Occupational Cancer
EU-OSHA perspective and activities

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A new look at old diseases
EU-OSHA work

- **Reports:**
  - Policy and practice skin diseases
  - Chapters in “emerging chemical risk” and emerging biological risks” reports
  - OSH in figures MSDs
  - OSH in figures Noise and hearing loss
  - Occupational burden of disease draft report
- **Mainstreamed into work on groups, sectors, risk factors**
- **2002-2012 Participation in working groups Eurostat**
- **2011 Participation in WS on occupational diseases (DG EMPL report), 2013 conference on ODs**

- **No consistent approach to the topic**
- **OSH monitoring Workshop 2002 (Forum 11): EU-OSHA asked to contribute to the policy discussion on work-related diseases**

A new look at old diseases

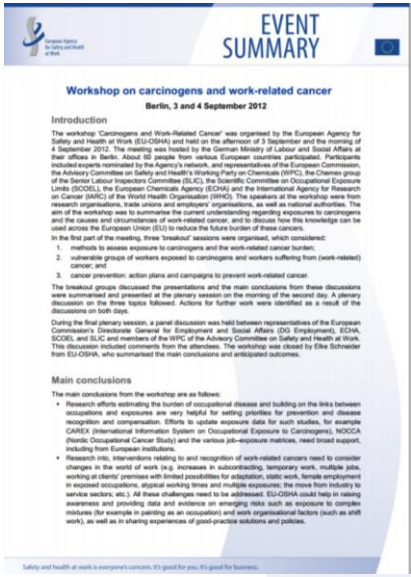
- **Building on Agency's work**
  - MSDs, skin diseases, stress-related disorders
- **Risks to reproductive health**
  - Workshop and publication of a report
    - Lack of testing routines, monitoring and epidemiologic studies on some reprotoxic effects (male reprotoxicity; on the offspring e.g. propensity to allergies, hormonal and developmental changes), caused by chemicals, physical and organisational factors
      - prolonged sitting, lack of access to rest and toilet facilities
    - Only few countries have strategies beyond the protection of pregnant workers
    - Support workplace management and awareness-raising
  - Publication of workshop summary
- **Carcinogens and work-related cancer:**
  - Report + summary to follow-up on 2012 seminar and address gaps identified –incl. monitoring methods, campaigning for awareness and prevention, identification of vulnerable groups and back to work strategies for workers affected by cancer
- **Workshop to scope future work on burden of WRD: 2014**
  - with experts, EC, FOPS, social partners, SCOEL

Work-related cancer – EU-OSHA activities

- **Member States survey and report on OELs for CMRs (published 2009)**
- **Seminar with DG Employment, ECHA, Member State reps nominated by FOP, ACSH WP Chemicals, SLIC Chemex, SCOEL (Summary published in 2012)**

  Gaps identified in:
  - **Research**: Cover more groups, long-term population studies
    - Current data/recognised diseases only cover industry but not services
    - Vulnerable workers (e.g. young, migrant female, in maintenance)
    - Work organisational factors (e.g. shift work and breast cancer)
    - Lifestyle factors often influenced by the way work is organised (e.g. static work, access to healthy food, culture/norms of the sector)
  - **Monitoring**: approach occupation → health effect, use multiple data sources, e.g. job/exposure matrices, link to employment trends
  - **Workplace solutions**: collect case studies of successful prevention, examples of company policies, successful interventions by preventive services and labour inspections
  - **Policy level:** need for back-to-work strategies for workers affected by cancers (currently hardly any in place)
- **2013-2014: State-of-the report to address the gaps identified above, focusing on existing exposure and disease assessment & examples of national policies**

Work-related cancer
Seminar September 2012


EVENT SUMMARY

Workshop on carcinogens and work-related cancer

Berlin, 3 and 4 September 2012

Introduction

Main conclusions

- **Monitoring:**
  - Take different approach (*occupation → disease* rather than *agent → disease*
  - Use job-exposure matrices
  - Use cancer registers and other sources of data
- **Rethink concept of vulnerable workers:**
  - Young workers (e.g. in maintenance)
  - Migrant workers in low-skilled manual jobs – lack of training and access to preventive services
  - Women in service professions
  - Older workers
- **Rethink major causes and how to assess the burden of disease:**
  - NOCCA study looked at socio-economic determinants and occupations via cancer incidence
  - Examples: cancer of the digestive system linked to static work, “cultural norms of the occupation” and access to healthy food
  - Combined exposures to several factors
  - Shift work and cancer

https://osha.europa.eu/en/seminars/workshop-on-carcinogens-and-work-related-cancer

