Latest asbestos deaths and diseases, global, European and country data for males and females

Bergen Norway, November 13-14, 2025

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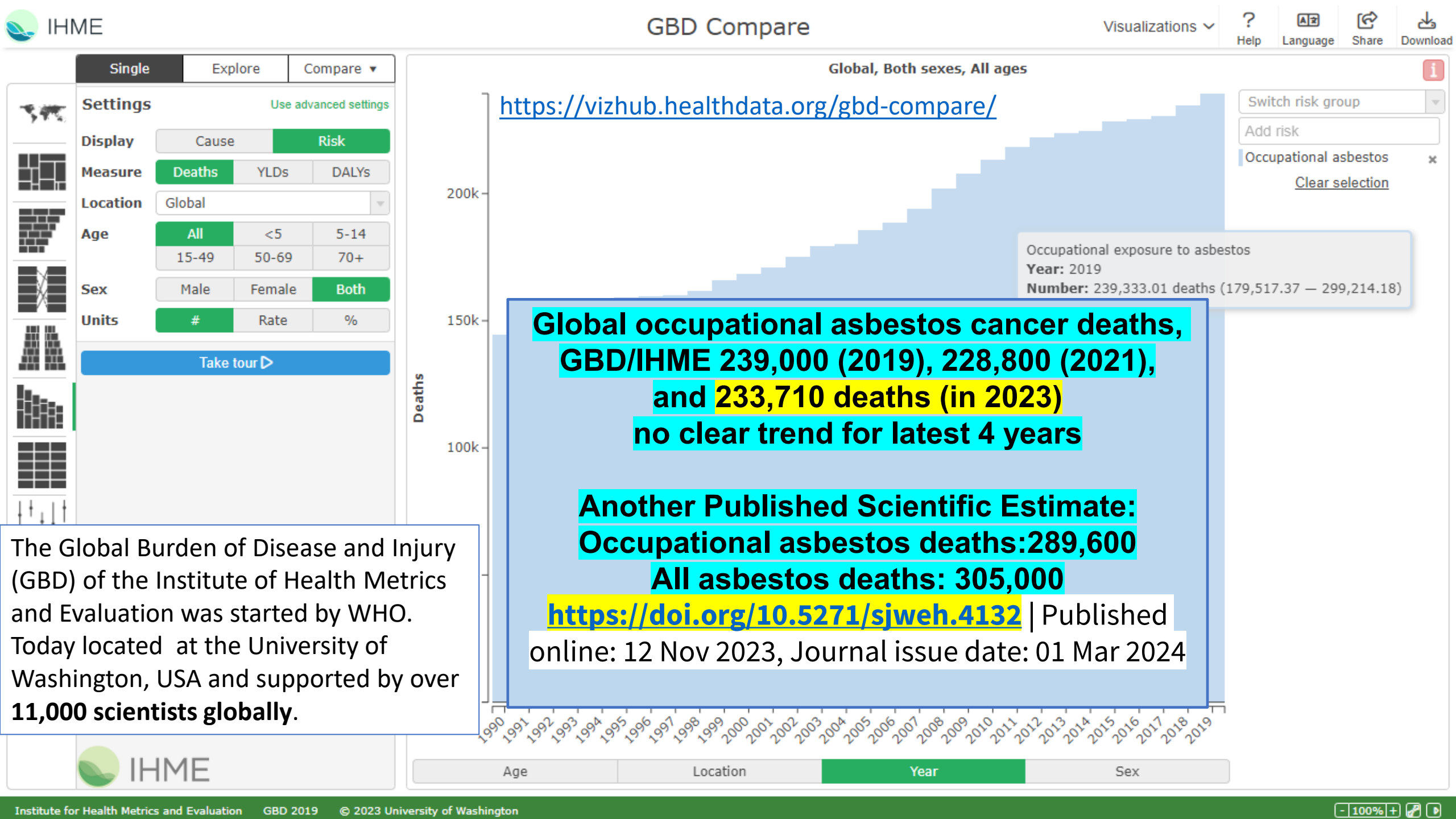
International Commission on Occupational Health
Commission Internationale de la Santé au Travail
Comisión Internacional de Salud en el Trabajo

Action today – less cancers in future

Asbestos related disease trends, now and in future

Asbestos causes cancers and long-latency diseases: 20-55 years, burden under-estimated

Measures to be taken: Ban asbestos everywhere, removal process, exposure limits, manage asbestos in existing infrastructure and in the environment, control exposures of non-asbestos workers: *female* and male

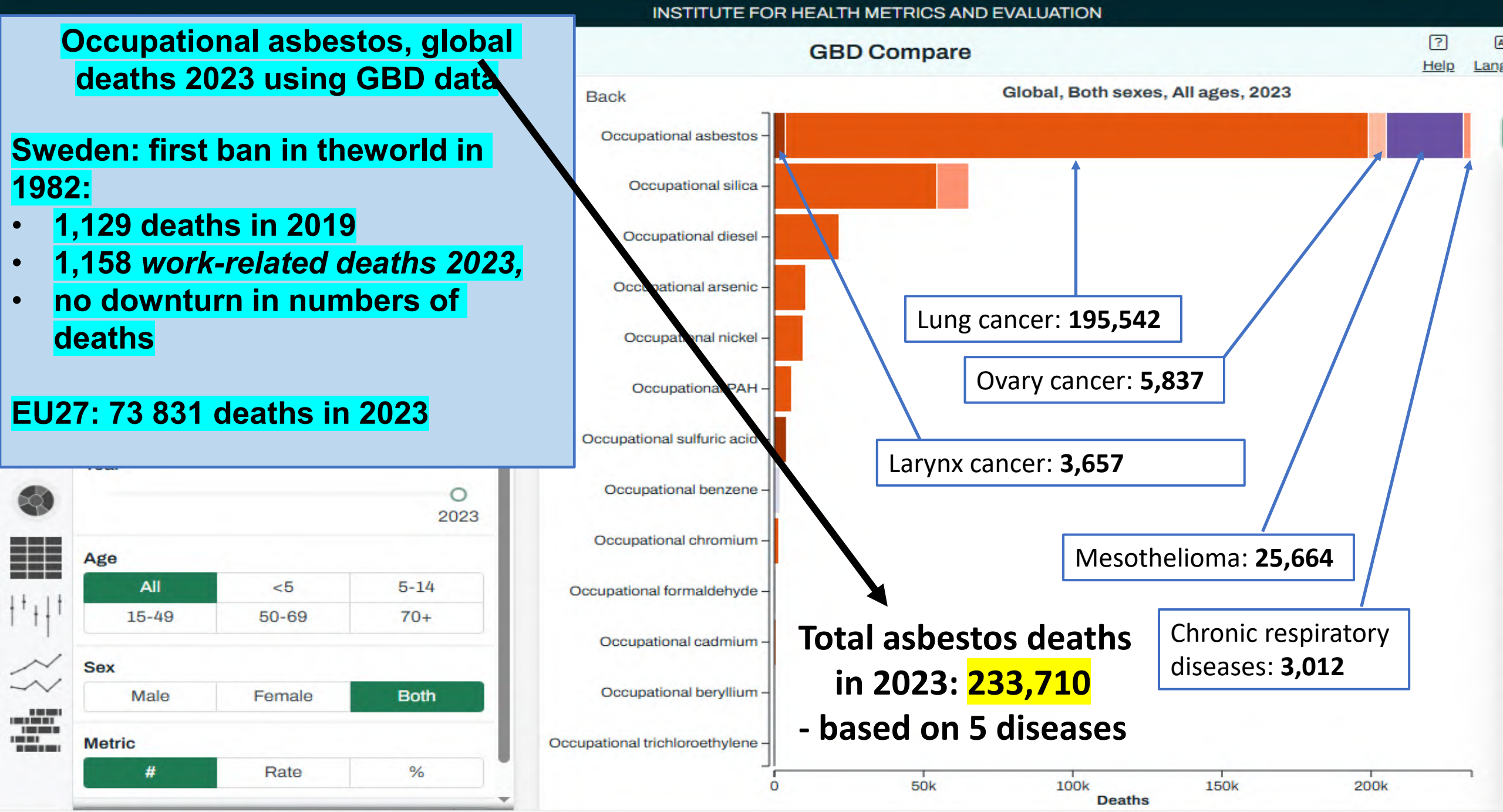

IHME
GBD Compare
Visualizations
Help
Language
Share
Download
Single
Explore
Compare
Settings
Use advanced settings
Display
Cause
Risk
Measure
Deaths
YLDs
DALYs
Location
Global
Age
All
<5
5-14
15-49
50-69
70+
Sex
Male
Female
Both
Units
#
Rate
%
Take tour
Global, Both sexes, All ages
https://vizhub.healthdata.org/gbd-compare/
Switch risk group
Add risk
Occupational asbestos
Clear selection
Occupational exposure to asbestos
Year: 2019
Number: 239,333.01 deaths (179,517.37 — 299,214.18)
200k
150k
100k
Deaths
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Age
Location
Year
Sex
Global occupational asbestos cancer deaths,
GBD/IHME 239,000 (2019), 228,800 (2021),
and 233,710 deaths (in 2023)
no clear trend for latest 4 years
Another Published Scientific Estimate:
Occupational asbestos deaths:289,600
All asbestos deaths: 305,000
https://doi.org/10.5271/sjweh.4132 | Published online: 12 Nov 2023, Journal issue date: 01 Mar 2024
The Global Burden of Disease and Injury (GBD) of the Institute of Health Metrics and Evaluation was started by WHO. Today located at the University of Washington, USA and supported by over 11,000 scientists globally.
IHME
Institute for Health Metrics and Evaluation
GBD 2019
© 2023 University of Washington
100%

Occupational asbestos, global deaths 2023 using GBD data

Sweden: first ban in theworld in 1982:

- **1,129 deaths in 2019**
- **1,158 *work-related deaths 2023,***
- **no downturn in numbers of deaths**

EU27: 73 831 deaths in 2023



IME | GHDx | Viz Hub

Diseases causing asbestos deaths at work in EU28 in 2019, Population 520 million (incl. U.K. in 2019)

Single | Explore | Compare

Settings Use advanced settings

Category: Occupational carcinogens

Level: 4

Measure: Deaths | YLDs | DALYs

Location: European Union

Year: 2019

Age: All | <5 | 5-14 | 15-49 | 50-69 | 70+

Sex: Male | Female | Both

Units: # | Rate | %

Total asbestos deaths at work in 2023: EU27: 73,831 + UK: 17,884 = 91.715

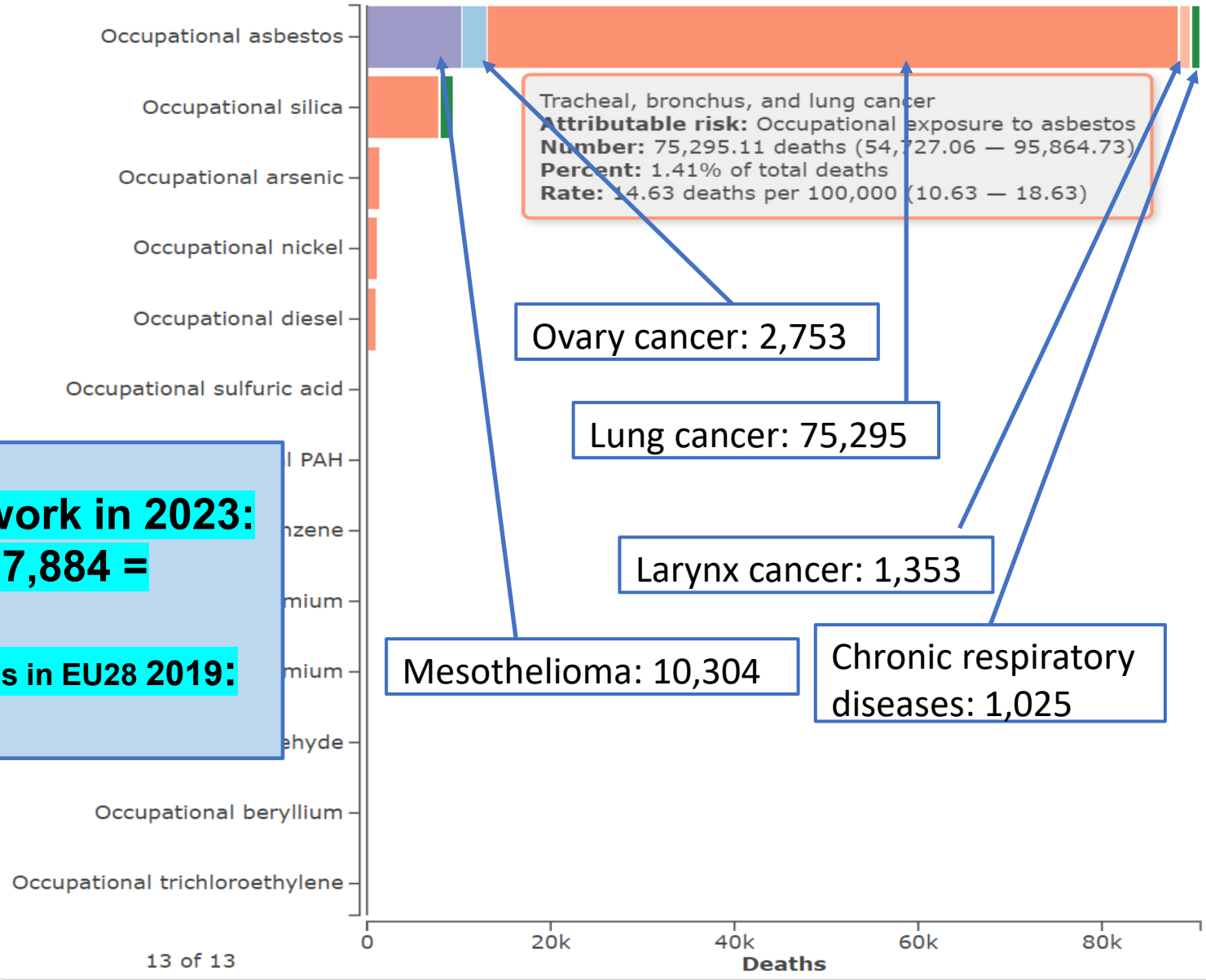
Increase from Total Asbestos deaths in EU28 2019: 90,730

Lancet 2020; 396: 1223–49

*For the list of Collaborators see **Viewpoint** *Lancet* 2020; 396: 1135–59

Back

European Union, Both sexes, All ages, 2019



13 of 13

Switch cause group

Add cause

- Chronic respiratory
- Lip oral cavity cancer
- Nasopharynx cancer
- Other pharynx cancer
- Esophageal cancer
- Stomach cancer
- Colorectal cancer
- Liver cancer
- Gallbladder cancer
- Pancreatic cancer
- Larynx cancer
- Lung cancer
- Melanoma
- Skin cancer
- Breast cancer
- Cervical cancer
- Uterine cancer
- Ovarian cancer
- Prostate cancer
- Testicular cancer
- Kidney cancer
- Bladder cancer
- Brain cancer
- Thyroid cancer
- Mesothelioma
- Hodgkin lymphoma
- Lymphoma
- Myeloma
- Leukemia

