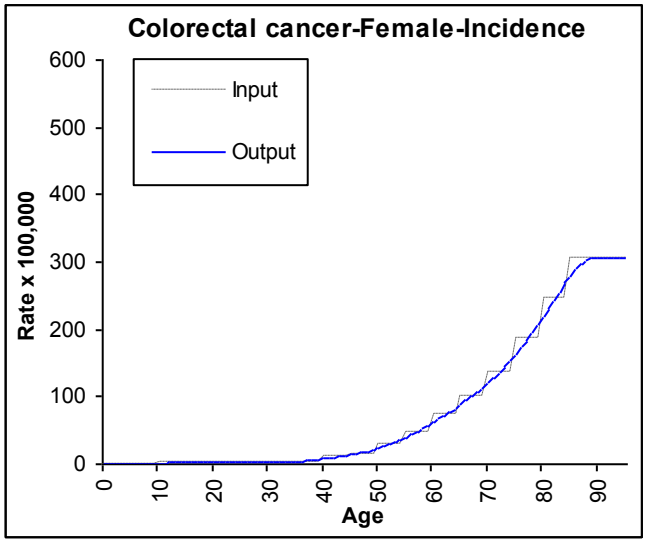
DENMARK



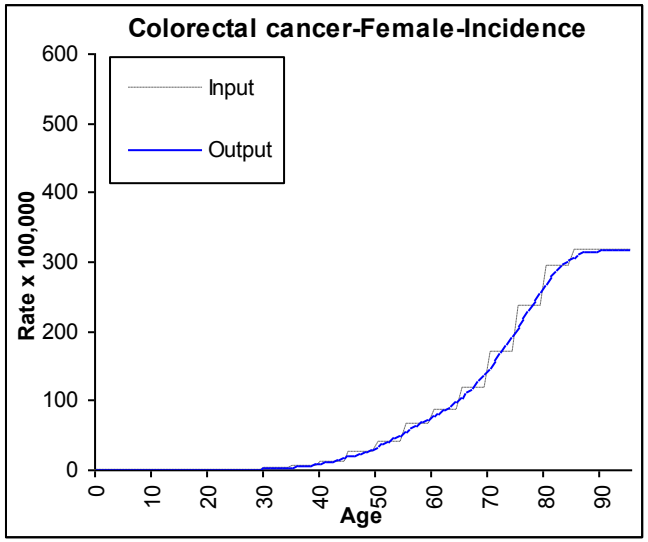
ESTONIA



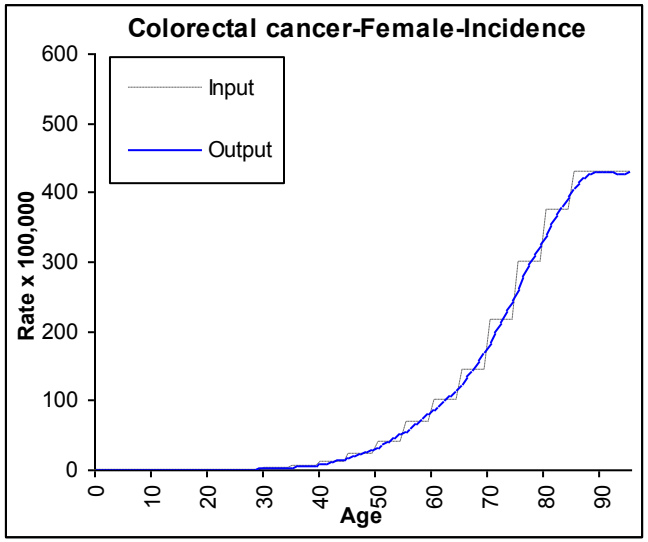
FINLAND



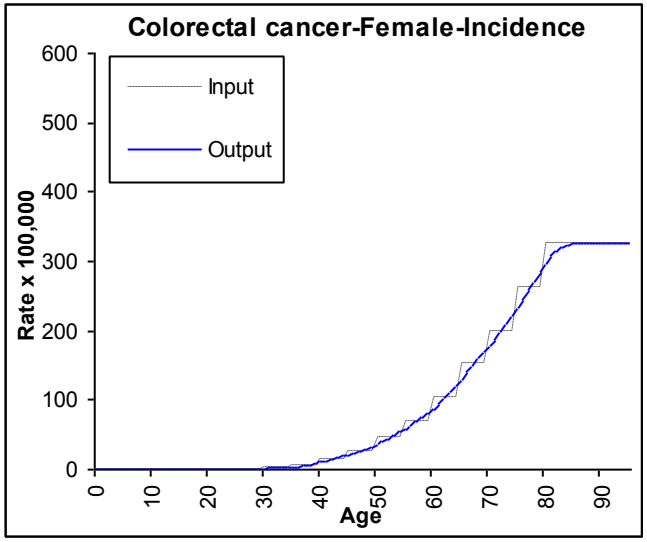
FRANCE



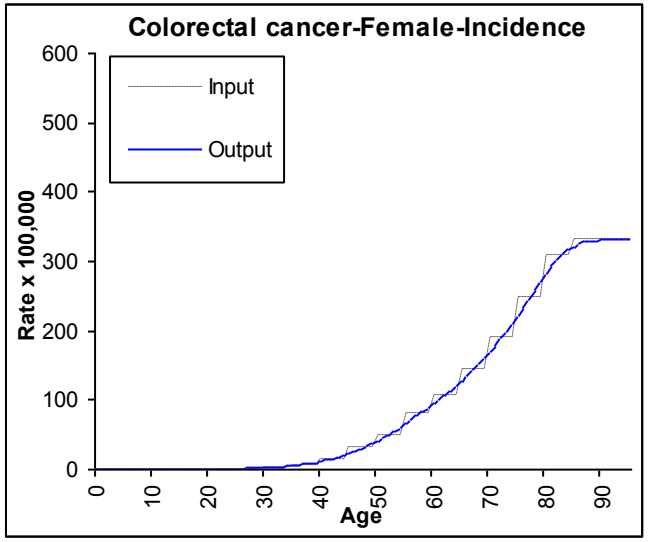
GERMANY



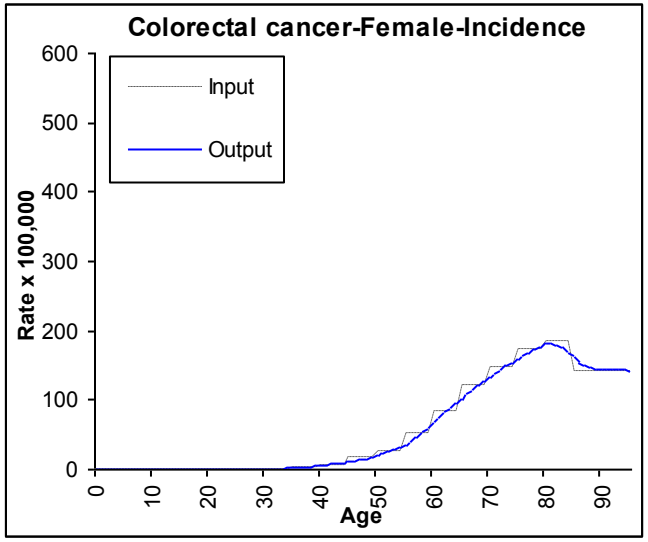
IRELAND



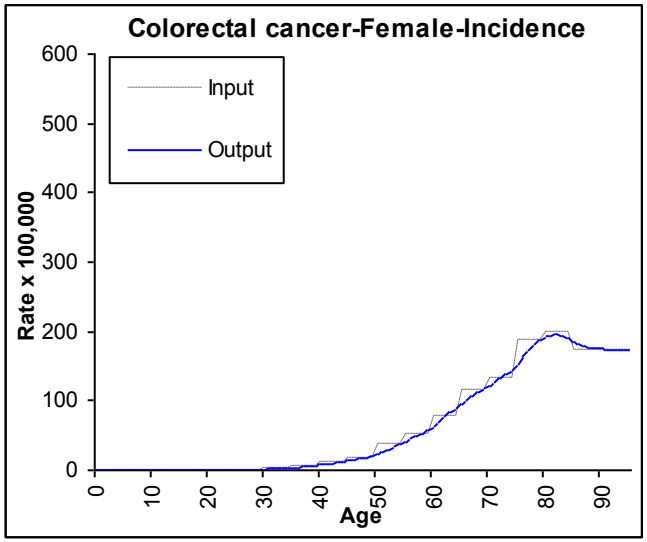
ITALY



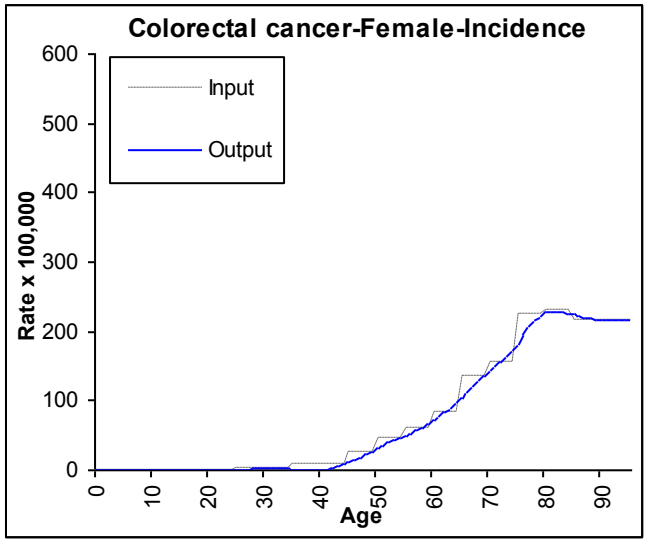
LATVIA



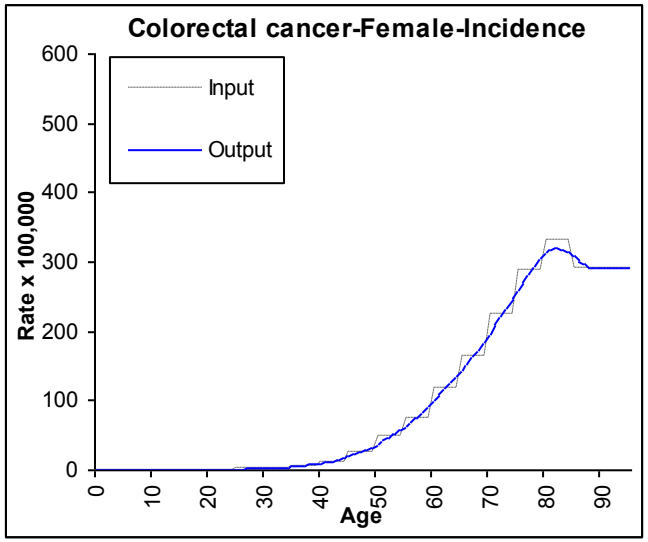
LITHUANIA



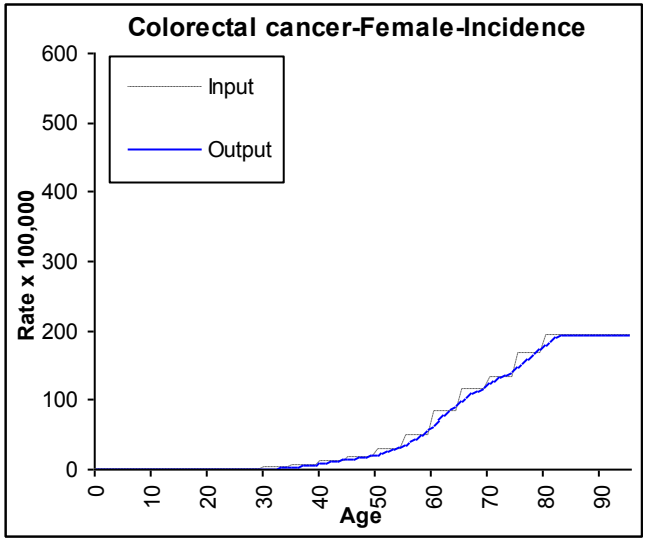
MALTA



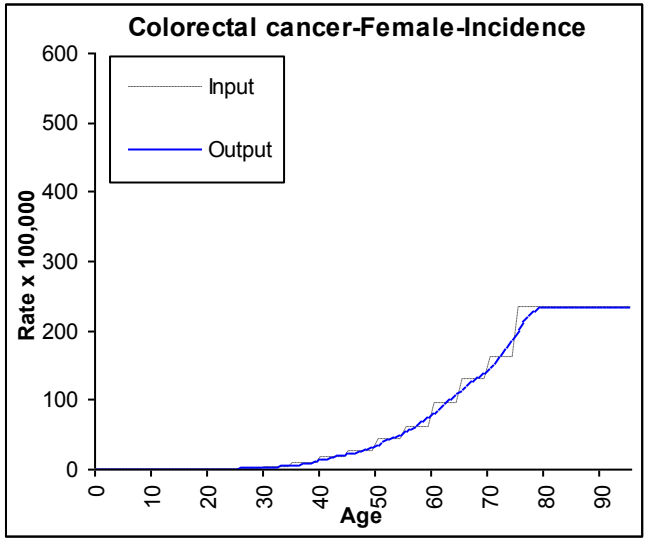
NETHERLANDS



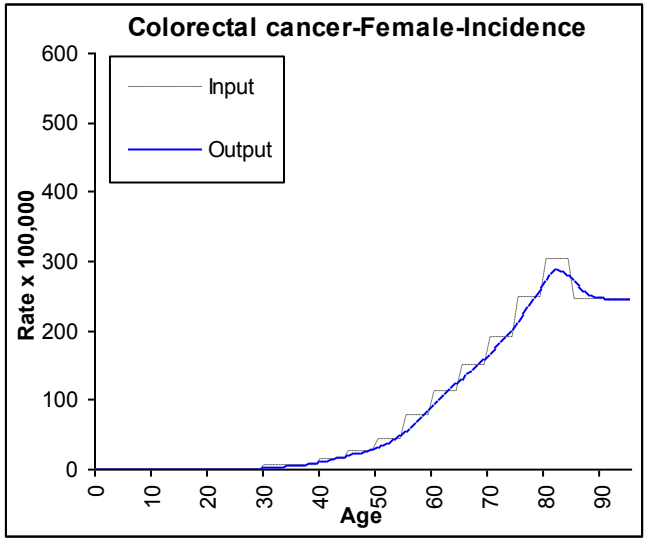
POLAND



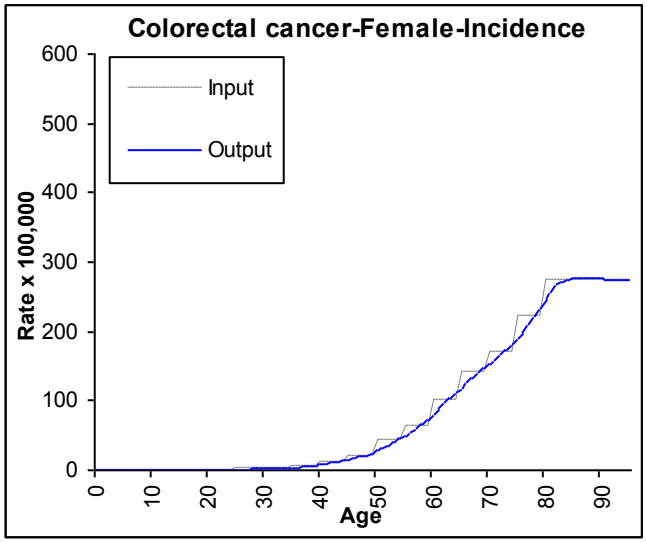
PORTUGAL



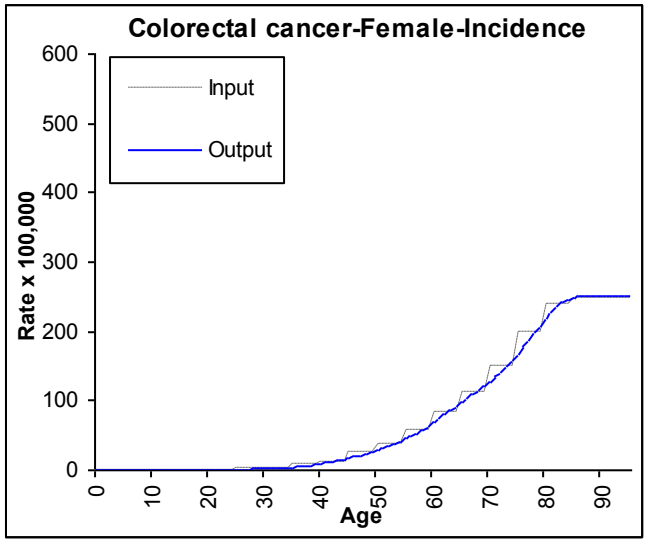
SLOVAKIA



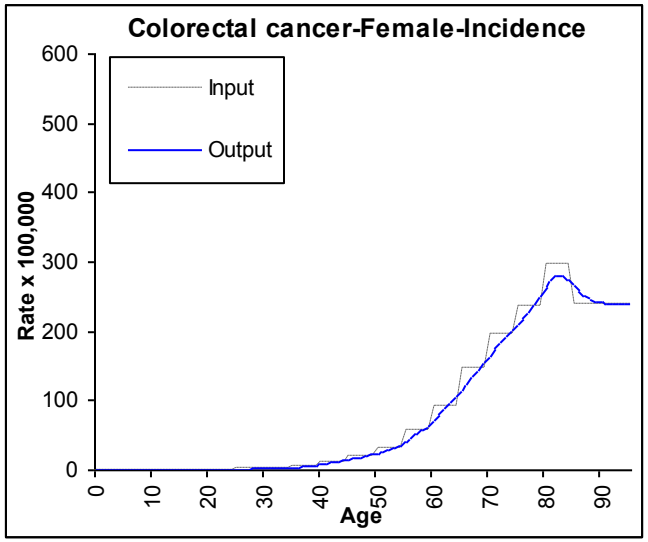
SLOVENIA



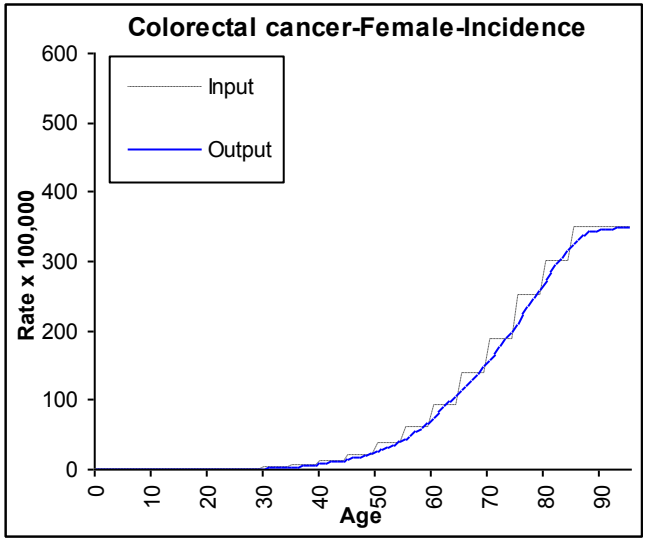
SPAIN



SWEDEN

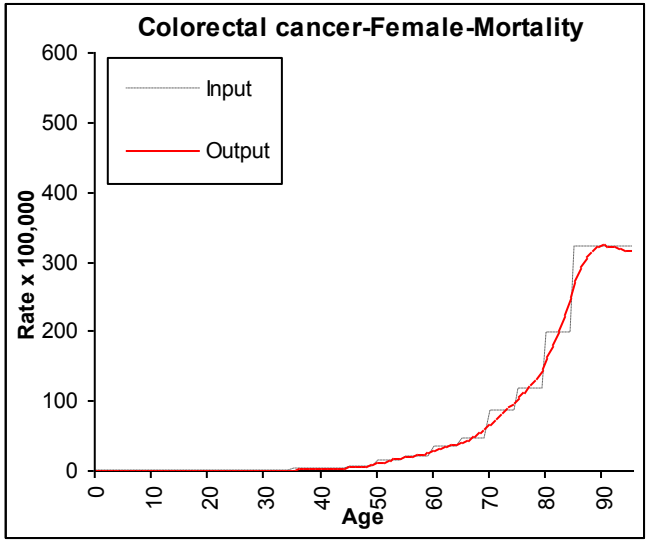


UNITED KINGDOM

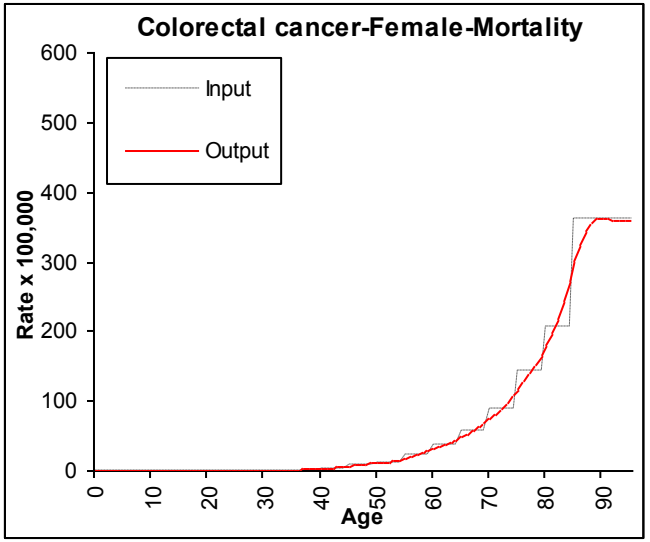


Figures 3.3.f. WP-10 ESTIMATES. Colorectal and anus cancer (ICD-10 C18-C21). MORTALITY. FEMALE

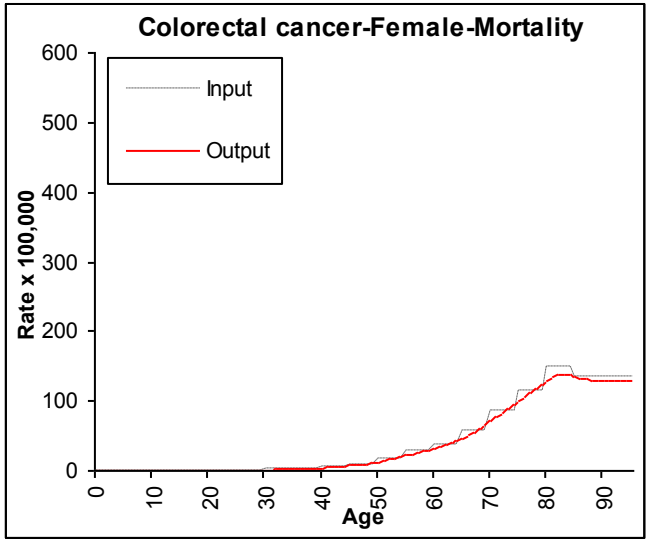
AUSTRIA



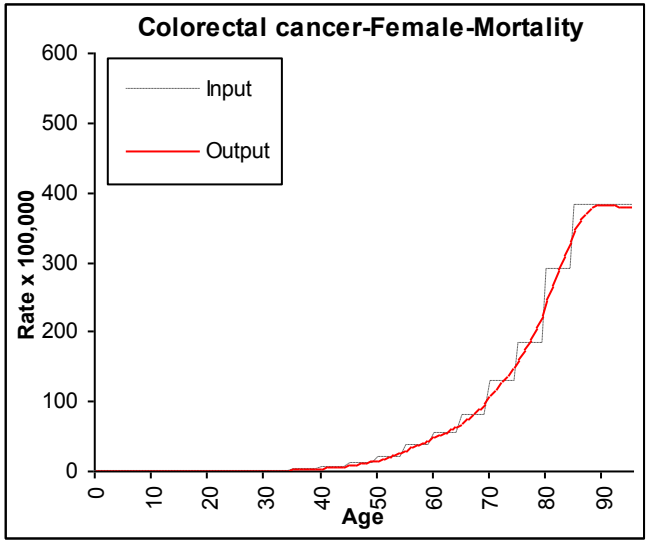
BELGIUM



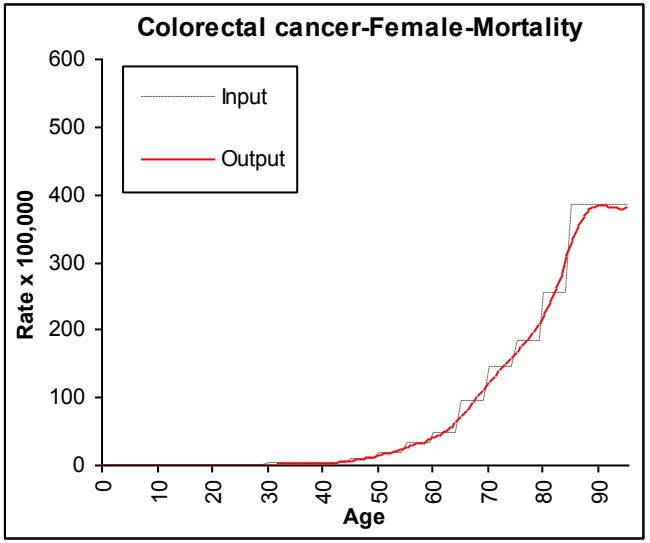
BULGARIA



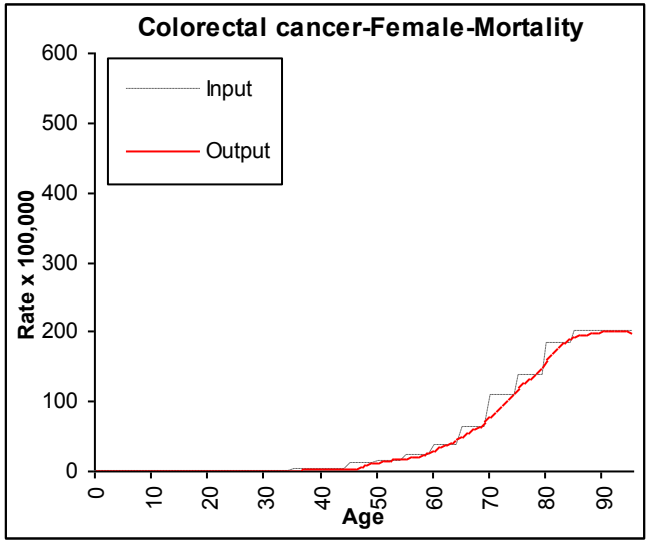
CZECH REPUBLIC



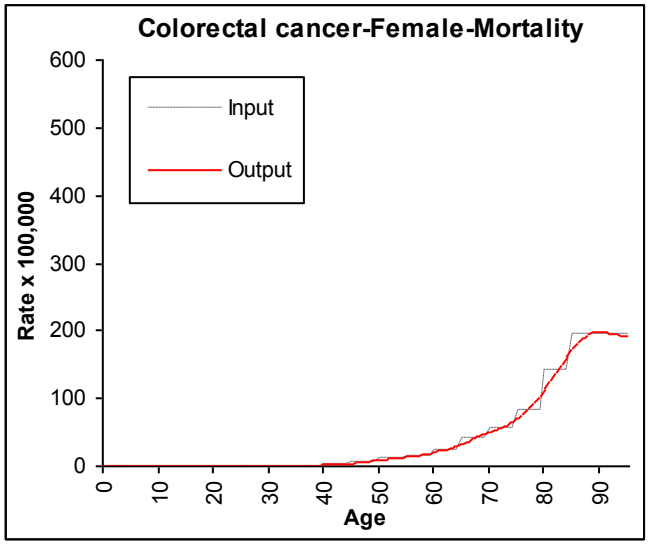
DENMARK



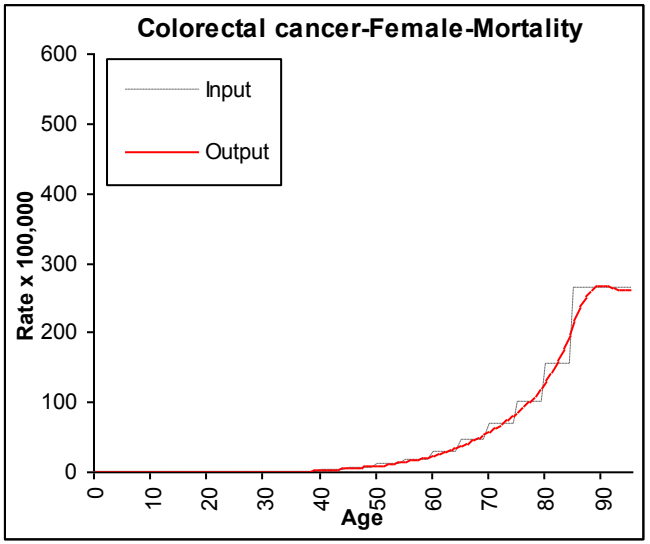
ESTONIA



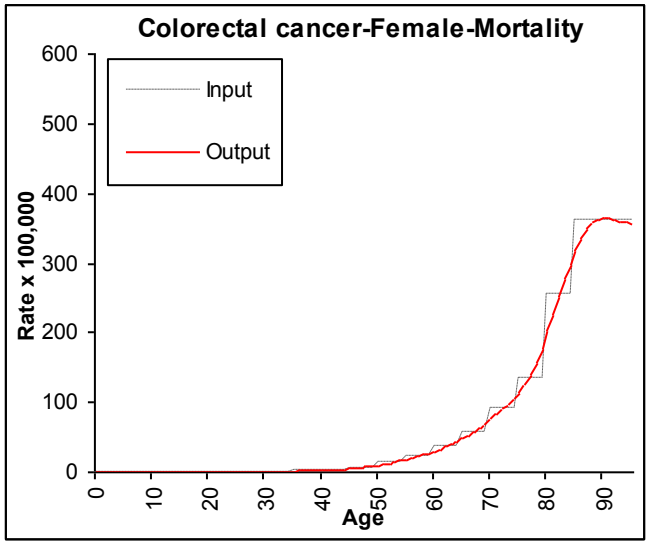
FINLAND



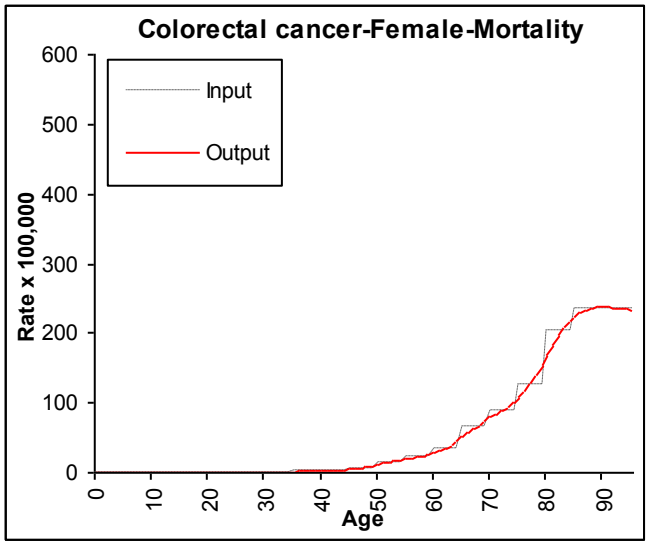
FRANCE



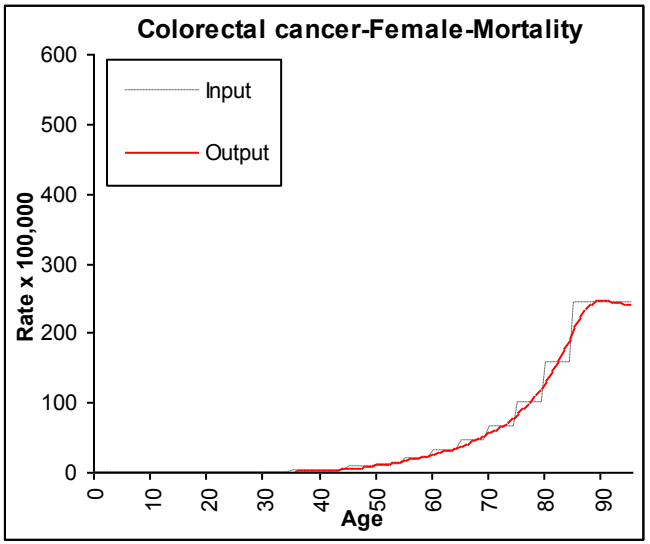
GERMANY



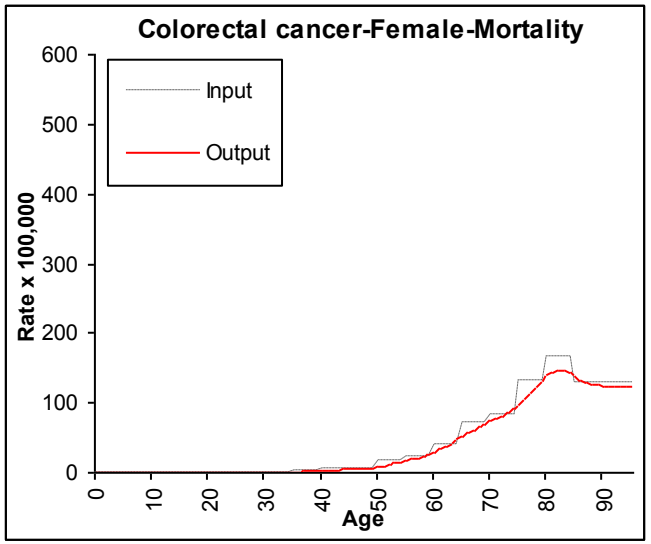
IRELAND



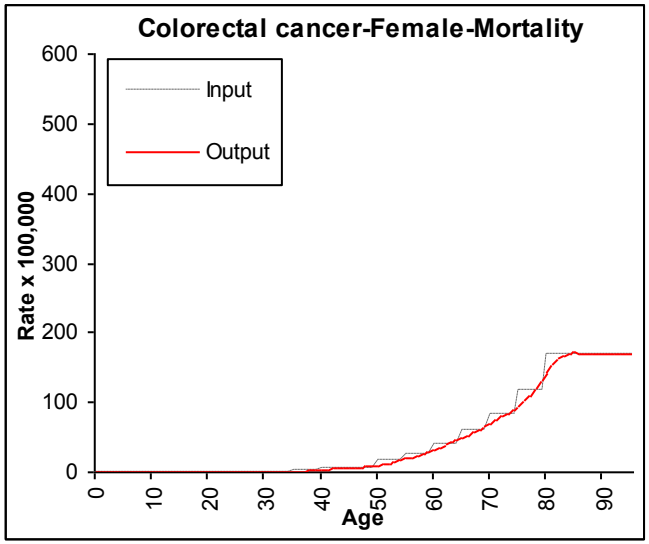
ITALY



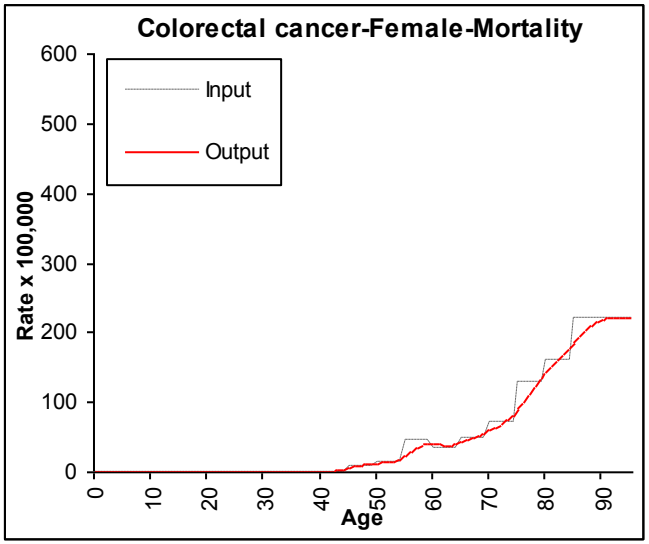
LATVIA



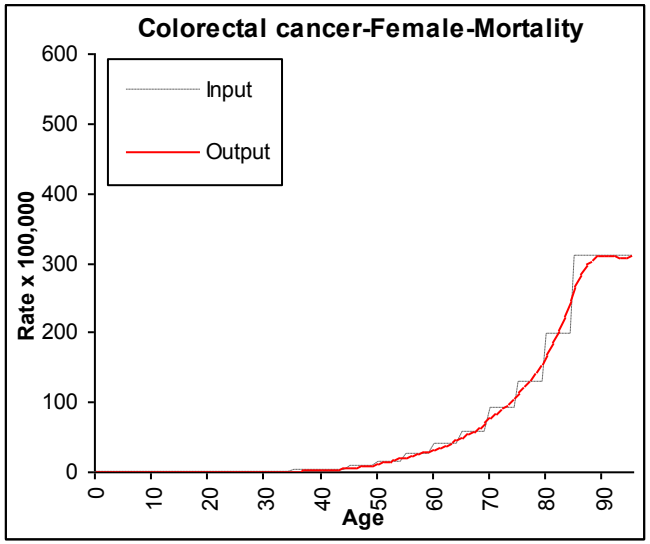
LITHUANIA



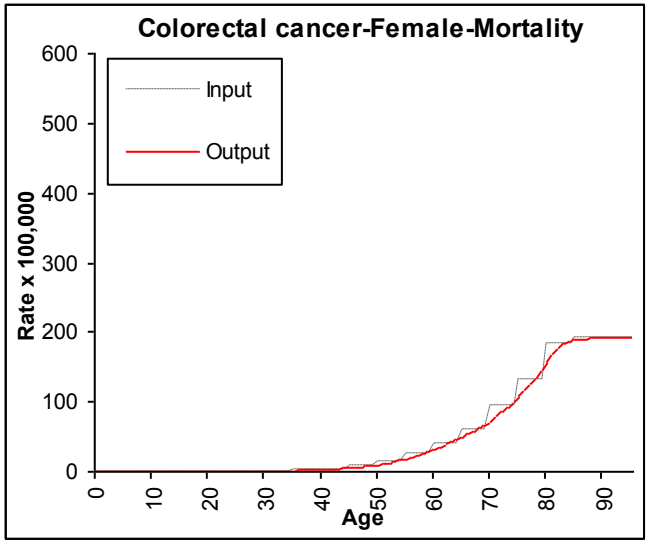
MALTA



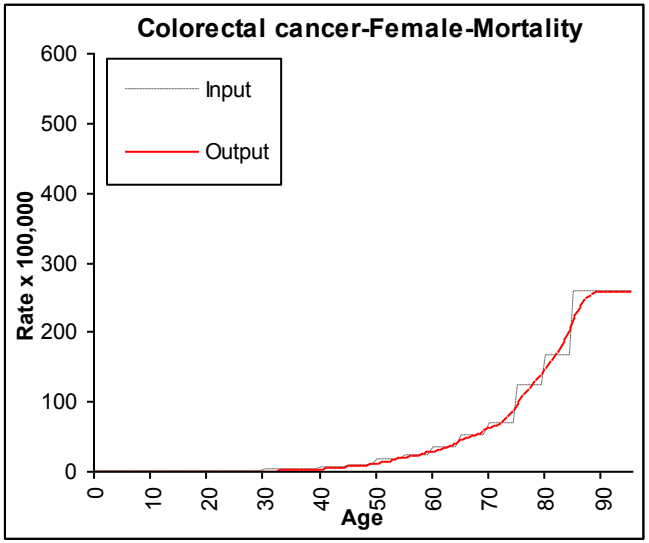
NETHERLANDS



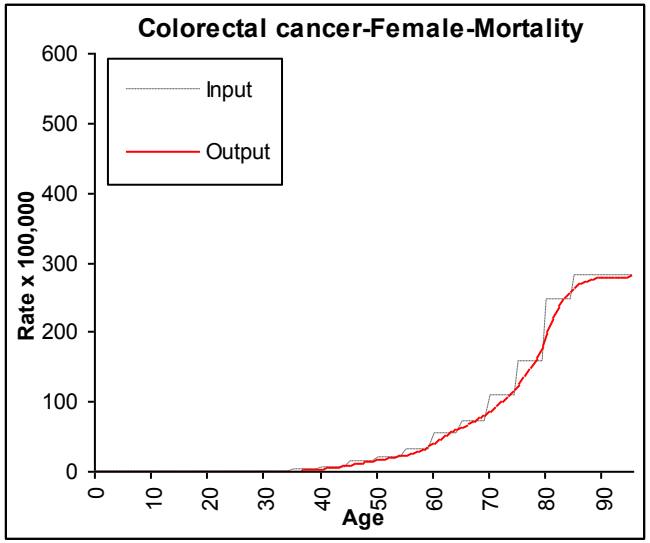
POLAND



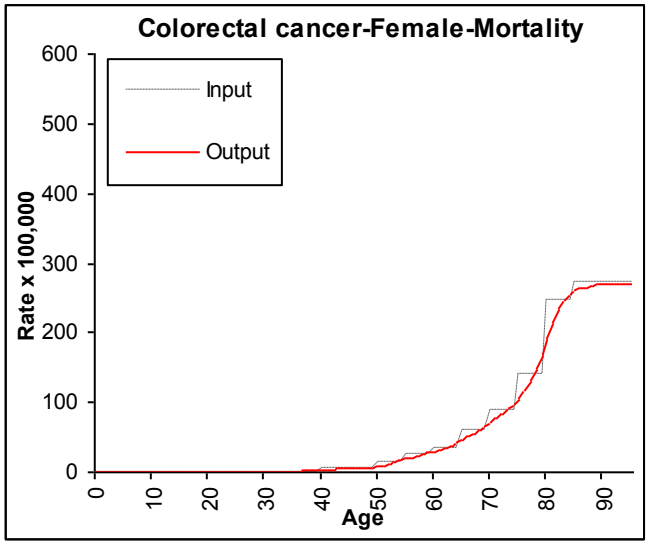
PORTUGAL



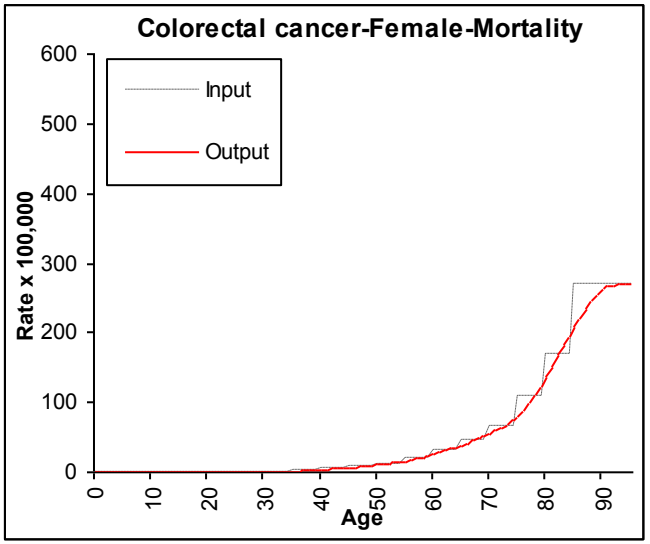
SLOVAKIA



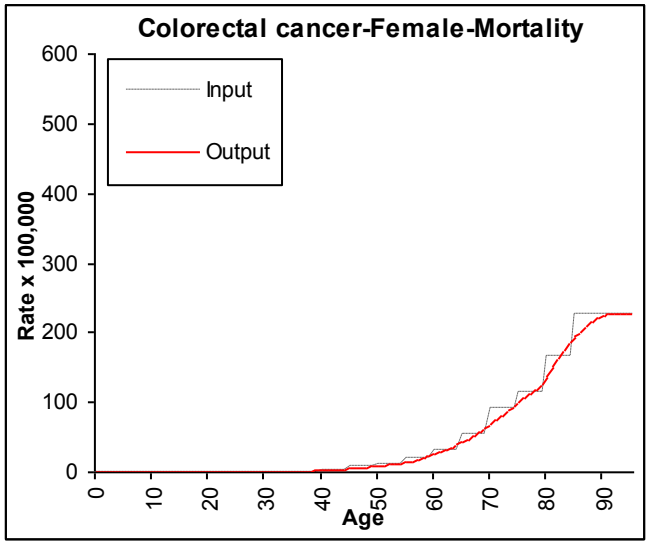
SLOVENIA



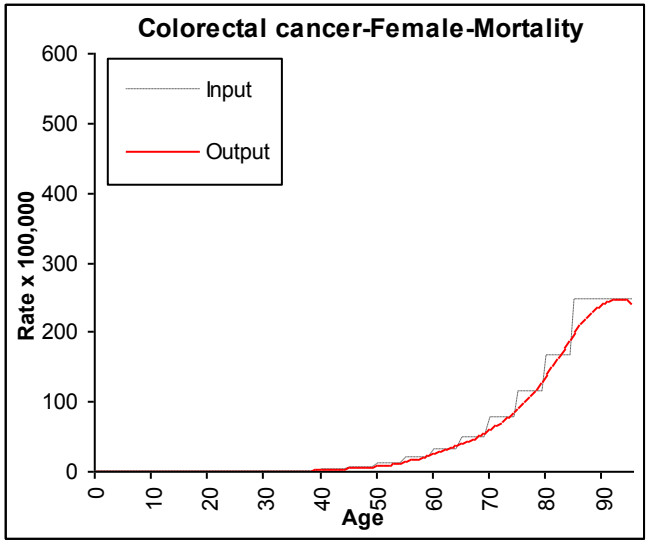
SPAIN



SWEDEN

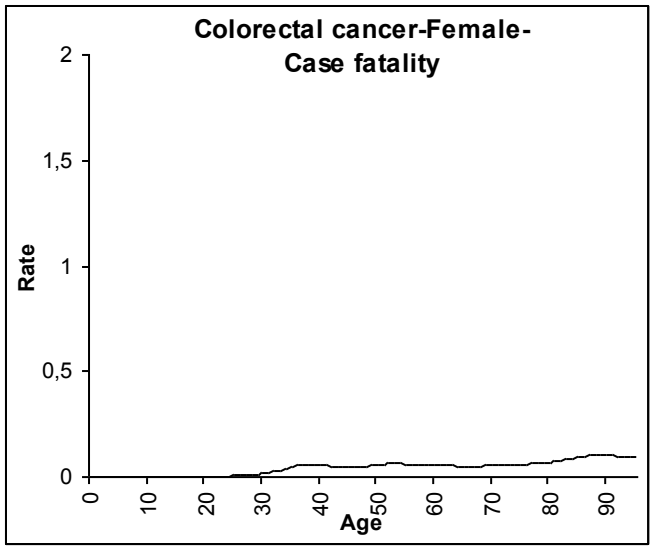


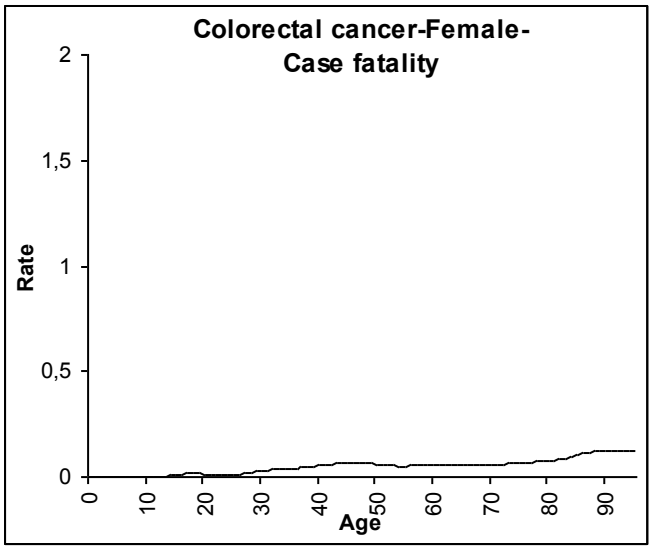
UNITED KINGDOM

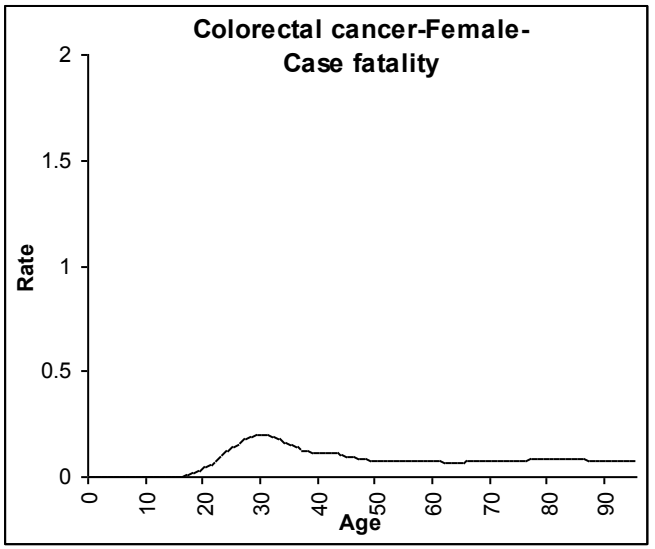


Figures 3.3.g. WP-10 ESTIMATES. Colorectal and anus cancer (ICD-10 C18-C21). CASE FATALITY. FEMALE

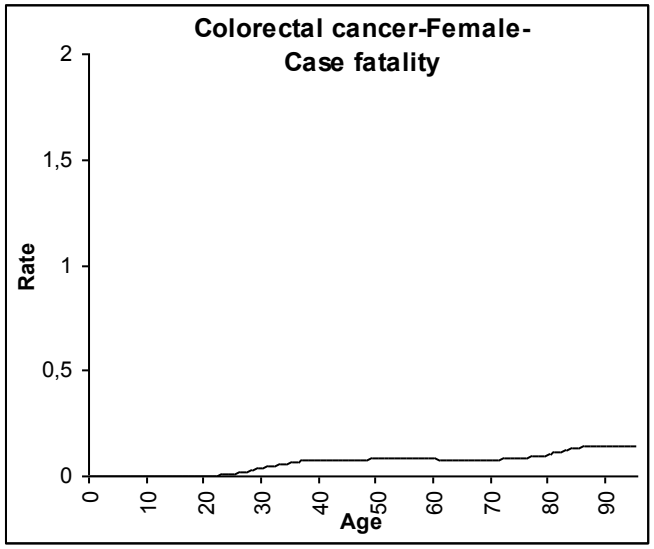
AUSTRIA	BELGIUM	BULGARIA

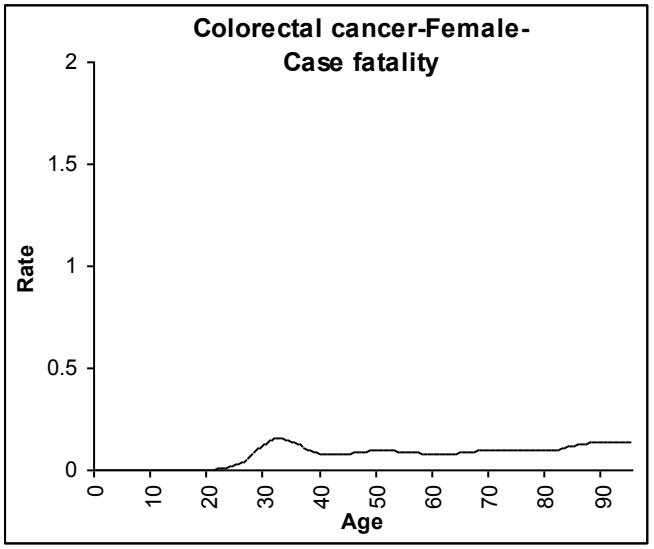


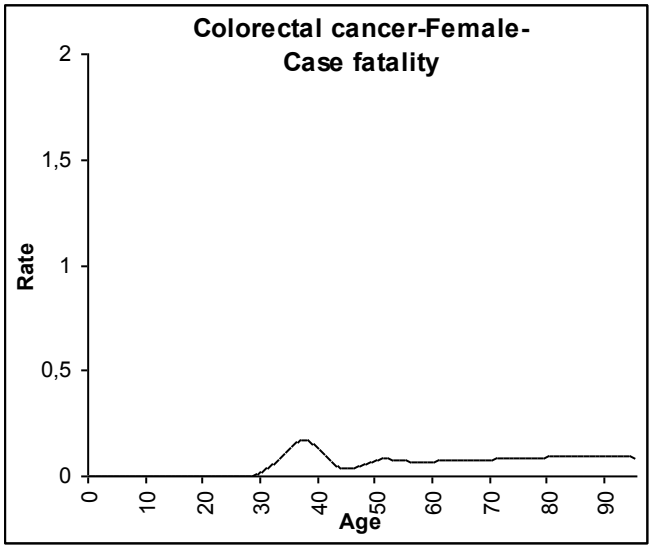




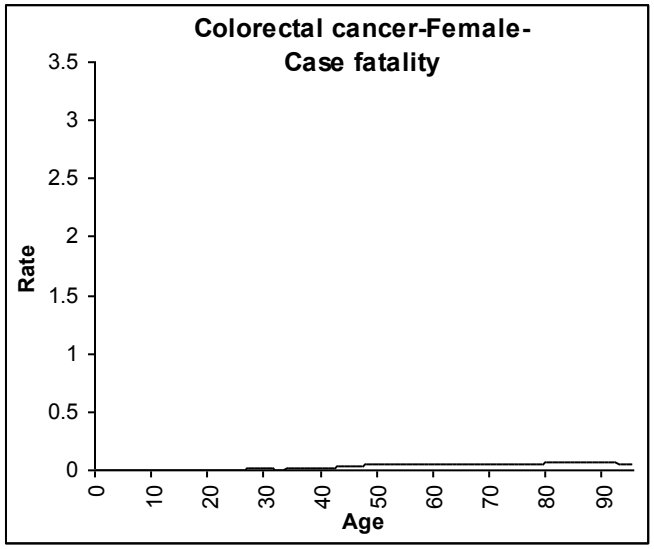
CZECH REPUBLIC	DENMARK	ESTONIA



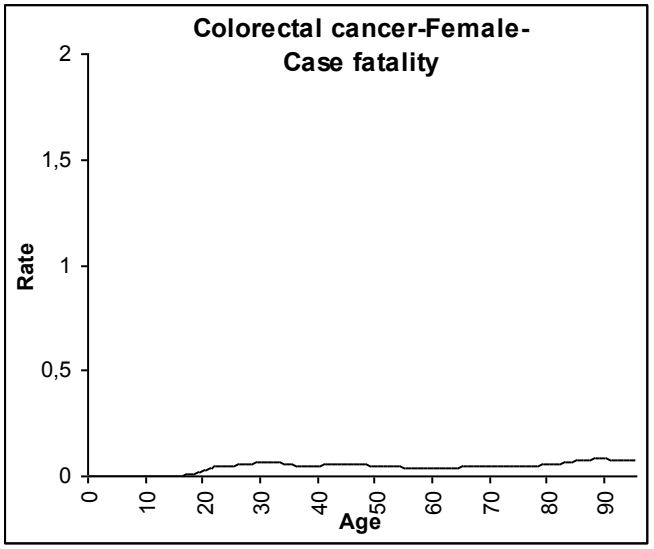




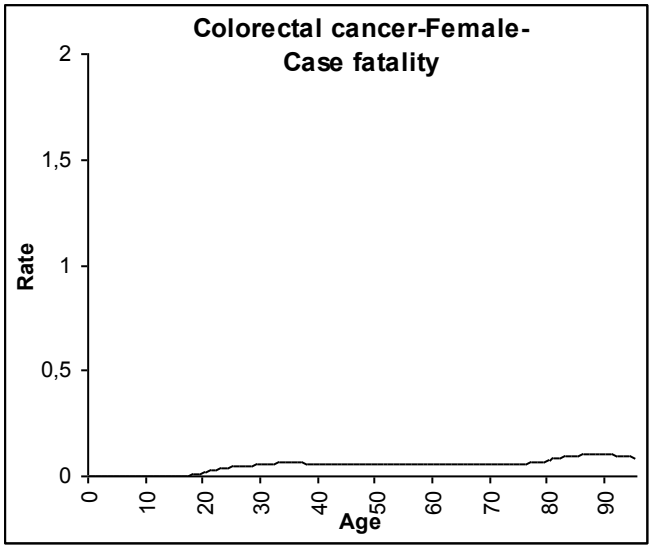
FINLAND



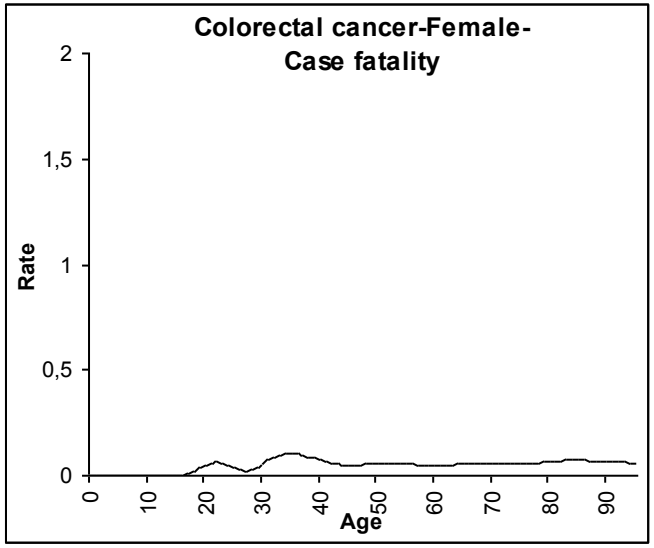
FRANCE



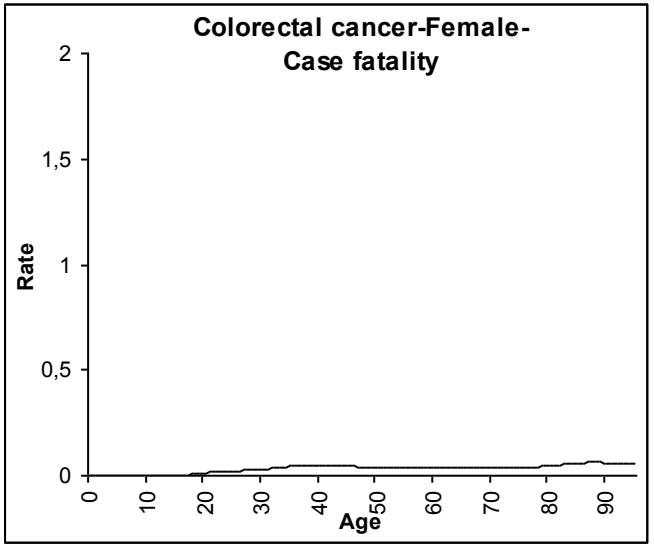
GERMANY



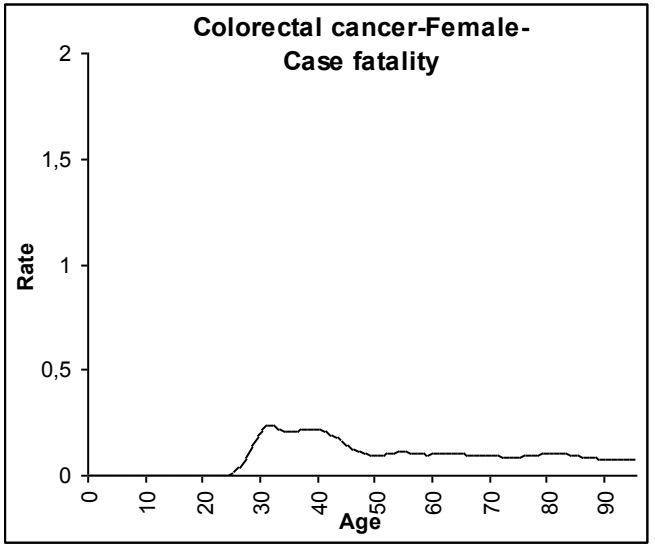
IRELAND



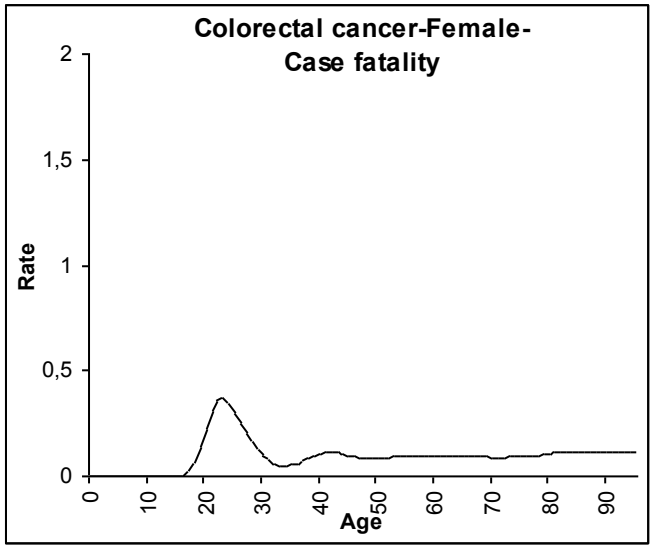
ITALY



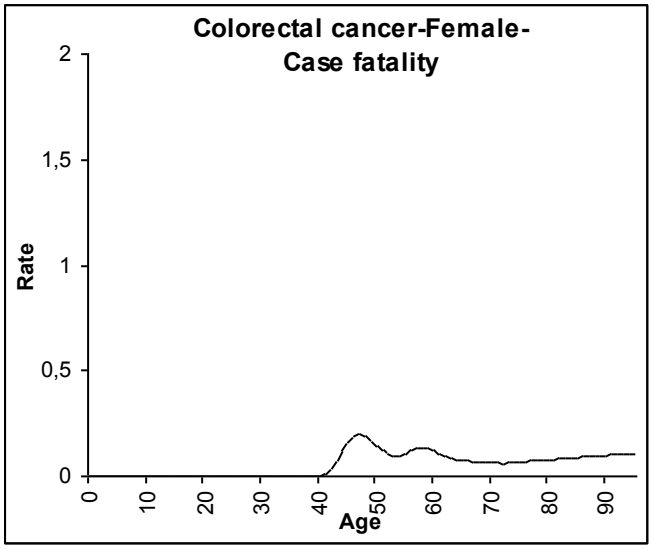
LATVIA



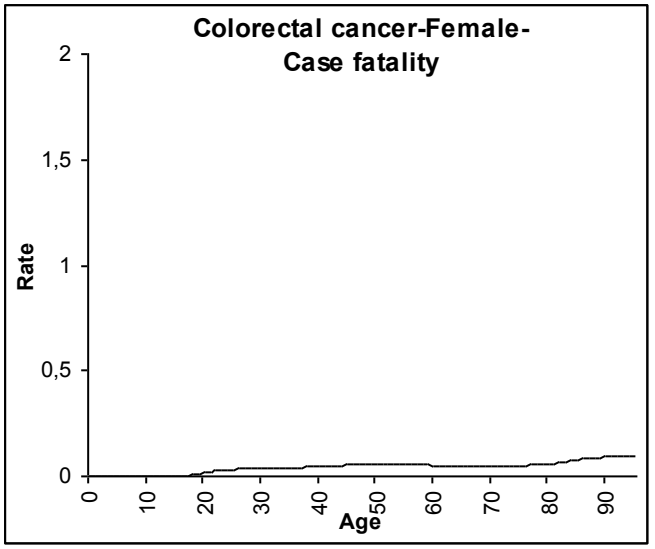
LITHUANIA



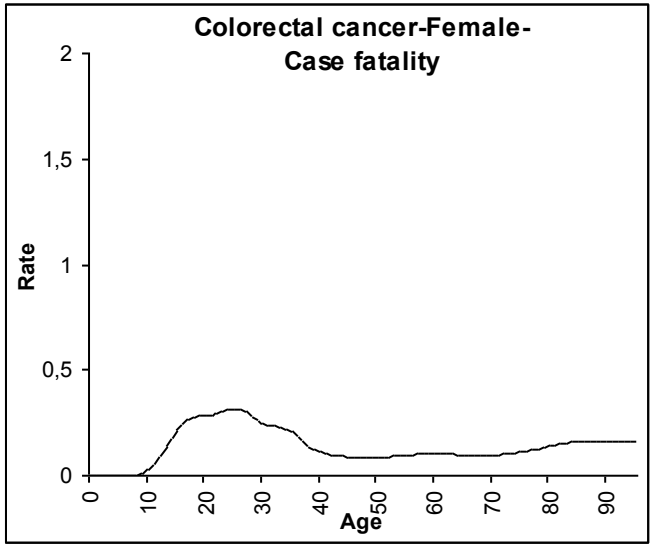
MALTA



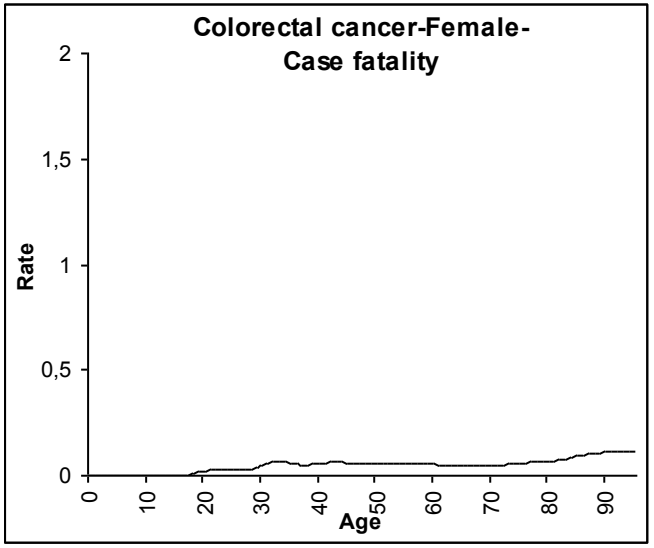
NETHERLANDS



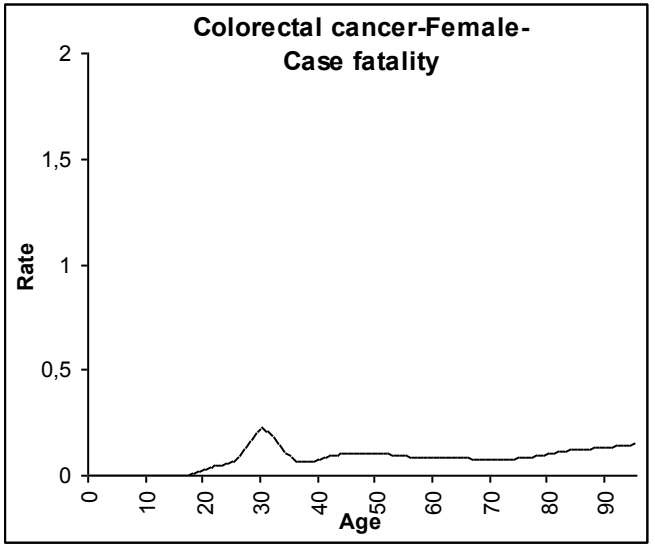
POLAND



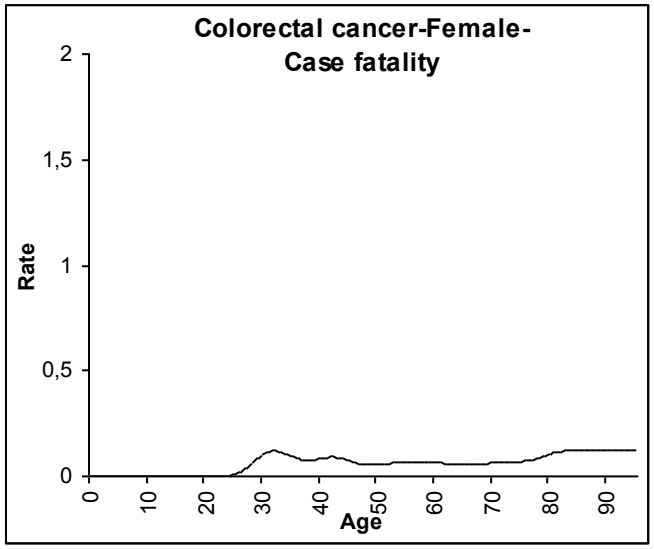
PORTUGAL



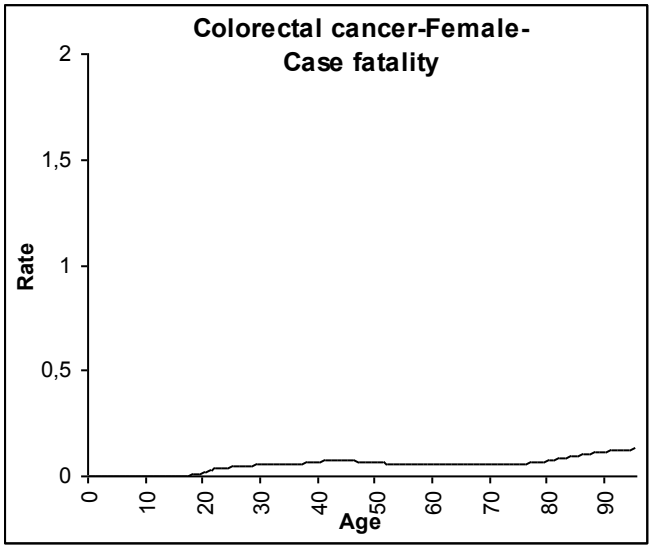
SLOVAKIA



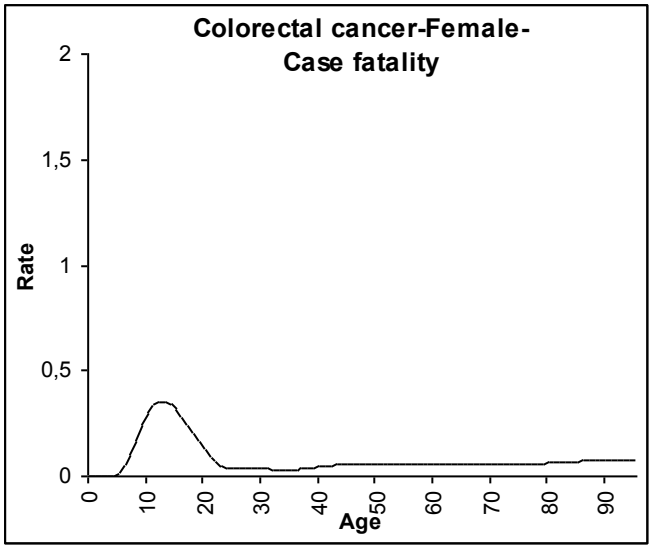
SLOVENIA



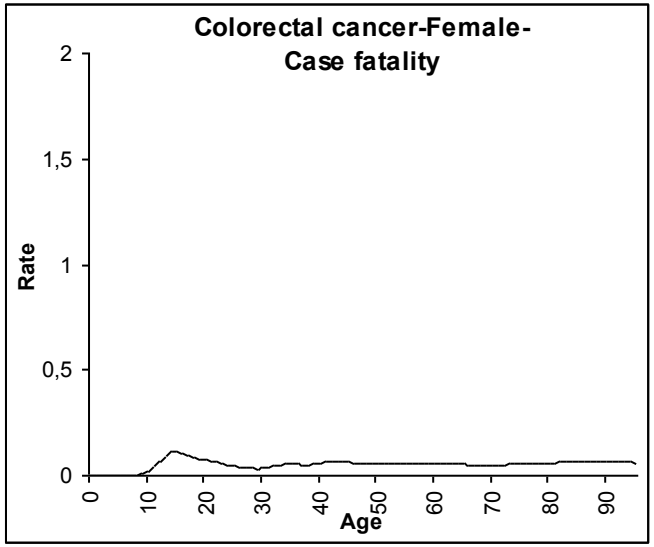
SPAIN



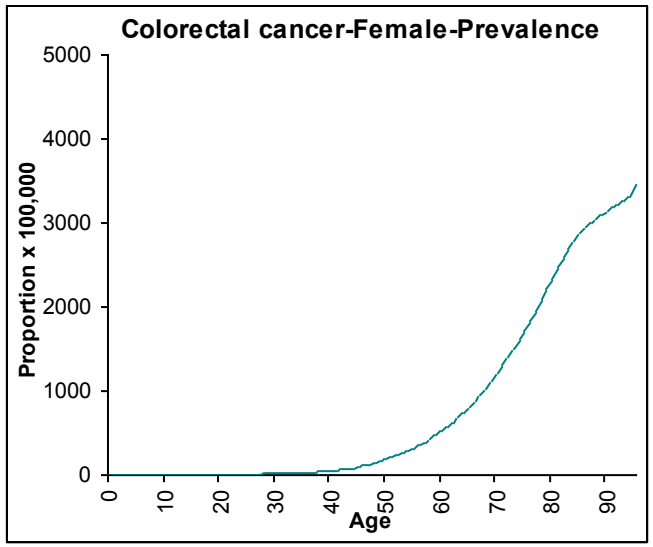
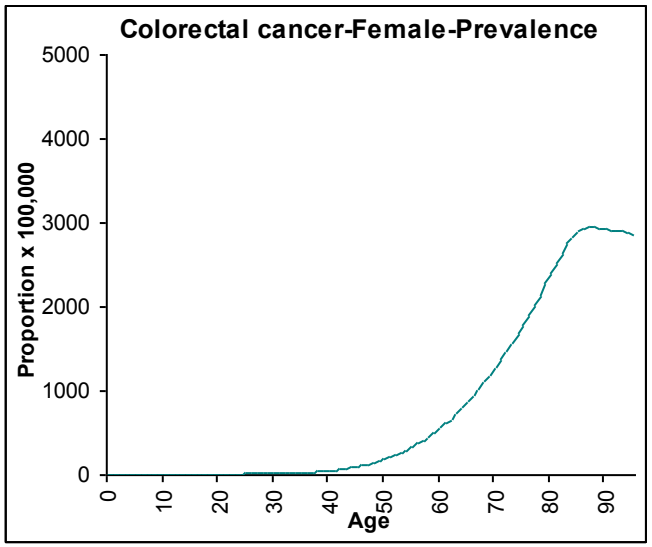
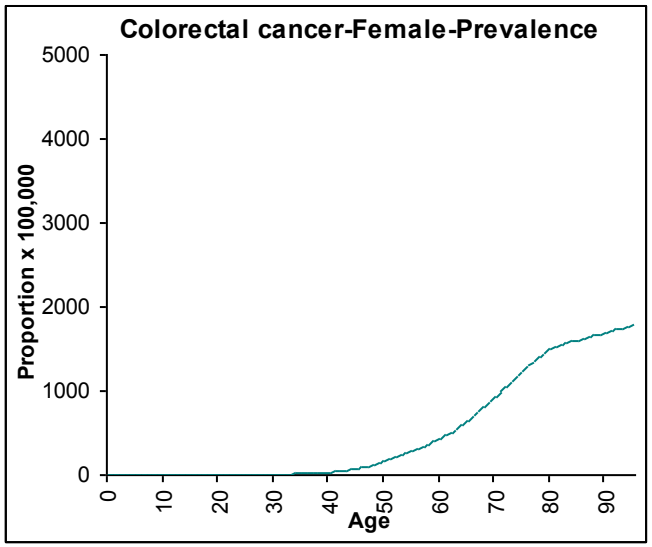
SWEDEN

