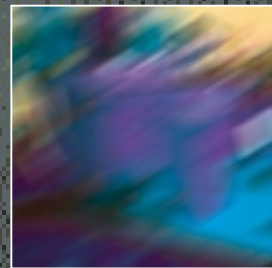


# Public perception of healthcare waste

by Sandra Schopf

*Waste is always a sensitive issue for the public, and healthcare waste especially so. A range of factors can complicate public understanding of such waste and the risks it poses, and although some of these are grounded in fact, others are more concerned with the way healthcare waste is perceived (in some cases, misperceived). This article looks at the relationship between healthcare waste and the public's understanding of it, discussing the perceptions and misperceptions that exist, and assessing what approaches can be taken to them.*



Healthcare waste is not an easy topic. Although risk perception in general has been thoroughly investigated and is well represented in the literature on the subject, there is still very little official material available on public perception of risk from healthcare waste from hospitals and treatment facilities. Healthcare waste professionals are often very reluctant to provide information, because they are concerned that such information may be manipulatively used. As the topic is widespread, this article will concentrate on the more important details.

To give a clearer picture of this complex issue, an overview of some existing theories on risk perception is presented, followed by a description of a number of factors that may help to influence positively the way the public perceives risks.

## Developments in public perception

In the past few decades, healthcare waste management has become subject to public planning and policymaking. The separation and handling of healthcare waste in hospitals and medical institutions has been improved, and proper technologies have been developed for its environmentally sound treatment. But the general public has become more environmentally conscious over the years, and so there is also a growing awareness of the negative impact of certain waste materials on human health. Healthcare waste has a high profile. The public views it as hazardous, perceiving a risk in used syringes, needles and blood packs, amongst other items. The public also perceives a risk to human health and the environment in the treatment of healthcare waste.

- *Landfilling and composting* are considered hazardous to the environment, because healthcare waste is seen as providing a culture medium for pathogenic micro-organisms.
- People in the vicinity of hospitals also tend to see *hospital incinerators* as a hazard to their health and environment.

Today, there is a practical need for greater democracy and public involvement in decision-making. The waste industry is aware that the public needs to understand more about risk perception, and that something needs to be done to improve the current situation.

In trying to reduce the negative image of waste and waste-processing facilities, the industry has also become very careful about the terms it uses to address them. We no longer speak of 'incinerators' but of 'thermal processing facilities', while 'garbage dumps' are now 'sanitary landfills' or 'ultimate storage facilities'. The same applies to 'healthcare waste' with its positive connotations.

Nevertheless, the perception of risk still exists; besides, poor waste management performance in the past has created a lack of trust among the public, and it is difficult to restore that trust.

## Definition of risk

When defining 'risk', it needs to be understood that there is not one single definition. Research psychologist Karl Dake suggests that a perceived risk is one of shared cognition; this means that risks are always socially constructed and politically negotiated. Individuals perceive risks and have concerns, but it is our culture that creates myths and systems of beliefs, which

are internalized by individual citizens. Such beliefs become an integral part of how people view the world, and influence the way they interpret natural phenomena.<sup>1</sup>

The best way of explaining this is to look at the way people have defined risk in the past, and see how this has changed over the centuries.

- In the 17th century, when probability theory was developed, risk was defined as the likeliness of an event occurring, combined with an account of the resulting losses and gains. Events were assessed in terms of their combined benefits or losses.
- By the 19th century, in the wake of the industrial revolution, technological applications became widely celebrated. Risk was now defined as an opportunity for the creation of wealth, and considered necessary for businessmen, while individuals were assumed to be risk averse. The general attitude of the time was reflected in the common saying 'nothing ventured, nothing gained'.
- In the 20th century, terms like 'industrial risk' and 'environmental risk' emerged, and attention started to focus on the probable negative outcomes of industrial expansion and modern technology. Without doubt, perceived risk to human health and the environment has become one of the most important issues of our times. Many people in industrialized countries view themselves as the victims rather than the beneficiaries of technology. People feel that the great achievements in many industrial fields, including waste management, are now causing more problems than they are solving.<sup>1</sup>