Occupational exposure limits for CMR substances

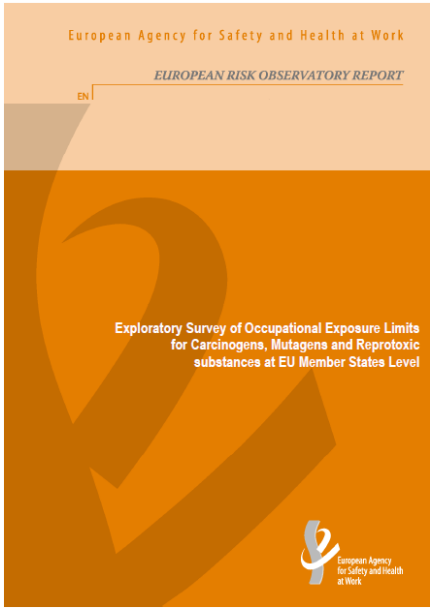
A summary

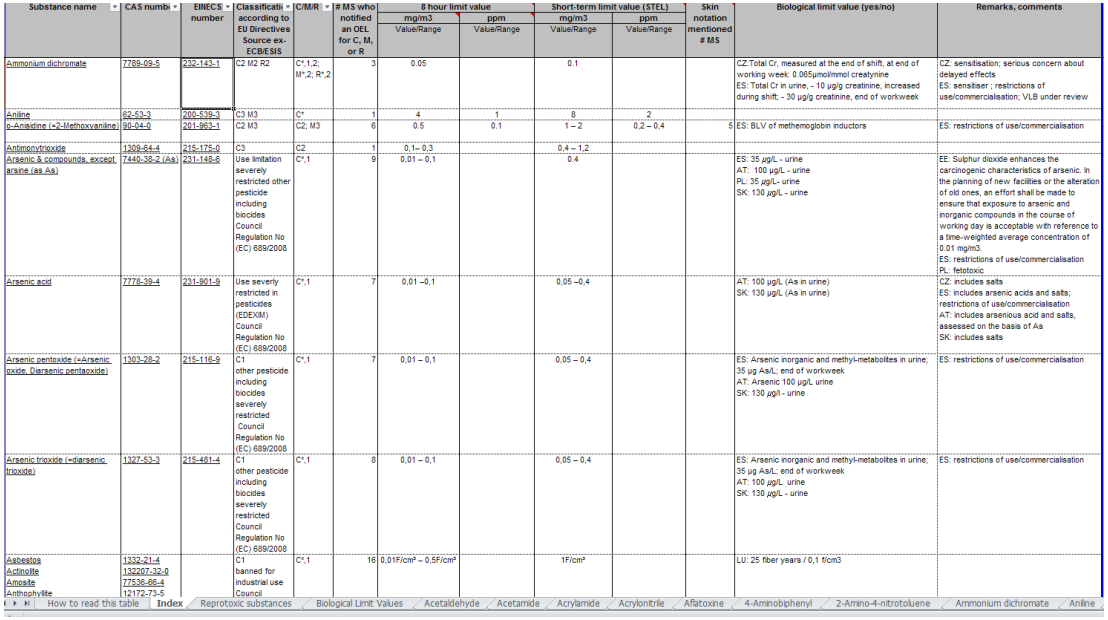
An **overview table of the 217 limit values**, of which 63 for reprotoxicants

A **compilation of all the national questionnaires** received

It includes:

- A table of limit values for reprotoxic substances (63 substances)
- Links to documents available on the Internet
- Some info on biological limit values





