

New Perspectives on Personal Risk Assessment

by **Larry Wilson**

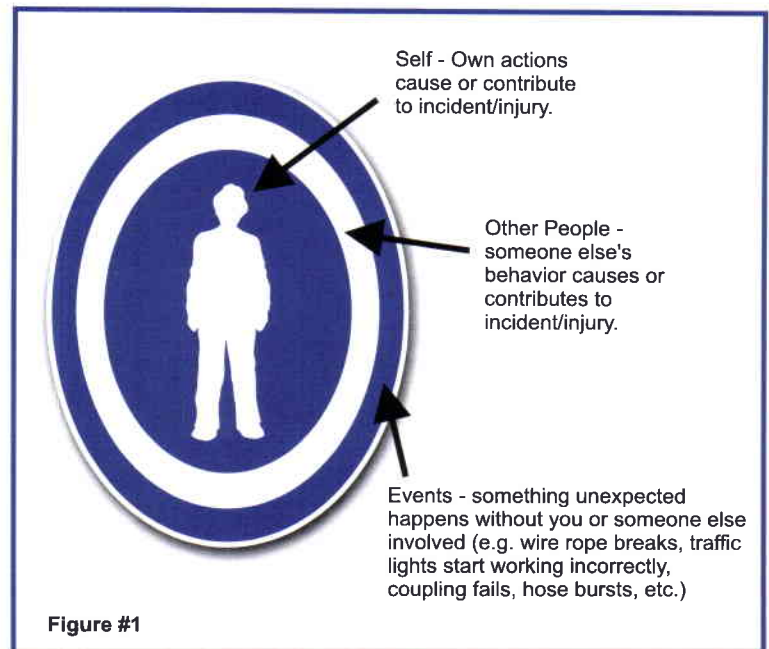
There are many types of risk assessments: there are the kind that insurance companies do, there are the kind that safety professionals do, there are the kind ergonomists do and there are also the kind that people do. And although there are a lot of risk assessments conducted and completed by insurance companies, safety professionals and ergonomists, the individual risk assessments we all make, every day, every hour or every minute - when driving, far outnumber the formal risk assessments the professionals make.

Unfortunately, if someone didn't understand the *real risks* of personal injury, then it would be very difficult to conduct an accurate assessment of the risks involved. What's worse is that whether people understand the real risks of personal injury or not, they usually *believe* that their risk assessment *is* accurate and (for the most part), are only so interested in someone else's opinion or assessment. For instance, suppose you're at your mother-in-law's for dinner with the family. It starts snowing really hard. She looks out the window and says, "You shouldn't go, you'll have to stay here and go early in the morning." Would you automatically say, "Ok" or would you at least go have a look? If it didn't look that bad, would you stay?

And, although both people think their risk assessment is accurate in the above scenario, obviously only one person will be right (and the other one thinks you're foolish).

Granted, this is only one example, but it isn't really much of a stretch to say that flawed or erroneous risk assessments, of a personal nature, occur all the time. If you're somewhat skeptical, simply take a drive in Toronto or Dallas at rush hour. In all likelihood, it will not take a minute for you to see someone making what you will think is a poor or illogical decision based on your assessment of the risks involved.

But here's the problem. Or, to be more accurate, here's one of the problems with personal risk assessments: when it comes to deliberate risk or intentional risk, the guy who you think is making an illogical decision based on your risk assessment is actually making a



logical decision based on his risk assessment. It's not that someone is right or wrong (no one ever wants to get hurt). It's that the risk assessment is wrong. However, since there are so many personal or intangible things that go into a decision involving risk - it's quite tempting to say that it's *the person that's the problem*. But obviously, no matter who it is - they don't want to get hurt. True, there are other factors that affect deliberate risk decision making - such as the thrill of high speed sports or the love of the game, if the game is football or hockey. But for most industrial situations, deliberate risk decision making has more to do with personal risk assessments than for the thrill or love of the game. Getting people to make accurate, or at least more accurate risk assessments would be a big help then, as it pertains to deliberate

decision making.

The first step with this would be obvious. Inform the people about the hazards. Because if you don't know about the hazard, you can't make a risk assessment. However, to this end, more and more companies have got this part covered. Most employees can tell you about the specific hazards they have to deal with. But there's more to hazards than just "knowing them". There's also the problem of keeping the hazards in mind or in sight. Think about how many hazards you negotiate on a daily basis with just your eyes and mind. This is an area where (again) most people *aren't* all that good when it comes to assessing the risk. And to be sure, accurately calculating the probability that you'll make a mistake can be difficult.

Critical Errors

At least one of these four possible errors is involved in many safety incidents.