Throughout history, there has always been controversy over technologies, but what is new today is the depth of risk perception. We live in a world where the concern about risk pervades every aspect of our lives. This partly explains the fervour with which many citizens express their fears and discontent. People don't want to live in a world with little risk – they want to live in a 'zero risk' society. Depending on the country and what kind of debate is on the daily agenda, this can be 'zero emission', 'zero pollution' or any other 'zero' demand. In Austria, for instance, the ecological movement of the seventies and eighties nourished a general distrust of certain materials, which included PVC. Although much has been done to dispel public concern, the healthcare sector is still facing a debate over 'zero PVC' in medical equipment. Yet everyone in the field is aware that in some application areas there is no alternative material with the same properties as PVC. A reduction of risk would therefore require difficult trade-offs between conflicting goals, which cannot be realized in our modern-day economies.

## The role of the media

The media plays an essential role in nourishing people's fears, and offers a perfect platform to voice radical demands. There are two old sayings in journalism – 'where there is blood, there is a lead' and 'only bad news is good news'. The press is highly aware of the character of its readership, and reacts to existing controversies with a flood of stories about risks to people and their environment. To many journalists, human risk has all the features of a 'good story' – it provides tragedy and progress, dangers and benefits. Most

importantly, however, risk occurs daily, and is therefore a reliable and constant resource for the print and broadcast media.

Healthcare waste is not really a public issue until something goes wrong, such as an incident which involves the health and safety of the general public. In many European countries, national health services are constantly criticized anyway, so people working in this field try to avoid drawing attention to problem areas, which naturally include waste management. Ask a facility operator or a waste manager about how they feel the public perceives a risk in healthcare waste, and they will begin to talk about their sound waste policies, reduction in the quantities of healthcare waste and so on – but they will not respond to the original question. Alternatively, they will deny that there are problems.

## Spatial concentration of risk

One of the features of today's environmental risks is that they are diffuse, and in many cases impossible for the ordinary citizen to perceive. Public attention becomes concentrated in the places where these risks do manifest themselves. Such places include facilities for the treatment of healthcare waste, and, to a lesser extent, places like hospitals, where this kind of waste is produced. So it is not surprising that such institutions become a social representation of the risks, insecurities and complexities of modern society, and must be seen as a physical 'focus' for perception of risks.<sup>2</sup>

## Social amplification of risk

When the siting of a treatment facility becomes controversial or a waste-related infection case becomes known, opposition groups appear on the scene, public distrust becomes mobilized, previous cases of improper management are scrutinized, and media coverage expands. This all results in what Roger Kasperson describes as a 'social amplification of risk'. The phenomenon provides strong signals to the public that things are worse than believed. Such a process of alarm can lead to secondary impacts – so-called 'risk ripples' – which may include public outrage over hospital or facility management, stigmatization of a facility, loss of patients, poor reputation of health service, loss of property value next to a facility, and so on. It is interesting that for certain risk problems, the amplified impacts may have a more detrimental effect than the direct impact on public health or the environment.<sup>3</sup>

## Types of risk

In the framework of an EU Priority Waste Stream Project, a team was commissioned to investigate the risks arising from healthcare waste. Their conclusion was that risk could be divided into two groups, 'actual risk' and 'perceived risk'.

### • Actual risk

- An actual risk is one which is known to exist, and for which a probability can be measured or inferred.
- *Risk of infection* – an actual risk due to contact with pathogenic micro-organisms
  - *Toxic risk* – an actual risk presented by any substance (whether drugs or non-drugs), exposure to which

could provoke anatomical or functional harm

- *Physical risk* – an actual risk such as needlestick incidents, which may lead to subsequent infection
- *Perceived risk*

A perceived risk is one which, whether real or not, is believed to result from healthcare waste or its disposal, separate from any scientific validation of the risk.

- *Emotional risk* – an emotional risk is a perceived risk; the level of risk is increased because people's sensibility or ethics are offended.

A perceived risk may also be a real risk. While the majority of needlestick accidents do not result in a hepatitis B infection, some do. But the hazards most feared by non-professionals do not necessarily pose the greatest risk; subjectivity and emotion affect the perception of risk from healthcare waste. It is clear that healthcare waste has a different meaning to different groups of people. It is important to understand that there are different categories of people, such as hospital staff, treatment facility personnel, neighbouring communities and the general public, and as all these different groups will not develop a uniform judgement of the risk associated with healthcare waste, the resultant conflict of interests cannot always be resolved in a simple way.

