



# Behavioural safety

Kicking bad habits





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Brief, focused information on health and safety topics, typically operation- or sector-specific.

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Strategic corporate guidance on health and safety issues.

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# Contents

Introduction	03
What is behaviour-based safety?	03
Background	05
How does behaviour-based safety work?	05
Making the choice – what to consider	07
Barriers to implementation	07
Opting for a behavioural safety programme – what next?	07
Case study	08
References	10
Further reading	10
Useful videos	10
Courses	10
Acknowledgements	11

## Introduction

Health and safety in the workplace is influenced by a number of factors, from the organisational environment through management attitude and commitment to the nature of the job or task and the personal attributes of the individual. Safety-related behaviour in the workplace can be modified by addressing these major influences.

One way to improve safety performance is to introduce a behavioural safety process that identifies and reinforces safe behaviour and reduces unsafe behaviour. Behavioural safety processes are not a 'quick fix' and it is important not to overlook fundamental elements. Organisations should begin by

concentrating on policies and systems – assessing and improving management and operational factors, training, design and so on.

First researched in the 1970s in the US, the behaviour-based safety approach emerged in UK organisations in the late 1980s and is now widely used in a variety of sectors in the UK. IOSH has produced this guidance to introduce the background and basic principles of implementing a process which systematically addresses behavioural safety. The techniques described are based primarily on observation, intervention and feedback as ways of changing behaviour.

## What is behaviour-based safety?

It is estimated that in up to 80 per cent of work-related accidents, employees' behaviour – in the form of acts or omissions – is a contributing factor.<sup>1</sup> Such behaviour can pave the way for many pre-existing factors to come together in a negative event. There are many reasons why employees engage in 'at-risk' behaviour at work. Some examples are:

- **cutting corners to save time:** how often do employees decide not to use personal protective equipment (PPE) because a task may only take seconds to complete? In this example, the at-risk behaviour (the failure to use PPE) has the instant perceived benefit of saving time
- **ergonomic factors:** inappropriately placed machine controls may lead to *ad hoc* and potentially dangerous access arrangements
- **accepted practice:** the job may have always been done in that way
- **reinforcement of at-risk behaviour by the actions of supervisors:** this may also undermine employees' confidence in the management's commitment to manage concerns such as safety
- **misunderstanding at-risk behaviour:** employees may be unaware, or have a low perception, of the risks associated with a particular task or activity. This could be due to insufficient information or training
- **instinctive risk-taking behaviour:** some people are more naturally inclined than others to take risks.

The emphasis of the behaviour-based approach to safety is, as the name suggests, on employees' behaviour. Through influencing behaviour, this system can reduce injury rates.

The behaviour-based approach to safety is focused exclusively on the observable, measurable behaviours critical to safety at a particular facility. This is a task-oriented view of behaviour, and it treats safe behaviour as a critical work-related skill. It should not be confused with inspections and audits of the workplace for unsafe conditions.

Behavioural safety is part of a natural progression of safety management from highly prescriptive approaches, through the engineered or procedural systems which most progressive companies have long since established, to a system which recognises workers as mature human beings with a genuine interest in their own well-being, who contribute best when they can see that they themselves can have an influence on their own safety. To achieve this transition is to change the culture of the work group involved, so this approach will not provide instantaneous results. In addition, behaviour-based approaches to safety improvement are most effective when the engineered and procedural systems are working properly.<sup>2</sup>

Human behaviour is often categorised as reflex/automatic, intended and habitual. The behavioural approach focuses on the



### Business benefits

A manufacturing company with 1,400 staff introduced a behavioural safety programme and gained:

- **improved productivity** – the number of work days lost through injury per year dropped from 550 to 301 in four years
- **improved public image** – the company's managers have given presentations at major behavioural safety conferences
- **staff development** – many observers have improved communications and IT skills and greater confidence.