Causes of lung cancer are poorly recognized and identified

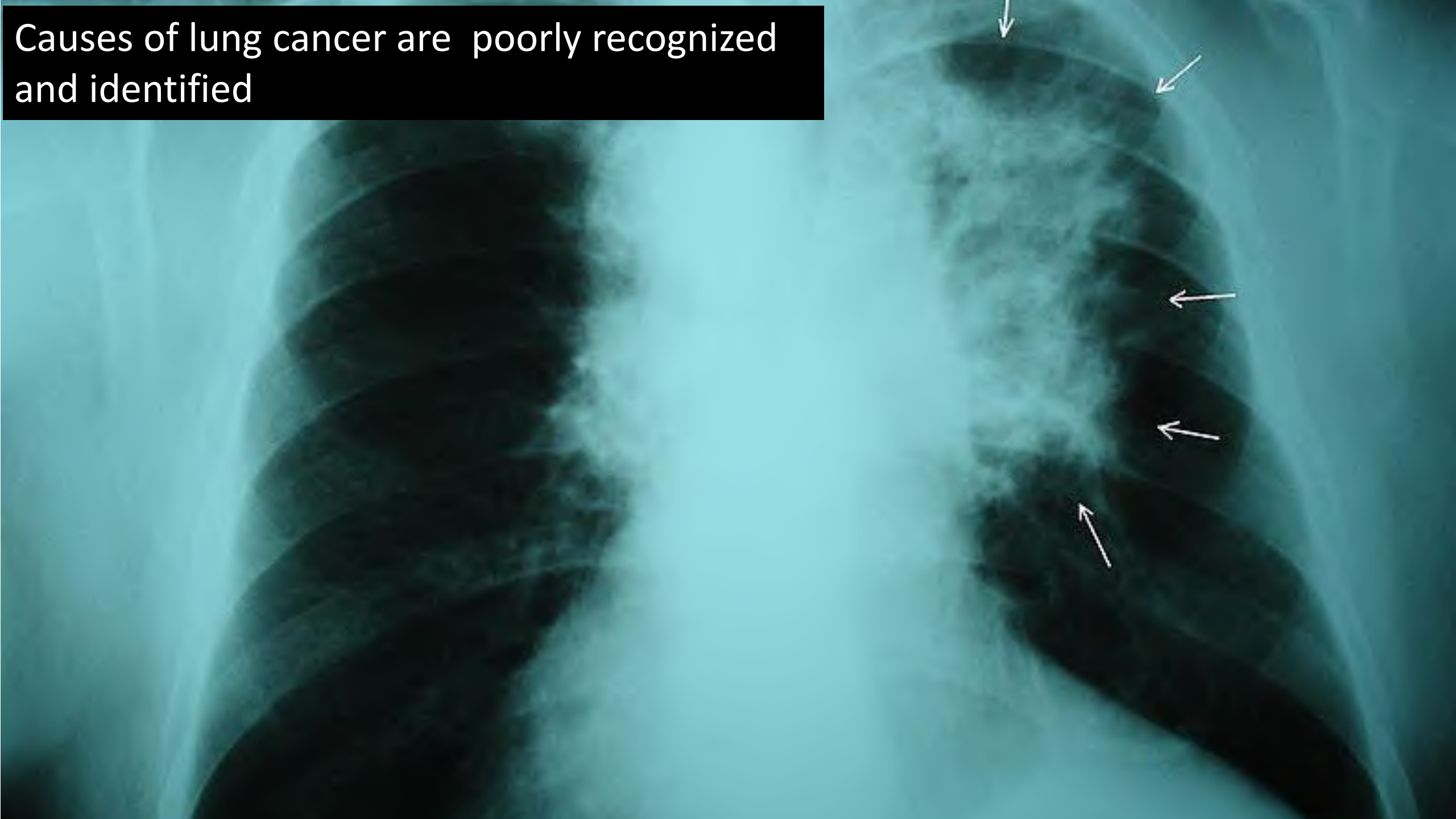
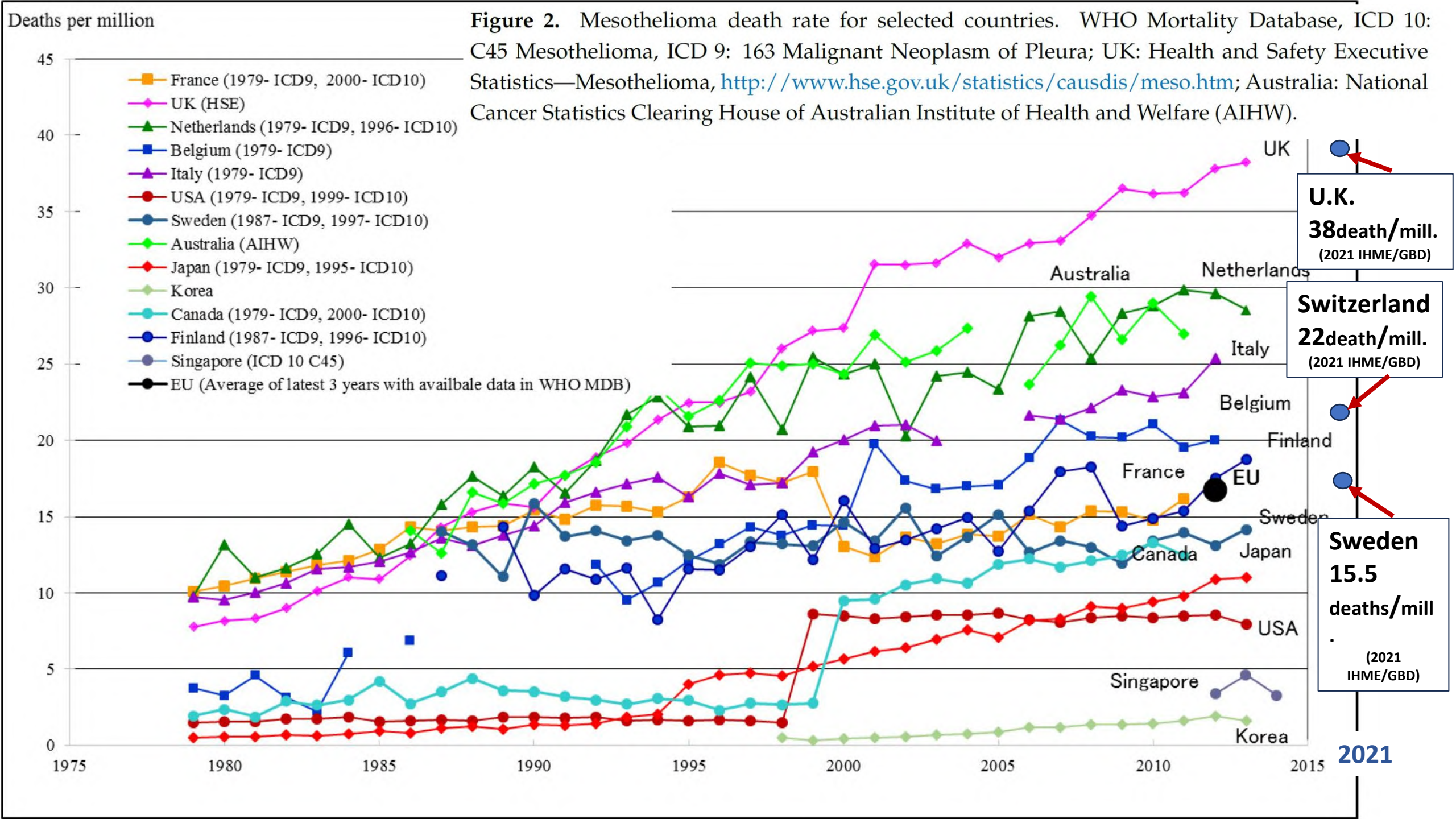


Figure 2. Mesothelioma death rate for selected countries. WHO Mortality Database, ICD 10: C45 Mesothelioma, ICD 9: 163 Malignant Neoplasm of Pleura; UK: Health and Safety Executive Statistics—Mesothelioma, http://www.hse.gov.uk/statistics/causdis/meso.htm; Australia: National Cancer Statistics Clearing House of Australian Institute of Health and Welfare (AIHW).



Reasons for lower global (under-)estimates re the burden of asbestos

- The latest asbestos estimates IHME/GBD included 25,664 global work-related mesothelioma deaths, and 233,710 all asbestos caused deaths at work,
- Elsewhere specifically estimated at 36,400 mesothelioma deaths at work and 38,400 all mesothelioma deaths (25, 26), This is a key sign of a clear underestimation of asbestos-related deaths.
- Underestimation is worldwide
- Higher number of mesothelioma indicates higher level of exposures to asbestos. Consequently, higher exposure exposures lead to higher **lung cancer,** ovary cancer, larynx cancer and asbestosis and other non-communicable diseases so far not included in GBD asbestos deaths numbers.
- Sources of 9, 25 and 26 from :

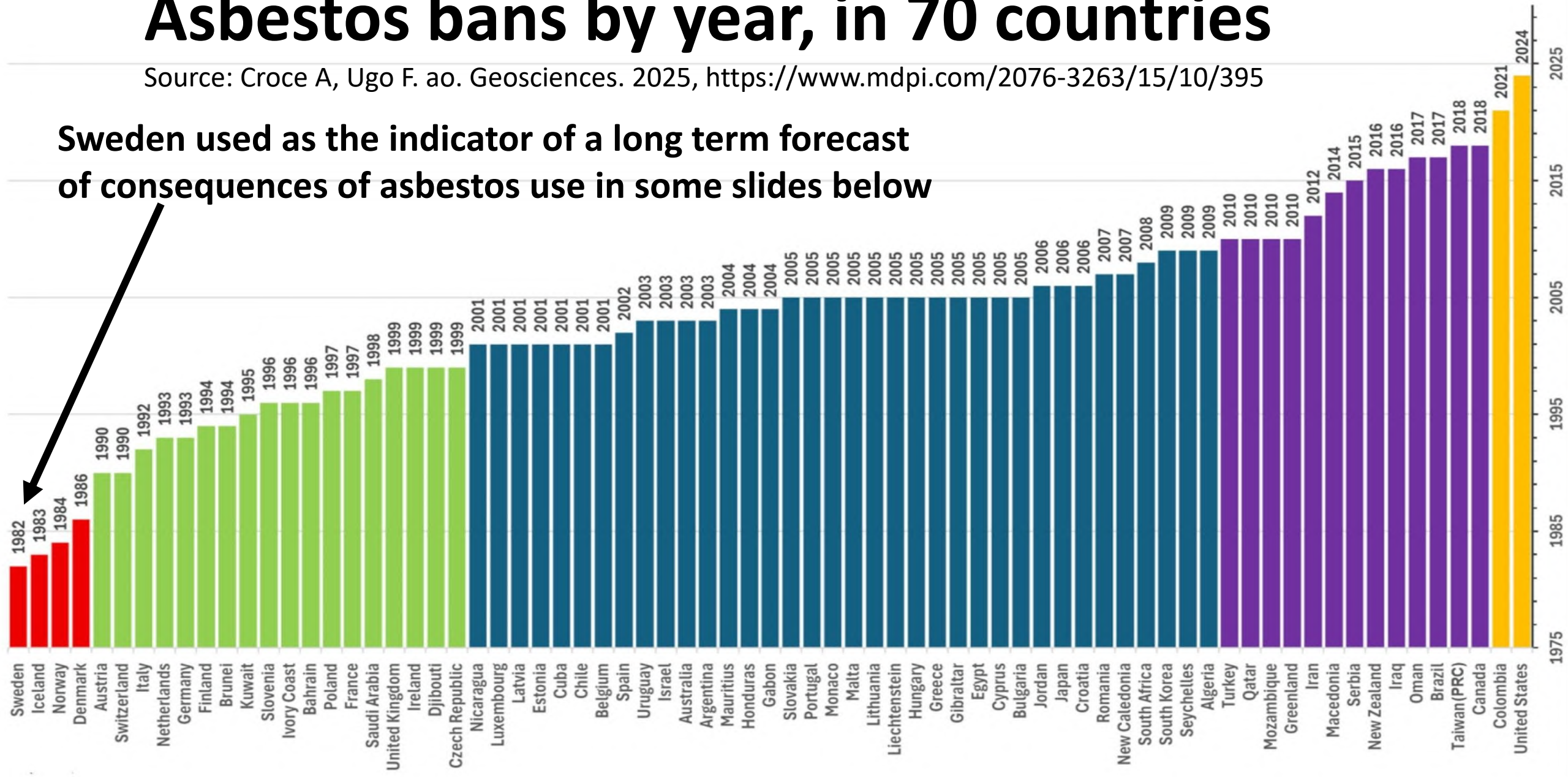
https://www.sjweh.fi/article/4132

Scand J Work Environ Health Online-first –article ***https://doi.org/10.5271/sjweh.4132***
Published online: 12 Nov 2023, Volume 50, number 2, March 2024
Global-, regional- and country-level estimates of the work-related burden of diseases and accidents in 2019
by Takala J, Hämäläinen P, Sauni R, Nygård C-H, Gagliardi D, Neupane S

Asbestos bans by year, in 70 countries

Source: Croce A, Ugo F. ao. Geosciences. 2025, https://www.mdpi.com/2076-3263/15/10/395

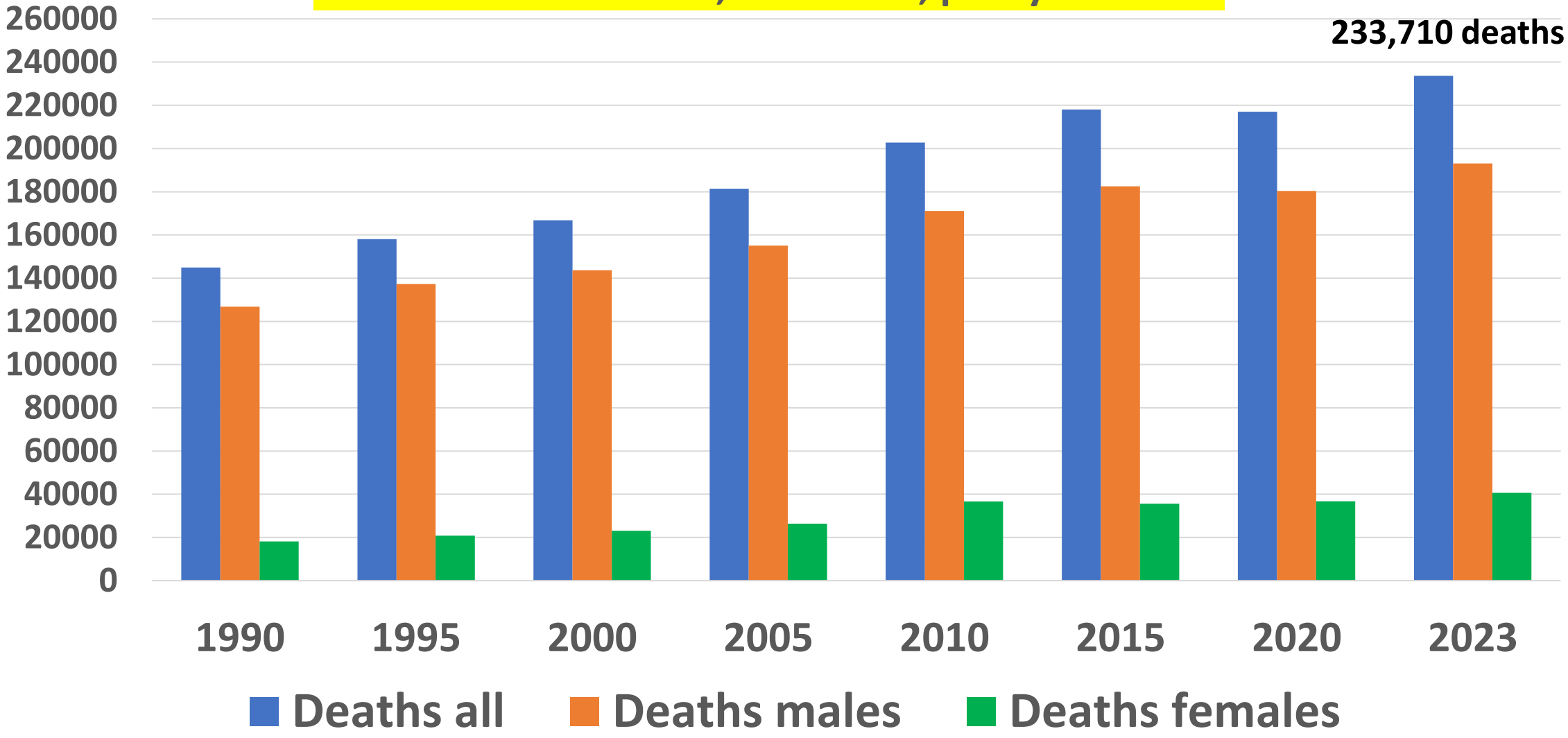
Sweden used as the indicator of a long term forecast of consequences of asbestos use in some slides below

