Emerging Liability Risks

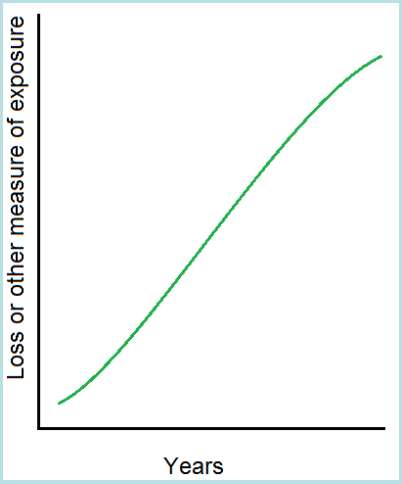
Sept 2012

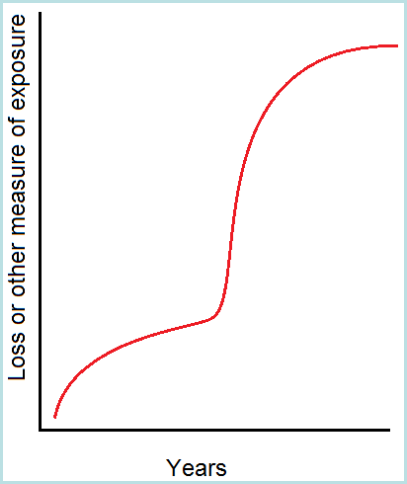
Agenda

To discuss:

1. Context
2. Recent examples
   a) Phosphate
   b) MWCNT
   c) DEEEs
   d) Breast cancer
3. Questions on
   a) Harmless exposure to amosite
   b) Vibration white foot
   c) Etc etc etc.

Context





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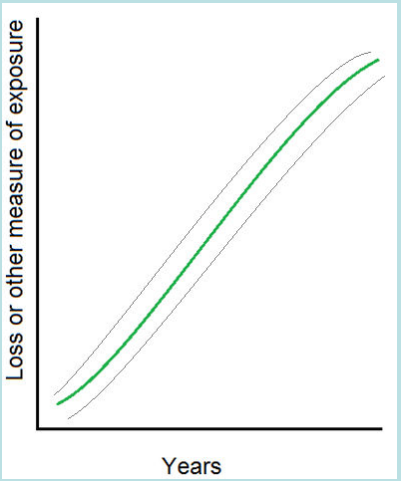
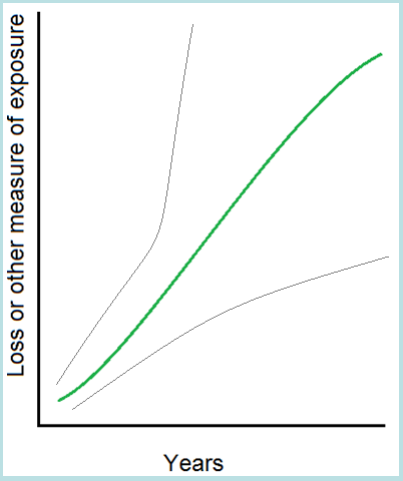




To judge.

- changes in exposure which cannot now be predicted precisely enough by actuarial projection.
  - Tolerance and risk appetite
  - Reserving, pricing, wordings, targeting…
- the probability of exceeding a defined action threshold is increasing
  - Magnitude and or uncertainty

Process - after ID

- Monetise additional potential losses and their uncertainties. Portfolio? Impenetrable.
- Sensitivity analysis. Key variables. Thresholds.
- Decision. Customer-facing. Internal.
- What would need to change…
  - To exceed threshold, tolerance, appetite?
  - To change your opinion?
- Regular updates.

Examples

- The case?
- What do you think?
- What would need to change to change that judgment?
  - Size ?
  - Easy options?

Phosphates (P)

E Ritz et al. Dtsch Arztebl Int (2012) Vol. 109(4) p 49-55. Review.

- Kidney disease patients must avoid excess dietary intake.
- Observed: CVD (indivisible endpoints), fractures, bone and joint problems.
- CVD, plausible (38% - 9 point causation scale based on BH criteria and UK law)
- Dose-response mortality effect observed in general population.

Judgment factors

- Exposure↑, subclinical KD↑, biological plausibility↑, low grade evidence↑.
- Few studies of initially healthy people.
- And:
  - Diet plus 100 g processed cheese plus 400 ml cola enough to exceed **RDI**.
  - 250 mg in supplements.
  - Powerful interest groups to defend P use.
  - Ingredient labels are quite variable!

Evaluation

Roughly:

- Are you providing cover?
- Causation theories.
- Attributable fraction, 'innocence' rates, health check data…
- Assess openness of the insured.
- Defences. Class actions.

Judgement

Game changers?