*(Source: HSC)*

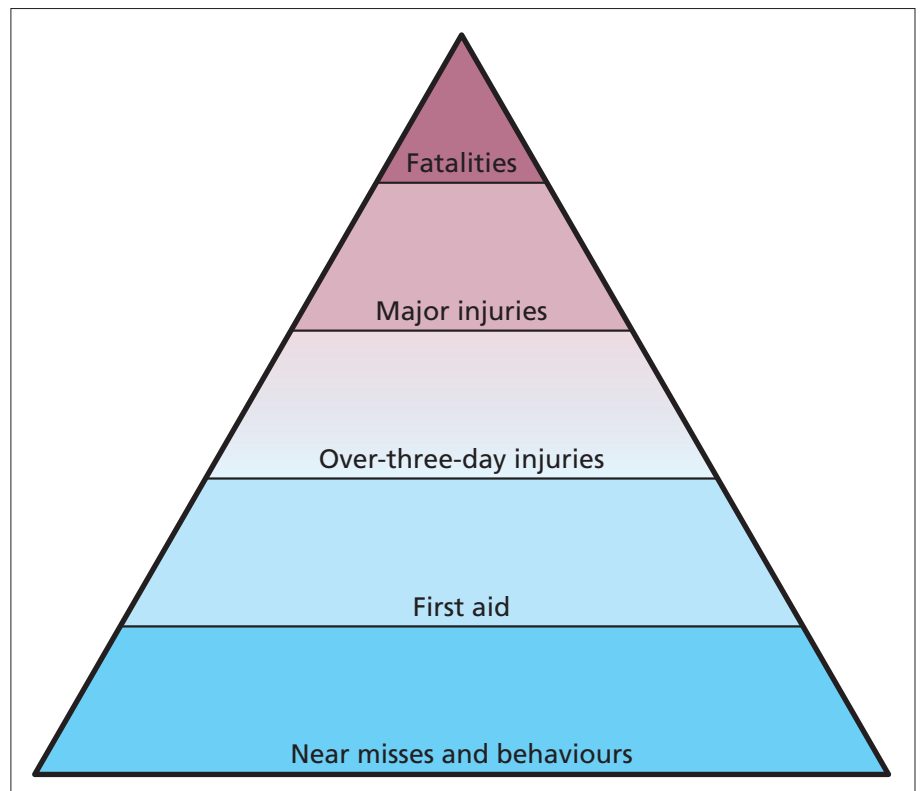
habitual category. Focusing on behaviour is not for the purpose of blaming or punishing workers; such measures are largely counterproductive and, in any case, some of the behaviour associated with incidents is encouraged or condoned by management systems. The effective approach is to identify and measure the safe and unsafe (at-risk) behaviours that are occurring in the workplace, and manage them.

Measuring behaviour provides the health and safety system with a tool for proactive management. It is a well-established safety approach to correlate frequency with severity of injuries using accident triangles or accident ratios. The traditional safety triangle shows that as severity decreases,

frequency increases. It is simple to extend the triangle to include near misses and unsafe behaviours (see Figure 1). There are more major injuries than fatalities, more first aid cases than over-three-day injuries, and more near misses and at-risk behaviours than incidents of all kinds. At-risk behaviour is an early warning system for accidents.

The key to reinforcing safe behaviours (good habits) and removing or reducing unsafe ones (bad habits) lies in the identification of those behaviours which are critical to safety and in subsequent regular observations to monitor them. It is therefore a proactive safety management tool, with the information being obtained without anyone being hurt.

Figure 1  
The safety triangle




## Background

Behavioural safety approaches were first developed and applied in the US in the 1970s. Komaki *et al.*<sup>3</sup> provided one of the early studies of the application of behavioural approaches to improve occupational safety in the food manufacturing industry. Their study demonstrated that behavioural definitions of safe working practices and the positive reinforcement of those practices offered a way of promoting safe behaviour at work. Krause and Hidley<sup>4</sup> combined the work of Komaki *et al.* with lessons from the quality management field and recognised training, the use of process indicators, feedback and employee participation as key factors for providing a sustainable continuous improvement process. Krause *et al.*<sup>5</sup> found that immediate peer-to-peer verbal feedback was the most effective way of achieving

behavioural change in an industrial setting. After this, Krause undertook several behaviour-based safety interventions in chemical companies that were proponents of total quality management. Sulzer-Azaroff<sup>6</sup> also showed that successful behaviour modification required understanding of the factors that initiate and support safe and unsafe behaviours.

From the 1980s onwards, safety initiatives based on the observation of safe and unsafe acts/behaviours were implemented in Europe. Several studies have been conducted in different UK industrial sectors, for example in construction,<sup>7,8</sup> manufacturing,<sup>9</sup> nuclear<sup>10</sup> and research.<sup>11</sup> In addition, the HSE<sup>12</sup> has provided case study examples.