Substance name	CAS numbi	EINECS number	Classificatii according to EU Directives Source ex-ECB/ESIS	C/M/R	# MS who notified an OEL for C, M, or R	8 hour limit value mg/m3 Value/Range	8 hour limit value ppm Value/Range	Short-term limit value (STEL) mg/m3 Value/Range	Short-term limit value (STEL) ppm Value/Range	Skin notation mentioned # MS	Biological limit value (yes/no)	Remarks, comments
Ammonium dichromate	7789-09-5	232-143-1	C2 M2 R2	C*,1,2; M*,2; R*,2	3	0.05		0.1			CZ:Total Cr, measured at the end of shift, at end of working week: 0.065µmol/mmol creatynine ES: Total Cr in urine, - 10 µg/g creatinine, increased during shift; - 30 µg/g creatinine, end of workweek	CZ: sensitisation; serious concern about delayed effects ES: sensitiser ; restrictions of use/commercialisation; VLB under review
Aniline	62-53-3	200-539-3	C3 M3	C*	1	4	1	8	2			
p-Anisidine (+2-Methoxyaniline)	90-04-0	201-963-1	C2 M3	C2; M3	6	0.5	0.1	1 – 2	0,2 – 0,4	5	ES: BLV of methemoglobin inductors	ES: restrictions of use/commercialisation
Antimonytrioxide	1309-64-4	215-175-0	C3	C2	1	0,1– 0,3		0,4 – 1,2				
Arsenic & compounds, except arsine (as As)	7440-38-2 (As)	231-148-6	Use limitation severely restricted other pesticide including biocides Council Regulation No (EC) 689/2008	C*,1	9	0,01 – 0,1		0.4			ES: 35 µg/L - urine AT: 100 µg/L - urine PL: 35 µg/L- urine SK: 130 µg/L - urine	EE: Sulphur dioxide enhances the carcinogenic characteristics of arsenic. In the planning of new facilities or the alteration of old ones, an effort shall be made to ensure that exposure to arsenic and inorganic compounds in the course of working day is acceptable with reference to a time-weighted average concentration of 0.01 mg/m3. ES: restrictions of use/commercialisation PL: fefotoxic
Arsenic acid	7778-39-4	231-901-9	Use severly restricted in pesticides (EDEXIM) Council Regulation No (EC) 689/2008	C*,1	7	0,01 –0,1		0,05 –0,4			AT: 100 µg/L (As in urine) SK: 130 µg/L (As in urine)	CZ: includes salts ES: includes arsenic acids and salts; restrictions of use/commercialisation AT: includes arsenious acid and salts, assessed on the basis of As SK: includes salts
Arsenic pentoxide (=Arsenic oxide, Diarsenic pentaoxide)	1303-28-2	215-116-9	C1 other pesticide including biocides severely restricted Council Regulation No (EC) 689/2008	C*,1	7	0,01 – 0,1		0,05 – 0,4			ES: Arsenic inorganic and methyl-metabolites in urine; 35 µg As/L; end of workweek AT: Arsenic 100 µg/L urine SK: 130 µg/l - urine	ES: restrictions of use/commercialisation
Arsenic trioxide (=diarsenic trioxide)	1327-53-3	215-481-4	C1 other pesticide including biocides severely restricted Council Regulation No (EC) 689/2008	C*,1	8	0,01 – 0,1		0,05 – 0,4			ES: Arsenic inorganic and methyl-metabolites in urine; 35 µg As/L; end of workweek AT: 100 µg/L urine SK: 130 µg/L - urine	ES: restrictions of use/commercialisation
Asbestos Actinolite Amosite Anthophyllite	1332-21-4 132207-32-0 77536-66-4 12172-73-5		C1 banned for industrial use Council	C*,1	16	0,01F/cm³ – 0,5F/cm³		1F/cm³			LU: 25 fiber years / 0,1 f/cm3	

How to read this table | Index | Reprotoxic substances | Biological Limit Values | Acetaldehyde | Acetamide | Acrylamide | Acrylonitrile | Aflatoxine | 4-Aminobiphenyl | 2-Amino-4-nitrotoluene | Ammonium dichromate | Aniline