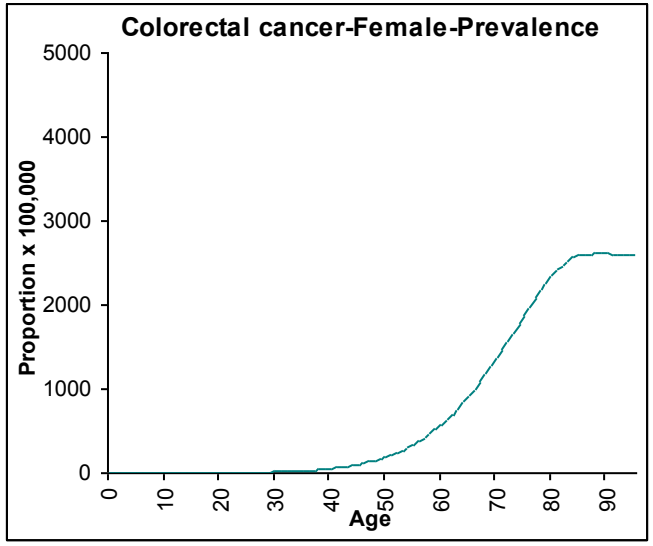
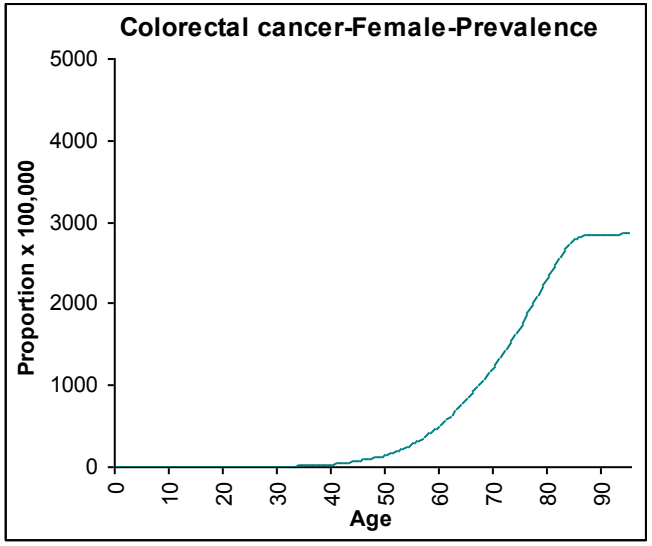
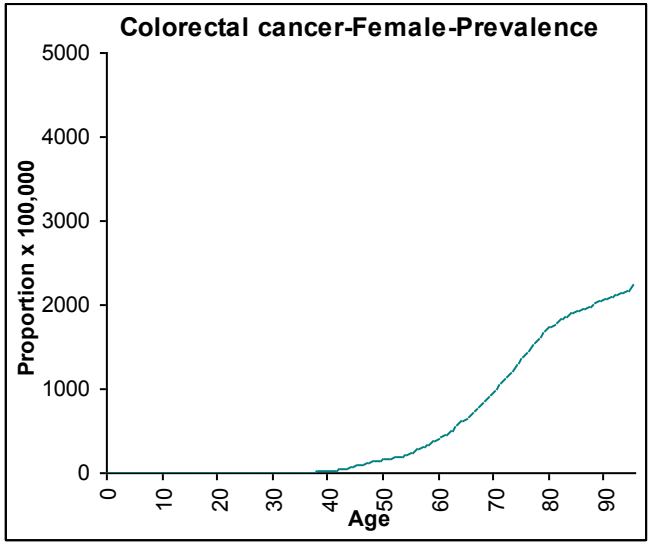


UNITED KINGDOM

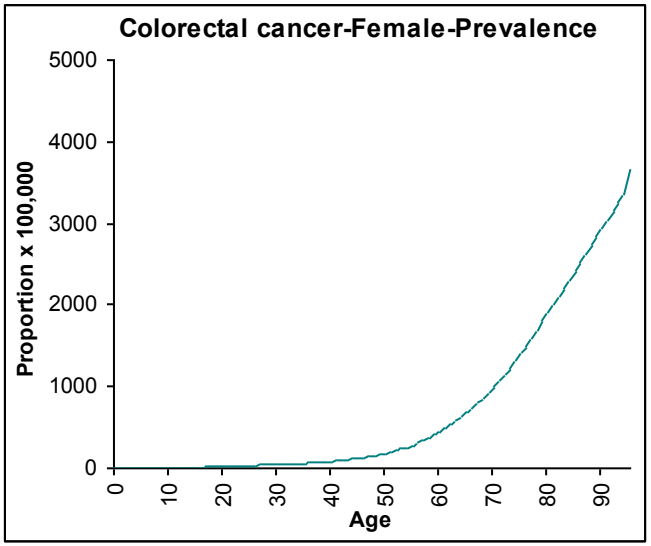


Figures 3.3.h WP-10 ESTIMATES. Colorectal and anus cancer (ICD-10 C18-C21). TOTAL PREVALENCE. FEMALE

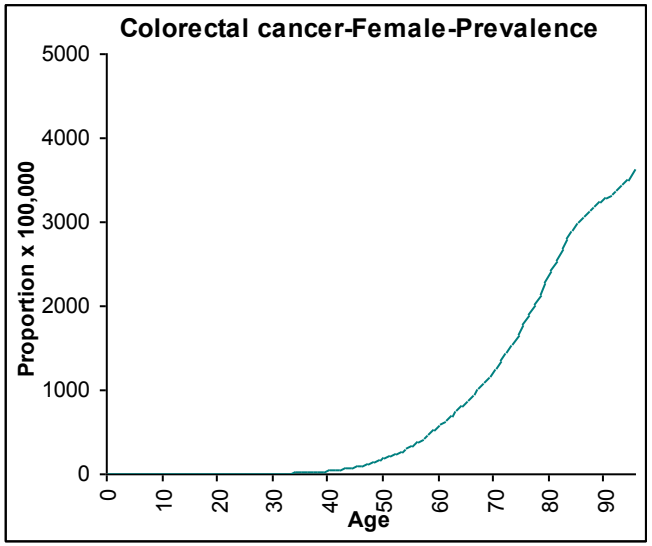
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

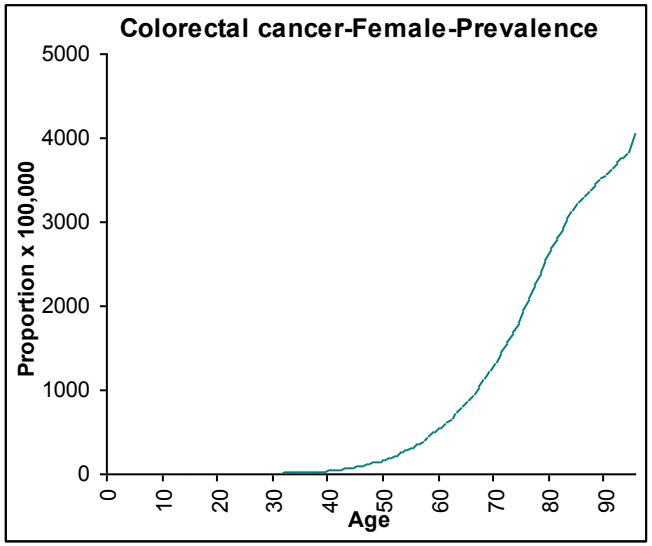
FINLAND



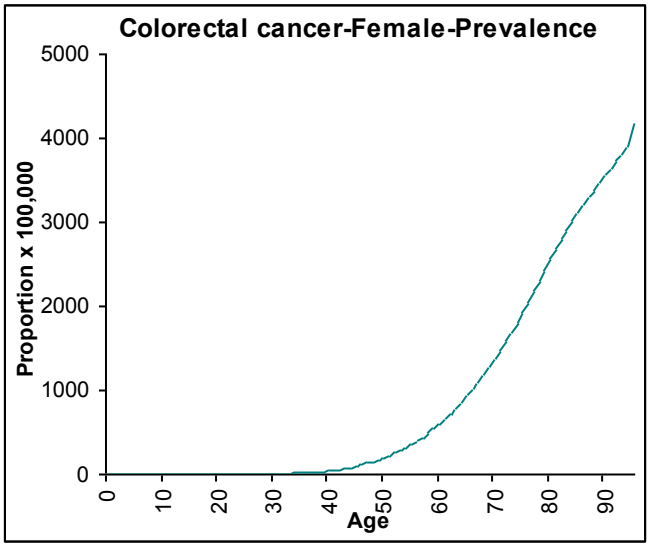
FRANCE



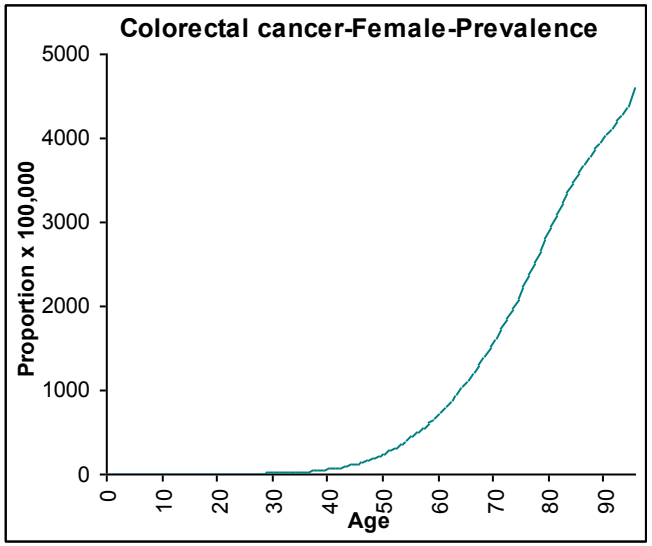
GERMANY



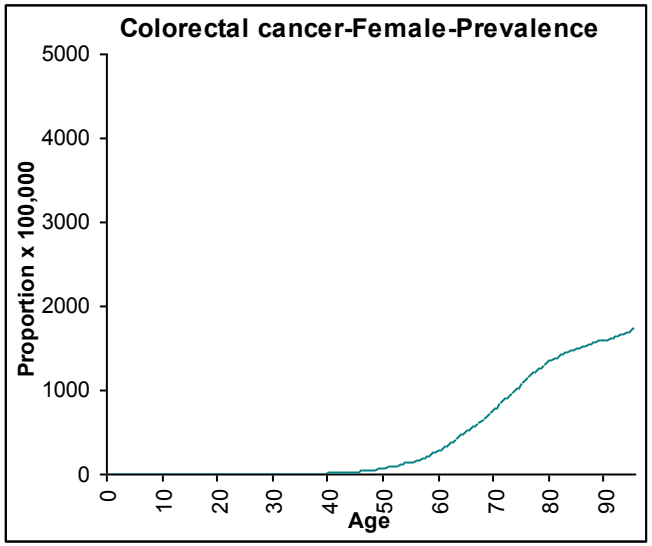
IRELAND



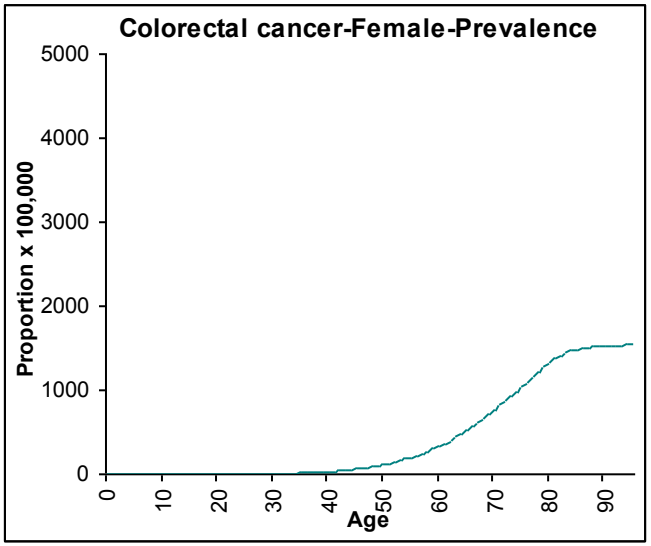
ITALY



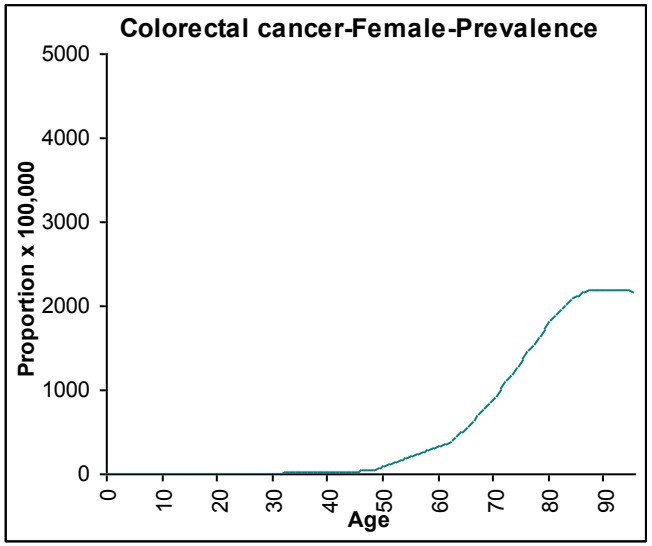
LATVIA



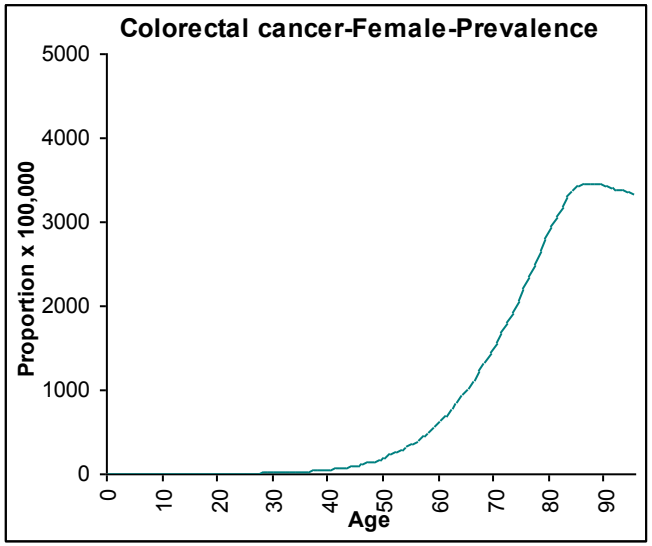
LITHUANIA



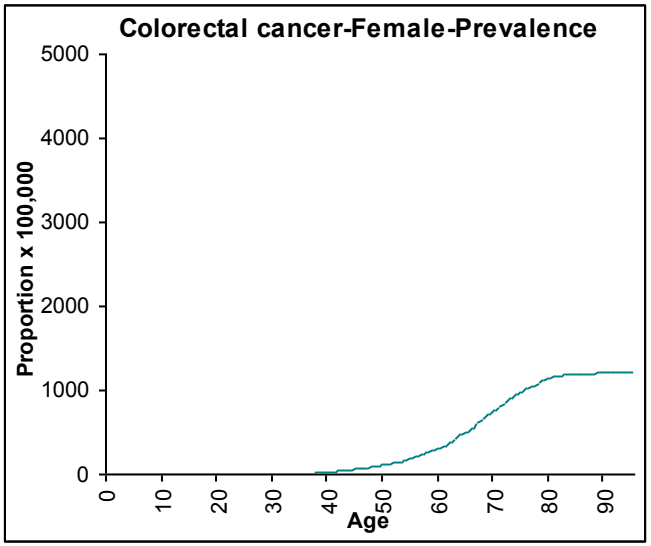
MALTA



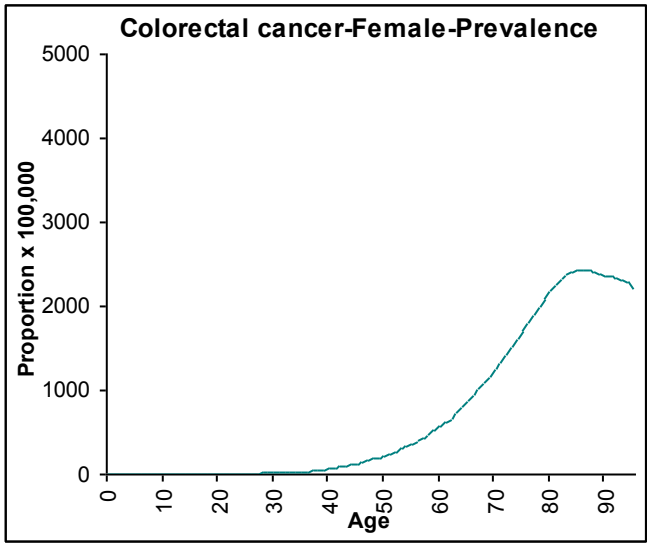
NETHERLANDS



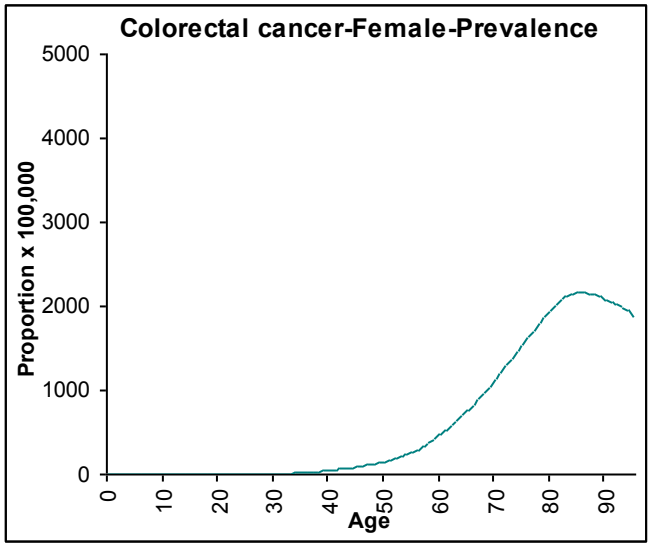
POLAND



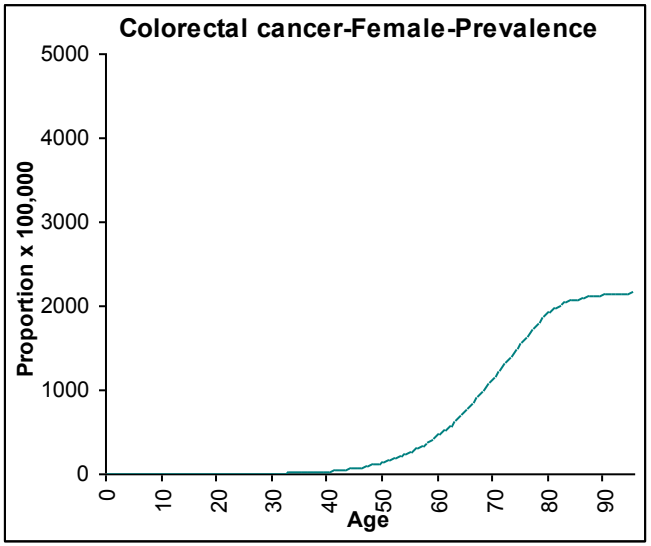
PORTUGAL



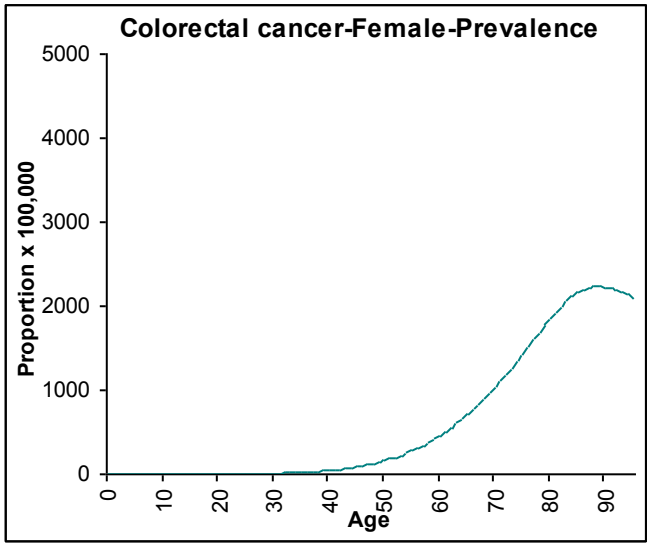
SLOVAKIA



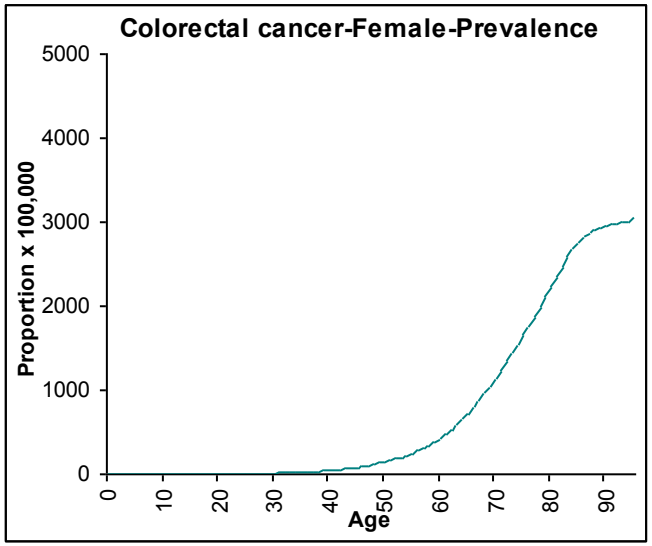
SLOVENIA



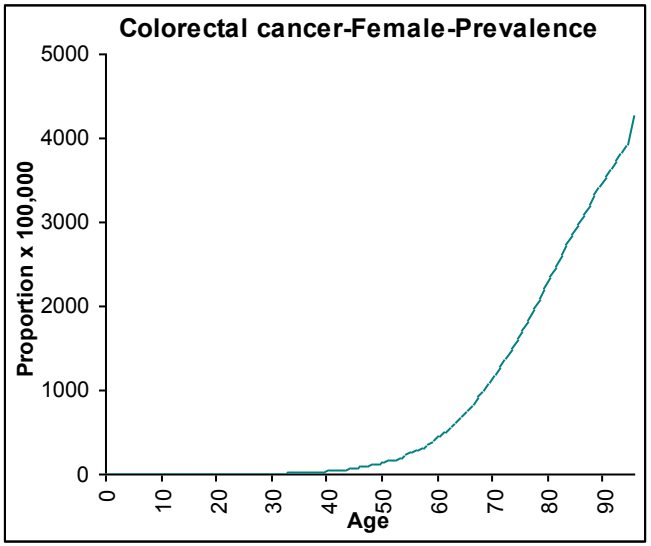
SPAIN



SWEDEN



UNITED KINGDOM



4.4 Provided data on cancer by country: oesophageal cancer

4.4.1 Oesophageal cancer: epidemiological picture in Europe

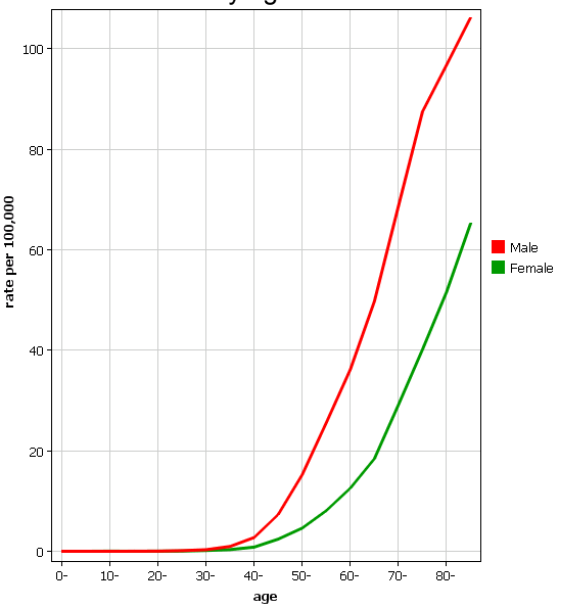
Oesophageal cancer is the eighth most common cancer in the world and have less than 10% 5-year survival despite advances in multimodality therapy.
Cancers of the oesophagus exhibit a marked geographic variation in incidence. Areas of particularly high incidence of oesophageal squamous cell carcinoma (expressed as crude incidence per 100,000) are as follows: China (21 per 100,000); South America (13 per 100,000); Western Europe (11 per 100,000); Southern Africa (10 per 100,000); Japan (9 per 100,000); and the former Soviet Union (8 per 100,000). Within each of these broad geographic areas are identifiable smaller regions in which the incidence may be 10 to 50 times higher. The incidence of oesophageal adenocarcinoma has been reported to be rising in several areas of Europe including Northern Europe (Sweden, Denmark, Norway), UK (England, Wales, Scotland), Central Europe (Switzerland), and Southern Europe (Italy) [7].
After decades of rises, oesophageal cancer mortality has started to level off or decline for both sexes in several European countries over the last decades. In northern Europe, however, adenocarcinoma has shown substantial rises in incidence. Changes in smoking and alcohol drinking for men, and perhaps nutrition, diet and physical activity for both sexes, can partly or largely explain these trends [8].

4.4.2 Oesophageal cancer: WP-10 estimates

Figure 4.2 shows the distribution of oesophageal cancer incidence by age classes in all the European cancer registries included in Cancer Incidence in Five Continents Vol IX [1]. Rates continuously increase up to age 85.

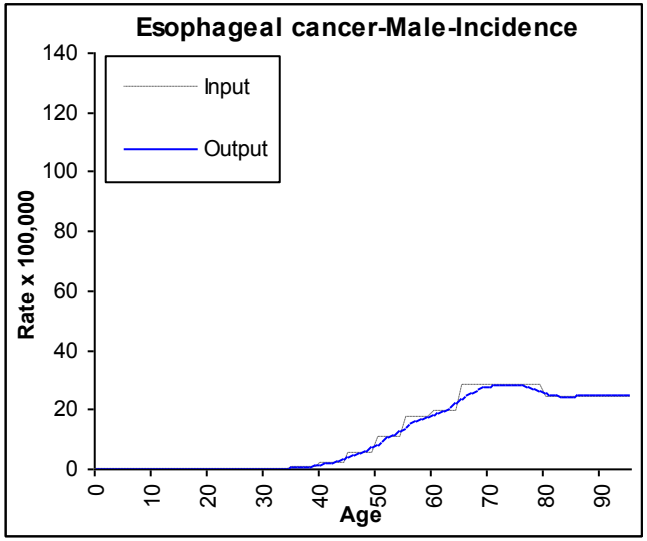
Incidence (Fig. 4.3.a and 4.3.d) and mortality (Fig. 4.3.b and 4.3.e) DISMOD outputs overlap in the majority of ages the input data obtained by Cancer Incidence in Five Continents [1] and WHO-Mortality [3]. Major differences are for male adult age mortality in Denmark, Estonia, Ireland, and Poland.

Figure 4.2. European CRs oesophageal cancer incidence rates by age classes. 1998-2002

