

Aviation Human Factors Industry News

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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:

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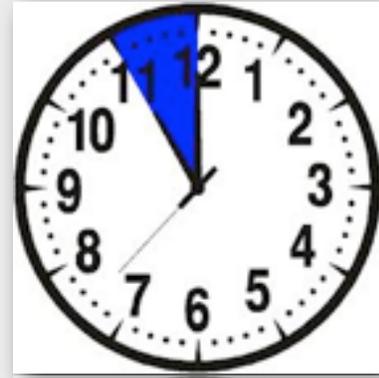
★**NTSB Uses Laser Scanners at Accident Scenes**

★**UCF scientist may have golden solution for pilots hit by laser pointers**

★**And Much More**

Air France Crash Report: Captain Had Just One Hour Of Sleep

According to a transcript of the cockpit voice recorder, the captain of the Air France Airbus 330 that crashed into the Atlantic in 2009 said he **had not had enough sleep the night before**, a detail that was not previously released, according to the French magazine Le Point. Le Point says that in a judicial transcript it acquired, the captain said, "I didn't sleep enough last night. **One hour, it's not enough.**" According to ABC News, the new information raises concerns about the investigation and whether the full content of the CVR transcript should be made public. Investigators released a final report on the crash last July. Meanwhile, Airbus officials have found that simulators used to train crews **can't accurately replicate the scenario** faced by the 2009 crew when the pitot tubes iced up and the airplane subsequently stalled. "The whole training philosophies need to be adjusted," Airbus test pilot Terry Lutz said in a recent presentation at the Royal Aeronautical Society in London, according to Bloomberg News. Lutz's co-presenter, Paul Bolds-Moorehead, a senior lead engineer at Boeing, said, "It has been extremely challenging to try and get an accurate simulator, post-stall. Could we develop a way to provide some kind of angle-of-attack limiting function? It would be very problematic to do, but it's something we should probably look into."



Final Report:

http://www.avweb.com/avwebflash/news/air_france_447_final_report_bea_pilot_flying_crash_brazil_206934-1.html

Why Safety Deserves a Capital S

Gordon Dupont of *System Safety Services* asks; "have you ever noticed that the names of people, cities, countries, months, days and important places all start with a capital letter?"

Titles, car types and most abbreviations for words are honored with a capital. In short, we tend to use capitals to denote important words.

So why not a big, for all to see, capital S for Safety? The only logical answer I can find is that it is not traditional to do so. If that is the case then it's time we updated the tradition. Why shouldn't Safety have a capital S? It has never been so important as now with so many lives depending on it. I've given it a capital for years, except when Microsoft word drops it back down to a small s when my back is turned. I can remember, not that many years ago, when safety was for wimps or mama's boys as they were called back then because real men just used their common sense to survive and didn't need silly safety rules to dictate what they could or couldn't do. Sure some of those without common sense were killed, but it was survival of the fittest and good for the gene pool. Then organizations like CCOHS (Canadian Centre for Occupational Health and Safety) and OSHA (Occupational Safety and Health Administration) began to make safety rules. Please note that these Safety organizations were given capital letters but not Safety unless part of the title.



The FAA, CAA, ICAO, TC, etc. also got into the safety business and with regulations and rules untold thousands of lives have been saved but no one thought to recognize safety for the importance in saving lives that it deserves.

I believe that today, safety is an important factor in a person's life. Today, they won't allow you to take a child home from the hospital without a Safety approved car seat.

Lee Iacocca thought he was right at the time, 1971, when he said that "safety doesn't sell" cars and refused to authorize a \$1.00 per car fix to the Pinto gas tank because it would be cheaper to pay out for the odd person who would burn to death in a rear end car crash. (Over 500 would suffer that fate in a Pinto rear end collision accident). But he was very wrong and when people realized that the car was unsafe and shortly thereafter they went out of production (1980) even with the fix.

So the Pinto earned a capital but not safety that today sees cars with shoulder harness seatbelts, airbags, collapsible steering wheel, crumple zones, reinforced doors that don't jam etc. etc.

Today safety does sell and is expected. Without safety no company will remain in the aviation business for long. Thus it is time that Safety receives the importance and respect it deserves. Safety deserves a capital S. I, for one will spell it that way, and if you are serious about Safety, [I urge you to do the same.](#)

Human Error Management workshop

System Safety Services will be holding a 2 1/2 day workshop in Sweden, May 29 - 31, that will introduce a Human Factors workshop that has been proven to work. It centers around the Dirty Dozen and provides not only what to train but also how to be successful when doing the Human Factors training.



If you, or someone you know, is interesting in knowing more, please go to our website title page at www.system-safety.com and click on Human Error Management Workshop.

