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# LEAD *Action* NEWS

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**LEAD Action News vol 7 no 2, 1999, ISSN 1324-6011**

Incorporating Lead Aware Times (ISSN 1440-4966) and Lead Advisory Service News (ISSN 1440-0561)

The journal of The LEAD (Lead Education and Abatement Design) Group Inc.

## **First the Hail, Now...WHAT is Coming Out of the Void?**

*By Elizabeth O'Brien, Coordinator, The LEAD Group,  
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**Commonly asked questions about CEILING VOID DUST in homes in the April 14<sup>th</sup> 1999  
Sydney hailstorm damaged area**

### **RESPONSE OF THE INSURANCE INDUSTRY**

#### **1. Q: Are insurance assessors familiar with the issues about ceiling dust?**

**A:** Ceiling dust was first identified as a source of lead in 1983 in both Sydney (Reference: Gulson, Mizon and Law in *The Urban Atmosphere of Sydney*, CSIRO, Melbourne 1983) and Port Pirie, lead smelter town in South Australia (Reference: Port Pirie Taskforce Report, August 1983). In 1992 in Sydney, Jason Bawden-Smith measured lead in the ceiling dust in nearly 50 Sydney homes and various newspaper reports mentioned the research. Research by Macquarie University's internationally renowned lead researcher Prof Brian Gulson (and others), which found all homes tested in the Illawarra had lead levels above 250 parts per million (ppm) in the ceiling dust, and those close to the Port Kembla copper smelter had more than 10 times this amount (Reference: Chiaradia et al, *Science of the Total Environment* 205, 1997) was also preceded and followed by media reports of lead, arsenic and cadmium being in the ceiling dusts of Port Kembla. The NSW Environment Protection Authority (EPA) produced a factsheet on the subject of lead in ceiling dust in 1997. The removal of ceiling dust from homes around the ICI Dulux site at Cabarita received some media attention in 1998-9. Only two insurance claims relating to ceiling dust had ever been reported to the Lead Advisory Service NSW prior to the hail damage of 14<sup>th</sup> April 1999. So although ceiling dust as a source of lead could be regarded as known to some extent, the other hazards of ceiling dust are virtually unknown in Sydney. For example, the effect of ceiling dust on respiratory health, is a "new" environmental health issue only recognised by this writer as a result of dealing with the case in the "Ceiling Dust Removalist Case Study" in 1998. It is not unreasonable to assume that insurance assessors are almost entirely unfamiliar with the issue of ceiling dust hazards, as, it seems, are most building consultants, many building contractors and even some environmental consultants, even though information is available. Neither the Lead Reference Centre (part of the EPA) nor the Lead Advisory Service (a community service run by The LEAD Group) have been taken up on their offer to the major insurance companies to come out and speak to insurance assessors on the issue of lead.

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**Anecdote One:**

**A caller to the Lead Advisory Service said that at a meeting in one insurance company in May 1999, management had said that ceiling dust was not removed in the Sydney Aircraft Noise Insulation Project (SANIP). In fact, dust was removed from every building in the project - which has so far amounted to 2696 buildings.**

**2. Q: Does ceiling dust have to be tested to know that it contains lead?**

**A:** It seems not. Every result of ceiling dust analysis that has been reported to the Lead Advisory Service (over 100 results for Sydney homes) contains some lead. Every result for ceiling dusts in Sydney in three published studies found some lead in the dust (more than 80 houses). (See the tables in the answer to **Question 8** in "Thirty Thought-Starters on CEILING VOID DUST in Homes".) An unpublished study by the CSIRO on a further 30 homes in Sydney found lead in all samples. On Saturday 22<sup>nd</sup> May Channel 7 News reported that insurance companies are insisting on the lead in ceiling dust being tested before the dust removal is decided, but the testing can take up to four weeks. It is certainly possible for the testing to be done in less than 4 weeks, 1-2 weeks being the usual time. All lead assessors in Sydney recommend that ceiling dust simply be removed if it is at risk of entering the living space, as testing will only confirm what is already known. **There's lead in ceiling dust in Sydney.**

**Anecdote Two:**

**A plasterer was told by an insurance company representative that the company had asked a government agency whether there was lead in ceiling dust and had been told "there is no risk of any lead being in that dust". This is clearly false.**