**Business benefits**

A behavioural safety programme at a petrochemicals plant brought economic benefits, including:

- a saving of £250,000 per year through early identification and repair of leaks
- a 32 per cent reduction in insurance premiums
- major reductions in operating costs as workers became more confident about identifying and dealing with problems themselves.

*(Source: HSC)*

## How does behaviour-based safety work?

In the various systems it is possible to recognise a number of common features:

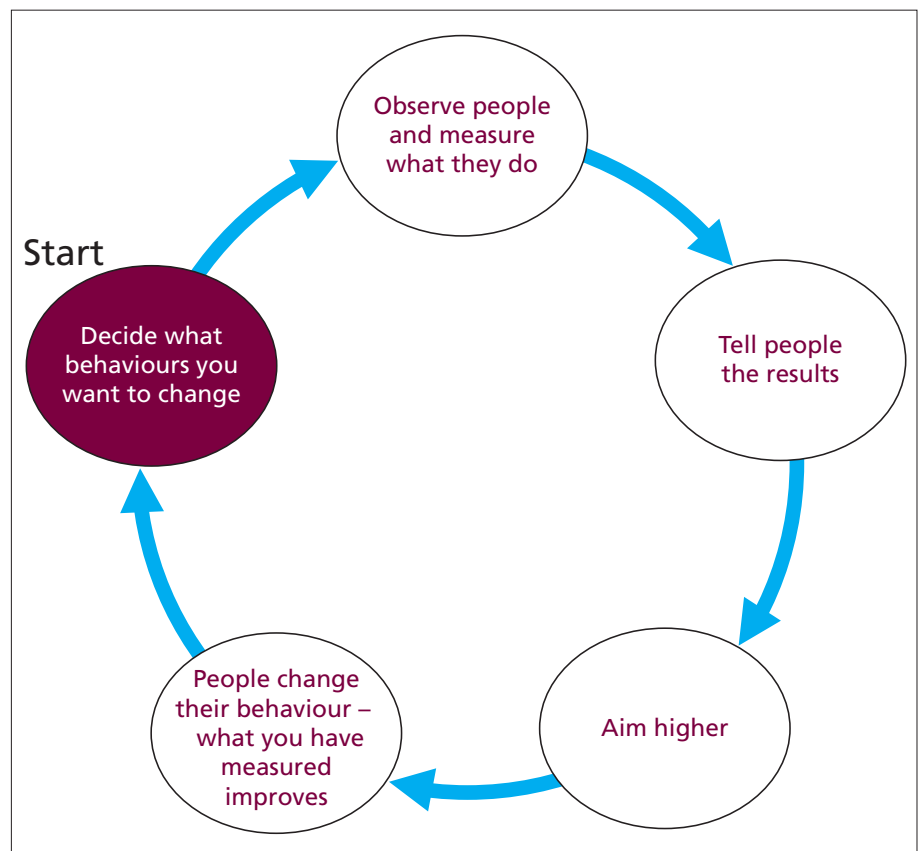
- **Significant workforce participation.** Full engagement of the workforce in the programme is an essential part of behavioural safety. Without this engagement it is difficult to bring about improvement.
- **Targeting specific unsafe behaviours.** The programme focuses on the small percentage of unsafe behaviours that are responsible for a large percentage of an organisation's accidents or incidents, which can be identified through a systematic examination of an organisation's accident and incident records. Getting employees and management working together to understand the reasons for unsafe behaviours and identify and agree targets for change helps to promote ownership and agree common behavioural measures.
- **Observational data collection.** Trained observers regularly monitor their colleagues' safety behaviour against agreed measures. Making an observation is like taking a photograph – it provides a snapshot of a moment in time. The greater the number of observations, the more reliable the data become, as the employees' true behavioural pattern can be established. It is important to understand the context of the observation data – for example, the number of observations and the number of people observed. Additionally, more frequent observations increase the probability that there will be an improvement in the level of safe behaviour, as people tend to alter their behaviour if they know it is being observed and measured. A variable feature is the frequency of observation and who carries it out – generally, if everyone participates in observations, it engenders a collective sense of ownership of the process.
- **Data-driven decision-making processes.** The data from the observation process allow you to measure safety performance. You can then examine trends in these data to identify the key operational areas that need improvement. It is then possible to reinforce employees' safe behaviour while implementing corrective actions where unsafe behaviours continue.
- **Organised improvement intervention.** The planned intervention often begins with briefing sessions within those work areas and departments that will be involved. This is followed by the formation of volunteer groups, such as a steering committee and observers, who then receive training in observation and feedback techniques. The project team oversees the development of the process

in the organisation, from the initial analysis of accident and incident data through to the performance monitoring, goal setting and progress reviewing stages.

