

SHOULDN'T HAPPEN TO A RPA - RISK PERCEPTION



Mark Ramsay from Ionactive Consulting talks about...

Risk Perception & the RPA

I'm standing in a queue in a cold paper shop on the station platform at Twyford. I'm on my way to a SRP meeting in London. I'm being held up as everyone in front of me insists on purchasing a coffee, so I'm idly browsing the cigarette counter behind the shop keeper.

'Smoking Kills'

'Smoking seriously harms you and others around you'

'Smoking clogs the arteries and causes heart attacks & strokes'

'Smoke contains benzene, nitrosamines, formaldehyde and hydrogen cyanide'

The queue consists of the young and old, business men and women on their way to work, others on early shopping trips and school children. I watch them purchase cigarettes and wonder if they have read the outside of the packet...

My train arrives - its two carriages too short, but I just get a seat. I watch others get on after me and

Smoking clogs the arteries and causes heart attacks & strokes

squeeze into the vestibule, all of them swaying as one as the train takes off, some of them being pushed into the sides with each sway. They seem very annoyed but not overtly worried ...

I scan the headlines of several news papers opposite me.

'Mobiles are Safe'
(the Sun)

'Experts dismiss mobile cancer threat'
(the Daily telegraph)

'The Hidden Risk'
(Daily Mail)

A man just behind me insists on using his mobile phone millimeters from the back of my head for most of

my journey. His constant chatter *irritates* my brain and I wonder what paper he is reading

Some would probably argue that one persons thrill is another persons dread. Take spiders for example - I hate spiders and will avoid them at all costs. Below is a possible dynamic risk assessment of a house spider. Lets us consider Low Risk (=1) through to High Risk (=10) for a number of hazards (some of which are real and perhaps some which are perceived to be real).

Hazard	Risk
It will bite me	1
It will poison me if I eat it	2
I will fall off a ladder if it falls on me while I'm cleaning the windows	8

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Risk Perception & the RPA

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So, 11 out of a possible 100. If I were to repeat the exercise by considering a bungee jump I'm sure the risk rating would be higher but I would rather take a few bungee jumps a year than remove a spider from my bath. Am I irrational? Am I ill-informed? Do I need to be educated? Am I incapable of understanding the science?

Does understanding the science behind a hazard and its associated risk make any difference to how you judge them, and how you think it might effect your life?

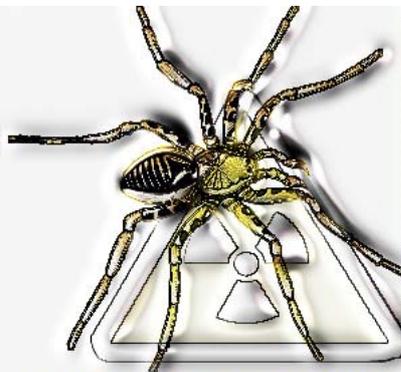
I think the RPA really needs to understand this characteristic of human life and I'm not sure that its adequately covered in training. Furthermore, knowing the latest ICRP dose coefficients or fatal cancer probabilities and other numerical quantities is not necessarily what the RPA needs to throw at any concerned individuals. In my experience this is just what many RPAs have done and I include myself. The classic example is smoking which I would suggest is a very unwise comparator of risk.

Many of us know there are significant quantities of data out there which look at the probabilistic risks of cancer induction derived from exposure to ionising radiation. Similar data for 'smoking related' cancers exist. Using simple maths one can readily express the risk of a certain level of radiation exposure in terms of number of cigarettes smoked per day. A variety of such comparisons exists and all will be slightly different depending on the data you look at. The one I have used in the past is 1 cigarette might be

comparable to around 20 μSv effective dose. This can then be compared to background levels of radiation (explaining background radiation is another can of worms altogether). However, how useful is such a comparison to the seasoned smoker? You might think very useful given that they have accepted what appears to be real risks of heart attack, stroke and chemical poisoning. However the risk experts will tell you that familiar, unfamiliar, local, national, voluntary and involuntary risk factors are all reasons why this comparison will not work. Smoking is a familiar risk, many partake in it and there is choice (passive smoking accepted). Some

unwise comparator of risk

would argue that this can be equally applied to background radiation (we are told its around us, many are exposed and there is an element of choice¹).



Irrational Fears?

This alone is not the only reason for inadequate comparators though. I return to the spider example earlier. Spiders are familiar, they are local and national, I do have a choice to avoid them and I accept that they are 'harmless'. 'Is this not a phobia' I hear you cry! Of course, its an irrational fear!

Many phobias can be passed down through generations (if your mother was scared of spiders when you were young, you will probably have the same fear too). Some might argue that this is what the nuclear industry

created in its early days - an irrational fear passed down by previous 'perceived' bad practice.

So what should the RPA do when confronted by a concerned employee, member of the public or the press?

In my opinion do not quote statistics or use familiar comparators carelessly. For most, ionising radiation can not be considered familiar.

Instead I try to find out a little about that person, what they do, what are their hobbies, what are their fears and use relevant comparators which they will understand, but not ignore or disregard (i.e. as most smokers do with warning labels on cigarette packs, and mobile phone users do in their quest for the latest trendy phone).

I certainly do not have all the answers here but I feel my approach is going in the right direction. It takes more time, thought and preparation - something not always available where the media is involved. Recognising that being an 'expert' and quoting figures alone will not convince the skeptical, is the key.

reassurance by trust

'Humanising' the expert can help and I have certainly used my spider and bungee jump example above when giving advice and reassurance. I show that I too can be irrational when all the figures say otherwise. I think this goes somewhat to providing reassurance by 'trust' which I believe is as important as any figure or statistic.

Mark Ramsay is a Radiation Protection Adviser for Ionactive Consulting Limited

¹Choice. A significant contributor to background radiation is radon. At a recent NRPB 'RPA Update' session it appears that the radon dose component may be taken out of the traditional summed 'measure' of background natural radiation, since with intervention, much can be done to reduce this exposure (even in domestic dwellings).