Tackling risk by changing behaviour

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The need to ensure quality in its widest sense and, within this, to avoid risk or to manage the consequences of risk means that staff must be able to change or maintain their behaviour to produce safe procedures and good outcomes. This inevitably entails perceiving potential risks, devising and following systems which eliminate or minimise these risks, and devising approaches which reduce the effects of accidents when they do occur.

How people's behaviour may be changed towards these goals depends to some extent on the types of changes that are required. At their most general these will be the same for risk management as those in any other sphere of organisational life. In his book on chaos theory and its use within organisations Stacey categorised change according to how easy it is to predict its cause and effects.¹ This can be usefully applied to the risks involved, resulting in three categories, as follows.

Risks with a clearly recognised antecedent, process, and outcome

Such risks would apply, for example, in pathology laboratories, where a specimen is received, is analysed in response to specific requests, and the results are communicated to the person making the requests. In such cases, the actions required can be quite rigorously defined. The current emphasis of getting well supported research findings into clinical practice² – for example, the use of steroids in preterm births – comes within this risk-reducing category of behaviours. In this area (which Stacey calls “closed change”¹) the consequences of any failures are known or fairly easy to predict, and the behaviours that need to be encouraged in staff are therefore those that ideally would become habitual – procedures specified in nursing standards or in protocols, for example.

Areas of risk with a probable cause, a usual process, and a probable outcome

An example of such a risk would be an outpatient appointment for a specialist opinion on optimum asthma treatment. In this category of risk, behaviours and outcomes are more flexible than in the closed systems of change, but they are contained as well as possible. The “contained” changes that are required involve some ability to predict events outside routine events and to alter course when necessary. In fact, most procedures within clinical care are a combination of the closed and the contained systems. For example, a surgical operation entails a firmly closed system of risk avoidance in terms of sterile services and various routines in theatre to avoid infection, to ensure safe

anaesthesia, and so on. Alongside this a contained system will need to be able to respond to the purely clinical but not always controllable aspects of the disease, the equipment, the patient, and the staff.

Risks associated with open ended change beyond control of the organisation

These types of risk cannot readily be predicted, and so the process for addressing them and the consequences of them cannot be planned with any accuracy. However, many of the latent factors which will turn risks into accidents or even disasters are already in place within an organisation.³ Within the health service as a whole the rise of baby snatchers, the actions of healthcare workers deliberately harming patients, as in the case of Beverly Allit, the technical innovation of minimal access surgery, and the murder of Ben Zito by a psychiatric patient in the community, represent unforeseen and open ended change, whose consequences will unfold for years to come. Major trauma incidents happening locally involve this need for open ended behavioural change as well as some background anticipation and planning of the type that is entailed in contained change, as discussed above.

This paper focuses on the ways of changing behaviour within these different categories.

Closed change

Within this type of change the more systematised and automatic the necessary behaviours can become, the greater the chance of avoiding risks. The staff need good habits, and bringing this about requires learning that lasts.

Success in introducing change in this way requires a clear understanding of exactly what the desired behaviour is and then communicating this accurately to those who have to change. As in every other facet of management good communication is the key without which all else fails.⁴ The goals of management cannot be presumed to be the same as those at the coalface, although they should be, since a divided organisation is rarely a safe one.⁵ Moreover, managers need to be sure they are not saying they want one thing, such as quality, while actually punishing staff for not achieving another, such as efficiency, which might run counter to it and create a culture in which no one knows when they have done well.

Theoretically, behavioural change can be achieved through the following.

- A system of rewards, withdrawal of rewards, and punishment
- Modelling of behaviours by others trusted and admired (opinion leaders)
- Group influences.

REWARDS AND PUNISHMENTS

Punishments in the form of sanctions which everyone understands are always necessary in organisations, though only as a last resort.⁹ In general, however, rewards work better than punishments, especially if we are clear about what individuals find rewarding: once people move beyond the financial threshold where they have sufficient to meet their everyday requirements other rewards such as interest, participation, status, excitement, social support, praise, and so on, may be more relevant. These higher level needs are more individual, so people with a preference for novelty might find risk reducing routines eventual anathema and might even introduce new procedures to live up the working day.

