

Communicating about risk: strategies for situations where public concern is high but the risk is low

Claire Hooker^{a,d}, Adam Capon^b and Julie Leask^c

^a Centre for Values, Ethics and Law in Medicine, University of Sydney, NSW, Australia

^b Environmental Health Branch, Health Protection NSW, Sydney, Australia

^c School of Public Health, Sydney Medical School and Sydney Nursing School, University of Sydney, NSW, Australia

^d Corresponding author: claire.hooker@sydney.edu.au

Article history

Publication date: February 2017

Hooker C, Capon A, Leask J.

Communicating about risk: strategies for situations where public concern is high but the risk is low. *Public Health Res Pract.* 2017;27(1):e2711709. doi: <http://dx.doi.org/10.17061/phrp2711709>

Key points

- This article summarises best practice in communicating in situations where there is low risk but significant public concern
- In these circumstances, communication should directly address the drivers of public outrage and not simply the degree of hazard
- Lack of trust, assumed or perceived uncertainty, lack of control, dread, perceived inequity, and pre-existing mental models of a risk issue can amplify risk perceptions and responses
- We recommend communicating about uncertainty, using communities, and building and maintaining public trust as key strategies for effective risk communication in these situations

Abstract

In this article, we summarise research that identifies best practice for communicating about hazards where the risk is low but public concern is high. We apply Peter Sandman's 'risk = hazard + outrage' formulation to these risks, and review factors associated with the amplification of risk signals. We discuss the structures that determine the success of risk communication strategies, such as the capacity for early communication to 'capture' the dominant representation of risk issues, the importance of communicating uncertainty, and the usefulness of engaging with communities.

We argue that, when facing trade-offs in probable outcomes from communication, it is always best to choose strategies that maintain or build trust, even at the cost of initial overreactions. We discuss these features of successful risk communication in relation to a range of specific examples, particularly opposition to community water fluoridation, Ebola, and routine childhood immunisation.

Introduction

Public and environmental health officers make careful risk assessments about a range of hazards. The question of how to best manage these risks is given equally careful consideration. Best practice in risk management is complex, often requiring policies whose goals are not merely to minimise the harms caused by the hazard itself, but to provide an appropriate balance between a range of interests, such as the need for safe water, air and soil; the need for people to work, and for business to survive and thrive; and the need for communities to have quality of life, enjoyment, security and amenity.

After such thought and care, it can be challenging when a carefully crafted policy strategy is thrown into disarray because of public reactions to sensationalised media headlines, or because of public fears about low-risk, highly beneficial policies. However, such outcomes can be mitigated, and sometimes prevented altogether, by making communicating about risk as critical as risk assessment in the risk management process. Risk

communication requires a significantly different mindset – one in which the rules of engagement are not founded on the primacy of risk assessment evidence, but rather on a range of evidentiary, cultural and economic considerations.^{1,2}

In this article, we synthesise the vast numbers of studies in this area to identify the key principles for best practice in communicating about risks when the hazard itself is small, but where there is considerable public alarm (or potential for alarm). Such issues occur regularly in utilities management, local industrial activity and use of medicines.¹ We illustrate our argument chiefly with the examples of drinking-water fluoridation and scheduled childhood immunisation, but the principles are widely applicable.

Sandman argues that the key determinant of public response to a hazard is not the magnitude of the hazard itself, but the level of public 'outrage' (concern) about it.² When people experience strong emotions, they have more difficulty hearing and processing information, and are more likely to pay attention to negative rather than positive information.³ Sandman formulates this as: risk = hazard + outrage.⁴ Our focus is on high-outrage, low-hazard risks, where the key goal of communicators is to reduce public concern.

In any high-outrage risk issue, the chief task of communication is to address the outrage, not to state or debate assessments of the hazard itself. The best foil for outrage is to build sustainable public trust.

Factors influencing public concern or outrage

Responses to low-hazard, high-outrage risks often begin by asking why many highly beneficial activities, such as drinking-water fluoridation, should raise such levels of public concern when multiple scientific studies have established that the risks are very low.^{3,4} However, 60 years of research into the determinants of risk perception now provide considerable insight into this question.^{5,6}

This research identifies multiple 'fright factors' that tend to amplify people's concern or outrage.^{5,6} These include the degree to which people feel they have control over the risk; the degree to which they dread its consequences; whether the risk is perceived as natural or human-made; and the degree to which it is familiar. Control has a substantial impact – people have much lower perceptions of risk when they feel, rightly or wrongly, that they are in control of the risk. When it is not possible to control a hazard directly, trust in an expert or government regulator gives a sense of control by proxy. When control-by-proxy measures – such as laws and government safety processes – fail to keep people safe, outrage results.