**3. Q: What is the best way to test ceiling dust?**

**A:** The first thing that you need to clarify before answering how you test the dust, is: for what purpose is the dust going to be tested? Some insurance companies are insisting that the dust be tested to prove that it has lead in it. The "litmus" or colour change test used by some ceiling dust removal companies does show a change of colour in front of your eyes, indicating the presence of lead to the disbelieving or uninformed, but is otherwise a complete waste of time – it does not quantify the amount, it simply shows that there is lead in the ceiling dust – a fact that can be taken for granted. For those who have to find out how much lead is in ceiling dust because their insurance company has arbitrarily chosen a concentration of lead in ceiling dust below which the company will not pay for dust removal, the generally agreed protocol is as follows. First label a clean plastic snap-seal sandwich bag or clean sample container with details of what is being collected, from where, by whom, and the date. Then climb a ladder or otherwise gain access to the manhole, and use a clean plastic spoon to collect approximately 2 tablespoons of dust from the area you can reach from the manhole, without actually getting up into the void. Unless you also want to determine the presence of insulation breakdown matter you should be careful to avoid collecting roof insulating materials in the dust sample. The sample can then be sent to a lab for testing either by atomic absorption spectroscopy (AAS) or x-ray fluorescence (XRF). There is no such thing as a laboratory that has NATA (National Association of Testing Authorities) accreditation for testing lead in ceiling dust or in dust generally, though these

could be covered by the NATA registration category of "Chemical Testing" or "Lead in Building Residues".

If the purpose of testing the ceiling dust is to help determine the full range of possible health effects from exposure to the dust, it would need to be analysed for a wide range of heavy metals, fibres, radioactive metals, organic compounds and biological contaminants (bacteria, fungal spores, lice, pest faeces, etc) (See the list of what ceiling dust can contain in the answer to **Question 2** in "Thirty Thought-Starters on CEILING VOID DUST in Homes".) We are entering the realm of research here and no householder is likely to pay for such expensive testing and thankfully it is not required by any insurance company at this time. The type of research on ceiling dust that would appear to be the most urgently needed to determine the extent of other likely health risks from ceiling dust (other than the lead-related health risk), is to test the particle size range to determine how much of the dust that's likely to be released say, during ceiling demolition (if the dust is not first removed) is:-

- non-inspirable - able to be filtered out by the nose and tubes leading to the lungs
- inspirable - small enough to enter the lungs, and
- respirable - small enough to go deep into the lungs

Particle sizing research has also been done by Macquarie University researcher Jeff Davis, on ceiling dust samples from 30 Sydney homes, but more funding is required to finish the study and publish the results (also see the answer to **Question 9** in "Thirty Thought-Starters on CEILING VOID DUST in Homes".)

If the purpose of testing the dust is to determine potential lead exposure of children exposed to the dust, that is, when the ceiling dust has left the ceiling void and is in the living areas of the building (eg after ceiling demolition and clean-up), then the best way to test its possible impact on any children who might play on the floor, is by a dust wipe of the floor (even if the floor is carpeted). This is called "clearance testing" and a result below one milligram of lead per square metre of floor ( $1 \text{ mg/m}^2$ ) is accepted as "cleared" for young children to play on. This clearance level for floor dust has been adopted from the US Department of Housing and Urban Development (HUD), into the Australian Standard on Lead Paint Management Part 2. (See **Question 19** in this article for a description.)

**Anecdote Three:**

**A man with a lung condition (sarcoidosis), living in a Department of Housing home, was concerned about his health, when his skylight was smashed on the night of the hail, and there was a haze in the air from the fine dust released from the ceiling void.**

**4. Q: Should insurance companies have to cover the cost of ceiling dust testing?**

**A:** It would seem appropriate that for those insurance companies that insist on the testing of ceiling dust before a determination is made about the cost of removal of the dust, the cost of ceiling dust analysis ought to be covered. Also, for buildings in which a government department has made a policy on testing, eg the federal Department of Community Services

requires childcare centres to carry out a lead audit (which can include ceiling dust testing) as a result of the increased likelihood of lead hazards following the hail storm, then payment is appropriate. (See "JBS Lead Safe Certificate Program for Childcare Centres" as an example of what lead assessors can offer childcare centres.)