https://osha.europa.eu/en/publications/reports/548OELs/view

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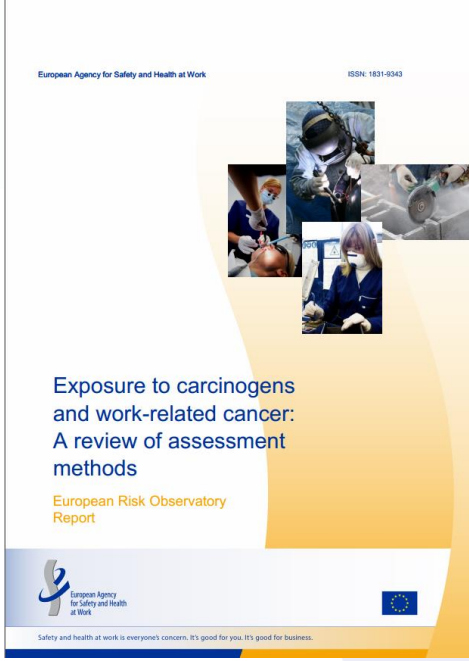
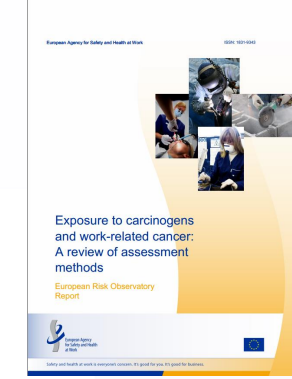
Work-related cancer
A review of assessment methods



- **Current data/recognised diseases cover industry, but not services (70% of workers work in services)**
- **Vulnerable workers (e.g. young, migrant female, in maintenance)**
- **Work organisational factors (e.g. shift work and breast cancer)**
- **Lifestyle factors often influenced by the way work is organised (e.g. static work, access to healthy food, culture/norms of the sector)**
- **Hardly any back to work strategies**
- **Conclusions :**
  - **Research**: Cover more groups, long-term population studies
  - **Monitoring**: approach occupation→health effect, use multiple data sources, e.g. job/exposure matrices, link to employment trends
  - **Workplace solutions**: collect case studies of successful prevention, examples of company policies, successful interventions by preventive services and labour inspections
  - **Awareness raising**

https://osha.europa.eu/en/publications/reports/report-soar-work-related-cancer

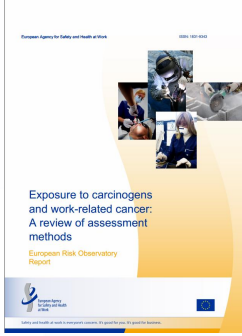
Silica still a very relevant factor in Europe



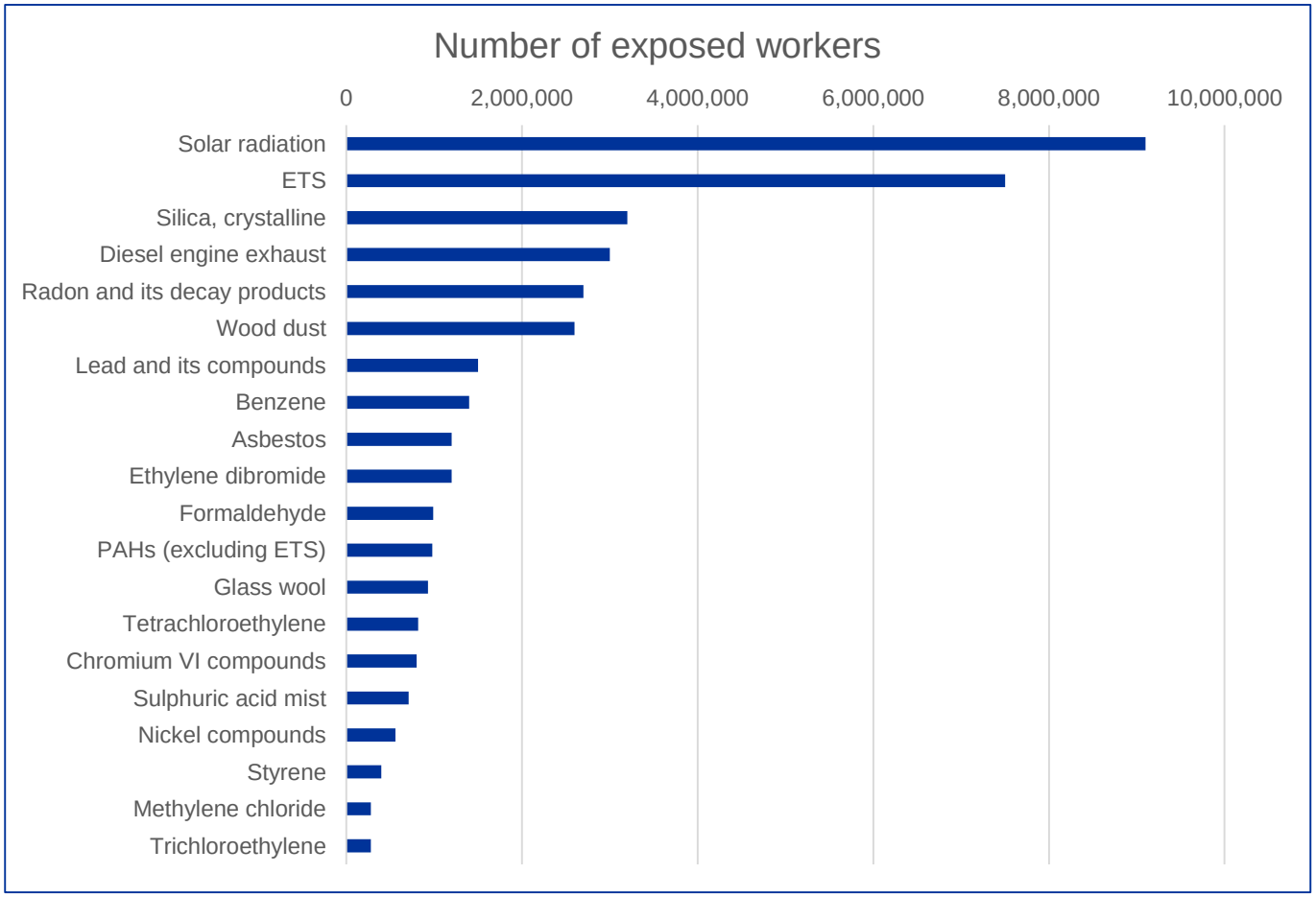
- **Exposures to:**
  - Construction workers
  - Ceramics and pottery
  - Glass workers
  - Mining
  - Iron and steel workers, foundries
  - Sandblasting (recently for „used-jeans look“)
  - Artificial stone
  - Waste management