- If you don't believe it, what would trigger increasing the alert level?
- If you do believe it what would raise the level further, what would reduce the level?

Some ideas

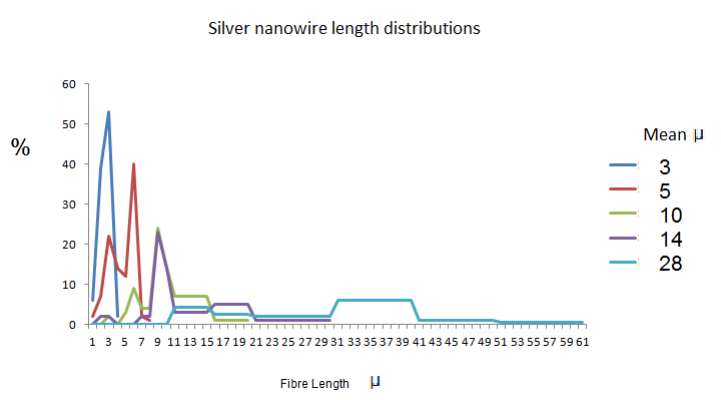
- Any "at fault" cause which increases KD. (silica, fructose, med neg, diabetes).
- Specific traces of added P in diseased tissues.
- Molecular epidemiology.
- Aggressive behaviour from the P lobby.

CNT – length effect

A Schinwald et al. Toxicol. Sci. (2012) Vol.128 (2) p 461-470

- Length dependent inflammation from silver, asbestos, MWCNT, nickel fibres.
- Pleural injection in mice.
- What sort of disease could be caused?

Length Effect



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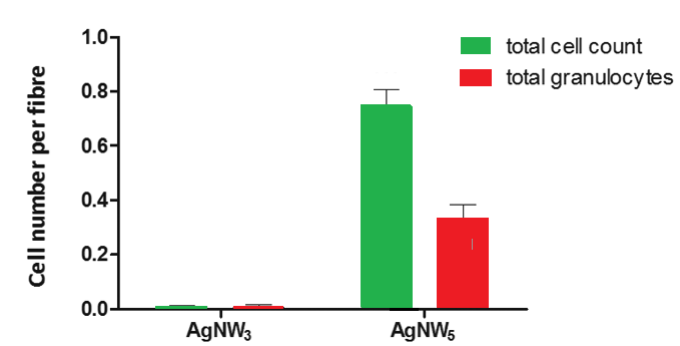

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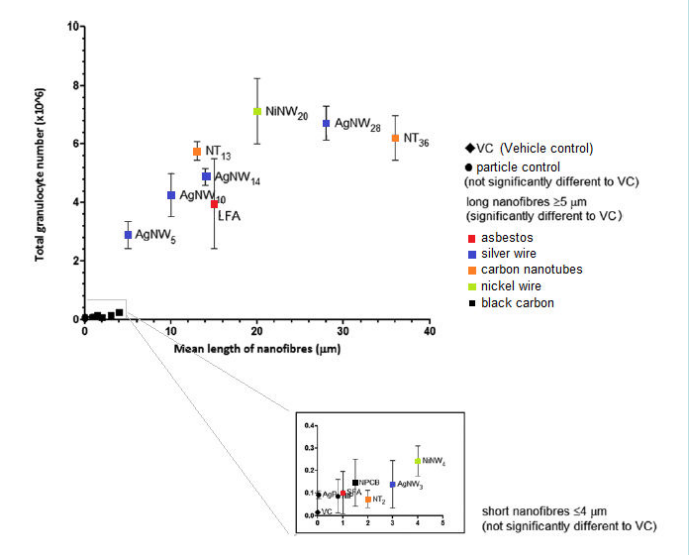

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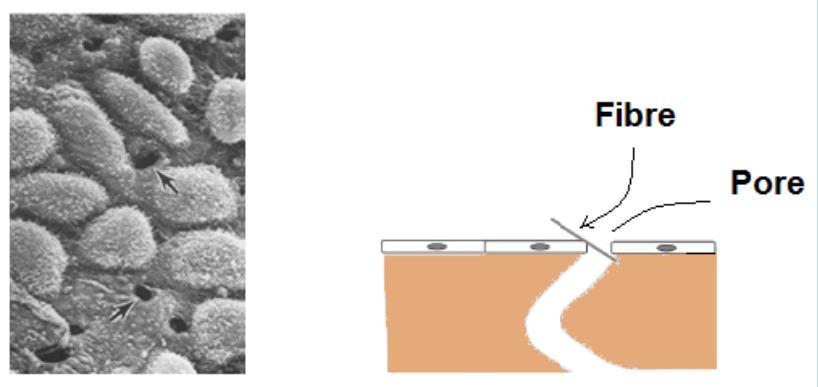


Length Effect

- Relevance to mesothelioma = uncertain.
- Inflammation – is it a duty-of-care metric?
- Risk could be modified: filtering, break points, LEV.
- 100, 50, 7 or 2.5 µg/m^3 ?
- Reverse flow trigger? Flu, irritant dust…

Length Effect - insurers

- CNT and MWCNT risk rating factor. To go alongside the APA scale already discussed.
- easily fragmented fibres - an intermediate rate.