**5. Q: Should insurance companies have to cover the cost of ceiling dust removal?**

**A:** It seems that the relevant legal principle here is the "but for" principle: but for the hail, the ceiling dust would not have entered the living space or require removal prior to demolition of the ceiling. Callers to the Lead Advisory Service have reported a range of arguments on this issue:-

- An insurance assessor reportedly said "the ceiling dust was there before the hail storm and it will still be there after the hail storm". This is true in the case of homes with no ceiling damage or roof damage. For others, the ceiling dust will be accessible when it was not previously accessible.
- A home-owner wrote in a letter of complaint to her mayor: "If the ceilings are replaced without having the dust removed and then subsequent testing shows the home to be too polluted to live in then presumably the decontamination of the home will be the subject of a new insurance claim. To have such clean up done to make the home habitable again would be much more difficult and much more expensive than having vacuumed the ceiling in the first place. Also as it was the insurance company's policies which resulted in the home becoming unfit for habitation then it would, presumably, be up to the insurance company to cover interim accommodation costs.

**DEVELOPMENT OF A CEILING DUST POLICY IN "TARPTOWN"**

**6. Q: Should all homes in the hail damage area ("Tartown") have ceiling dust removed?**

**A:** No, the generally agreed best management of ceiling dust is to leave it alone if it is not at risk of falling into the living spaces of a home. So only those homes which have damaged ceilings or leaking cornices through which dust is escaping, and those homes which will have the ceiling demolished and then replaced, need the dust removed to avoid its spread throughout the property during the demolition of the ceiling.

**7. Q: Is there a level of lead in ceiling dust set as a criterion level for removal of the dust?**

**A:** No, the general rule being "leave the dust unless it's going to be disturbed", no criterion level has been set. The corollary to "leave the dust unless it's going to be disturbed", is "remove the dust if it's going to be disturbed". That is, it doesn't matter what the lead concentration is, the dust should be removed rather than allowed to spread throughout the house. (See the answer to Question 6 in "Thirty Thought-Starters on CEILING VOID DUST in Homes".) One Sydney lead assessor, Jason Bawden-Smith of JBS, lists a result above 300 milligrams per kilogram (mg/kg) as a moderate biohazard. A level of 1200 mg/kg was set by Woodward-Clyde in the area around the ICI Dulux paint manufacturing site but this was not a health based criterion level. Woodward Clyde determined that if a home had more than the average for the Concord area of 1200 mg/kg lead in the ceiling void, then chances were that the extra lead could have been due to emissions from the Dulux site. All houses with

ceiling dust lead levels above 1200 mg/kg had the ceiling dust vacuuming paid for by Dulux as a gift to the community. There was no EPA or Health Department requirement on Dulux to do this. The NSW Health Department has not and does not intend to set a policy of making a criterion level for lead in ceiling dust, upon which the dust must be removed. NSW WorkCover Authority told a resident that it would be difficult to write a policy on the criteria for ceiling dust removal because of all the different variables. For example, two adults living in a home with a lot of dust may not be as big a problem as a young child who puts their fingers in their mouth in a house with less dust. The total amount of lead, not just the concentration, is an important factor in assessing the potential of the dust to contaminate the property if the dust is not removed prior to ceiling or roof work. Gary Rhyder from WorkCover NSW has commented "WorkCover is of the view that by following the requirements of the National Standard for the Control of Inorganic Lead at Work and the National Code of Practice and Safe Use of Inorganic Lead at Work employers are able to provide safe working conditions for employees working in any lead process". An Adelaide lead researcher, Mike van Alphen of Lead Sense, says "ceiling dust is too widespread for case by case risk assessment."

