

Aviation Human Factors Industry News

Volume VI. Issue 26, July 30, 2010



From the sands of Kitty Hawk, the tradition lives on.

Hello all,

To subscribe send an email to: rhughes@humanfactorsedu.com

In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

★Safety Nets

★Runway Safety - Vehicle Driver
Best Practices

★'Legends Of Flight': Aviation's
Hits And Misses

★ATA Non-Destructive
Testing Forum, Sept. 20-23,
Albuquerque, N.M.

★Reducing Work Hours for
Resident Physicians

★A bad time to be hospitalized

★How is your reaction time?

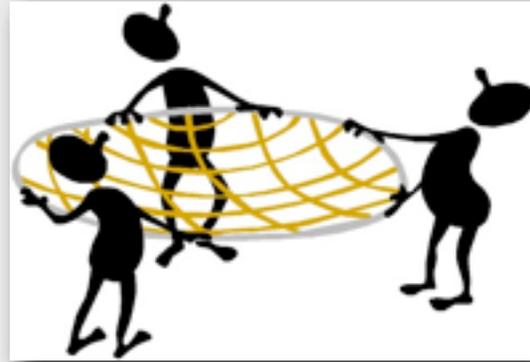
★One in Four Workplace Deaths
Involve Machinery

★Do You Have What It Takes?

Safety Nets

How to fatigue proof your organization.

Although staff and management can and should take steps to reduce the incidence of fatigue at work, the **reality is** that fatigue will always be an issue in round-the-clock operations. Fatigue proofing **is simply the process** of anticipating the times when fatigue is most likely and taking steps to reduce the possibility that it will result in an incident or accident.



This may mean scheduling non-safety-critical work during periods of high fatigue, or implementing stringent controls and procedures when safety-critical work is being performed during high-fatigue periods.

Fatigue countermeasures may include extra independent checks, mandatory use of written checklists, increasing staff numbers on mentally demanding jobs, allowing more time to complete tasks, and encouraging staff to speak up if they feel they are too tired to perform a task safely.

There is several known types of **maintenance error** which are exacerbated by fatigue and each of these should be considered when designing a fatigue-proofing program.

COMPLACENCY: It has been well established that fatigued persons **accept** lower performance standards than normal. In a word, their tendency to become complacent will increase.

DISTRACTIONS: Fatigued persons have a **reduced ability** to concentrate. This will make the very susceptible to distractions.

LACK OF KNOWLEDGE and AWARENESS: Being fatigued does not reduce a person's knowledge. However, the reduction in judgement and reasoning associated with fatigue makes it **less likely** that appropriate knowledge will be used when it is required, and fatigued individuals are often unaware of their own performance decrements.

STRESS: The stress caused by the disruptions to normal sleep cycles and the family tensions associated with shiftwork can significantly **degrade** job performance.

LACK OF COMMUNICATION: Effective communication, teamwork and assertiveness require **effort and a desire** to communicate. Fatigued persons tend to be irritable, have a reduced inclination to interact with others and are very much inclined NOT to make an effort.

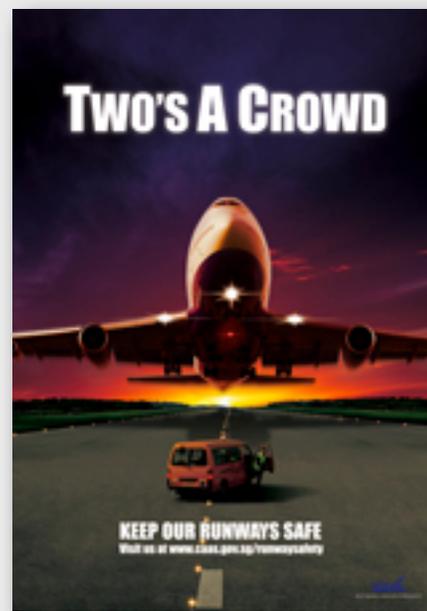
NORMS: Workplace norms about fatigue are very powerful determinants about what actions, if any, will be taken to manage and/or prevent fatigue in the workplace. For example, many people see sleepiness as a **badge of honor** rather than as a condition to be remedied. Managers place a high value on individuals who “**tough it out.**” This occurs despite the fact those who are “toughing it out” are **increasingly at risk** of having an accident (or causing one) because they are suffering from dangerous alertness deficits. Actions to address these well know problems is an essential first step in fatiguing proofing an organization.

Runway Safety - Vehicle Driver Best Practices

Known 'Best Practices' for AIRFIELD SAFETY - Airport Personnel

The **best practices** were developed by FAA staff to help vehicle drivers improve safety with guidelines to develop skills and techniques that should be followed to improve operations and **minimize errors** on the AOA (Airport Operations Area) 1. Review and understand airfield **signage and markings**. 2. Review the **airport diagram** prior to moving the vehicle. Have the airport diagram out and available for immediate reference while driving in the operational area.

3. Review **current airfield information** for any taxiway closures, runway closures, construction activity, or other surface risks.



4. Ensure **appropriate vehicle lights** (high beams, flashers, beacons, and strobes) are operational prior to driving in the operational area. Flashers and beacons help ATC, aircrew and other vehicle operators see vehicles in the operational area, especially during periods of reduced visibility and at night.