Judgment

- Can length be used as a risk rating factor?

- What if it really is harmless?
- Size control and QA.
- LEV and masks.
- Only when its really cheap.
- Stomata cell DNA damage.

Diesel Engine Exhaust

*Lancet **June** 15, (2012) DOI:10.1016/S1470- 2045(12)70280-2 and, IARC Monograph 105*

- Lung cancer. (IARC Group 1)
- Dose-response, confirmed ?
- LC in rats for whole exhaust, particles and extracts.
- Genotoxicity observed in humans.
- *Railway workers, dockers, bus garage workers and truck drivers, miners, ferries, FLT drivers…*

DEEEs Cont…

- In excess of NIOSH advisory levels. In UK (2000), 450k would be able to show excess. USA - 1.4 million.
- NIOSH 1988 “potential carcinogen”. Mines safe level = 160 µg/m^3.
- Est. 83 per 1000 mine workers would develop diesel exposure related lung cancer if exposed as now for a working lifetime.

DEEEs Cont…

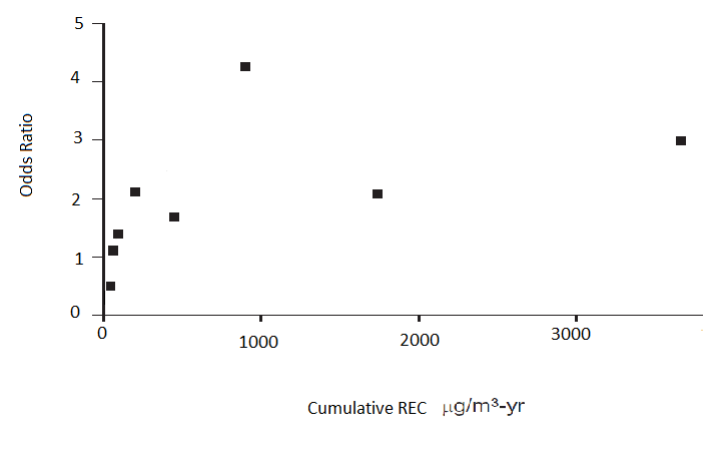
- UK attributable risk = 600 to 1000 cases a year.
- Specific carcinogens are within WEL.
- Non-smokers, no silicosis or other fibrosis. – innocence rates can be estimated.
- **Liability analyses should have been possible between 2005 and 2010.**
- Date of knowledge?

DEEEs Cont…

DT Silverman et al. J Natl Cancer Inst (2012) Vol.104 p 1–14

- Respirable elemental carbon.(REC).
- Threshold effect is a possibility. >3,500 $\mu g/m^3$ years.
- OR = NS at below 500 $\mu g/m^3$ years. And very imprecise at 1800 $\mu g/m^3$ years???
- Typical urban REC cumulative exposures over a lifetime would be ~ up to 360 $\mu g/m^3$ years.

DEEEs Cont…



DEEEs

- RR > 2.0. at very high exposures.
- Duty in USA has been explicit since 2006. Hinted at since 1988. Should the UK employer have known?
- Probability of breach? COSHH.
- Export of engines to USA. Clean Air Act.
- http://www.thompsons.law.co.uk/workplace-illnesses-and-diseases/cancer-caused-by-diesel-fumes.htm

Game changers

- WEL. Best practice which should have been in place.
- Specific genetic damage.
- Innocent claims with watery eyes.
- Claims with heart disease.
- An accurate *de minimis* test is developed.
- Threshold effect is decided.
- DoK 1988.

Breast cancer - nights

- 5% (AF) = 2,400 per year now and 2,850 in 2030 UK.
- Innocence rate
  - = 7% for **all** factors – 169 good claims a year
  - = 24% for main factors – 587 good claims a year
- Breach of duty - unknown.
- Strict liability

So…

- Authoritative proclamation.
- Foreign compensation activity.
- Basic science.
  - **Drift of knowledge, evaluation and uncertainty**.
- The key is to work out and decide what would ‘throw your switch’. Write it down. Act upon it.

Radar

- Employers’ liability
- Product liability
- Public liability
- Motor-related injury
- Science-based property insurance and PI issues.
- Pure economic loss in respect of biodiversity and climate/weather events.
- EIL issues.

See: www.reliabilityoxford.co.uk