**Anecdote Four:**

**One council in the hail damage area sampled the ceiling dust of one childcare centre in which the dust was escaping from the void into the children's play area. When the analysis result came back at 1600 mg/kg for lead, the environmental health officer decided to recommend to council that ceiling dust be removed in all council childcare buildings with ceiling damage in the area, [rather than waste the money and time waiting for further analysis results].**

**8. Q: The hail storm happened on 14<sup>th</sup> April 1999, why has no government agency set a policy yet, that ceiling dust be removed prior to demolition of ceilings or when dust is leaking into the rooms?**

**A:** One reason is the attitude that people in Tarptown had enough to worry about without ceiling dust being mentioned. When the WorkCover representative on the Southern Sydney Recovery Task Force raised the issue of ceiling dust at a Task Force meeting, she was silenced. There was therefore no information on ceiling dust in the induction program given by WorkCover to Tarptown contractors. People may like to believe that "what you don't know, can't hurt you". But it can (see the case study "Child lead poisoned by ceiling dust"). People can only make informed appropriate decisions about what to do when they are informed. Information is power. To its credit, the NSW Government mentioned lead dust could have been disturbed in ceiling cavities and enter the interior of the home in its publication "Important Information for Communities affected by the Sydney Hailstorms April 1999". The booklet advises simply "Special precautions should be taken. Contact the Lead Centre [Lead Advisory Service] on **9716 0132.**" The Lead Advisory Service has taken over 200 calls on the subject and come up with the factsheet for residents: "What To Do About Ceiling Dust" which among other things, advises residents to ask the relevant ministers to set a policy.

**9. Q: Are councils getting involved in disaster recovery works in the hail damage area?**

**A:** Councils are not requiring development applications (DAs) for the repair work that is going on because it's only repairs, not new roofs and the like. Councils are involved in waste collection and would therefore have an interest in the issue of separation of wastes. Removing the bulk of the ceiling dust by vacuuming is effectively separating at least 85% of the dust from the ceiling void, thus saving some tens to hundreds of kilos of dust from being mixed in with less toxic building rubble.

**10. Q: Is the NSW EPA making a determination about ceiling dust removal in certain circumstances?**

**A:** If the insurance company rings the EPA they will apparently be advised to remove ceiling dust in homes where the ceiling is going to be demolished. But the danger in allowing verbal advice to take the place of a written policy is that it is easier for the advice to be misconstrued or ignored or for some important aspect to be forgotten in a rushed call, or for different callers to be given slightly different advice.

**THE COST OF CEILING DUST REMOVAL**

**11. Q: What is a typical cost of ceiling dust removal from a 3 bedroom home?**

**A:** This is very variable due to a number of factors – the amount of building debris in the ceiling void that must be picked up by hand to avoid damaging the vacuum filters, the area of the ceiling, access, height of the roof, whether insulation material must also be removed, whether appropriate waste disposal costs are included, which company is doing the quoting and what other services (insulation installation, interior house cleaning) are being quoted for in the one quote. Prices tend to range from around \$350 to \$2000 with as much as a 4-fold difference in price having been quoted for the same property by different companies.

**12. Q: What are the other options for who should pay for the cost of testing and removal?**

**A:** If the insurance companies won't pay for the cost of removal of ceiling dust then either the owner of the premises will pay for it or it just won't be done. If ceiling dust is allowed to contaminate the home or childcare centre, then it would be a civil matter to claim clean-up costs after the event.

**Anecdote Five:**

**One caller to the Lead Advisory Service was particularly keen for his insurer to pay for ceiling dust removal prior to ceiling demolition as he had seen the result of not having the dust removed first in his neighbour's house. After three ceilings were demolished, it took four days to clean up the mess. "All the black dust went everywhere."**

It is quite conceivable that a single incident of ceiling dust being dispersed over a property could turn the property into "contaminated land". The NSW EPA's new guide on *Significant Risk of Harm from Contaminated Land* recommends that in the case of dust contamination, advice should be sought from a suitably qualified person. Expert advice is not cheap and all the lead assessors in Sydney would be likely to recommend clean-up, which is also not cheap.

**Anecdote Six:**

**One caller to the Lead Advisory Service thought it reasonable that the petrol companies pay for the removal of ceiling dust, or the airport authority as had happened in the Sydney Aircraft Noise Insulation Project. Vehicle and aircraft emissions are thought to be major contributors to ceiling dust.**

**13. Q: Is there any government requirement on insurance companies to cover the cost of ceiling dust removal?**

**A:** No, the NSW EPA is happy to express a recommendation to insurance companies that ceiling dust be removed (and the cost be covered by the insurance) but they are not happy to set a written policy on this issue.