If the people not working in healthcare perceive a serious risk from healthcare waste, it may be because, intuitively, waste is a plausible link in the chain of infection. Besides, those who are not experts cannot necessarily distinguish between what is basic information and what is

sensational. It is also difficult for people to identify who or what is 'responsible' for the risk (person, institution or industry).<sup>4</sup>

### Risk perception gap

As mentioned before, the problem of risk perception is one of definition. In general, there is a gap in the perception of risk between experts and the public.

To experts, risk is identical to statistical mortality or morbidity. They view and define risk based on their technical knowledge, and tend to classify public perception as irrational. To ordinary citizens, however, the assessment of risk is modified by emotional response to a harmful event. They often lack the scientific knowledge and cannot logically analyse what risk is. They will tend to believe that all risks are high rather than low unless some scientific check is imposed.

Risk expert Peter Sandman provides a very simple and effective definition of what risk is. He defines what the expert means by risk as 'hazard', while all other factors are 'outrage'.<sup>5</sup>



Healthcare waste requires approved storage or disposal facilities

### Risk = hazard + outrage

The public does not pay enough attention to hazard, while experts do not pay attention to outrage. This naturally results in different assessments of importance, and hence a gap in the perception of risk. Sandman has also identified a number of 'outrage' factors that can influence our perception of risk, which will be discussed later.

This perception gap also tends to result in a communication gap. The public often has no access to technical knowledge. If people are provided with information, they have difficulty understanding it and cannot relate to what they are told. They then feel that their fears are not understood, and may feel belittled for not meriting a 'satisfactory' and honest explanation, and this in turn increases their frustration and distrust.

### Behavioural background

Behavioural science can help to clarify many of the reasons for people's perception of a risk even where they are at odds with the facts. When confronted with waste from the treatment of human beings, most people react with disgust or repulsion; as mentioned above, this experience has social and cultural connotations.

Anthropologist Mary Douglas argues that ritual cleansing plays an essential role in many cultures, and has always been a vital part of religious ceremonies. The drive for purity has throughout the centuries focused on different areas, such as doctrine or sex, and is now concentrated on the environment. Purity of the environment has a high profile, and although current technology provides us with excellent tools to treat our waste responsibly, minimize pollution and measure emission levels accurately, there is still a very primal

response in all of us, which makes us talk about 'impurity' and 'pollution' in the way former cultures dealt with heresy and witchcraft. Douglas also stresses that 'dirt is essentially disorder' and that 'dirt offends against order'. Our natural drive towards eliminating chaos makes us want to get rid of the waste. It is in some ways ironic that people want the benefits of better waste management, but do not want the infrastructure that brings those benefits close to them.<sup>6</sup>

### Outrage factors

In discussing risk and outrage earlier, the idea of 'outrage' factors was mentioned – these may shape our perception of risk. The more important of these factors are outlined below.<sup>5</sup>

#### Newness

People tend to react more strongly to new risks than to old ones or to inconveniences that they have grown used to.

#### Meaning

People tend to oppose risks that have no meaning to them; they are more prepared to accept risks that serve a purpose they can agree with.

#### Free will

A voluntary risk is more acceptable than an imposed risk. People are generally willing to take a risk they have chosen themselves, such as smoking, driving or bungee jumping, but they are far less prepared to accept a risk which is imposed on them from outside, such as a facility-siting procedure in which they haven't been invited to participate.

#### Control

Someone who imagines they control the outcome of a situation is more tolerant of a risk; outrage is much more likely to occur when non-experts feel they are not in control of a risk.

The globalization of economies has confronted us with waste tourism and the trans-boundary movement of wastes. Waste management has moved from the local level to the global level. As it becomes a global issue, people feel that they are losing their traditional loci of control, and believe there may be an uneven distribution of benefits. The 'not in my backyard' (or 'NIMBY') syndrome is in many ways a direct result of this perceived loss of control.