'Fright factors' are the result of mental shortcuts that make swift estimations of danger (or benefit),

termed 'heuristics'.^{5,7} Three common heuristics are the availability, anchoring and adjustment heuristics, and all can generate systemic biases in how people process information.^{5,8,9} The availability heuristic predicts that our perceptions of risk will be amplified when we can easily bring the risk to mind, such as by recalling other instances of it. The anchoring and adjustment heuristics predict that we 'anchor' on our initial impression of a risk, and then adjust any new information to fit the anchor, rather than adjust our conceptions as a result of receiving new information. A similar heuristic – confirmation – explains the tendency to more readily take on information that confirms an existing 'mental model'¹⁰ of a risk and reject that which does not, regardless of its veracity. Scientific and industry experts are not immune to such heuristics and need to be aware that their own judgements are regularly influenced by such factors.^{1,3}

Although these features predict how individuals will perceive risks, public perceptions and reactions vary, both across the population and over time. Risk communicators should be wary of treating their audience as homogeneous, because gender, ethnicity, socio-economic status, values, personality and other factors result in significant variations in risk perception and tolerance.^{5,6,11}

Risk perceptions shift as a risk issue changes in intensity. The 'social amplification of risk' framework predicts how this occurs³, identifying what amplifies risk perception and public concern, and what acts to 'attenuate' them. We can thus predict which risk communication strategies will work best at different stages of a risk issue.

This framework also shows how these processes produce real-world impacts, or 'ripple effects'. One common ripple effect is stigmatisation – the permanent association of people, places or entities with negative qualities and high risk^{4,5-6}, which is very difficult to alter once established. For example, a suspension of the hepatitis B birth dose vaccination program in the US in 1999 lasted for 3 months, when the hypothetical safety issue was resolved, but it took 7 years for birth dose vaccination rates to resume to presuspension levels.¹²

Principles of risk communication

The governing aphorism for successful risk communication is that people need to hear that you care before they will care about what they hear.^{4,13} Demonstrating that you 'care' goes far beyond a performance of concern – indeed, if inauthentic, this will generate mistrust. Successful communication requires building and sustaining public trust. Research identifies the central components of trust with a number of proposed dimensions centering on the concepts of competence, care, fairness and openness in how the public perceives institutions or individual actors.^{1,3,13,14}

Building trust requires being adequately prepared; accepting and involving the public as much as possible in communication and decision making; being honest, frank and open; acknowledging uncertainty; communicating early and often; being empathic; and taking action. Collectively, these strategies support public trust.^{13,14}

It is a cardinal rule that risk communication must always be two-way, to whatever extent is possible. It is a common and damaging risk communication error to imagine that the chief communication task is simply to 'inform' the public, or worse, to dismiss public concerns as incorrect or irrational.^{1,2,4} But this occurs quite frequently – experts themselves often experience outrage about the costs of what are, to them, unfounded and sometimes absurd public fears. Policy makers and health professionals become frustrated with parents who reject vaccines for their children; dentists are similarly worried by the potential negative impact on low-income earners if drinking water is not fluoridated. But reiterating evidence of low risk can raise rather than lower risk perceptions. This can occur when lay questioners who are already worried feel that their concerns are being dismissed³, or if their view about a risk is entrenched.^{3,15}

Trust and uncertainty

Trust is difficult and time consuming to create, and is easily destroyed.^{1,3,14} Information that is received unproblematically at one point will be interpreted very differently under circumstances of mistrust. Perceived incompetence and perceived self-interest are two common causes of loss of trust.^{13,14} For example, there was an enormous loss of trust in the Centers for Disease Control and Prevention in the US when two nurses in a Texas hospital became infected with Ebola virus, and this was compounded by the subsequent discovery of inadequate infection control protocols for Ebola virus in many US hospitals.¹⁶

Acknowledging uncertainty has long been a key recommendation for building what Peter Sandman calls "sustainable public trust" – trust that will last even if mistakes are made or new information appears.⁴ Acknowledging what is as yet unknown about a risk – such as how severe an influenza strain might be, or how well a health system can respond to Ebola virus disease – builds community trust and acceptance of control strategies, including acceptance that these strategies might change.^{17,18}

Transparency – including acknowledging uncertainty – is a key strategy for creating and maintaining public trust, as is empathy. For example, a simple acknowledgement of the challenges of raising a child with autism can be made before an alleged link to vaccines is refuted.

Continued commitment to the integrity of scientific research and evidence based decision making is critical to remaining trustworthy. It is possible to offer explanations for the criteria by which a judgement of

'low' risk is made, while also acknowledging unavoidable uncertainty.^{17,18}

Practical risk communication

The following are some key components of best practice in risk communication.

Actions and policies are the strongest form of communication

Actions are in themselves strong messages.¹ For example, the action of quarantining a nurse returning from West Africa conveys the message that Ebola virus disease is a significant risk to the public, no matter how often officials say the risk is minimal.

