Dangerous States of Mind – What To Do When Workers Are Frustrated, Fatigued, Complacent or Hurried

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ABSTRACT

The paper outlines the findings of research that was carried out to identify why people have incidents and what can be done to prevent incidents at work, during journeys and at home.

Organisations in North America that have used these techniques have reported a 50 - 90% reduction in LTIs within 12-18 months of their introduction. A number of case studies are presented to illustrate the success of the technique.

INTRODUCTION

It's fairly well established in the literature that less than 5% of all injuries and incidents everywhere (at work, at home or on the highway) are caused by equipment failure or malfunction.

If that's the case, then what's left in terms of unexpected or unplanned occurrences to cause incidents or injuries? People. Most people are surprised that the "the other guy" doing something unexpectedly (thereby causing an incident or an injury) is also very low.

During the last 10 years, over 20,000 people in 300 different organisations have been asked how many of their incidents or injuries were caused by the equipment or car doing something unexpected. The response has been in the range 2% - 5%. When they were asked how many times "the other guy" did something unexpected to cause an incident or an injury, the average response was in the range 5% - 10%. See Figure 1 below.

What is left is the "self". That is, we did something to cause an incident or injury to ourselves in 85% - 90% of the time. Did we intend to hurt ourselves? Not likely !! So, it must have been an error, miscalculation, mistake, misjudgement of some kind that triggered a chain of events. Or, as it might have originally started out – it was human error (own very own) that triggered the chain of events – just us being ourselves.