**Anecdote Seven:**

**One home-owner was told by his insurance assessor that the insurance company was going to get the "final word [on the necessity for removal of ceiling dust prior to ceiling demolition] in writing from the EPA". Nearly a month later the home-owner does not have a written refusal to cover the cost of the dust removal from his insurer and as he says, "The EPA should communicate clearly with the insurance companies to say that ceiling dust is a health risk".**

Callers to the Lead Advisory Service have mostly expressed strong views on this issue:-

- "Here is an excellent opportunity for the EPA to set a policy that will remove countless tonnes of contaminated dust from people's homes, why don't they take the opportunity?"
- One building consultant said "They [the government] can't just let the market decide – the health issues [of ceiling dust] need to be decided by government and if the insurance companies have to pay then so be it. It would save time and money if the dust was removed rather than having it go to litigation.
- A manager with the NSW Department of Housing said "it's appropriate by the precautionary principle to remove ceiling dust without hard evidence of health effects."

**14 Q: Are insurance companies willing to cover the cost of ceiling dust removal?**

**A:** Some are and some are telling home-owners that the cost will not be covered, yet no insurance company seems to have put that in writing as yet. Opinions on this issue, as reported to the Lead Advisory Service, are:-

- A resident reported that his insurance company had paid for some ceiling dust removal but only when it was included in the quote for building works, not when it was a separately quoted item.
- Another resident said her insurer said the ceiling dust and debris removal would go into the "fair and reasonable claims category" if it was less than \$1000.

- Chris Henri of the Insurance Council of Australia (ICA) has said that the removal of dust inside the house is the responsibility of the homeowner, as is therefore the dust in the ceiling void. He said that he has asked several insurance companies and loss adjusters to consider the issue of insurance companies covering the cost of ceiling dust removal, but has not heard back from them yet. Chris said that for any material which is required to be removed or neutralised by a government regulation, the ICA would say insurers should cover the cost.
- One insurance company said they would pay for ceiling dust removal if a government agency determined it had to be done.

## **WHAT'S HAPPENING OUT THERE IN "TARPTOWN"**

### **15. Q: Is it up to the householder to raise the issue of ceiling dust removal?**

**A:** Some building contractors are insisting that they will not work in ceiling voids or cut into ceilings unless dust is first removed. Apart from that it is up to the householder to raise the issue.

#### **Anecdote Eight:**

**One householder with pressed metal ceilings was advised by Wunderlich that moisture would gather in any dust or debris left on top of the ceilings, thus causing rusting of the metal ceilings. They recommend removing the dust as a preventative measure.**

### **16. Q: Should it be left up to the householder to raise the issue of ceiling dust removal?**

**A:** No, a home-owner should not have to know about the risks of ceiling dust to be protected from them.

#### **Anecdote Nine:**

**Residents of a Department of Housing home had two asthmatics and a four week old baby in the family home at the time of the hailstorm. A tile broke through the ceiling in the baby's and mother's bedroom on the night of the hailstorm. One other ceiling was badly damaged and it will soon be demolished. Black dirty water ran out of the ceiling void onto the floor. The mother of the baby had an asthmatic attack at 4am on the night of the hailstorm and was hospitalised and has also been hospitalised again since then. The baby developed diarrhoea and breathing difficulties and was hospitalised requiring oxygen for two days. The grandmother was very concerned to ensure that dust exposure to the family would not occur during the demolition and clean up.**

### **17. Q: Why are some contractors who are working in the hail damage area refusing to work on or in ceilings that have not had the ceiling dust removed?**

**A:** They care about their health, the health of their workers, the residents' health and the environment.



**Anecdote Ten:**

**One plasterer has decided to always organise for ceiling dust to be removed before he starts work on the ceilings. He would guess that the ceiling dust removal only takes away 85% of the dust and the remaining 15% makes a hell of a mess. [Phil Hibberd from Broken Hill has come up with a way of dampening down the dust that cannot be reached by vacuum equipment. That is, to sprinkle water all around the edges of the cornices, to at least dampen the dust and limit its spread during the ceiling demolition.] The plasterer has been getting nose bleeds every single night for over a month, though he never had them before he started the hail area demolition work. He says "even though I wear a respirator, I'm *still* getting dust exposure — I can taste the dust. You get so hot and sweaty you only wear the respirator for the main demolition work — it stings my nose — once the ceilings are down, the respirator comes off."**