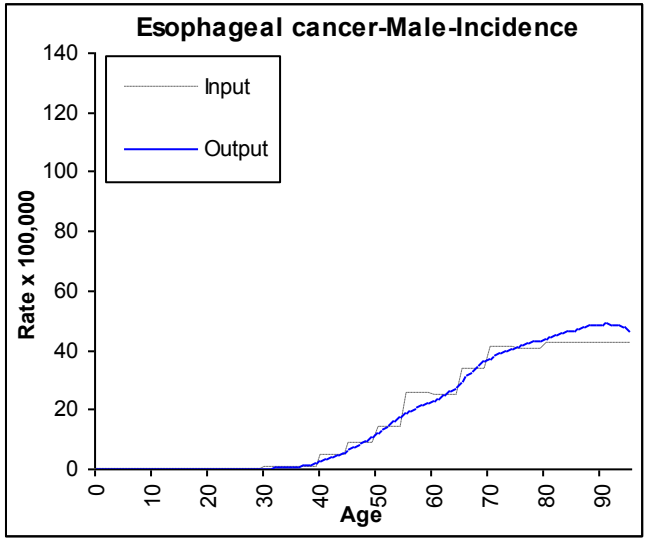


Figures 4.3.a. WP-10 ESTIMATES. Oesophageal cancer (ICD-10 C15). INCIDENCE. MALE

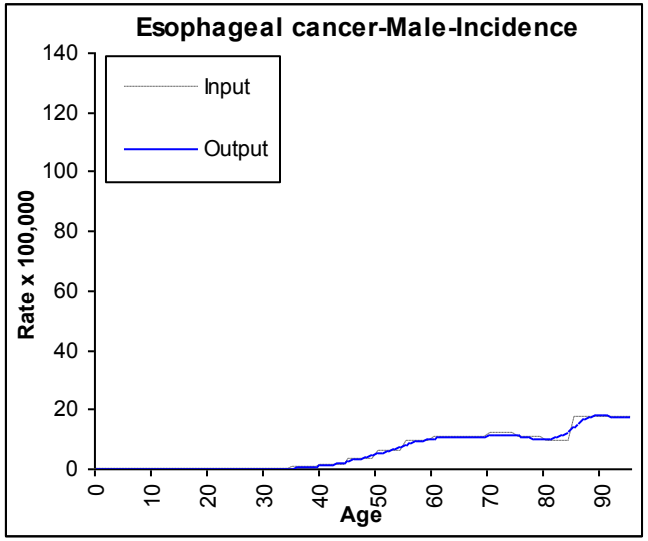
AUSTRIA



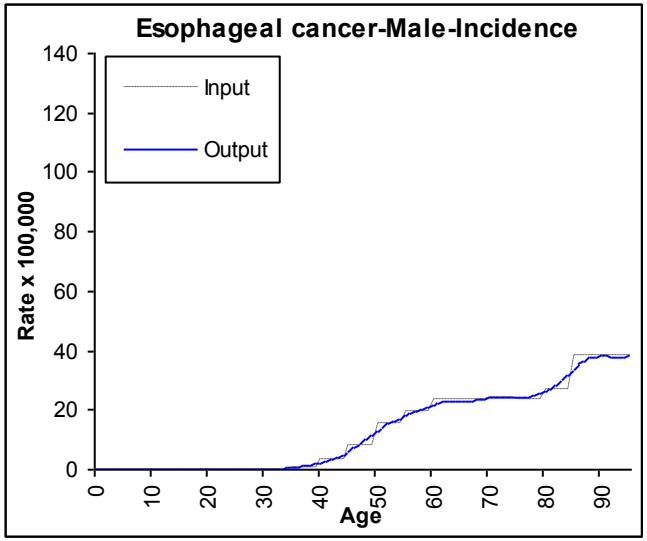
BELGIUM



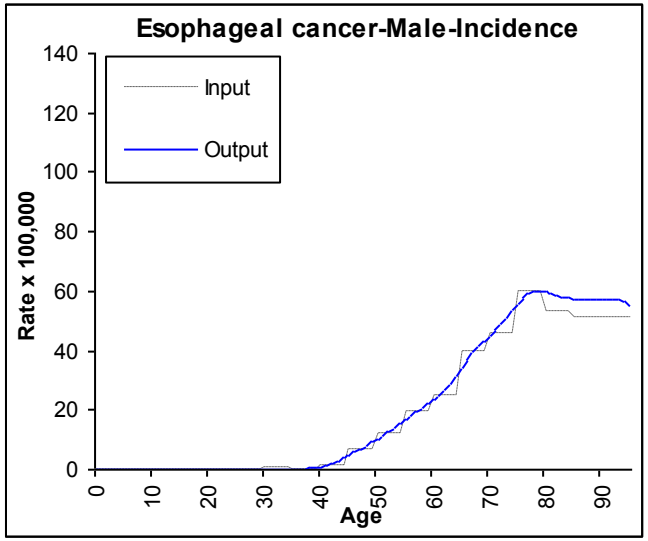
BULGARIA



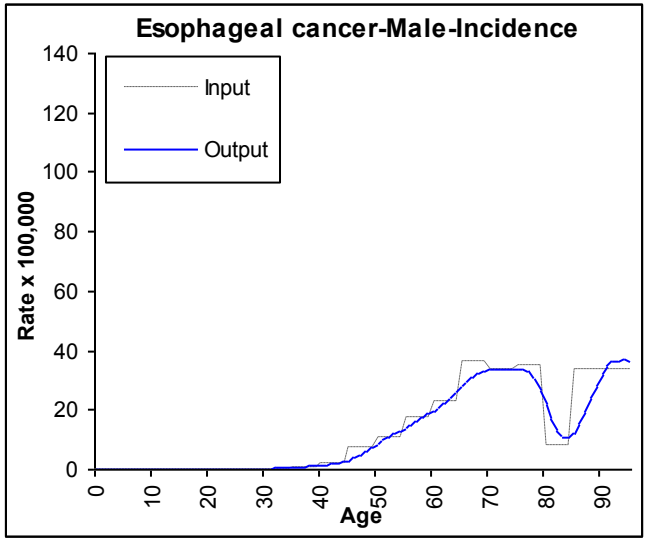
CZECH REPUBLIC



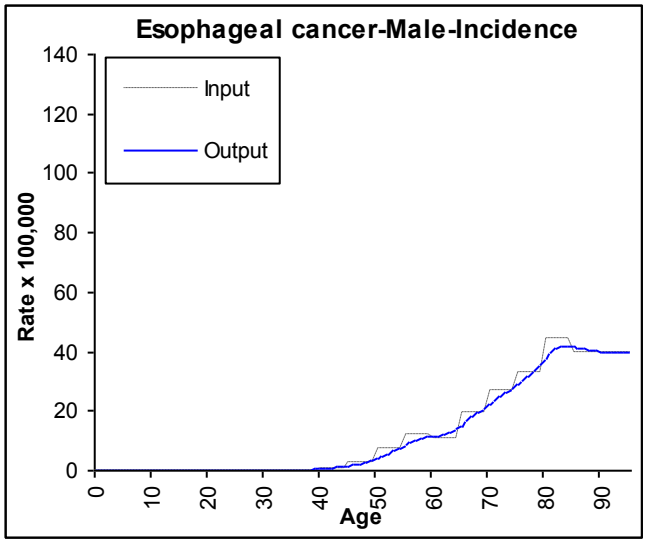
DENMARK



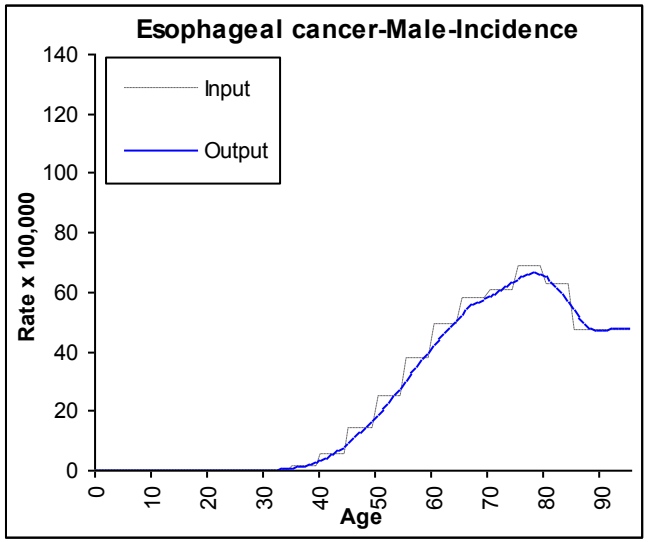
ESTONIA



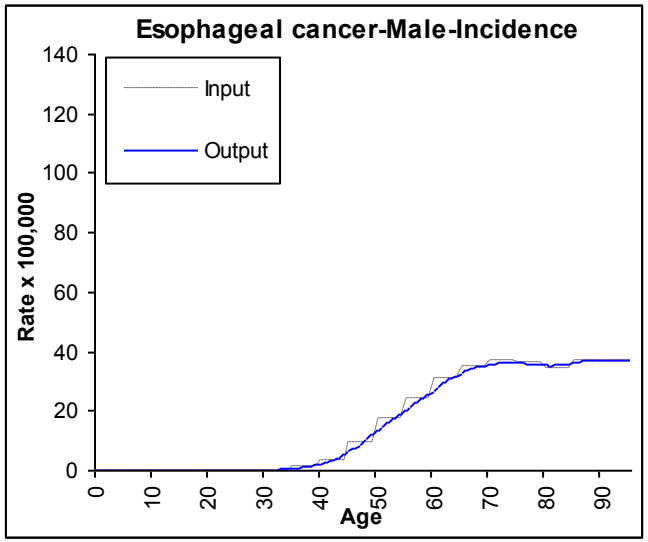
FINLAND



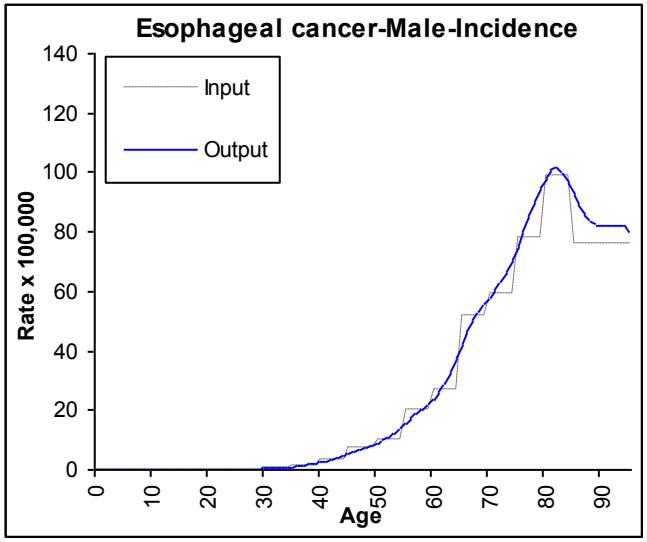
FRANCE



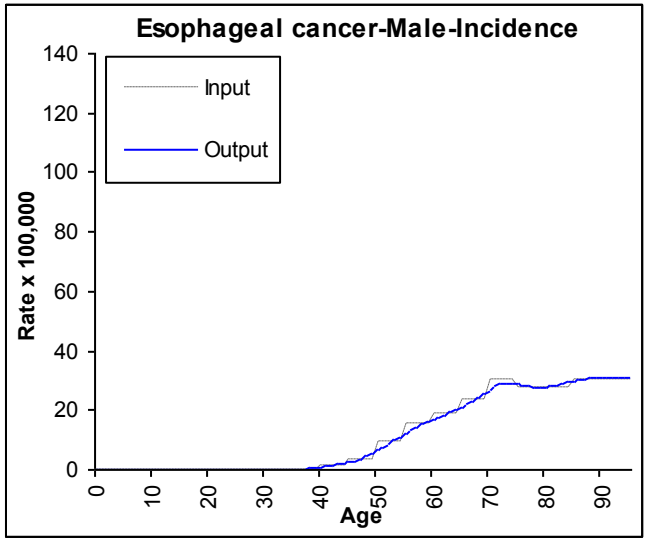
GERMANY



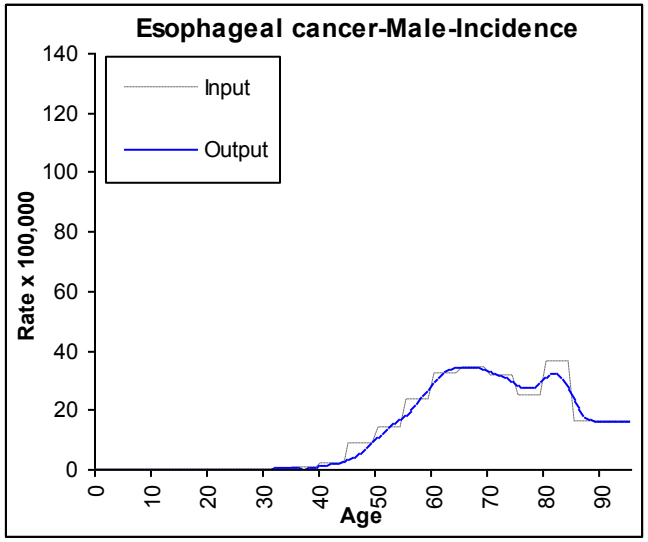
IRELAND



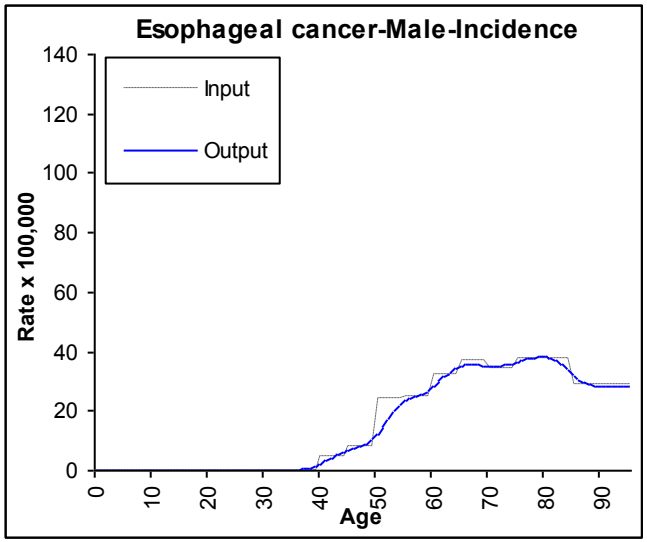
ITALY



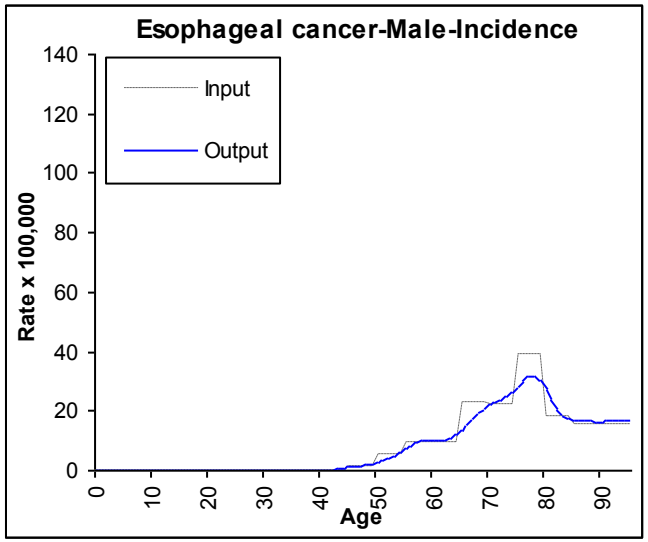
LATVIA



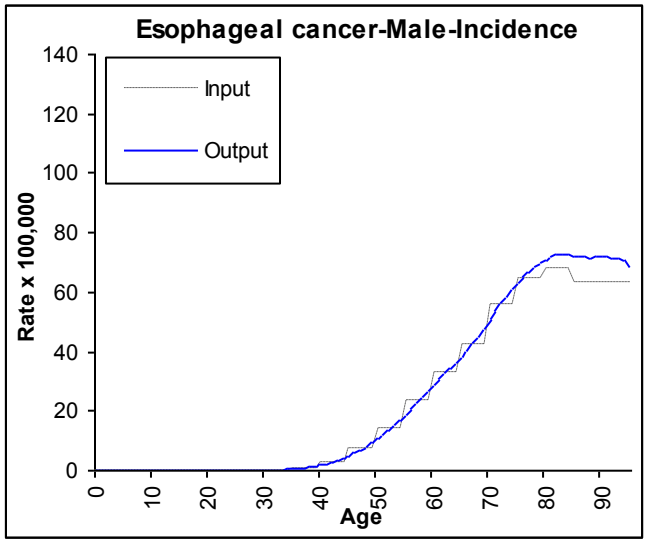
LITHUANIA



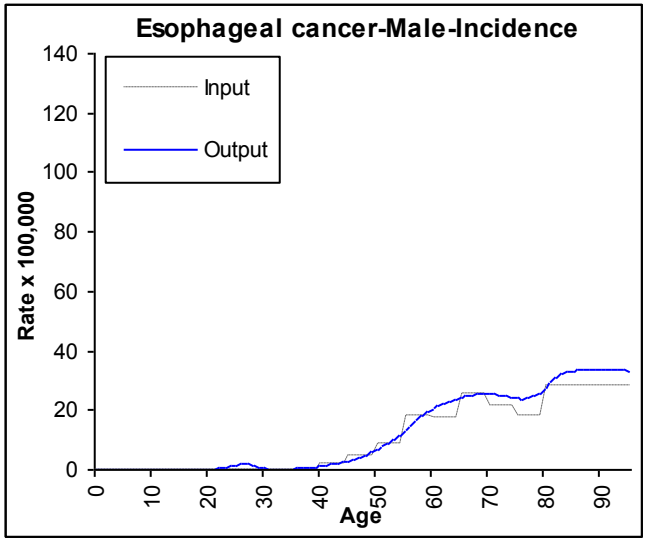
MALTA



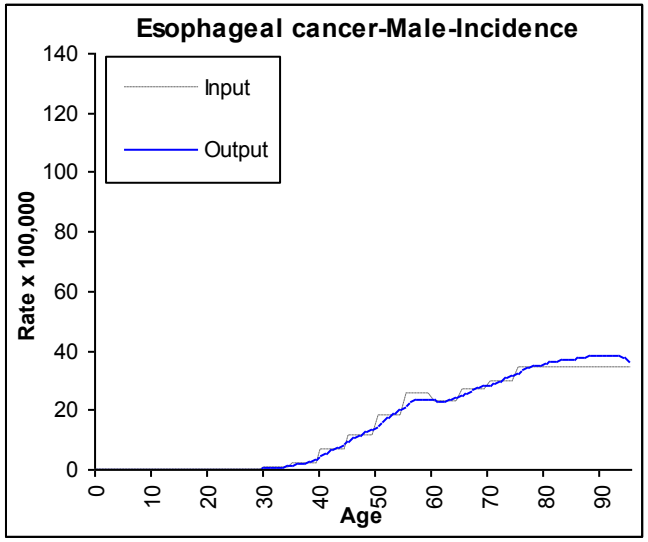
NETHERLANDS



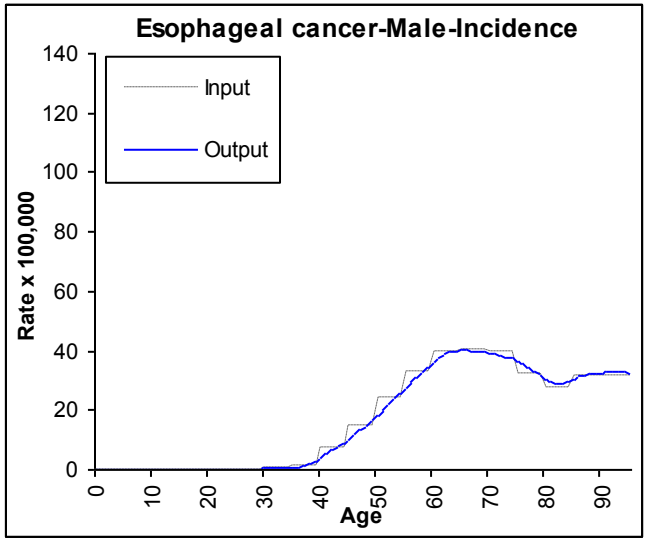
POLAND



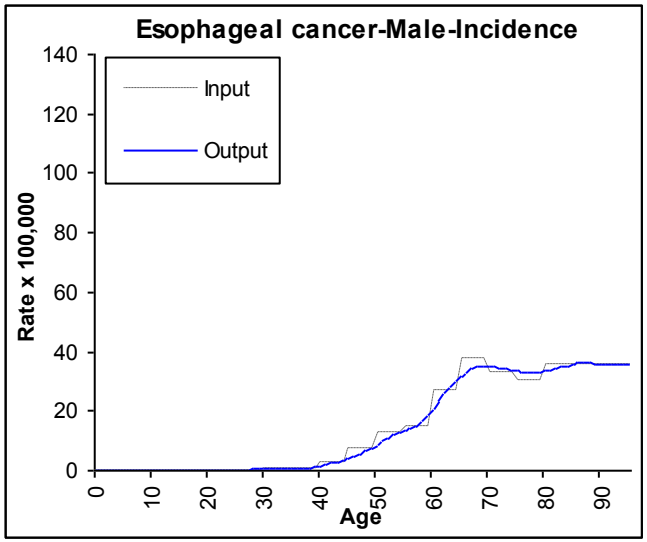
PORTUGAL



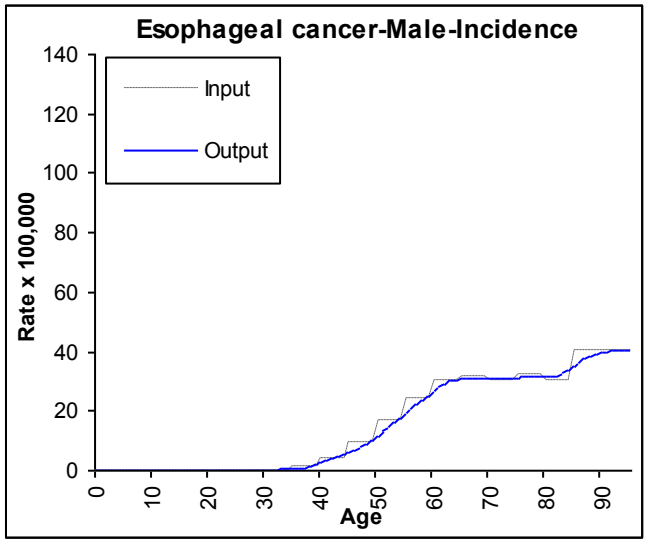
SLOVAKIA



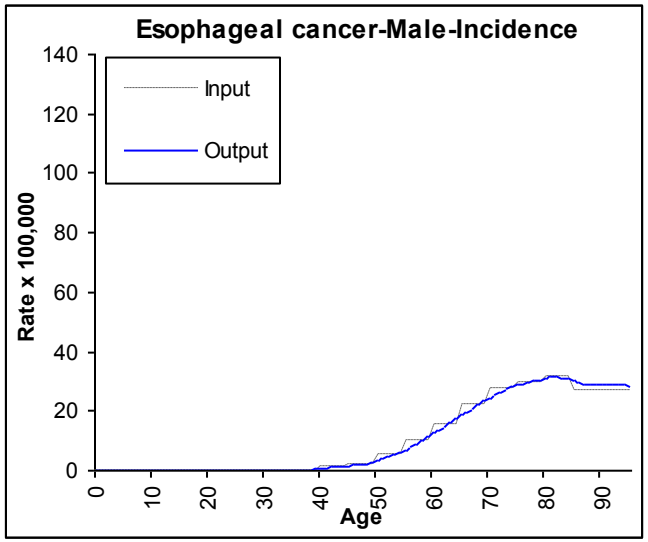
SLOVENIA



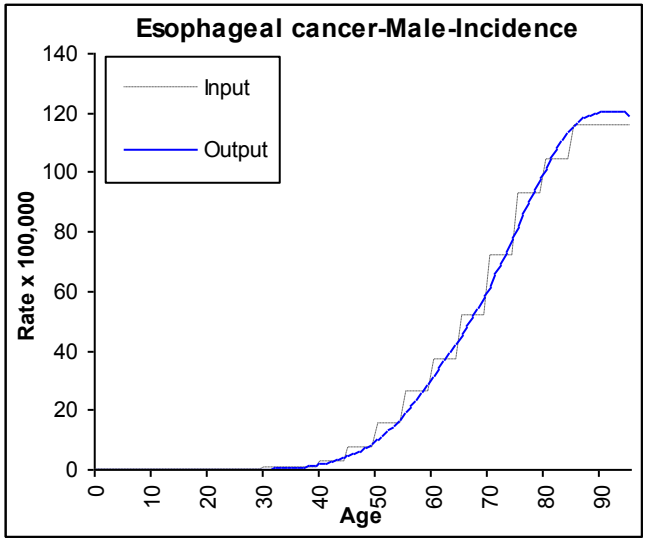
SPAIN



SWEDEN

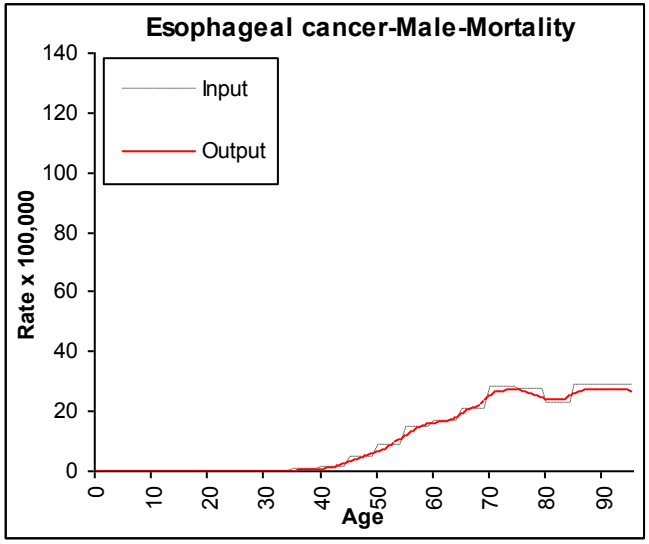


UNITED KINGDOM

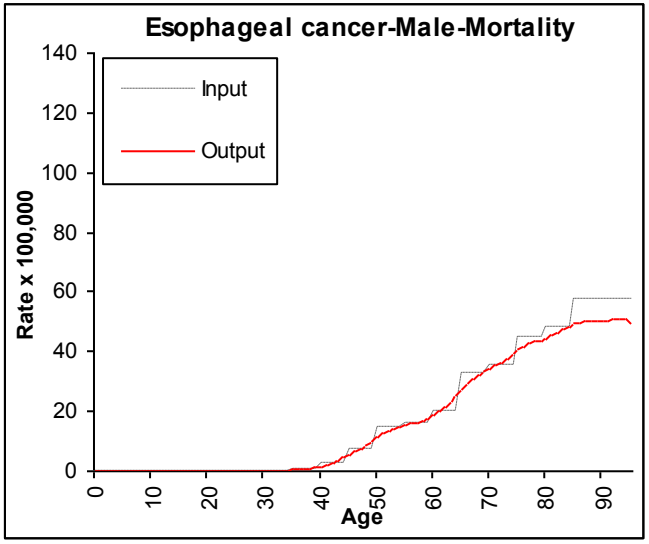


Figures 4.3.b. WP-10 ESTIMATES. Oesophageal cancer (ICD-10 C15). MORTALITY. MALE

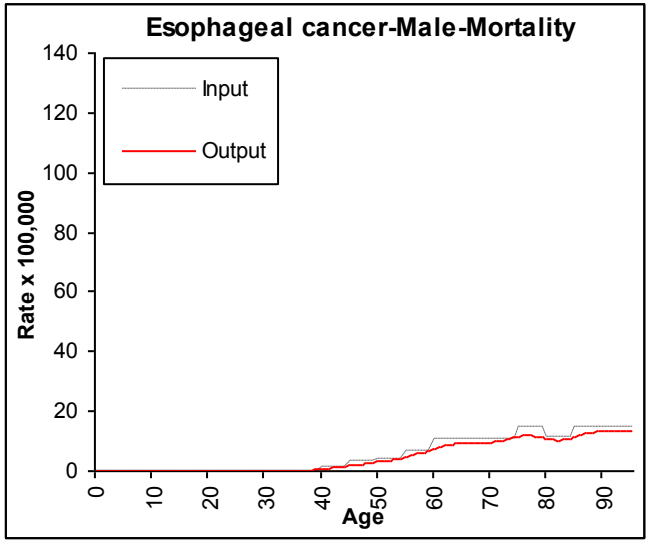
AUSTRIA



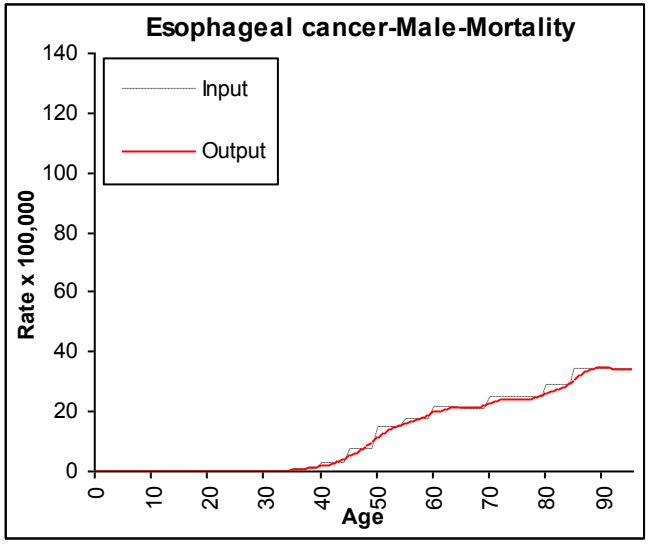
BELGIUM



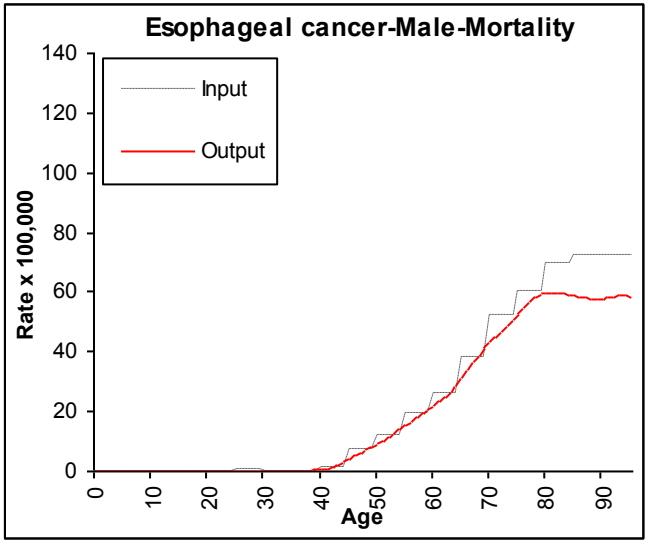
BULGARIA



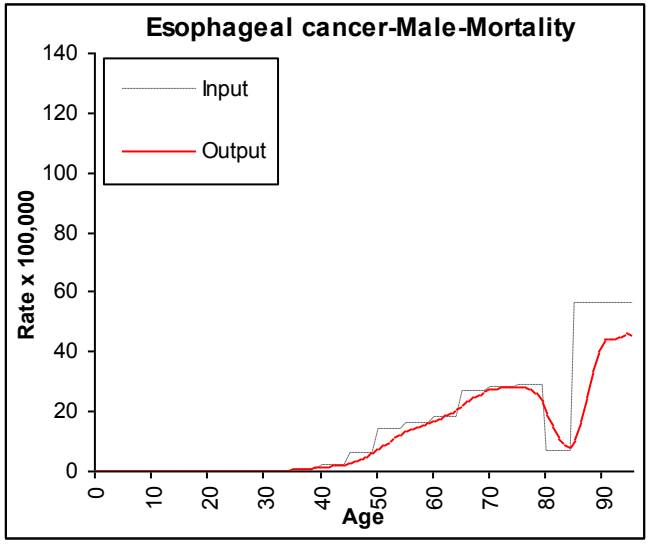
CZECH REPUBLIC



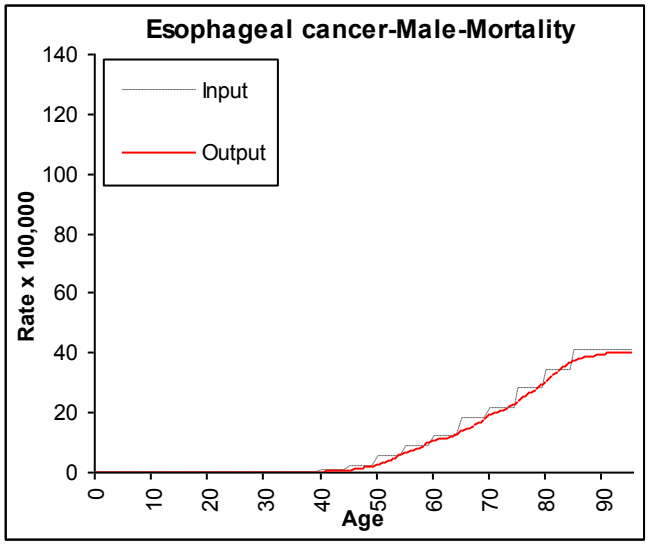
DENMARK



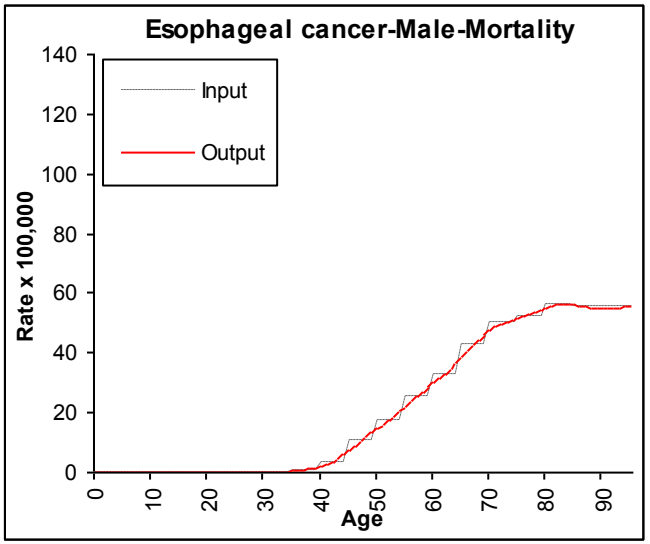
ESTONIA



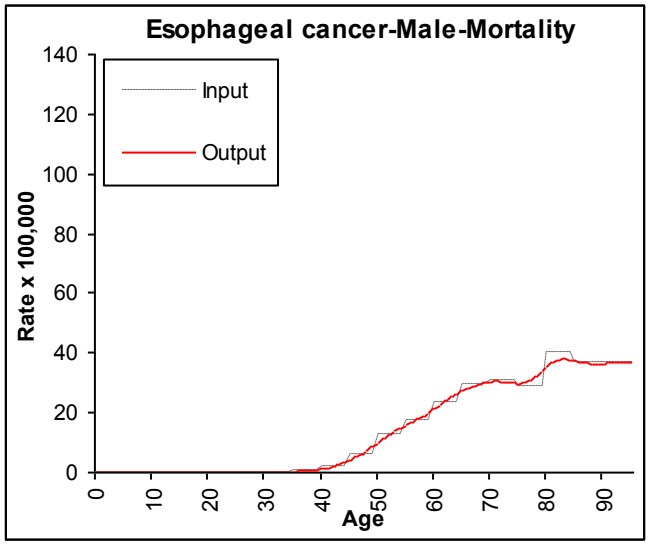
FINLAND



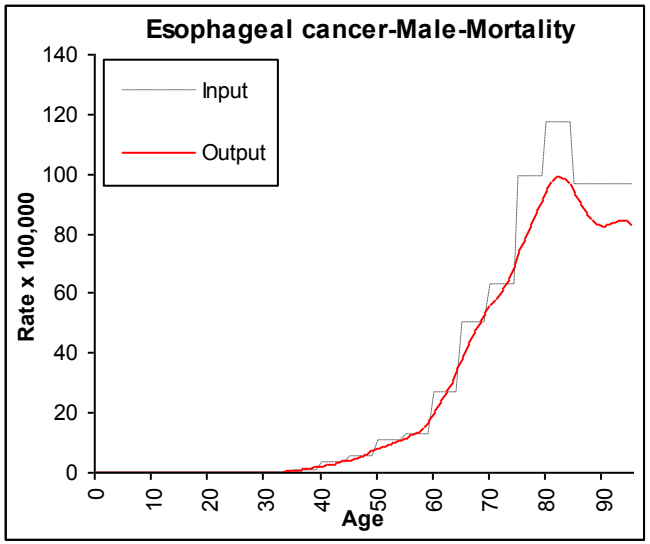
FRANCE



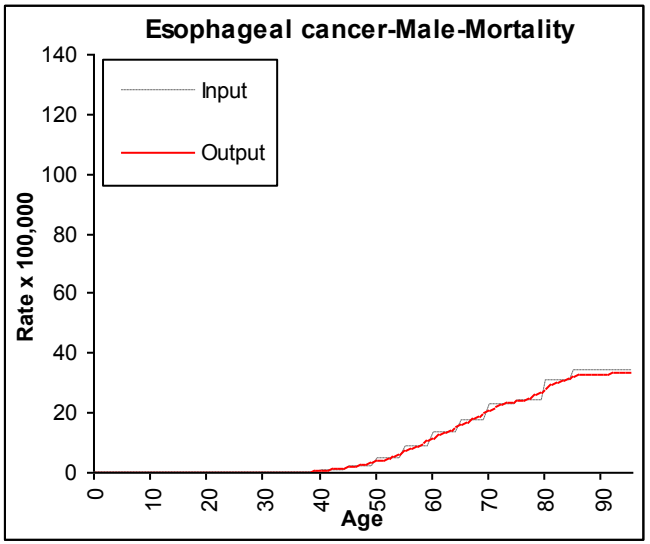
GERMANY



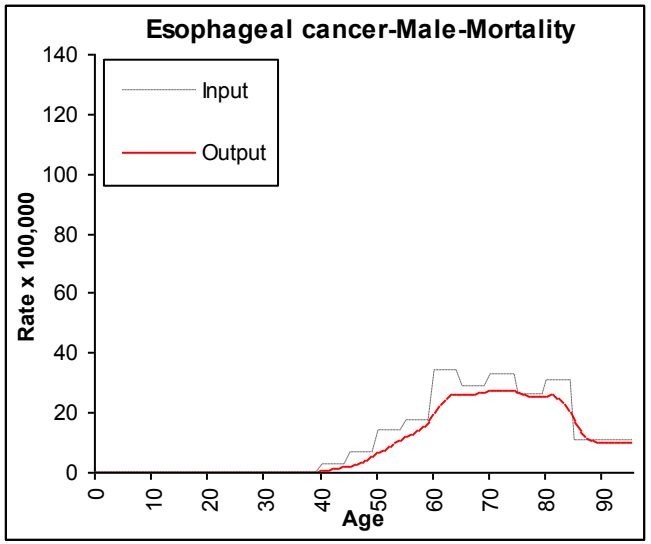
IRELAND



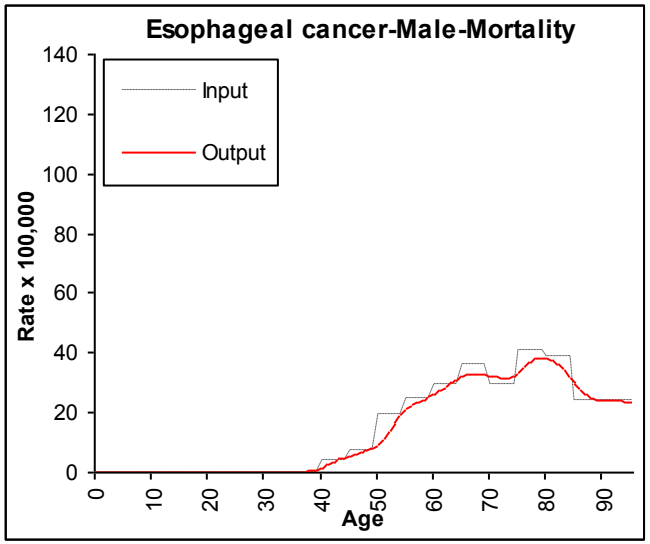
ITALY



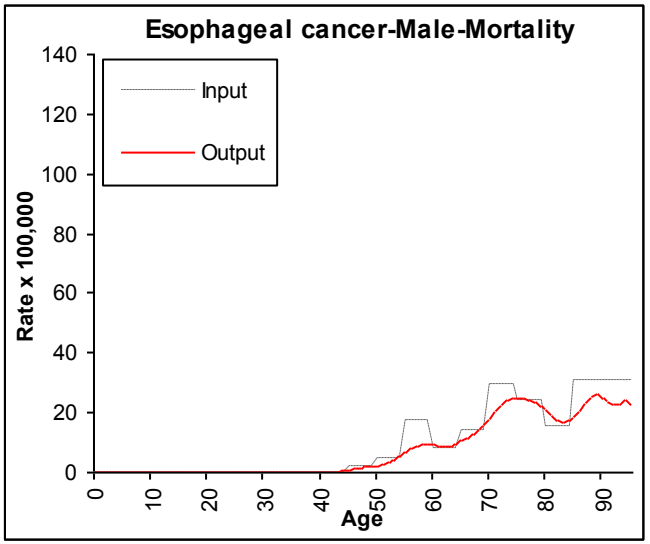
LATVIA



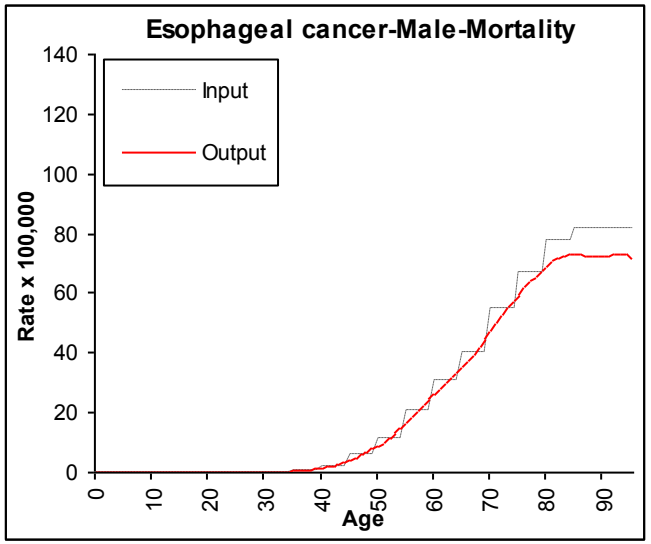
LITHUANIA



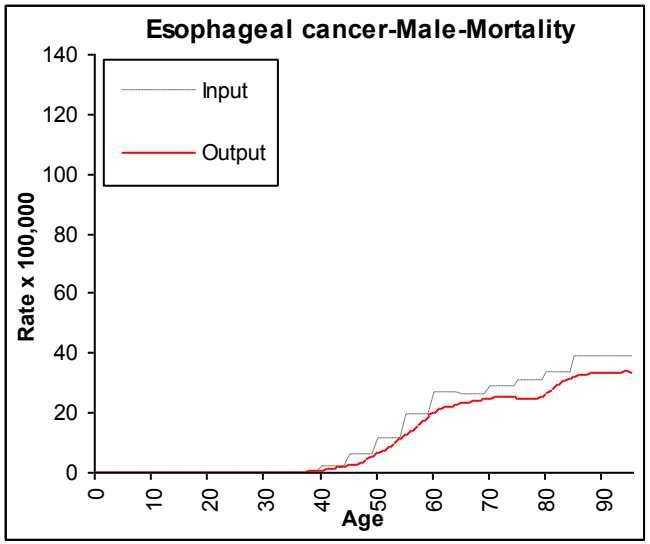
MALTA



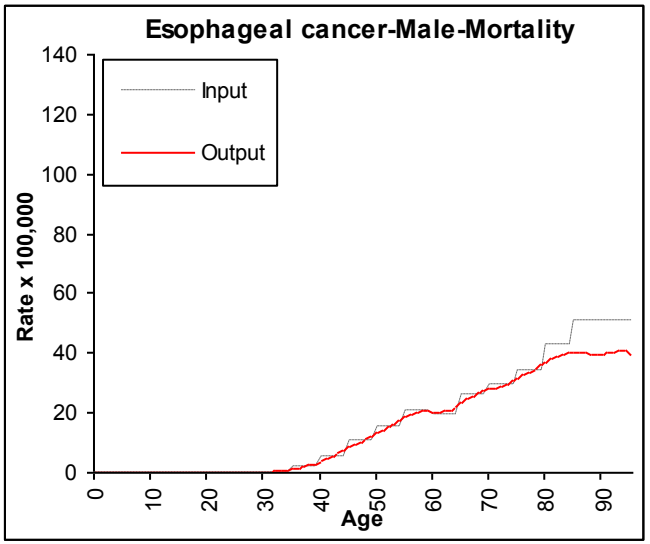
NETHERLANDS



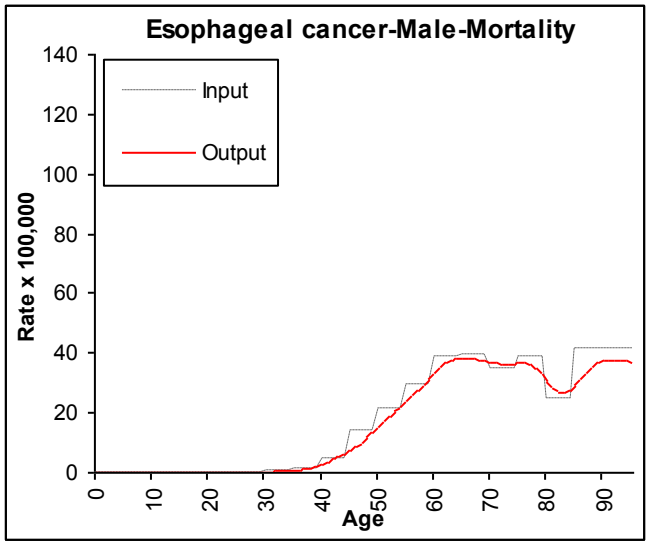
POLAND



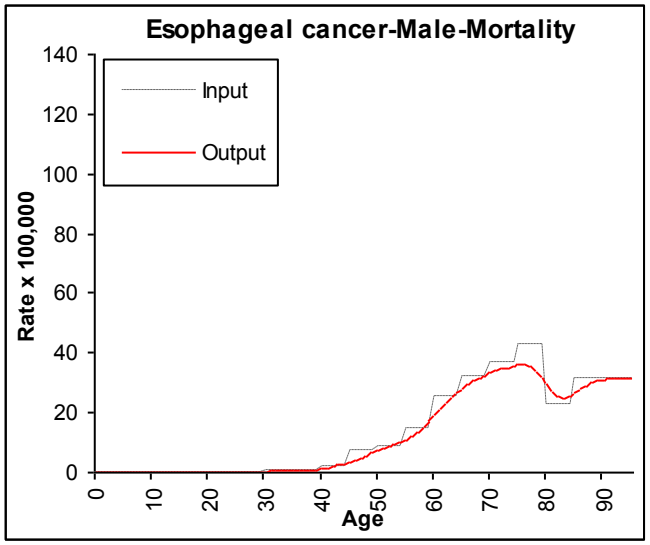
PORTUGAL



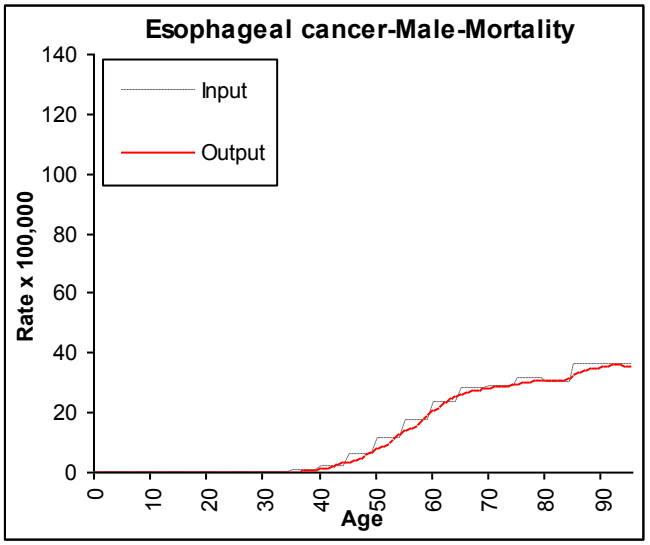
SLOVAKIA



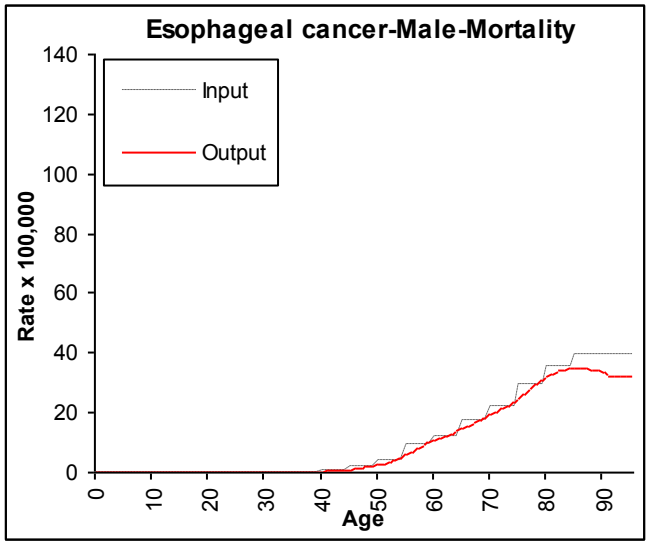
SLOVENIA



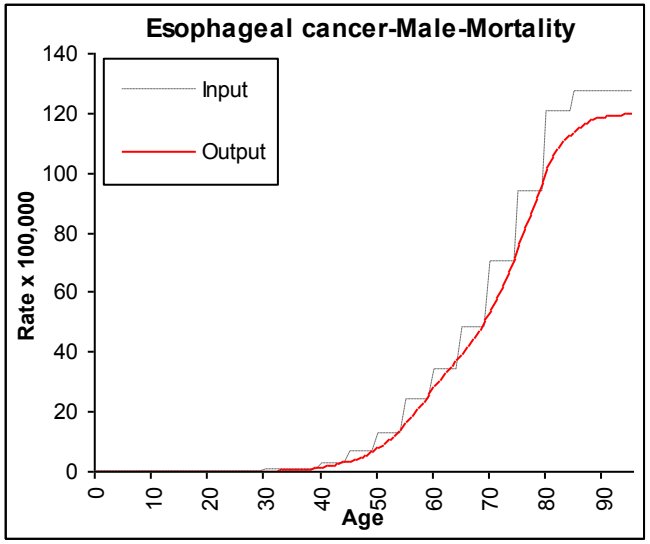
SPAIN



SWEDEN

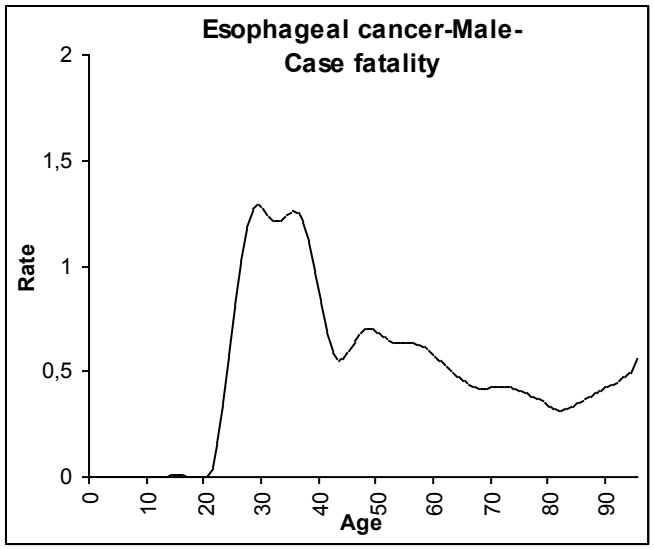


UNITED KINGDOM

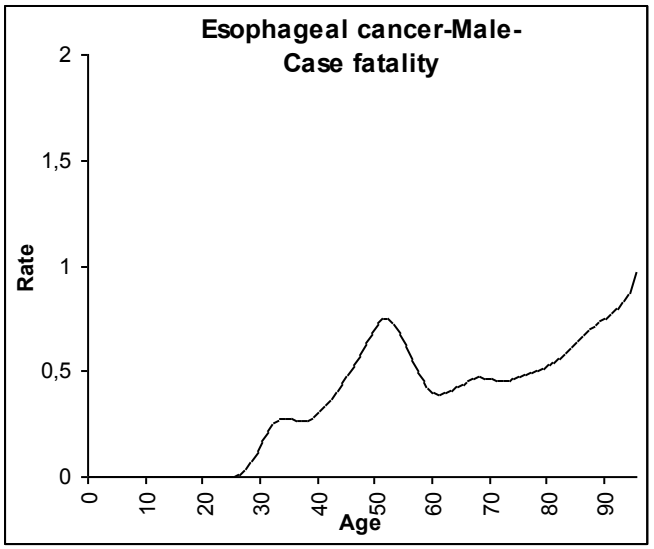


Figures 4.3.c. WP-10 ESTIMATES. Oesophageal cancer (ICD-10 C15). CASE FATALITY. MALE

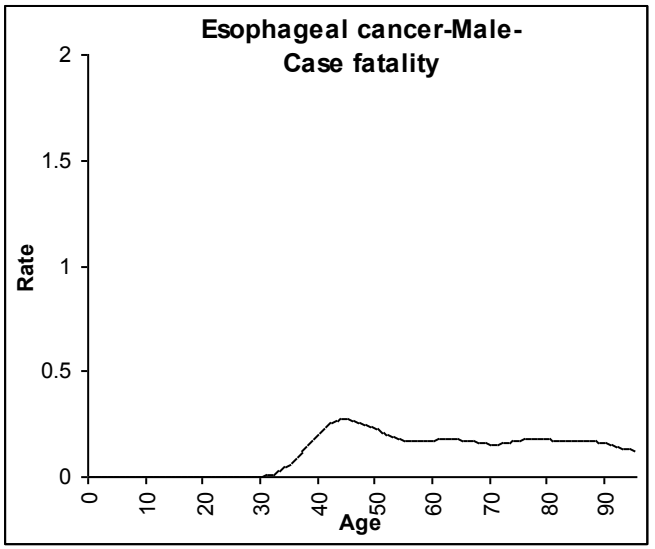
AUSTRIA



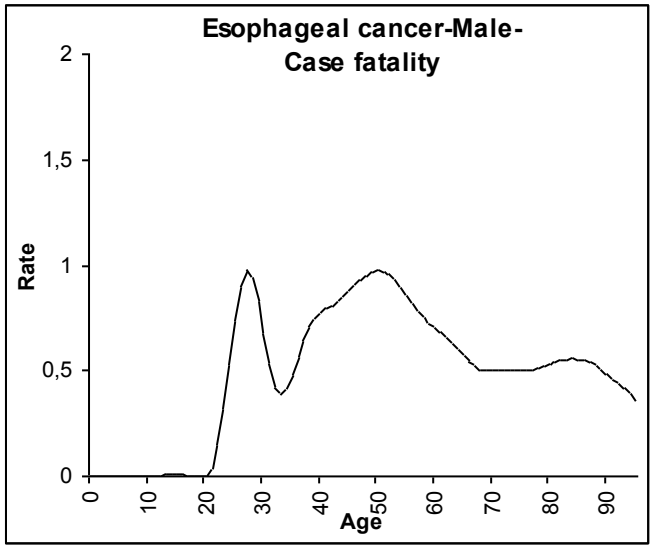
BELGIUM



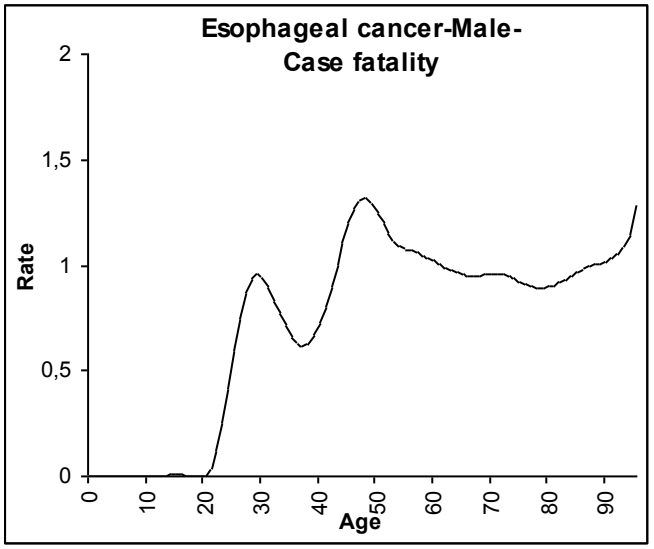
BULGARIA



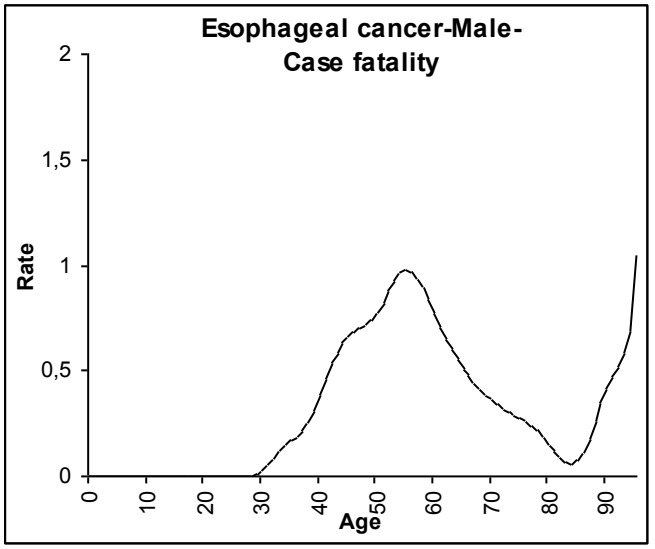
CZECH REPUBLIC



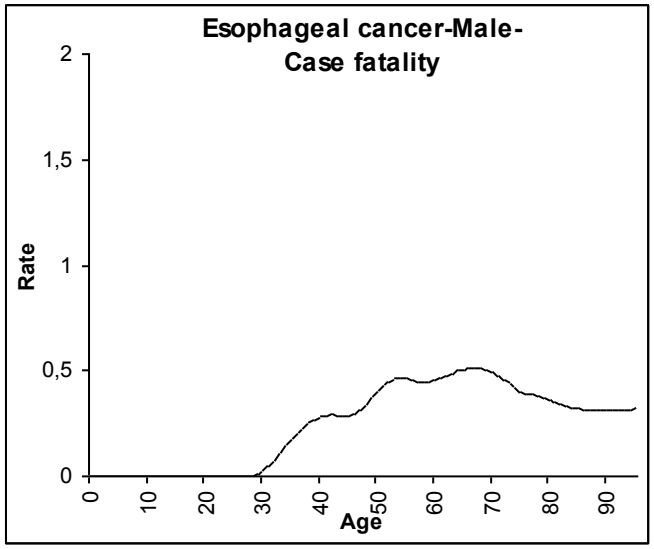
DENMARK



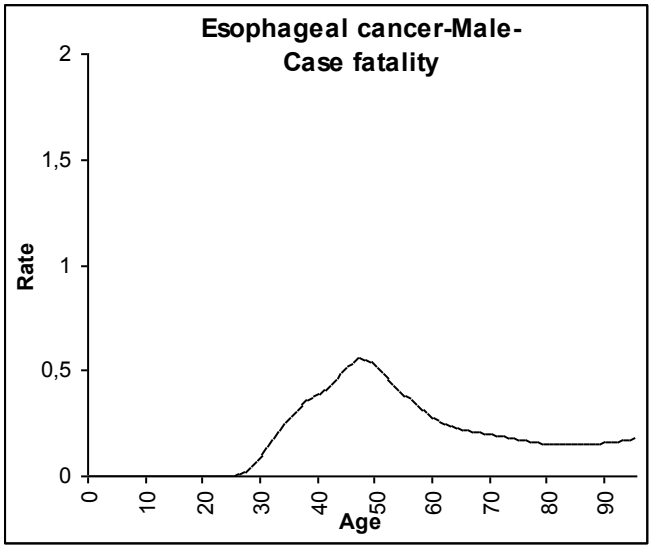
ESTONIA



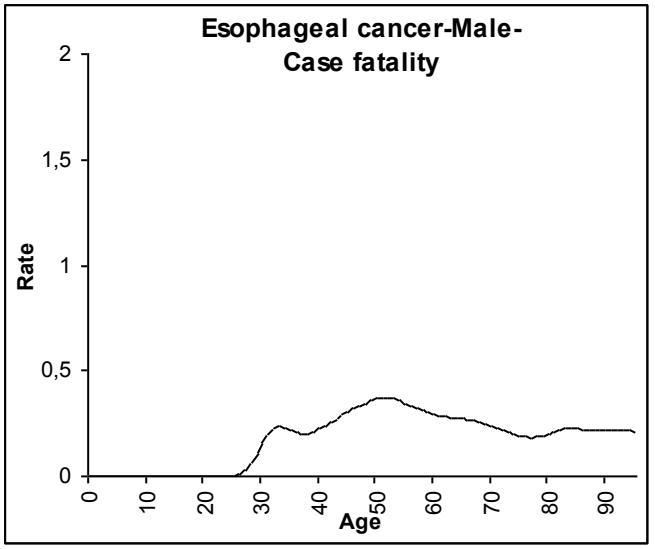
FINLAND



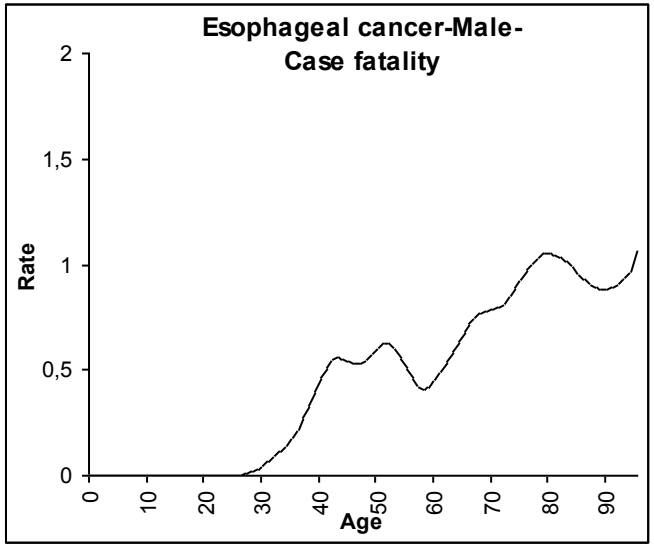
FRANCE



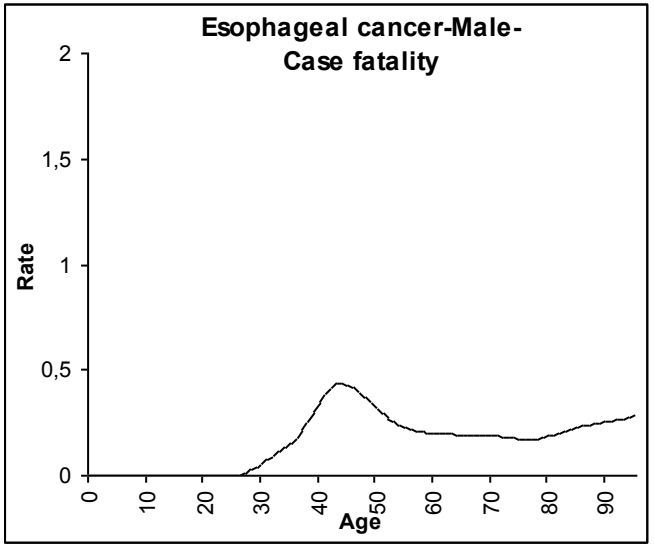
GERMANY



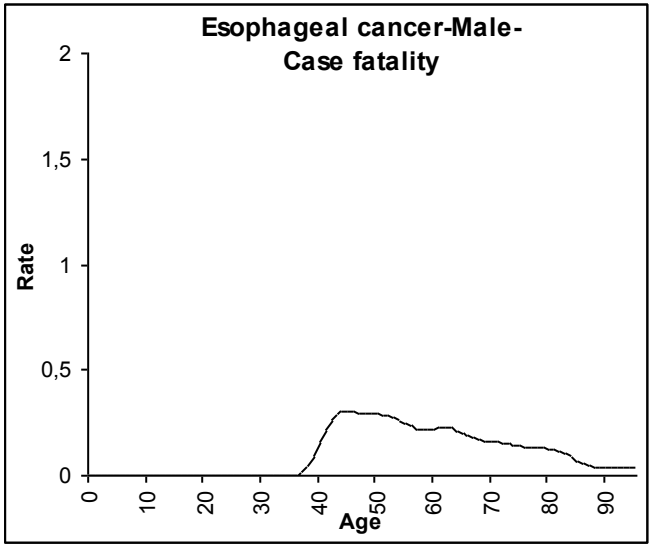
IRELAND



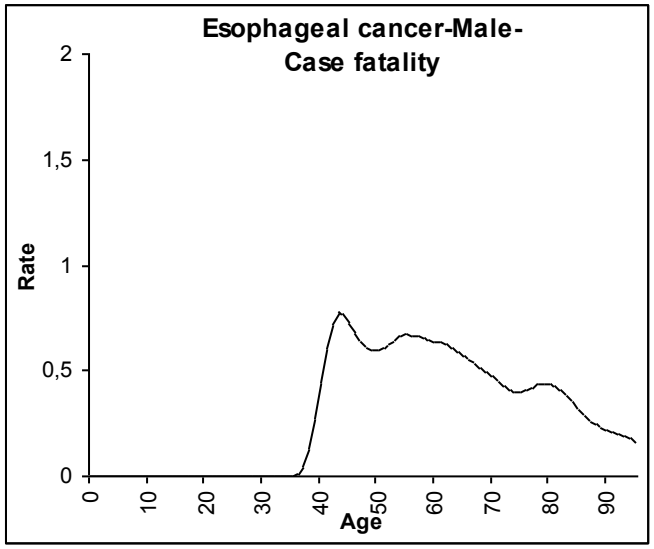
ITALY



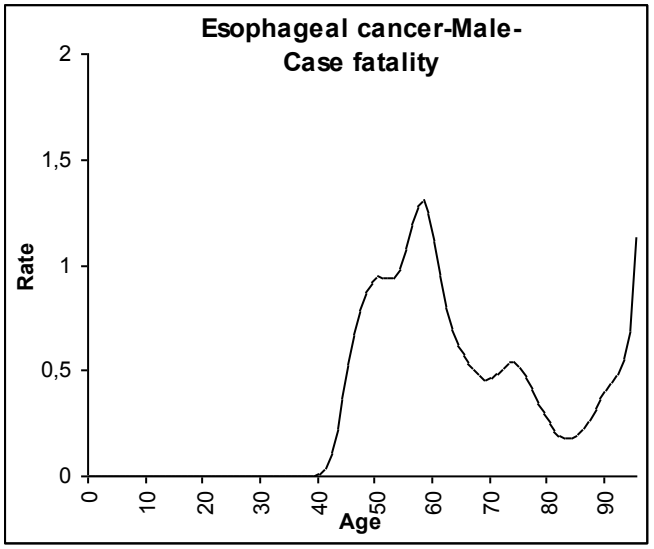
LATVIA



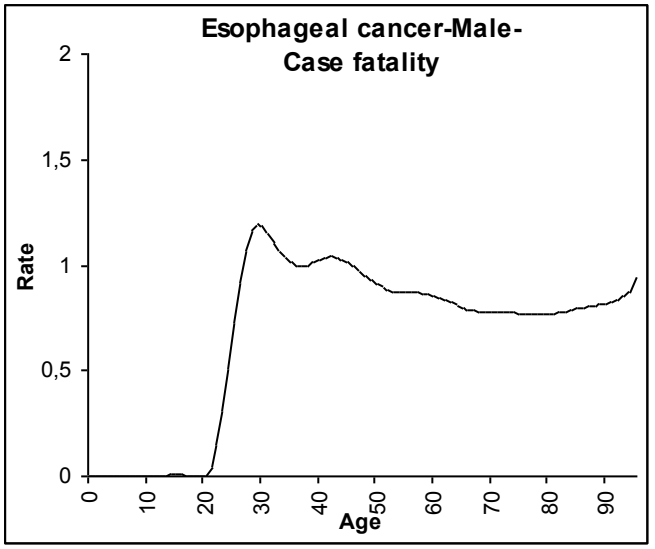
LITHUANIA



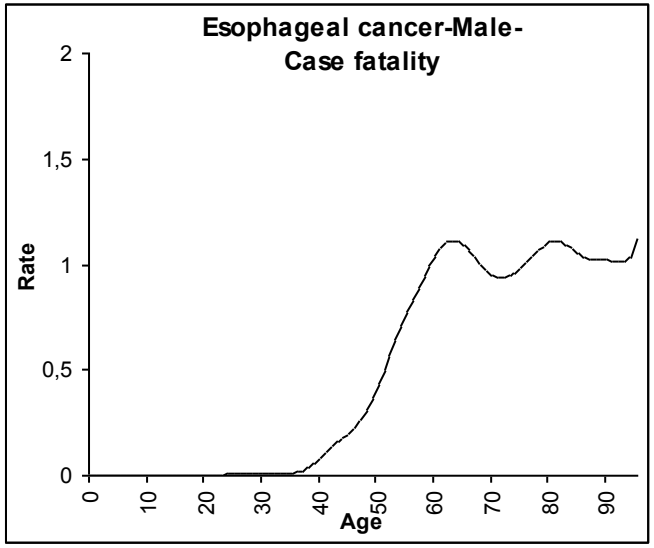
MALTA



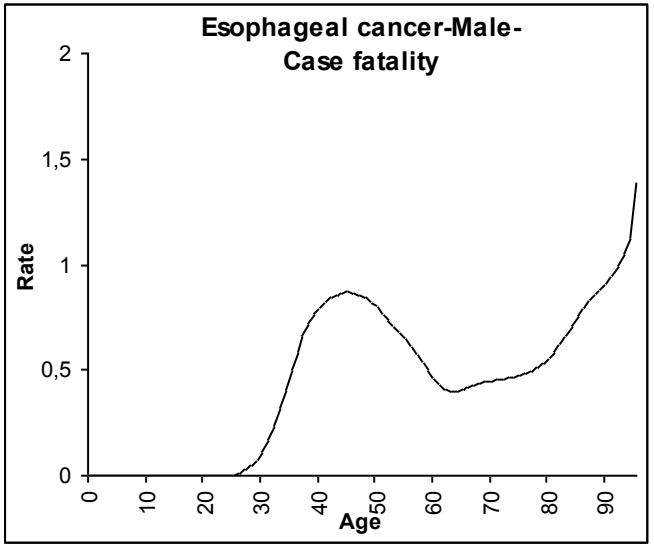
NETHERLANDS



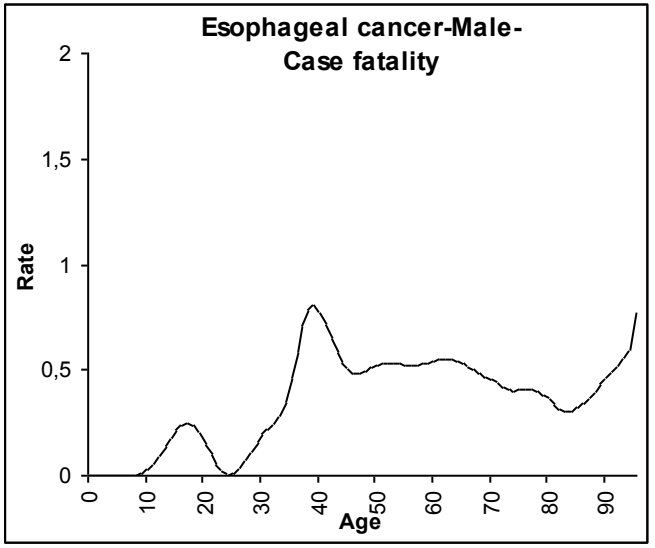
POLAND



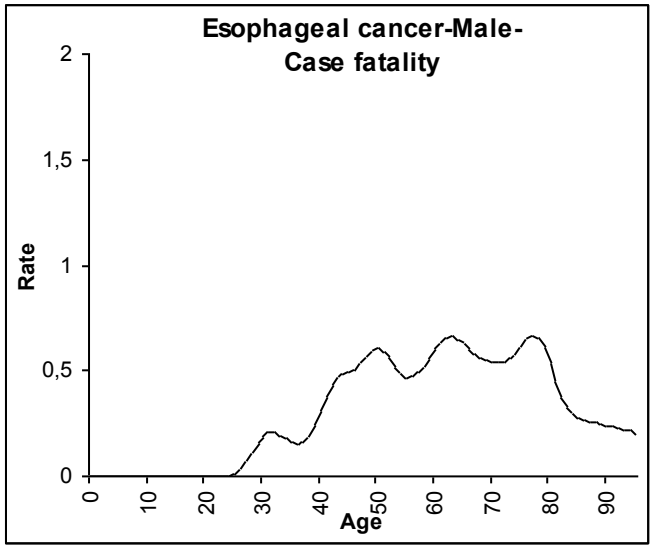
PORTUGAL



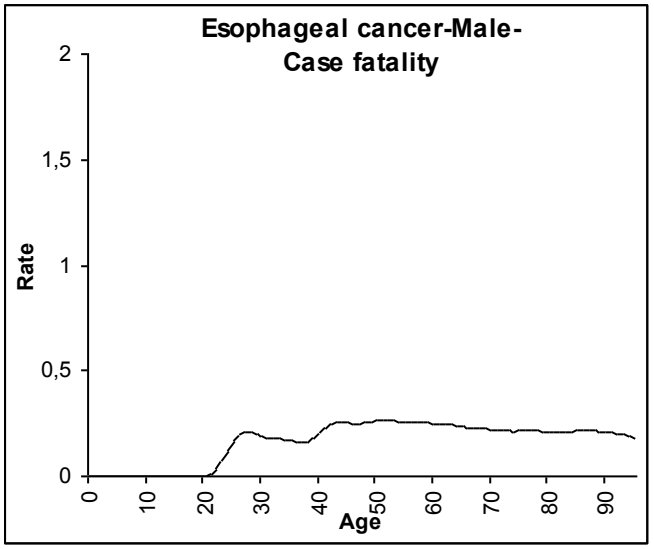
SLOVAKIA



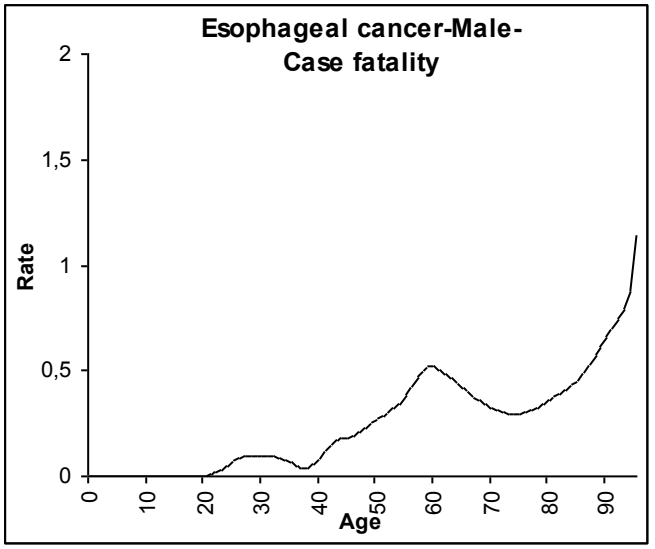
SLOVENIA



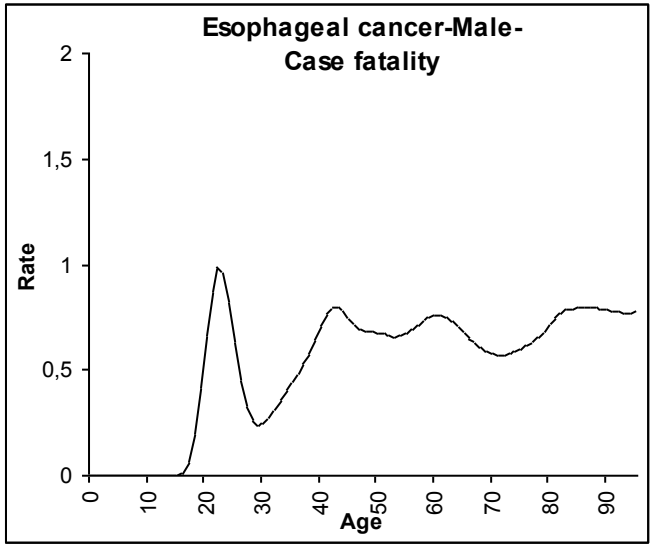
SPAIN



SWEDEN

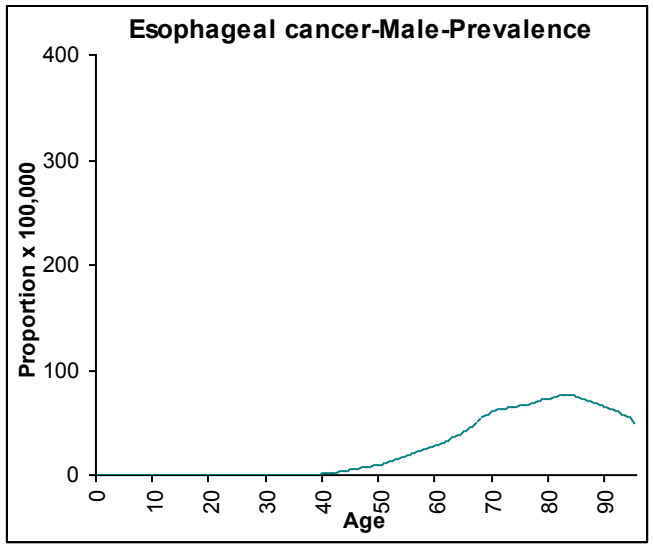


UNITED KINGDOM

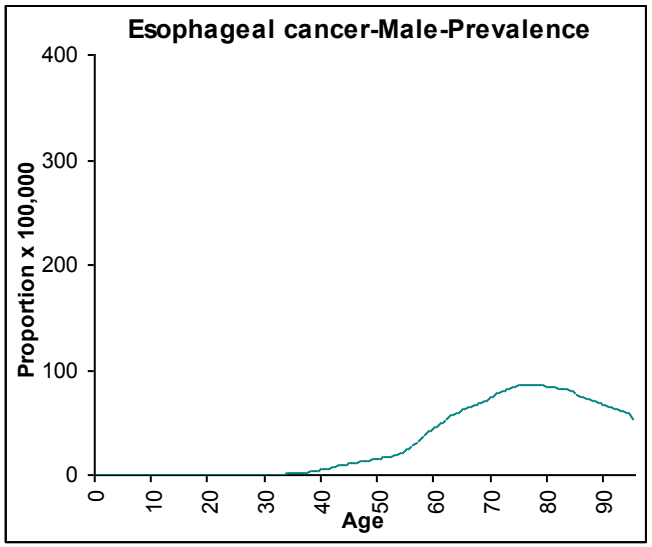


Figures 4.3.d. WP-10 ESTIMATES. Oesophageal cancer (ICD-10 C15). TOTAL PREVALENCE. MALE