- About 1-2% of workers exposed
- Multi-exposures need to be considered
- Some indications that exposures to temporary and maintenance workers, as well as female and young workers may not be assessed
- Some methodologies allow for exposure level assessment and retrospective exposure assessment

Silica one of the agents covered in the CAREX study

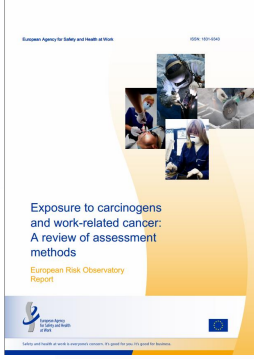


Most common agents covered by CAREX to which workers were exposed (numbers of exposed workers) in 15 Member States of the European Union in 1990–3

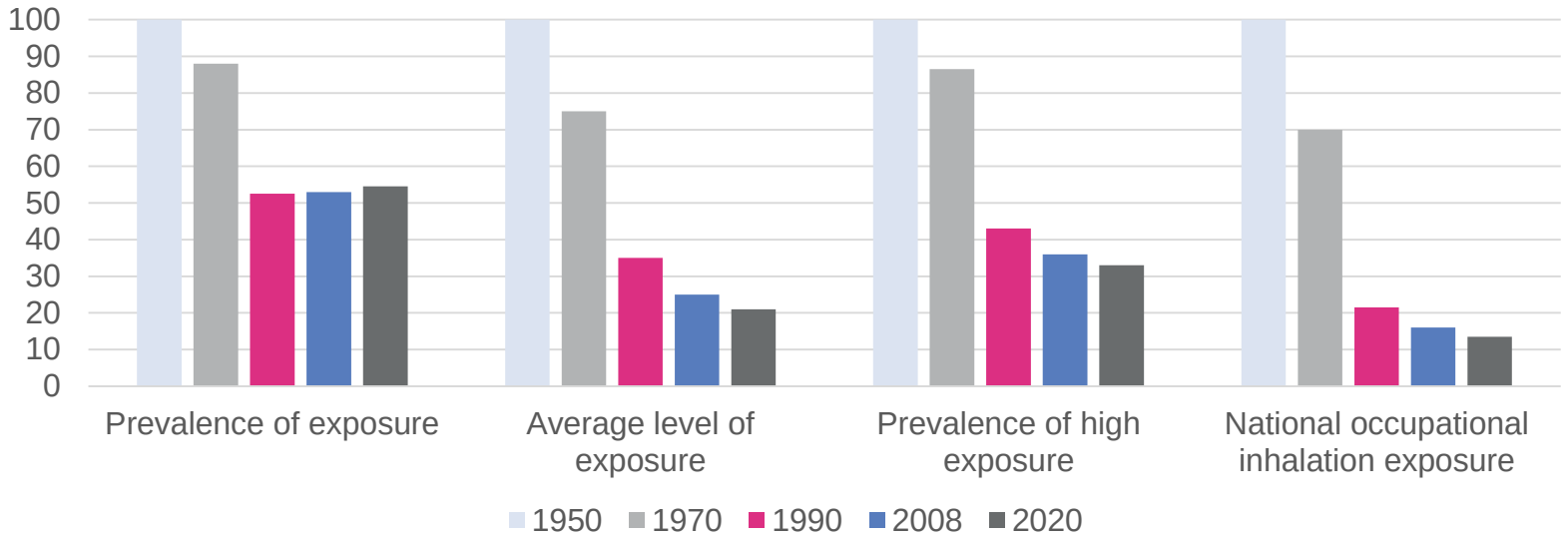


Source: Kauppinen et al. 2000

FINJEM trend study – exposure to silica



Occupational inhalation exposure to crystalline silica (quartz dust) in Finland in 1950, 1970, 1990 and 2008 and predicted for 2020, as measured by four different metrics of exposure. Proportional values as compared with 1950 (baseline = 100).

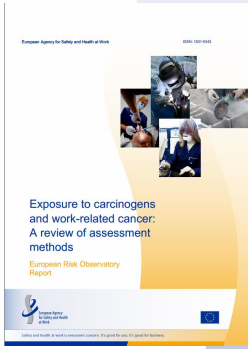


Overall, exposures show a steady downward trend as compared to 1950, although more people were exposed to silica

Source: FINJEM database (FIOH, 2013)

ExpoSYN – example of a measurement database

- **ExpoSYN is a measurement database**
- **Data from 18 European countries and Canada on five lung carcinogens.**