Rewarding the presence of some attribute (such as productivity) is much easier than the absence of something (such as complaints), and so, in reality, rewards for reducing risk are rare. To counteract this it is better to see managing error as a *part* of productivity or general clinical effectiveness and to reward accordingly. Clinical audit, with its primary methodology of criteria based audits of good practice, provides the opportunity to include within risk management a positive methodology rather than only the negative methodology of counting adverse events. Close working between managers and clinicians is particularly important in terms of change since the analysis of disasters in every other industry has shown that operational workers are the tip of the iceberg in terms of causing accidents and that management decisions and systems are always involved and frequently more crucial.^{3,7}

Punishment in the form of legal claims has itself acted in the United States as a prompt for the creation of protocols. On the other side, physicians showing good audit results in terms of following the protocol are rewarded with a 20% discount on their malpractice premiums.⁸

In terms of bringing about desired behavioural change of this type it is important that we do not inadvertently reward a behaviour that in fact we want to limit. For example, Kerr suggested that doctors are rewarded for what he called "type 1" errors (labelling a well person sick) by being seen as taking a sound, conservative approach clinically; by increased income in private work; and by "a stream of steady customers who, being well in a limited physiological sense, will not embarrass the doctor by dying abruptly."⁹

A common means of risk avoidance is to teach people to respond appropriately to a signal that is distinct from the normal routine. This is the basis of crash calls, particular sounds and displays on monitors, flags on general practitioners' notes, and so forth. Its effectiveness for inducing appropriate action depends on several things. For example, the frequency of the signal: if it comes too rarely then the learnt response may fade away; if it comes too often and has insufficient reward or threat attached to it then staff may quickly adapt to it, no longer seeing or hearing the signal unless it has a saliency that maintains its effect. For example, a primary care practice did

an excellent audit on the use of non-steroidal anti-inflammatory drugs after finding that more than half of its patients receiving them were seriously anaemic. Through discussion of criteria, flagging the notes, and feeding back results the practice team successfully reduced the use of these drugs to almost zero. However, on re-audit the team realised that the numbers of patients receiving these drugs had within a year risen almost to the level before the audit started. The flagging system alone was insufficient to maintain the change in behaviour, and other influences were needed.

OPINION LEADERS

The second means of learning is to model behaviour on that of another, usually someone who is respected or in authority.¹⁰ A randomised controlled trial which used opinion leaders in this way showed it to be a more effective means of gaining adherence to guidelines than the feedback of data that is a part of clinical audit.¹¹ However, it needs to be recognised that such charismatic seniors are not always present in the lives of junior staff¹²; their influence might not always be in the required direction; and, if they move jobs or retire, there are inevitable difficulties for those who follow in finding ways to exert similar persuasion.¹³ Moreover, unless great efforts are made against it, strong charismatic leadership can create dependency in group members, which goes against the necessity within risk management of people retaining individual authority to question the right route.

POWER OF THE GROUP

The group (for example, a clinical team) is a powerful influence in terms of changing its members' behaviour, but not always in the ways we might hope. Early social psychological experiments showed, for example, that groups could pressure a single dissenter into conforming to manifestly bizarre decisions, though often secretly retaining the same opinion about what was right.¹⁴ In addition, decisions of a group have been shown to be significantly more extreme than the mean of the individual decisions of its members.¹⁵ This "risky shift" usually entails a move towards increasing risk (as in Watergate or the Apollo disaster), but it can also be towards caution, depending on the culture of the organisation, the power of the group's leader, and so on. Because of these powerful dynamics, groups need to be tied very firmly into management or peer review systems so that these too can review standards and behaviours and work with the group on necessary changes. Clinical audit might be a particularly useful vehicle to use. Even so, the group must provide accurate data (in this case report when things go wrong) and the code of loyalty which exists within it may help or stop this happening. For example, Menninger discusses the need to develop systems beyond self reporting by group members,¹⁶ and describes a study of risk management in Kansas in which only 36% of those interviewed over a wide range of units felt comfortable in reporting their concerns about colleagues; in

fact, 10% said they would not report concerns at all (W C Rein *et al*, unpublished data). Although other systems for discovering errors can be used, the problem can best be addressed by creating a culture in which groups believe that it is better to report accidents and incidents than to cover them up. This may be achieved, for example, by developing an ongoing educational system which uses these events as a vehicle for learning rather than for discipline.

