Editorial

Sophie van den Akker

Ask somebody to assess the importance of a certain risk, and you may be in for a surprise! Whereas scientists – including veterinary researchers – would express risk in terms of chance multiplied by effect, the average citizen would view it differently. You may hear quite dissimilar priorities from scientists and non-scientists if you are discussing the control of risks that threaten our society.

A good example is the risk of smoking. Medical science has proven beyond reasonable doubt that it is detrimental to your health. Smokers die sooner than non-smokers, and under quite unpleasant circumstances. This knowledge, however, has hardly affected smokers' attitude. Happily puffing away, they voice concerns about possible health risks of power lines, portable phones and eating beef. To investigate these perceived risks, funds are virtually unlimited, whereas simple measures to address quantifiable risk – that would actually generate money - are ignored.

A point in case is the control of AIDS, which should be straightforward, since most persons possess the knowledge and the means to avoid the infection – but it looks different in the real world.

When assessing risk, the average citizen uses other measures than just the chances and effects of possible damage. At times, these are even viewed as insignificant. Thus there is always great concern about casualties occurring within a short time frame as a consequence of some risky activity, even when this obviously happened by fortuitous coincidence.

The concerns are heightened when such activities are imposed rather than self-chosen. You don't think twice before taking a precipitous rush downhill on two contraptions tied to your feet, but no one in his right mind would make this inspiring experience compulsory for pupils. Then it would be seen as 'dangerous'.

Another aspect is control. If you feel you are not in charge of a dangerous activity, you will find the associated risk unacceptable. Take this as an example: No adult will hesitate to use a sharp knife to slice meat into portions, knife in one hand, meat in the other. The same adult would have second thoughts if someone else handled that knife. The greater the distance to that person, the more distrust can be expected - which is certainly the case when the government brandishes that knife…

All this is drawn out of proportion by the mass media. A small incident can be made to cause enormous upheaval when presented as the foreboding of a much greater, unmanageable catastrophy. Also, vehement emotions can be triggered e.g. by publishing the picture of a young child suffering from a fatal disease – albeit a very rare one.

Recent research has shown that humans without exception approach and judge danger both intuitively and analytically. Our intuition leads to swift, associative, affective, automatic and emotional responses, which happen beyond control of our conscience (comparable to a spinal reflex). The analytical approach, on the other hand, uses reasoning, algorithms and formal logic; it is sluggish, requires effort, learning capacity and conscience. Both systems, with their inherent pros and cons, are required to arrive at a rational decision, as neurologic studies have shown. In cases of controversy, the associative, affective side wins.

Emotion is not exclusively the ordinary citizen's domain, also scientists are subjected to it, often without knowing. The results of this study may be seen as politically incorrect, but there are differences between the genders: female toxicologists have been found to interpret results of an analysis as more serious than their male colleagues. The differences even extend to

races. An international authority, Paul Slovic, has coined the term 'white male effect': white males tend to take risks less seriously than women and black males. The very same white males feel that individuals may be exposed to some low-order risk without having been asked (meaning: if the expert thinks so). Science devoid of subjective factors appears to be an illusion.

The consequence of these observations is that science alone is insufficient for risk assessment in most cases. With increasing uncertainties, with greater societal relevance there is also an increased need for a dialogue between the interested parties. In this process, the principles of decisionmaking must be taken into consideration. If the seriousness of an effect is expressed e.g. in terms of mortality, this automatically implies that all humans must equally be protected. Though legitimate at face value, it would imply no distinction between mortality in children - with an entire life before them – and elderly people.

In decisionmaking, also the aspect of efficiency may be favoured – which of the measures to prevent a possible danger are the most (cost) effective? However, this approach may disregard ethical consideration. It is therefore important to view risks from different vantage points.

Does this mean that the scientist as we know him/her is reduced to a marginal figure, a valued but unfortunately nerdy advisor of society? Certainly not, because knowledge remains the basis for effective risk assessment and control. However, the modern scientist would be well advised to choose a multidisciplinary, interactive approach whenever necessary; and to keep an open mind with respect to the 'soft' sciences like decisionmaking, economics, psychology and communication.