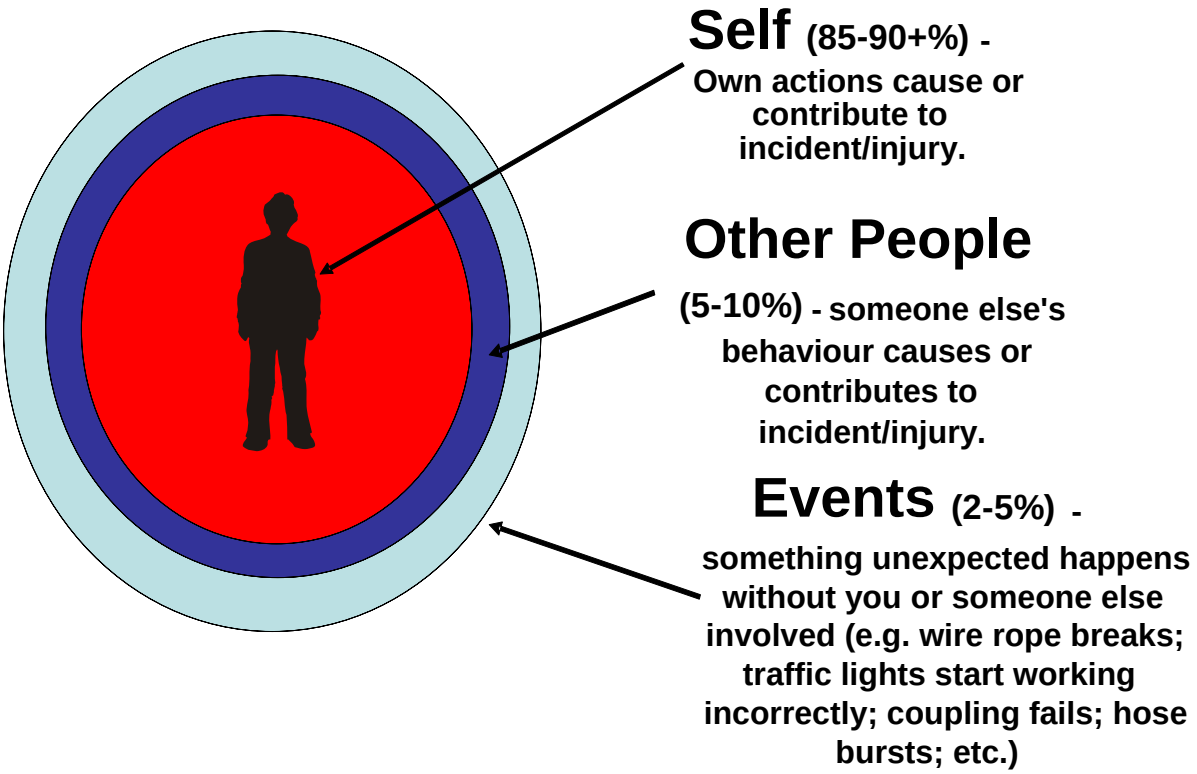


Figure 1 – Sources of Unexpected Events

Obviously then, if 90% of all injuries are self-inflicted (that is, caused by our own mistakes), reducing human error or minimising its negative effects is the name of the game for safety professionals in organisations. Unfortunately, both of these strategies have not been given equal "air time".

SAFETY IN ORGANISATIONS

Advances in design, engineering controls, machine guarding, personal protective equipment and procedures have had most of the limelight. And for good reason, - these controls are very efficient. But can all hazards be eliminated in a practical sense? Of course not, things are always changing one way or another.

Although, human error is a part of everyday life for everyone, there has been a reluctance, and in some cases a great reluctance, to look at reducing the unintentional mistakes we all make that can get us hurt. It's much more popular to try and "fix" something. While "blaming" someone is useless (or worse), doing nothing means you "accept" that the injury was not preventable – fixing

something that didn't contribute to the injury or re-training someone that doesn't need to be - isn't going to get you anywhere either.

Of all the examples that come to mind, the most extreme – in terms of fixing something that didn't contribute to an injury – was of a worker who was walking backwards in the car park telling co-workers a joke. He tripped on a concrete parking divider, fell down and broke his wrist. The company decided to paint all of the concrete parking dividers yellow. Even the most devoted safety supporters recognised the ridiculousness. "What good would painting the dividers even shocking pink have done? Unless the worker had eyes on the back of the head, he's not going to see it, no matter what colour it is ….."

HUMAN ERROR

So, can human error be minimised? Yes. Traditional behaviour based safety approaches can reduce human error – but primarily through rote observation and repetition. It does work, even if it takes a fair bit of time and expense. However, an easier and faster way would be to simply look at what causes all types of errors – and work on those human factors or states.

What causes people to make mistakes? Well, lots of things. But when those 20,000 people were asked, the number one response was "rushing".

The top 4 responses (referred to as 'states') were:-

- Rushing (for 80% of the time)
- Fatigue
- Frustration
- Complacency

People reported that they were more likely to make a mistake when they were in one or more of these 4 states. In your own experience, can you think of a time or of an injury that you've had that was in the "self" area where you weren't rushing, you weren't fatigued, you weren't tired or you hadn't become so complacent with the hazards that you weren't even thinking about the risk anymore?

What types of errors did people make? Well, lots of things also. But when those 20,000 people were asked, the number one response was "eyes not on task"

The top 4 responses (referred to as 'critical errors') were:-

- Eyes not on task
- Minds not on task
- Line of fire
- Balance/Traction/Grip

People reported that they were more likely to make one of the 4 critical errors whilst in one or more of the 4 states. In your own experience, can you think of a time or of an injury that you've had that was in the "self" area where you were actually looking at what you were doing, thinking about what you were doing, aware of the line of fire and conscious of losing your balance, traction or grip?

So, by these results people are most prone to having and incident or injury when they are rushing and they are not looking at what they are doing or where they are going. Now, that makes sense, especially if you have young children.

What this research established was that when people are doing something and they are in one of the 4 states, they are more likely to make a critical error and thereby either have an incident or cause themselves an injury. That is, they are more likely to increase their risk. See Figure 2 for the state to error patters that results in increased risk.