Contained change

Contained change involves the behaviours needed when the causes and consequences of the risk are probable rather than known. In practice, perhaps the majority of clinical care falls within this category since little has been researched¹⁷ and because patients and staff, being individuals and always to some extent unpredictable, will rarely behave in a purely consistent manner. Nevertheless, all that has been said above in terms of changing behaviour applies equally to contained change. The difference is that we are not asking for precise responses but for responses within a range, for guidelines rather than protocols. For example, the Massachusetts emergency medicine risk management programme has developed a system for considering all alternatives for patients with atypical myocardial infarctions presenting at accident and emergency departments without chest pain.⁸

The main difference from closed change is that contained change calls for a distinct form of education: one where problem solving is central, where alternatives can be considered, where innovation and creativity are encouraged within certain limits, and where error is used as central to the learning process. Certainly this is not the way that one would sum up the key elements of medical education as we know it, where coping with uncertainty is taught more as a philosophical aside than as part of the core curriculum. By adopting this more challenging method of education for all clinical students and staff at undergraduate and postgraduate levels, feedback on error becomes useful rather than what it is at present – often so negative that covering up is inevitably rewarded and the foundations laid for more serious incidents in future.

Open ended change

This type of change represents the behavioural changes which have to come about to meet events that are unpredictable – apparently random – and whose causes and consequences are unknown. In organisations as a whole, these are the events which throw strategic plans off course, sometimes curtailing activity, sometimes adding new opportunities. Within health care these open ended events are far from rare; so, in reality, we are playing out several of them all the time alongside our usual contained and closed changes, which themselves will often be affected by open ended changes.

Open ended change is addressed by chaos theory, which shows that “systems driven by certain types of perfectly orderly laws are capable of behaving in a manner which is

random and therefore inherently unpredictable over the long term at a specific level.”¹¹ In terms of organisations Stacey argues that long term forecasts and even simulations are impossible and that small events can escalate alongside or into major ones. However, that does not negate long term planning with steps outlined along the way, so long as this involves recognition that we do not know the eventual outcome and that at any time the steps might have to change. It makes the planning of short term actions important, but based on the ability both to make good decisions and to alter course as necessary.

How we decide what is necessary is in turn based on creating a culture of good intelligence – or communication – where new events, such as previously unencountered accidents or problems, can be discussed in a widely representative forum and actions instigated at once to discourage any escalation of risk. This comes back to the need to create a culture and a system of communication where error becomes a vital signal – not something to be punished or covered up.

Impediments to change necessary for managing risk?

The outline above contains both implied and specific ways that change can be encouraged but also how it can be stopped. The box outlines these and others.

Impediments to change for managing risk

- Rewarding unwanted behaviour or punishing what is needed
- Using the wrong rewards
- Poor communication in terms of not saying what is wanted, what will be rewarded, and what the sanctions are and in being unidirectional so that the reporting of bad news has no vehicle to transport it
- Educating only for certainty rather than for making good decisions
- Adaptation to signals or having them in place where they will happen too rarely for learning to be maintained
- Failing to ensure that opinion leaders are “replaced” if they leave
- Dependency within teams
- Risky shifts
- Group loyalty above organisational loyalty

In addition to these, more general influences work against change. One involves blocks that might occur to perceiving risk in the first place and the other relates to the individual factors which might make change in favour of risk management less likely to occur.

FAILURE TO PERCEIVE RISK

Human efficiency is lowered considerably when people are asked to do two things at once, both of which requiring accuracy and attention¹⁸ – for example, attending to clinical care and watching for risk. Consequently, risk is often separated from the rest of the job instead of being an integral part of it and is given to safety officers or risk assessors.

However, quite commonly the organisational culture stops this arrangement working well. A split function like this may cause all the responsibility or anxiety to be located in the risk manager and all the danger or excitement in the general management and medical staff, for whom taking risks is seen as heroic and macho and avoiding them is "soft."

This splitting of perception is a "social defence" against the anxiety created in any high risk environment. Hirschhorn, using a psychodynamic approach to the workplace, described what is happening: "After exploring the relationship between the safety workers on the one hand and the line workers and managers on the other, I concluded that the latter controlled their anxiety by "blaming the messenger," the safety inspectors, for the bad news, rather than paying attention to their findings. Instead of identifying closely with the inspectors' work and seeing safety issues from their point of view, workers and managers scapegoated the inspector."¹⁹ He was referring to a situation in a nuclear power plant!