- ◆ Eyes not on task
- ◆ Mind not on task
- ◆ Being in the line-of-fire for the hazards
- ◆ Losing balance and inadvertently falling into the path of the hazard

Figure #2

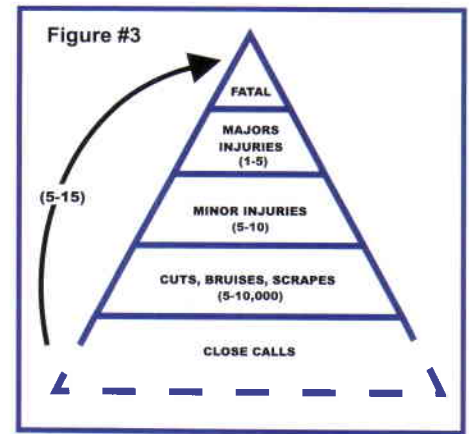
And it's close to impossible if you don't at least think about it or explore the idea further... But again, "most" people do not give the probability of making an injury-causing mistake, like *eyes not on task*, much thought. They are more likely to concern themselves with the probability of the equipment breaking or failing unexpectedly; or the probability of the other guy doing something unexpectedly. In other words, the other guy and the equipment get the lion's share of their risk assessment. (See Figure #1- Sources of Unexpected)

And that is another problem when it comes to personal risk assessments. So much thought

goes into trying to calculate the probability of the equipment or the other guy doing something unexpectedly; and so little thought goes into the probability of simply making an injury-causing mistake or a critical error. Injury-causing mistakes or critical errors are those that put you into contact with a source of hazardous energy (see Figure #2 - 4 Critical Errors). What is surprising is that we tend to ignore or disregard this, and yet we're no strangers to critical errors and injuries. We've all experienced thousands of injuries - if you count or consider all of the bumps, bruises, cuts and scrapes we've experienced so far this lifetime. And, if you're like most people, you have also sustained a few serious injuries a little further up the risk pyramid (see Figure #3). How many of those injuries were caused or initiated by the equipment breaking or failing unexpectedly? How many were caused by the "other guy" doing something unexpectedly (not including contact sports)? Now...how many are left?

For most people, well over 90% of the acute injuries they've experienced did not involve the equipment or the other guy doing something unexpectedly. Over 90% were "initiated" by an injury-causing error. So, it's easy enough to see then, that if people are only giving 10% (if that) of their thought to what is really 90% (or more) of the problem - then this is going to cause some inefficiencies and inaccuracies (to say the least) in terms of their personal risk assessments. But the relatively small proportion of thinking that goes into the possibility of making an injury causing error isn't the only problem with that thinking.

Someone might think that the only thing that can happen to them if they are using an adjustable wrench instead of going upstairs to the garage to get the socket wrench is that they could skin their knuckles so they say to themselves, "Fine, so be it - I can risk that..." Which would be ok if line-of-fire was the

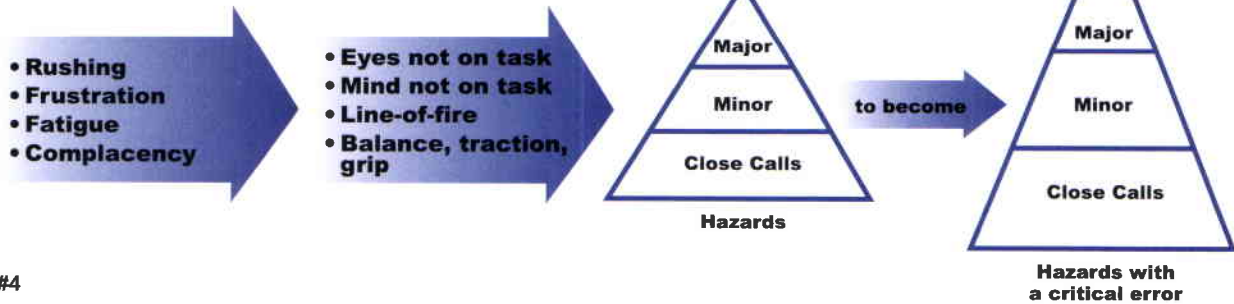


only critical error you needed to worry about. But what if they lost their balance when the wrench slipped? Suppose they hit their hand on a sharp corner or the concrete floor? Things could be much worse... since all 4 critical errors can put you into contact with hazardous energy, you have to do your risk assessment on all 4 errors. And, since you aren't trying to make any mistakes in the first place (let alone any injury causing mistakes), you can't delude yourself into thinking that you can be selective about which mistakes you're going to make.