#### Fairness

People who feel they are facing a higher risk than their neighbours, without having access to more benefits, will feel unfairly treated: they are more likely to accept a higher level of risk if there are greater benefits associated with it. In many countries, it is therefore common to compensate the community in which a waste treatment facility is sited, though it must be stated here that such compensation may not always be a solution. A new branch of economics called 'behavioural economics' challenges traditional beliefs; experts working in the field have demonstrated that people faced with the kinds of risk outlined would give more weight to what they lose than to what they gain. Sometimes, a significant overcompensation may be necessary to make up for perceived losses, and this can deal a deadly blow to

the financial viability of a project. In some cultures, compensation is even regarded as a 'bribe', and therefore not used at all.

#### Morality

There are things that society would not only characterize as harmful, but 'evil'. And even now, several decades after the first AIDS case made it into the newspapers, some diseases are considered to be more 'evil' than others. Today, although we know so much more about the real risks of HIV infection, the myths have still not lost their power. Not only can HIV infection lead to death, but it is also perceived as immoral.

#### Familiarity

People tend to be a lot more concerned about the risk that emanates from large hospital incinerators or other high-tech facilities that they know nothing about. The analogy is that big technology entails big risk. However, people do not seem to have problems with risks they are familiar with: just think of the people who enjoy a packet of cigarettes every day without thinking of the risk of lung cancer, or simply the daily stress at work which brings us closer to a premature heart attack.

Healthcare workers, for whom the handling of infectious waste is a daily routine, often become careless of the dangers they are exposed to. Many of them choose not to obey the safety instructions, such as the requirement to wear gloves and masks, or to not smoke near dangerous areas.

#### Memorability

A memorable accident, like Chernobyl, makes it easier to imagine a risk. A potent symbol, like a skull and bones on hazardous containers, can achieve the same thing.

For instance, on a tour around an Austrian hospital, the author was shown the healthcare waste operations, which were being out in compliance with ISO standards. However, a new complex was also under construction at the hospital, for which there was neither time nor money to upgrade existing waste installations; as a result, infectious waste was being stored outside the pathological department, in close proximity to a pedestrian route through the hospital site. The waste container was unlabelled, as, according to a member of staff, the skull and bones label that had previously been on display had attracted public attention and so been removed.

#### Dread

People are afraid of the 'unknown', whereas well known and well defined risks are more readily accepted. A comparison of different illnesses reveals that some diseases are more feared than others; for instance, cancer or AIDS are more feared than emphysema. One reason may be that we hear more about cancer and AIDS through the sensationalism of the media. What adds to the dread is the awareness that many carcinogens cannot be detected, and that the probable consequence of some diseases, such as AIDS, is death.



Autoclave used for healthcare waste.  
Photo: Torgam Developments Ltd.

# Bauer

### Diffusion in time and space

Let us assume that we have two different hazards with the same mortality. In hazard A, 100 anonymous people are killed in road accidents every year across the country. In hazard B, there is a probability of 1 in 10 that a local neighbourhood of 10,000 people is wiped out by an epidemic in the next ten years. Risk assessment tells us that the annual mortality of both hazards is 100. Yet, hazard A is more likely to be tolerated than hazard B.



Best practice entails segregation of healthcare waste

### What can be done to change public risk perception of healthcare waste?

In research for this article, several health services in different countries were contacted. The responses suggest that some countries seem to have more problems with public healthcare waste perception than others, and that the scale of problems also seemed to vary within the different areas of the healthcare sector. This may in part be explained by the different structure of the health services in these countries. Asking whether public perception of healthcare waste can be changed is actually part of a larger question, which

should be answered first – whether people's perception of waste in general can be changed. Based on what was said previously about our cultural and social settings, it is, in the author's opinion, very difficult to change the way people perceive things. If indeed it can be done, then it can certainly only be done in the long term. But there may at least be some basic steps that could be taken to move along the road to change.

#### Best practice and proper training

The first logical step is to keep the actual risks to a minimum. This can be achieved by best practices in management, which is the only long-term solution to the building of trust. One way of applying best practice is to ensure proper training of staff, to avoid accidents that result from improper waste handling.