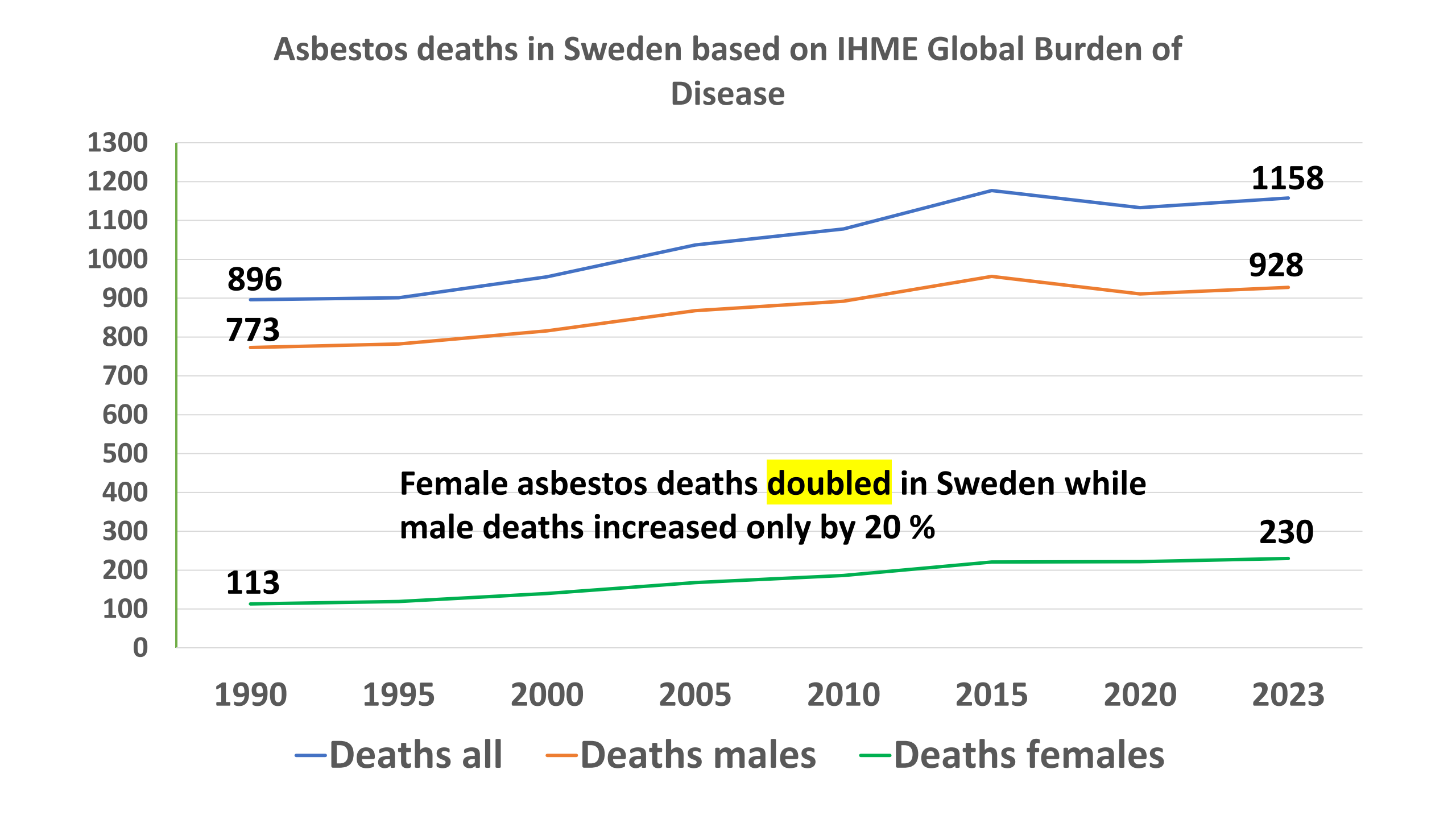


233710

Global Asbestos Deaths based on Global Burden of Disease (Institute of Health Metrics and Evaluation, IHME)

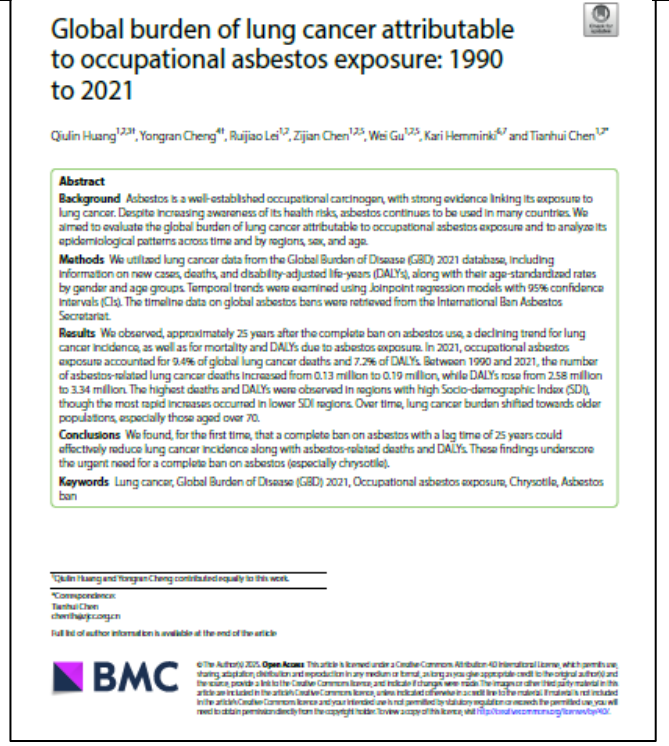
not counted: stomach, colorectal, pharynx deaths




Asbestos deaths in Sweden based on IHME Global Burden of Disease
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1990
1995
2000
2005
2010
2015
2020
2023
1158
928
896
773
230
113
Female asbestos deaths doubled in Sweden while male deaths increased only by 20 %
Deaths all
Deaths males
Deaths females

”Global burden of lung cancer attributable to occupational asbestos exposure: 1990 to 2021”

https://doi.org/10.1186/s12940-025-01217-z



Global burden of lung cancer attributable to occupational asbestos exposure: 1990 to 2021

Qiulin Huang[1,2,3†], Yongran Cheng[4†], Rujiao Lei[1,2], Zijian Chen[1,2,5], Wei Gu[1,2,5], Kari Hemminki[6,7] and Tianhui Chen[1,2*]

Abstract

Background Asbestos is a well-established occupational carcinogen, with strong evidence linking its exposure to lung cancer. Despite increasing awareness of its health risks, asbestos continues to be used in many countries. We aimed to evaluate the global burden of lung cancer attributable to occupational asbestos exposure and to analyze its epidemiological patterns across time and by regions, sex, and age.

Methods We utilized lung cancer data from the Global Burden of Disease (GBD) 2021 database, including information on new cases, deaths, and disability-adjusted life-years (DALYs), along with their age-standardized rates by gender and age groups. Temporal trends were examined using Joinpoint regression models with 95% confidence intervals (CIs). The timeline data on global asbestos bans were retrieved from the International Ban Asbestos Secretariat.

Results We observed, approximately 25 years after the complete ban on asbestos use, a declining trend for lung cancer incidence, as well as for mortality and DALYs due to asbestos exposure. In 2021, occupational asbestos exposure accounted for 9.4% of global lung cancer deaths and 7.2% of DALYs. Between 1990 and 2021, the number of asbestos-related lung cancer deaths increased from 0.13 million to 0.19 million, while DALYs rose from 2.58 million to 3.34 million. The highest deaths and DALYs were observed in regions with high Socio-demographic Index (SDI), though the most rapid increases occurred in lower SDI regions. Over time, lung cancer burden shifted towards older populations, especially those aged over 70.

Conclusions We found, for the first time, that a complete ban on asbestos with a lag time of 25 years could effectively reduce lung cancer incidence along with asbestos-related deaths and DALYs. These findings underscore the urgent need for a complete ban on asbestos (especially chrysotile).

Keywords Lung cancer, Global Burden of Disease (GBD) 2021, Occupational asbestos exposure, Chrysotile, Asbestos ban

†Qiulin Huang and Yongran Cheng contributed equally to this work.

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Tianhui Chen
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Full list of author information is available at the end of the article

- ”We observed, approximately 25 years after the complete ban on asbestos use, a declining trend for lung cancer incidence, as well as for mortality and DALYs due to asbestos exposure. In 2021, occupational asbestos exposure accounted for 9.4% of global lung cancer deaths and 7.2% of DALYs. Between 1990 and 2021, the number of asbestos-related lung cancer deaths increased from 0.13 million to 0.19 million, while DALYs rose from 2.58 million to 3.34 million.” (2023 deaths: 195,542)

- “When analyzing the data by sex, it is evident that the proportion of deaths and DALYs over 70 years old has steadily increased for both male and female from 1990 to 2021. However, the proportion of lung cancer deaths and DALYs in female patients in this age group is larger than that of male”

Continued …

- "We found, for the first time, that a complete ban on asbestos with a lag time of 25 years could effectively reduce lung cancer incidence along with asbestos-related deaths and DALYs. These findings underscore the urgent need for a complete ban on asbestos (especially chrysotile)."

- "As previously reported, a marked gender difference has been observed, with the male population bearing a significantly higher burden of asbestos-related disease [58, 59]. However, we found that the ASMR attributable to occupational exposure to asbestos among female has risen significantly over the past three decades on a global scale. Additionally, while the male ASDR has shown a declining trend, the ASDR of female has remained relatively stable. This pattern may indicate that occupational asbestos exposure has become a more significant factor in the lung cancer burden among women. The extent of occupational asbestos exposure among women may have been consistently underestimated due to the male dominance in high-risk occupations and the absence of gender-sensitive exposure assessment tools [60]. A study conducted in China also highlights that asbestos exposure among female workers is an issue that should not be overlooked [61]."

ASMR/ASDR = age standardised mortality/disease rate…

Single | Explore | Compare

Settings Use advanced settings

Display Cause | Risk

Measure Deaths | YLDs | DALYs

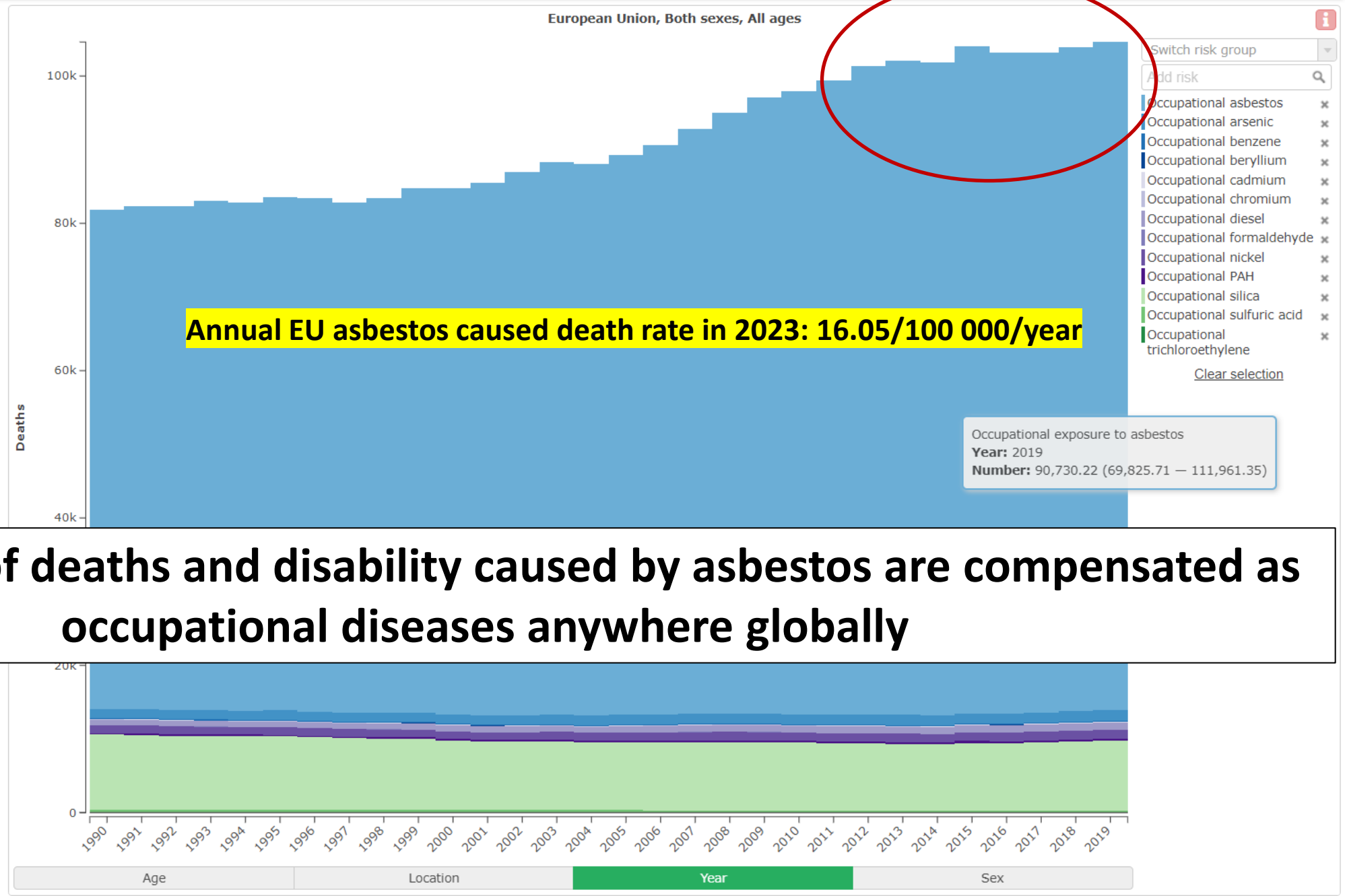
Location European Union

Age All | <5 | 5-14 | 15-49 | 50-69 | 70+

Sex Male | Female | Both

Units # | Rate | %

Take tour



Annual EU asbestos caused death rate in 2023: 16.05/100 000/year

A tiny fraction of deaths and disability caused by asbestos are compensated as occupational diseases anywhere globally