- **Regular focused feedback on continuing performance.** Feedback is the key ingredient of any type of improvement initiative. In behavioural safety systems, feedback usually takes three forms: verbal feedback to people at the time of observation; visual feedback on charts placed in strategic locations in the workplace; and weekly/monthly briefings where detailed observational data are provided about specific employee behaviours. In combination, these forms of feedback provide a basis for targeting focused improvements.
- **A requirement for visible continuing support from managers.** It is vital that managers show visible leadership and commitment to the process. They can demonstrate this through:
  - allowing the observers sufficient time to conduct their observations
  - giving praise and recognition to those working safely
  - encouraging employees to report health and safety concerns
  - providing the necessary resources and assistance for remedial actions to be taken
  - promoting the initiative whenever and wherever they can.

Figure 2 outlines the key stages in setting up a behavioural safety programme.

Figure 2  
Implementation of a behavioural safety programme



## Making the choice – what to consider

Below are some key questions that should be considered before proceeding with a behavioural programme. Answering 'yes' to these indicates that your organisation may be ready for a behavioural safety intervention.

- Are a significant number of accidents/incidents caused by the behaviour of front-line employees?
- Do most employees and managers want to reduce the current accident rate?
- Will managers be comfortable if employees become more involved in health and safety?
- Do managers and employees trust each other?
- Does management accept its role in health and safety management?
- Does the organisation have enough resources for the process (eg time for training and observations)?
- Is the physical environment in the workplace well controlled?



## Barriers to implementation

Behavioural safety programmes have made a substantial contribution to improving health and safety performance in several industrial sectors. However, there are a number of difficulties that may arise during their implementation:<sup>13</sup>

- Workforce concerns, including:
  - issues about 'spying' on co-workers
  - seeing the programme as another initiative that will not last
  - worries that workers will be blamed for accidents
  - disagreements over safe practices.
- Management issues, including:
  - insufficient management support for the approach
  - expectations of a 'quick fix', leading to loss of commitment when improvements come more slowly
- organisational changes that may lead to low morale and loss of key players
- autocratic management style
- inconsistent behaviour of managers when enforcing agreed safety behaviours and rules.
- Questions of programme suitability, including:
  - using an 'off the shelf' solution that may not suit the culture of the organisation
  - inappropriate training material
  - not involving all supervisors in the process, leading some to abandon their responsibility for safety
  - using the programme to address unrelated issues
  - conflicts with payment and reward schemes.

## Opting for a behavioural safety programme – what next?

Bring together a small group of people, including managers, supervisors and workers, to:

- discuss how behaviour influences the organisation's health and safety performance
- establish the level of support for a behavioural safety programme
- identify activities/tasks with 'at risk' behaviours
- develop measures of safety critical behaviours
- recruit, select and train observers
- establish baselines
- set realistic but challenging targets for improvement
- carry out observations, feedback and review
- use the data from the process to improve performance further.

The case study on pages 8–9 gives a practical example of how to implement a behavioural safety programme.

## Case study: improving safety in aircraft manoeuvring areas using a behavioural approach

The study was conducted in aircraft manoeuvring areas of a major UK airport for a US-based international airline, with approximately 400 employees including support staff.

### Procedure

#### Management briefing

During the planning stages, an hour-long briefing was given to line management and HR personnel to explain the philosophy behind the behavioural approach, outlining their role and the need for their commitment.

#### Developing measures of safety performance

Safety critical behaviours were identified using accident records and interviews with key personnel. Measures of critical behaviours were developed for three areas of concern: manual handling, vehicle operations and general ramp safety.

#### Training the observers and observing safety performance

Initially 35 observers were trained to observe and measure their colleagues' safety performance and provide verbal feedback. They represented both managers and employees and were drawn from all operations. The key criteria for their selection were that they were respected by their peers, were committed to improving safety and had good communications skills. The observations took around 20 minutes and were undertaken at different times to ensure that they reflected a true picture of safety performance.