Good leadership will include being able to see such splits occurring and to rectify them by spreading responsibility for risk more widely as part of a general quality system. Hirschhorn's recommendations for dealing with safety, far from giving responsibility to one group or one individual, involve bringing together the entire organisation to work together on safety issues.⁵ However, an alternative, which overcomes the difficulty in doing two high demand tasks at once, is to hand one member of a clinical team the task of observing for risk rather than participating, a role that must revolve around the entire team if the dynamic described above is not to occur.

INDIVIDUALS AT RISK

Individual differences will also play their part in making people more or less susceptible to particular risks. Some can be changed, others simply need to be recognised so that they can be compensated for as far as possible. Personality differences (which have been discussed more fully elsewhere^{20 21}) may need to be appreciated and used creatively rather than shunned. For example, the Myers-Brigg type indicator,²² which is based on Jungian type theory and is extremely useful for team development, contains at least one dimension important to decision making surrounding risk. This dimension concerns how people obtain their data for making decisions – at one end being those people who use the here and now, the detail, and the concrete and at the other those who prefer to go beyond the data to what they can make out of them, and to the future. While the first group should perhaps take the lead in situations of closed change, the second group would be most useful in addressing the areas of open ended change. However, good teams celebrate diversity,²³ and it would be most important to have both types of people involved to ensure that neither the detail nor the possibilities are overlooked.

Past experiences can also affect people's attitude to risk. A doctor whose patient died six

days after a simple operation might from then on choose to err on the side of caution and keep patients in hospital too long. The more that personal information can be appreciated and not exploited, the more possible it is to support people to change in ways that are difficult for them. For example, psychiatric staff who have had a traumatic childhood or are currently in crisis might be more likely to be a party to boundary violations such as striking up a sexual relationship with a patient.¹⁶ A good team can help individual members to overcome their difficulties and not put others at risk.

Although there is no clear evidence linking risk taking behaviour with stress,²⁴ there seems little doubt now that both stress and exhaustion increase the chances of error.²⁵ Since almost every major disaster occurs in the early hours of the morning,²⁶ when junior doctors and general practitioners are often at their lowest ebb and most susceptible to accidents, education and procedures are needed to help decision making and actions at that particular time, which take into account exhaustion rather than pretending that it is only something experienced by those who are not up to scratch. Similar procedures could be introduced for practitioners receiving medication²⁷ or for those with respiratory virus infections²⁸ since these too reduce performance.

The link between occupational stress and accidents is backed up by the finding that stress management courses reduce significantly both treatment errors and claims.²⁹ It is clear from this and other studies that people's behaviour can be changed both by brief remedies and by more intensive counselling interventions³⁰ in ways which can reduce risk.

Conclusions

In implementing change to reduce risk it is important, firstly, to consider the type of change required and then to use several methods in order to take into account the differences that exist within and between organisations.

In terms of closed or contained change what needs to be learnt (perhaps from a research finding, or by team consensus, or from risk analysis) must be accurately and clearly specified and appropriate training to the staff involved. Where possible they can be taught appropriate responses to risk signals, strengthening these by discovering and delivering appropriate rewards to increase the desired behaviour. In addition, we can address the politics of change by getting the support of influential and respected leaders to take the issues forward and help to maintain the behaviours, remembering however that the flag they carry needs to be handed on rather than simply stuck in the corner of the storeroom.

At the same time, change of the contained or open ended type requires that individual staff be encouraged towards flexibility and questioning. There is no reason why people cannot learn to behave in both ways, though some will be better at one rather than the other, and these differences should be used to advantage.

More fundamental than these strategies, however, is the need for individuals and teams to experience belonging first and foremost to the organisation rather than feeling and using barriers: them and us, managers and clinicians, doctors and nurses, splits which will lie as dynamite for future sparks. While there are such divisions responsibility and blame can be shifted elsewhere and so any organisational structure put in place for risk must ensure that such splits, if present, are not built into its foundations.