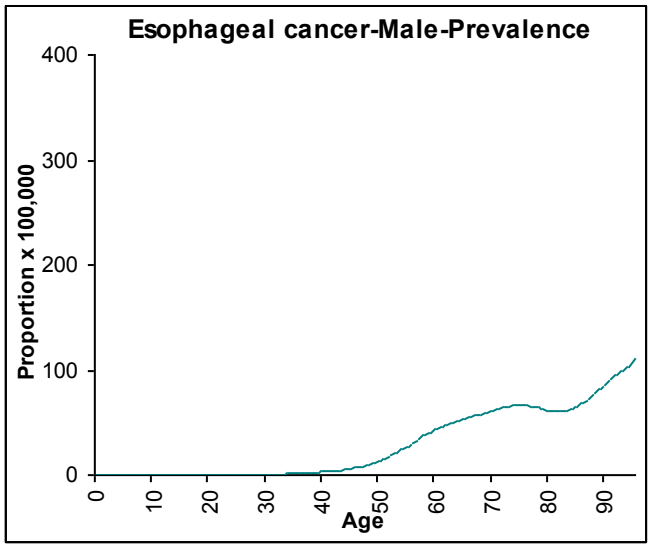
AUSTRIA



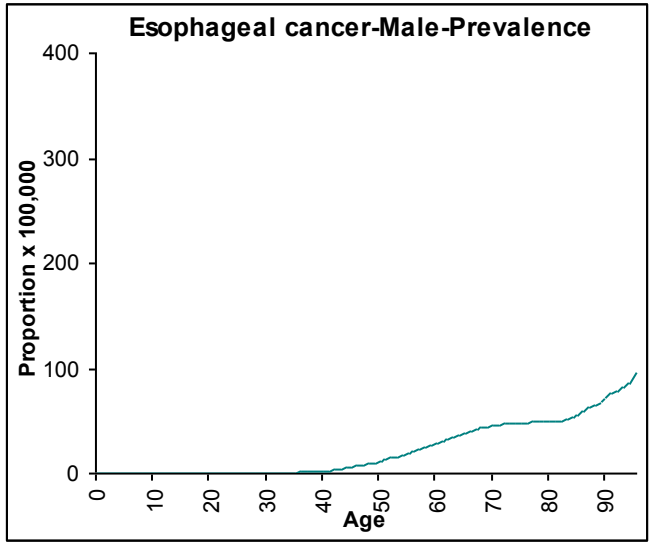
BELGIUM



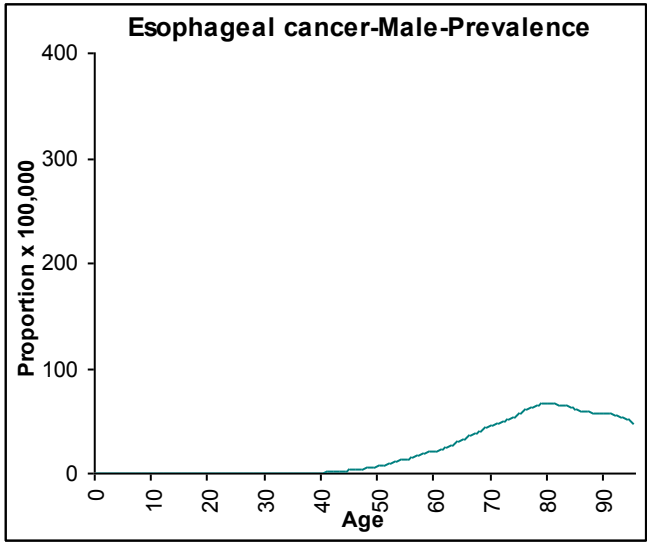
BULGARIA



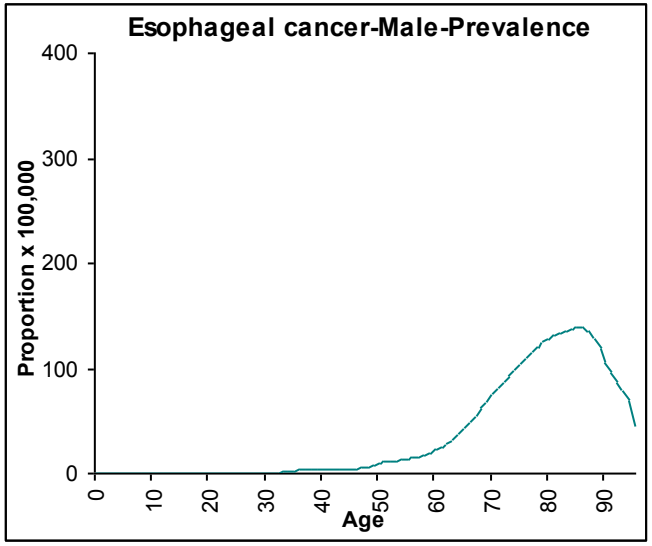
CZECH REPUBLIC



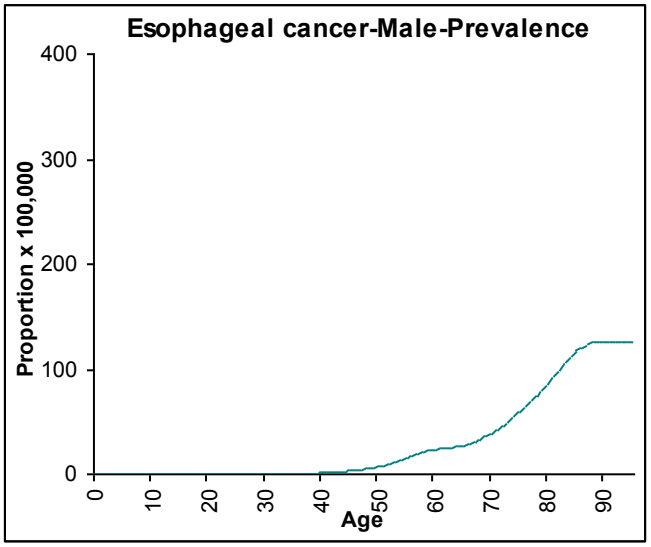
DENMARK



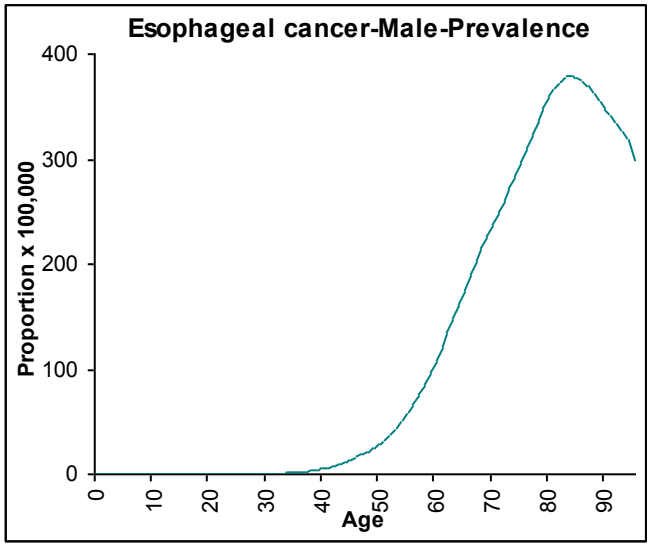
ESTONIA



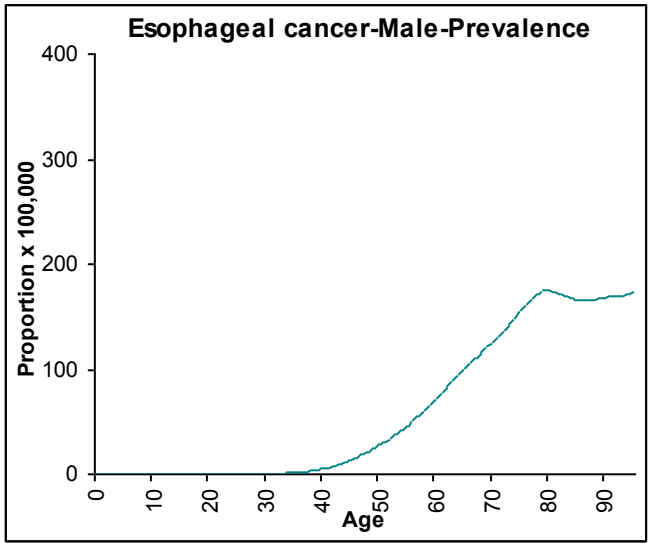
FINLAND



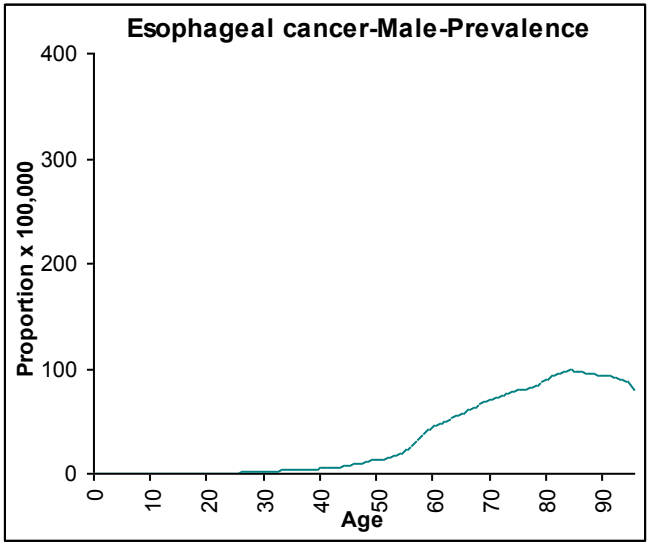
FRANCE



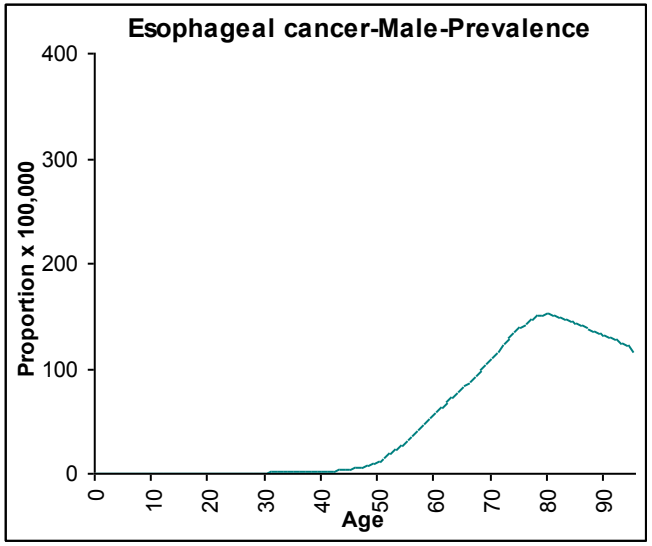
GERMANY



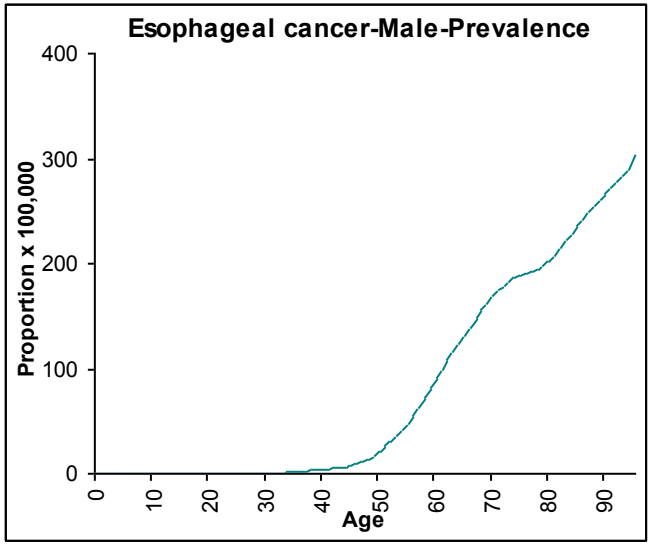
IRELAND



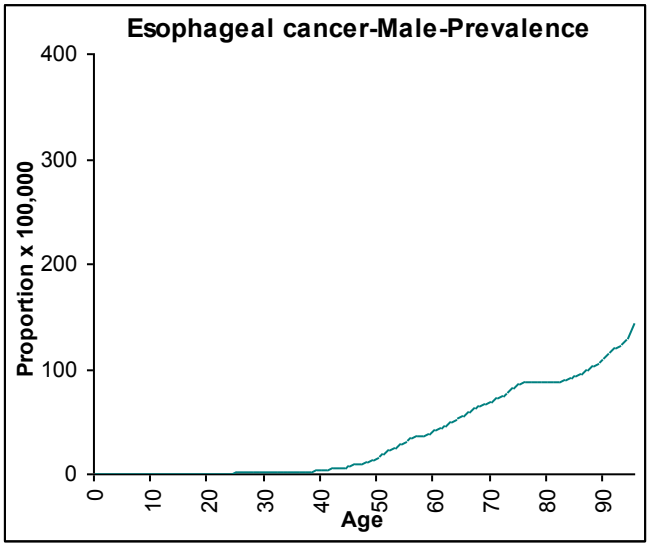
ITALY



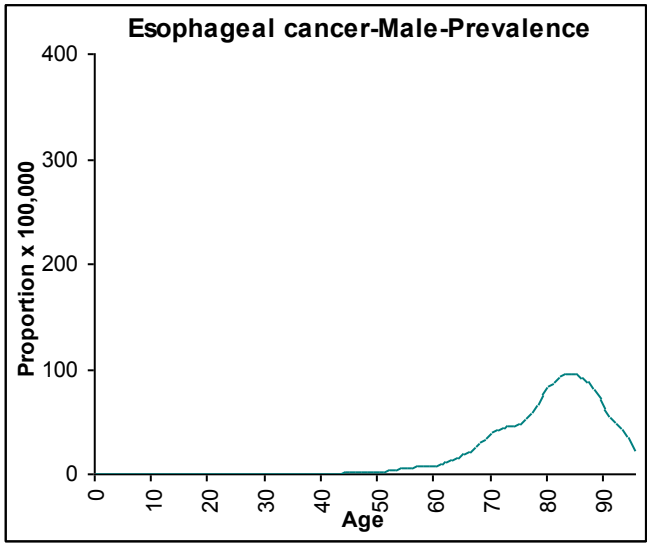
LATVIA



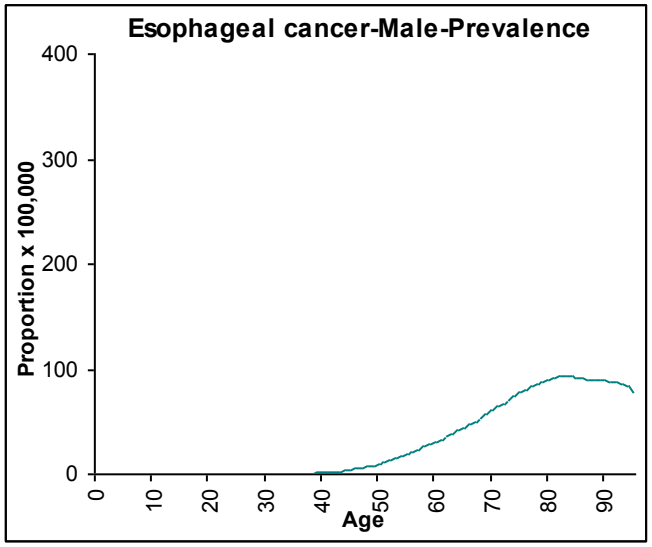
LITHUANIA



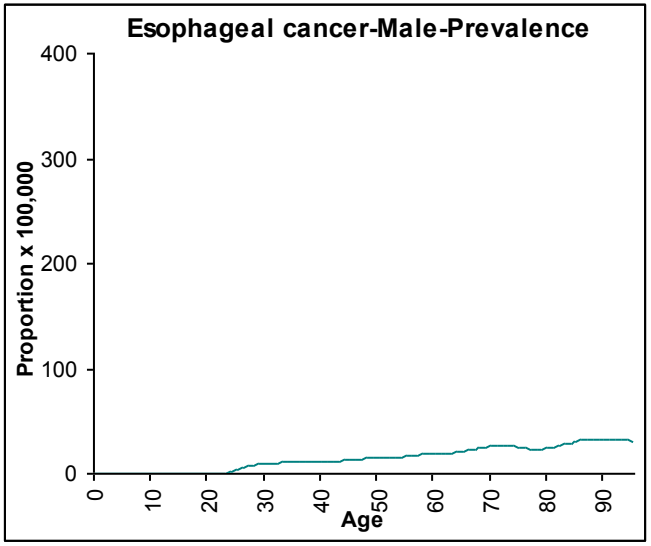
MALTA



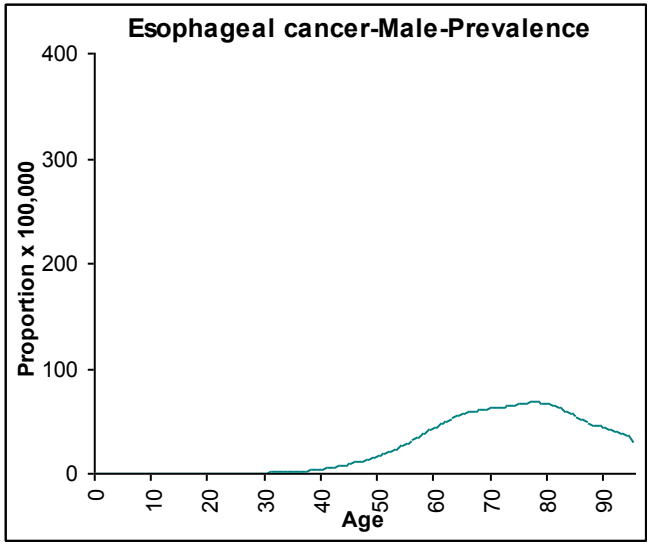
NETHERLANDS



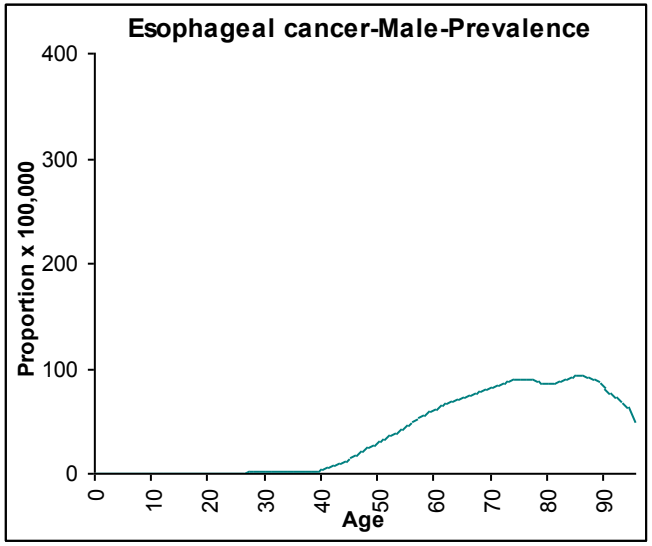
POLAND



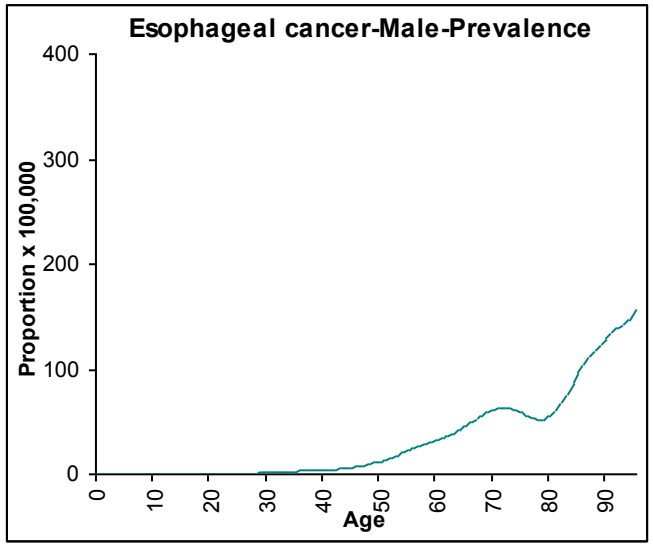
PORTUGAL



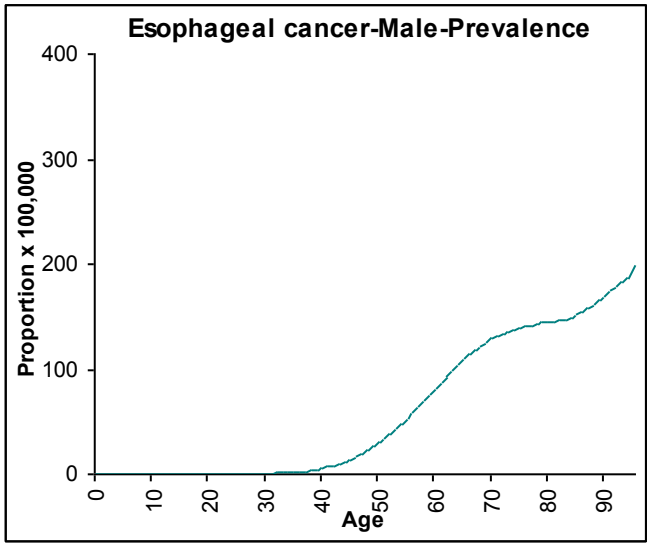
SLOVAKIA



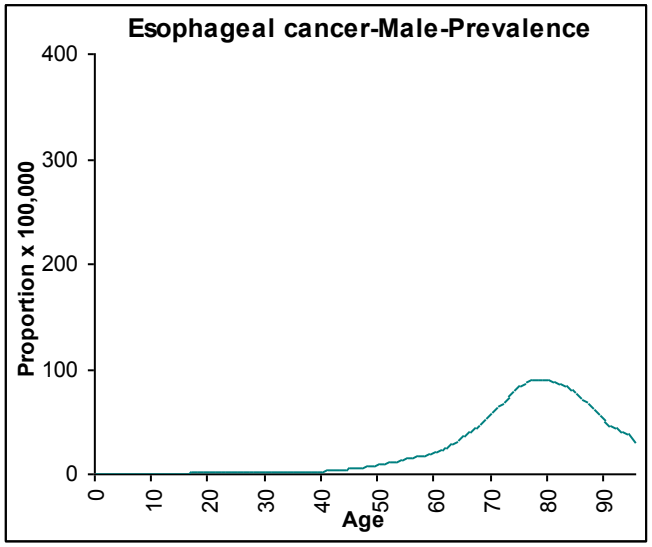
SLOVENIA



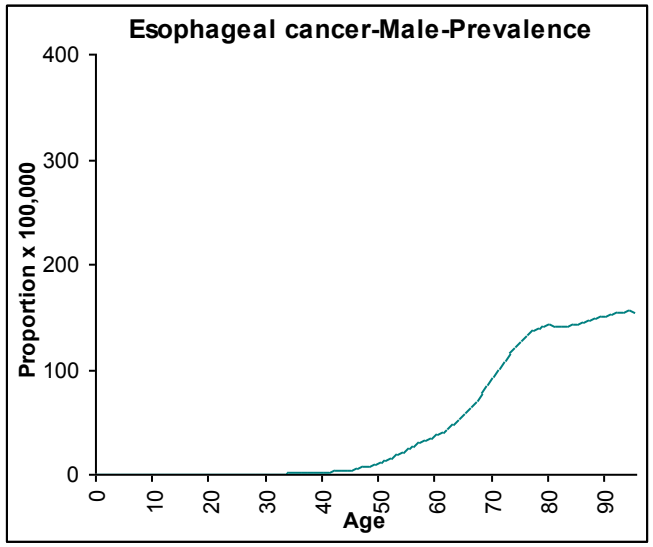
SPAIN



SWEDEN

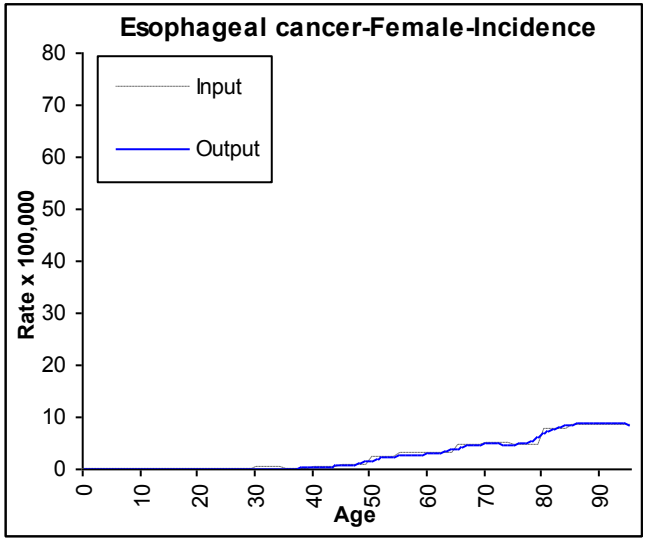


UNITED KINGDOM

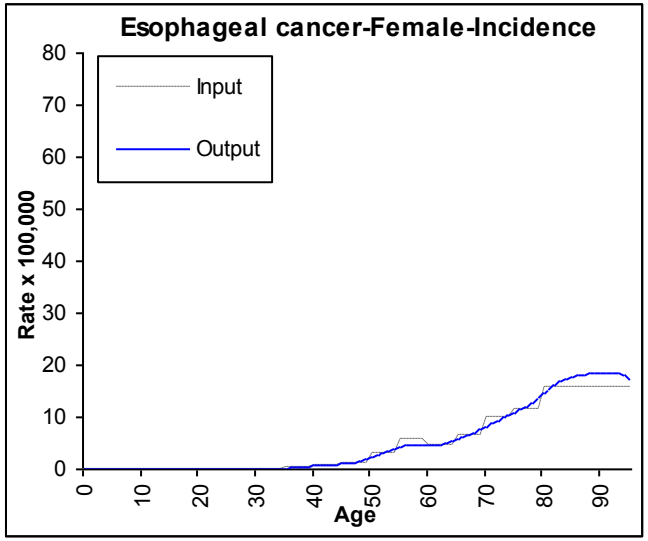


Figures 4.3.e. WP-10 ESTIMATES. Oesophageal cancer (ICD-10 C15). INCIDENCE. FEMALE

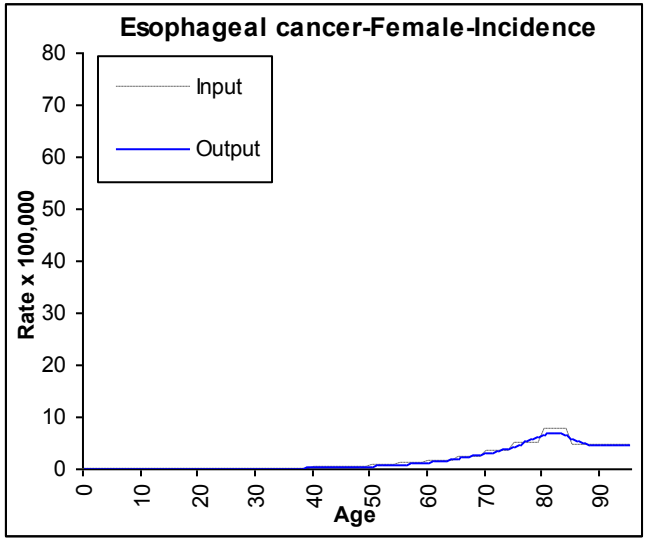
AUSTRIA



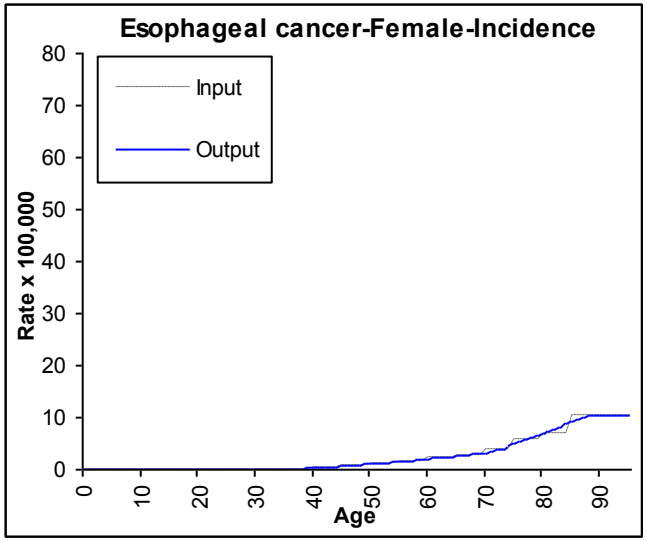
BELGIUM



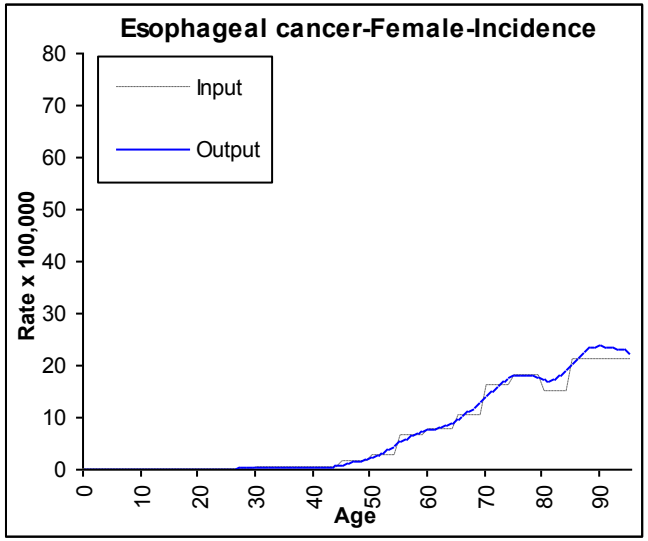
BULGARIA



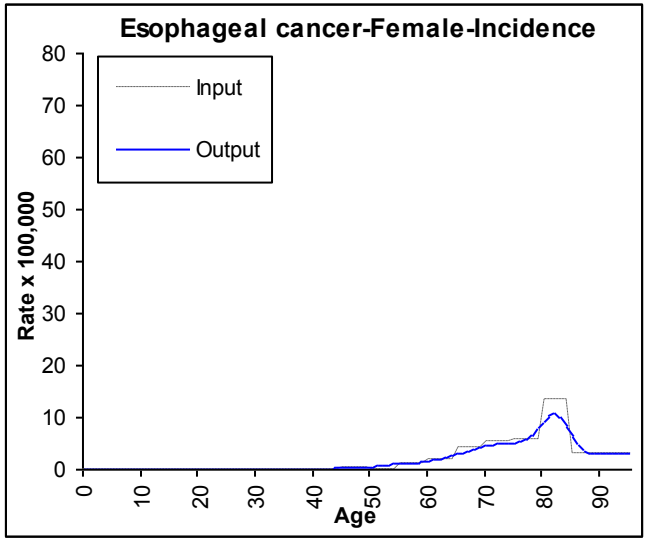
CZECH REPUBLIC



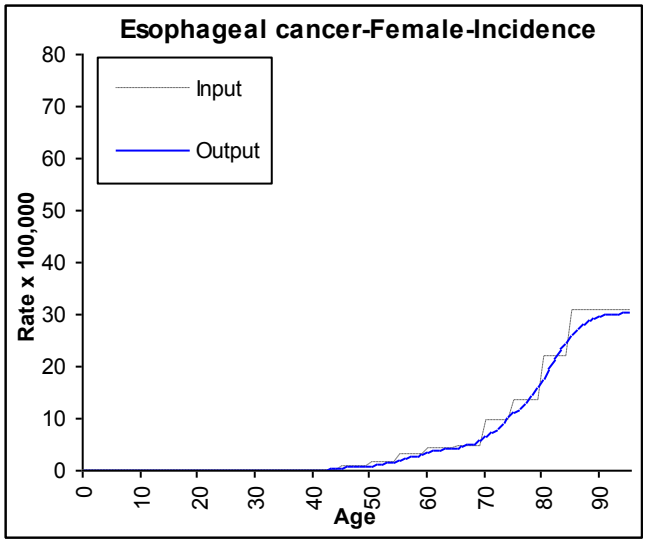
DENMARK



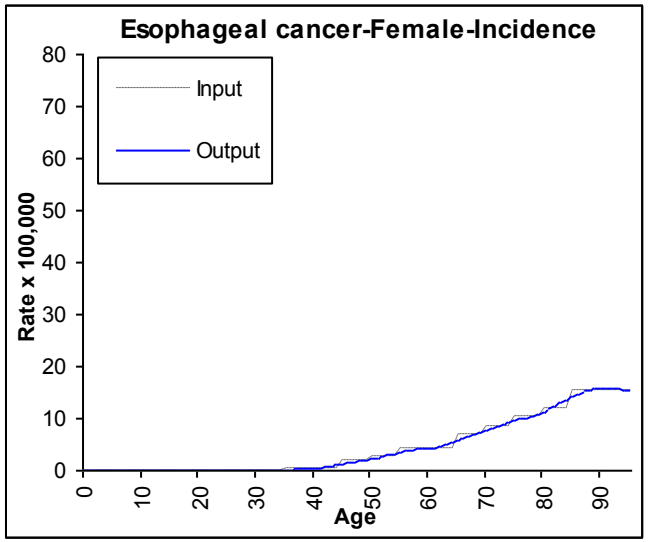
ESTONIA



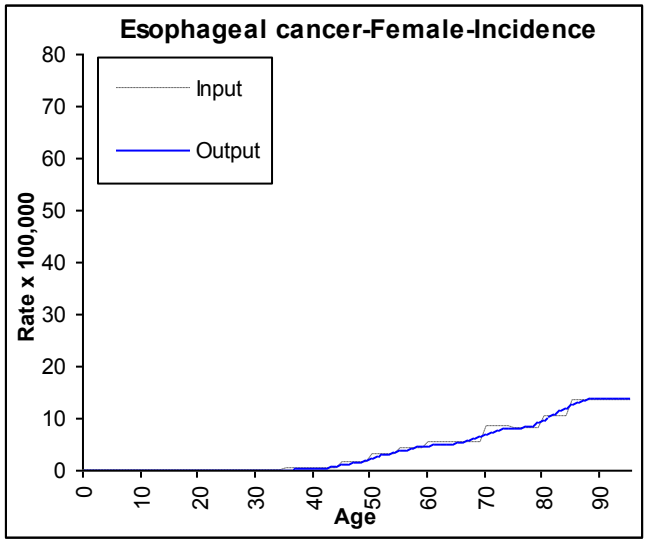
FINLAND



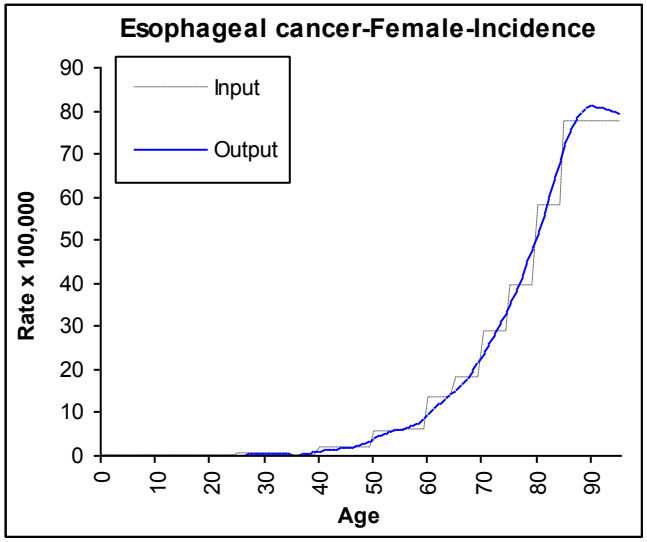
FRANCE



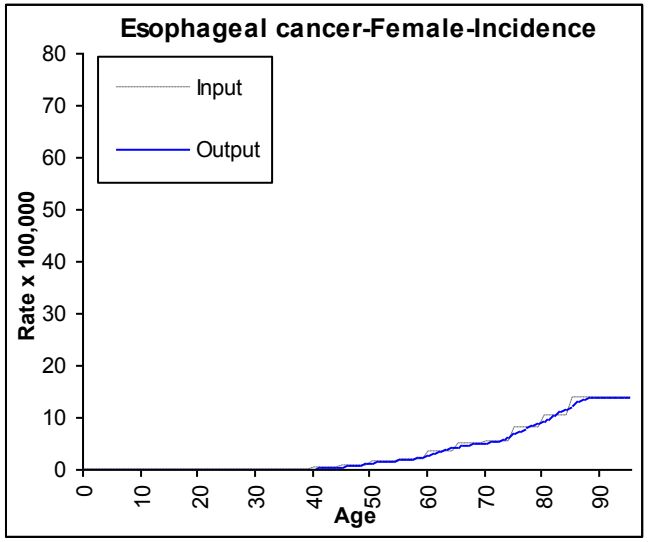
GERMANY



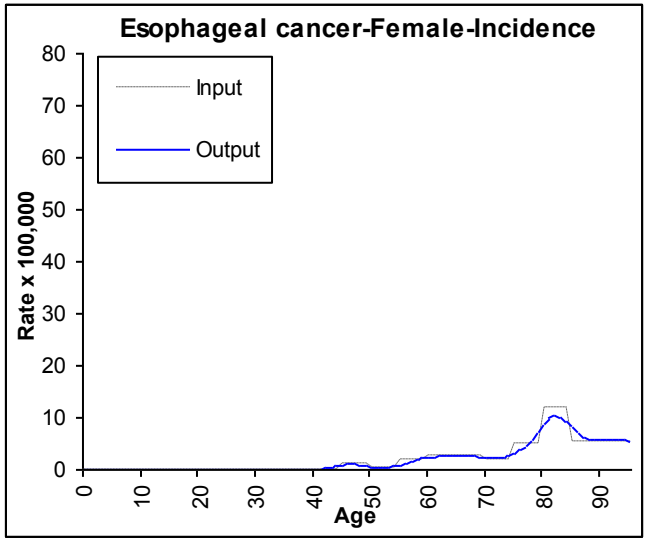
IRELAND



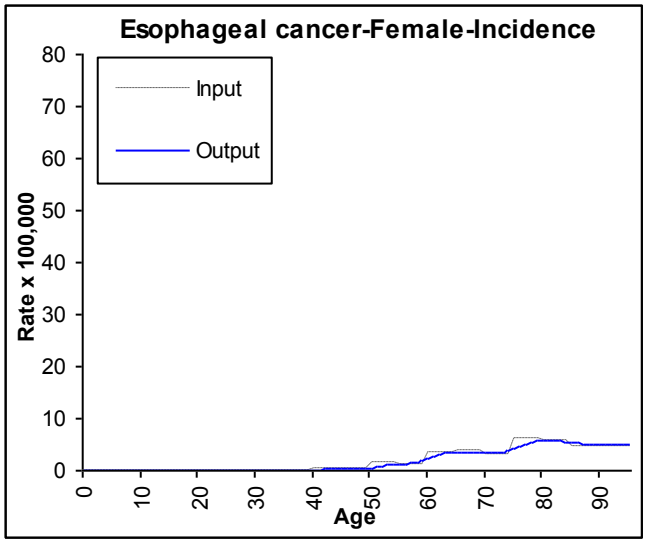
ITALY



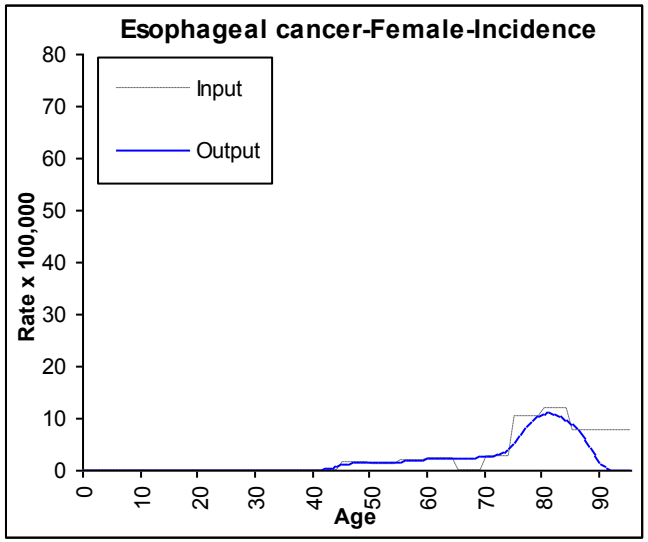
LATVIA



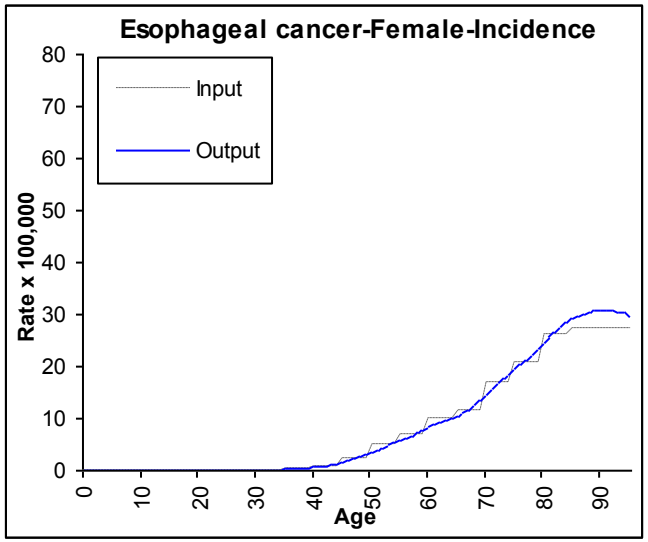
LITHUANIA



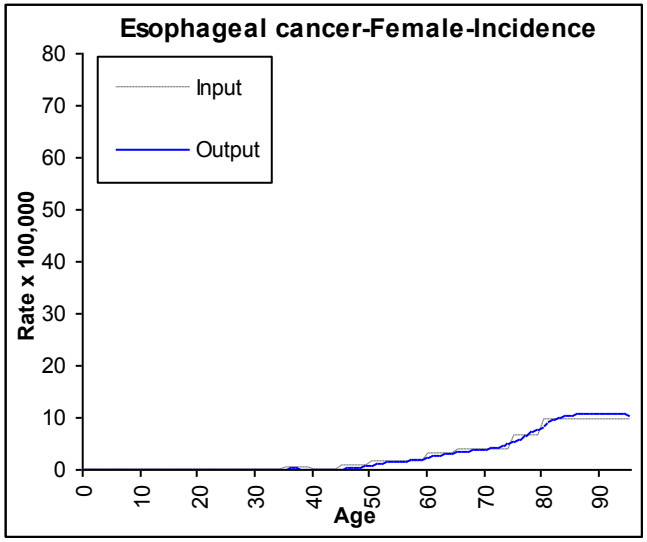
MALTA



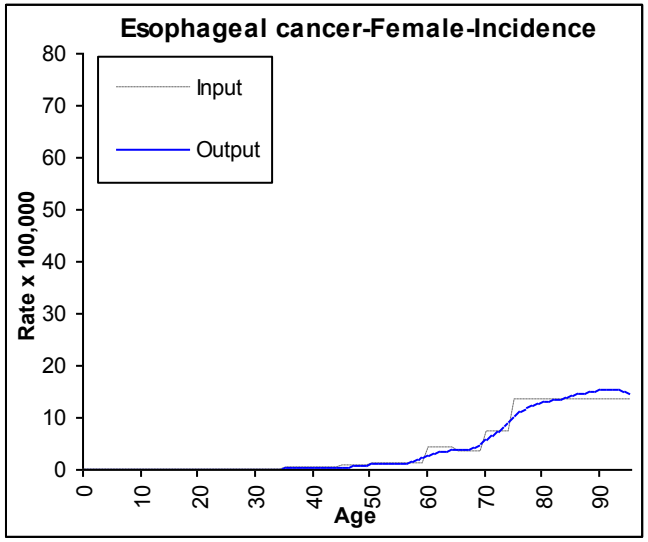
NETHERLANDS



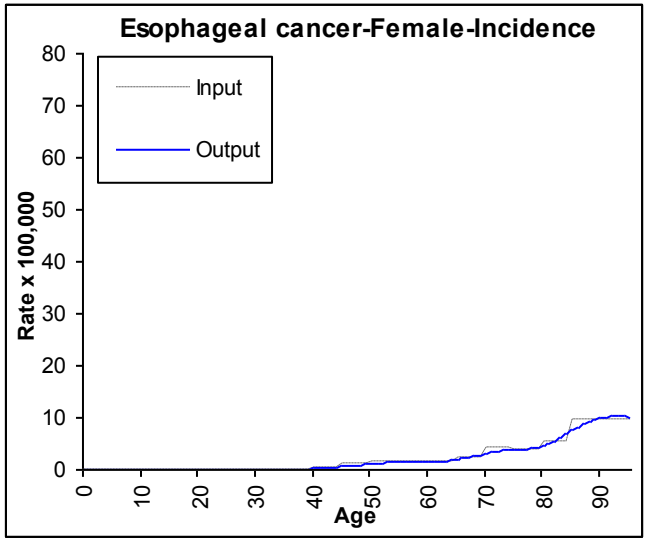
POLAND



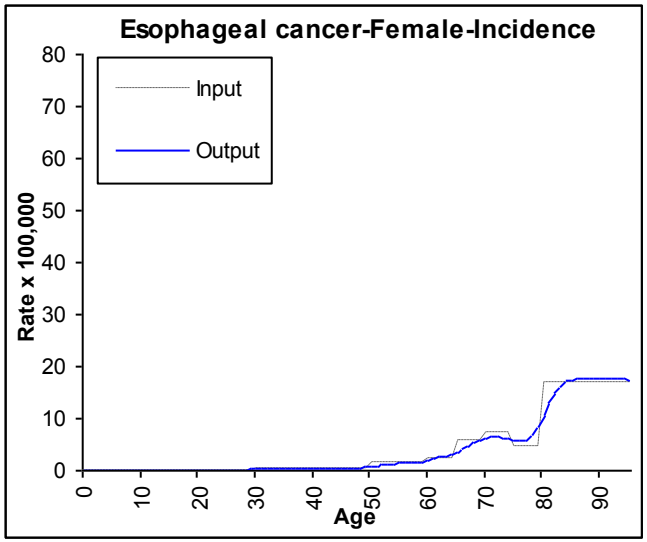
PORTUGAL



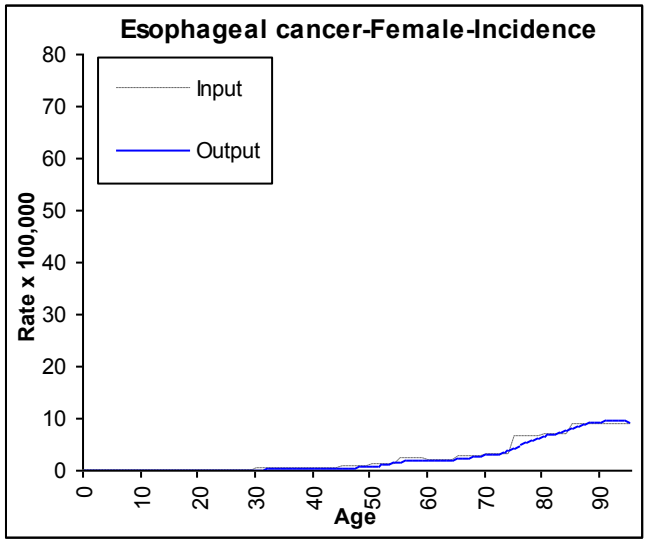
SLOVAKIA



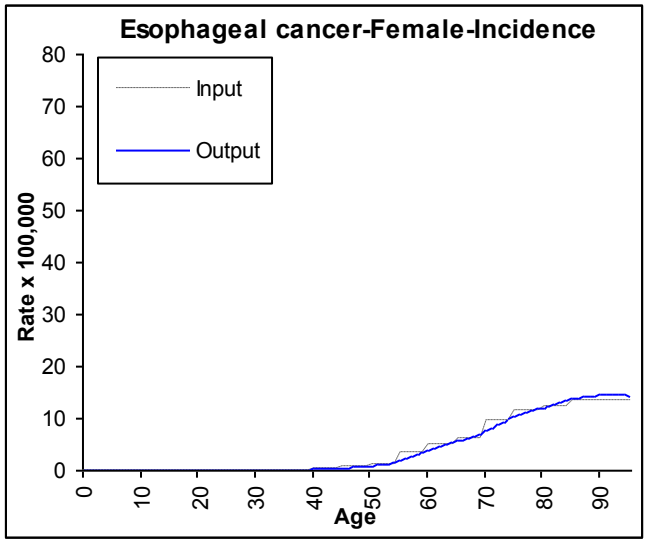
SLOVENIA



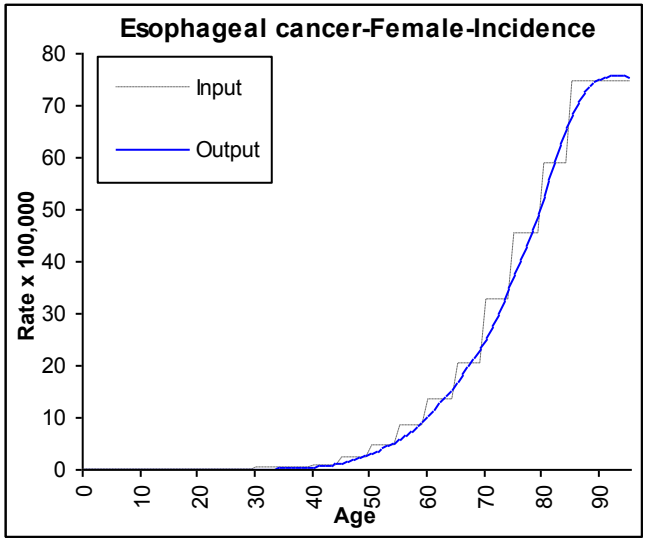
SPAIN



SWEDEN

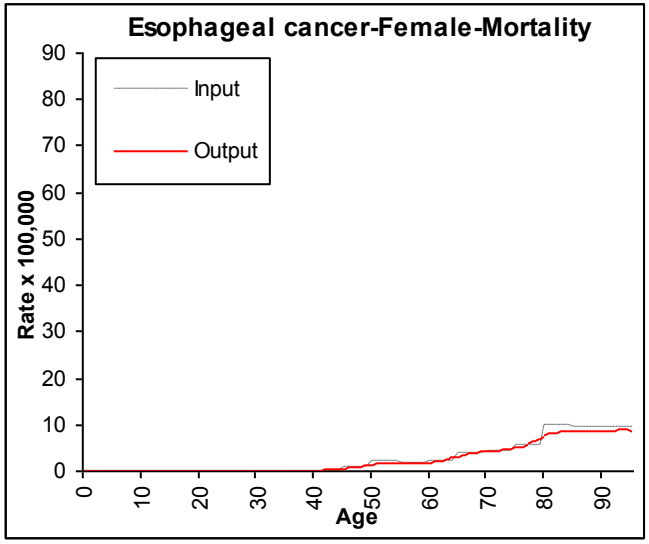


UNITED KINGDOM

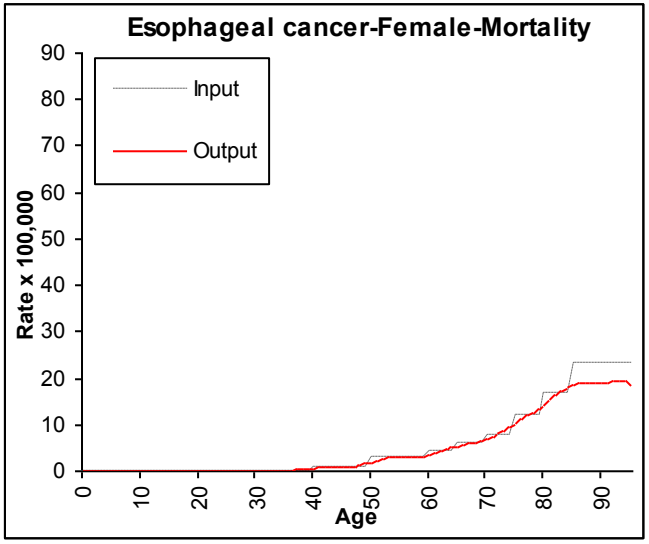


Figures 4.3.f. WP-10 ESTIMATES. Oesophageal cancer (ICD-10 C15). MORTALITY. FEMALE

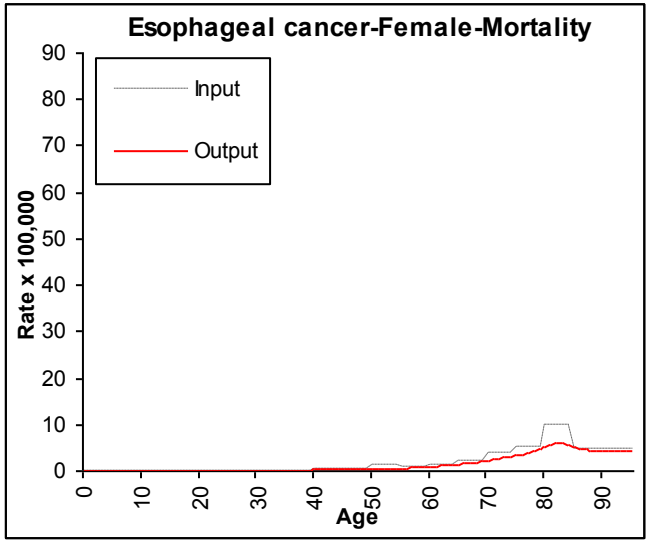
AUSTRIA



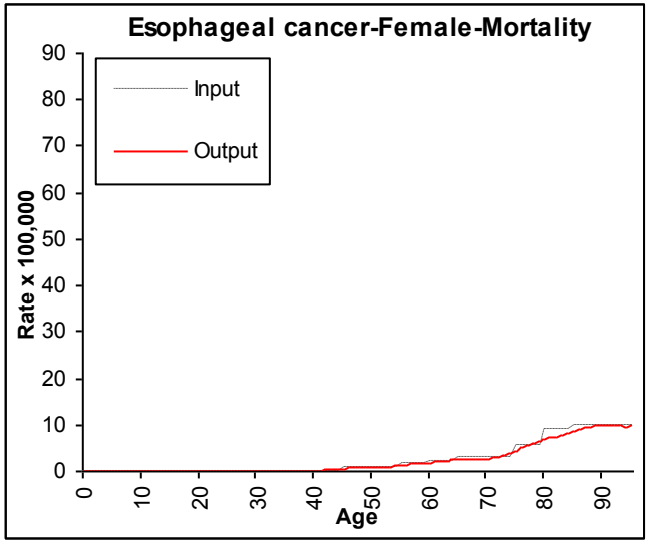
BELGIUM



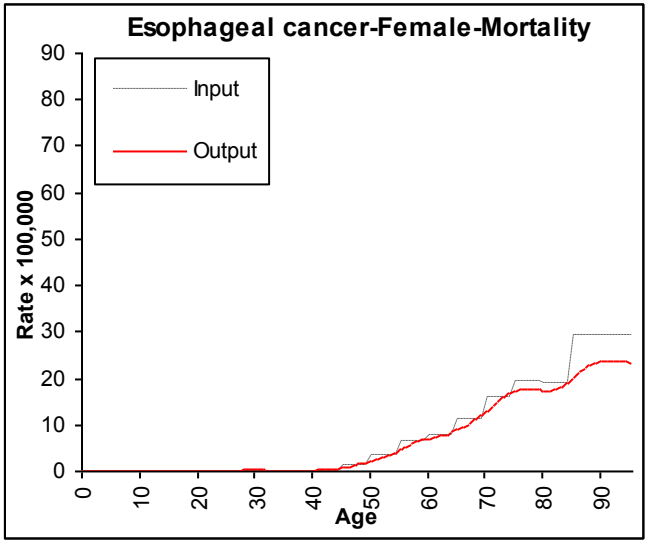
BULGARIA



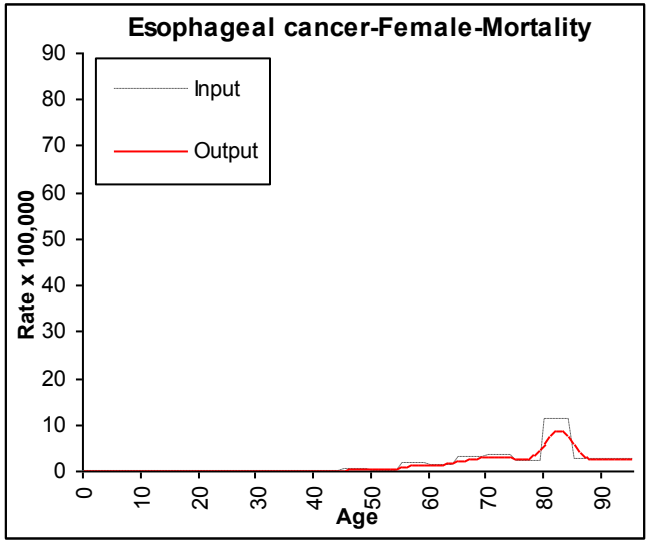
CZECH REPUBLIC



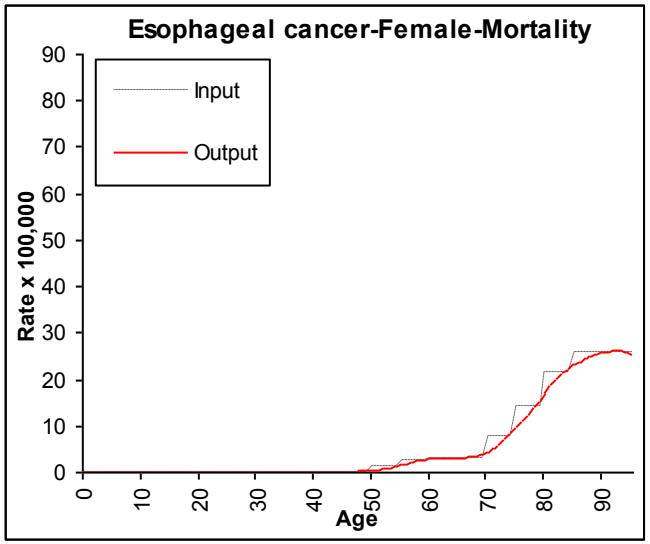
DENMARK



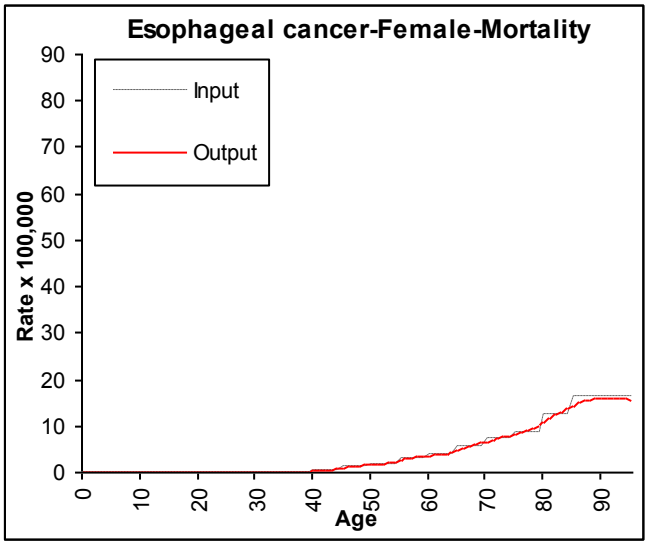
ESTONIA



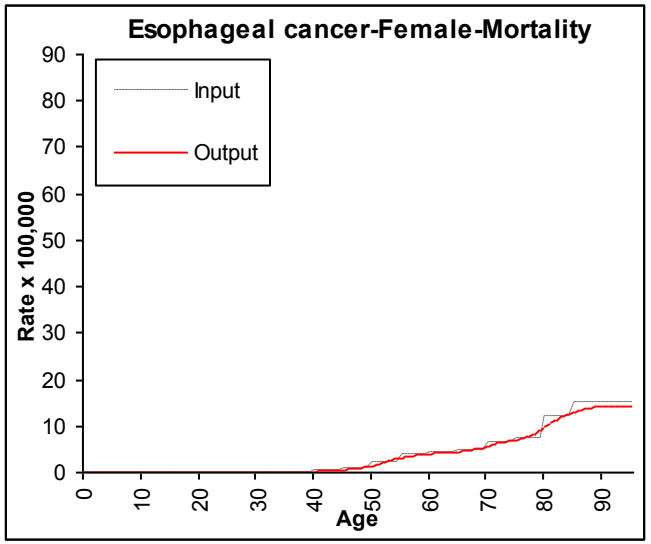
FINLAND



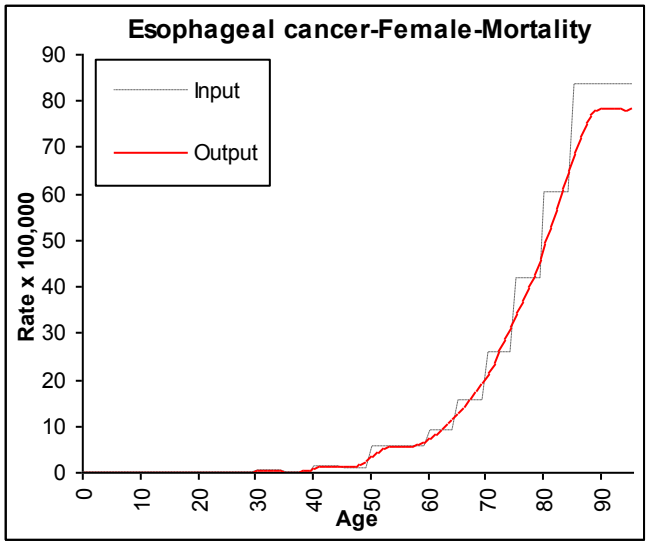
FRANCE



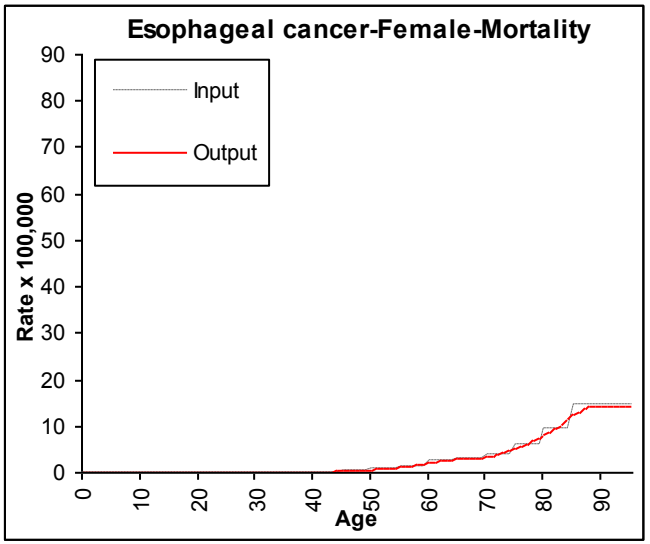
GERMANY



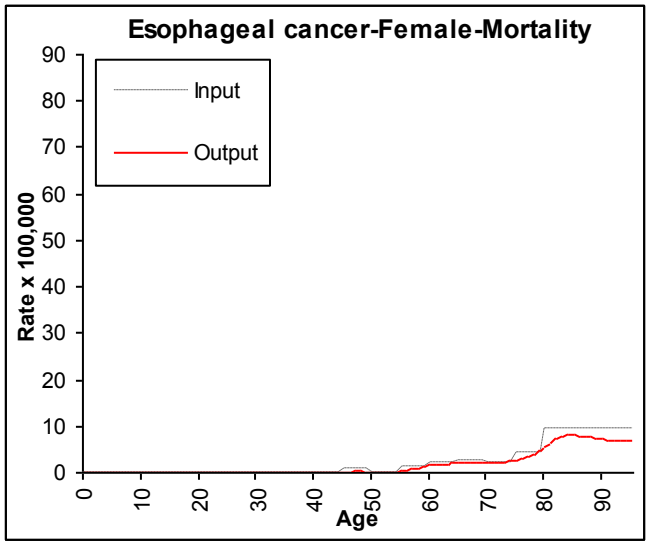
IRELAND



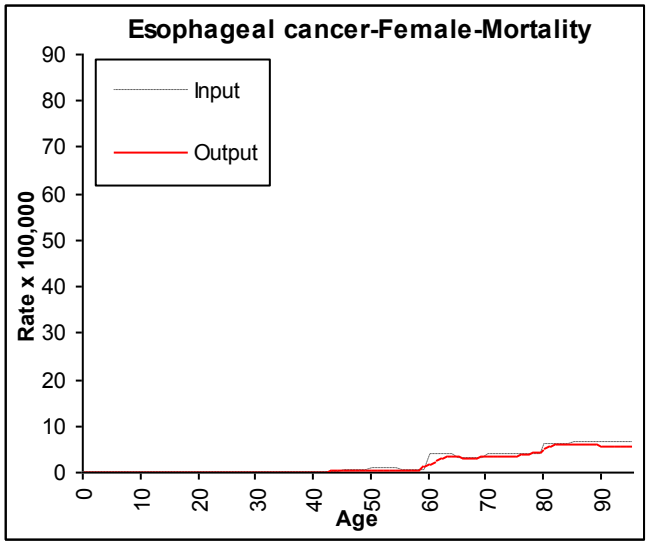
ITALY



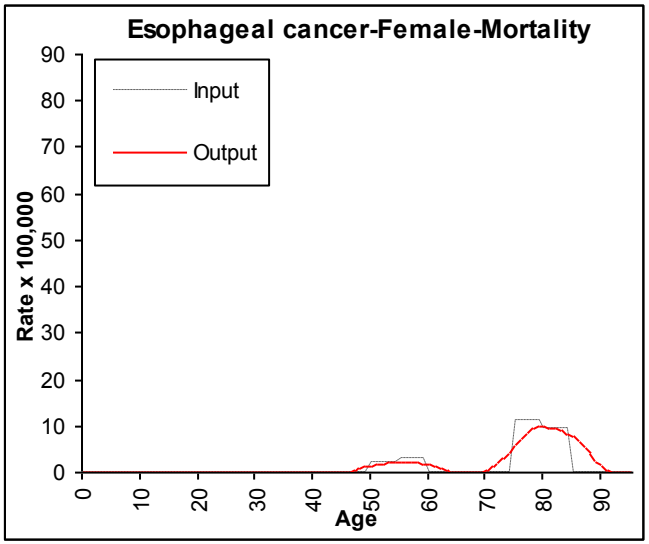
LATVIA



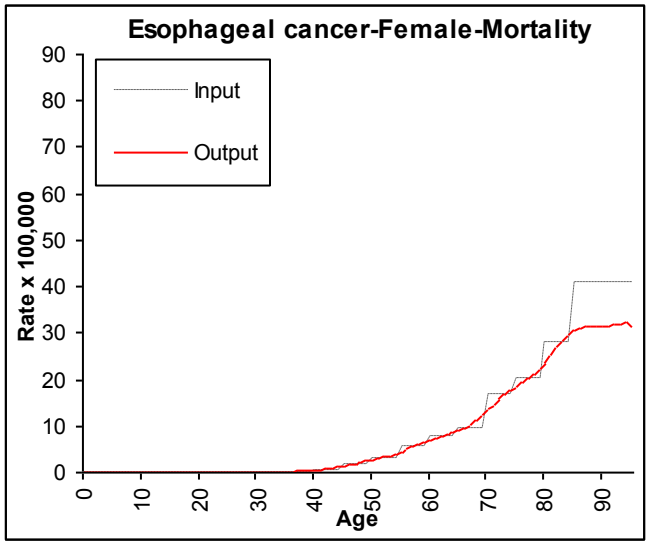
LITHUANIA



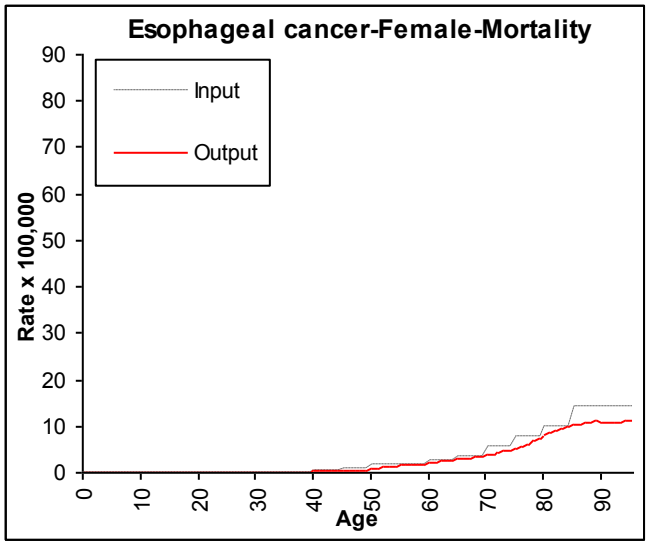
MALTA



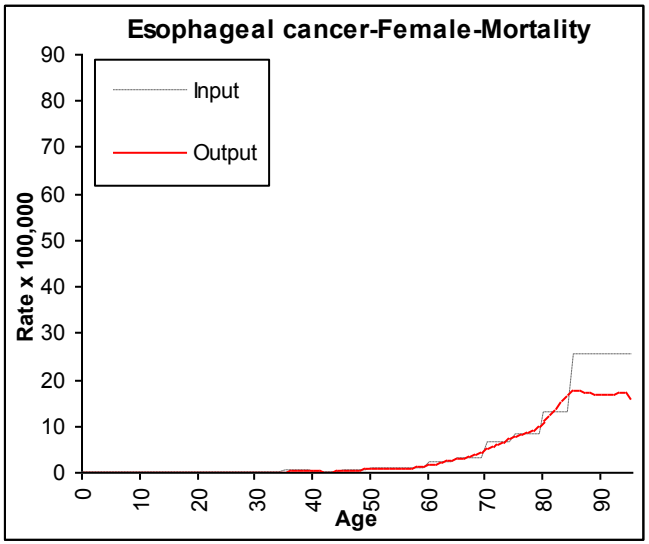
NETHERLANDS



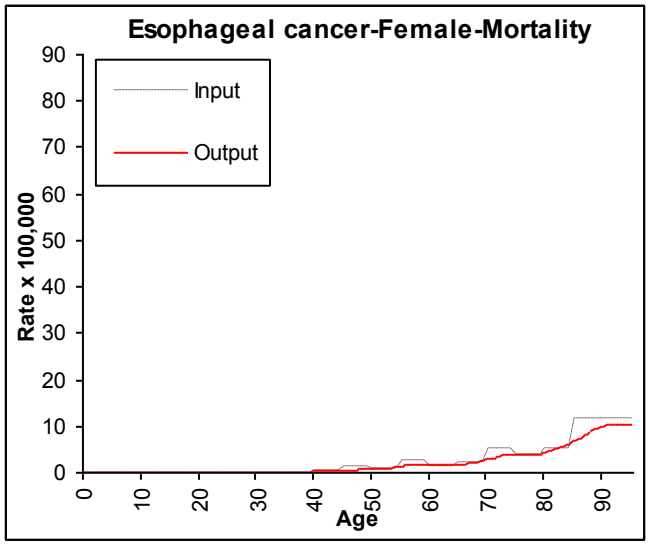
POLAND



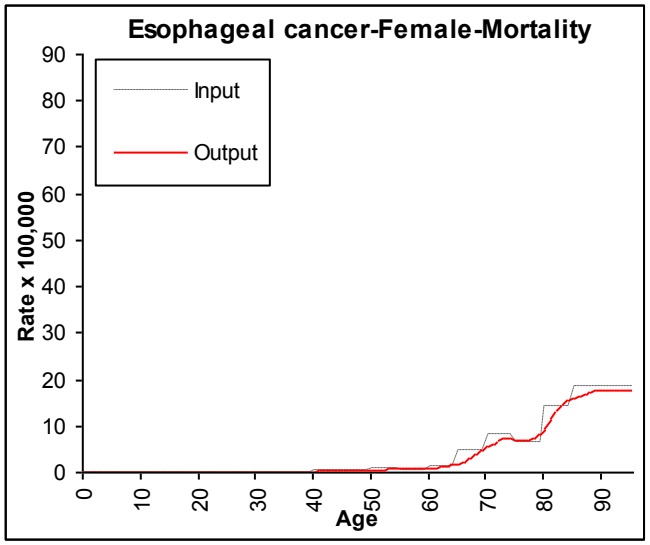
PORTUGAL



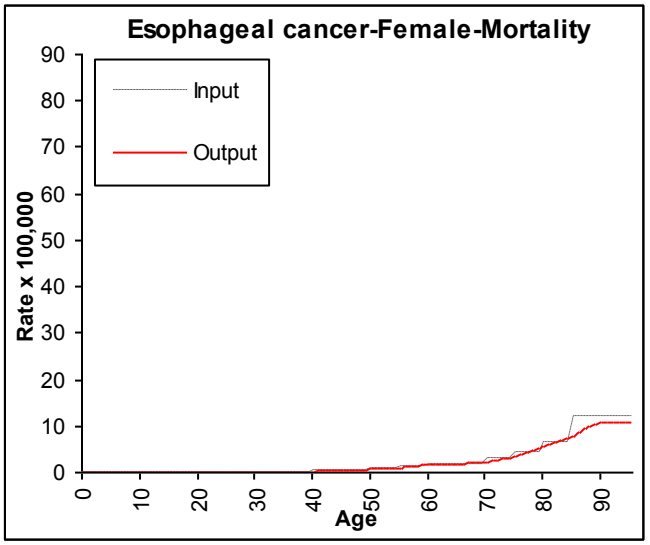
SLOVAKIA



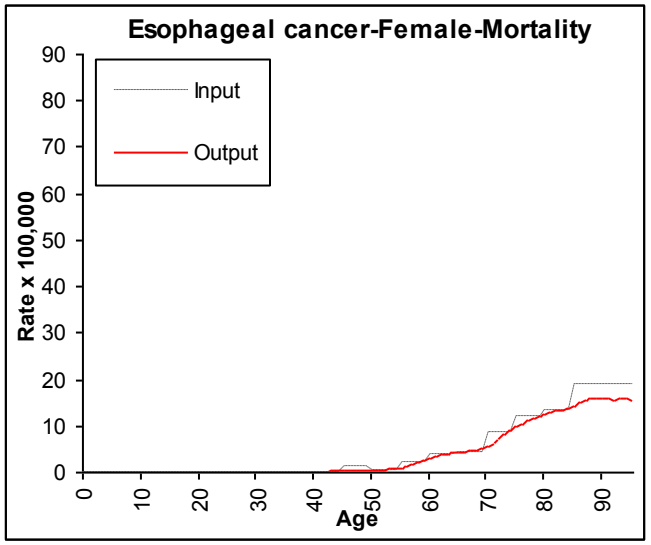
SLOVENIA



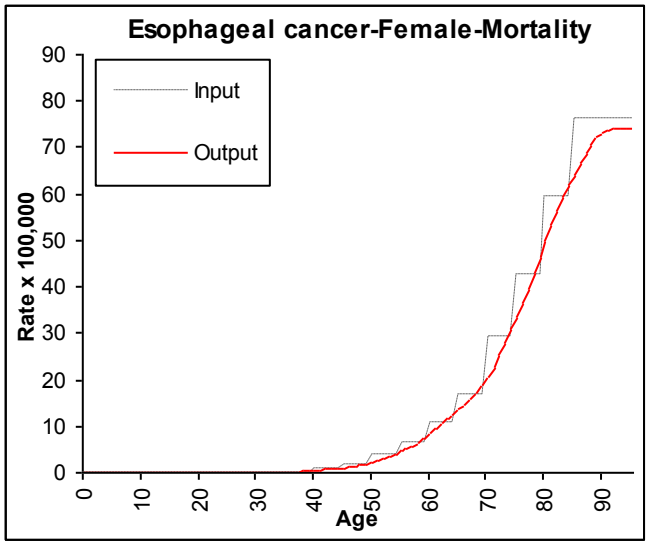
SPAIN



SWEDEN

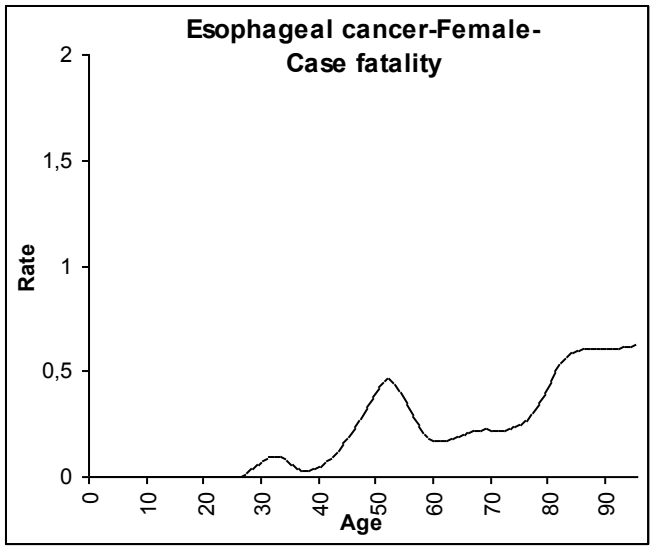


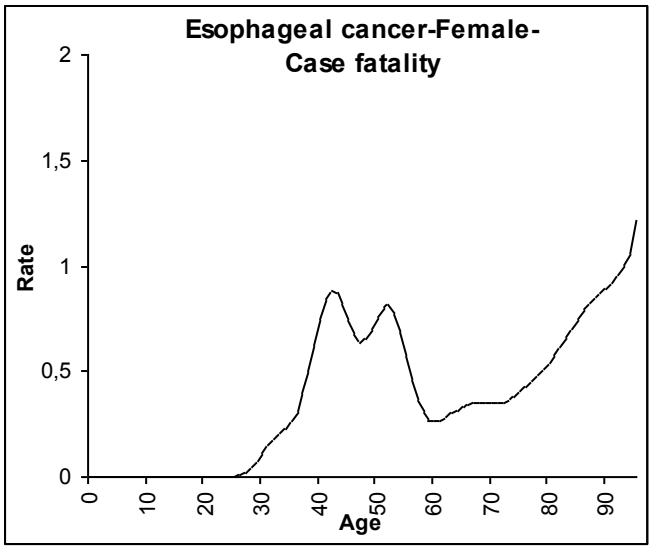
UNITED KINGDOM

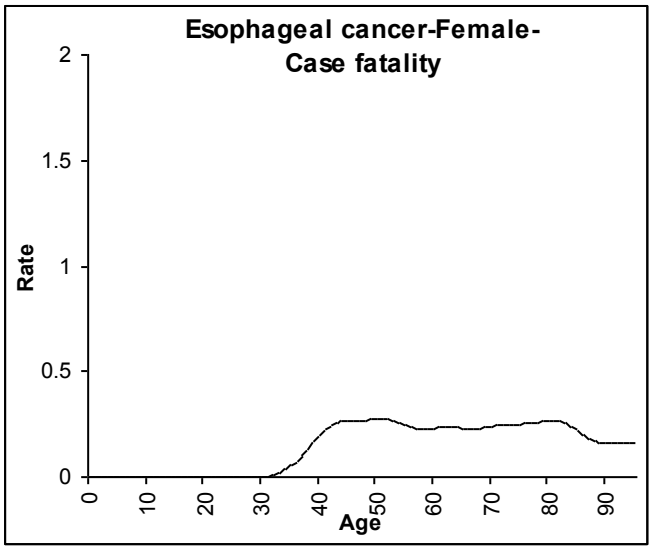


Figures 4.3.g. WP-10 ESTIMATES. Oesophageal cancer (ICD-10 C15). CASE FATALITY. FEMALE