#### Determining a baseline

Straight after the observers were trained, data were collected over a four-day period. In total, 60 snapshots of safety performance provided a baseline figure for each of the three areas of concern. On the basis of this, targets for improvement were set.

#### Establishing improvement goals

At the end of the baseline period, all observers and representatives from senior

management attended a 'goal setting' meeting. The objectives of the meeting were to determine goals that were challenging but achievable for improvements in safety performance across the three measured categories, and to discuss any barriers to improvement that had been identified during the baseline observations.

#### Feedback and follow-up

Following the goal setting, feedback charts were placed around the ramp and short PowerPoint presentations were shown in staff rooms throughout the day and posted on an internal computer network. On average, 110 observations were undertaken per month. The results of the observations were posted every week and included information on the issues that had improved the most and those that had the worst scores.

Additional observers were trained in order to provide extra cover during busy periods and holidays, to replace observers who had left the programme and, more importantly, to cascade the programme throughout the ramp operation.

#### Results

During the first 19 months, the percentage of behaviour observed as safe increased from an average of 70 per cent to 79 per cent (see Figure 3 opposite). Over the next five years, the programme evolved to address other safety issues and received two ground handling awards. It has also been recognised by the company's insurers in the form of reduced employers' liability premiums.

#### Conclusion

This study shows that applying a behavioural approach to safety is effective for ramp operations. Despite recent economic trouble in the sector, the scheme had positive effects on safe behaviour, work methods, communication and industrial relations, as well as reducing the occurrence of accidents and related costs.

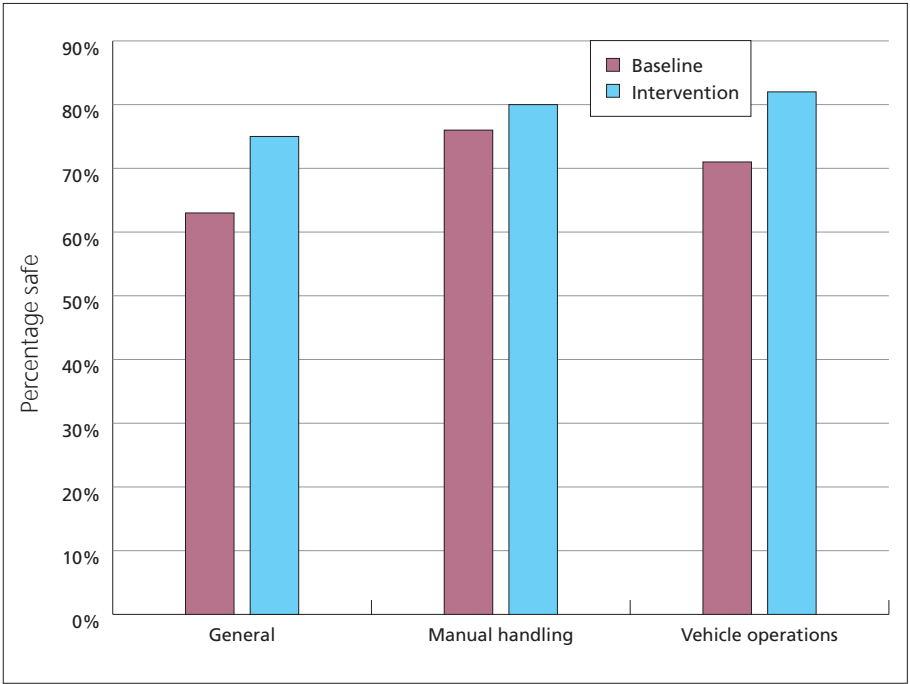


Figure 3  
Percentage improvement across the three intervention categories in the case study

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## Further reading

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## Useful videos

A number of videos concerned with promoting safe behaviour in the workplace are available from:

- Out-Takes  
[www.outtakes.co.uk](http://www.outtakes.co.uk)  
email: [info@outtakes.co.uk](mailto:info@outtakes.co.uk)  
+ 44 (0)20 8289 2466
- Human Focus International  
[www.humanfocus.co.uk](http://www.humanfocus.co.uk)  
email: [info@humanfocus.co.uk](mailto:info@humanfocus.co.uk)  
+44 (0)1737 246331

## Courses

As part of its Continuing Professional Development programme, IOSH offers the following courses:

- Introduction to behavioural safety (one day)
- Developing a behavioural-based safety programme (two days)

For further information contact the Professional Development team on +44 (0)116 257 3197.

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