Patient safety

Improving patient safety: lessons from rock climbing

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SUMMARY

Background: How to improve patient safety remains an intractable problem, despite large investment and some successes.

Context: Academics have argued that the root of the problem is a lack of a comprehensive 'safety culture' in hospitals. Other safety-critical industries such as commercial aviation invest heavily in staff training to develop such a culture, but comparable programmes are almost entirely absent from the health care sector.

Innovation: In rock climbing and many other dangerous activities, the 'buddy system' is used to ensure that safety systems are adhered to despite adverse circumstances. This system involves two or more people using simple checks and clear communication to prevent problems causing harm. Using this system as an example could provide a simple, original and entertaining way of introducing medical students to the idea that human factors are central to ensuring patient safety.

Implications: Teaching the buddy system may improve understanding and acceptance of other patient safety initiatives, and could also be used by junior doctors as a tool to improve the safety of their practice.

Teaching the buddy system may improve understanding and acceptance of other patient safety initiatives

The underlying problem [of medical error] is the lack of a comprehensive 'safety culture' among health care workers

INTRODUCTION

Being admitted to a hospital is a dangerous experience. Medical error is still a common problem and initiatives to improve patient safety are felt to be progressing too slowly, despite heavy investment and some successes.[1] Why is this? Leape *et al.* are among the researchers who have argued that individual initiatives fail to tackle the underlying problem, which is the lack of a comprehensive 'safety culture' among health care workers: '…too many health care organisations…[are] deficient in mutual respect, teamwork and transparency…blame is still a mainstay solution'.[1]

Translating this academic insight into improvement programmes will be challenging. As a medical student and a keen rock climber, I am interested in how the safety techniques used in dangerous sports could be used to help bridge this gap. One of these techniques is the 'buddy system', in which climbing partners perform simple checks to ensure that safety systems are adhered to, despite stressful circumstances (Box 1). In this article I explore what the buddy system is and how it might be introduced to medical students to help develop a patient safety culture.

WHAT IS THE BUDDY SYSTEM?

The 'buddy system' is used in some form in rock climbing, scuba diving, firefighting and many other dangerous activities. In my analysis, there are two components of the system. First, there is a set of tasks to be completed at regular intervals. The exact tasks will vary from situation to situation, but focus on performing checks and preventing problems. In climbing, we check that knots are correctly tied, necessary equipment is present and that our buddy is physically well: that they have eaten and drunk something, and are maintaining their temperature. In medicine, we might check that prescriptions are correct, that a differential diagnosis has been considered, and that our colleague is physically well: that they have eaten and drunk something, and are maintaining their cool.

Box 1. The buddy system in rock climbing

Last summer I had a near miss while rock climbing on Eagle Ridge, which is 200 m of vertical rock high on Lochnagar in the Scottish Highlands. My friend Jake and I had anticipated that the route would take us 4 or 5 hours, and had begun shortly after lunch. Two hours later, the weather closed in; buffeted by wind, rain and mist our pace slowed to a crawl, our muscles cramping in the cold and our numb fingers fumbling with gear.

Eventually we reached a ledge where we could sort out our gear before the next section. As we did this we went through our checks: 'Have you had a drink?', 'Clip into that red sling', 'Tighten that knot!', 'Have you got your flashlight ready?', and so on. We knew that climbing accidents happen in situations like this: tired, hungry people make silly mistakes, no matter how experienced they are. These simple checks meant that our safety systems were robust, and problems were noticed before they could cause harm.

These checks need to become so routine that it is impossible not to do them, no matter how stressful the situation: it must 'feel' wrong not to do them so that they don't need to be consciously remembered. Importantly, we must be so experienced with the correct result of the check that any problem cannot be missed. In climbing, we must be so familiar with how a certain knot should look that any mis-tie is immediately obvious, even in the rain and the dark. It is not important to be able to say exactly what is wrong, because a failed check prompts a pause in proceedings when the precise problem and a solution can be worked out.

The second component is a set of attitudes towards a buddy and towards checks. Fundamentally, the two partners in the arrangement must consider themselves equals who are supporting each other rather than competing. There is no place for blame or shame when an error is spotted – I would not blame my climbing partner if I saw that they had mis-tied a knot, as I could easily have made the same mistake. Both partners need to feel able to voice concerns directly and immediately. This is very different from how we interact in everyday life, where enquiring whether a friend had eaten enough would probably be seen as patronising or 'meddling'.