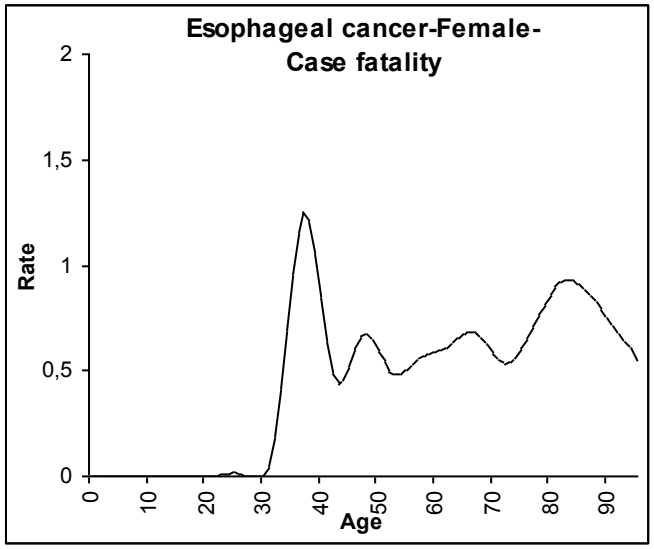
AUSTRIA	BELGIUM	BULGARIA

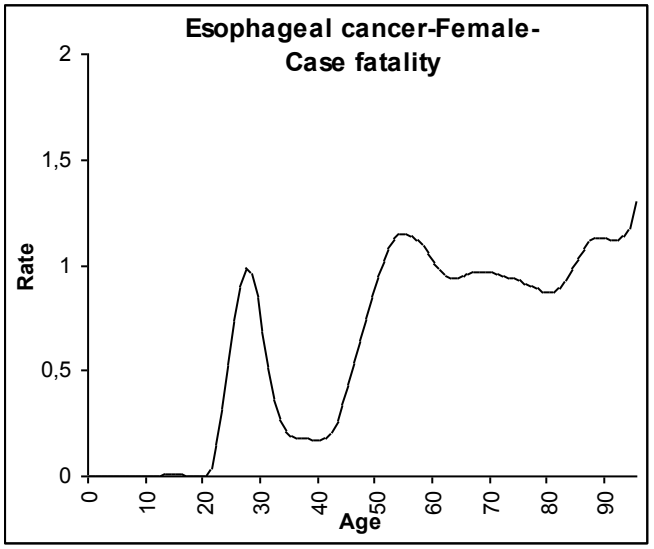


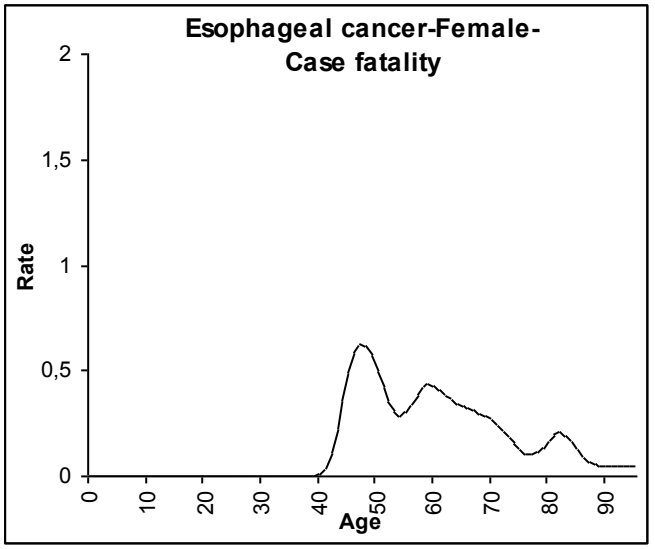


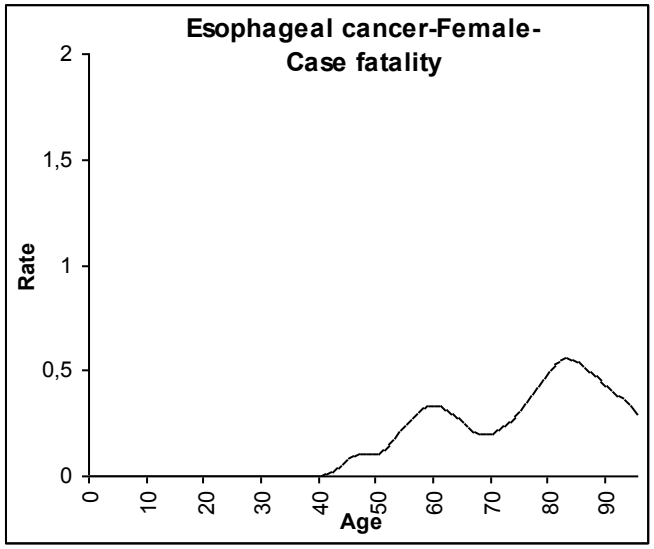
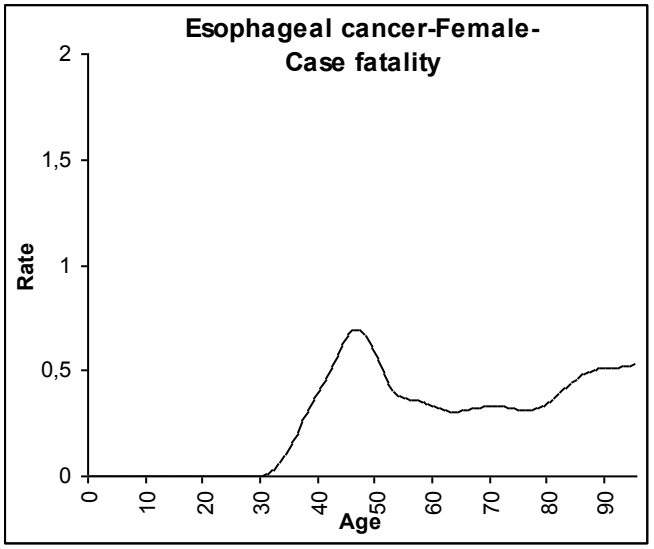
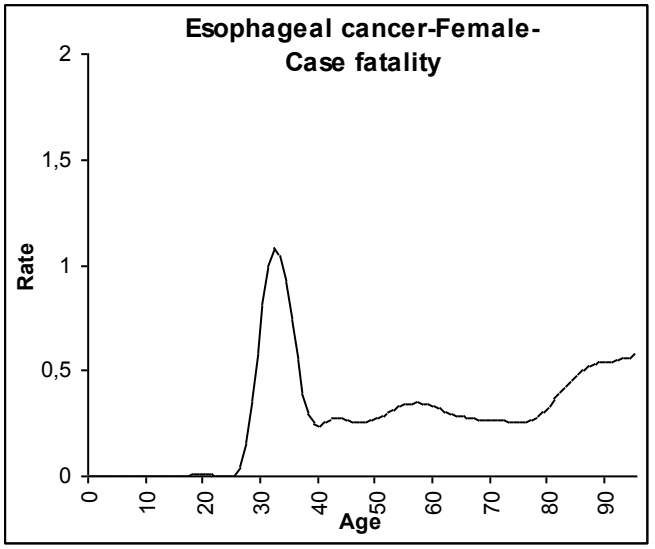


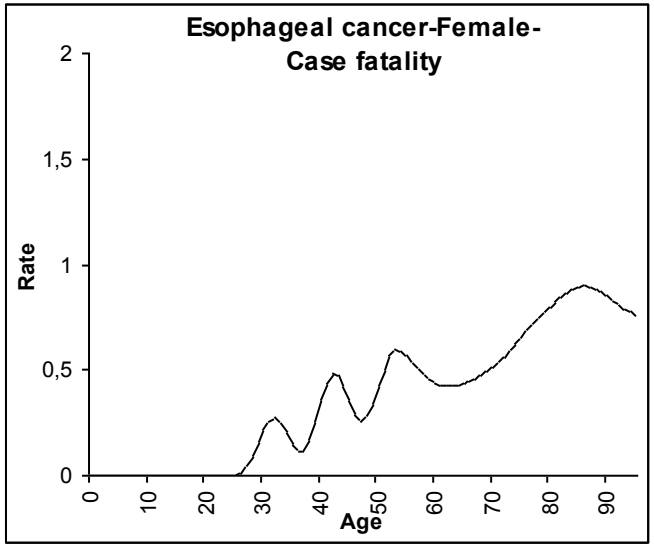
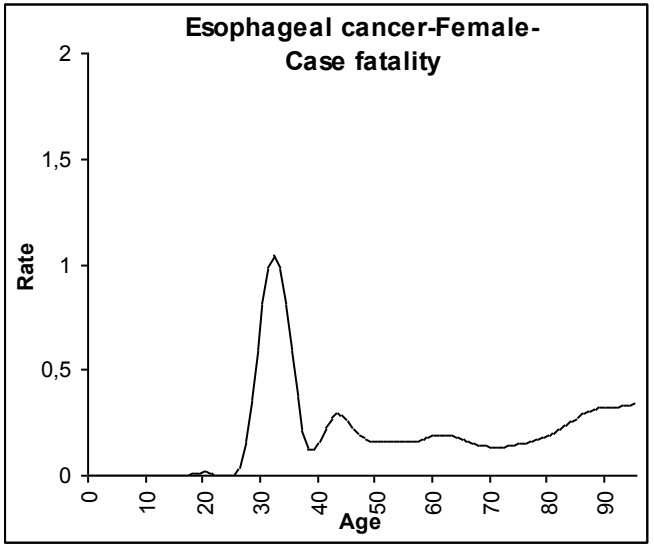
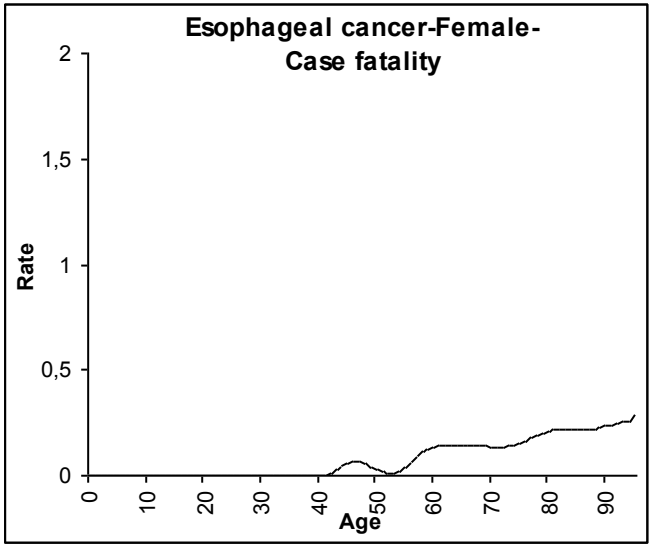
CZECH REPUBLIC	DENMARK	ESTONIA

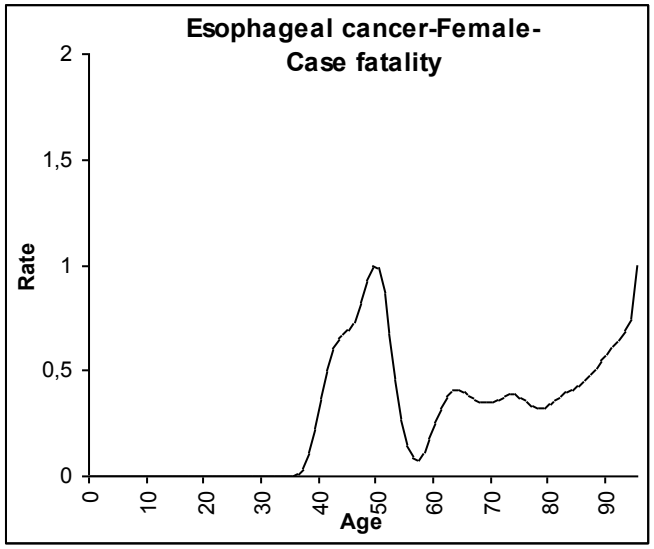
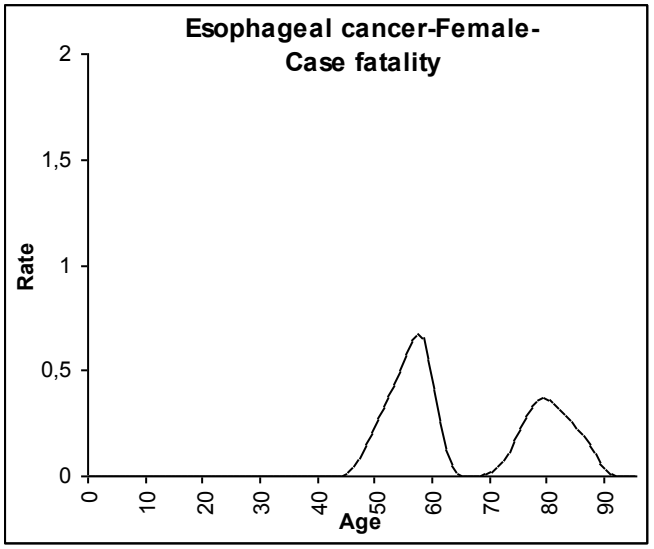
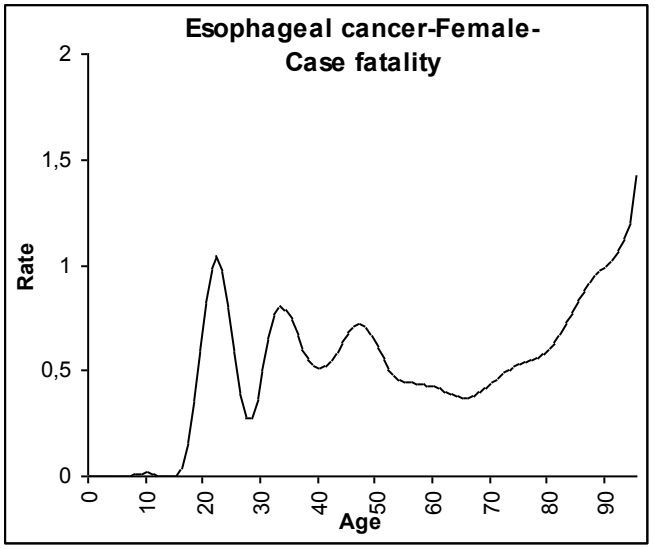


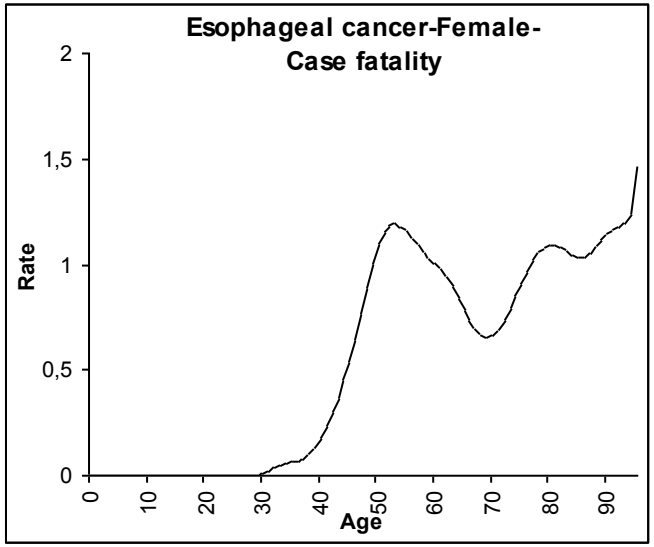
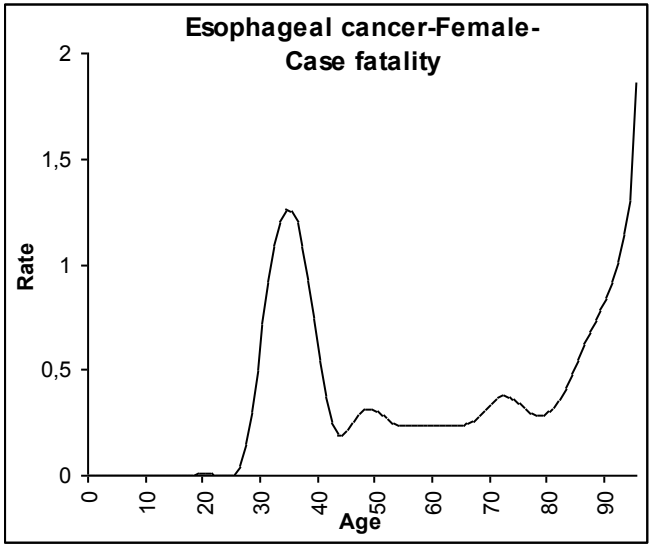
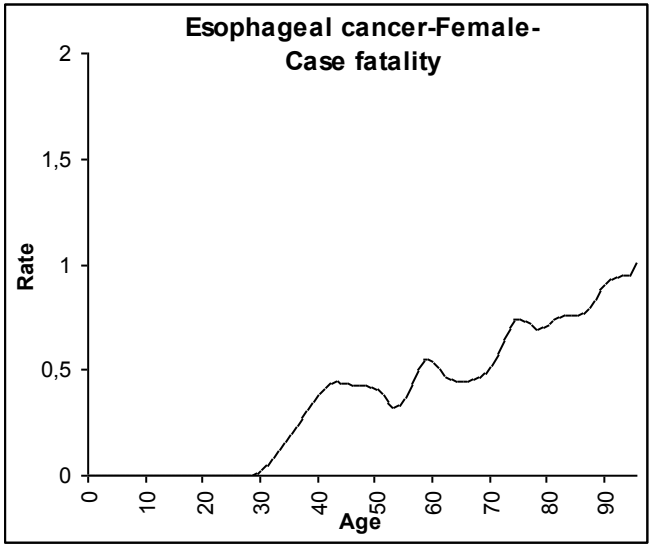




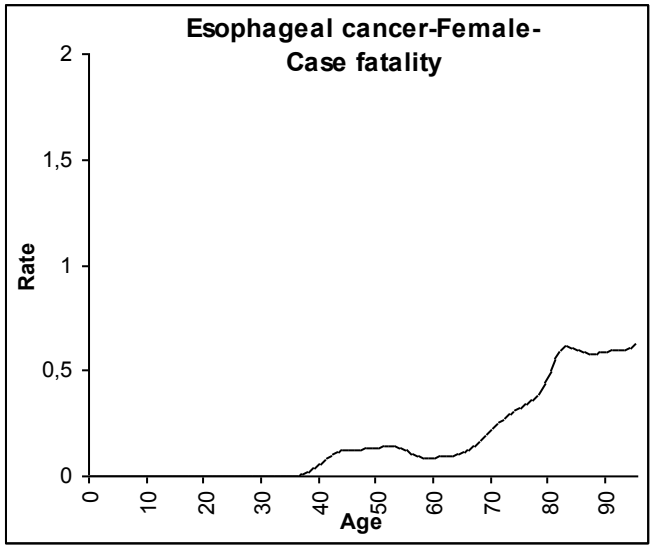
FINLAND	FRANCE	GERMANY
		

IRELAND	ITALY	LATVIA
		

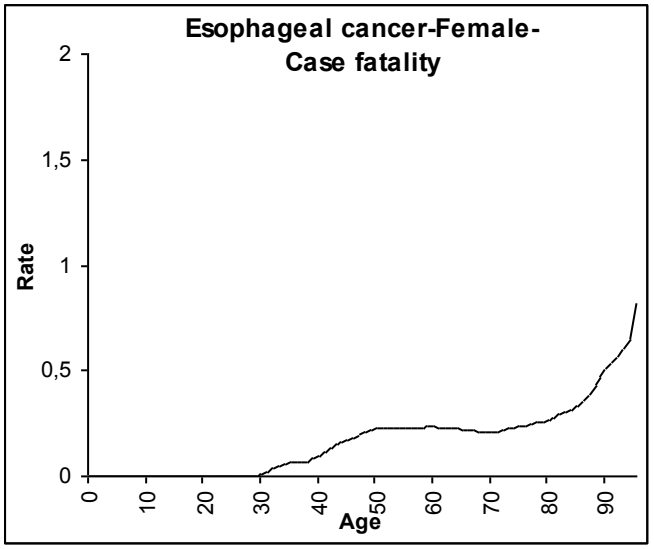
LITHUANIA	MALTA	NETHERLANDS
		

POLAND	PORTUGAL	SLOVAKIA
		

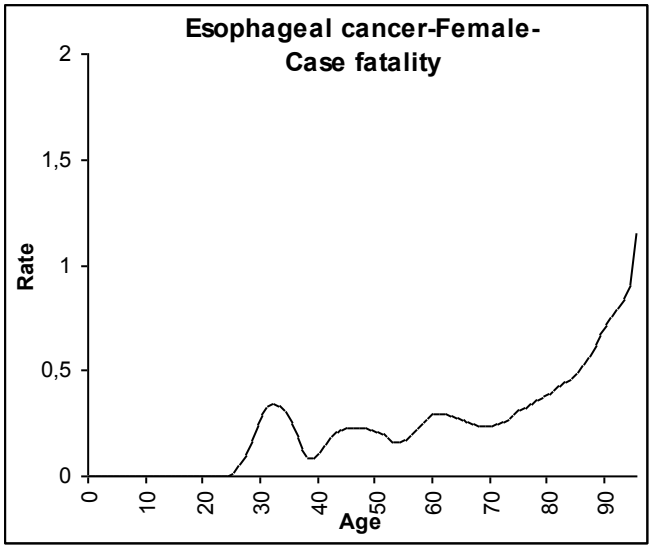
SLOVENIA



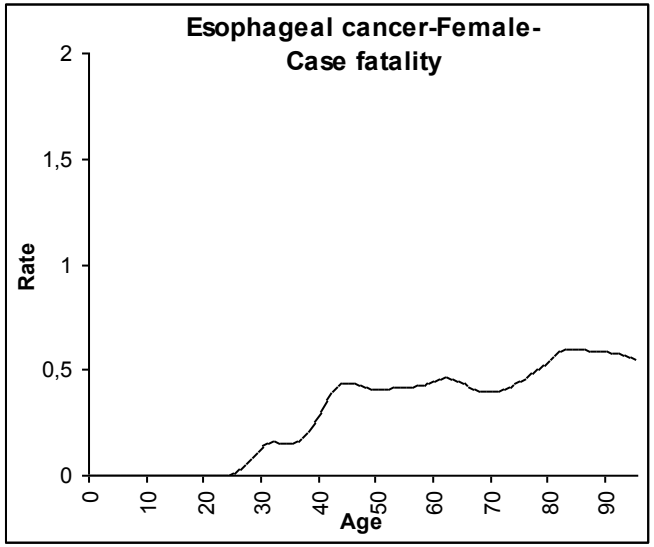
SPAIN



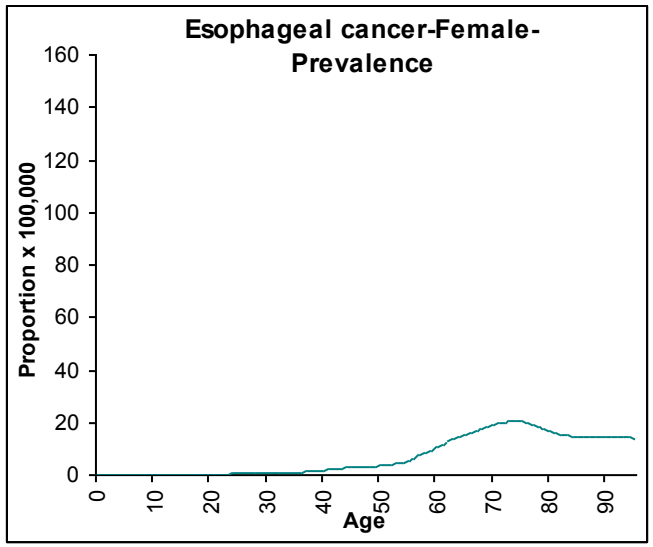
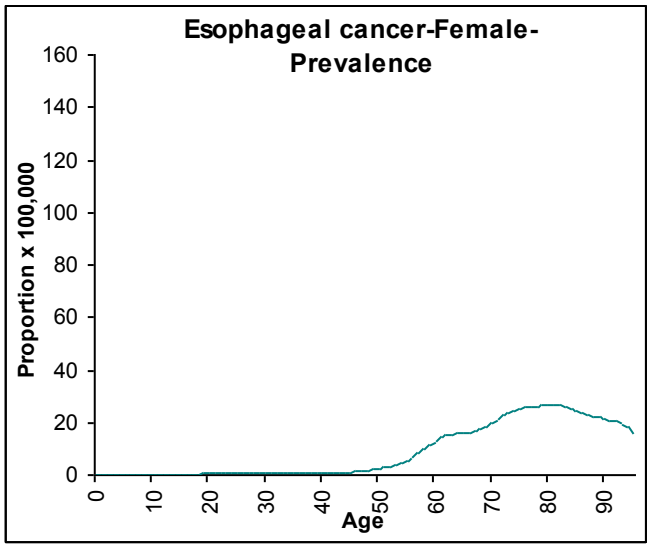
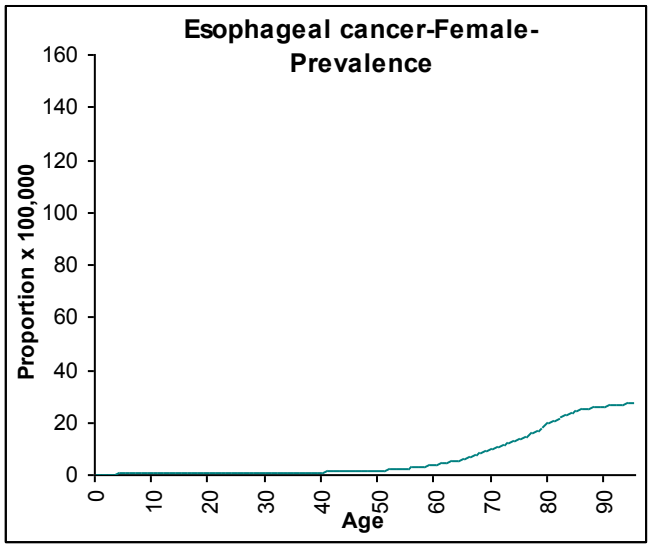
SWEDEN

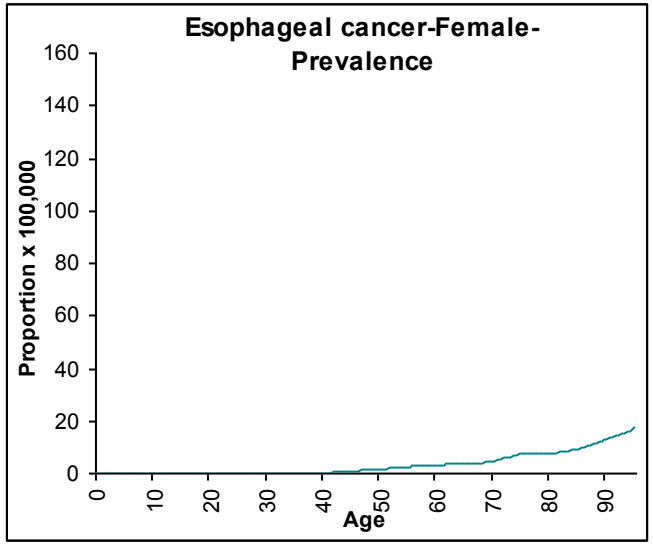
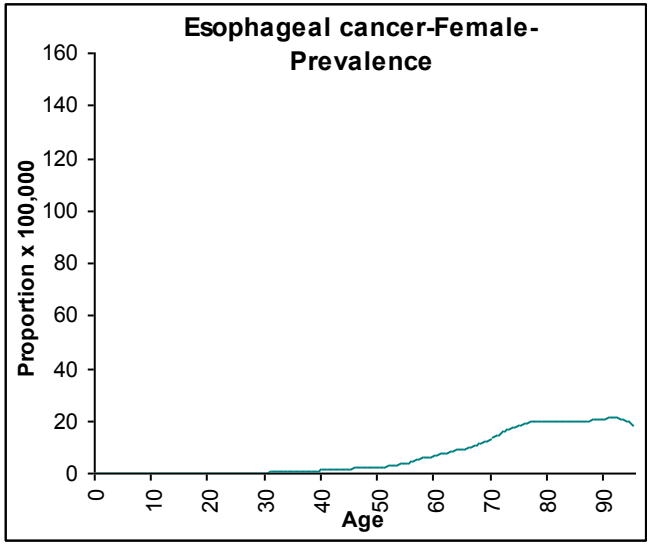
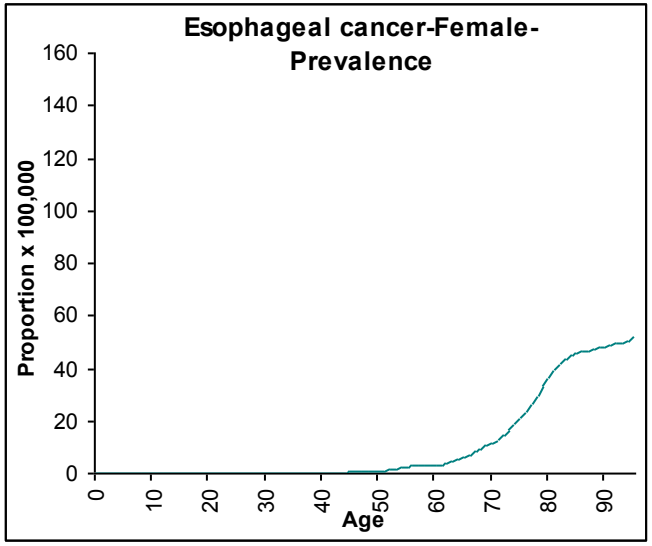


UNITED KINGDOM

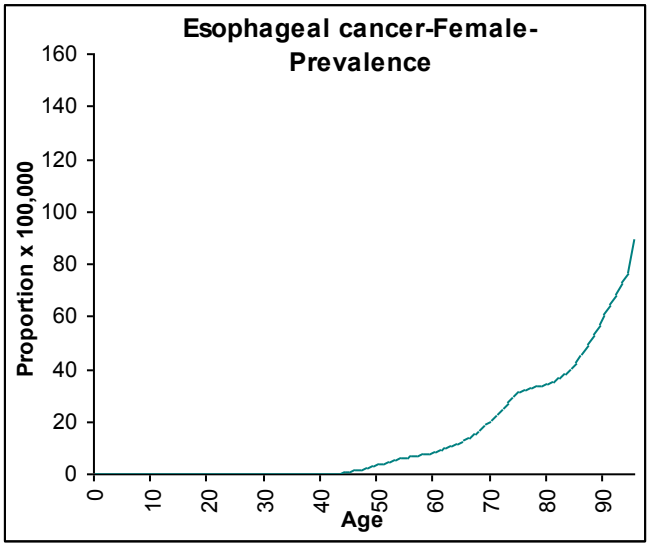


Figures 4.3.h. WP-10 ESTIMATES. Oesophageal cancer (ICD-10 C15). TOTAL PREVALENCE. FEMALE

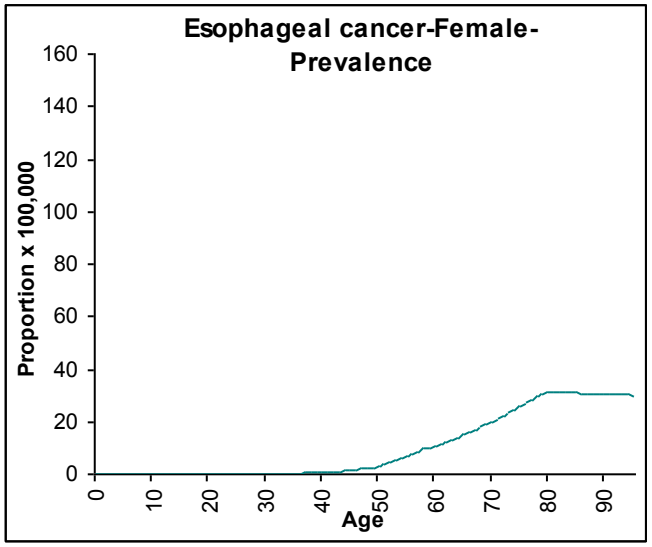
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

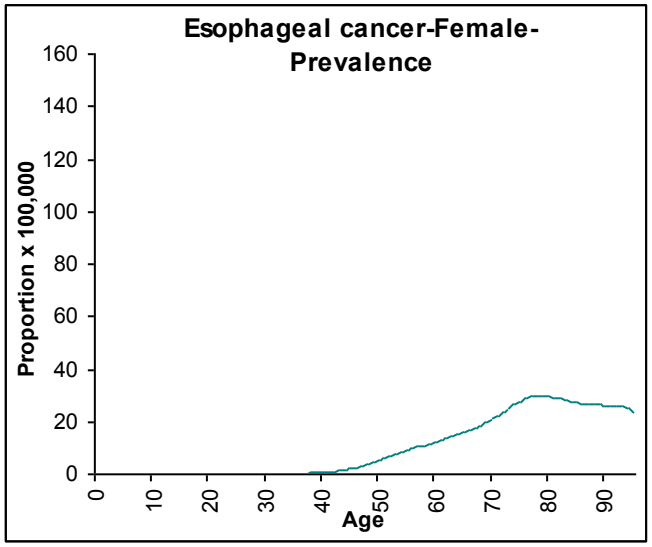
FINLAND



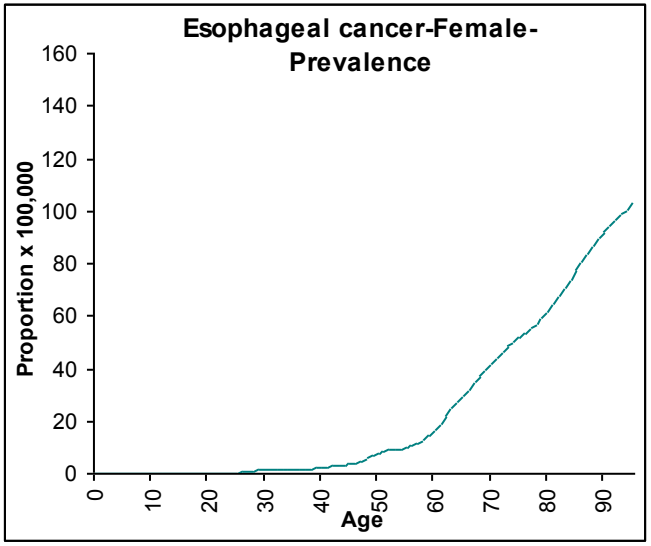
FRANCE



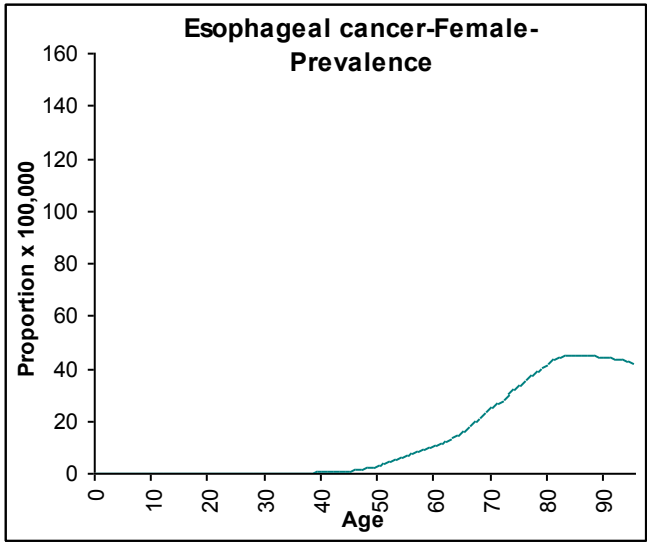
GERMANY



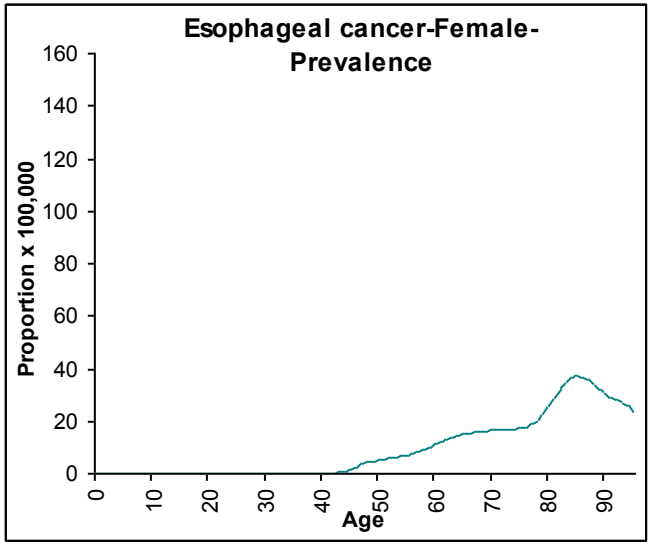
IRELAND



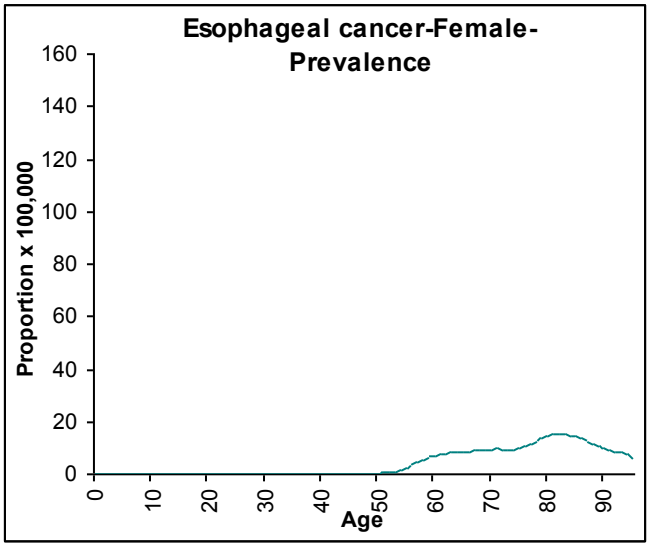
ITALY



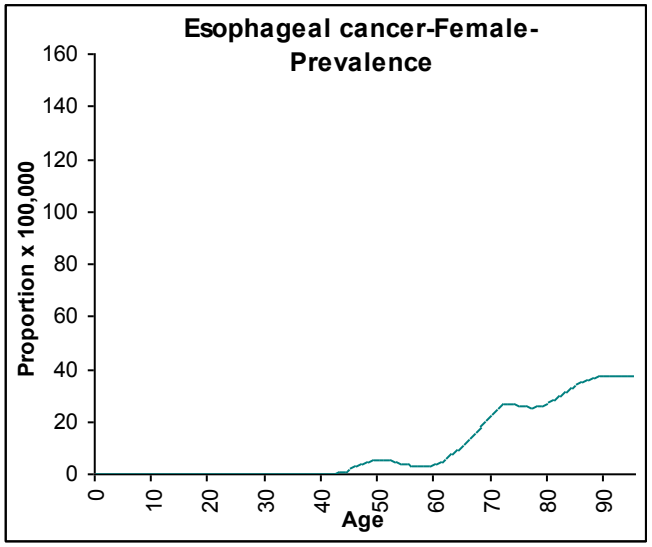
LATVIA



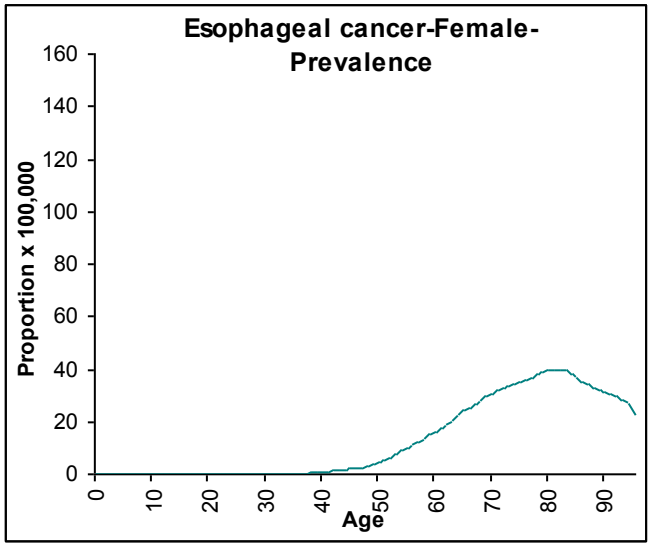
LITHUANIA



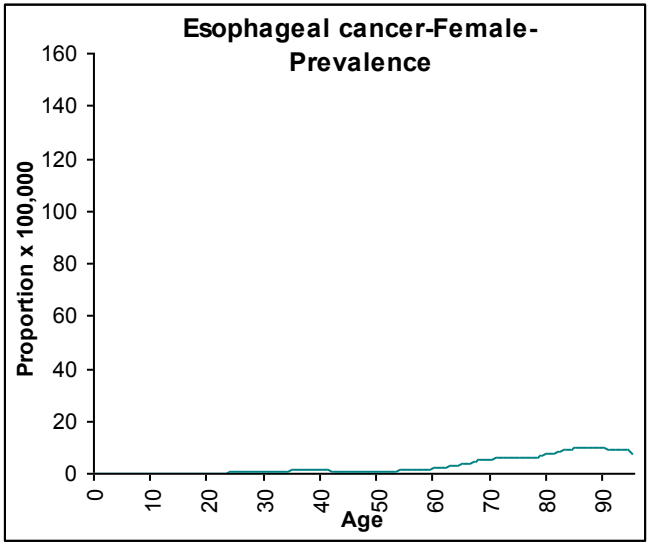
MALTA



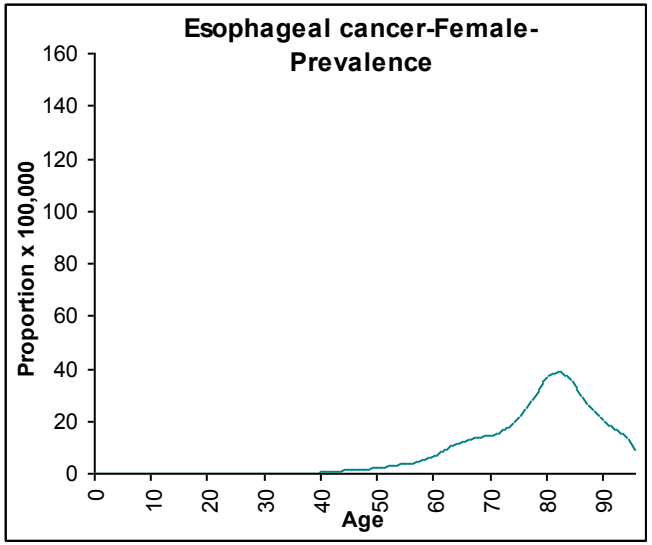
NETHERLANDS



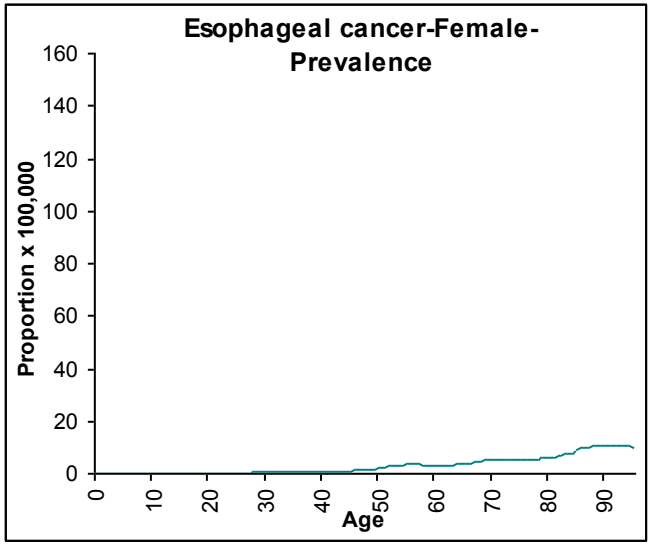
POLAND



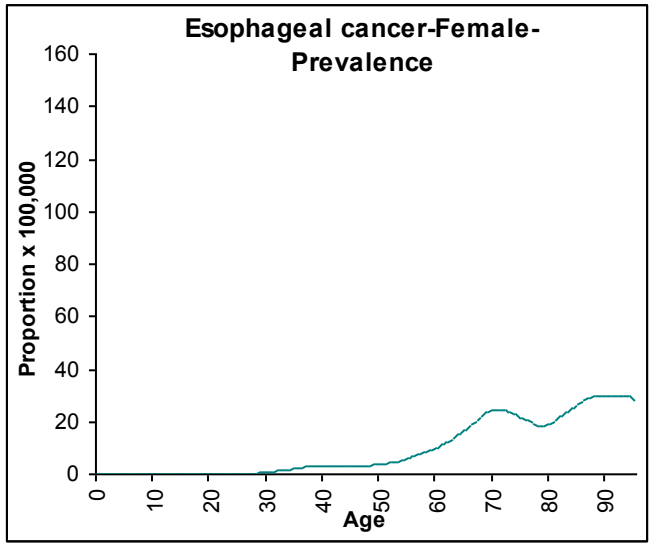
PORTUGAL



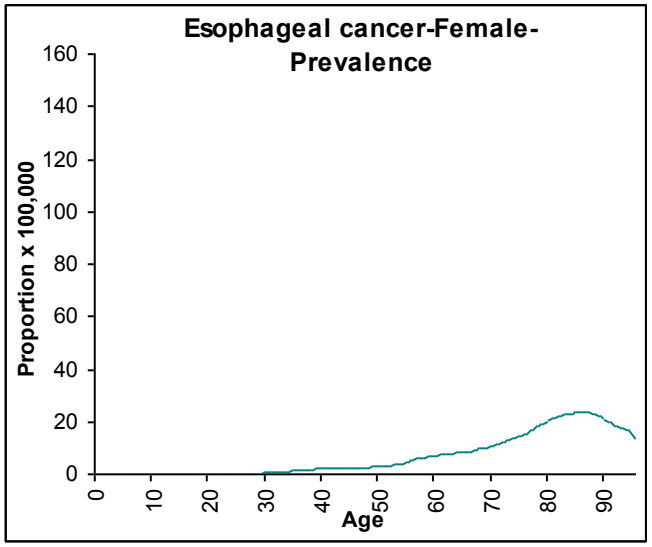
SLOVAKIA



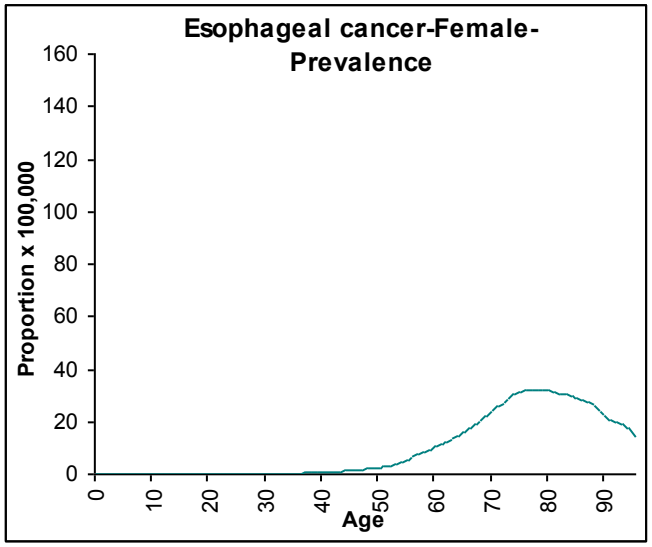
SLOVENIA



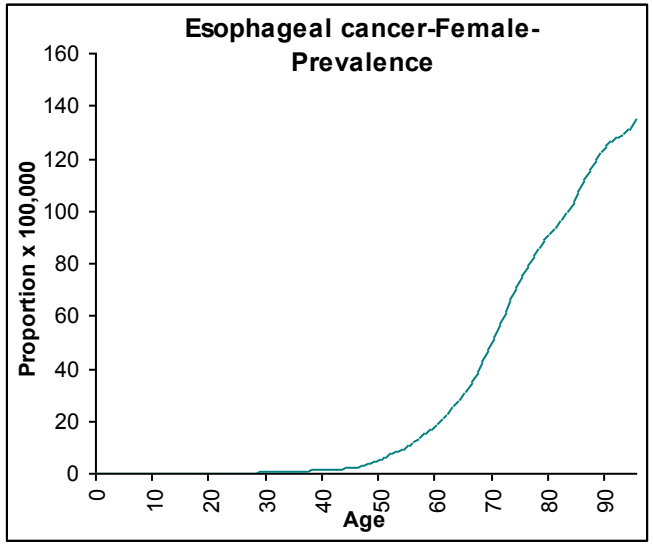
SPAIN



SWEDEN



UNITED KINGDOM



4.5 Provided data on cancer by country: oral cancer

4.5.1 Oral cancer: epidemiological picture in Europe

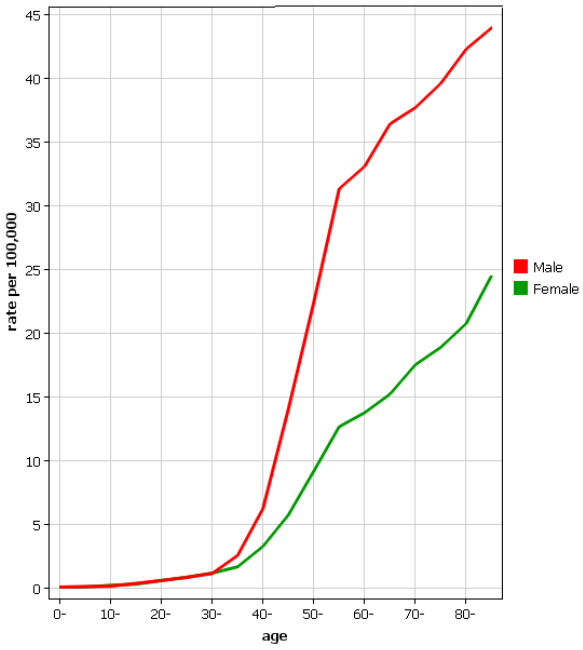
After four decades of steady rises, oral cancer mortality in men has started to decline since the late 1980s in most Western Europe. This conceals, however, some persisting upward trends in countries like Belgium, Denmark, Greece, Portugal, or Scotland. In contrast with trends in Western Europe, oral cancer mortality in men has continued to rise up to the mid 1990s in most Central and Eastern Europe (including the Russian Federation), reaching exceedingly high rates in countries like Hungary, Slovakia, but also Slovenia and the Russian Federation. Oral cancer rates remain comparatively low in European female, though some steady rise was apparent across the last two decades in most countries, and rates in some countries (Hungary, but also Belgium, Denmark, Slovakia) have reached relatively high levels, particularly in middle age, reflecting drinking and smoking patterns by women in these populations [9].

4.5.2 Oral cancer: WP-10 estimates

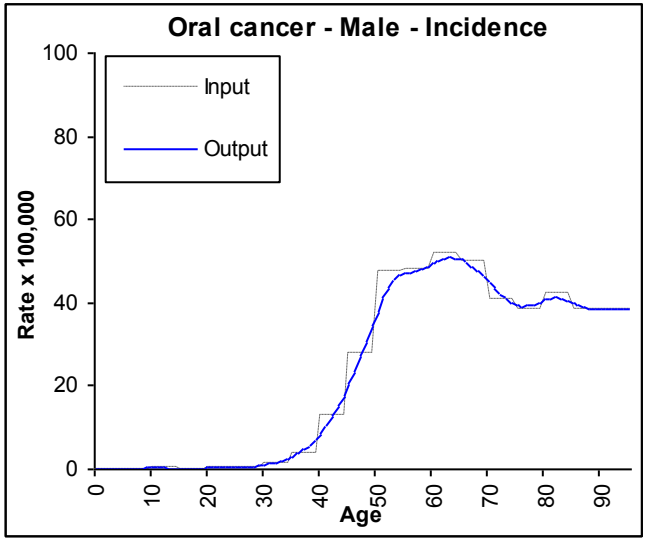
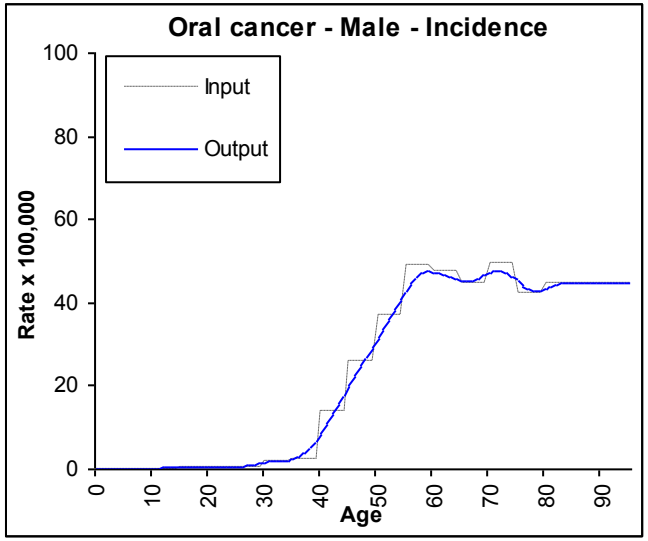
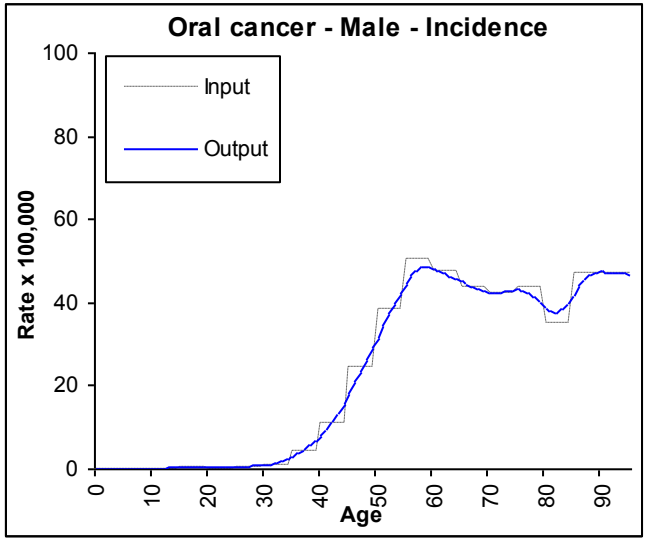
Figure 5.2 shows the distribution of oral cancer incidence by age classes in all the European cancer registries included in Cancer Incidence in Five Continents Vol IX [1]. Rates continuously increase up to age 85.

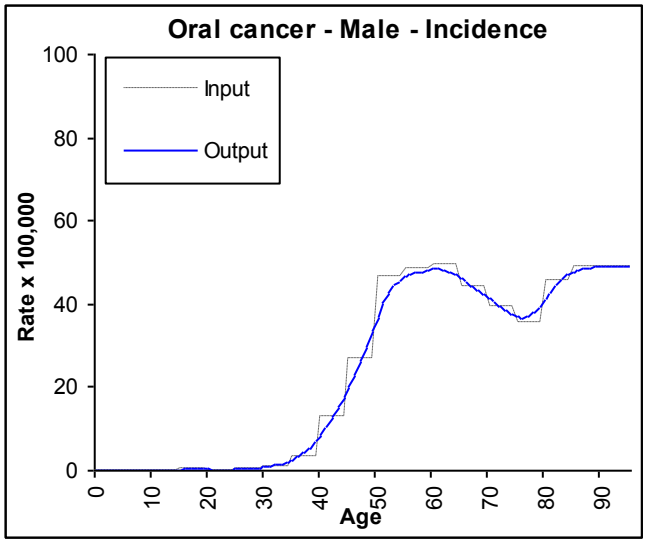
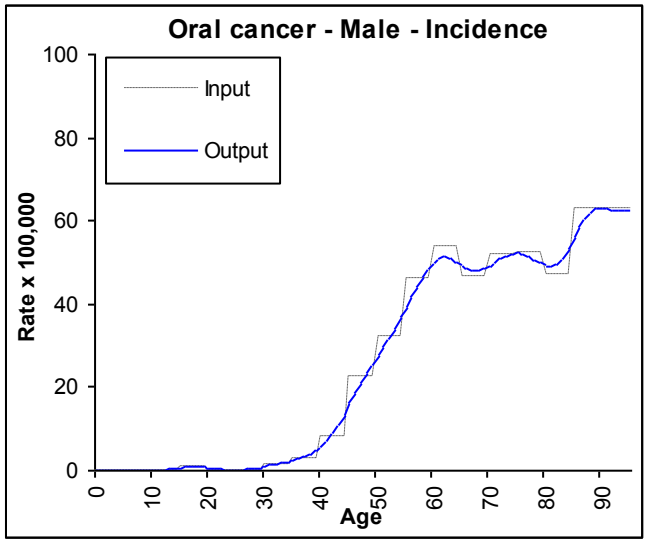
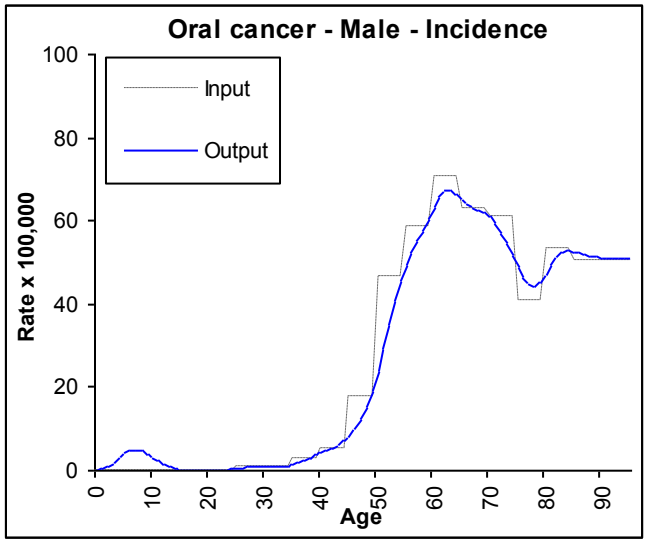
Incidence (Fig. 5.3.a and 5.3.d) and mortality (Fig. 5.3.b and 5.3.e) DISMOD outputs perfectly overlap the input data obtained by Cancer Incidence in Five Continents [1] and WHO-Mortality [3].