Example of emphasis on combined work exposures of asbestos & smoking,

Combined and multiplicative effect of exposures to asbestos and smoking on lung cancer

Age-standardized lung cancer death rates

Death rate (per 100,000)	Non-smoker	Smoker
No asbestos	**11**	**123**
Asbestos	**58**	**602**

Attributable Fraction, AF is based on risk ratio, RR

AF = (RR-1)/ RR

AF Principle

AF for Asbestos only:
(58/11 – 1)/58 = 81%
AF for smoking only:
(123/11-1)/123 = 91%

Prevention of asbestos exposure eliminates is 80% of deaths

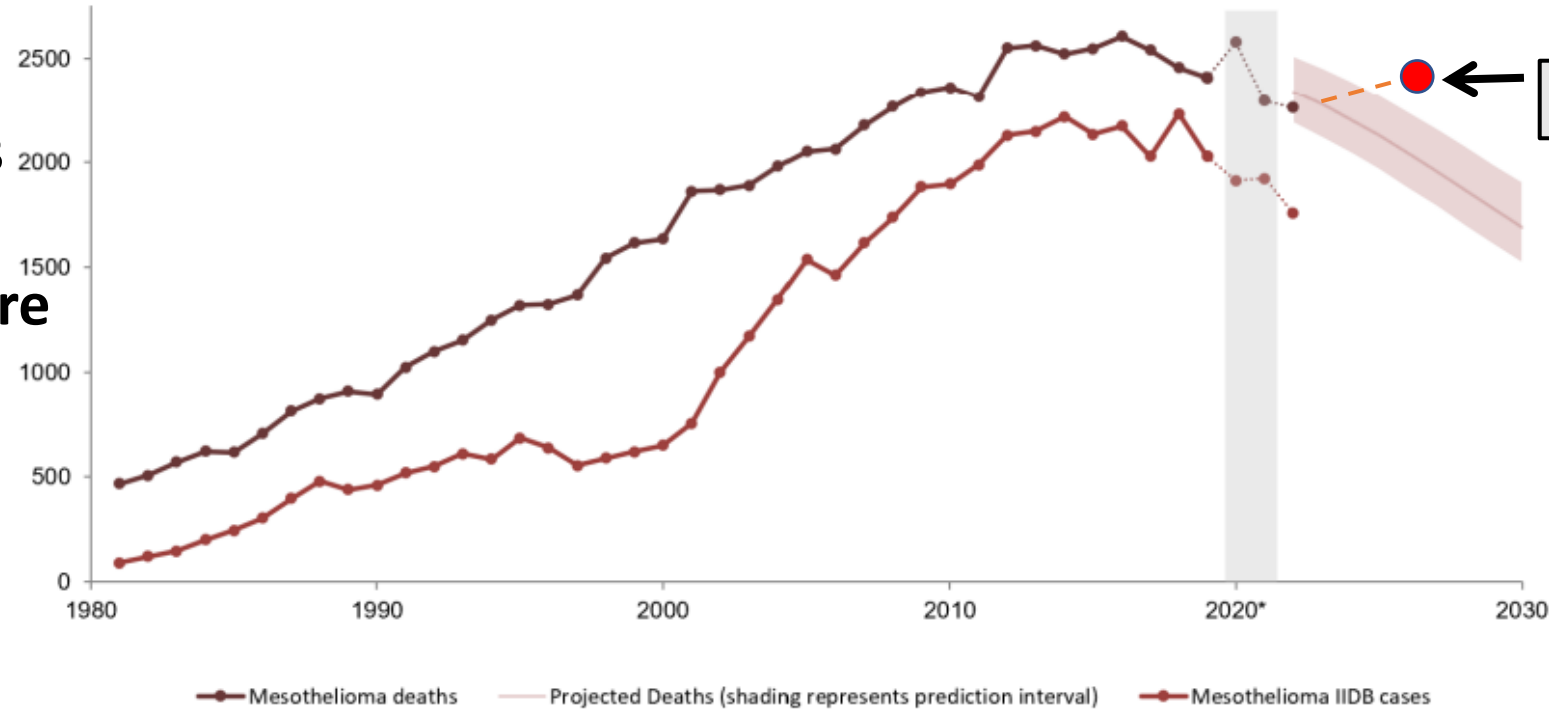
Hammond EC, Selikoff IJ, Seidman H. Asbestos exposure, cigarette smoking and death rates. Ann N Y Acad Sci 1979;330:473-90.

Combined exposures of also on asbestos & nanoparticles, diesel exhaust, any smoke…?

Figure 1 Annual mesothelioma deaths, IIDB cases and projected future deaths to 2030 in GB

Great Britain Mesothelioma Deaths

Mesothelioma is an indicator of asbestos exposure

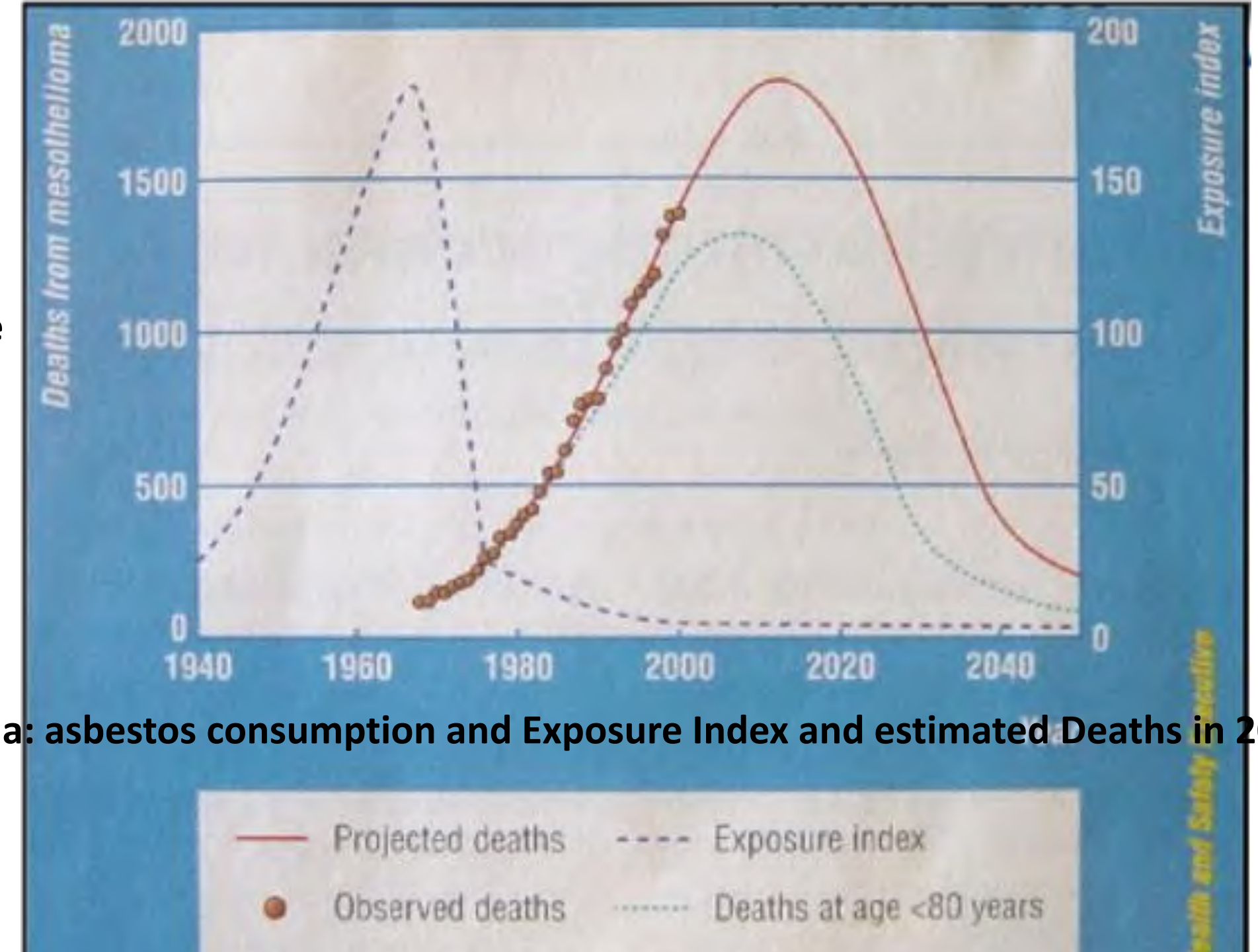


U.K. in 2024: 2257 deaths

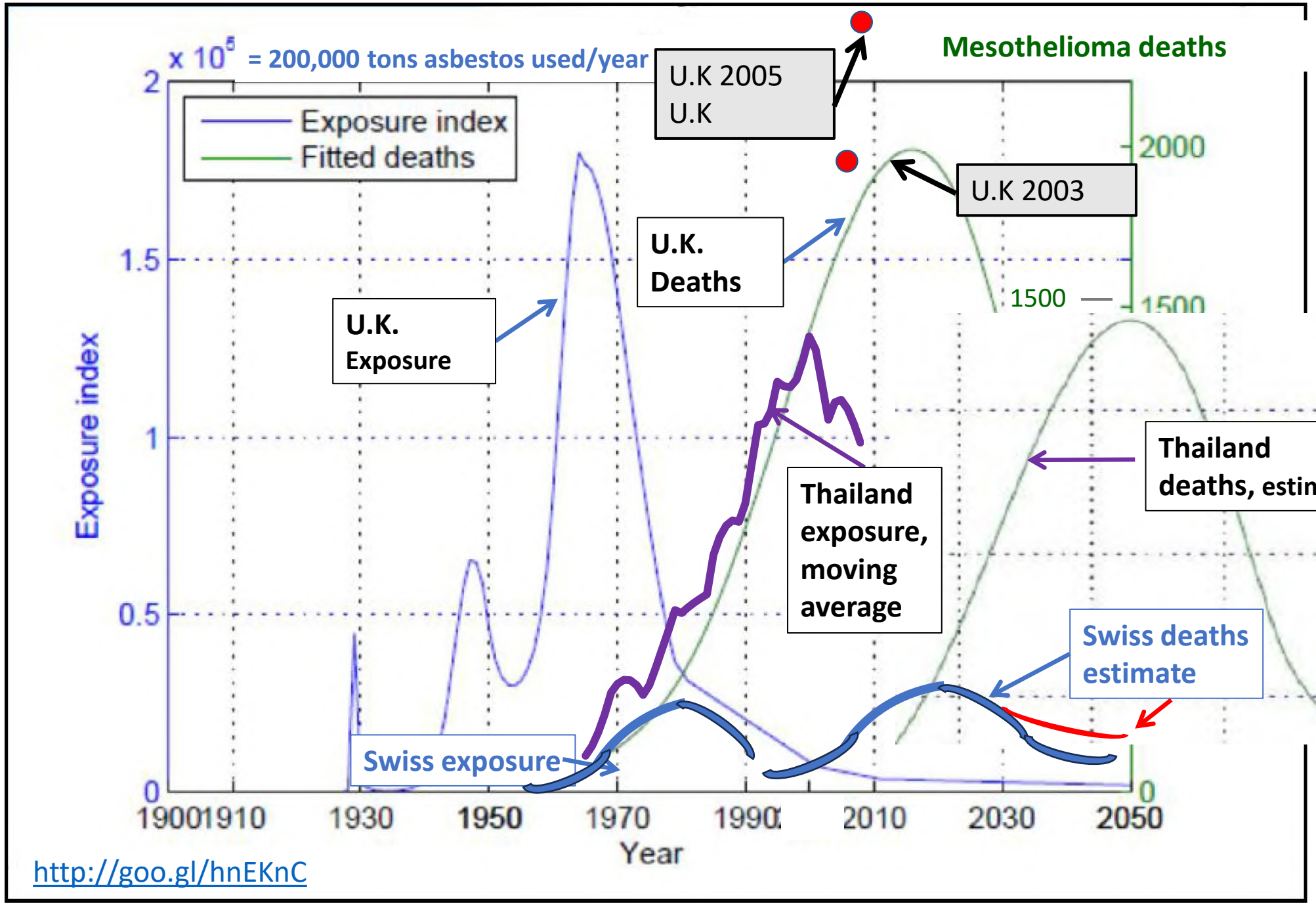
Chart notes:

- Latest available data is for 2022 for deaths and 2022 for IIDB cases.
- Data for 2020 and 2021 (shown inside the shaded grey column) may have been particularly affected by the coronavirus pandemic.
- Some individuals with occupational diseases who then developed COVID-19 may have died earlier than otherwise. Delays in death certification or omission of occupational disease recording on death certificates of those with COVID-19 could also have occurred.
- Assessments of new IIDB cases were substantially reduced in 2020 and may also have been affected during 2021, though this less likely for mesothelioma than other diseases due to its prioritisation for assessment.