Public concerns are most effectively allayed by actions, rather than words: people want to know what is being done to actively mitigate the risk, not be reassured.¹⁸ For example, the swift suspension of the seasonal influenza vaccination program for children aged under 5 years was an effective risk response to a higher than expected rate of febrile convulsions. However, taking action is not always possible and may have undesirable as well as desirable consequences. The suspension of the influenza vaccination program also led to a drop in influenza vaccination rates, which continued after investigations identified the causative vaccine and two other brands were identified and recommended as safe.¹⁹

Tolerate early overreactions

Public reactions during the initial period of a risk event have costs and may be at odds with what experts recommend, but often they are fairly transient.²⁰⁻²² It is more useful to plan to accommodate early overreactions to allow them to subside as swiftly as possible.

Communicate early and often

If essential information is released without well-crafted risk communication (or worse, not released at all), it is possible for a 'risk vacuum'²² to occur, allowing particular special-interest groups to 'capture' the issue – that is, to define it on their own terms (e.g. fluoride as a toxin forced on an unknowing population).^{20,22} Communicating early and often may risk generating extra media attention, but it enables experts to capture the issue.^{1,4,22}

Use your communities

The standard model of risk communication implicitly addresses individuals, in an effort to modify outrage. But much of how people feel and react is determined by their social networks, culture and society.²³ Systems research in public health, and especially in emergency management, has identified that one of the most effective investments for adequate risk response is community cohesion and social capital.^{24,25} Such communities

can adaptively respond to risks with more flexibility by pooling resources.

Offering local communities choices for (re)action on risk issues builds multiple benefits. For example, Sandman advocates that electricity companies should make it easy for communities to get their own electromagnetic frequency (EMF) readings, to invite communities to construct EMF policies, and formulate their own safety/cost trade-offs for water.⁴ When well facilitated, this enhances public trust by making communal values tangible, and improves public compliance by connecting risk management to these values. It creates local avenues for public engagement and buy-in, which are also strong predictors of trust and of workable action. It builds social capital that can be used for more flexible risk-management responses in the future.

Meet the needs of the media

A careful media strategy can maximise the impact of mass media communication. It is not possible to discuss this extensively in this paper, but the basics include being readily available to talk to journalists, and to check and correct information; to use the 'rule of 3s'^{5,26} (in which three pieces of information are most effective); and to identify and use 'agenda setting' or gatekeeping journalists – those who specialise in science and health communication, and whose articles and features set the framing and parameters of mass media communication. These journalists also often act behind the scenes to correct their colleagues' articles and keep poor-quality reporting from publication.²⁶

Specific strategies for the use of internet and social media are, of course, key aspects of good risk communication. Search engines mean that an audience can instantly check the accuracy of any assertion. Community moderators of social media information now play increasingly important gatekeeper roles in risk communication. For example, volunteer administrators of community Facebook sites can provide highly trusted, accurate information in response to community questions (about the safety of particular vaccines, for example) in real time, and correct misinformation and offer explanations where needed. Highly networked individuals and organisations can reach many people rapidly during a risk event.

Look to communication science when constructing messages

Many manuals are available that discuss the practical details of good risk communication¹, which have been built on broad research. Consideration should be given to issues such as the use of 'gain' versus 'loss' frames, the judicious use of statistics and numerical comparisons²⁷ and how to craft messages in language that is accessible to people with low levels of health

literacy and numeracy.²⁸ Visual formats aid understanding of probabilities and help reduce the impact of cognitive biases on decision making.¹⁸

Conclusion

No matter how carefully a risk communication strategy is designed, it is the audience – not the communicator – who determines its clarity, interpretation and efficacy. Risk communication is not, and should not, be designed to prevent the audience from choosing for themselves. Rather, if done well, it should enable high-quality, values based and evidence based civic decision making. This in itself represents a small but significant contribution to the capacity for civic decision making and successful policy and regulation of risk into the future.

Competing interests

None declared

Author contributions

CH took the lead in writing the article after extensive discussions with the co-authors, each of whom were active contributors across several drafts.

References

1. Centers for Disease Control. CDC 24/7: saving lives, protecting people. Atlanta, GA: Centers for Disease Control. Risk communication: gateway to health communication and social marketing practice; 2011 May 10 [cited 2015 Oct 6] [about 2 screens]. Available from: www.cdc.gov/healthcommunication/risks/index.html
2. Sandman PM. Responding to community outrage: strategies for effective risk communication. New York: AIHA Press; 1993 [cited 2016 Nov 17]. Available from: petersandman.com/media/RespondingtoCommunityOutrage.pdf
3. Slovic P. The perception of risk. Oxford and New York: Earthscan Publications; 2000.
4. Risk = Hazard + Outrage. The Peter Sandman Risk Communication Website. New York: Peter M Sandman; 2014. Introduction to risk communication and introduction to this website; 2016 [cited 2015 Oct 6] [about 21 screens]. Available from: psandman.com/index-intro.htm
5. Covello VT, Milligan PA. Risk communication: principles, tools, & techniques. RIC2010; 2010 Mar 9–11. Rockville, MD: United States Nuclear Regulatory Commission; 2010 [cited 2016 Nov 17]. Available from: www.nrc.gov/public-involve/conference-symposia/ric/past/2010/slides/th39covellovpv.pdf
6. Arvai J, Rivers L, editors. Effective risk communication. London and New York: Routledge; 2014.