**18. Q: How is the ceiling dust contractor industry responding?**

**A:** Several ceiling dust removal companies have sprung up since the hail storm and some contractors have upgraded their vacuum equipment to HEPA (approximate cost \$5,500) in order to do ceiling dust removal. Even when ceiling dust contractors are booked up for a month due to demand, the considerate ones such as Ceiling Suckers are advising people to call the Lead Advisory Service to get the names of other contractors, so that the work is done for the benefit of all. Ceiling dust contractors are coming to Sydney from as far away as Broken Hill to meet the demand. One ex-SANIP contractor has gained a Department of Housing contract for ceiling dust removal in some dozens of homes. Some builders are working in conjunction with certain dust removal contractors because they find the quality of their work is excellent - so alliances are being built. Several ceiling dust contractors are helping to spread information about ceiling dust hazards by disseminating the EPA's *Lead Safe Information* as well as a risk factor questionnaire published by Rotary to help parents determine whether their children are at risk of lead poisoning and whether they need a blood lead test.

**19. Q: How can the resident determine that their home is safe to live in following repair work involving ceiling dust?**

**A:** Do a dust wipe clearance test. Purchase some disposable gloves, snap-seal sandwich bags and Diaparene or other baby wash cloths (which are known to contain no lead contamination). Choose an area of floor that would be accessible to children and preferably an area where children would play on the floor. Carpeted or non-carpeted areas can be chosen. Label a clean sealing sandwich bag with the exact location of the sample, the address, the name of the person doing the dust wipe, the surface area to be wiped (in square centimetres), and the date. According to Fred Salome and Professor Brian Gulson (both lead assessors, among other things):-

"An area is marked out on the surface to be sampled. The area should be at least 250 cm<sup>2</sup>, preferably 900 cm<sup>2</sup> (ie 30 X 30 cm) depending on the amount of dust present. The sample area is marked off using masking tape, the lengths of the sides of the sample area are measured and the surface area is calculated and noted.... [Then the hands are cleaned using a baby wash cloth and the disposable gloves are put on.] A wipe [baby wash cloth] is placed

flat onto the surface to be sampled and rubbed in an "S" pattern [side to side in order to pick up all the dust]. The wipe is folded in half with dust inside and rubbed at 90° to the first "S". The wipe is again folded with the dust inside and placed in a sterile sample container usually supplied by the analytical laboratory." The sample is then sent to a lab for lead analysis.

**20. Q: Is sarking being placed under the roof in hail damaged roofs going to reduce the amount of dust building up in ceiling voids in the future?**

**A:** Yes, with so many councils insisting on sarking being used in new roofs, the amount of dust falling into ceiling voids will be drastically reduced as the particles are caught by the sarking after they have fallen between tiles etc.

**21. Q: Is lead going to build up in ceiling void dusts in the future at the same rate it built up in the past?**

**A:** Probably not. In addition to the above reason around sarking, the amount of lead in air has fallen significantly since the reduction of lead in petrol and amount of leaded petrol sold. Industry is generally better controlled in terms of emissions, by the EPA. With the Lead Reference Centre's lead-awareness media campaign and other educational activities, the number of instances of sanding of lead paint from buildings and steel structures ought to be decreasing. Councils may soon start adopting the Development Control Plan (DCP) for lead which has been developed jointly by Regional Organisations of Councils and the Lead Reference Centre. The DCP will make it easier for councils to include conditions on development approvals which control lead being released from demolition and remediation work. (See the answer to **Question 13** in "Thirty Thought-Starters on CEILING VOID DUST in Homes".) So, a general clean-up of ceiling dusts now is a real investment in the future – the level of contamination of ceiling voids will probably never be greater than it is now, unless the dust is just left in homes and is slowly added to in years to come.

**22. Q: Is information about ceiling dust being offered to insurance assessors and building contractors?**

**A:** Yes, the Lead Reference Centre (phone 9879 4988) and Lead Advisory Service (phone 9716 0132) have each offered speakers and ceiling dust researchers from Macquarie University of NSW (Jeff Davis) and University of Western Sydney (Chris Whicker) as well as lead assessors and ceiling dust contractors, are willing to speak on this issue.

**Quotable Quote - Dr Kate Hughes (co-founder of National Toxics Network) asks:**

**"What's the plural of anecdote? Answer: DATA."**