- **In 2012, it included 356,551 measurement results.**
  - respirable crystalline silica (42%),
  - asbestos (20%),
  - chromium (16%),
  - nickel (15%) and
  - PAHs (7%).
- **The measurements cover a long period, from 1951 to present, but only a small portion of them (1%) were performed before 1975.**
- **To be used to build a job–exposure matrix (JEM) for a large pooled analysis of epidemiological case–control studies on lung cancer (SYNERGY study)**
- **The criteria for selecting asbestos, PAHs, nickel, chromium and respirable crystalline silica as the exposures of interest were:**
  - classification in IARC group 1 (carcinogenic to humans);
  - prevalence of joint exposure in study populations;
  - availability of quantitative exposure data;
  - possibility to disentangle the effects of correlated occupational exposures;
  - possibility to disentangle occupational exposures from exposures in general population;
  - mechanistic considerations (shared or different modes of biological action);
  - relevance for prevention;
  - relevance for compensation



EU-OSHA Cancer seminar Sep. 2012
Prospective study
UK burden of disease data (Rushton, L.)

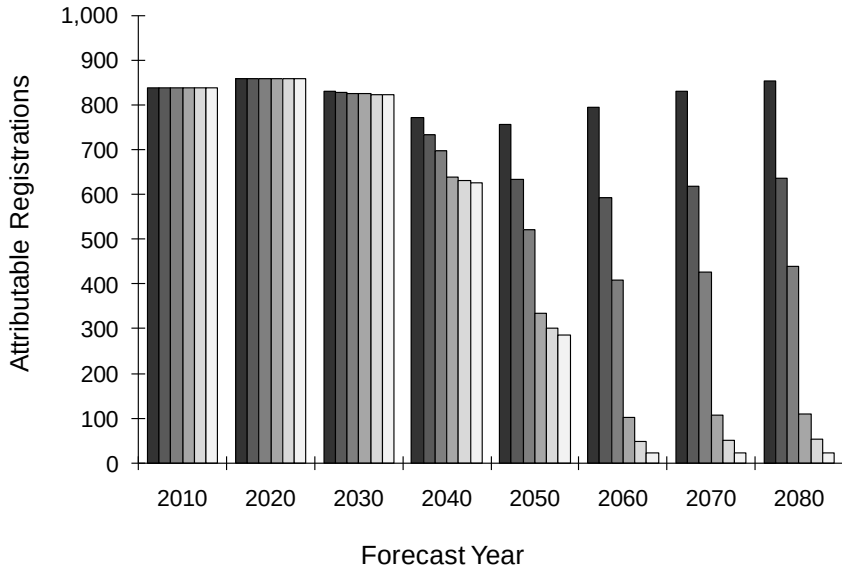
Carcinogens where occupational standards/limits exist or could be introduced