But we're still not really at the heart of the matter. Even if most people don't give this as much thought as they should, that doesn't mean they don't know that moving into the line-of-fire of a transport truck could be potentially fatal. Everybody knows that if you make one of these mistakes, you could die - that's not the problem. The real problem is that they don't know *when* they will make a critical error.

Obviously, if we could help people predict *when* they might make an injury-causing error that would be a big help. They might not know what injury-causing error it might be. But, since there are only four, or, another way of looking at it, only two you need to look for and think about: line-of-fire and balance, traction or grip. It's not going to be all that difficult to think about each one, if you just know *when* they're likely going to occur and that really isn't all that difficult either, because almost all injury-causing errors

States (cause) Errors (which cause) Less Risk (to become) More Risk



occur when the person is in one or more of these four states:

- ◆ Rushing
- ◆ Frustration
- ◆ Fatigue
- ◆ Complacency



If you start asking, you'll actually be hardpressed to find *anyone* who can tell you of a time they've been hurt when they weren't in a rush or tired, frustrated or complacent. Unless, of course it was one of those rare times when the equipment or the other guy did something unexpectedly. Adding this to your risk assessment is key to predicting or trying to calculate the risk of making an injury causing error. Simply put, if you're in one of these four states, the risk of whatever you're doing has been increased substantially.

If one of these four states or a combination of them causes you to make an error, then - at that moment, it's just a matter of luck and the amount of hazardous

energy you're dealing with in terms of how badly you'll get hurt (a 10 foot fall is usually better than a 20 foot fall - see Figure #4 State to Error Risk Pattern.)

True, you can't predict or pick the critical error, but you can easily assess whether you're in a rush, tired, frustrated or complacent. If you're not, then you're probably not going to make a critical error. Looking around and thinking about line-of-fire and what could cause you to lose your balance, traction or grip will further reduce the risk that you'll make a critical error.

All you have to do now is check out the equipment and keep an eye out for the other guy. But since that's less than 10% of primary causation, don't spend too much time doing it.

Use that time and energy more wisely by spending some of it - a lot more of it - on yourself. After all, that's where the real risk is...

So, although this sounds like a lot, it really doesn't take very long, nor does it require much effort, if you know what the real risks are:

- ◆ Recognize that the most likely way people get hurt is not because of the other guy or the equipment doing something unexpectedly. Never the less, it's always efficient to at least look at the tool or look over the piece of equipment prior to using it. Many potential problems can be seen easily, but not if you don't think

or bother to look for them.

- ◆ Ask yourself if you've become too complacent. (You'll already know if you're in a rush or tired or frustrated, so you won't have to ask.)
- ◆ Assess the risk from a line-of-fire, balance, traction, grip and eyes on task, mind on task point of view. (Is there anything that could hit you or is there anything hard or sharp you could hit if you lost your balance, traction or grip?)
- ◆ If you've done this job or task before, think about any close calls you might have had. What was the unexpected occurrence? What critical error? What state? That will also help you fight becoming too complacent or make you less likely to make the same critical error again.
- ◆ Although it's not as easily recognizable as rushing, frustration and fatigue, complacency is easy to predict up-front. If you know it's a really long boring drive, or if it's a routine job you've done many times before - you know you're likely going to become complacent.

You can then think about what that might do if it leads to a mind not on task error. If it's likely that it could lead to both a mind not on task and an eyes not on task error occurring simultaneously, then you've greatly

increased the risk.

Because, if you're not looking or you're not thinking it's really easy to move into the line-of-fire or to lose your balance, traction or grip. In most severe injuries, both an eyes not on task and a mind not on task error occurred simultaneously which makes sense because the person didn't even get a chance for a reflex.

Now that you've identified those jobs or tasks where complacency is very likely a part of your personal risk assessment, you can then ask, "what additional safeguards can I use or rely on?" For instance, leaving a safe following distance or even more than the standard 2 second rule will give you more "cushion" if you're driving on "auto-pilot".

So, to wrap up - if we go back to the "drive home from your mother-in-law's in the bad snow storm" example - did either of you consider fatigue or how tired you were after the big dinner? (25% of the fatal car wrecks are caused by people falling asleep at the wheel.) Did you consider rushing or frustration? If it's snowing really hard, complacency won't likely be a factor for the first hour or so, but what about after you get used to the snow by the second or third hour and you let your guard down? And finally, because this is the real killer, did you consider the combination of fatigue and complacency by the fourth hour, the frustration with the other drivers who aren't good at driving in the snow (or heavy rain as the case may be) and the inclination to rush or keep your speed up in the fourth hour? Because whenever you're making personal risk



assessments, the first thing you should think about is you and your state of mind. After all, it's hardly ever been the other guy or the equipment that's done something unexpectedly which got you hurt. It's been the unexpected nature of your own errors.

About the Author

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