Mesothelioma is an indicator of asbestos exposure



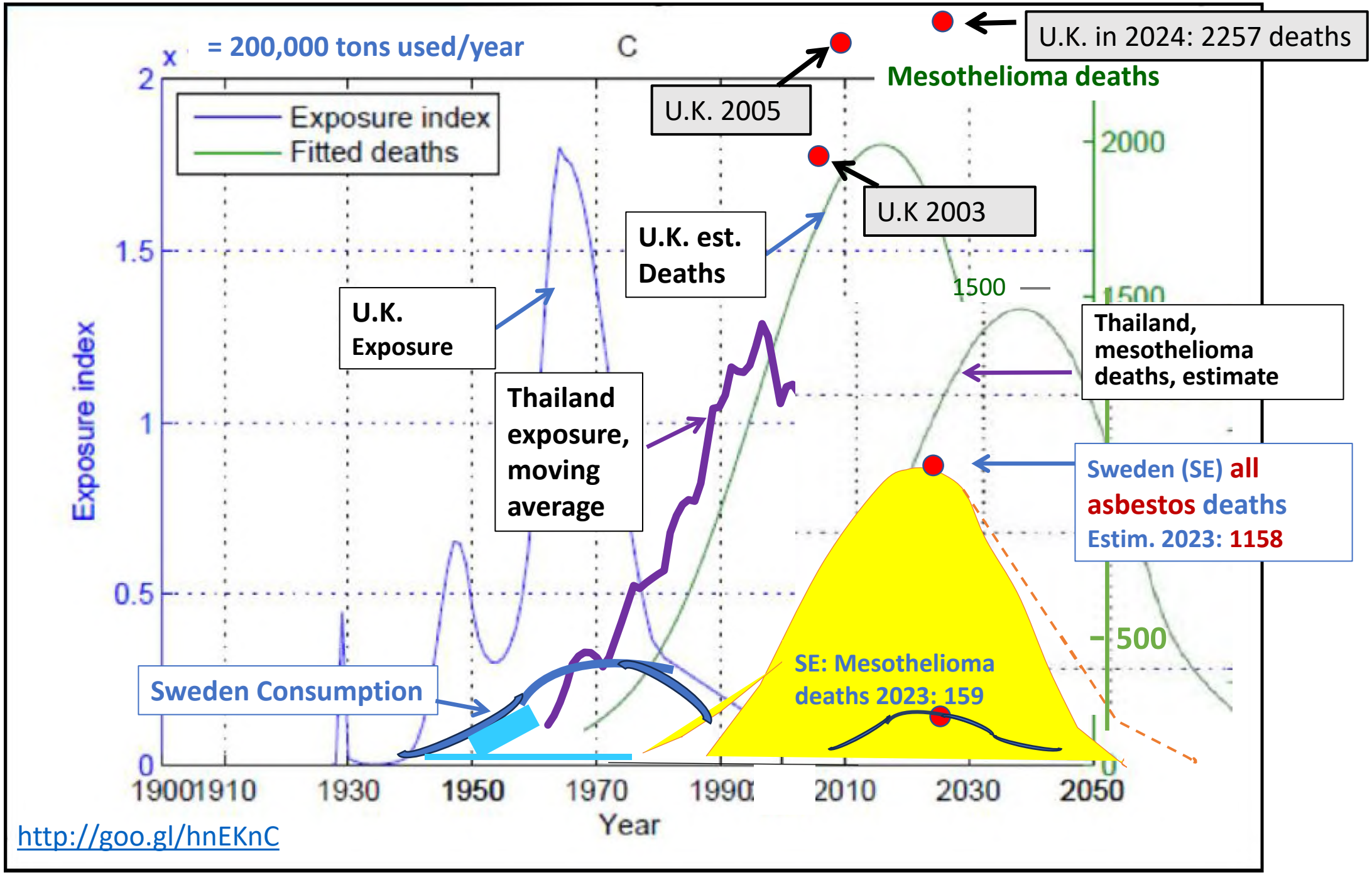
U.K. Mesothelioma: asbestos consumption and Exposure Index and estimated Deaths in 2003



UK, Thailand and Switzerland mesothelioma consumption and exposure Index, and estimated deaths

UK, Thailand and Sweden:

asbestos consumption and exposure index, and estimated mesothelioma and, for Sweden all asbestos deaths