Figure 5.2. European CRs oral cancer incidence rates by age classes. 1998-2002

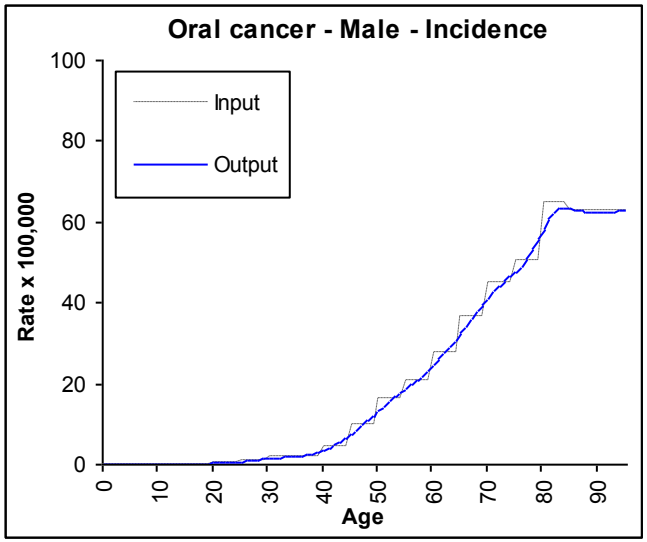


Figures 5.3.a. WP-10 ESTIMATES. Oral cancer (ICD-10 C00-C14). INCIDENCE. MALE

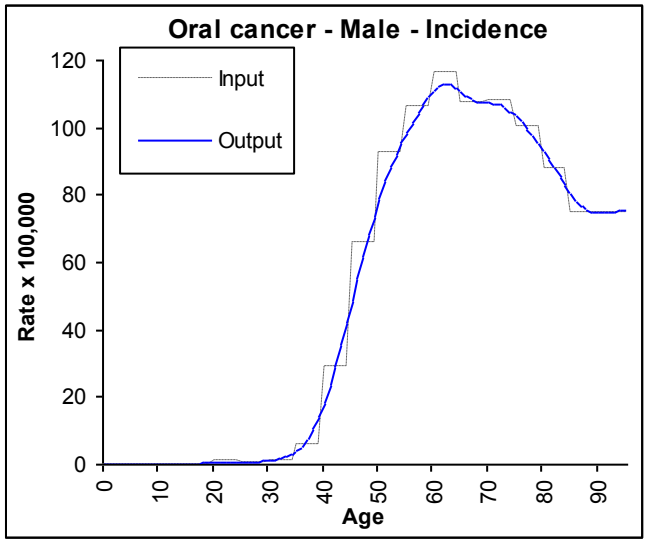
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

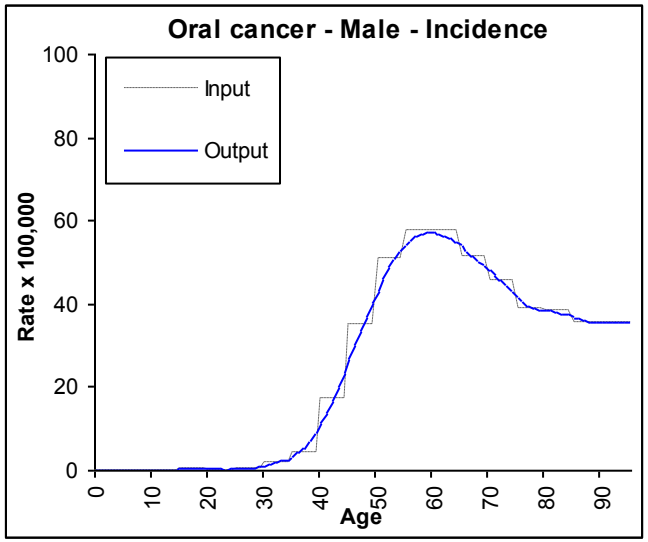
FINLAND



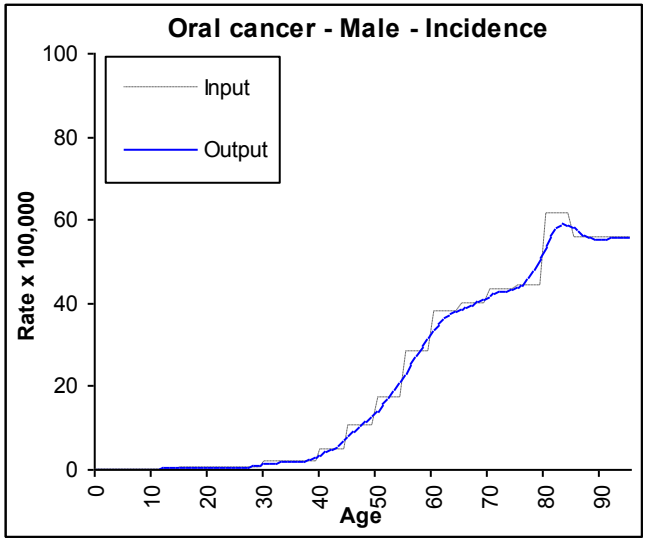
FRANCE



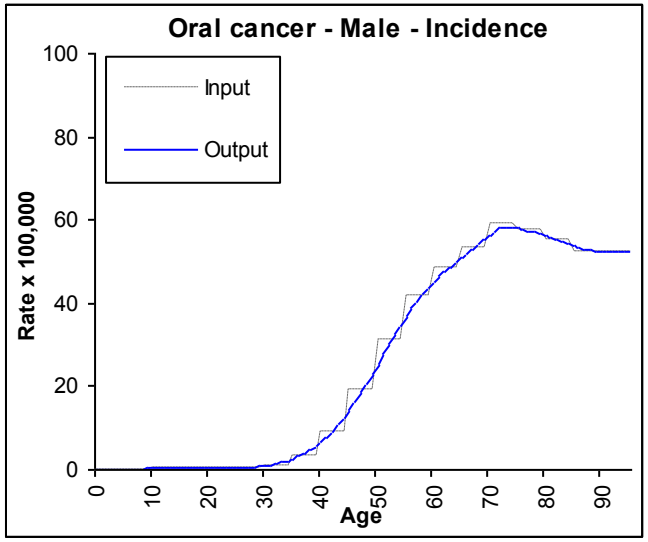
GERMANY



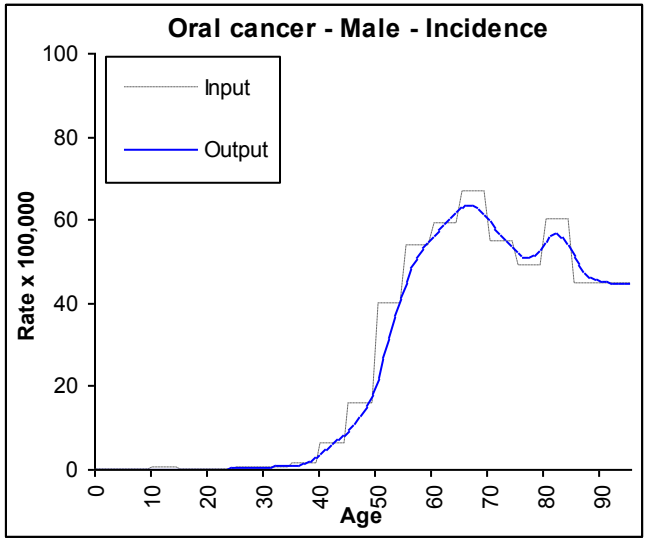
IRELAND



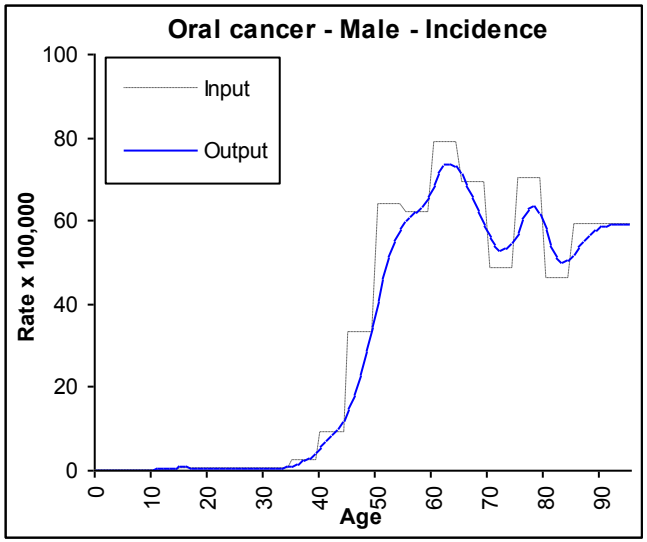
ITALY



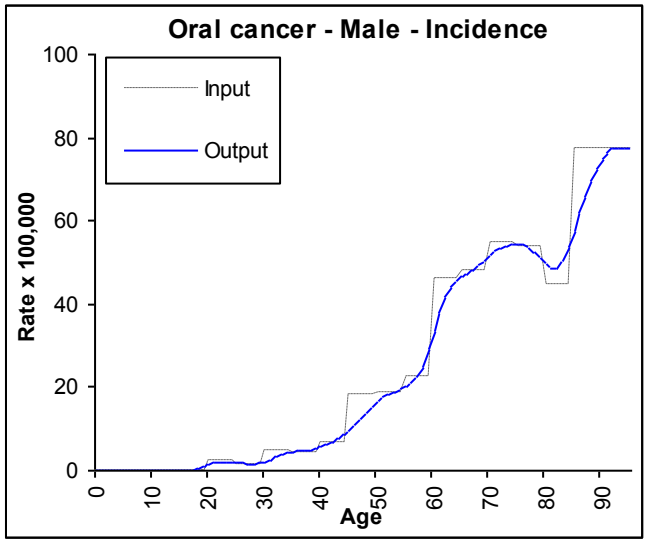
LATVIA



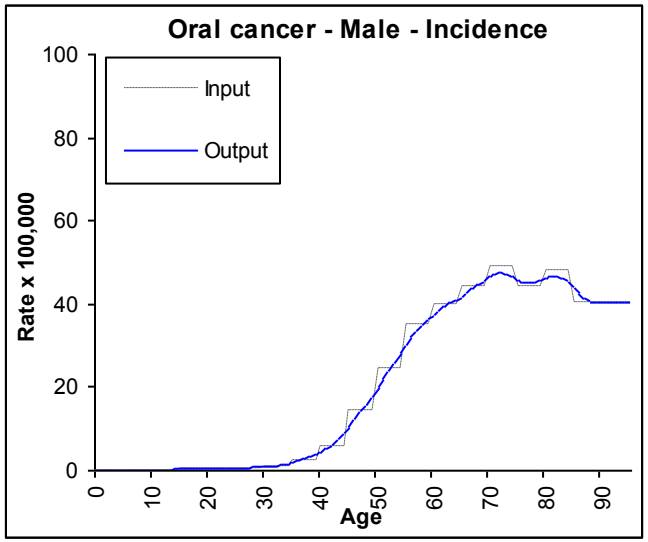
LITHUANIA



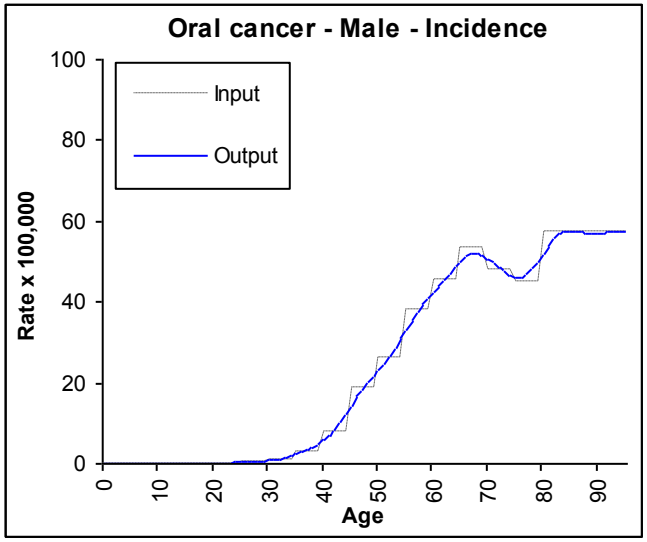
MALTA



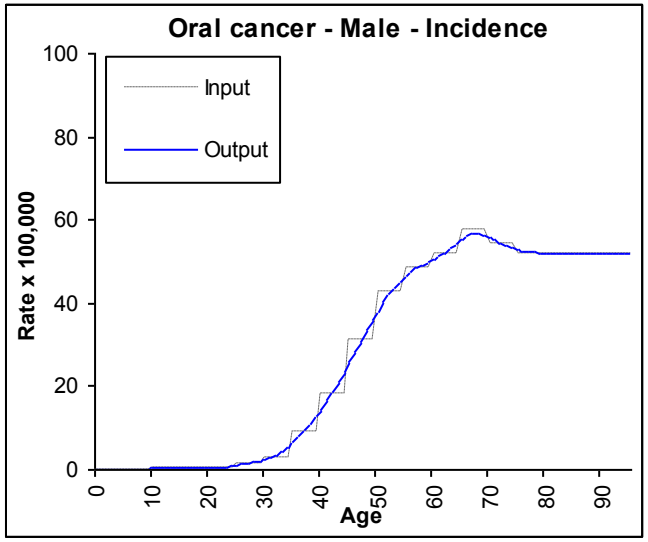
NETHERLANDS



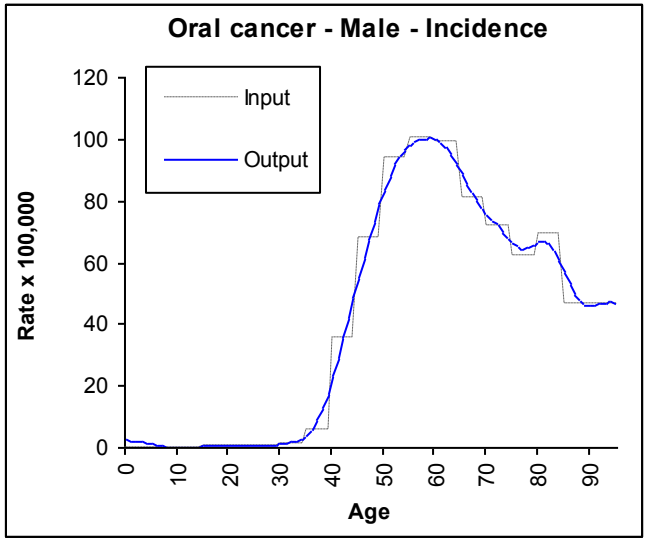
POLAND



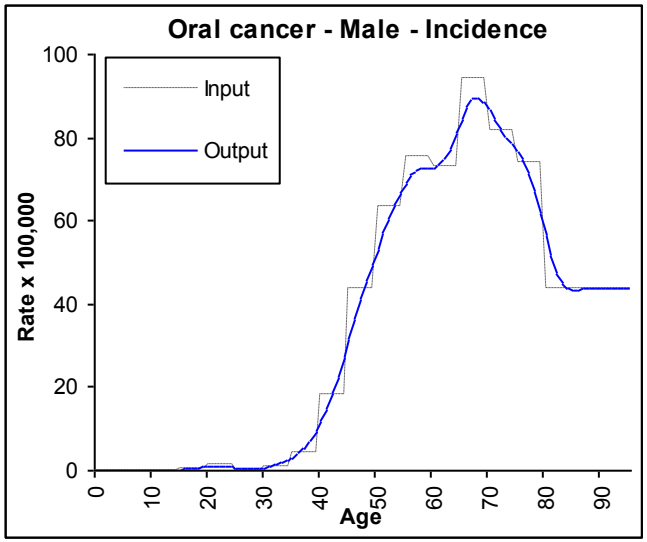
PORTUGAL



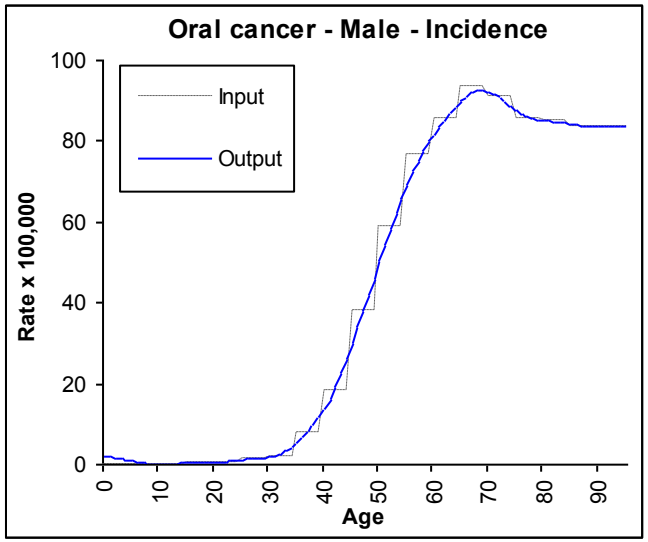
SLOVAKIA



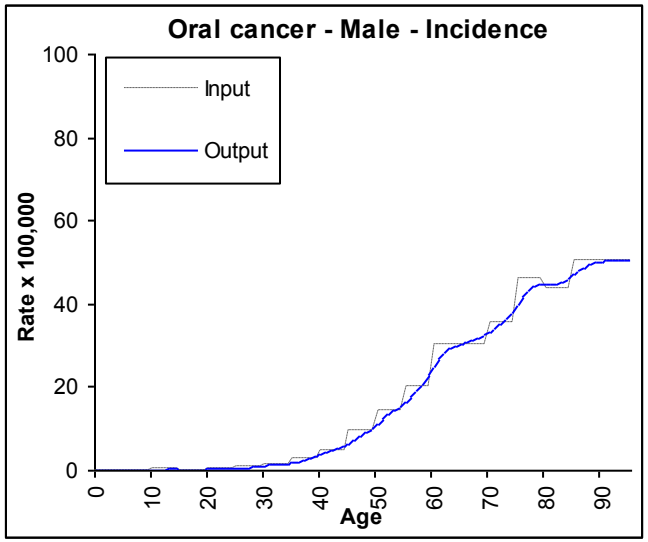
SLOVENIA



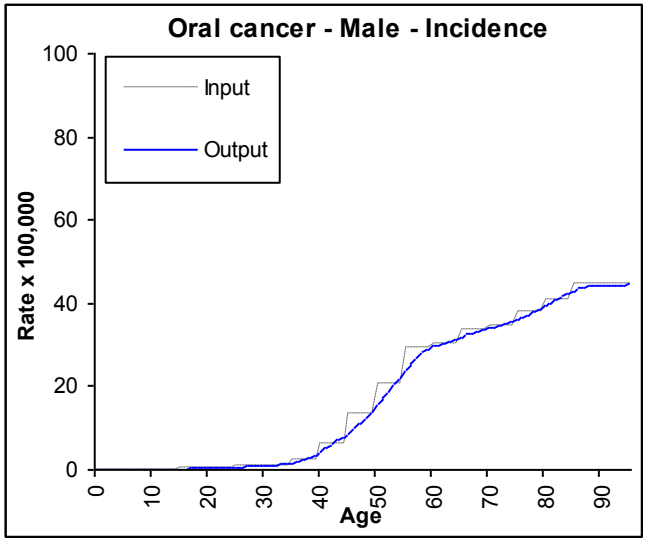
SPAIN



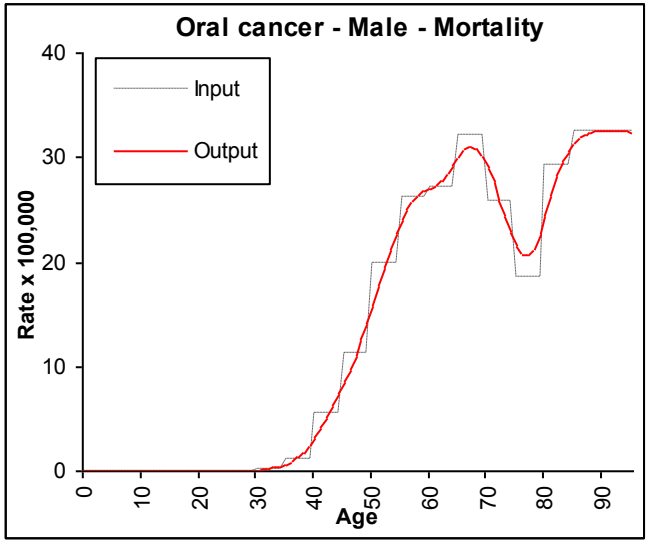
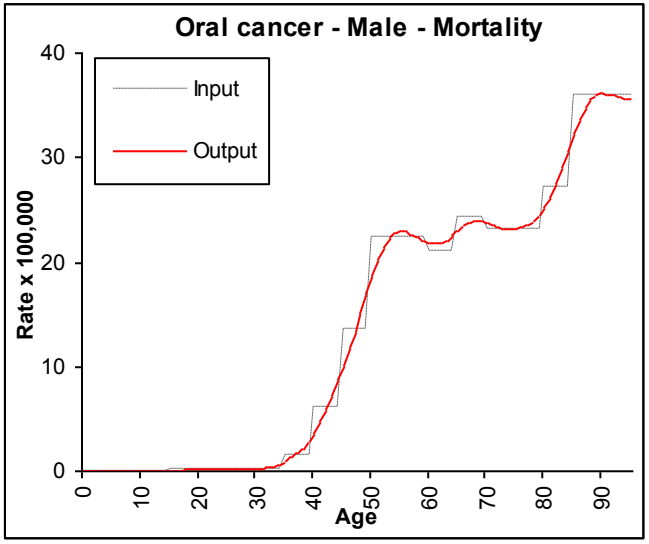
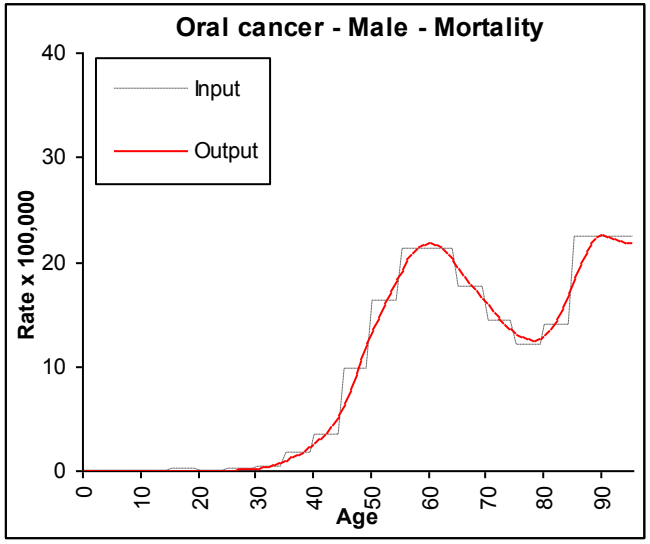
SWEDEN

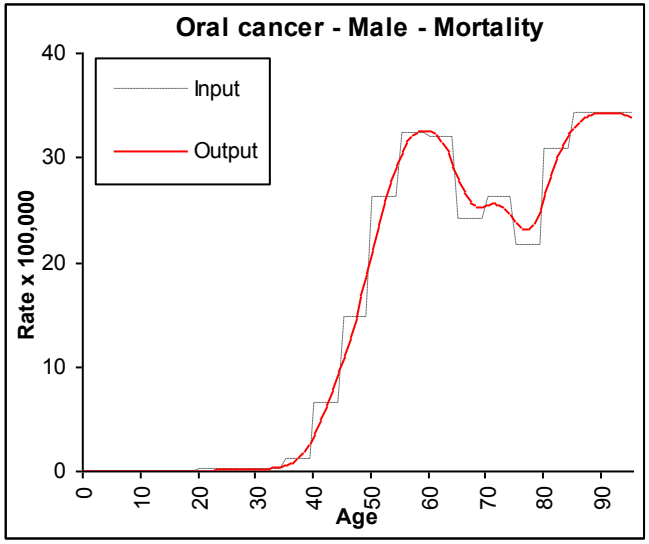
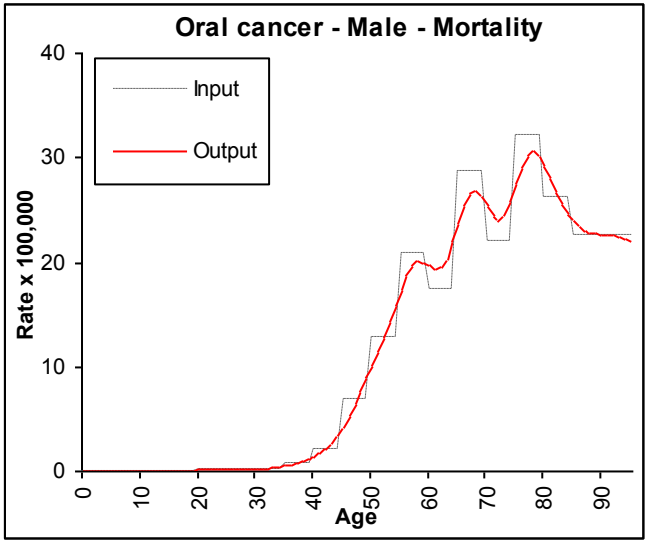
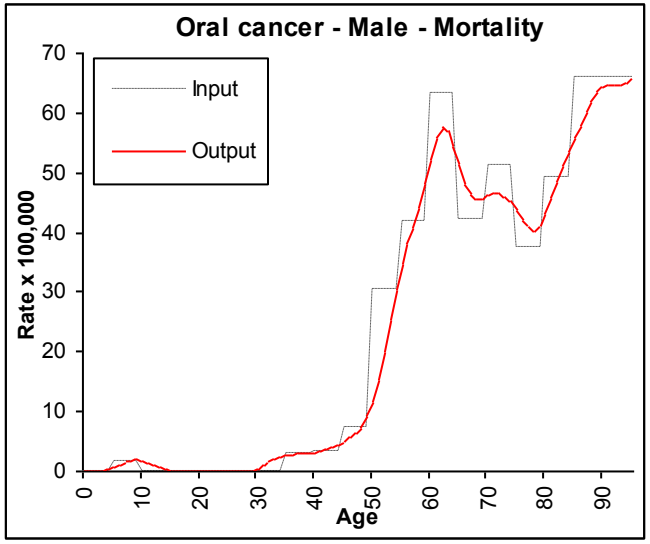


UNITED KINGDOM

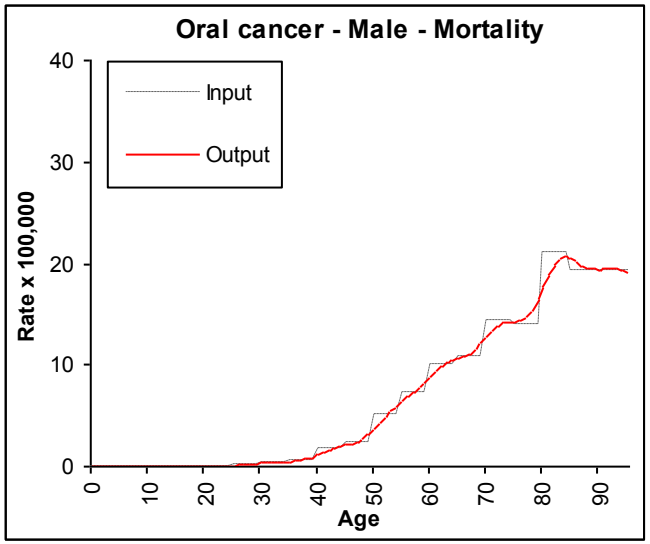


Figures 5.3.b. WP-10 ESTIMATES. Oral cancer (ICD-10 C00-C14). MORTALITY. MALE

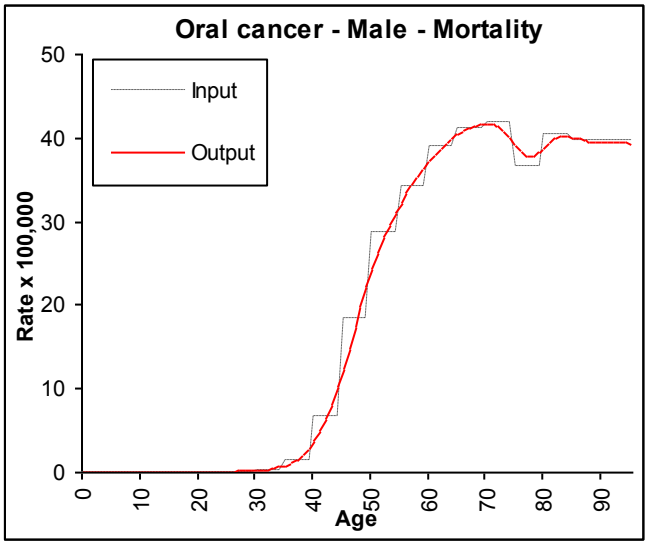
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

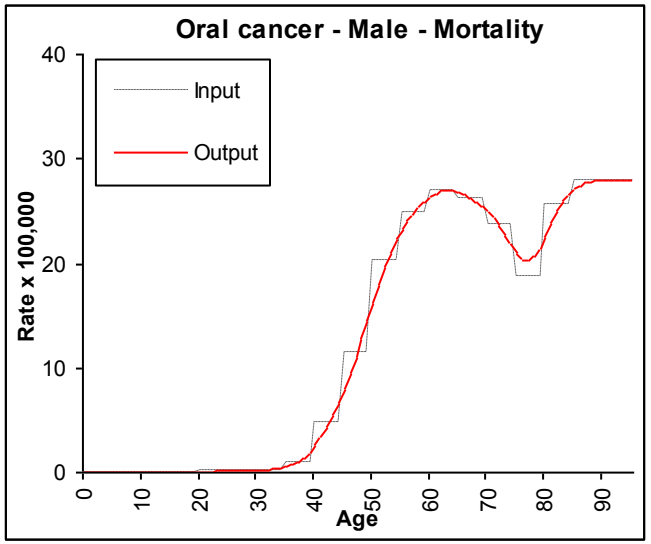
FINLAND



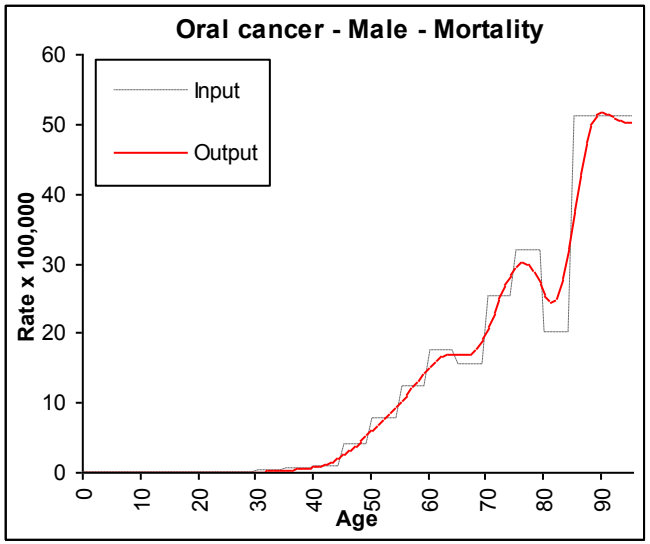
FRANCE



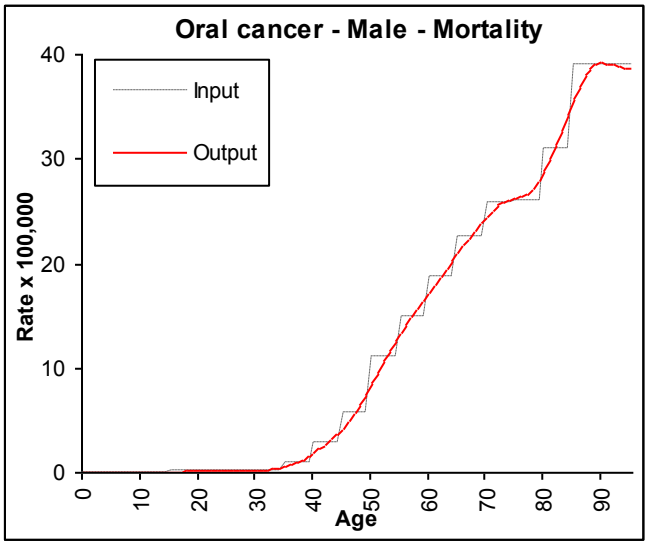
GERMANY



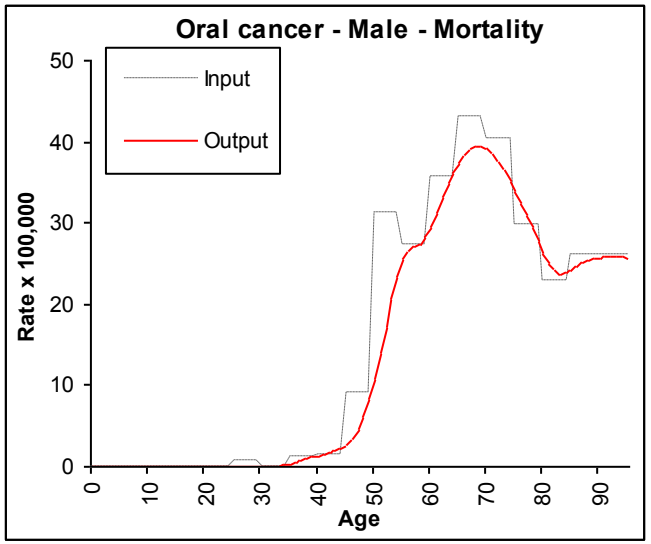
IRELAND



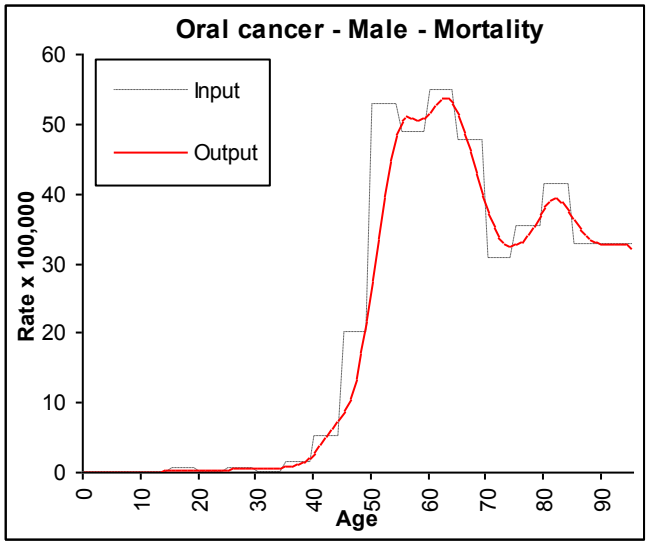
ITALY



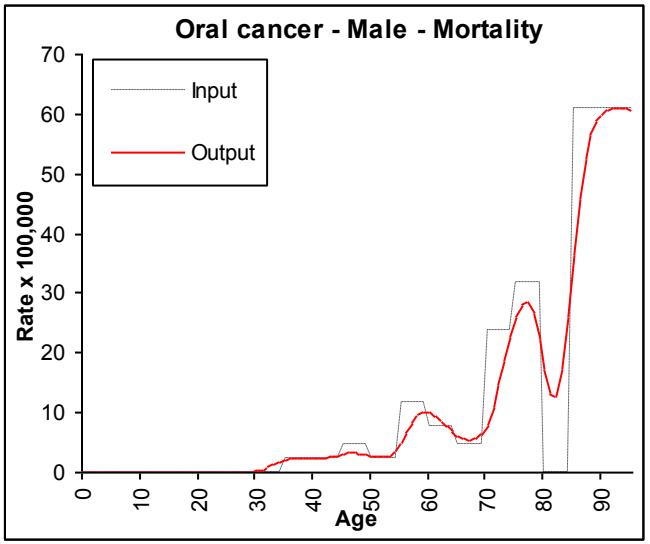
LATVIA



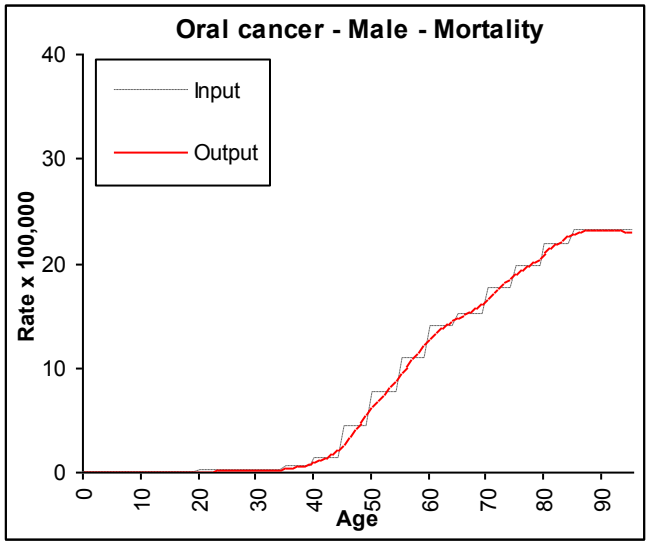
LITHUANIA



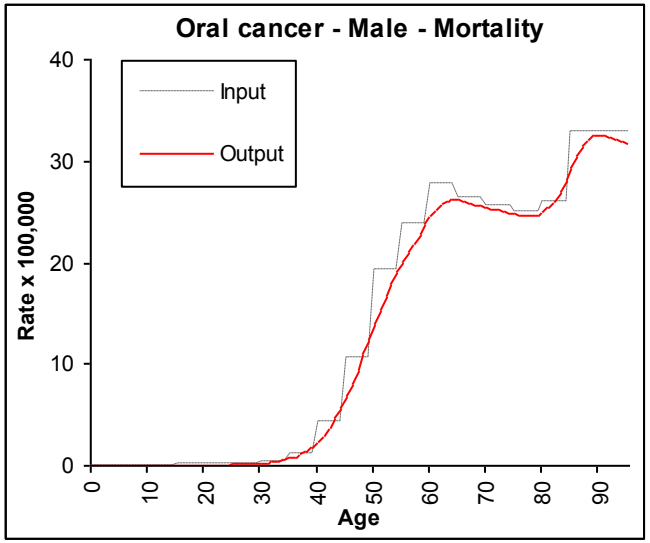
MALTA



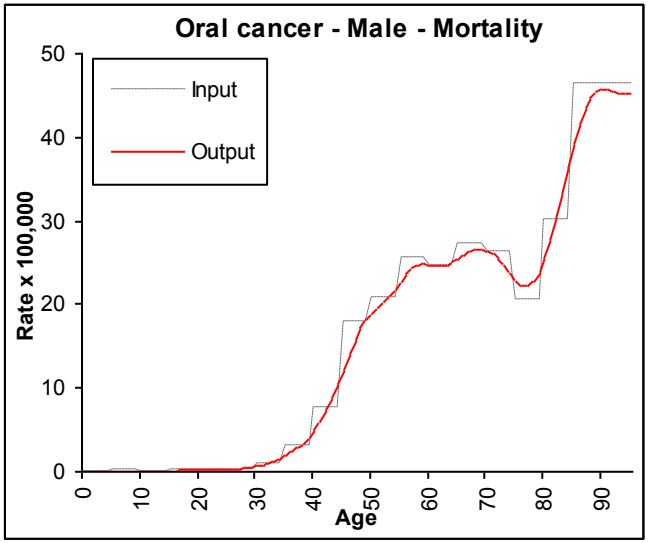
NETHERLANDS



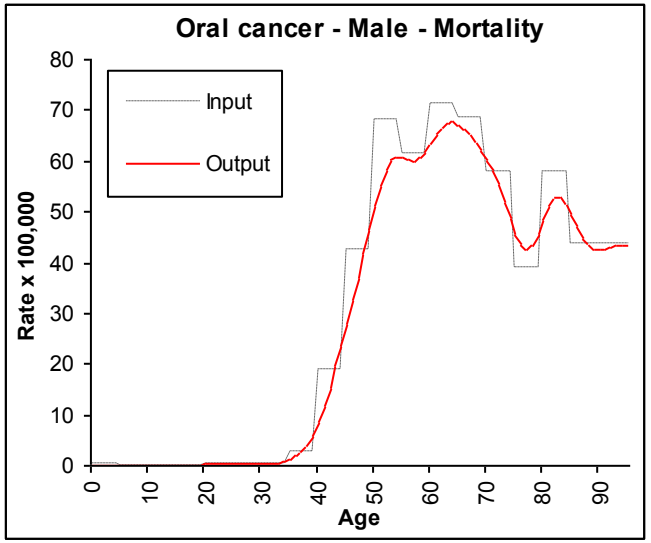
POLAND



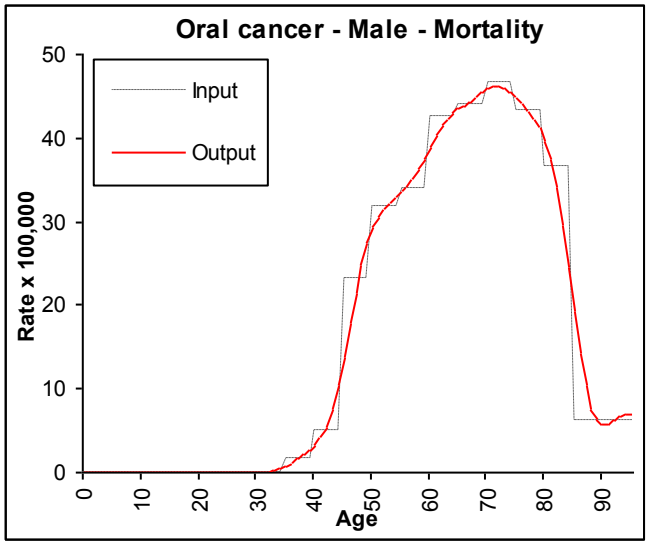
PORTUGAL



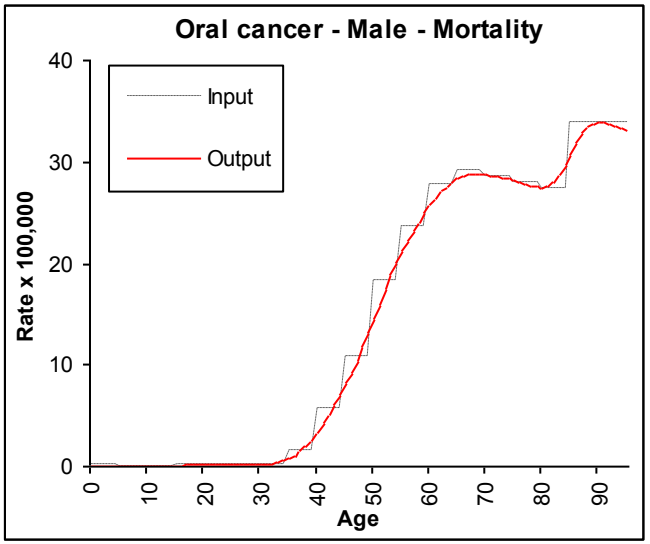
SLOVAKIA



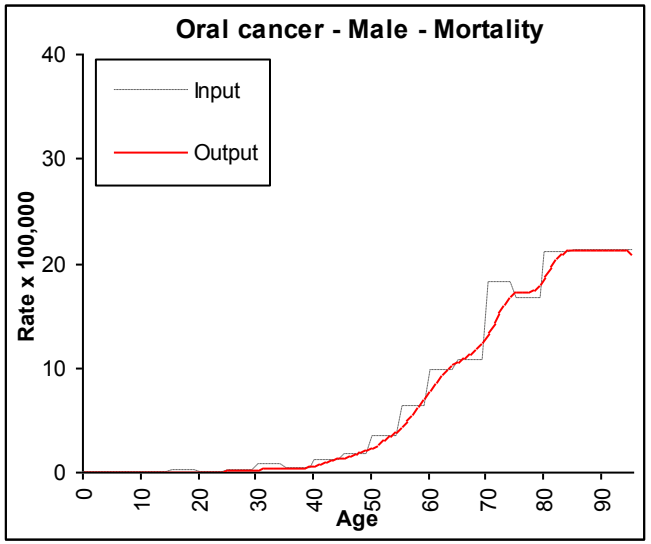
SLOVENIA



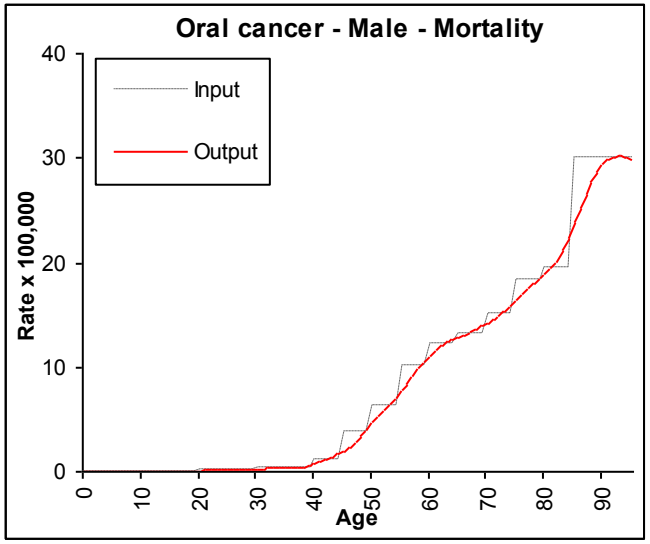
SPAIN



SWEDEN

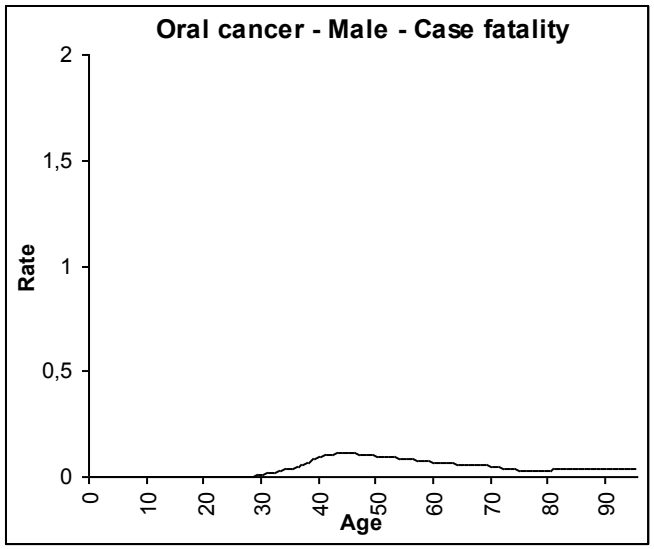


UNITED KINGDOM

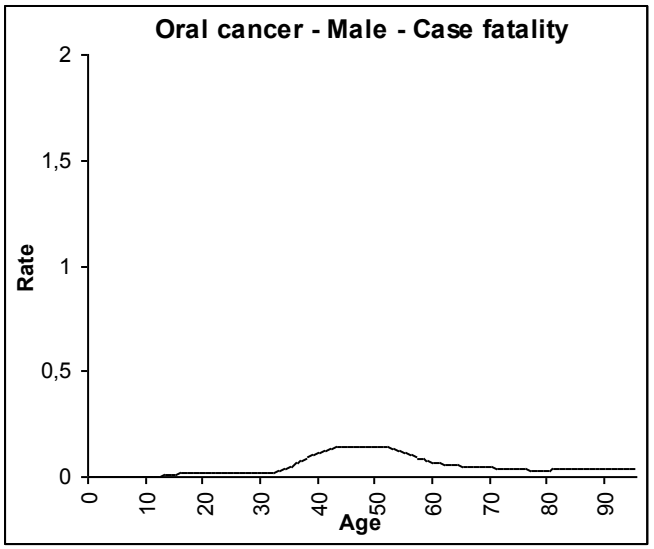


Figures 5.3.c. WP-10 ESTIMATES. Oral cancer (ICD-10 C00-C14). CASE FATALITY. MALE

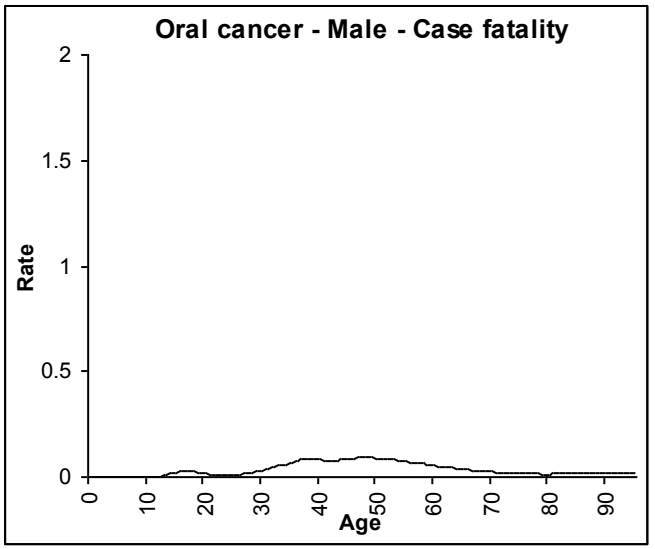
AUSTRIA



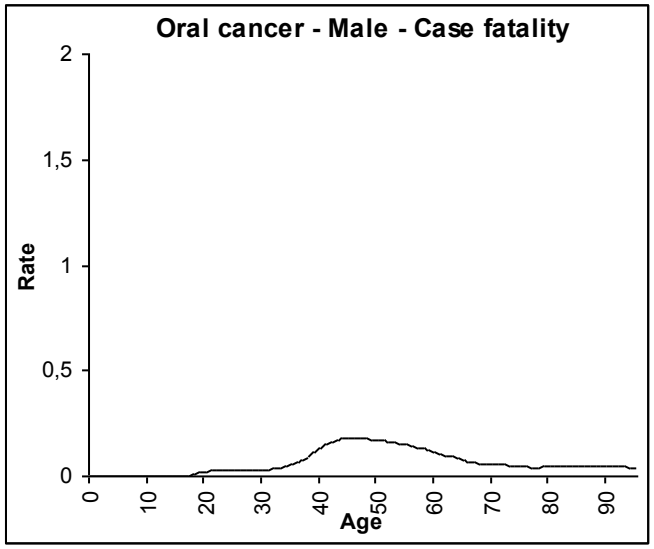
BELGIUM



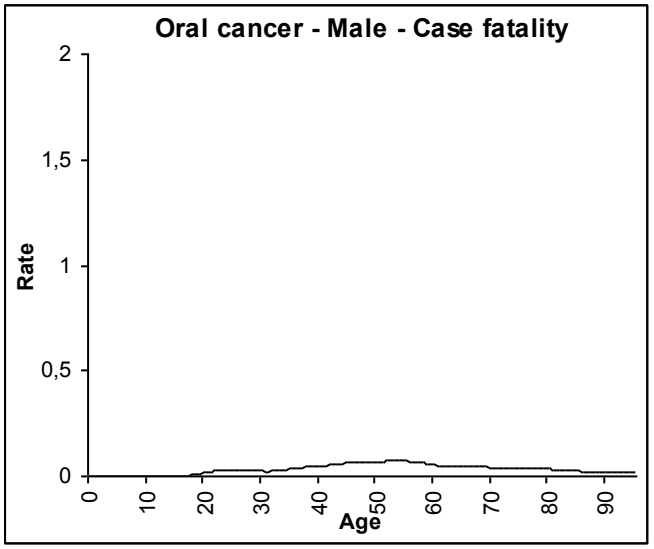
BULGARIA



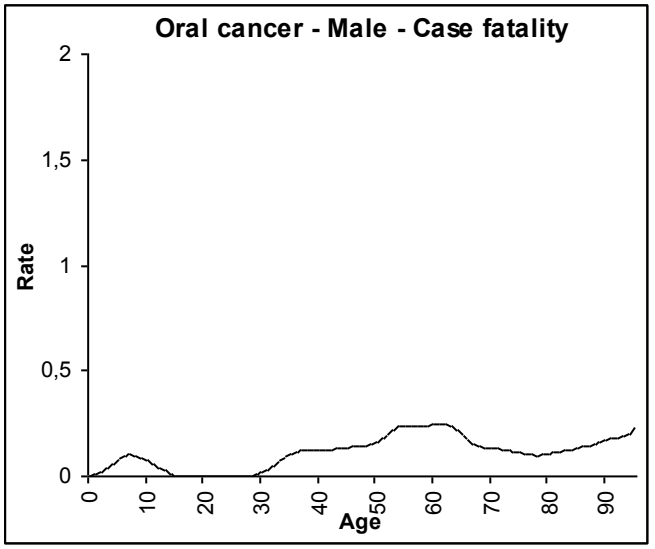
CZECH REPUBLIC



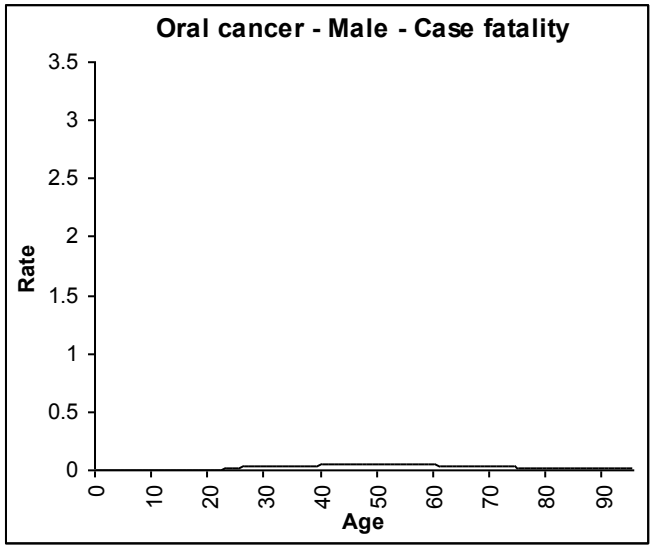
DENMARK



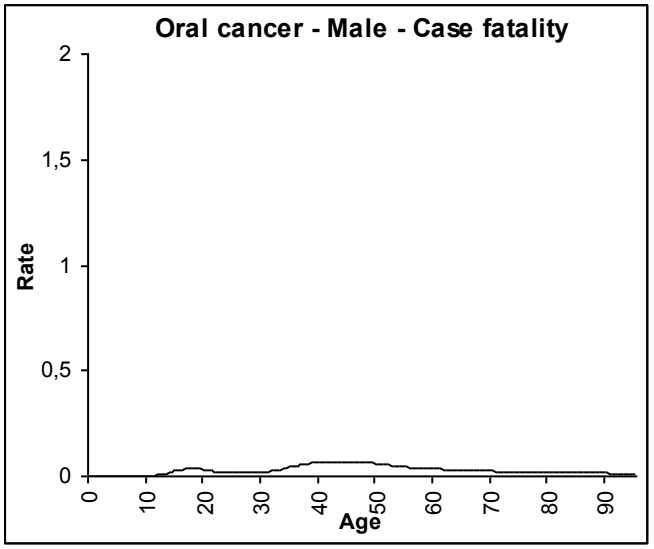
ESTONIA



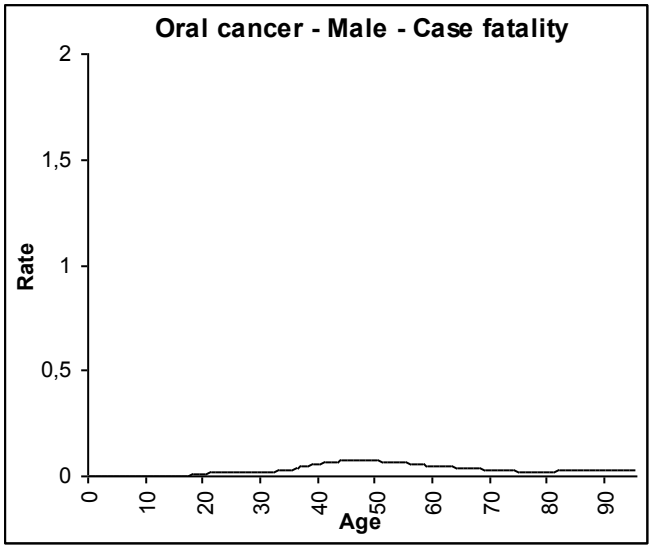
FINLAND



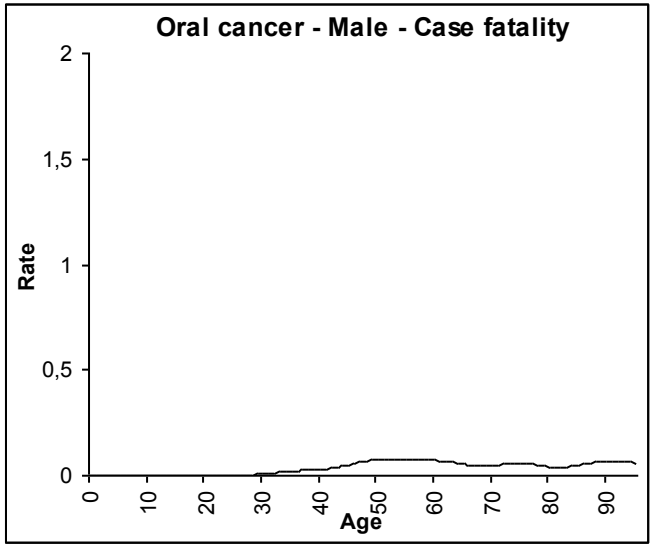
FRANCE



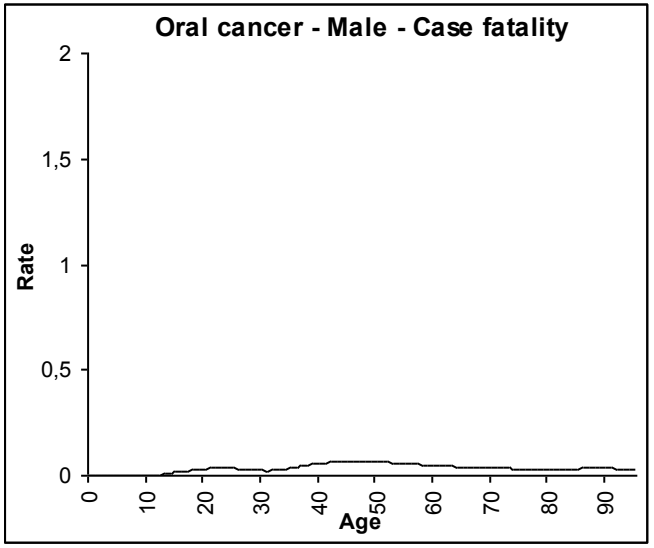
GERMANY



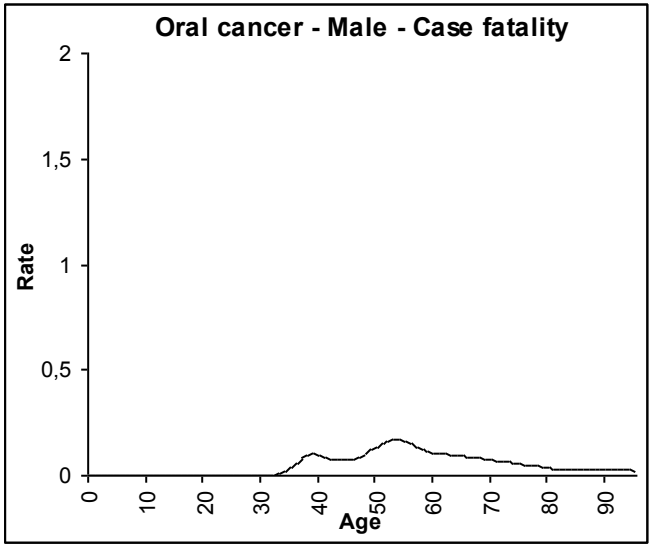
IRELAND



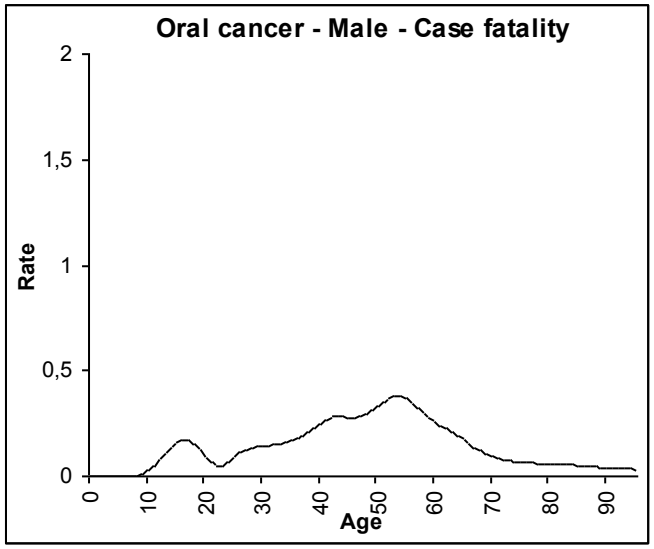
ITALY



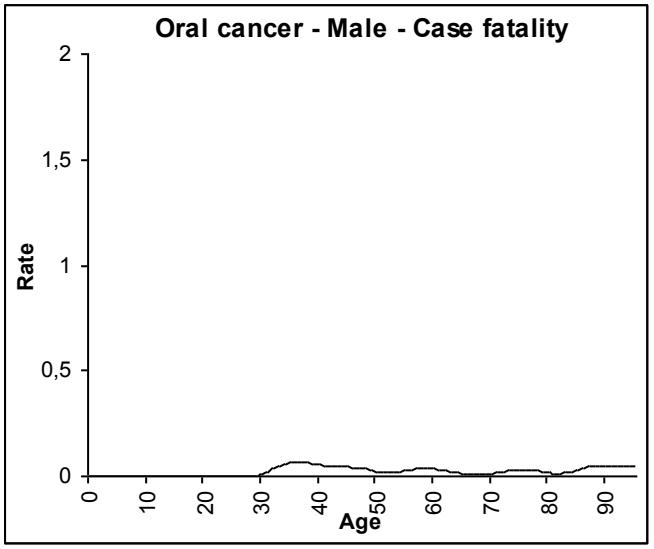
LATVIA



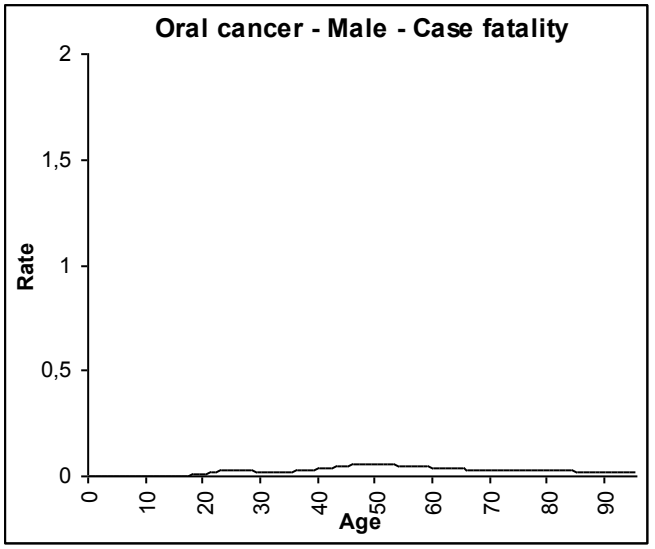
LITHUANIA



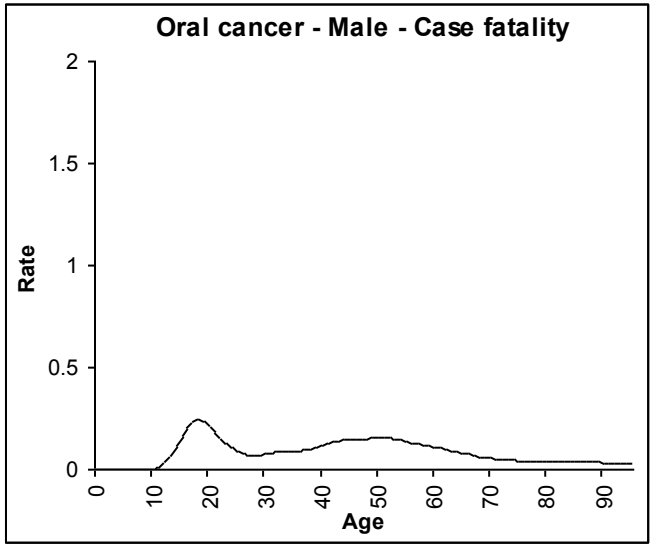
MALTA



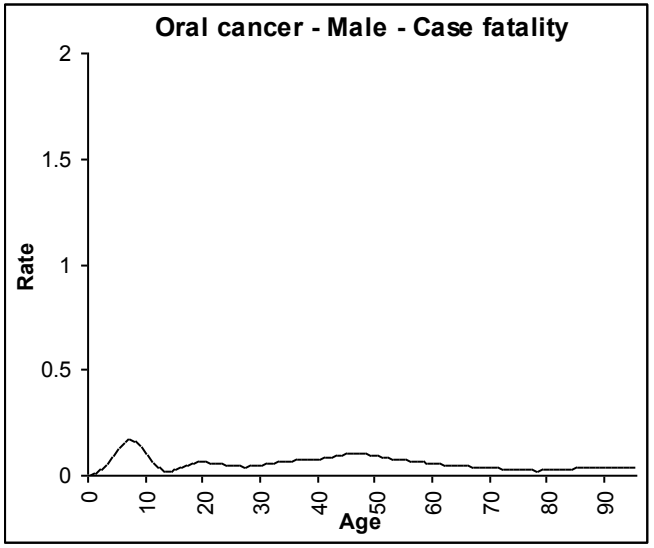
NETHERLANDS



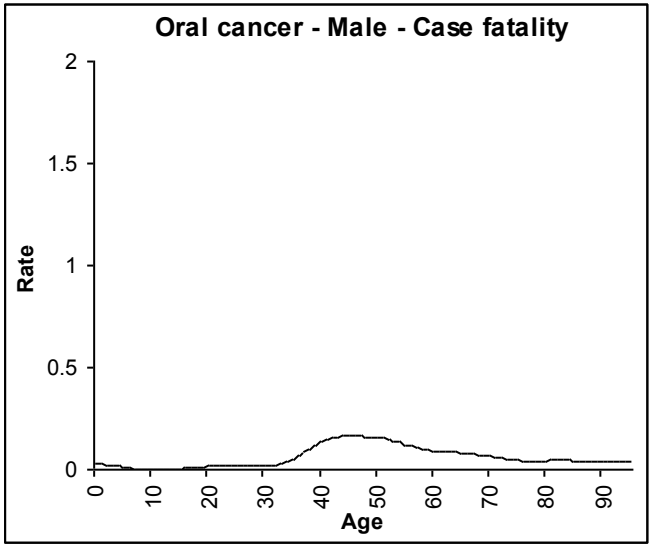
POLAND



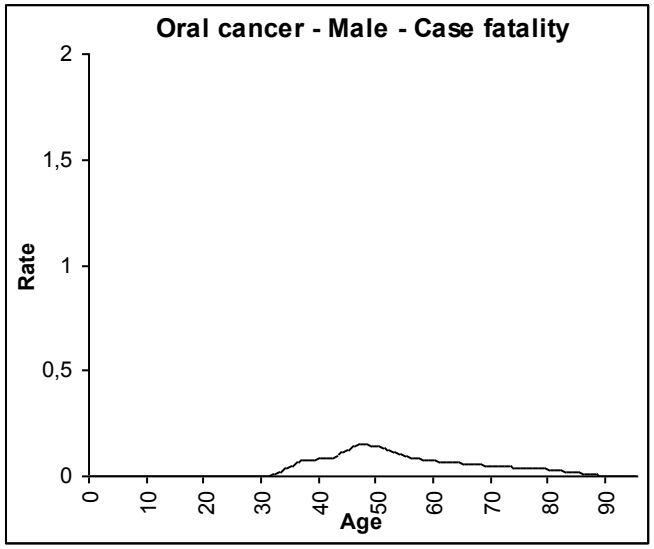
PORTUGAL



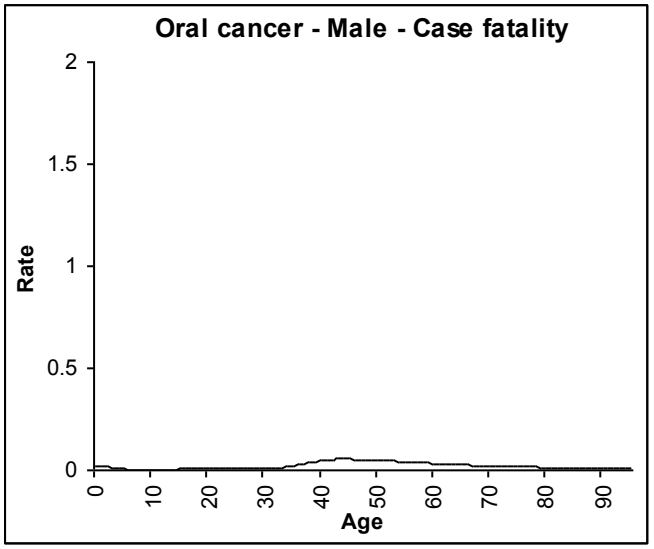
SLOVAKIA



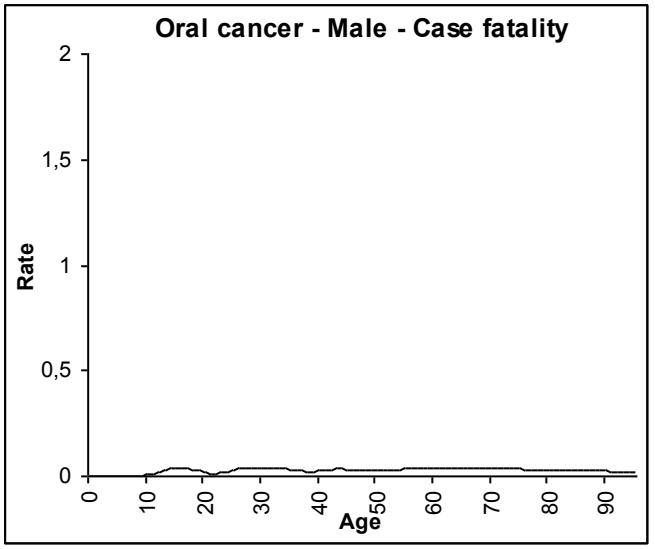
SLOVENIA



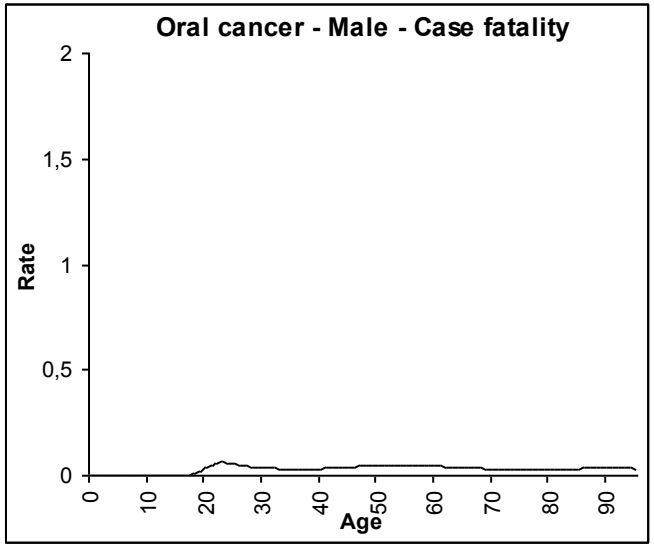
SPAIN



SWEDEN

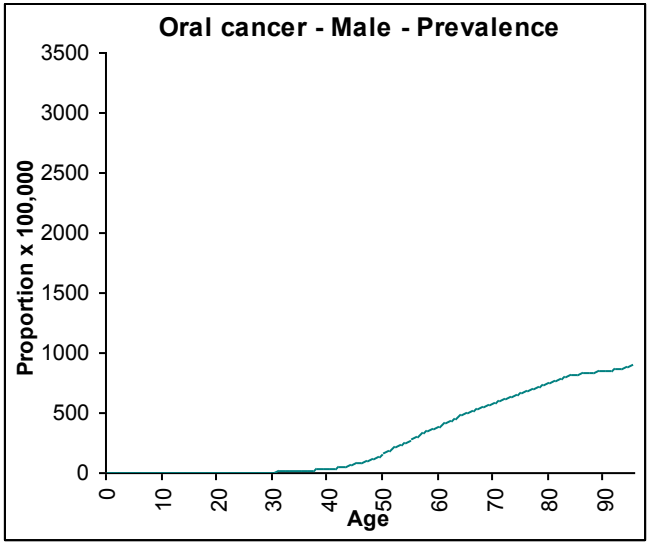


UNITED KINGDOM

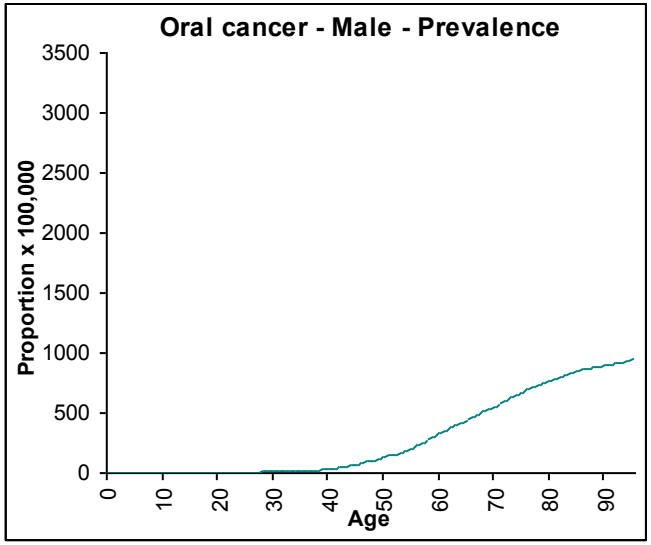


Figures 5.3.d. WP-10 ESTIMATES. Oral cancer (ICD-10 C00-C14). TOTAL PREVALENCE. MALE