5. Use **service roads** whenever possible to minimize time spent on taxiways and runways.

6. During radio transmissions, use **correct terminology** and proper voice cadence.

7. Copy your clearance and review the assigned route. **Read back all clearances.**

8. **Eliminate distractions** while driving in the operational area. Do not use cell phones while driving in the operational area.

9. Focus attention and have your **"eyes out"** of the vehicle.

10. Maintain **appropriate** speed.

11. **Be alert** to similar aircraft and vehicle call signs operating on the field.

12. **STOP** the vehicle on the taxiway and request ATC clarification if there is confusion regarding your position or your clearance.

13. When cleared to cross any runway or taxiway, **first visually check** to ensure there is no conflicting traffic. If there is any doubt that the runway is clear, reconfirm crossing clearance with ATC

14. Note that if you see an aircraft in take-off position on a runway with **take-off/landing lights ON**, that aircraft has most likely received its take-off clearance and will be departing immediately.

15. If your radio fails while you're in the operational area and the tower is open, alert the controllers by **flashing your high/low beams towards the tower**. They will respond using the light gun: solid red means stop where you are; solid green means cleared to cross, proceed or go. If the tower is closed, visually clear your route and exit the operational area as quickly as possible.

16. If the tower is closed, **broadcast your location** and intent on the CTAF.

'Legends Of Flight': Aviation's Hits And Misses

Boeing chief test pilot Mike Carriker draws fuselage components in space.

Aviation has come a long way since the Wright Brothers made their first flight in 1903. From gliders to biplanes and commercial airliners, new aircraft design has often changed the way we live. In the 3D IMAX movie [Legends of Flight](#), chief test pilot Mike Carriker chronicles a century of aviation trial and error.



The first plane Carriker remembers flying on was a U.S. Air Force DC-7. "As a small child, I remember sticking my face in the window and watching those big round engines starting up with all that smoke and fire coming out of the exhaust stack," he tells NPR's Neal Conan. "I've never forgotten that."

Carriker first flew a plane, a Cessna 172, at age nine or ten, in Indiana. His father was a U.S. Army Air Corps pilot, and put him in front of the controls. "I was hooked," he remembers, "from right then and there."

ATA Non-Destructive Testing Forum, Sept. 20-23, Albuquerque, N.M.

Join us for the [53rd Annual Non-Destructive Testing Forum](#), hosted by ATA and in coordination with FAA Airworthiness Assurance NDI Validation Center at Sandia National Laboratories. Meet NDT professionals and industry leaders and discuss current NDT issues and methodologies.

[53rd Annual Non-Destructive Testing Forum](#)

Reducing Work Hours for Resident Physicians

Are you sure you want your employee's on the clock for this amount of time?

New findings, published in a recent edition of the online journal BMC, indicate that Americans strongly favor **tighter regulation** of the of consecutive hours that resident physicians are allowed to work and overwhelmingly disapprove of shifts lasting longer than 24 hours, which are currently required by teaching hospitals. Only 1 percent of general public supports widespread practice of resident physicians working shifts longer than 24 hours, according to a recent research. **This is the first systematic study** of public perceptions of resident work hours.

This study comes as the Accreditation Council for Graduate Medical Education (ACGME), the organization that oversees physician training in the United States, prepares to make public its proposed new guidelines governing resident work hours.

Patients are very concerned about being cared for by a **fatigued physician**. Four-fifths of the general public believes that reducing resident work hours would **reduce medical errors**, the study found. Patient safety groups have formed a coalition to bring light to the issue of resident hour reform and created a website, WakeUpDoctor.org, to raise public awareness of the problem.

Fatigue is common among medical residents, as are medical errors, the researchers noted. "One of five resident physicians admits to making a **fatigue-related error** that has injured a patient, and **one in 20 admits to making a fatigue-related error that has resulted in the death** of a patient," said Dr. Charles Czeisler, a senior author of the study and Baldino professor of sleep medicine at Harvard School of Medicine. "Working for 24 hours without sleep impairs performance to a degree that is comparable to being legally drunk. Patients have a right to be concerned for their safety when doctors work **marathon 24-hour shifts**. Reducing resident physician work hours is an effective way to improve patient safety."



"The finding that patients do not find it acceptable to be cared for by fatigued, poorly supervised residents should not come as a surprise," said Helen Haskell, founder of Mothers Against Medical Error, a coalition member. "The fact that the public is almost completely unaware of the actual working conditions of medical residents is **symptomatic of the gulf in thinking between patients and those who are responsible for setting the standards** for the residents who care for patients."

<http://www.sleepfoundation.org/donate>

www.WakeUpDoctor.org,

A bad time to be hospitalized

July is the month that new doctors start their residencies at teaching hospitals. It's also the month that **hospital deaths caused by medications reach their peak** - and that's no coincidence, a new study suggests.

Researchers at the University of California at San Diego studied 250,000 deaths that were classified as hospital **medication errors**.