Continued …

Single | Explore | Compare

Settings Use advanced settings

Display
Cause | Risk

Measure
YLDs | DALYs | Deaths

Location
Sweden

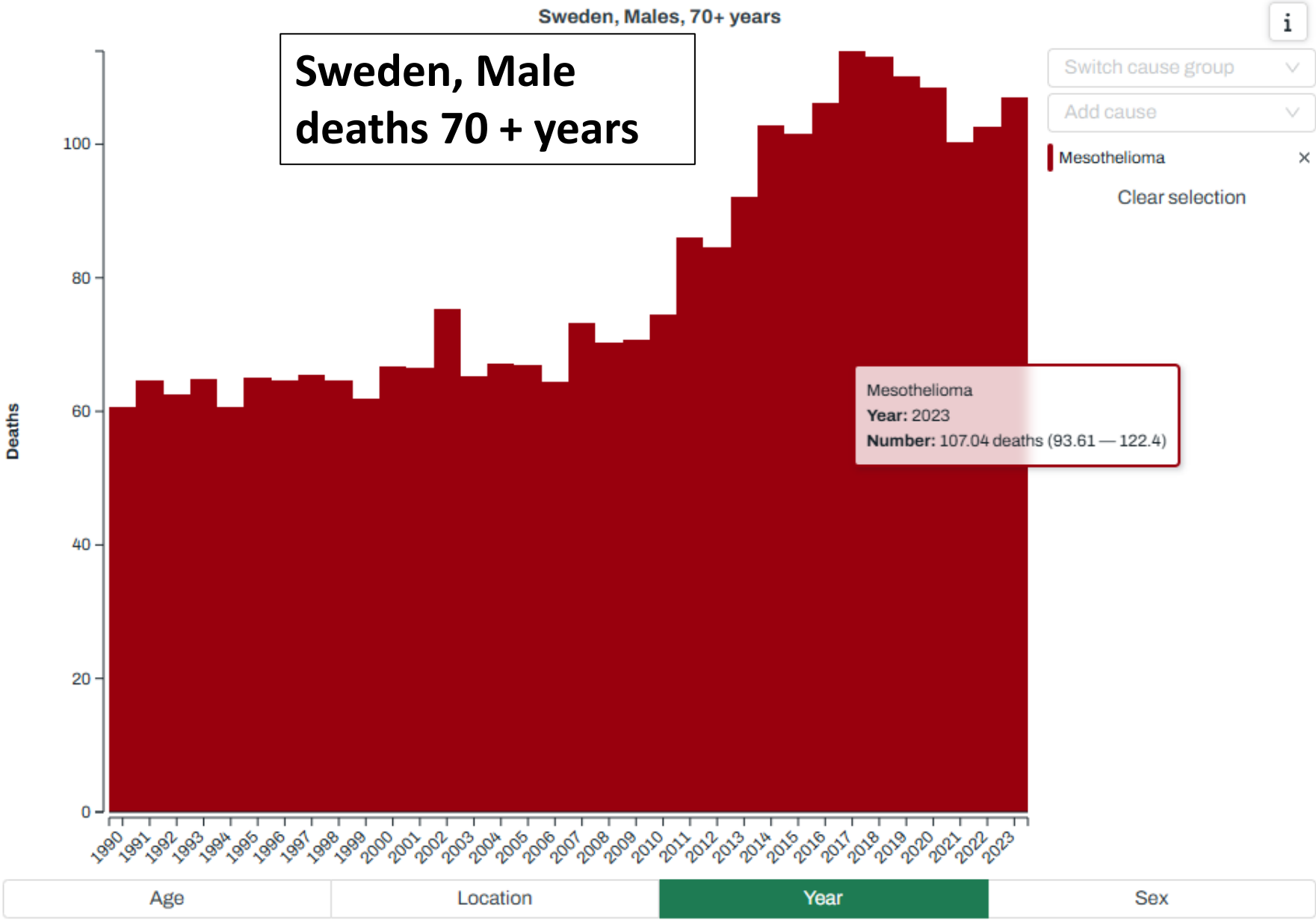
Age
All | <5 | 5-14
15-49 | 50-69 | 70+

Sex
Male | Female | Both

Metric
| Rate | %

Take tour

Sweden, Male deaths 70 + years



Sweden, Male death rate/100,000 70 + years

Settings Use advanced settings

Display
Cause | Risk

Measure
YLDs | DALYs | Deaths

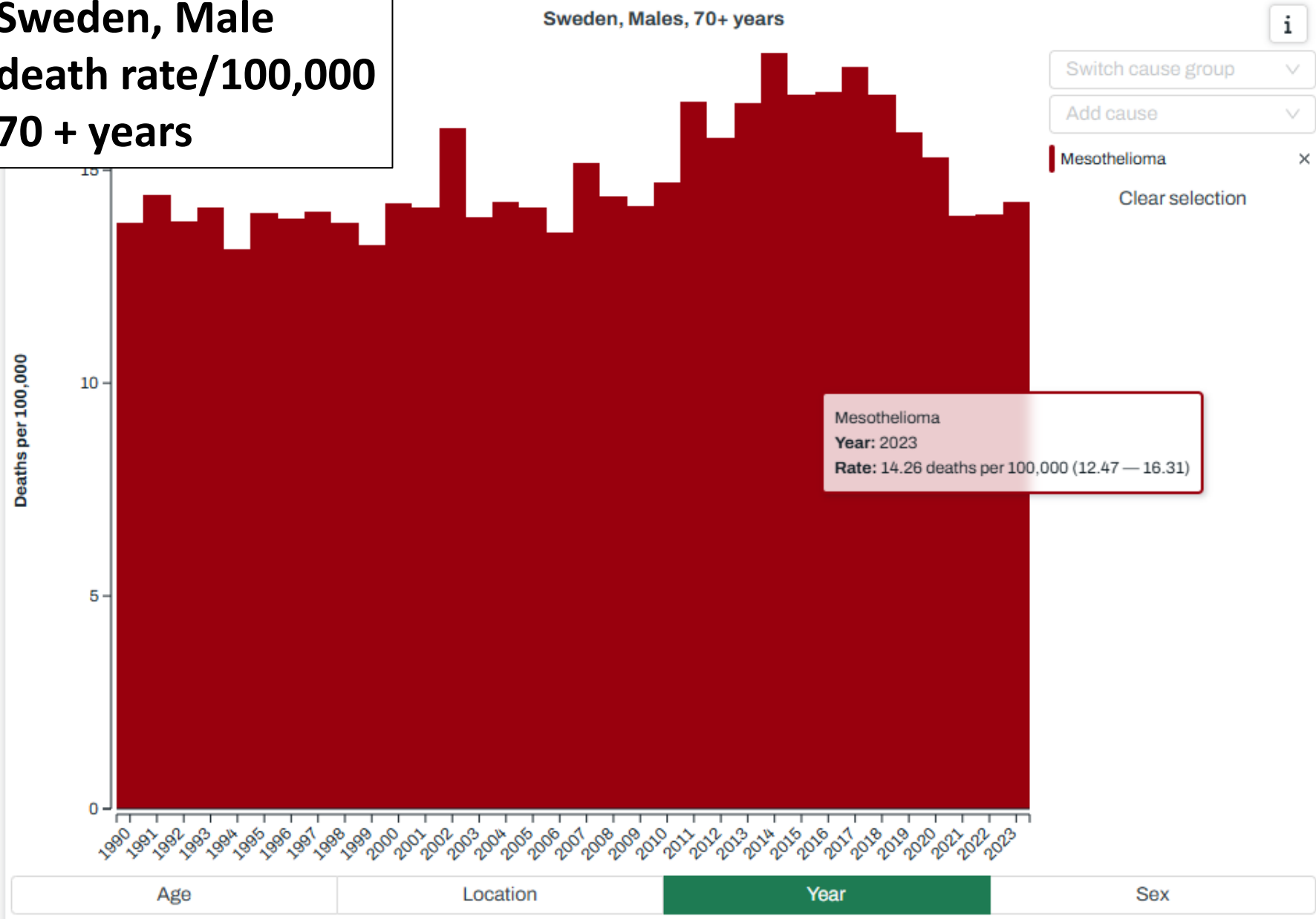
Location
Sweden

Age
All | <5 | 5-14
15-49 | 50-69 | 70+

Sex
Male | Female | Both

Metric
| Rate | %

Take tour



IHME

GBD Compare

Help | Language | Share | Download

Single | Explore | Compare

Settings

Use advanced settings

Display

Cause | Risk

Measure

YLDs | DALYs | Deaths

Location

Sweden

Age

All	<5	5-14
15-49	50-69	70+

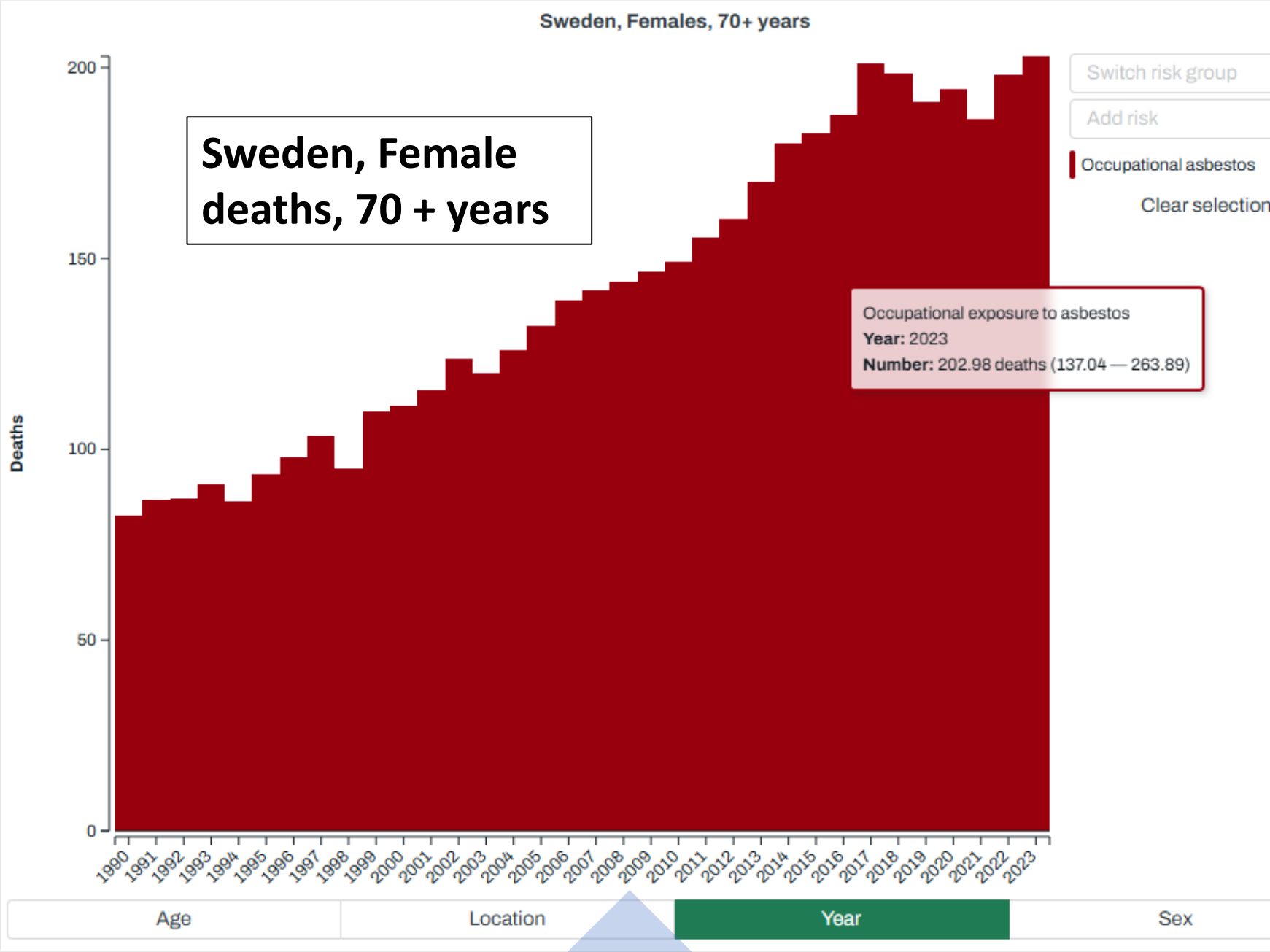
Sex

Male | Female | Both

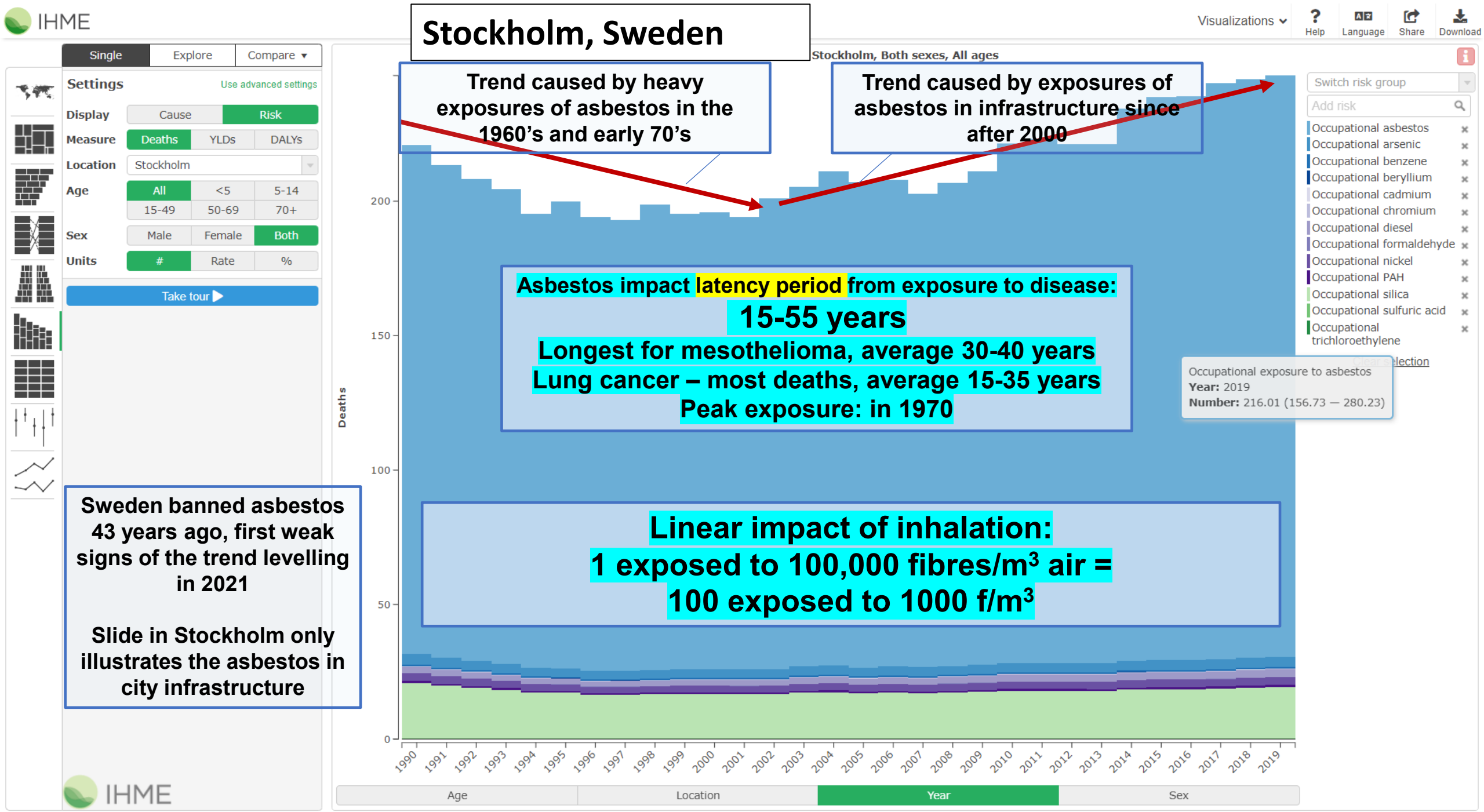
Metric

| Rate | %

Take tour ...

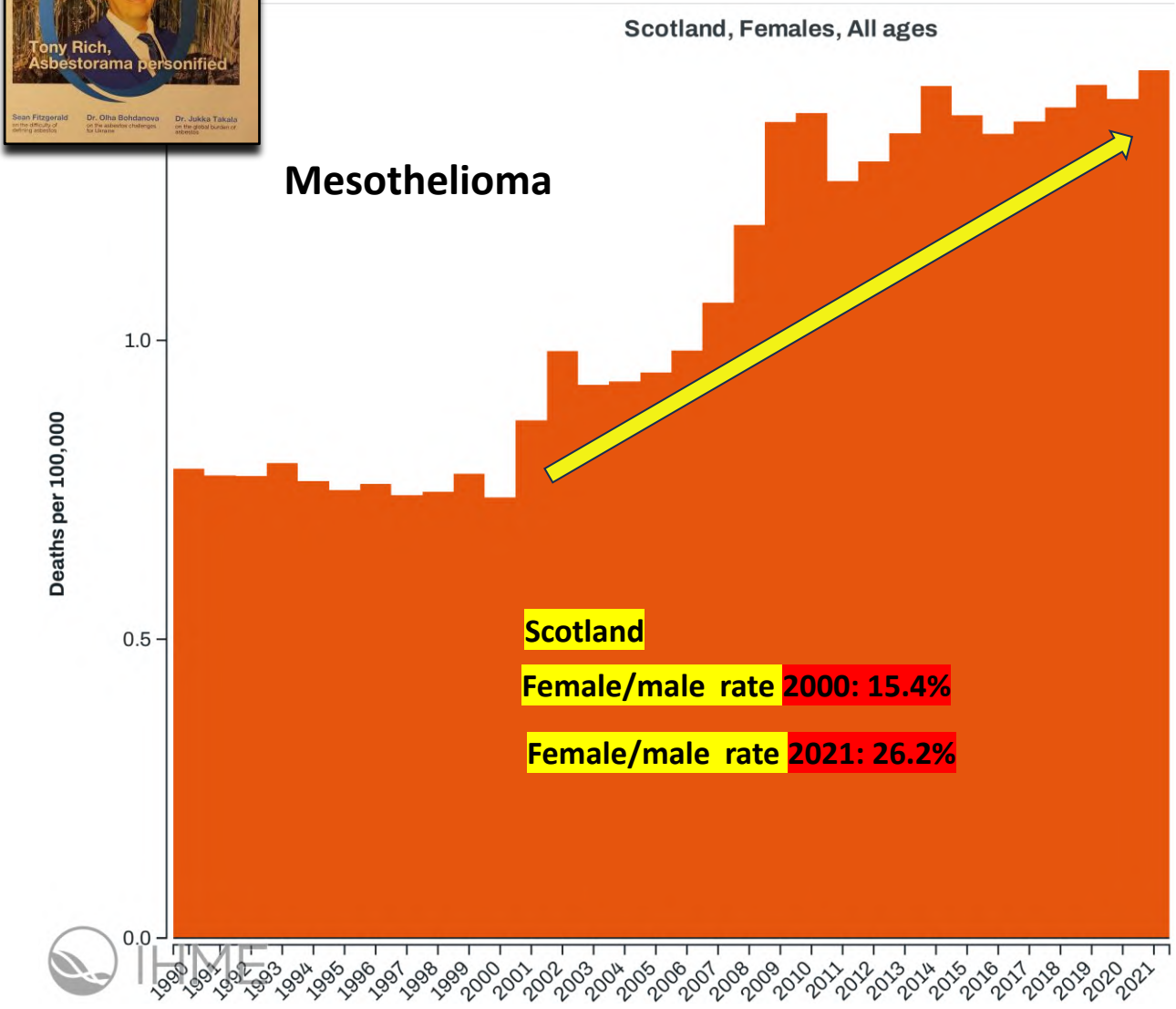


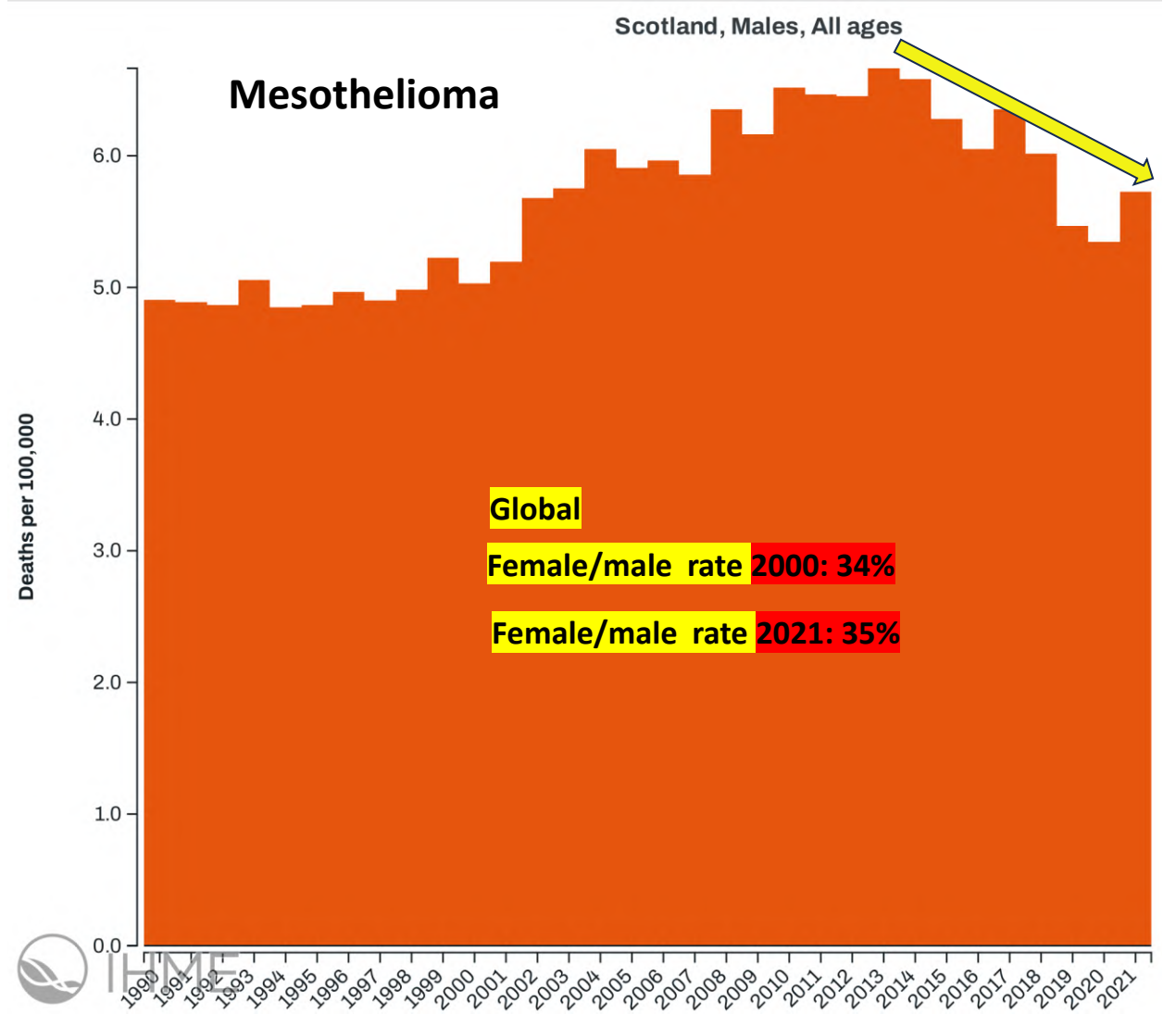
Stockholm, Sweden



Scotland mesothelioma rates by year for females and males

Asbestos caused lung cancer, ovary, larynx,stomach and colorectal cancers follow the same pattern





Source: Global Asbestos Magazine 1-2025, page37 & IHME/Global Burden of Disease and Injury

USA: Mesothelioma deaths, males

Single

Settings Use advanced settings

Display
Cause | Risk

Measure
YLDs | DALYs | Deaths

Location
United States of America

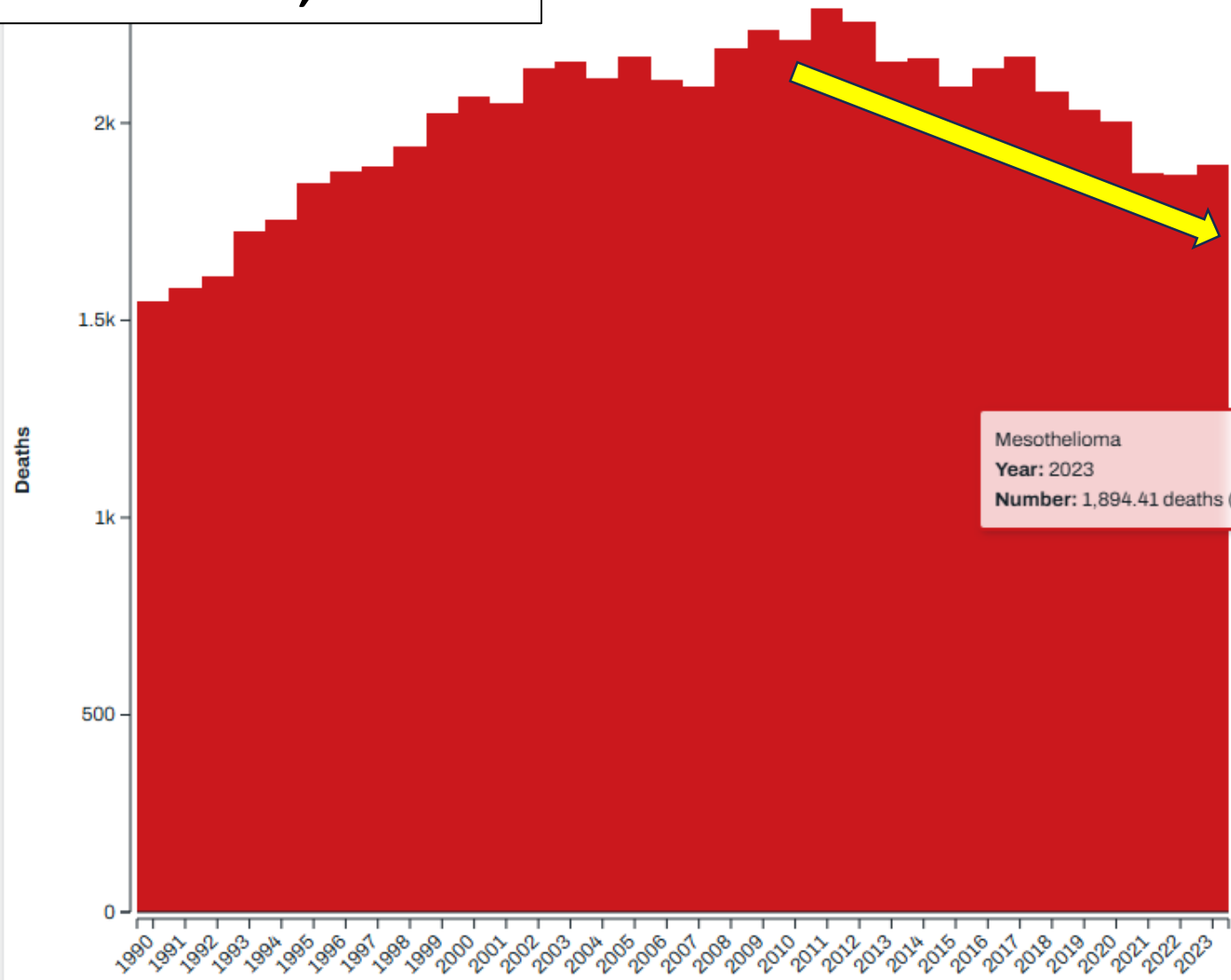
Age
All | <5 | 5-14 | 15-49 | 50-69 | 70+