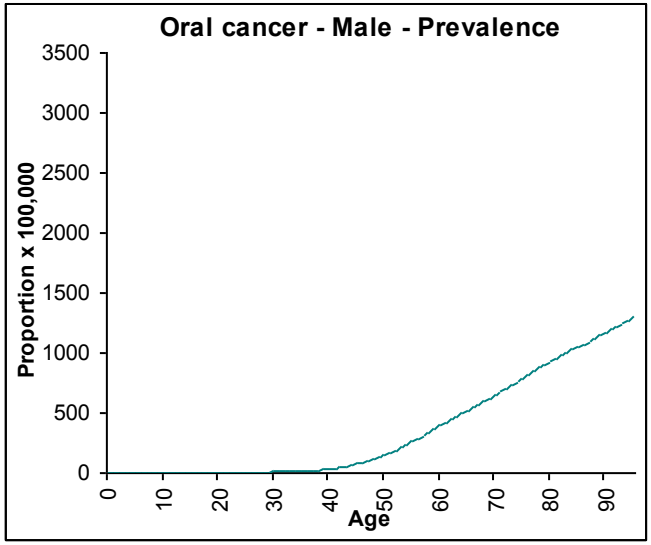
AUSTRIA



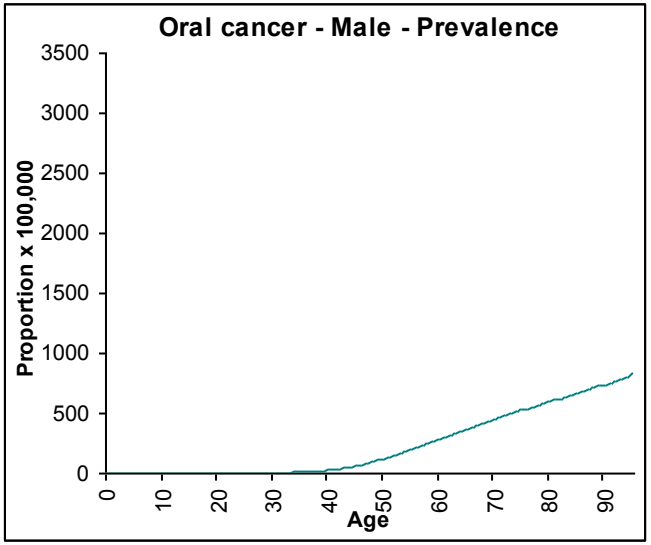
BELGIUM



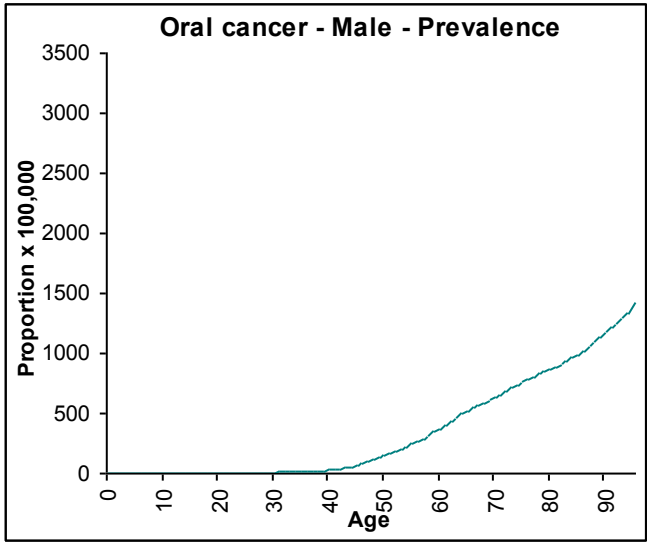
BULGARIA



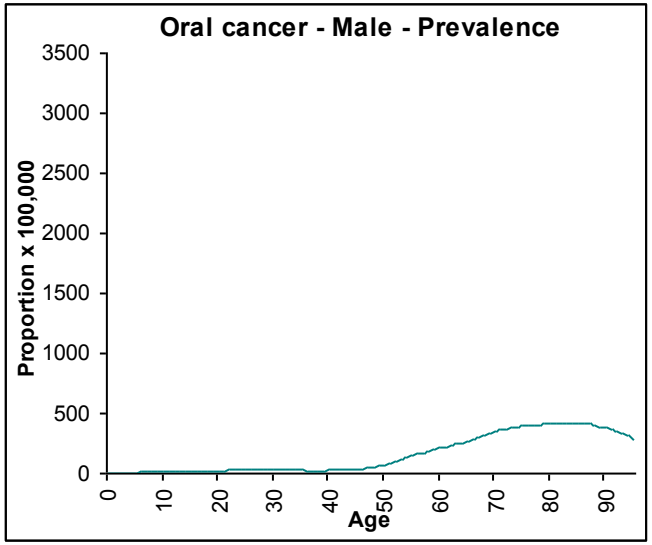
CZECH REPUBLIC



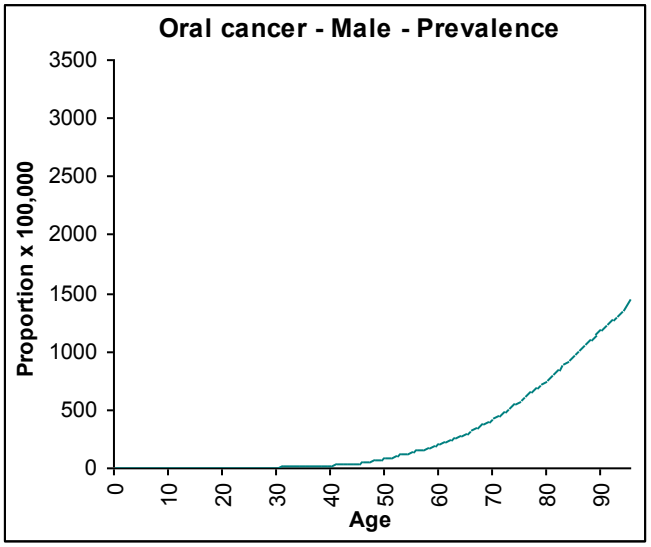
DENMARK



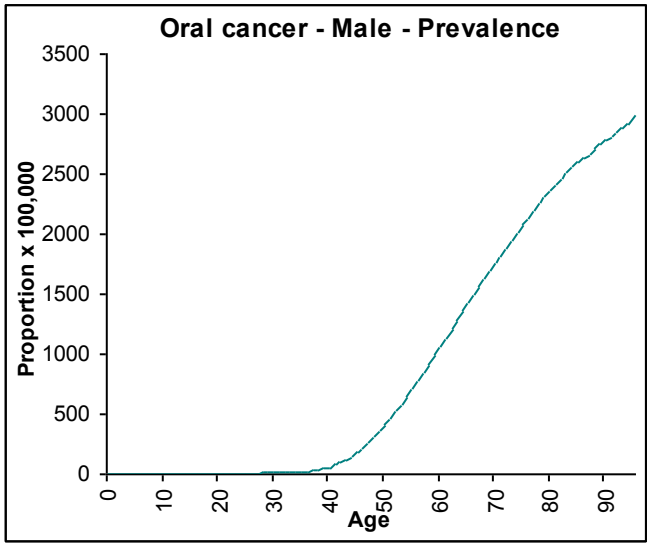
ESTONIA



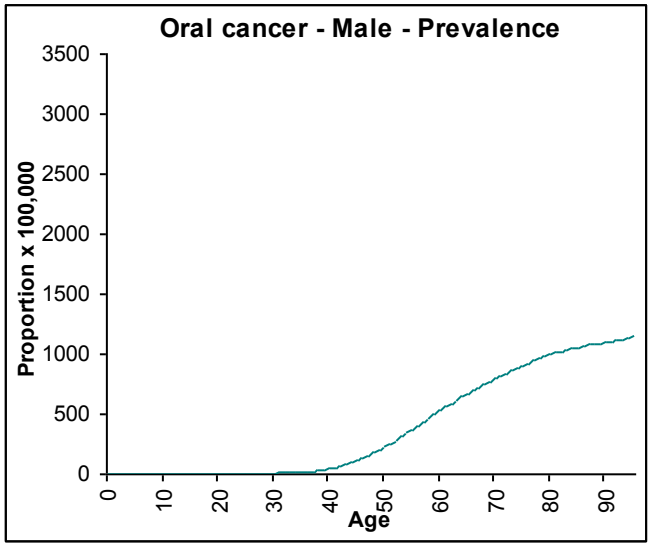
FINLAND



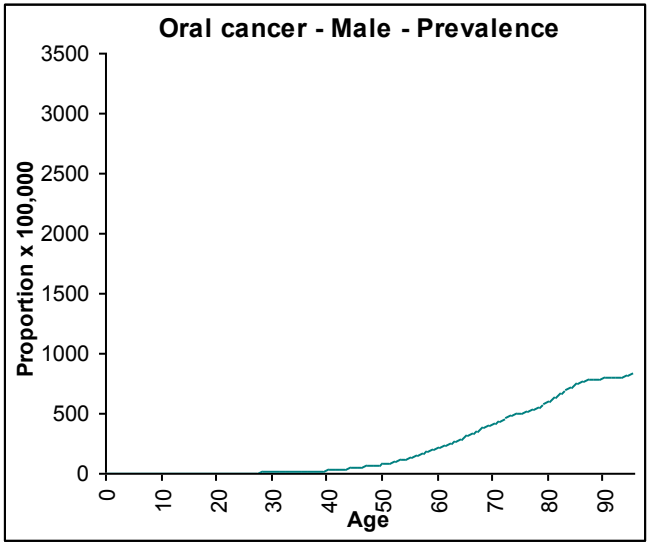
FRANCE



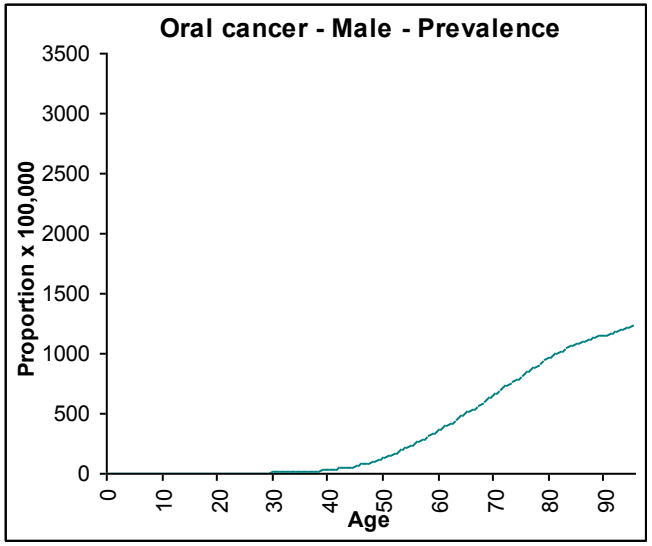
GERMANY



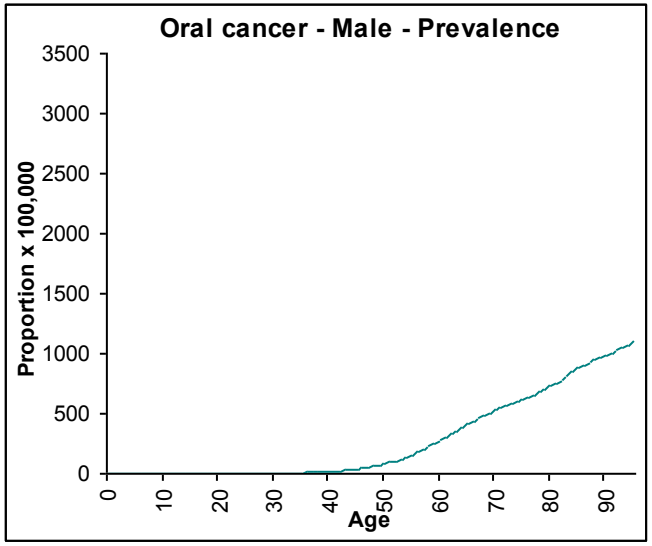
IRELAND



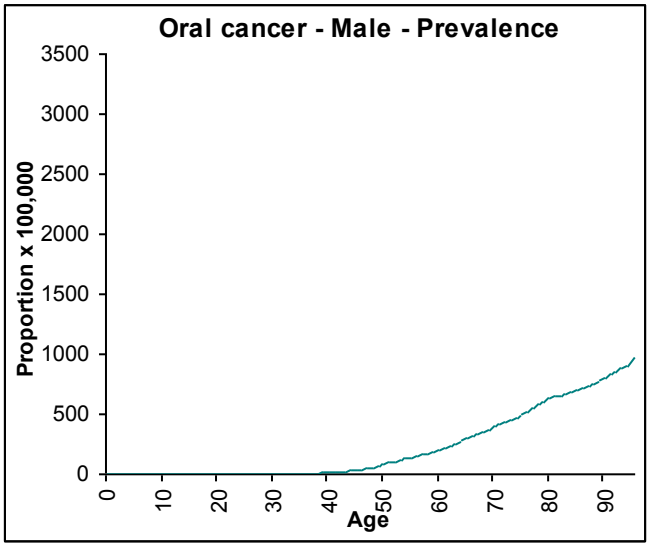
ITALY



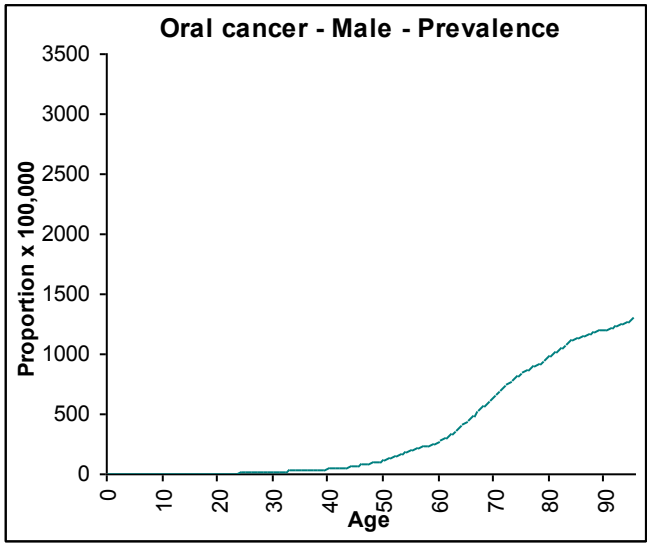
LATVIA



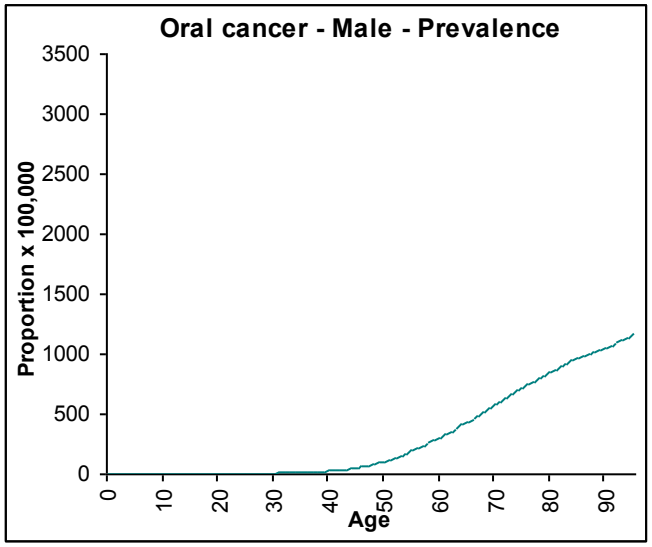
LITHUANIA



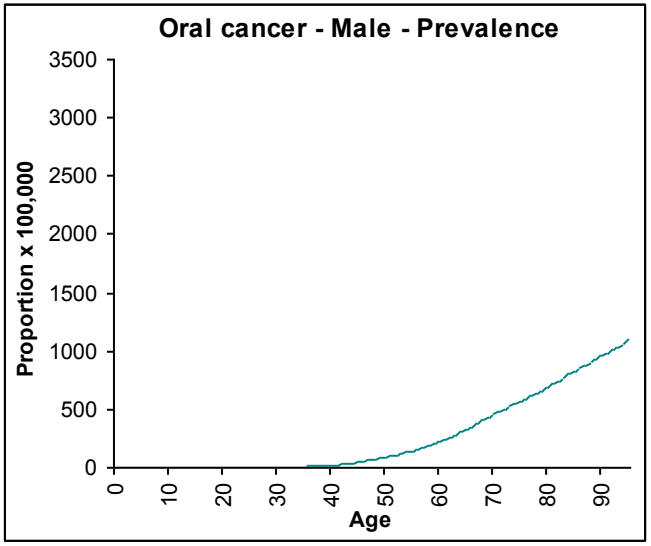
MALTA



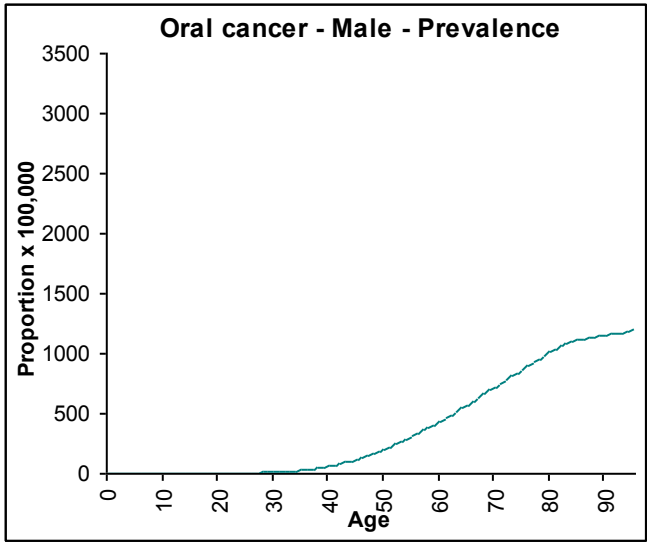
NETHERLANDS



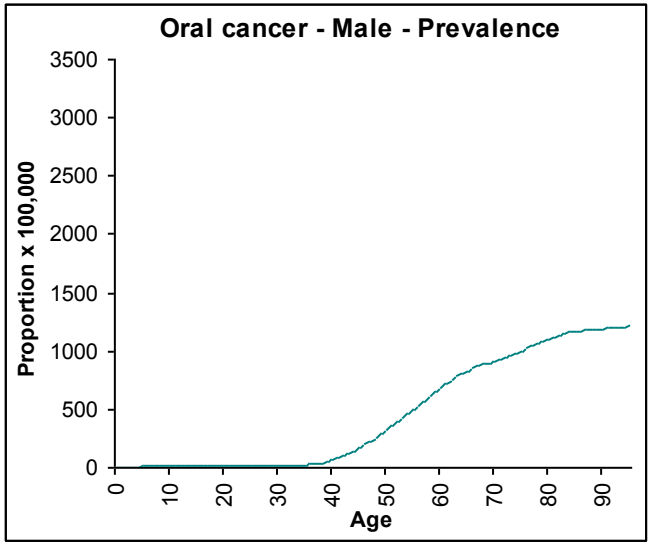
POLAND



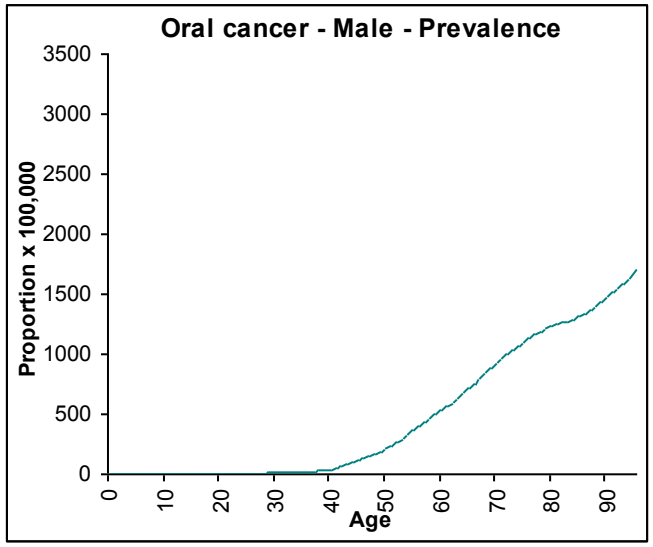
PORTUGAL



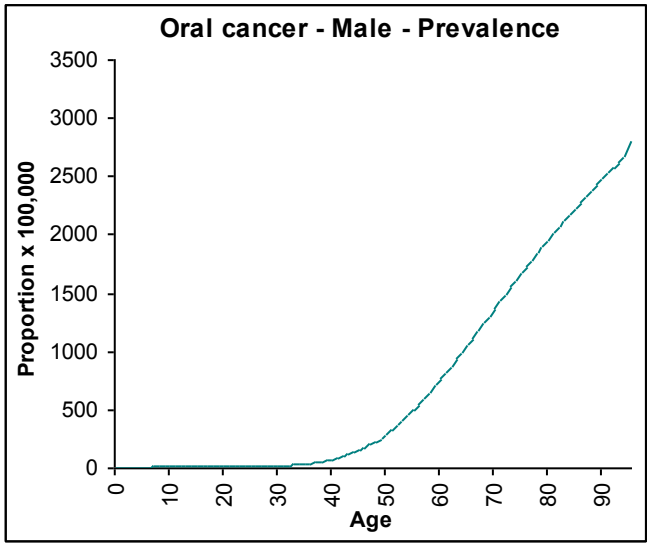
SLOVAKIA



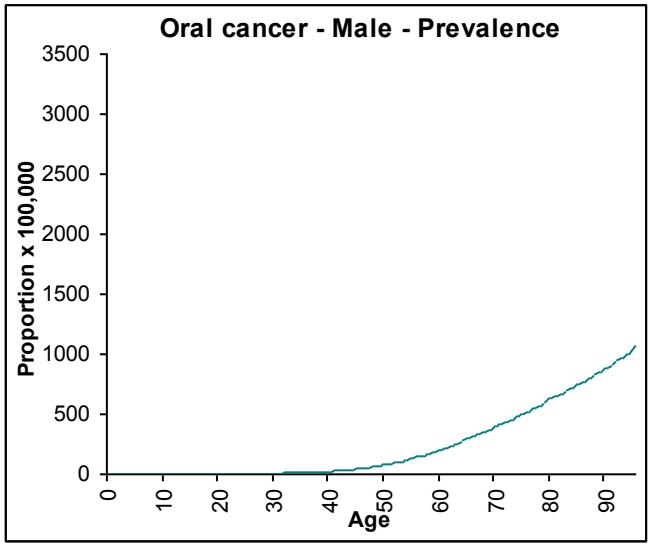
SLOVENIA



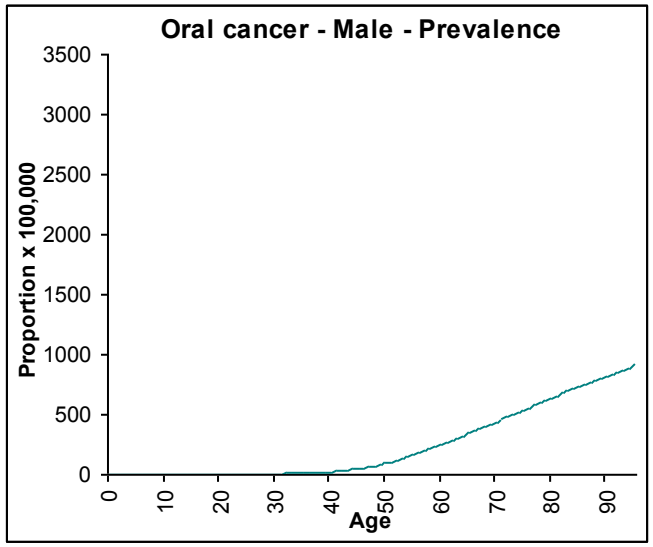
SPAIN



SWEDEN

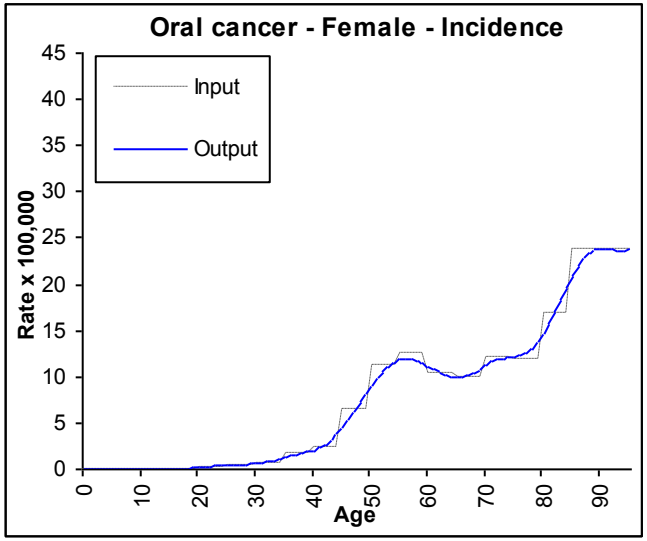


UNITED KINGDOM

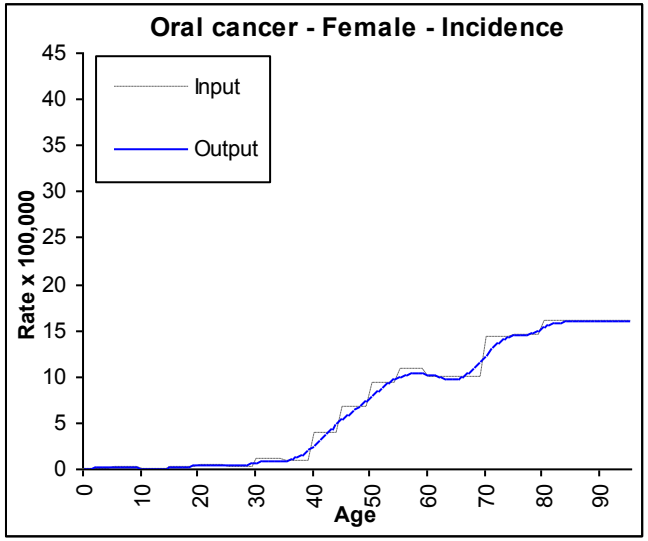


Figures 5.3.e. WP-10 ESTIMATES. Oral cancer (ICD-10 C00-C14). INCIDENCE. FEMALE

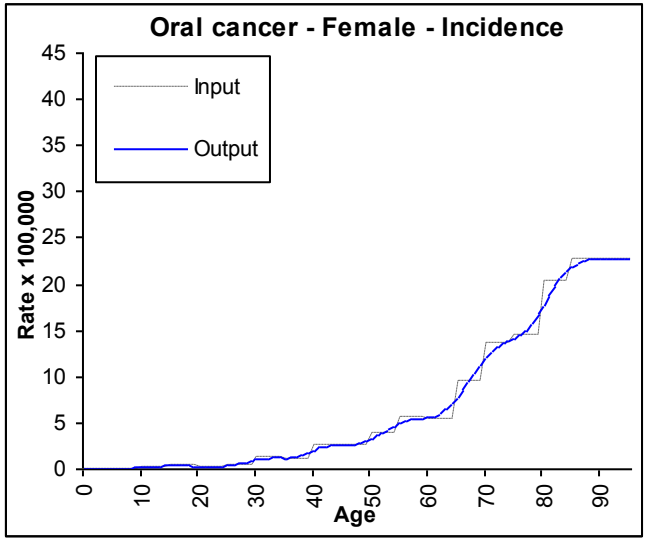
AUSTRIA



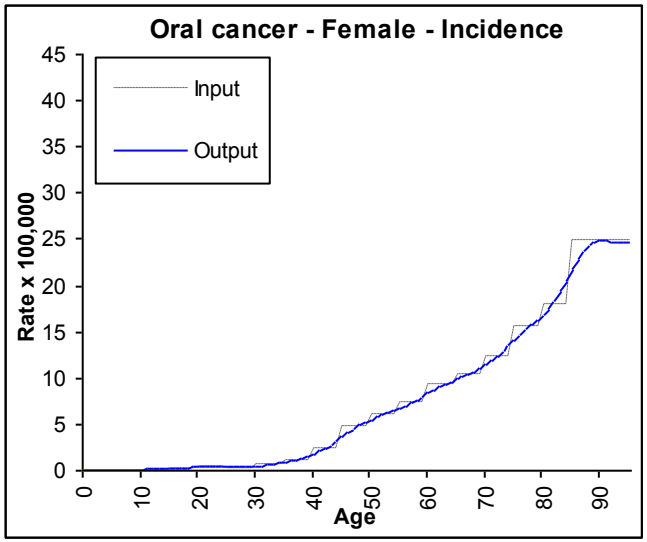
BELGIUM



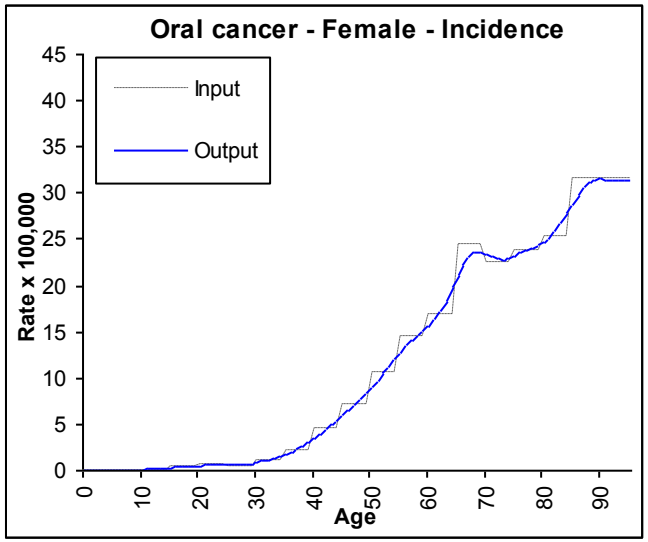
BULGARIA



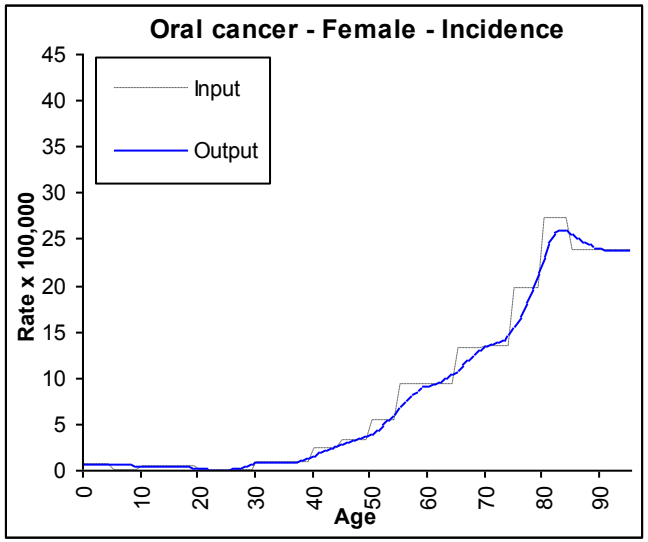
CZECH REPUBLIC



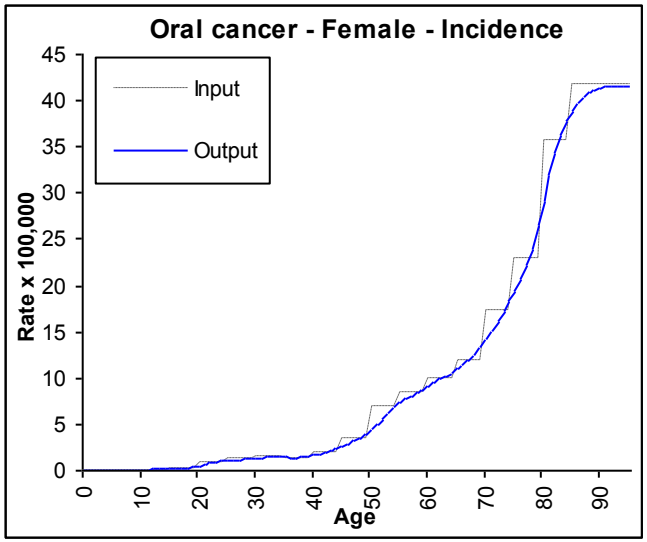
DENMARK



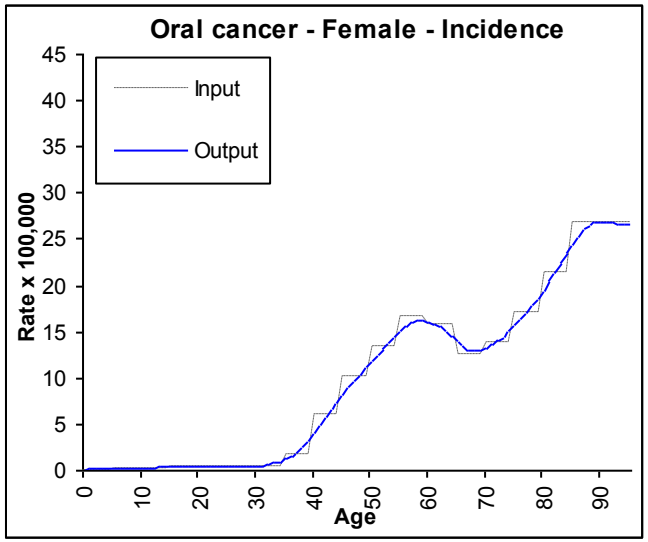
ESTONIA



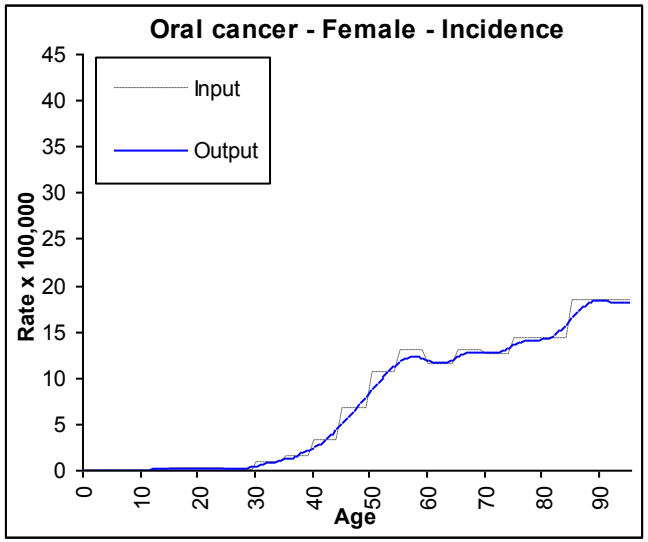
FINLAND



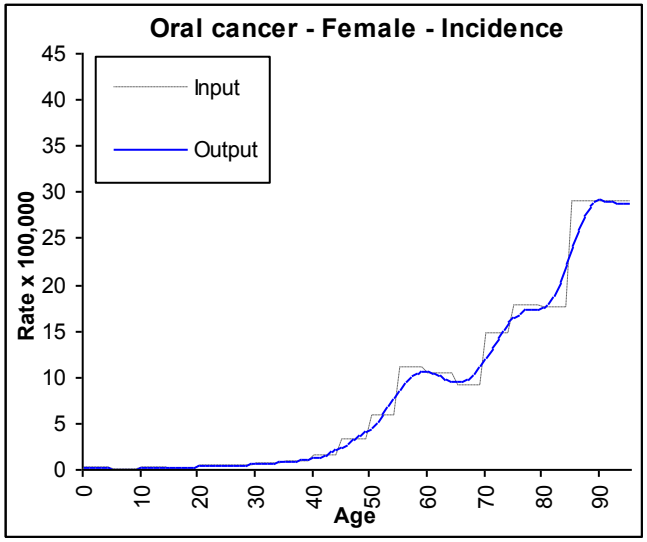
FRANCE



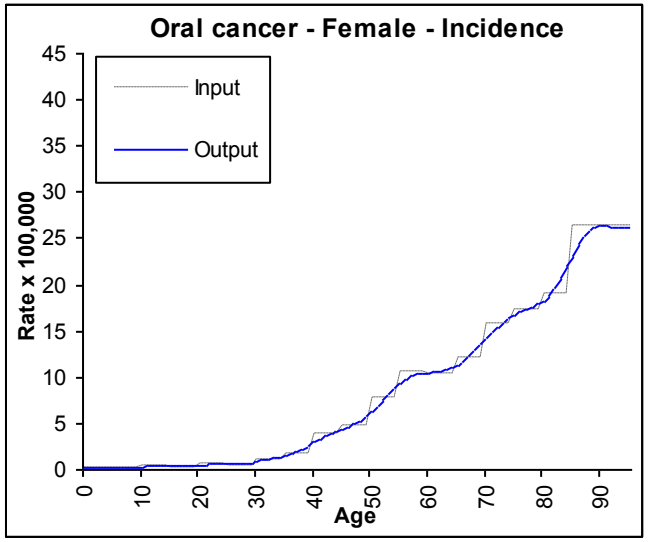
GERMANY



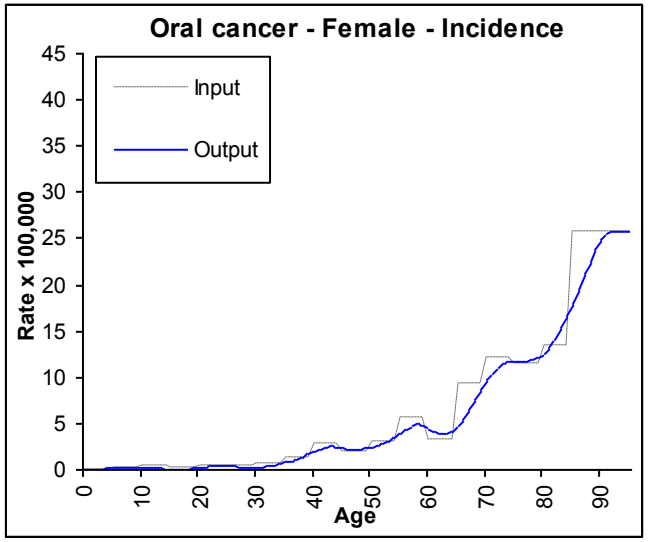
IRELAND



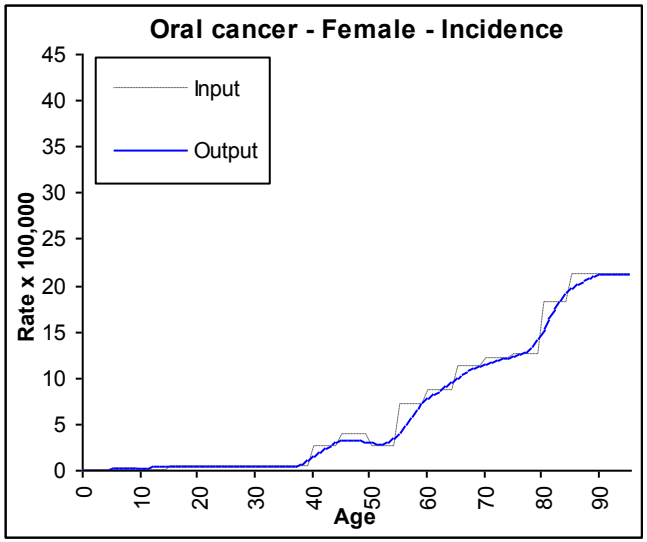
ITALY



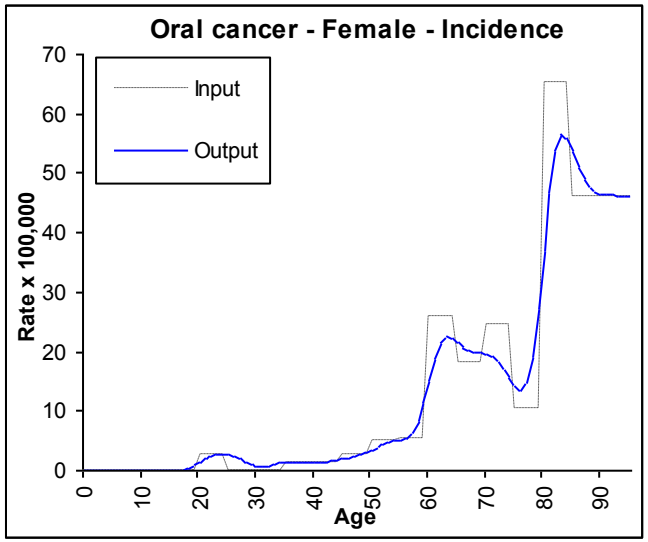
LATVIA



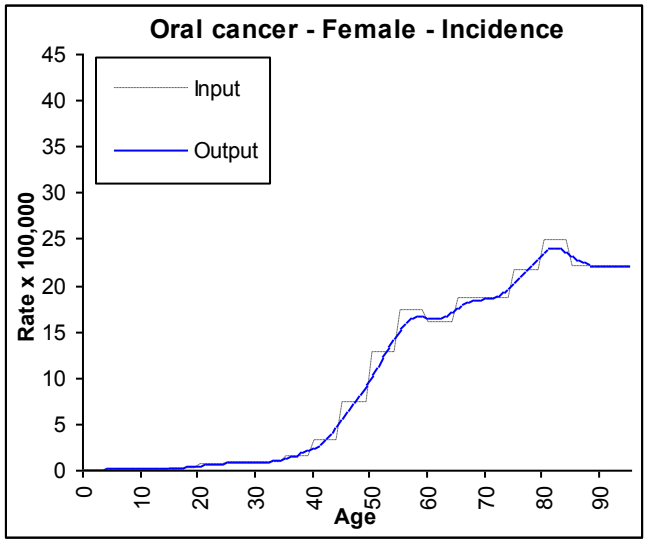
LITHUANIA



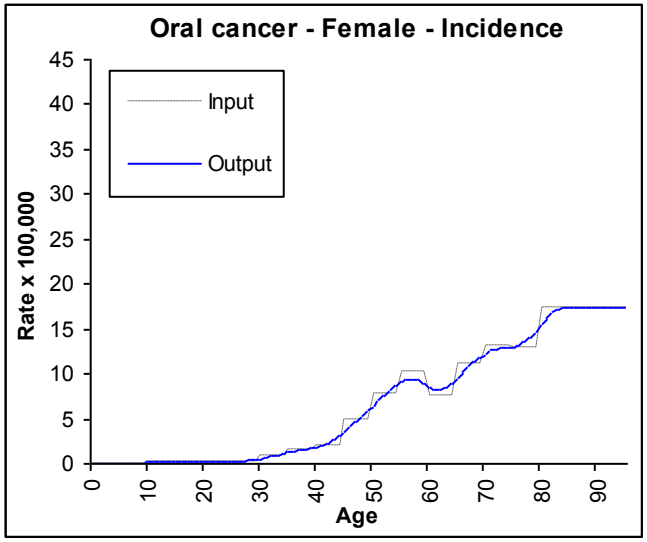
MALTA



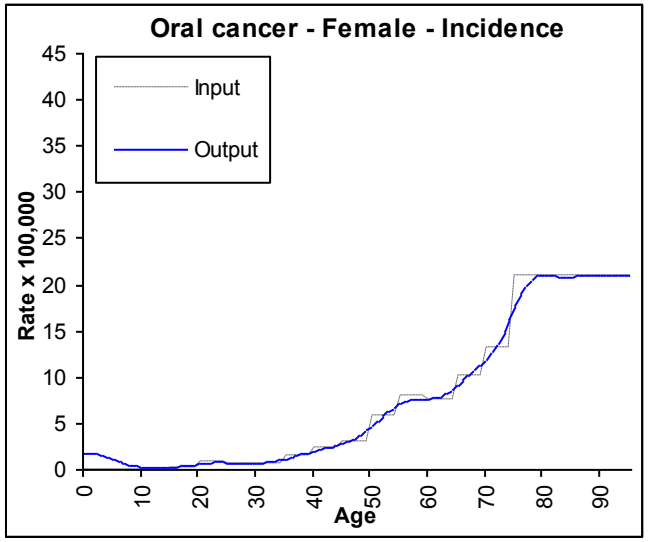
NETHERLANDS



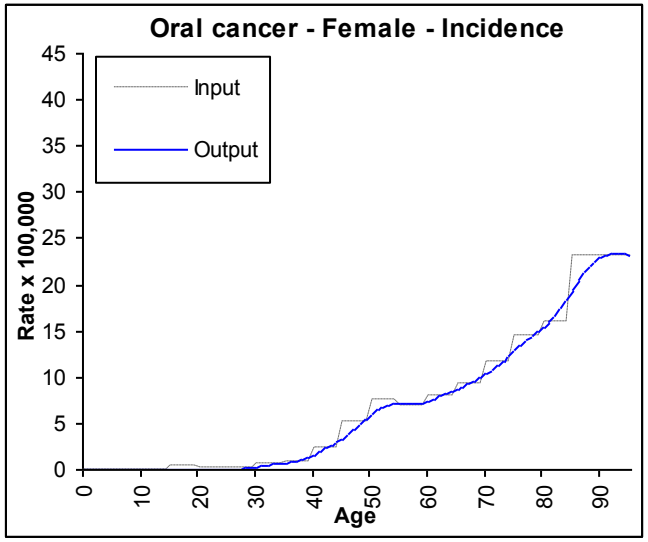
POLAND



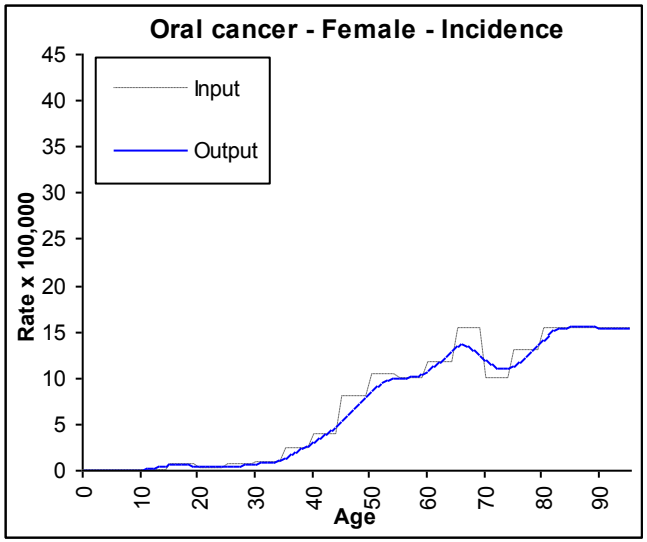
PORTUGAL



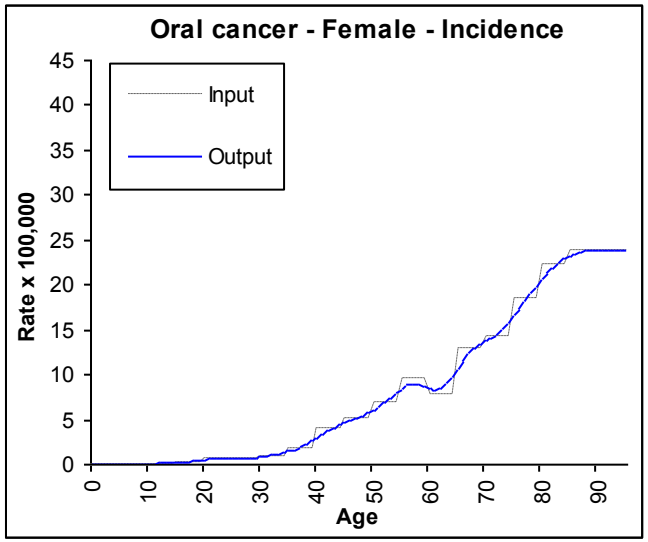
SLOVAKIA



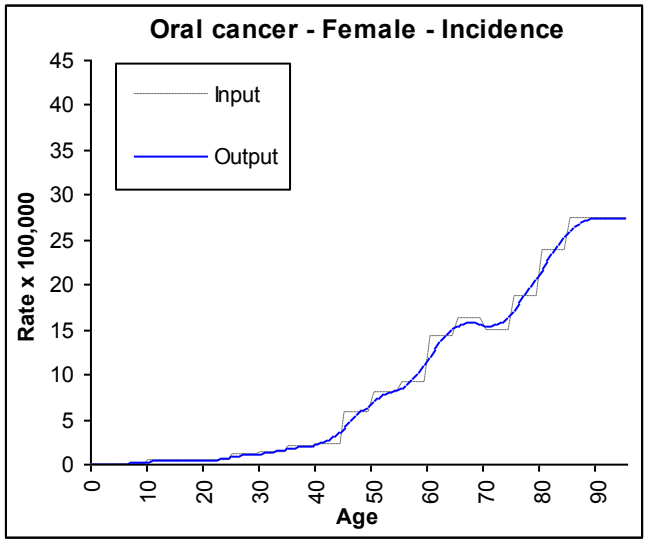
SLOVENIA



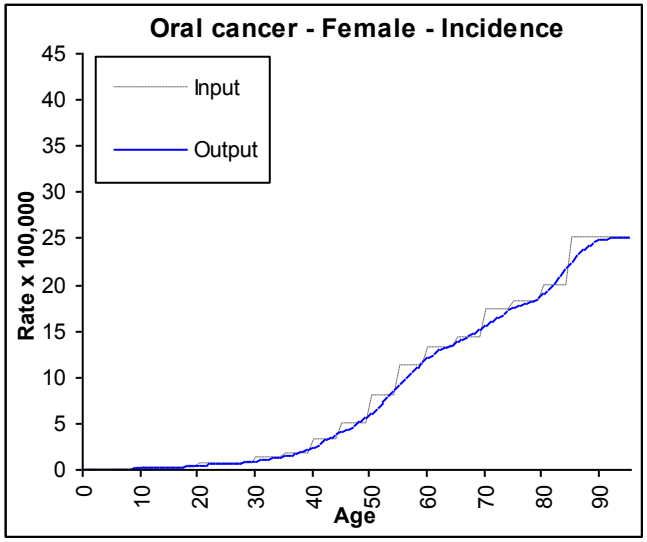
SPAIN



SWEDEN

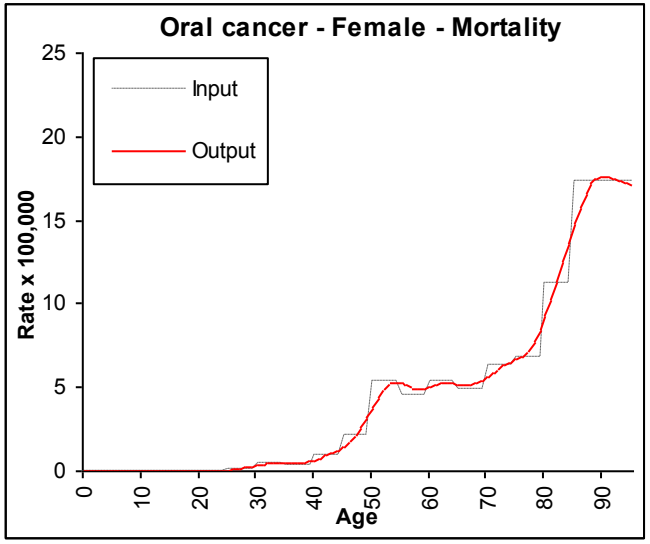


UNITED KINGDOM

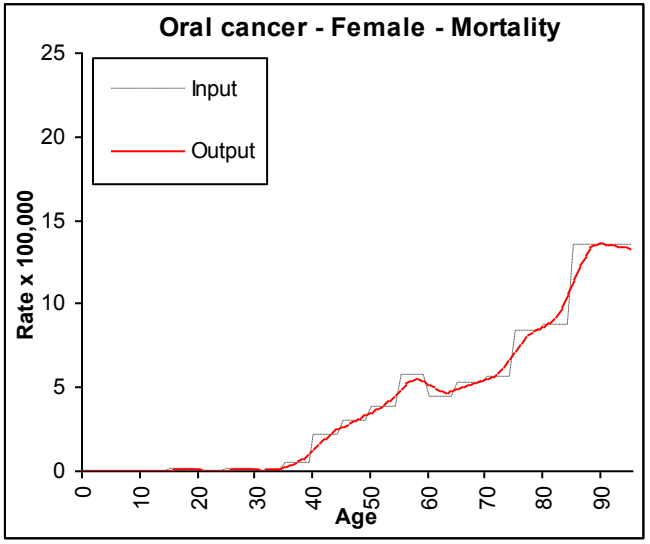


Figures 5.3.f. WP-10 ESTIMATES. Oral cancer (ICD-10 C00-C14). MORTALITY. FEMALE

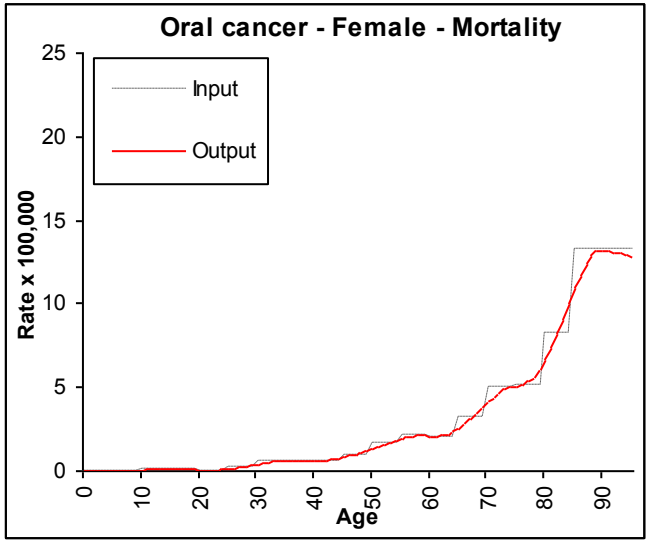
AUSTRIA



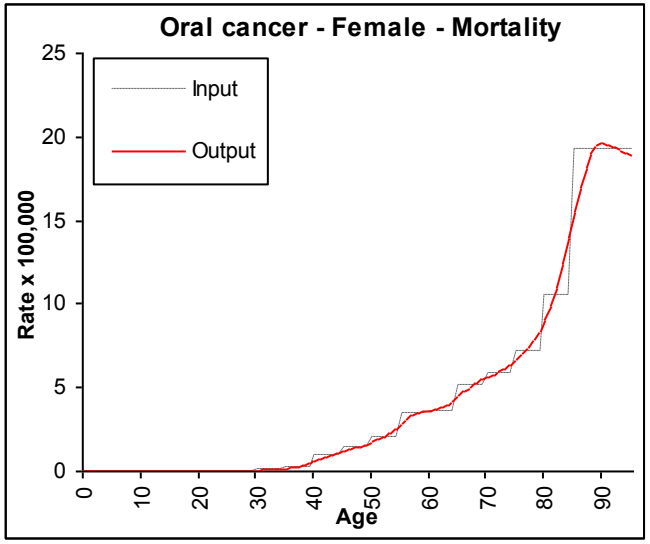
BELGIUM



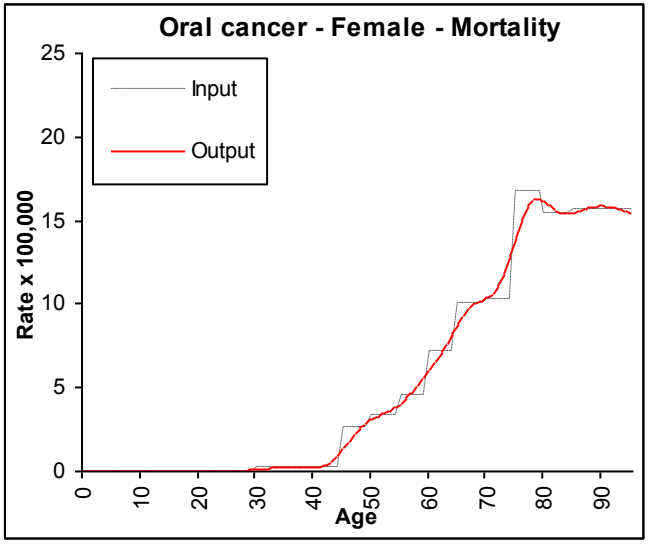
BULGARIA



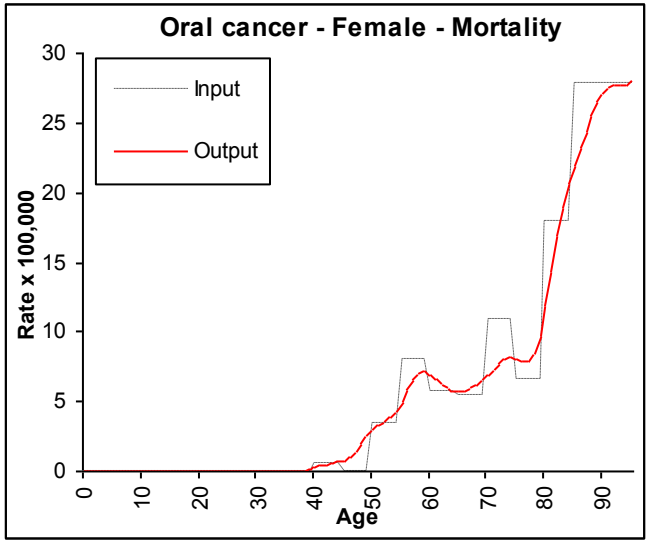
CZECH REPUBLIC



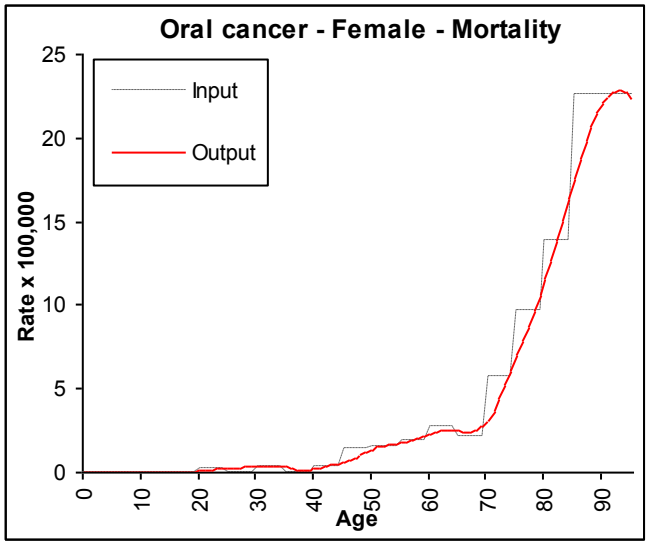
DENMARK



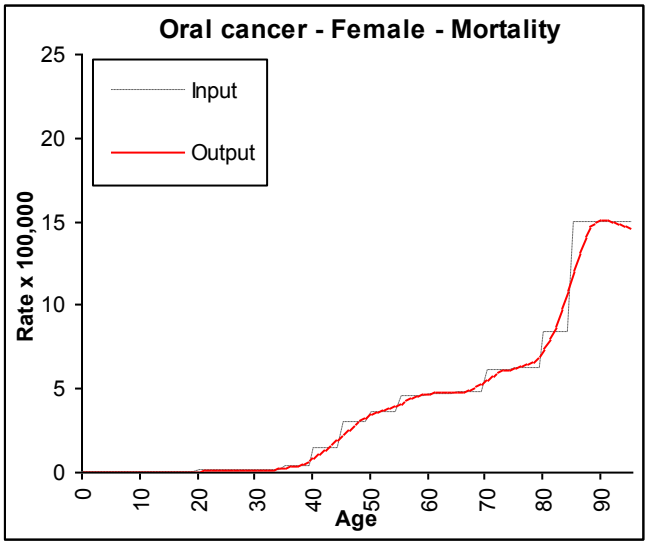
ESTONIA



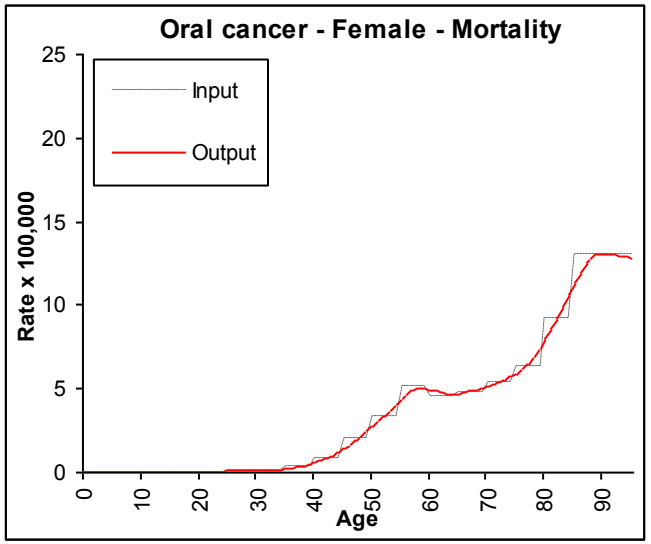
FINLAND



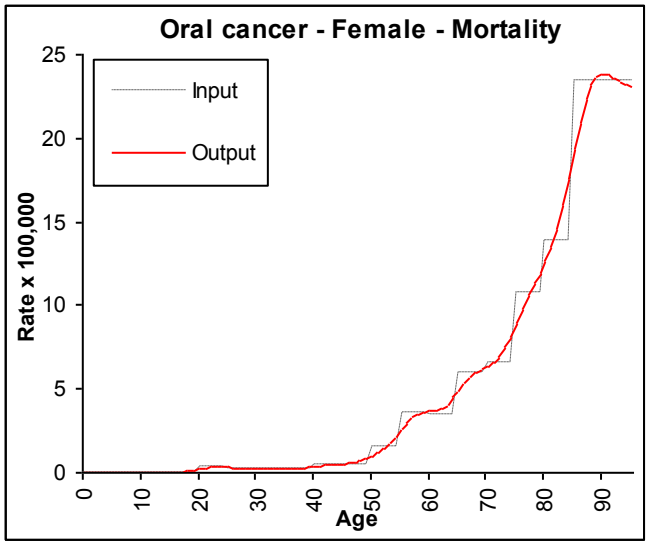
FRANCE



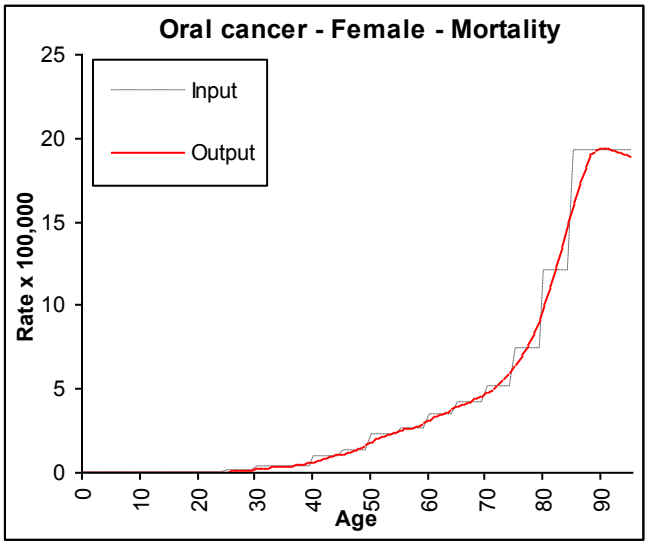
GERMANY



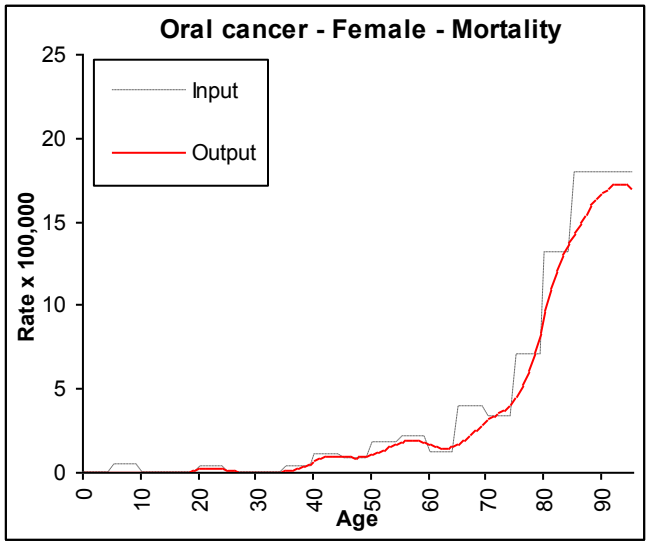
IRELAND



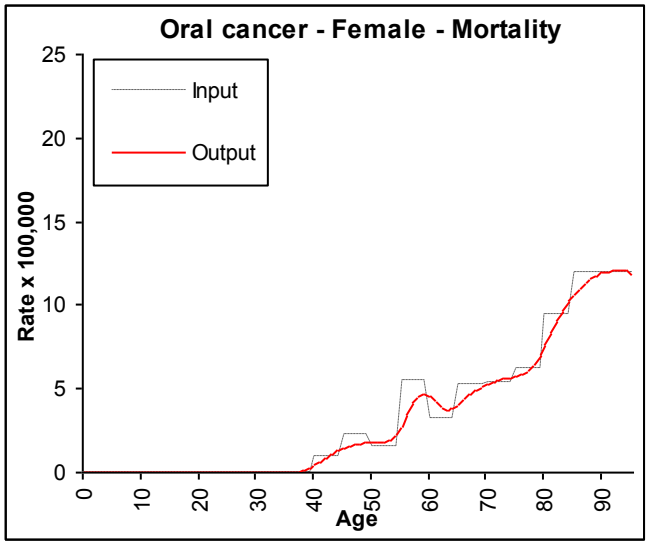
ITALY



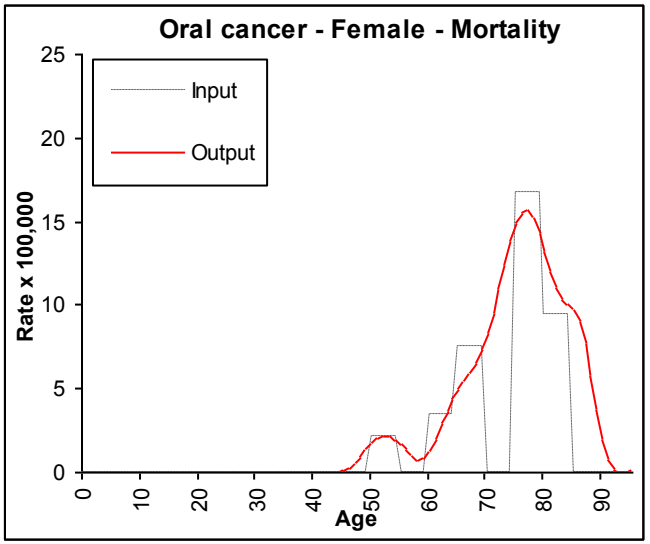
LATVIA



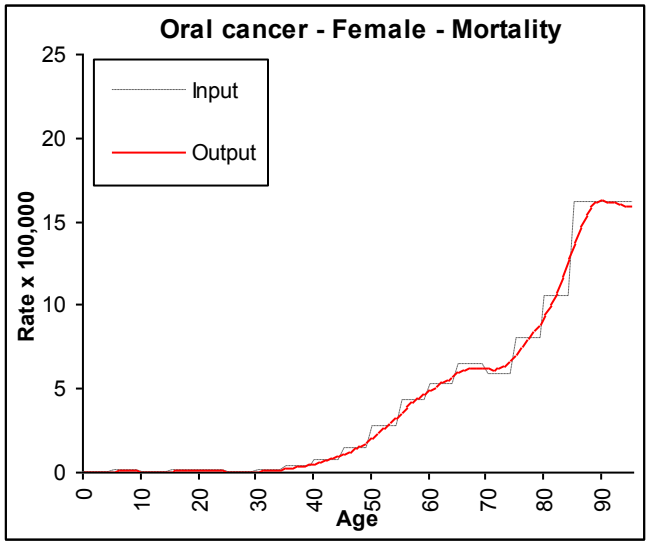
LITHUANIA



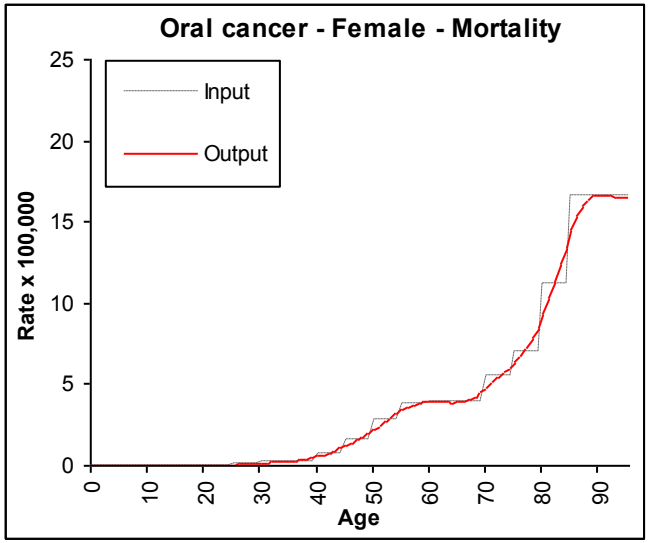
MALTA



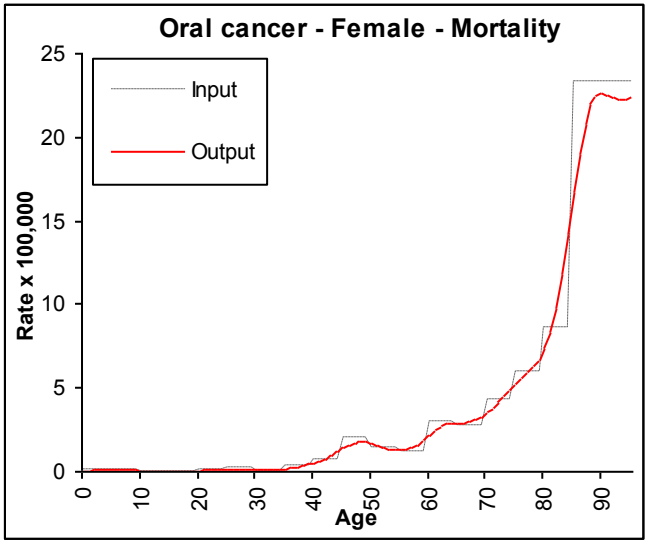
NETHERLANDS



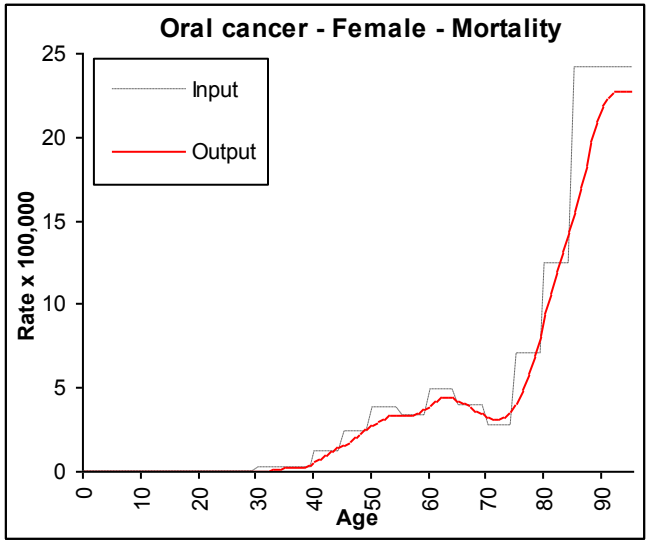
POLAND



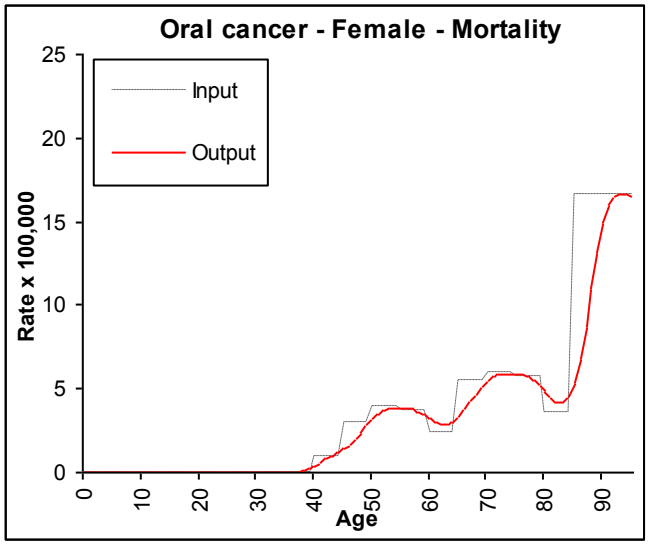
PORTUGAL



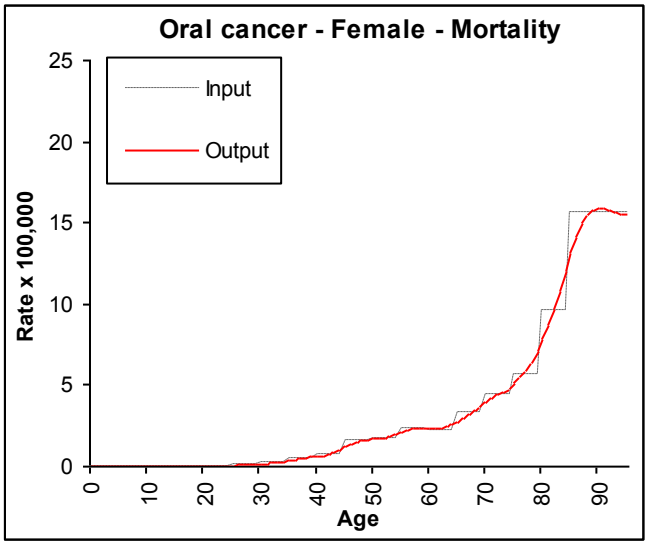
SLOVAKIA



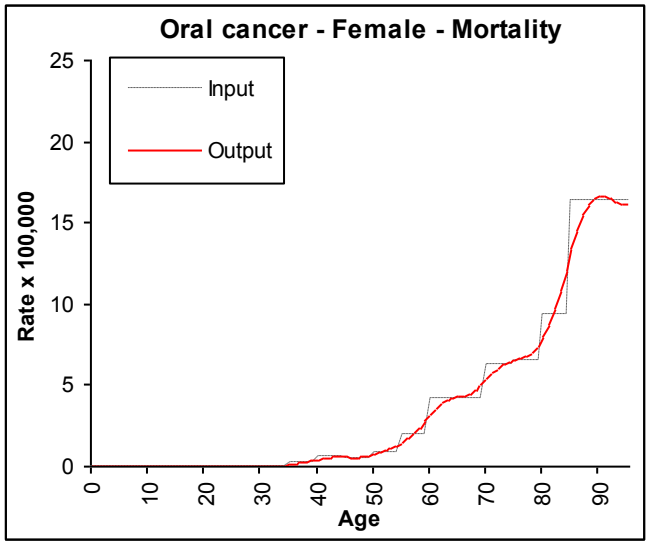
SLOVENIA



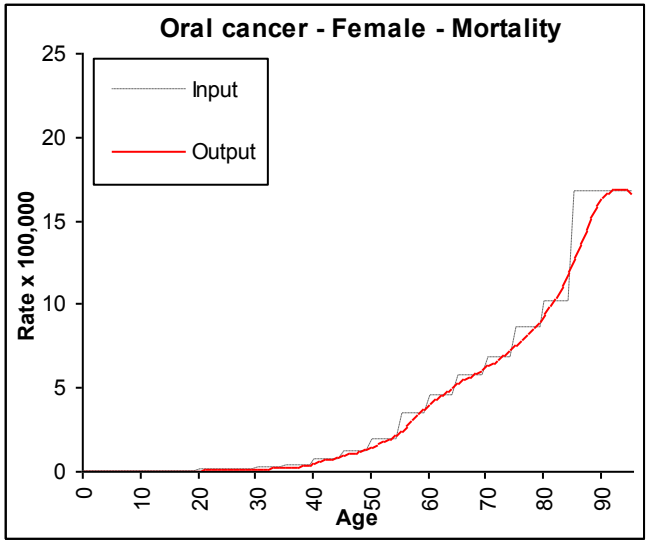
SPAIN



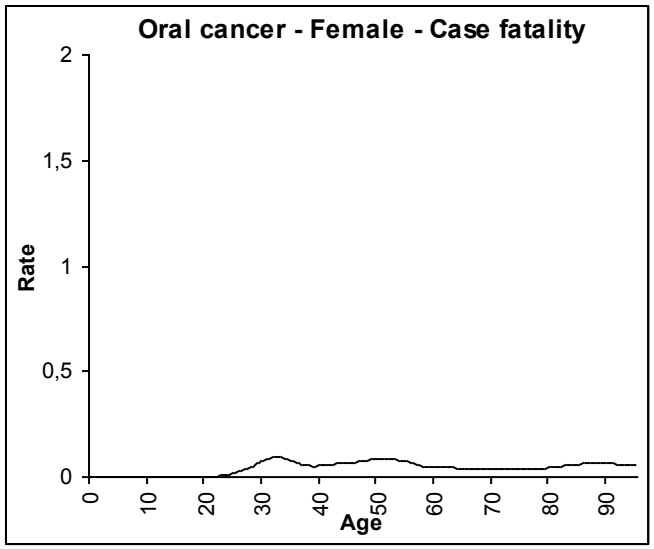
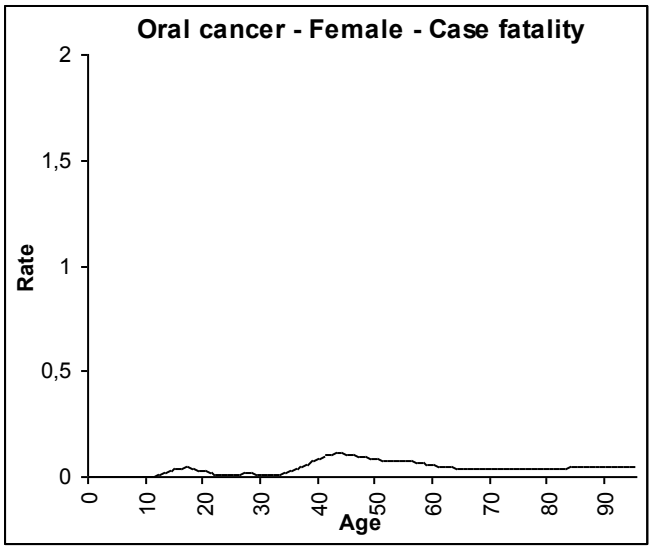
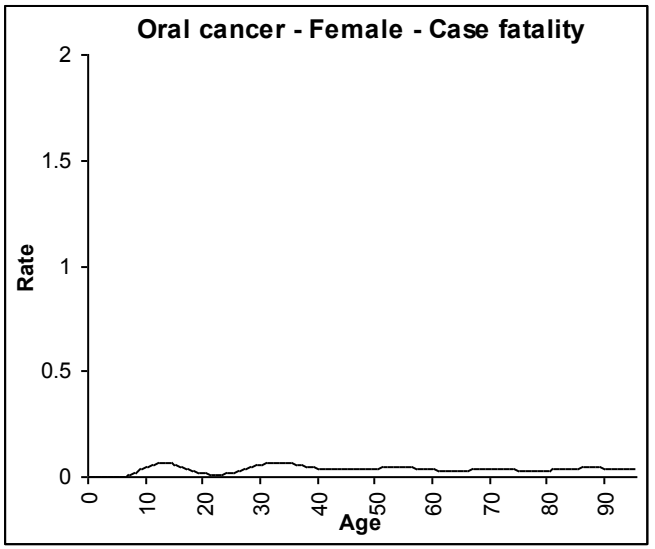
SWEDEN

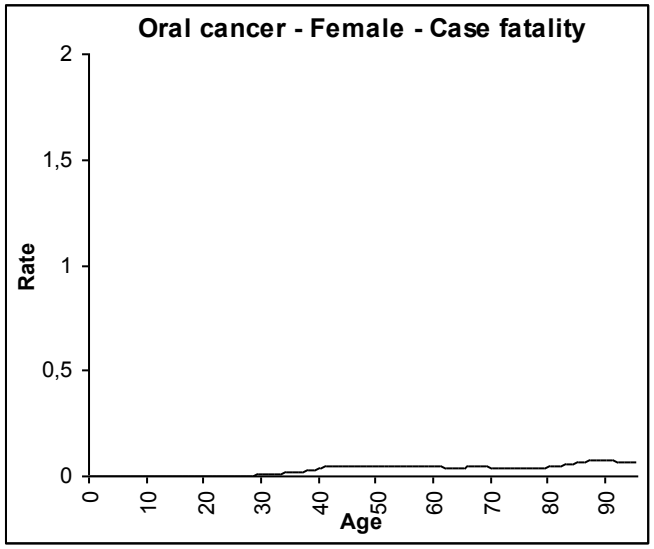
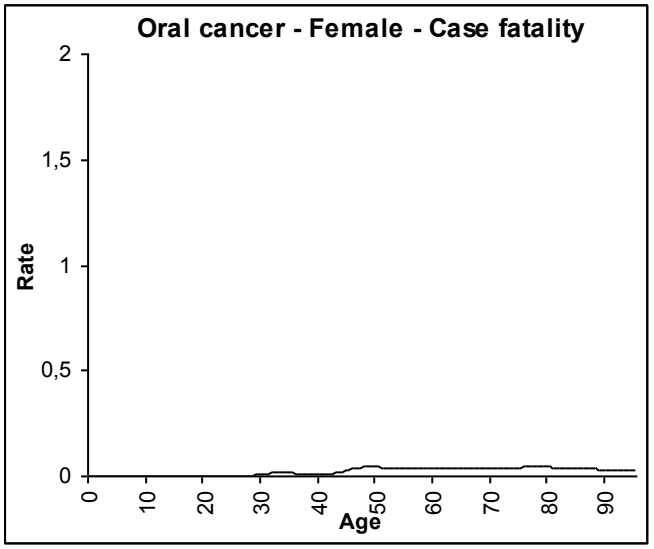
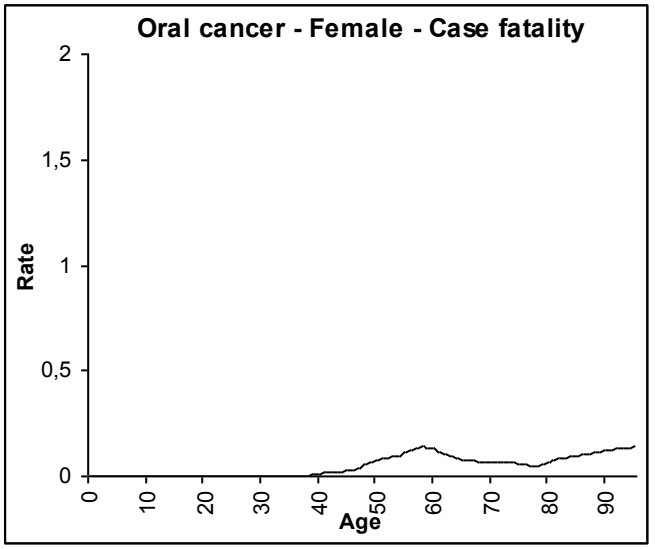


UNITED KINGDOM

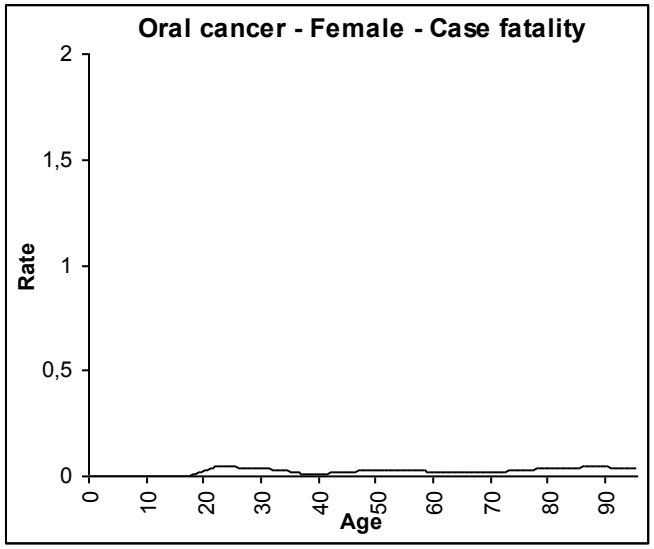


Figures 5.3.g. WP-10 ESTIMATES. Oral cancer (ICD-10 C00-C14). CASE FATALITY. FEMALE

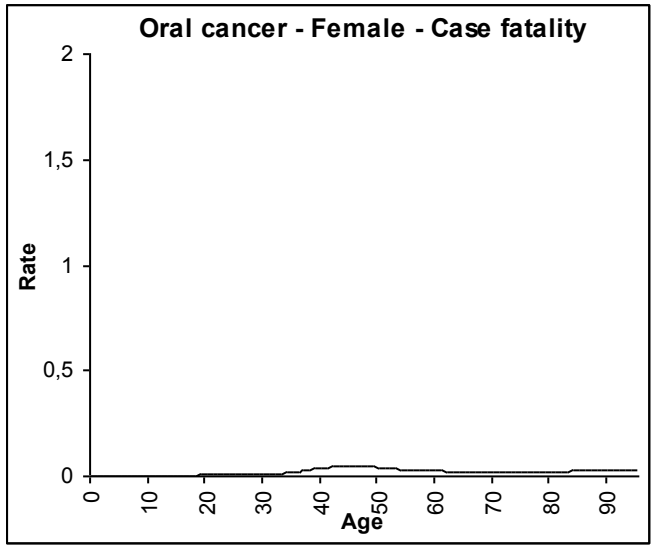
AUSTRIA	BELGIUM	BULGARIA
		

CZECH REPUBLIC	DENMARK	ESTONIA
		

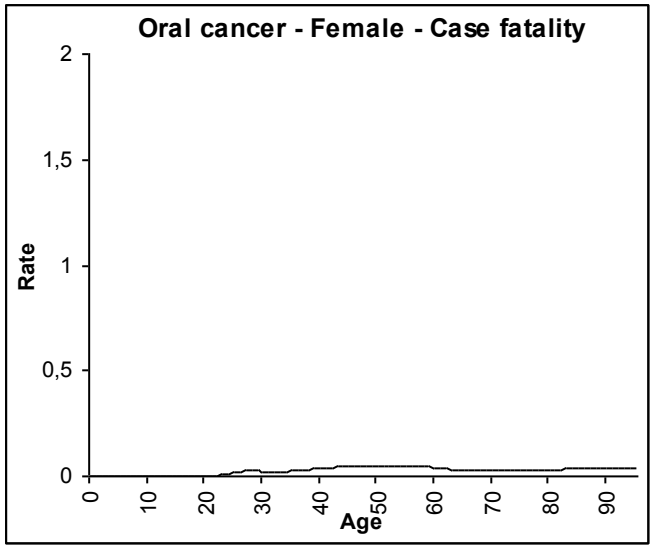
FINLAND



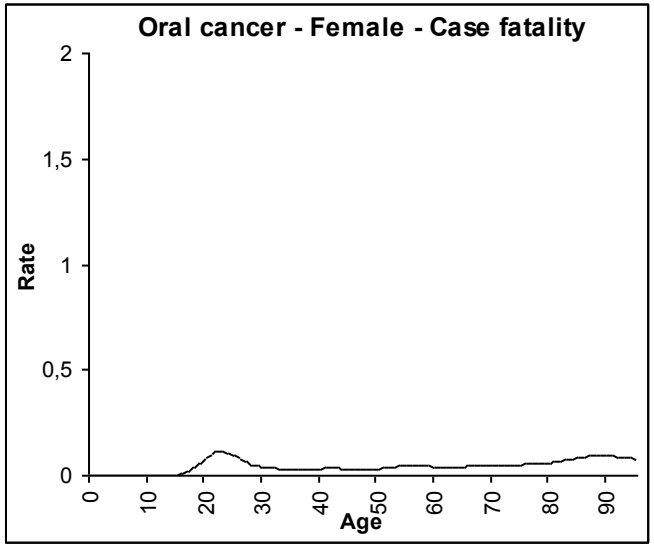
FRANCE



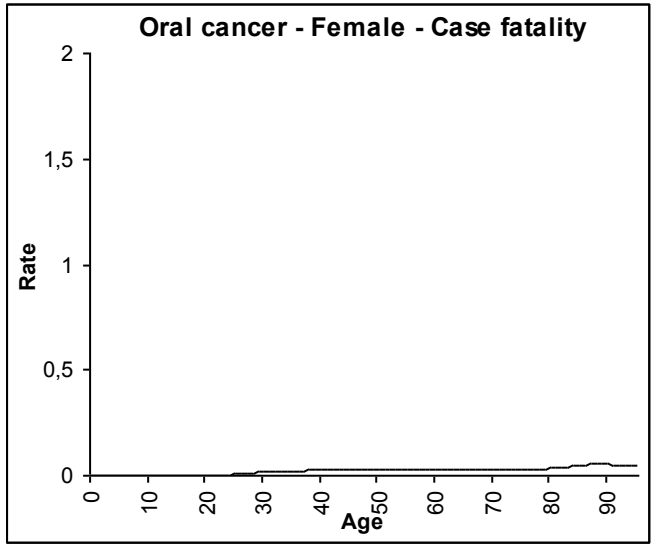
GERMANY



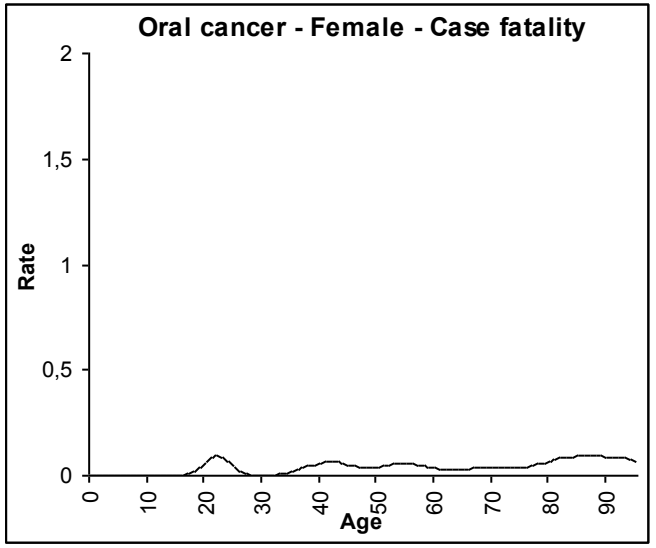
IRELAND



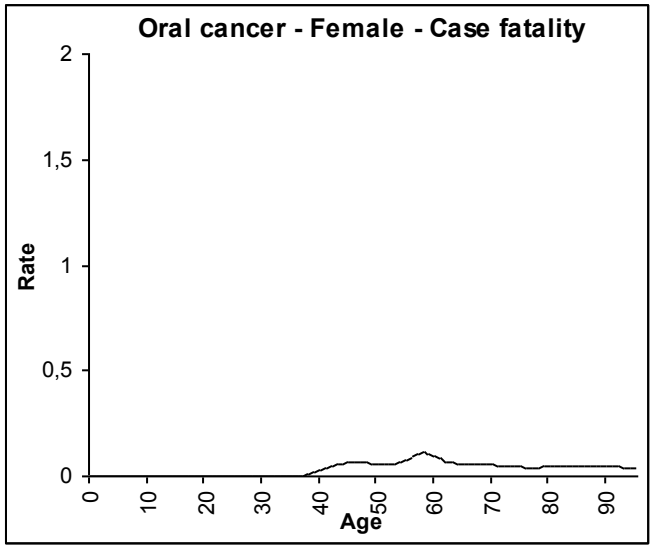
ITALY



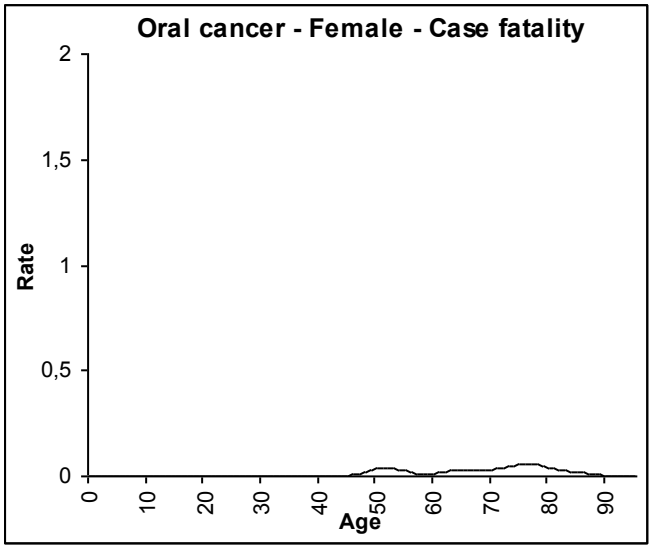
LATVIA



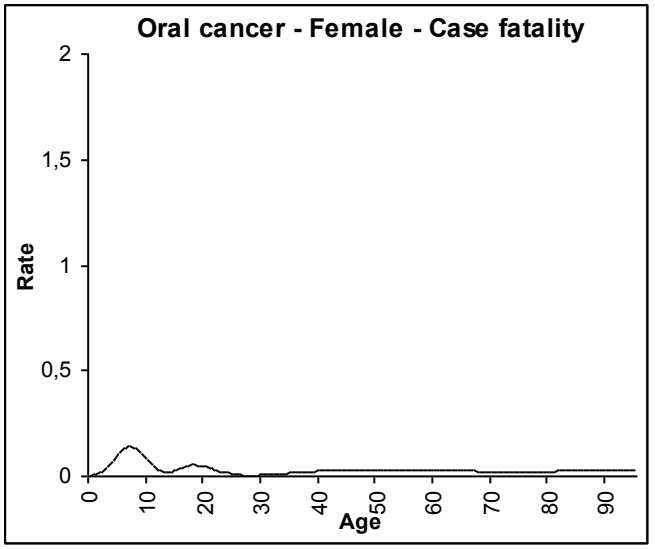
LITHUANIA



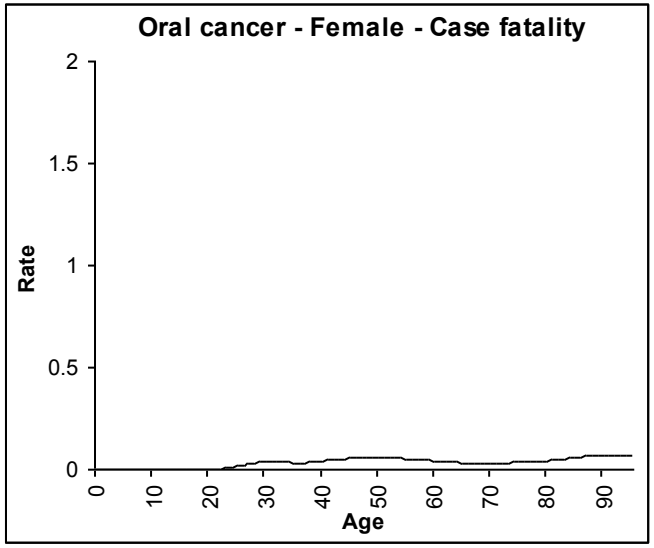
MALTA



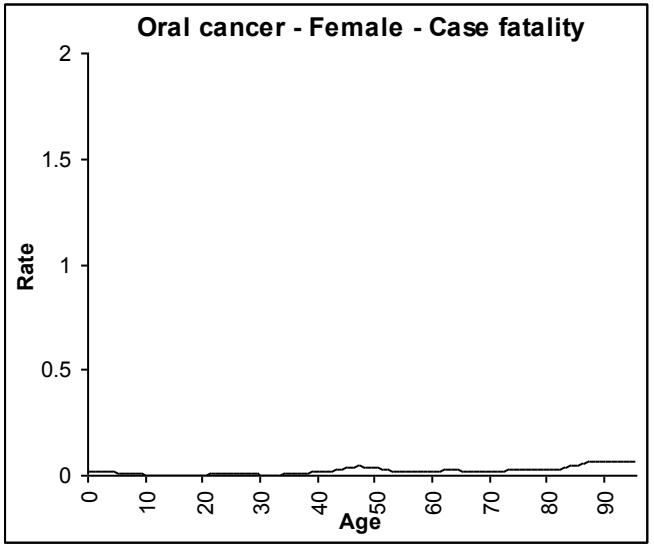
NETHERLANDS



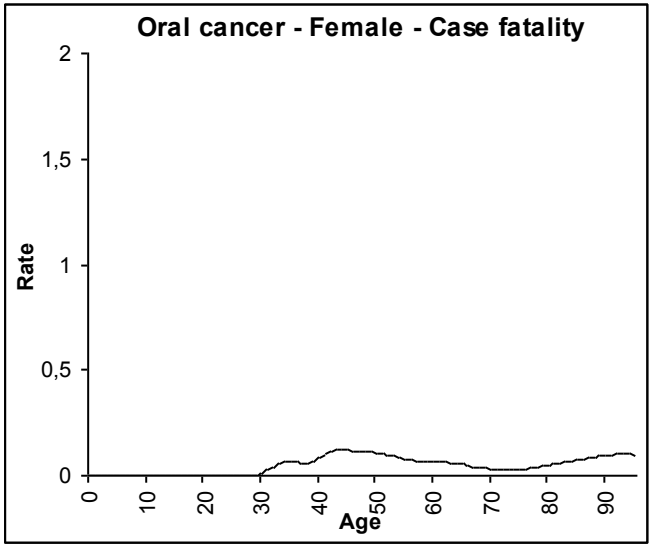
POLAND



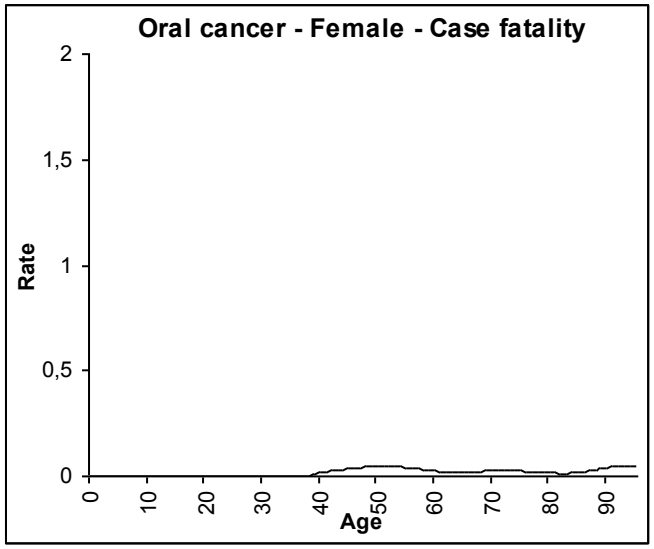
PORTUGAL



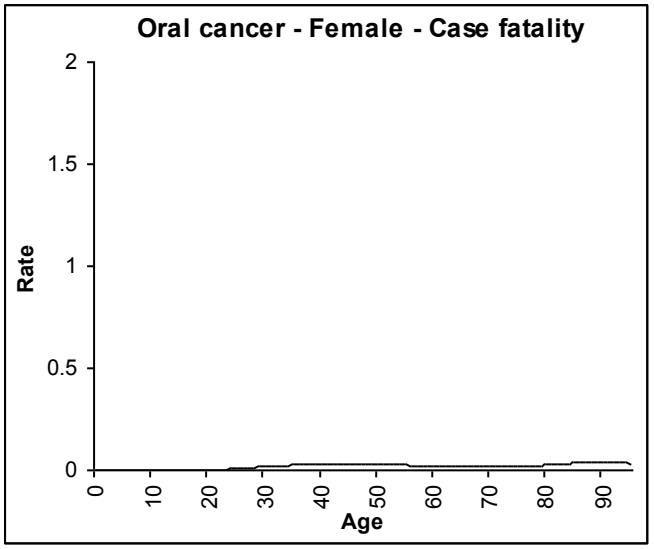
SLOVAKIA



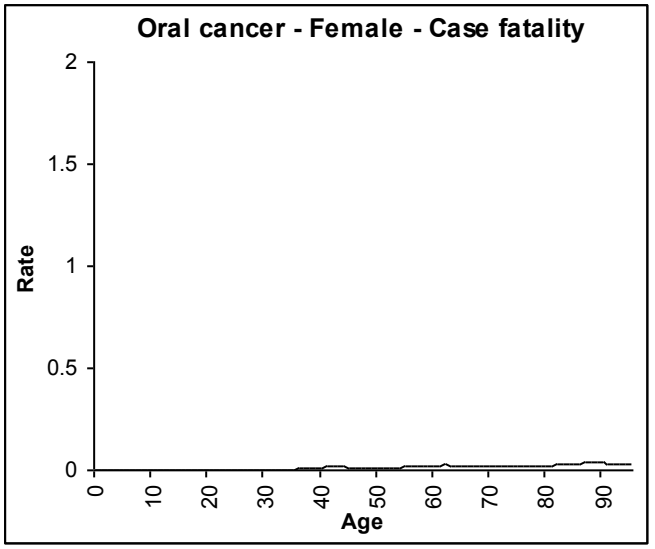
SLOVENIA



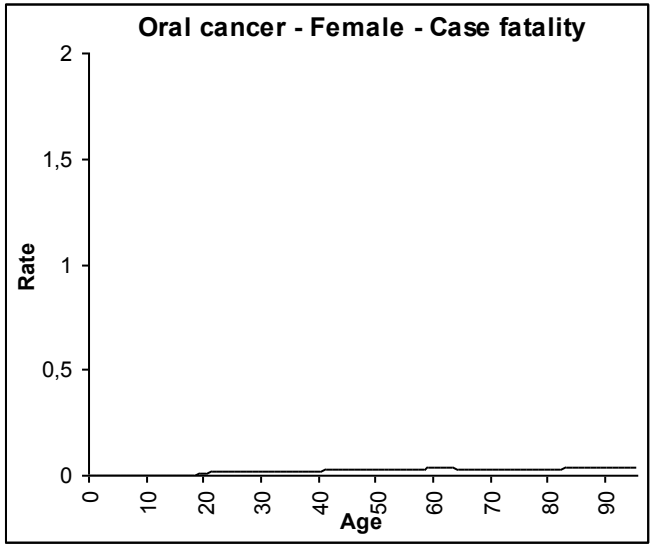
SPAIN



SWEDEN

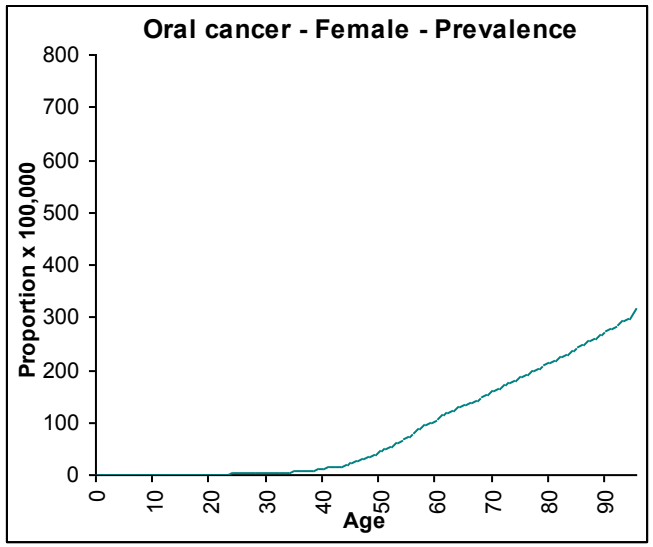


UNITED KINGDOM

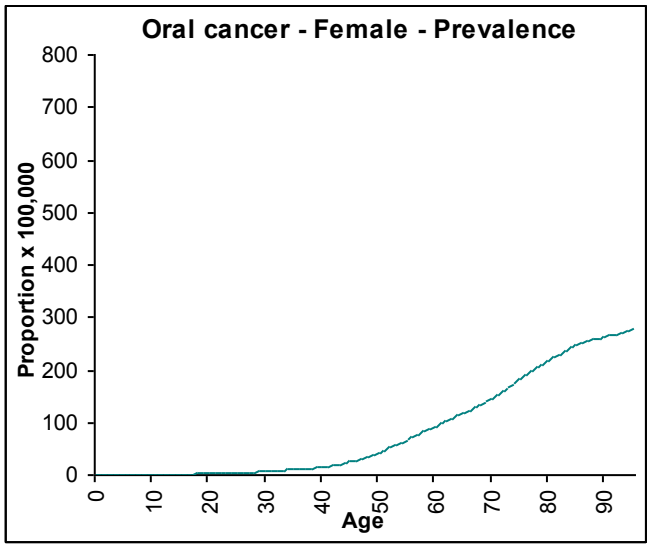


Figures 5.3.h. WP-10 ESTIMATES. Oral cancer (ICD-10 C00-C14). TOTAL PREVALENCE. FEMALE

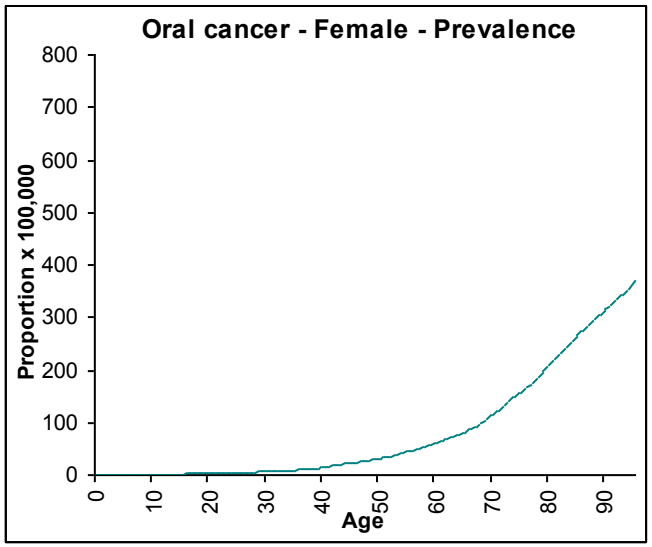
AUSTRIA



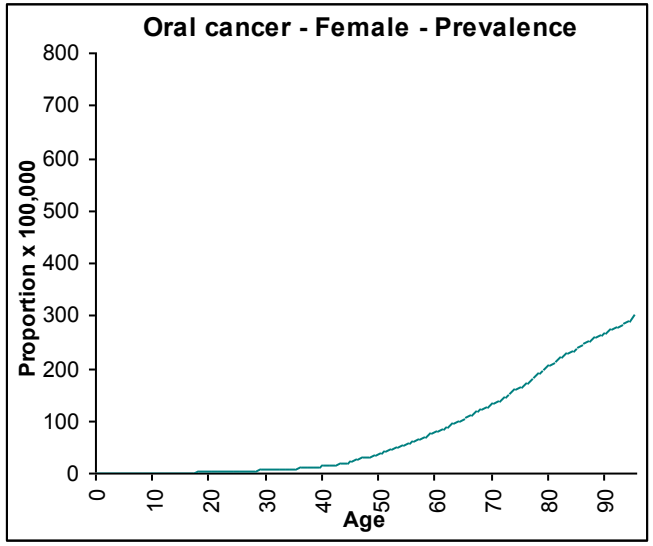
BELGIUM



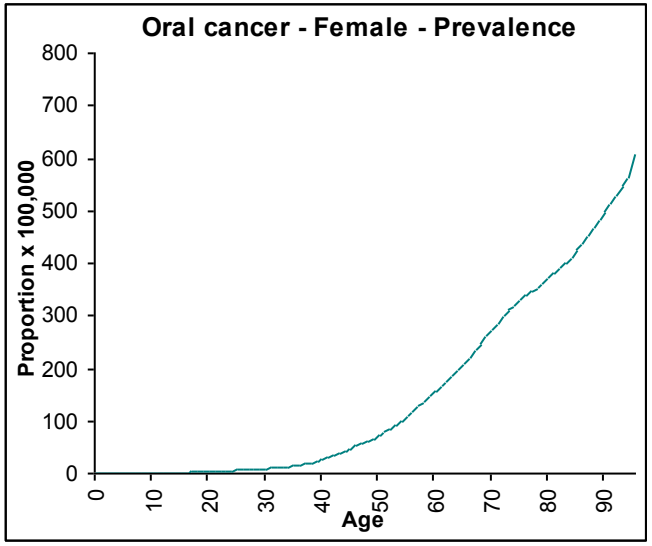
BULGARIA



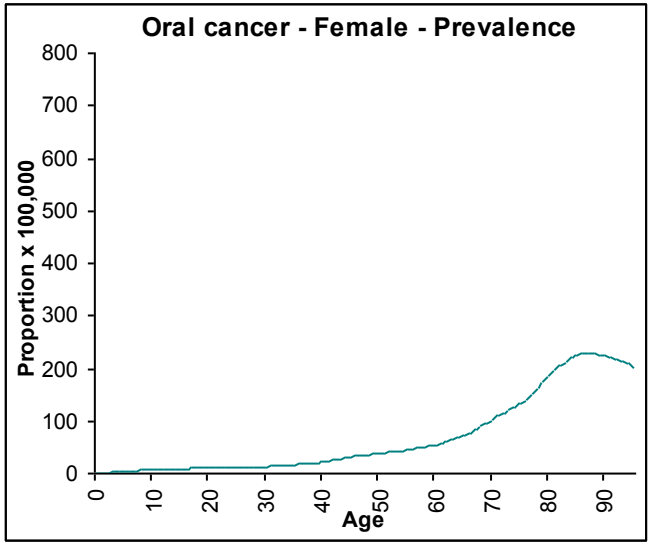
CZECH REPUBLIC



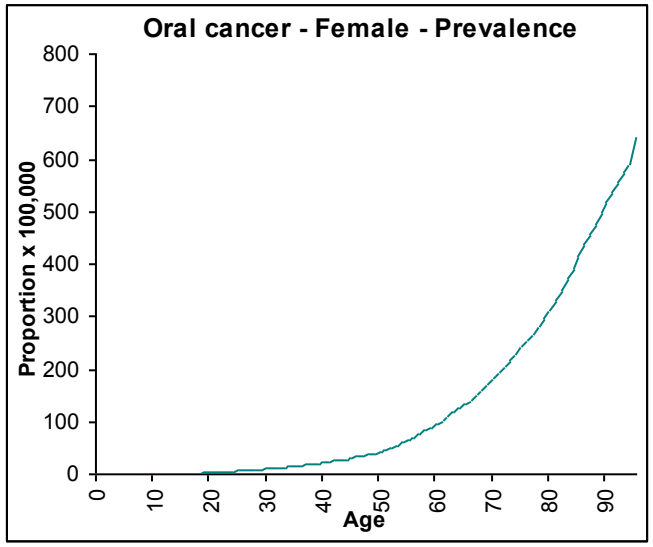
DENMARK



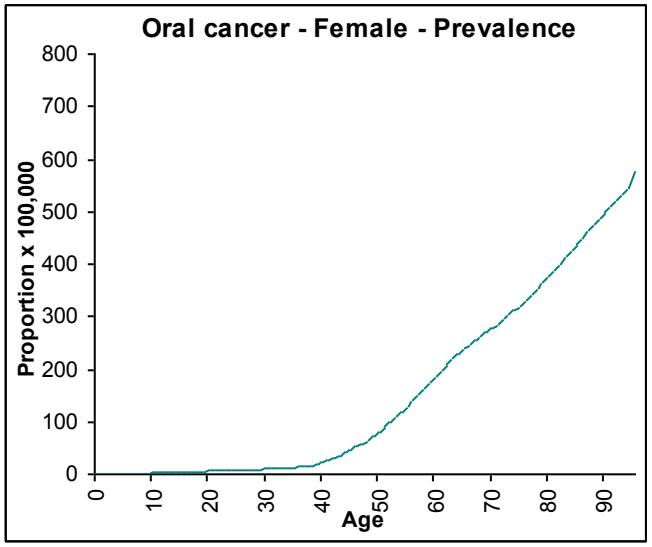
ESTONIA



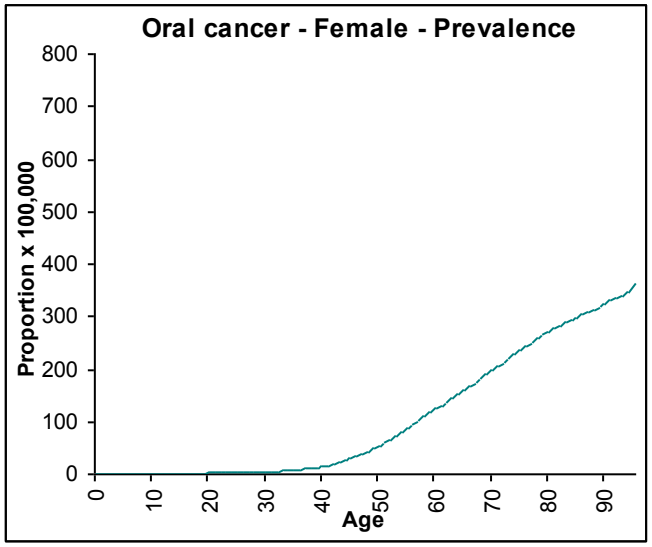