More generally, using the buddy system requires a different attitude towards safety than we have in our normal lives. In everyday language, we typically describe an activity (e.g. a rock climb) as being 'safe' as opposed to 'not safe'. Furthermore, we typically view mistakes leading to accidents as the result of an error on the part of an individual, caused by their inattention, forgetfulness or ignorance.

The buddy system is a simple example of an alternative, 'systems' approach to safety, where everyone involved performs safety checks routinely. Safety is not an absolute, it is a 'dynamic non-event': 'It is dynamic because safety is preserved by timely human adjustments; it is a non-event because successful outcomes rarely call attention to themselves'.[2]

BRIDGING THE PATIENT SAFETY GAP

There are many specific situations where simple checks can improve patient safety, and forms of the buddy system are already used in hospitals. For example, intravenous drugs should be checked by two trained individuals before administration, and it has been recommended that complex dose calculations are double-checked before the drug is given.[3]

However, problems with medication account for about 10 per cent of the patient safety incidents reported to the National Patient Safety Agency.[3] Dean *et al*. interviewed 44 doctors who had made potentially serious prescribing errors, and found that most mistakes were made because of lapses in concentration, or because relevant rules were ignored.[4] In total, 70 per cent of the doctors cited 'being busy' as a contributory factor, and 30 per cent said that 'interruptions' were partly to blame.

The 'tasks' component of the buddy system could prompt junior doctors to double-check each other's prescriptions to eliminate many of these potential errors. It would take time in an already busy day, but could be used selectively for particularly high-risk medications. This may seem painfully simple, but we know it is not happening and it could save lives.

Junior doctors often feel pressurised to write prescriptions for drugs with which they are not thoroughly familiar, which can lead to errors, particularly as they are reluctant to challenge instructions given by seniors.[5] Teaching the 'attitudes' components of the buddy system could give junior doctors more confidence to communicate safety concerns across hierarchies. Encouraging open communication has been a safety priority in the airline industry. Analysis showed that 70 per cent of commercial flight accidents were caused by communication errors: crew members often raised safety concerns before accidents, but were not heeded because they were phrased in a subtle or ambiguous way.[6]

Improving communication across professional hierarchies

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Teaching the 'attitudes' components of the buddy system could give junior doctors more confidence to communicate safety concerns

Box 2. Learning medicine in the outdoors

During my fourth year of medical school I was privileged to take part in a 6-week programme called 'Wilderness medicine and learning in the outdoors', run by Mr and Dr Greene in the Lake District. We learned about first aid and travel medicine, and also explored many aspects of teamwork and leadership that are not discussed elsewhere in the curriculum. These sorts of programmes will not be to all students' tastes, and are expensive to run, but I believe that many medical students could benefit from them. Recent reports from students and a teacher involved in a similar programme were overwhelmingly positive.[8,9]

could also improve the currently limited success of patient safety initiatives, such as the World Health Organisation (WHO) Surgical Safety Checklist.[7] Adoption of these initiatives might also be improved if staff better understood the rationale behind them. The professional attitudes and skills taught in medical schools tend to focus on doctor–patient relationships, with 'little or no instruction in…systems thinking, safety science, improvement science, human factors, leadership or teamwork'.[1]

Teaching these concepts in an abstract way is difficult, and medical curriculums are full. Introducing the concept of the buddy system and its relevance to patient safety need only take 30 minutes, and it can be practised in the students' free time; however, experiential learning is the ideal.[8,9] I was first alerted to the relevance of rock climbing techniques to patient safety during a wilderness medicine student-selected component (Box 2).

CONCLUSION

I choose to go rock climbing and accept the risks involved, but patients do not choose to become sick, and most are unaware of the risks they are encountering when they come into hospital. The military and other industries have recognised for decades that human factors determine whether a system is safe or not, and we owe it to patients to think of imaginative ways to apply these wider lessons to health care. Introducing medical students to the 'buddy system' is not a perfect way of doing this, but it may be a start on a difficult journey.

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