Sex
Male | Female | Both

Metric
| Rate | %

Take tour

United States of America, Males, All ages



Switch cause group
Add cause
Mesothelioma
Clear selection

Age | Location | Year | Sex

Single | Explore | Compare

Settings Use advanced settings

Display
Cause | Risk

Measure
YLDs | DALYs | Deaths

Location
United States of America

Age
All | <5 | 5-14 | 15-49 | 50-69 | 70+

Sex
Male | Female | Both

Metric
| Rate | %

Take tour

United States of America, Females, All ages

USA: Mesothelioma deaths, females

USA 2011
Female/male rate: 25.5 %

USA 2023
Female/male rate: 36.8 %

Switch cause group
Add cause
Mesothelioma
Clear selection

Mesothelioma
Year: 2023
Number: 696.95 deaths (561.44 — 828.77)

Deaths
0 200 400 600
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Age | Location | Year | Sex

Compare Italian Asbestos City Casale Monferrato, male and female mesothelioma rates and prediction until 2042

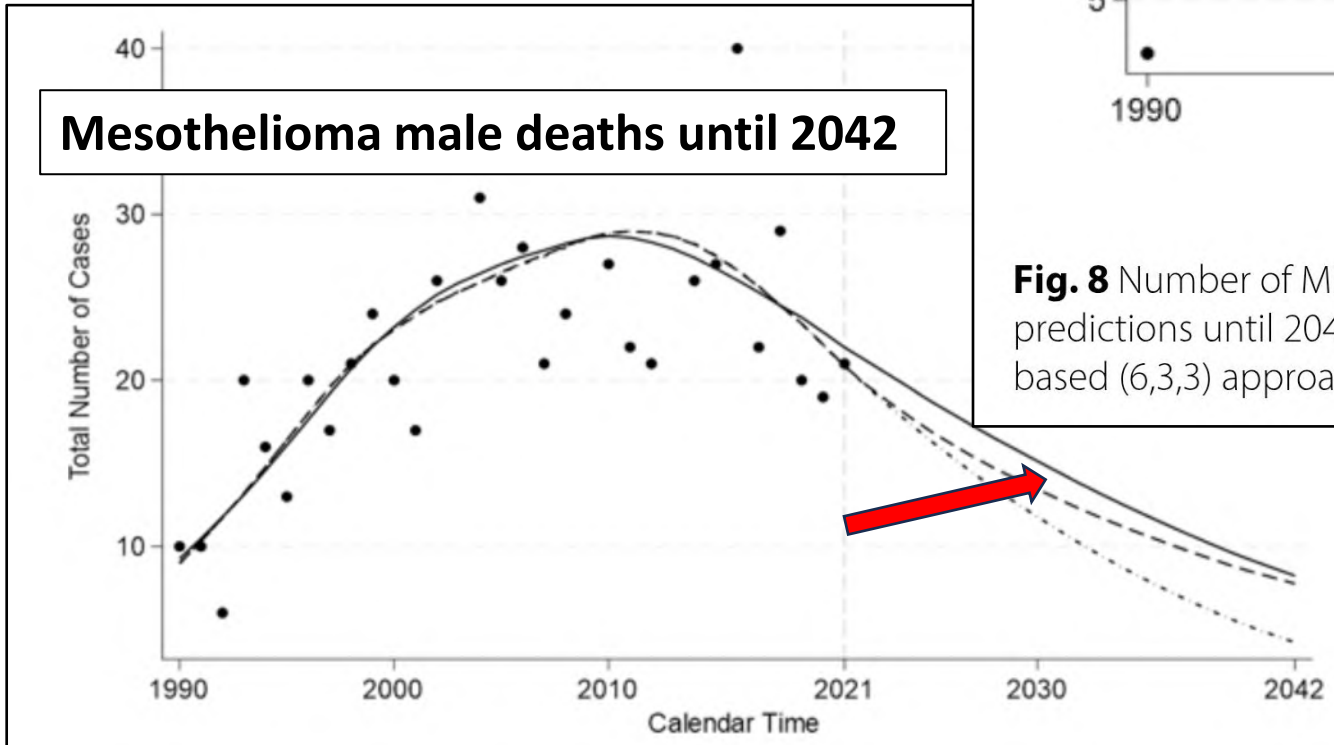


Fig. 7 Number of MM cases for men of all ages in the Casale Monferrato's SIN (RMM 1990–2021) and predictions until 2042 by spline unrestricted (6,3,3), spline restricted (6,5,3) and constraint-based (6,3,3) approaches

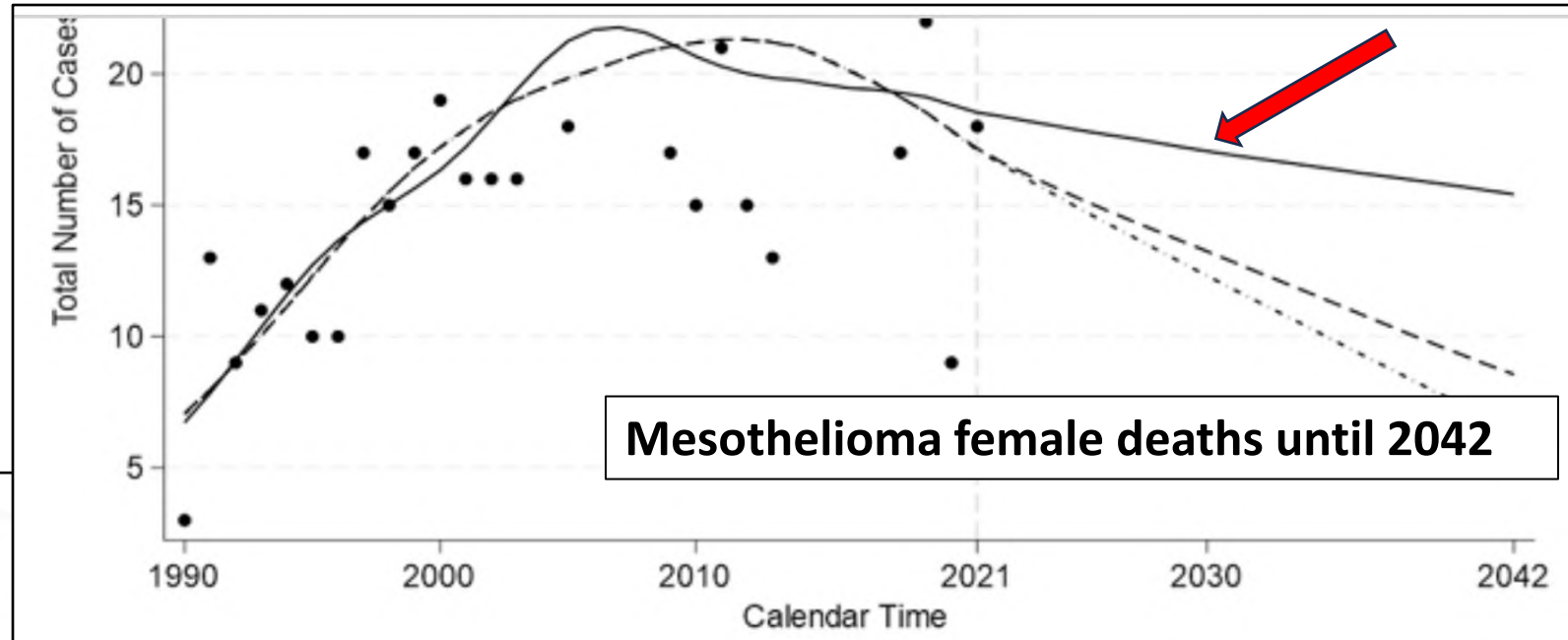


Fig. 8 Number of MM cases for women of all ages in Casale Monferrato's SIN until 2021 and predictions until 2042 by spline unrestricted (6,3,3), spline restricted (6,5,3) and constraint-based (6,3,3) approaches

M. Giraldo a.o..:
The evolution of an epidemic: age-period-cohort modelling of mesothelioma in Casale Monferrato, 1990–2021, with projections to 2042

https://scholar.google.com/scholar_url?url=https://link.springer.com/article/10.1186/s12940-025-01236-w&hl=en&sa=X&d=2601419869866190118&ei=unX7aMD2AfOx6rQP9IDG8Qs&scisig=ABGrvjIdjti96--OYL71d1owh-Jh&oi=scholaralrt&hist=FBdwn_sAAAAJ:11174858865351121406:ABGrvjKZkSmvp5B8v8yffBhtphRt&html=&pos=0&folt=rel&fols=

Single | Explore | Compare

Category
Occupational risks

Level
4

Measure
YLDs | DALYs | **Deaths**

Location
Sweden

Year
2023

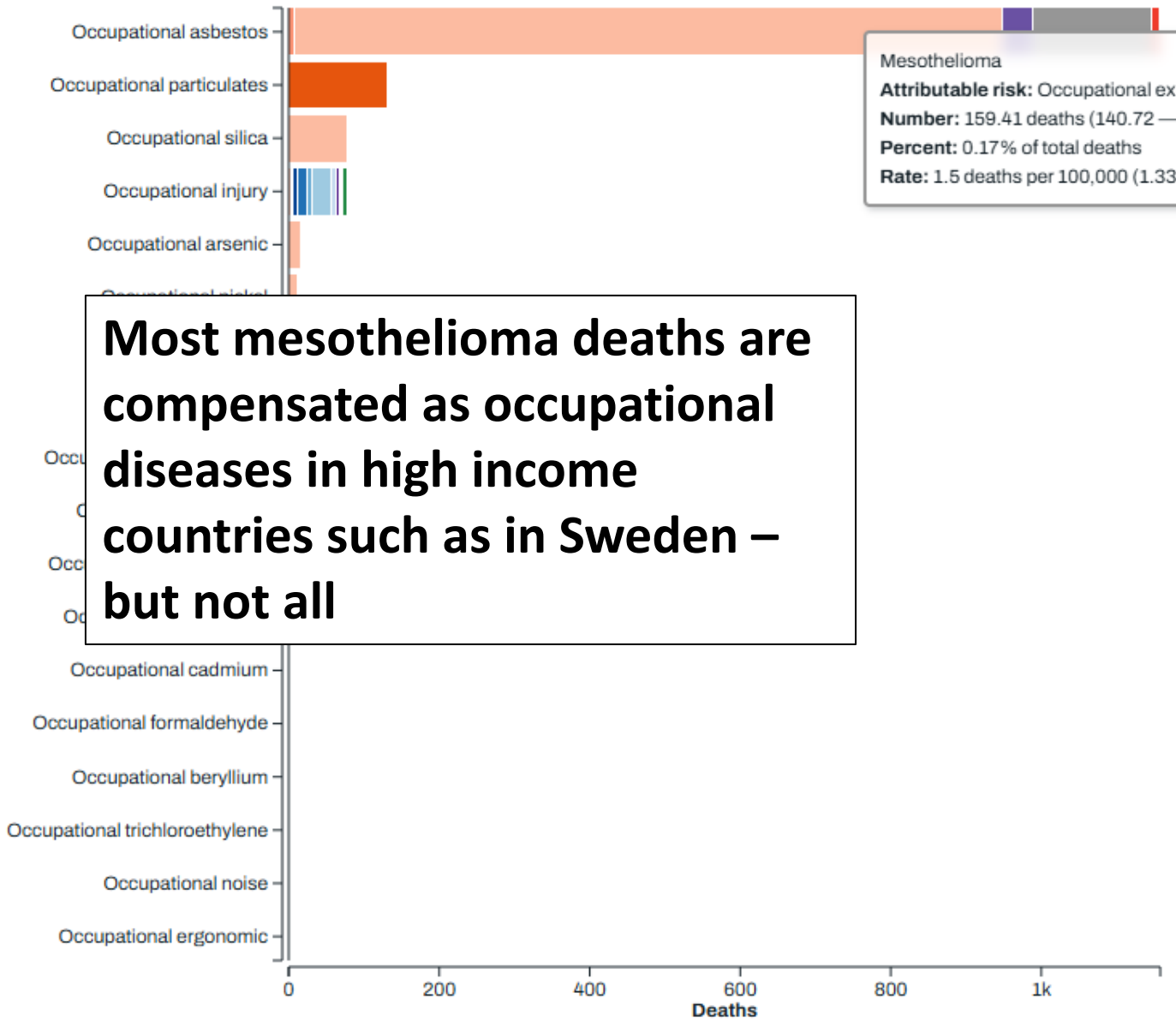
Age
All | <5 | 5-14
15-49 | 50-69 | 70+

Sex
Male | Female | **Both**

Metric
| Rate | %

Back

Sweden, Both sexes, All ages, 2023



Mesothelioma
Attributable risk: Occupational exposure to asbestos
Number: 159.41 deaths (140.72 — 179.03)
Percent: 0.17% of total deaths
Rate: 1.5 deaths per 100,000 (1.33 — 1.69)

Most mesothelioma deaths are compensated as occupational diseases in high income countries such as in Sweden – but not all

Violence other means
Sexual violence
Violence sharp object
Violence firearm
Self-harm other means
Self-harm by firearm
Other unintentional
Nature disaster
Environ heat and cold
Electrocution
Other foreign body
Foreign body in eye
Pulmonary aspiration
Non-venomous animal
Venomous animal
Adverse medical treatment
Other mechanical forces
Unintentional firearm
Poisoning by other means
Poisoning by carbon monoxide

Clear selection

Single | Explore | Compare

Settings Use advanced settings

Display
Cause | Risk

Measure
YLDs | DALYs | Deaths

Location
Sw

Age
All | <5 | 5-14
15-49 | 50-69 | 70+

Sex
Male | Female | Both

Metric
| Rate | %

Take tour

PAF = Population attributable fraction, share of deaths caused by asbestos

Sweden, Females, All ages

Women deaths Sweden (global), and share of asbestos

Ovarian cancer
Year: 2023
Number: 629.25 deaths (532.51 — 713.34)

Mesothelioma Sweden, women: 26 deaths
Globally: 6388 deaths in 2023

Ovary cancer, women PAF= ~39 deaths in 2023
Global women deaths: 5837 deaths in 2023

Lung cancer, women PAF= 5.3%, Sweden:~164 deaths in 2023
Global, women deaths: 27 846

Larynx cancer, women: asbestos confirmed by IARC, PAF=0.3%

Colorectal cancer, women PAF= to be established

Stomach cancer, women PAF for asbestos = to be established

Deaths
5k
4k
3k
2k
1k
0
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Switch cause group
Add cause
- Mesothelioma
- Ovarian cancer
- Lung cancer
- Larynx cancer
- Colorectal cancer
- Stomach cancer
- Nasopharynx cancer

Clear selection

Age | Location | Year | Sex

New European Union Asbestos Directive now in force

- Official Journal of the European Union 202372668 of 30 Nov 2023
- By 2029 employers must ensure no worker is exposed airborne asbestos exceeding 0.002 fibres/cm^3
- This equals to 2,000 fibres/m^3
- From 30 Nov 2023 the exposure level is 0.01 fibres/cm^3 or 10,000 fibres/m^3 as measured by electronic microscopy, **TEM – transmission electronic microscopy - generally detects twice as many fibres as compared to phase contrast microscopy, and detects very low levels**
- See also the full European Parliament Report: https://www.europarl.europa.eu/doceo/document/A-9-2023-0160_EN.html