- **Example: silica**
  Study looked at five prevention options and assessed the potential effects:

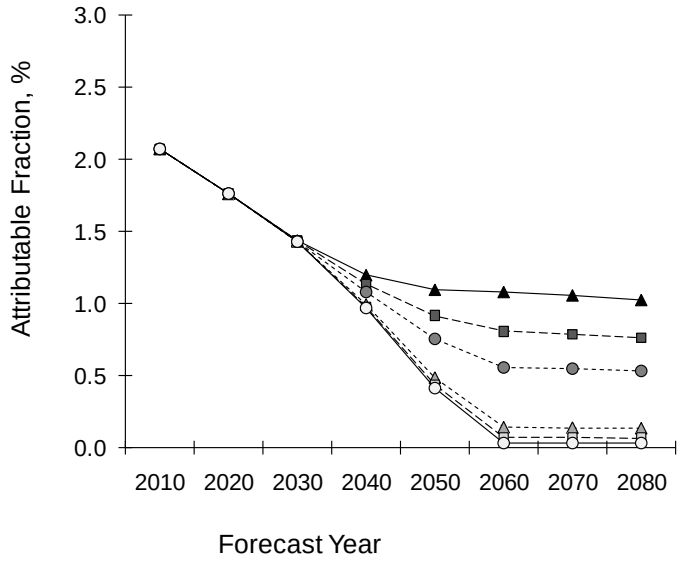
  - Reduce exposure limit from 0.1 to 0.05 mg/m^3 in all workplaces, in 2010, with the same proportion exposed above the new limit as above the old
  - Reduce exposure limit again to 0.025 mg/m^3
  - Improve compliance from 33% to 90% in all workplaces
  - Try doing both for all workplaces
  - Successively enforce the new limit and improve compliance in workplaces of different sizes

EU-OSHA Cancer seminar Sep. 2012
UK burden of disease data (Rushton, L.)
Lung cancer from exposure to RCS
Effect of reducing the exposure standard for RCS versus compliance

A) Attributable registrations



B) AFs



(1) Baseline: exposure limit 0.1mg/m^3 maintained, compliance 33%

(2) Exposure limit 0.05mg/m^3 from 2010, compliance 33%

(10) Exposure limit 0.025mg/m^3 from 2010, compliance 33%

(11) Exposure limit 0.1mg/m^3 maintained, compliance 90%

(12) Exposure limit 0.05mg/m^3 from 2010, compliance 90%

(13) Exposure limit 0.025mg/m^3 from 2010, compliance 90%

https://osha.europa.eu/en/seminars/workshop-on-carcinogens-and-work-related-cancer/speech-venues/session-a-methods-to-assess-exposure-to-carcinogens-and-the-work-related-cancer-burden/the-burden-of-work-related-cancer-in-great-britain

Selected conclusions from the study on exposure assesment methodologies

Issue	Recommendations	Remarks
Silica dust and diesel engine exhaust, welding fumes, ETS, wood dust and endotoxins are not yet covered by registers, mainly because of wide use range Will not be addressed by REACH	Assess exposure, broaden the scope of assessment systems to cover these substances adequately Develop prevention measures, incl. in new professions	Young workers in maintenance and women, for example in delivery, retail and transport, are insufficiently covered by data; ensure their exposures are also investigated
Data reflect exposures from the past, not apt for estimating present exposure and future trends	Improving contextual data of exposure measurement databases via international cooperation would facilitate better use of exposure data in data estimations. Prospective studies with trend information (exposure over time) and information on exposure patterns in different occupations and tasks	Build on examples such as the SYNERGY study, which focuses on silica exposures Build on examples from Member States, such as the prospective studies from the United Kingdom on silica exposure Retrospective exposure assessment combining interviews with data from social security and employment registers

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