7. Tversky A, Kahnemann D. Judgement under uncertainty: heuristics and biases. *Science*. 1974;185(4157):1124–31.
8. Keller C, Siegrist M, Gutscher H. The role of the affect and availability heuristics in risk communication. *Risk Anal*. 2006;26(3):631–9.
9. Senay I, Kaphingst K. Anchoring-and-adjustment bias in communication of disease risk. *Med Dec Making*. 2009;29(2):193–201.
10. Morgan MG, Fischhoff B, Bostrom A, Atman CJ. *Risk communication: a mental models approach*. Cambridge: Cambridge University Press; 2002.
11. Lupton D. *Risk*. London: Routledge; 1999.
12. Zhao Z, Murphy TV, Jacques-Carroll L. Progress in newborn hepatitis B vaccination by birth year cohorts–1998–2007, USA. *Vaccine*. 2011;30(1):14–20.
13. Peters RG, Covello VT, MacCallum DB. Determinants of trust and credibility in environmental risk communication. *Risk Analysis*. 1997;17:43–54.
14. Renn O, Levine D. Credibility and trust in risk communication. In: Kasperson RE, editor. *Communicating risks to the public: international perspectives*. Technology, risk and society. Dordrecht, Netherlands: Kluwer; 1991;175–218.
15. Lewandowsky S, Ecker UKH, Seifert CM, Schwarz N, Cook J. Misinformation and its correction: continued influence and successful debiasing. *Psychol Sci Public Interest*. 2012;13(3):106–31.
16. Rosenbaum L. Communicating uncertainty: Ebola, public health, and the scientific process. *NEJM*. 2015;372:7–9.
17. Fischhoff B. Communicating uncertainty. *Issues Sci Technol*. 2012(Summer). See also Halpern B. Communicating uncertainty. *Issues Sci Technol*. 2012(Fall).
18. Lowbridge C, Leask J. Risk communication in public health. *N S W Public Health Bull*. 2011;22(5786):34.
19. Blyth CC, Macartney KK, Hewagama S, Senenayake S, Friedman ND, Simpson G. Influenza epidemiology, vaccine coverage and vaccine effectiveness in children admitted to sentinel Australian hospitals in 2014: the Influenza Complications Alert Network (FluCAN). *Eurosurveillance*. 2016;21(30).
20. Covello VT, Peters RG, Wojteki JG, Hyde RC. Risk communication, West Nile virus epidemic and bioterrorism: responding to the communications challenges posed by the intentional or unintentional release of a pathogen in an urban setting. *J Urban Health*. 2001;78(2):382–91.
21. Gwyn R. *Communicating health and illness*. London: SAGE Publications; 2002.
22. Leiss W. *In the chamber of risks: understanding risk controversies*. Montreal: McGill-Queen's University Press; 2001.
23. Slovic P, editor. *The feeling of risk: new perspectives on risk*. Abingdon, Oxon: Earthscan; 2010.
24. Adger WN. Social capital, collective action, and adaptation to climate change. *Econ Geogr*. 2003;79(4):387–404.
25. Leischow S, Milstein B. Systems thinking and modeling for public health practice. *Am J Public Health*. 2006;96(3):403–5.
26. Hooker C, Leask J, King C. Media coverage of health issues and how to work more effectively with journalists: a qualitative study. *BMC Public Health*. 2010;10:535.
27. Trevena L, Zikmund-Fisher B, Edwards A, Gaissmaier W, Galesic M, Han PK, et al. Presenting quantitative information about decision outcomes: a risk communication primer for patient decision aid developers. *BMC Med Inform Decis Mak*. 2013;13(Supplement 2):S7.
28. Massey P, Miller A, Saggars S, Durrheim D, Speare R, Taylor K, et al. Australian Aboriginal and Torres Strait Islander communities and the development of pandemic influenza containment strategies: community voices and community control. *Health Policy*. 2011;103(2–3):184–90.

Copyright: 

© 2017 Hooker et al. This article is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International Licence, which allows others to redistribute, adapt and share this work non-commercially provided they attribute the work and any adapted version of it is distributed under the same Creative Commons licence terms. See: www.creativecommons.org/licenses/by-nc-sa/4.0/