FINLAND



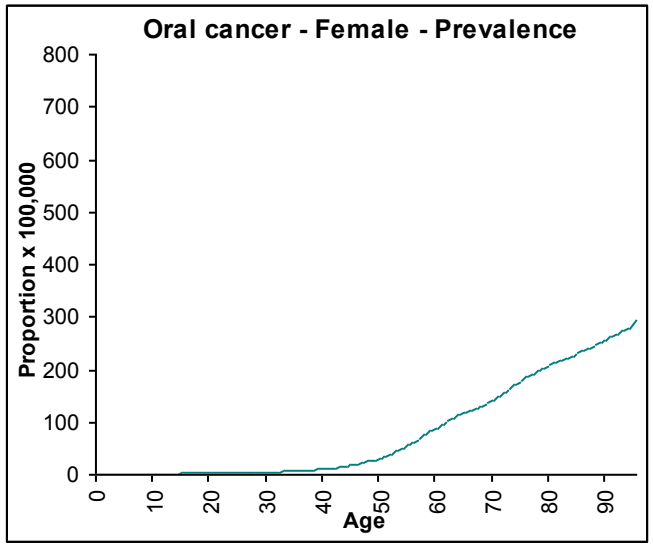
FRANCE



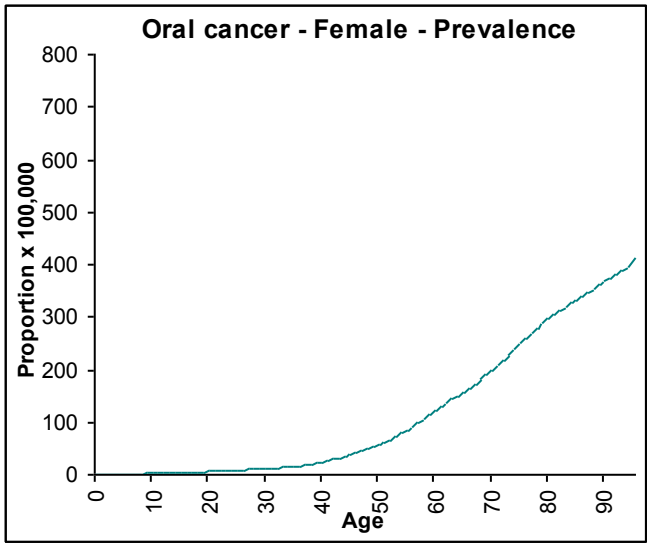
GERMANY



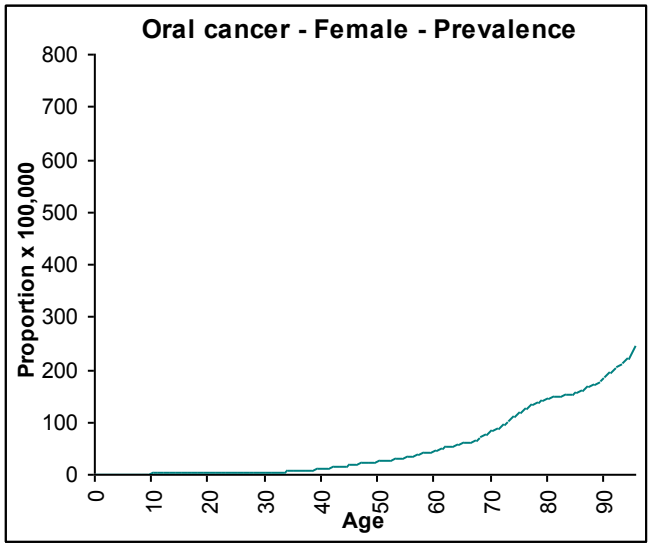
IRELAND



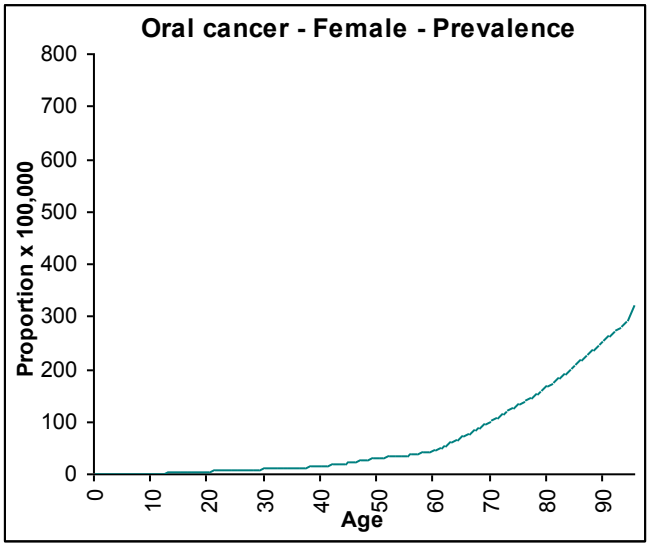
ITALY



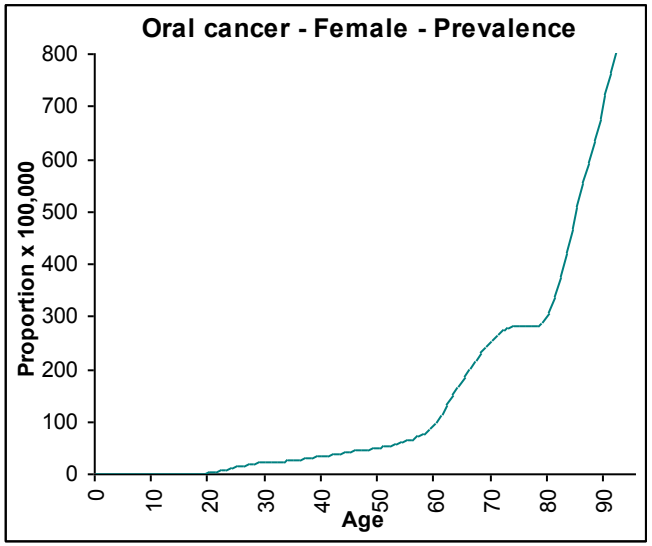
LATVIA



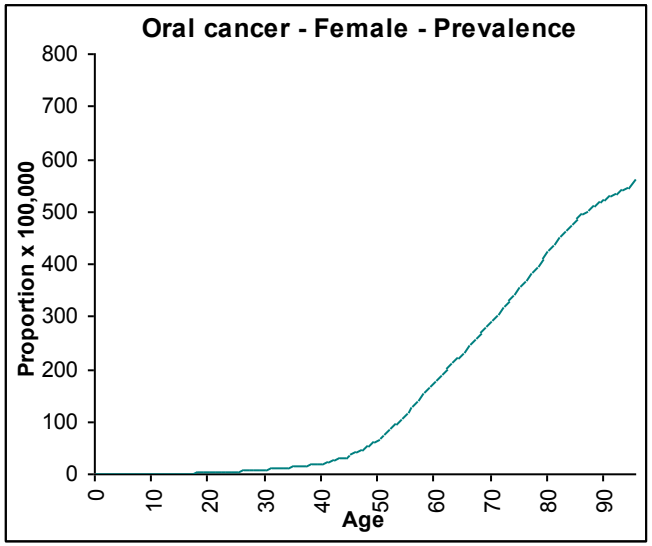
LITHUANIA



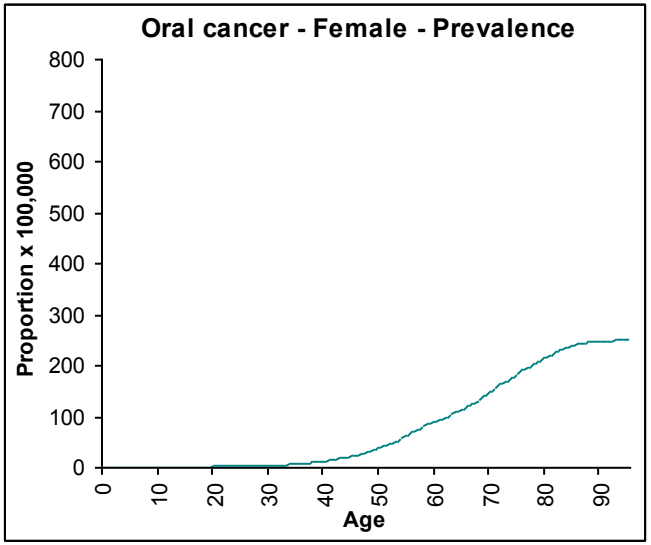
MALTA



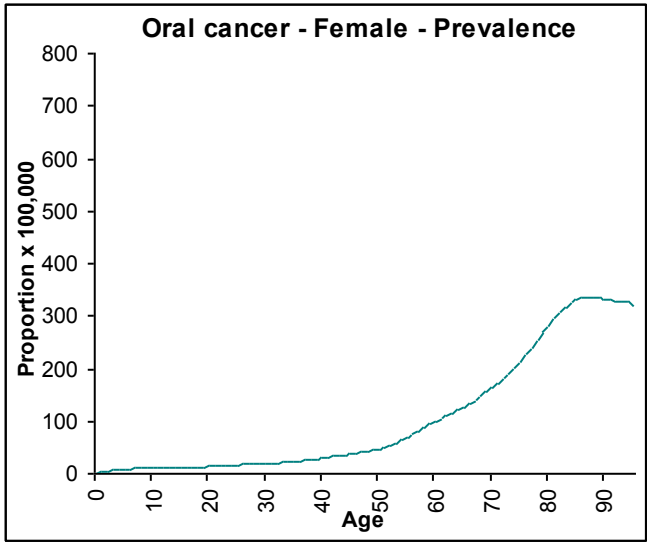
NETHERLANDS



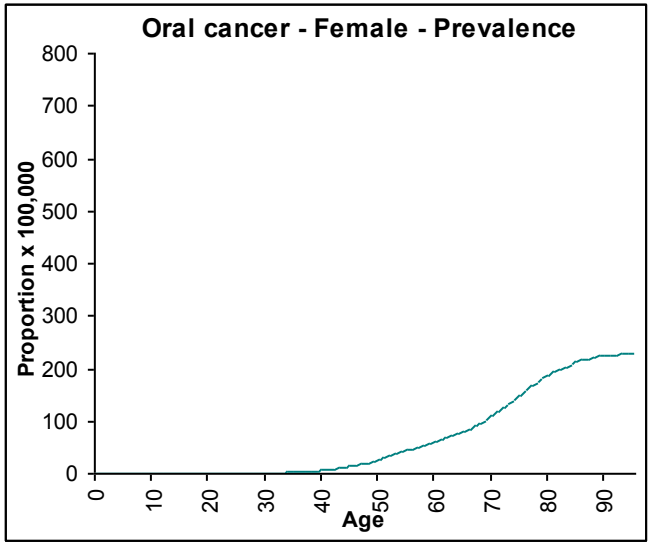
POLAND



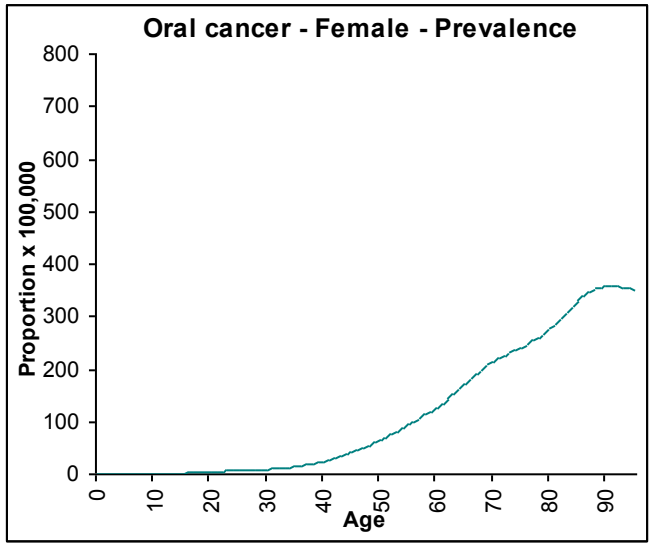
PORTUGAL



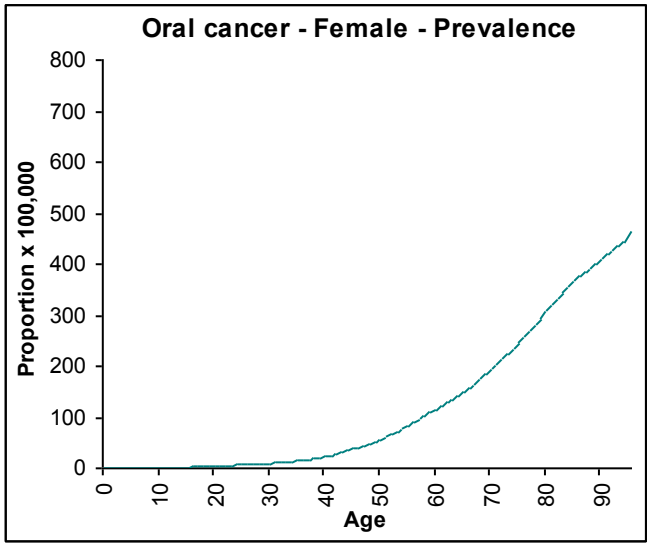
SLOVAKIA



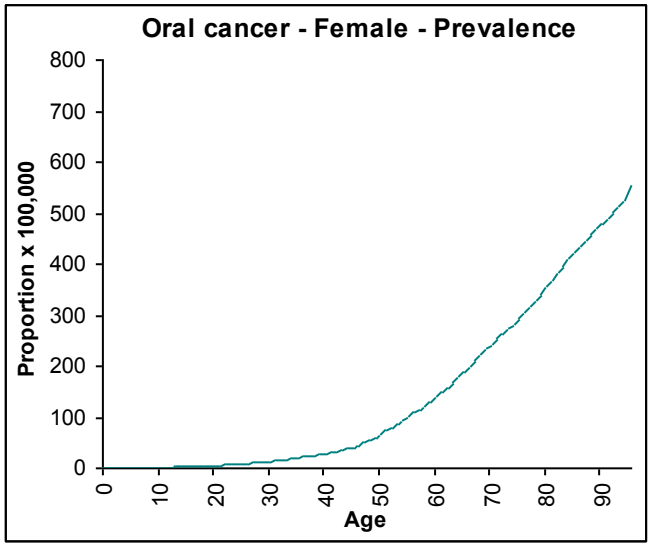
SLOVENIA



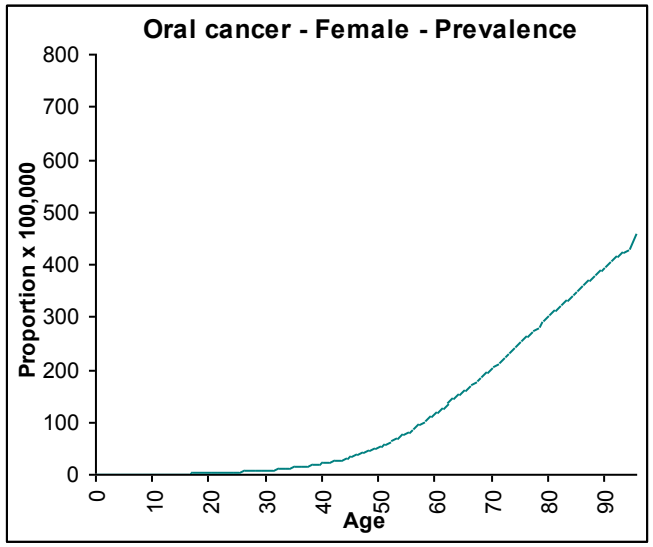
SPAIN



SWEDEN



UNITED KINGDOM



5. Discussion of the provided data on cancer

5.1 Potential sources of uncertainty related to the choice of data sources used

Original cancer mortality data (used to estimate cancer data for DYNAMO-HIA) are from the WHO mortality database [3] which merge data coming from various National Statistical Offices. Regarding these data:

- WHO estimates a completeness[1] equal to 100% for all the countries included in DYNAMO-HIA.
- WP-10 excluded from the project those cancer sites (mainly liver, bladder, pancreatic cancers) for which some classification problems could be present in some countries.

Original cancer incidence data (used to estimate cancer data for DYNAMO-HIA) are from the IARC database which merge data from various cancer registries satisfying specific data quality criteria. Regarding these data:

- For 8 countries (Belgium, France, Germany, Italy, Poland, Portugal, Spain and the United Kingdom) available data are not at national level consequently we used data from regional cancer registries as representative of the entire country. This procedure is often followed also by IARC in their estimates.
- In the Cancer Incidence in V Continents (Volume IX) [1], IARC underlined that, for some cancer registries, care should be taken in interpreting the rates for some or all of the cancer sites (editors considered that these registries have some limitations in determining the number of cases or the population at risk that could affect the ability to make direct comparisons with other registry datasets). In Europe the CRs of Antwerp (Belgium), Bulgary, Porto (Portugal), and Cracow (Poland) have these characteristics. However WP-10 decided to include their data in the study as the only available data for Bulgary and in order to increase the national coverage in the other three cases.

Data included in IARC Cancer Incidence in V Continents Publication [1] and in WHO-Mortality database [3] are comparable among countries.

5.2 Other potential sources of uncertainty

DISMOD, the model used to produce cancer indicators needed in DYNAMO-HIA, is based on a set of differential equations that describe age specific incidence, remission, case fatality, and 'all other causes' mortality. With total mortality and three data – incidence, mortality, and remission – as inputs, the equations were solved numerically using an iterative approximation method [2].
Regarding the application of this model in DYNAMO-HIA, Incidence and mortality model outputs in the majority of ages overlap the input data obtained by IARC [1] and WHO [3]. The model seems to well fit the input data. However two potential sources of uncertainty can affect prevalence estimates:

- No hypothesis on incidence and mortality trends were included in the model for prevalence estimates
- Cancer remission is not included in the model as for cancers there are not available standard definition of cured patients

5.3 Comparability

For all countries WP-10 used the same data sources and the same model to estimate cancer indicators so data produced are comparable age by age among countries (taking care of the previous cited sources of uncertainty for incidence and prevalence estimates).

[1] Completeness refers to the proportion of all deaths which are registered in the population covered by the vital registration system for a country

References

1. Curado. M. P., Edwards, B., Shin. H.R., Storm. H., Ferlay. J., Heanue. M. and Boyle. P., eds. Cancer Incidence in Five Continents, Vol. IX IARC Scientific Publications No. 160, Lyon, IARC. 2007
2. Barendregt JJ, Van Oortmarssen GJ, Vos T, Murray CJ. A generic model for the assessment of disease epidemiology: the computational basis of DisMod II. Popul Health Metr 1(1):4. 2003
3. World Health Organization, mortality database http://www.who.int/whosis/whosis/
4. Ferlay J, Autier P, Boniol M, Heanue M, Colombet M, Boyle P. Estimates of the cancer incidence and mortality in Europe in 2006. Ann Oncol 18(3):581-592. 2007
5. Ferlay J, Bray F, Pisani P, Parkin DM. GLOBOCAN 2002: Cancer Incidence, Mortality and Prevalence Worldwide. IARC CancerBase No. 5. version 2.0, IARCPress, Lyon, 2004
6. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. CA Cancer J Clin 55(2):74-108. 2005
7. Pickens A et al, Geographical distribution and racial disparity in esophageal cancer. Ann. Thorac. Surg, 76:1367-1369. 2003
8. Bosetti C et al. Trends in oesophageal cancer incidence and mortality in Europe. Int. J. Cancer, 122: 1118-1129. 2008
9. La Vecchia C et al. Trends in oral cancer mortality in Europe. Oral Oncology, 40:433-439. 2004