- 1 Stacey R D. *The chaos frontier*. London: Butterworth-Heinemann, 1991.
- 2 Haines A, Jones R. Implementing findings of research. *BMJ* 1994;308:1488-92.
- 3 Reason J. The contribution of latent human failures to the breakdown of complex systems. *Philos Trans R Soc Lond Biol* 1990;327:475-84.
- 4 Kreps GL. *Organizational communication*. New York: Longman, 1990.
- 5 Hirschhorn L. The psychodynamics of safety. In: Hirschhorn L, Barnett CK, eds. *The psychology of organizations*. Philadelphia: Temple University Press, 1993:143-63.
- 6 Donaldson L. Doctors with problems in the NHS workforce. *BMJ*, 1994;308:1277-82.
- 7 Rasmussen J. Human error and the problem of causality in analysis of accidents. *Philos Trans R Soc Lond Biol* 1990;327:449-62.
- 8 Karca A, Holbrook J. The Massachusetts Emergency Medicine Risk Management Program. *QRB* 1991;17:287-92.
- 9 Kerr S. On the folly of rewarding A, while hoping for B. *Academy of Management Journal* 1975;18:769-82.
- 10 Lefkowitz MM, Blake RR, Mouton JS. Status factors in pedestrian violation of traffic signals. *Journal of Abnormal and Social Psychology* 1955;51:704-6.
- 11 Lomas J, Enkin M, Anderson GM, Hannah WJ, Vayda E, Singer J. Opinion leaders vs audit and feedback to implement practise guidelines: delivery after previous cesarean section. *JAMA* 1991;265:2202-7.
- 12 Allen I. *Doctors and their careers: a new generation*. London: PSI, 1994.
- 13 Salaman G. An historical discontinuity: from charisma to routinization. *Human Relations* 1977;30:373-88.
- 14 Asch SE. Effects of group pressure upon the modification and distortion of judgements. In: Guetzkow H, ed. *Groups, leadership and men: research in human relations*. New York: Russell and Russell, 1963:269-77.
- 15 Pruitt DG. Choice shifts in groups discussion: an introductory review. *J Pers Soc Psychol* 1971;20:339-60.
- 16 Menninger WW. Identifying, evaluating and responding to boundary violations: a risk management program. *Psychiatric Annals* 1991;21:675-80.
- 17 Mulley A. Outcomes research: implications for policy and practice. In: Delamothe T, ed. *Outcomes into clinical practice*. London: BMJ, 1994:13-27.
- 18 Anderson JR. *Cognitive psychology and its implications*. San Francisco: Freeman, 1990.
- 19 Hirschhorn L. *The workplace within: psychodynamics of organizational life*. Cambridge, Massachusetts: MIT Press, 1988.
- 20 Firth-Cozens J. Tackling risk by changing behaviour. In: Vincent C, ed. *Risk management*. London: BMJ (in press).
- 21 McManus C, Vincent C. Selecting and educating safer doctors. In: Vincent C, Ennis M, Audley RJ, eds. *Medical accidents*. New York: Oxford University Press, 1993:80-105.
- 22 Quenk NL. *Beside ourselves: our hidden personality in everyday life*. Palo Alto: CPP Books, 1993.
- 23 Firth-Cozens J. Building teams for effective audit. *Quality in Health Care* 1992;1:252-5.
- 24 Mann L. Stress, affect, and risk taking. In: Yates JF, ed. *Risk-taking behaviour*. Chichester: Wiley, 1992:202-30.
- 25 Firth-Cozens J. Stress, psychological problems, and clinical performance. In: Vincent C, Ennis M, Audley RJ, eds. *Medical accidents*. New York: Oxford University Press, 1993:131-49.
- 26 Folkard S. Circadian performance rhythms: some practical and theoretical implications. *Philos Trans R Soc Lond Biol* 1990;327:543-53.
- 27 Nicholson AN. Medication and skilled work. *Philos Trans R Soc Lond Biol* 1990;327:513-8.
- 28 Smith AP. Respiratory virus infections and performance. *Philos Trans R Soc Lond Biol* 1990;327:519-28.
- 29 Jones JW, Barge BN, Steffy BD, Fay LM, Kunz LK, Wuebeker LJ. Stress and medical malpractice: organisational risk assessment and intervention. *J Appl Psychol* 1988;4:727-35.
- 30 Firth-Cozens J, Hardy G. Occupational stress, clinical treatment and changes in job perceptions. *Journal of Occupational and Organizational Psychology* 1992;65:81-8.