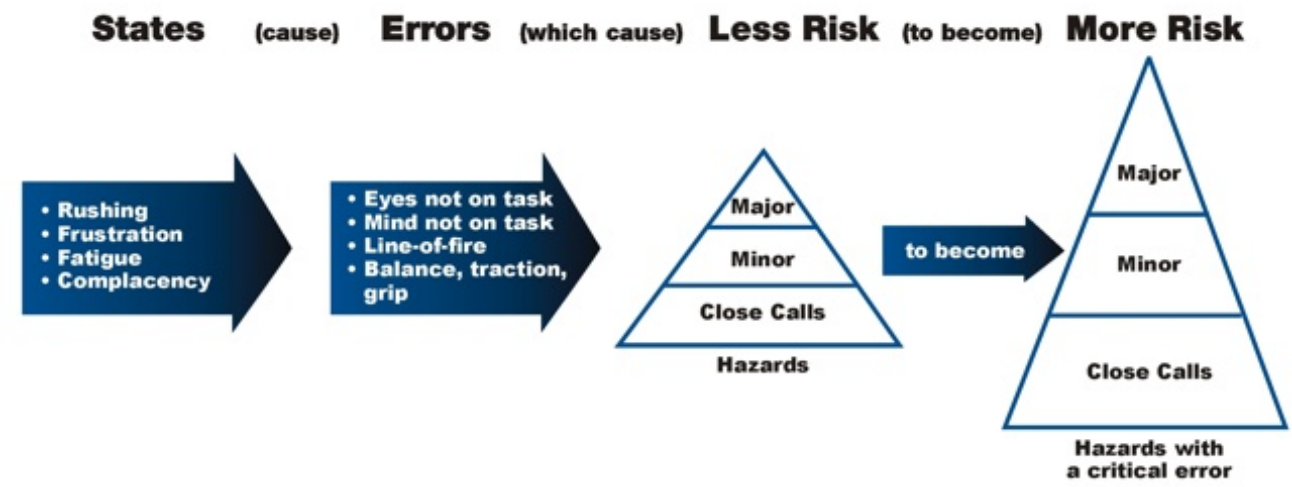


Figure 2 – State to Error Pattern that Increases Risk

Once you see these state to error patterns (and you see them everywhere), all you've got to do now is teach people to recognise when they are in one of these states before they make a mistake that can get the hurt. Not only will this reduce injuries, but it will also reduce quality problems, efficiency problems and needless equipment or vehicles damages.

REDUCING HUMAN ERROR

What can be done to reduce human error? There are 4 critical error reduction techniques that help reduce the number of critical mistakes made. These are:-

- Self-trigger on the state (or amount of hazardous energy) so you don't make a critical error: We can tell when we are rushing, fatigued or frustrated. Since critical errors occur mostly when we are in one of the 4 states, knowing this before we make a critical error can focus us into preventing us from making a critical error in the first place.
- Look at others for the patterns that increase the risk of injury: It is difficult to self-trigger on complacency. The best way to fight complacency is to look at others for the state to error patterns that make us aware of how dangerous a task or a hazard can be. Seeing others focuses our minds when we are exposed to it.
- Analyse close calls and small errors (those with little consequences) to prevent agonising over the big ones: This is just so that we learn from all our mistakes not just the ones that cost us in terms of consequences but also the 'free lessons'.
- Work on habits that reduce your likelihood of making a critical error: At the end of the day unless we can re-programme our brains to get into new habits, the principles will not be much use to us.

The trick is not to know that rushing, frustration, fatigue and complacency cause us to make critical errors, the trick is to realise that we are rushing, frustrated, fatigued or complacent before we make a critical error and be able to stop ourselves.