Many National Health Services in European countries are struggling with tight budgets. This creates a hierarchy of investment priorities, where occupational health training often comes last. Insufficient training is provided for many healthcare workers at all levels, including nurses, doctors, porters and domestic staff; therefore they are not always aware of the potential risks they are exposed to when handling healthcare waste, and also the risks they can create for others in the waste management chain as a result of their actions. (The most common incidents that happen in healthcare are needlesticks. Not many are actually related to waste disposal, as many can occur when administering treatment.)

In the UK, for example, more guidance documents are being produced that address waste issues in hospitals and the community, and they do provide examples of good practice. The author spoke to a former Waste Minimization Officer at a National Health Service Trust in the UK whose work now covers auditing trusts on their existing systems, and making recommendations for improvements, which always includes better training. The training not only covers how to handle waste and dispose of it safely, but also environmental issues relating to minimization, reuse and recycling of certain types of waste produced in healthcare. In addition, leaflets are handed out to patients and visitors that explain briefly the risks associated with the waste, and how they should segregate and dispose of it safely.

#### Proactive waste management

Waste managers need to maintain good continuous relations with the media. Although the waste industry could provide a hundred pages of empirical evidence that infectious waste at a hospital is managed properly, one simple hepatitis C infection story in the newspapers is enough to create fear among the public that their health at the hospital is endangered. This was the case in Austria earlier in 2002, when newspapers reported on three cases of hepatitis C infection at the General Hospital of Vienna. Immediate response to negative newspaper coverage and active press management helped to maintain the level of trust.

If the power of imagination works to generate outrage among the public, such as through newspaper coverage of needlestick incidents, it is worth considering how the same power can be used to build positive connotations and beliefs.



Disinfection of clinical waste.  
Photo: Steriwaste

### Information and communication

The only way to create a more realistic perception of risk among the public is to provide information. Transparency and public participation in decision-making does not always guarantee that a conflict can be avoided, and, ironically, a greater flow of information may contribute to a strong social amplification of risk. But when the right kind of information is communicated in a language the public understands, this will help to dissipate fears and build trust.

Risk communication experts recommend the following courses of action for the waste industry:

- acknowledge that there is a risk
- explain what preventive action is taken and what plans exist to cope with negative incidents
- stress that perfection is not realistic, and that progressive improvement is more important
- ensure that scientists become more 'human' to build trust.<sup>7</sup>

Kasperson, Golding and Tuler have identified four dimensions that may build or destroy trust:

- **Commitment** – trust relies on the perception that there is uncompromised commitment to a mission (such as protection of public health). The perception of commitment, in turn, rests on perception of objectivity and fairness.
- **Competence** – consistent failures and discoveries of an unexpected lack of competence can lead to a loss of trust. Waste experts need to show that they are technically competent in their field of responsibility.
- **Caring** – in cases where individuals depend on others with greater authority, perceptions of caring for the well-being of the dependent individuals are important.
- **Predictability** – trust is also built on the fulfilment of expectations and faith. If expectations are continuously violated, the result will always be distrust.<sup>3</sup>

#### Repetition

It is important to have a proactive press management, and ensure that there is greater transparency in the entire process of healthcare waste management; but as suggested above, it is always important to achieve this transparency through proper communication skills.

Public information and risk communication must also be an ongoing process, rather than a one-off campaign. Repetition is one of the most powerful devices in education and psychology. In its basic form, it is a childhood learning method, but it also applies to all performances and beliefs later in life. The more engrained things become, the less they are consciously thought about and the more they are

accepted as part of daily life. The scientific explanation is that repeated listening and viewing establishes a neural pathway in the brain, which results in a mental activity that converts repetitive actions into a habit.

#### Looking at both sides

Finally, it may be useful to waste professionals to review their own attitude towards risk perception. Public opposition and outrage can also be viewed as a positive challenge and an incentive for improvement. In some areas, public resistance has been vital in forcing greater efforts towards waste minimization and recycling, and a greater focus on responsible management and proper staff training.

#### Towards the future

We must realize that the road to change is strewn with many cultural, social and political obstacles, and it is dependent on how seriously there is a desire for change, and how consistent and committed the public is collectively, as well as individuals. Wider education and understanding is probably the most sustainable way in which we can change and shape our future.

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# ATI Muller