The deaths were evenly spaced across the months except every July, which saw a 10 percent increase - but only in countries with teaching hospitals. "there's something going on in teaching hospitals in July," lead author David Phillis tells *ABCnews.com* That

some things is a flood of newly minted doctors, learning their profession as residents. Researchers say the new residents may make mistakes because they **work long hours and are sleep deprived**, or are still learning the system. Whatever the cause, they say, hospitals should consider giving new doctors more supervision - at least in July.

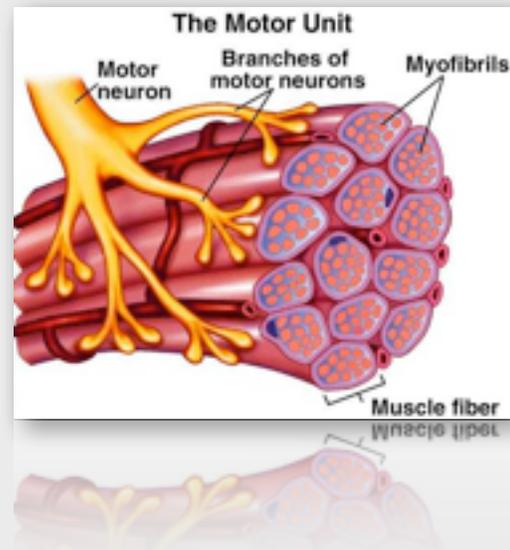


How is your reaction time?

Compare your **reaction times** on a day when you are fully rested to a day when you just finished an overtime shift. Was there any significant change?

By the way, the driving manual says the average driver's reaction time is: .75 seconds..... or 1 car length for every 10 mph..... Test your average reaction time.

Be very careful this **can be addictive**. Click on the blue link below and good luck.



Reaction Test: http://www.bbc.co.uk/science/humanbody/sleep/sheep/reaction_version5.swf

One in Four Workplace Deaths Involve Machinery

According to the Industrial Accident Prevention Association (IAPA), **machinery is involved in one in four workplace deaths**.

To protect your workers from the many hazards surrounding machinery, the IAPA **urges supervisors to ask themselves these questions**: Is guarding in place and used properly? Is machinery in good repair and used properly?

1. Are lockout procedures clear and understandable?
2. **Are workers trained** before work starts on machines?



3. Are written job procedures available to workers and are they understood and followed by them?
4. Is required **personal protective equipment (PPE)** in good repair and used properly?
5. Are incidents and injuries investigated to find and eliminate the root cause?

If you answered “no” to or were unsure about the answers to any of those questions, you should review your machine safety program right away before someone becomes hurt on the job.

Do You Have What It Takes?

Have you ever wondered if you really have **what it takes** to succeed in achieving your goals? Are you where you thought you would be at this time in your life? In today’s lesson we will highlight one of the **key** that differentiate those who succeed in the things they pursue from those who fail. As I have watched and studied thousands of want-to-be entrepreneurs over my career, I have learned a lot about what it really takes to succeed at a high level. While there are many things that go into achieving great, there is one common attribute I’ve seen in 100% of the people who gone on to attain greatness.



Do you have persistence?

If you have set big goals for your life, the only way you will achieve them is by being **persistent**. Why? Because achieving anything worthwhile is a journey through life’s battlefield that requires a sustained effort over an extended period of time. Read the biographies of successful people and you won’t find one who said it was easy or fast.

The road to reaching your goals will be **filled with roadblocks** that will require you to modify your course. You will experience pounding hailstorms that will beat the tar out of you and cause you to question whether it is worth it. You will have people telling you that you will never make it. There is a reason there is very little traffic when going the extra mile.

What is critical to understand is achieving a high level of success at anything is very difficult, which is why so few people enjoy the rewards of that come with reaching their goals. My life's experiences have taught me most people (95%+) **quit when times get tough**.

Years ago I had a fellow Realtor tell me that 99 out of a 100 people who go to real estate school, don't renew their license the next year. Not only did these people not have the persistence to win, they **didn't have the resolve** in their bones to do more than getting their license. What a tragedy!

What type of persistence does it take to win?

If you are going to win, you must be **mentally prepared** to face your challenges head on. You must know it's not going to be easy. You must be strong enough to fight through disappointments, failures and times of discouragement. You must be patient, because achieving anything worthwhile takes time.

Most importantly if you are giving your best and making measurable progress you must never give up. When you quit, you are throwing the towel in the ring.

What is your biggest goal?

When you look at your goals, what is the one goal that is really important to you? (Don't continue until you have it selected.)

Is that goal important enough to you that you will stay the course and do what is required of you to win? When you get down and discouraged, are **you strong enough** to pick yourself up by the boat straps and continue with the attitude of a winner?

Here is what I know. **You can achieve anything that is important to you**, if you are willing to pay the price required to succeed. The great thing about success is it cannot be purchased; it is available to anyone who is willing to work hard, remain disciplined and persevere.

I want to challenge you to step up your game. Push harder than you have ever pushed yourself before. When you get down, remind yourself that everyone gets down, but the difference between you and many others is that you are a **winner and not a quitter**. Believe you are a winner and you will win.

During the darkest hour is when the winners in life **dig deep inside** to gather the strength to win.