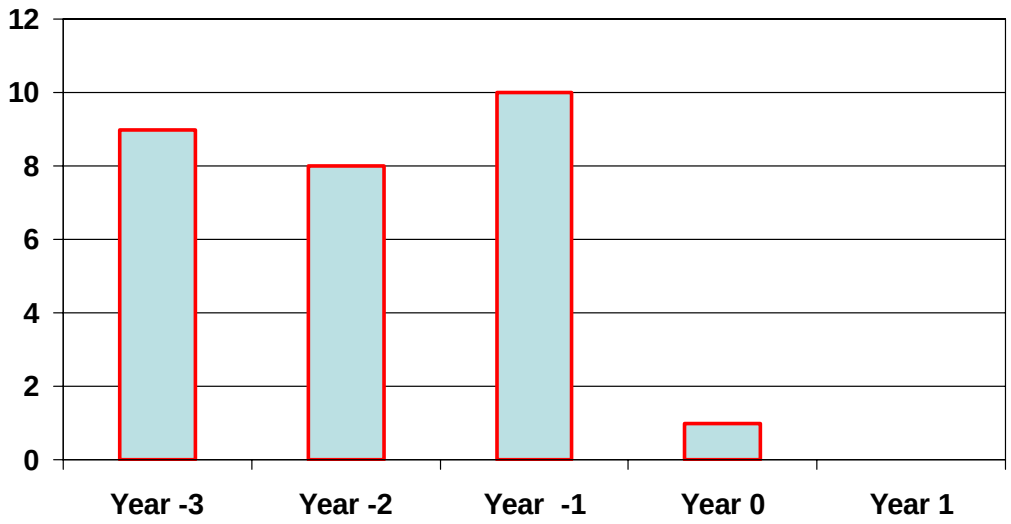
If we can't put the 4 critical error reduction techniques into action, it doesn't do us any good.

CASE STUDIES

Case Study 1

Springer Creek Sawmill, in the West Coast of Canada, is the largest producer of softwood lumber in Canada. It has a workforce of 250.

Please refer to figure below for a graph of LTIs per year.

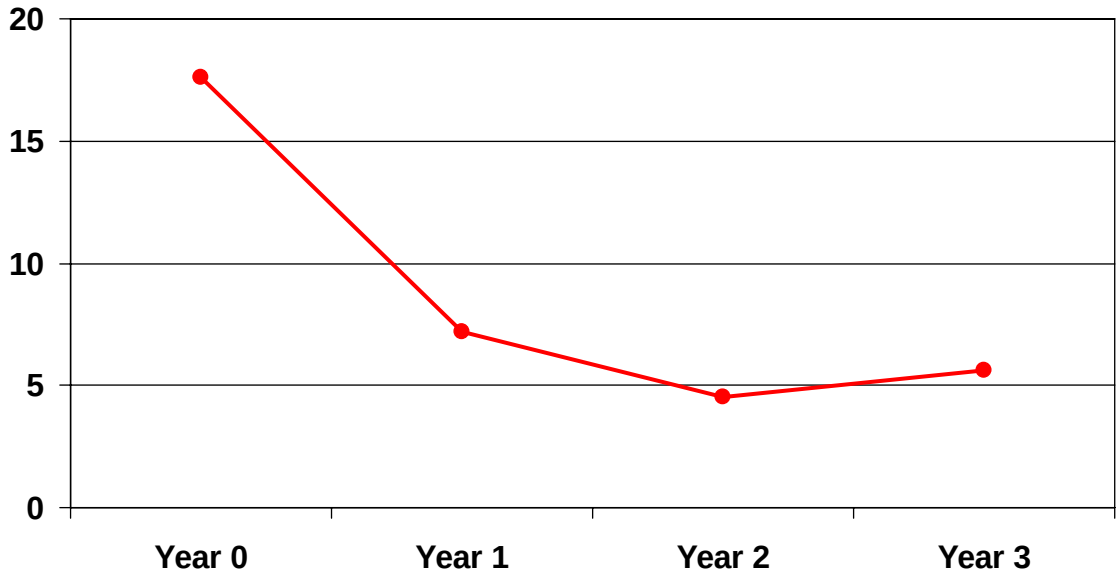


As a result of the improved safety performance, Springer paid out $3.06 per full time equivalent, which is a remarkable improvement compared to payments as high as $7,800 per full time equivalent in previous years. That resulted in a savings of over $1,000,000 per year.

Case Study 2

Simmons Company, manufacturing in the USA.

Please refer to figure below for a graph of OSHA Incident Rate (Recordable injuries per 100 full-time employees).



During the period of the safety improvement, not only did Worker's Comp costs reduce from $2.5 million to $0.5 million, but the organisation also increased productivity by 12% - reaching the highest level of productivity in the organisation's history.

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