Asbestos in Environment

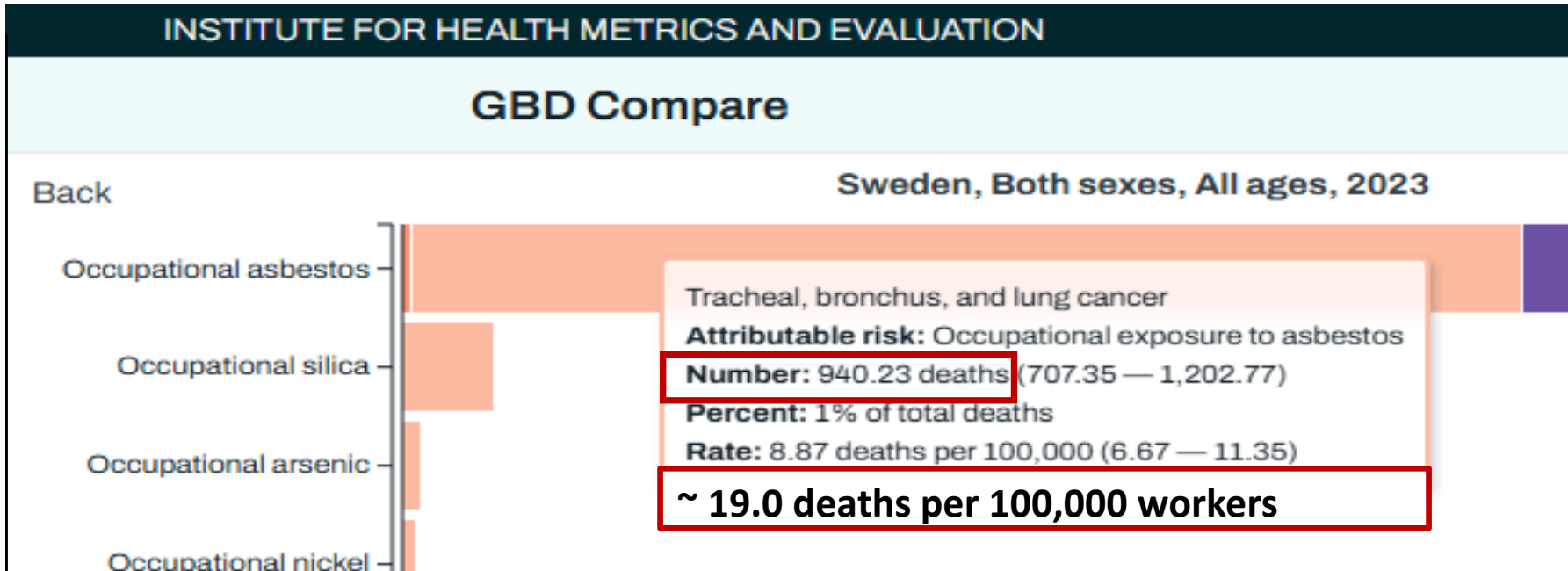
- Asbestos fibres are globally everywhere, from Bergen Norway in to Antarctica
- In city environments in developed countries levels are often 500 – 3000 fibres/m^3
- In the park area where ILO, WHO and US Permanent Delegation are located in Geneva, Switzerland, the level was 900 fibres/m^3, inside ILO building it was 600 fibres/m^3, apparently WHO building had high contamination of asbestos products
- In high income countries the range is from 200 fibres/m^3 (Germany farm area), in habited buildings being renovated while outside the work zone 18,000–28,900 f/m^3 (Poland).
- Using TEM transmission electronic microscopy detection level is much higher, 2 or more times, than with phase contrast microscopy,
- Nanoparticles are generally found to cause more cancer and cardiovascular diseases than microparticles in athmosphere, and nanosize asbestos fibres are unlikely to be an exception,
- The environmental impact of asbestos exposure can be identified by comparing the differences and changes **between male and female level of mesothelioma deaths**. Male level is heavily dominated by occupational exposures. If the female/male rates are becoming closer then the infrastructure and environmental component has increased.

Cancer is a disease –
Occupational cancer is an administrative decision

and: ***Lung cancer*** (and other cancers) caused by asbestos !

No official statistics tracked in Sweden on compensated occupational cancer deaths in a single public database.

In Finland: 153 compensated occupational cancers, mostly mesothelioma and 40-50 deaths by asbestos caused lung cancers of an estimated 782 deaths.



https://www.nnk.gov.hu/cejoem/Volume23/Vol23No1-2/23_1-2_Article_01-.pdf

TABLE VA.

Estimated Global Mesothelioma Deaths (Annual N*), based on WHO data

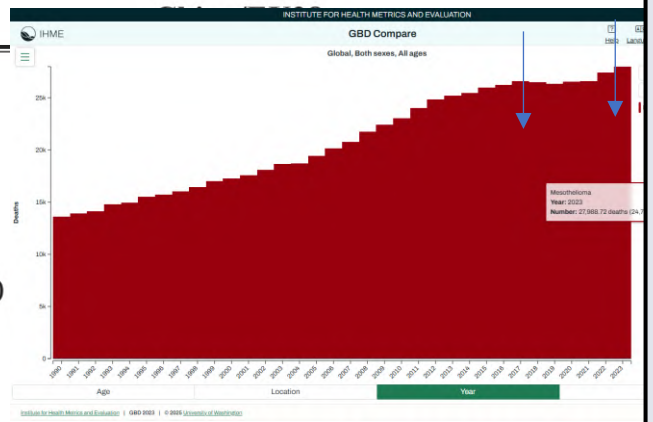
Extrapolation method	Reported Global	Non-reported, adjusted Global	China / EU28
(1) Best estimate, asbestos consumption, adjusted	15,011*	23,377	
(2) Estimates based on asbestos use			
All GBD 2015 and best estimates	32,373 (IHME)	- 38,400 (new)*	China: 4,512 (GBD/ IHME 2015 all)
Work AFmeso.work=94.9%, (Rushton et al., 2012)	22,822 (IHME)	- 36,400 (new)*	EU28: 11,404 (GBD/IHME 2015 all)
(3) Reported/Estimated by continent, employment and asbestos adjusted, other EU estimates, all	15,011	21,247 – 23,377	EU: 8,363 (Odgerel, Takahashi et al., 2016), all EU: 10,368 (Takala, 2015), all

Updating these mesothelioma estimates may increase the numbers as with GBD

** Reported N in 59 countries, estimated M in 172 countries, (Takahashi et al.,2015, Chimed-Ochir et al., 2016)*

2017 **Asbestos related lung cancer and other asbestos related deaths (Takala)** 2023

Methods of estimated lung cancer death using mesothelioma as a proxy for asbestos use	Lung cancer / mesothelioma rate	Asbestos related lung, other cancer (and other asbestosis) deaths World	
McCormack, Peto et al. (2013) average estimate using chrysotile, lung cancer, all, GBD 2015 Study	6.1	197,475	
McCormack, Peto et al. (2013), low – high estimates, lung cancer, all, GBD	2.0 – 10.0	64,746 – 323,730	
Nurminen, Karjalainen (2001) using mixed fibres, asbestos exposure verified by lung tissue fibre counting, lung cancer, all, GBD	3,525	137,475	
GBD based rate on global asbestos-related lung cancer and mesothelioma at work: 154,601/22,822 = 6.77436, GBD, (2015)	6.77	$177{,}423_{work}$–$283{,}221_{work}$	based on GBD/IHME 2015_{work} Area meso/ARLC/Ova/Lary EU28 9,664/56,461/335/440 China 2,477/24,405/294/199 Earth 22,822/154,601/1397/1405
Ovary and larynx cancers, GBD, (2015)		$2{,}802_{work}$	
Asbestosis, GBD, (2015)		$3{,}597_{work}$	
	Global asbestos death, work:	183,822 – 289,621; Mid-point 236,700	
	All asbestos exposed, global:	258,078 – 304,841; Mid-point 281,500	



Updated Mid-point Occupational Asbestos Estimate, change from 2017 to 2023

Mesothelioma estimate

(Takahashi et al. 2015, Chimed Ochir et al.2016)

GBD mesothelioma deaths have grown in 2017-23 from 26,603 -27,987

36,400

Lung cancer (6.1 x 36,400)

222,040

Ovary cancer (GBD 2023) 5,837

Larynx cancer (GBD 2023) 3,657

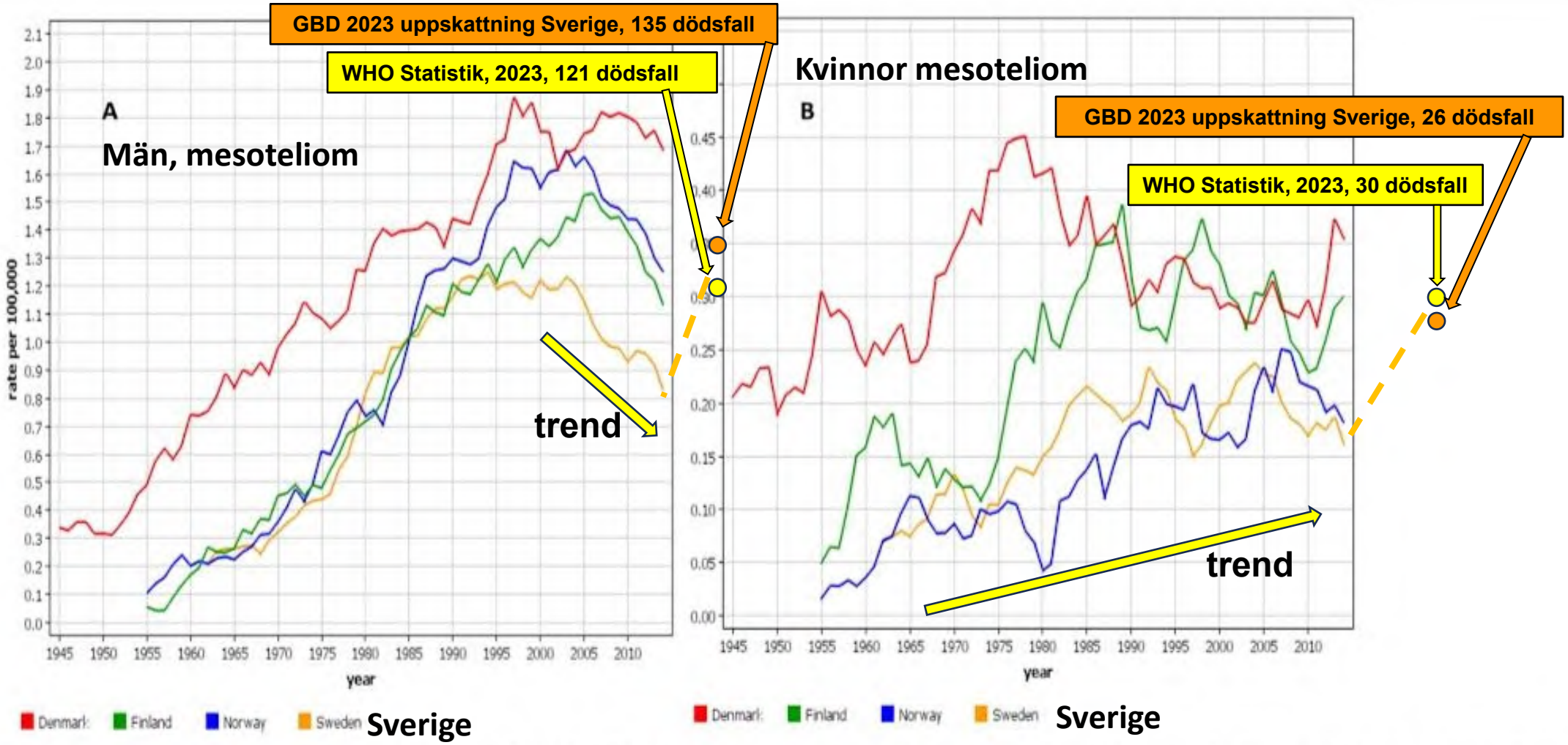
Asbestosis (GBD 2023) 3,012

Global updated estimate, work 2023, mid-point

270,946

Confidence Interv.: approx. 237,000 - 304,000

Mesoteliom i Nordiska länder 2021, män A och kvinnor B Lungcancer etc.???



g. 1 Age-standardized incidence trends for male (**A**) and female (**B**) pleural mesothelioma patients from Denmark, Finland, Norway and Sweden

Hemminki ao.: Incidence, mortality survival in pleural mesothelioma in Nordics…. https://pubmed.ncbi.nlm.nih.gov/34749677/

Asbestos Recommendations

- Ban new asbestos use globally
- Strict regulatory framework and enforcement of work carried out in asbestos contaminated buildings and structures.
- No renovation nor demolition to start, if asbestos exposure is likely, e.g. structures in EU built before 1990. Asbestos survey and removal compulsory before renovation work. Capability of surveyors and authorized companies checked. Follow requirements of the "ILO 2006 Resolution on concerning asbestos, 2006" https://www.ilo.org/safework/info/standards-and-instruments/WCMS_108556/lang--en/index.htm
- All asbestos containing buildings identified, marked and mapped. CAREX-Cancer Exposure Register, model as in Canada. Exposure mapping.
- Compensation systems should cover all asbestos-related diseases, in particular lung cancer, and independently of victim's smoking status.

ICOH

Tampere University

!

Asbestos from demolished ships are collected bagged and sold on streets in Bangladesh, worst type of recycling! The face mask was just given before phototaking.

Thank you,
Tusen takk !

Additional slides

Comparative Analysis of the Burden of Injury and Illness at Work in Selected Countries and Regions

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PÄIVI HÄMÄLÄINEN 2 ,
NOORA NENONEN3 ,
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CENTRAL EUROPEAN JOURNAL of OCCUPATIONAL and ENVIRONMENTAL MEDICINE

COMPARATIVE ANALYSIS OF THE BURDEN OF INJURY AND ILLNESS AT WORK IN SELECTED COUNTRIES AND REGIONS

https://nnk.gov.hu/cejoem/Volume23/Vol23No1-2/23_1-2_Article_01-.pdf

Estimation of the global burden of mesothelioma deaths from incomplete national mortality data

Chimed-Ochir Odgerel,1 Ken Takahashi,1,2 Tom Sorahan,3 Tim Driscoll,4 Christina Fitzmaurice,5 Makoto Yoko-o,1 Kittisak Sawanyawisuth,6 Sugio Furuya,7 Fumihiro Tanaka,8 Seichi Horie,9 Nico van Zandwijk,2 Jukka Takala10

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oemed-2017-104298.pdf

https://www.mdpi.com/1660-4601/15/5/1000

Occupational Exposure Limit: 0.001 f/cc = **1,000 fibres/m^3**

Proposed by this paper and ICOH

International Journal of *Environmental Research and Public Health*

MDPI

European Parliament

Article

Global Asbestos Disaster

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Received: 13 April 2018; Accepted: 14 May 2018; Published: 16 May 2018

check for updates

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ICOH

Abstract: *Introduction*: Asbestos has been used for thousands of years but only at a large industrial scale for about 100–150 years. The first identified disease was asbestosis, a type of incurable pneumoconiosis caused by asbestos dust and fibres. The latest estimate of global number of asbestosis deaths from the Global Burden of Disease estimate 2016 is 3495. Asbestos-caused cancer was identified