As always, we guarantee that if anyone feels that the workshop was a waste of their time, we will refund their money, minus only expenses.

www.system-safety.com

NTSB Safety Alerts hope to improve general aviation safety

Concerning most frequent types of general aviation accidents, NTSB issued [5 Safety Alerts](#): [Is Your Aircraft Talking to You? Listen!](#); [Reduced Visual References Require Vigilance](#); [Avoid Aerodynamic Stalls at Low Altitude](#); [Mechanics: Manage Risks to Ensure Safety](#); and [Pilots: Manage Risks to Ensure Safety](#).

Each provides brief information sheet pinpointing safety hazard and offers practical remedies to address issue at hand. [Short videos](#) for each Safety Alert will be available in spring.

Today the National Transportation Safety Board issued five Safety Alerts that focus on the most frequent types of general aviation accidents.

“Because we investigate each of the 1,500 GA accidents that occur in the United States every year, [we see the same types of accidents over and over again](#),” said NTSB Chairman Deborah A.P. Hersman. “What’s especially tragic is that so many of these accidents are entirely preventable.”

Each year, about 475 pilots and passengers are killed and hundreds more are seriously injured in GA accidents in the United States, which is why [GA Safety is on the NTSB’s Most Wanted List](#). (<http://go.usa.gov/28DF>)

A Safety Alert is a [brief information sheet](#) that pinpoints a particular safety hazard and offers practical remedies to address the issue. Three of the Safety Alerts focus on topics related to some of the most common defining events for fatal GA accidents. These include low-altitude stalls, spatial disorientation and controlled flight into terrain, and mechanical problems. The other two Safety Alerts address risk mitigation.

The five Safety Alerts issued today are:

- Is Your Aircraft Talking to You? Listen!
- Reduced Visual References Require Vigilance
- Avoid Aerodynamic Stalls at Low Altitude
- Mechanics: Manage Risks to Ensure Safety
- Pilots: Manage Risks to Ensure Safety

The NTSB is creating five short videos – one for each Safety Alert – [which will be rolled out this spring](#). The videos will feature regional air safety investigators sharing their experiences and observations of the many accident investigations they conducted as well as advice on how pilots and mechanics can avoid mistakes that can have such tragic consequences.



“GA is essentially an airline or maintenance operation of one, which puts the responsibility for sound decision making on one person’s shoulders,” Hersman said. “We are promoting and distributing the alerts to reach pilots and mechanics who can benefit from these lifesaving messages.”

The five Safety Alerts approved today, as well as others that have been issued since 2004, are available at <http://go.usa.gov/2BeA>.

The presentations investigators made to the Board today are all available at <http://go.usa.gov/28bx>.

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Air safety watchdog cites lessons of near-miss

A near-miss incident involving two aircraft at Jabiru in the Top End of the Northern Territory has been used as [an example of the importance of checking radio equipment](#).

The Australian Transport Safety Bureau has highlighted the incident of October 5 last year in an investigation bulletin released recently. The pilot of a passenger plane on a flight from Darwin [didn't notice](#) until the final minutes of approach to Jabiru aerodrome that another plane was on the runway.

Both planes had to take evasive action to avoid a collision.

The pilots of both aircraft had used radios to broadcast their movements but the Safety Bureau report says the radio in the plane on the runway wasn't working because [a switch was in the wrong position](#).



Pushing the wrong button: Bad button placement leads to drone crashes

Poor ergonomic design on drone-control stations invites accidents.

A drone that crashed on the roof of an Iraqi house is recovered by Marines in 2006.

Unmanned aircraft crash. In fact, they crash a lot—though there's no recent specific data, the Congressional Research Service reported last year that despite improvements "the accident rate for unmanned aircraft is still far above that of manned aircraft." And while many of those accidents can be attributed to hostile fire or terrible flight conditions, [a significant percentage of drone crashes is caused by human error](#).



A December 2004 Federal Aviation Administration (FAA) study of Defense Department drone crashes found [human factors](#) to be a causal factor [in about a third](#) of the cases the researchers examined. But as four human factors engineering researchers have found, sometimes the accidents [are by design](#). That is, the design of the systems that operators use to fly the drones are so bad that they invite accidents. A recent Ergonomics in Design article reported that a small but significant number of crashes could be directly attributed to [bad ergonomics](#) on ground control station hardware. These factors may have played a major part in crashes that were attributed to other causes.

Take, for example, one drone crash in 2006. As the operator brought the drone in for a landing, he meant to flip the landing gear button on the control joystick [but accidentally](#) hit the nearby ignition switch instead—shutting off the engine in mid-flight. The \$1.5 million drone plummeted to the ground, a total loss. On another occasion, glare on a screen was so bad that a drone operator couldn't read an alert and [mistook](#) it for a landing signal—again killing the engines before the drone had landed.

Unmanned aircraft have been pushed into service so quickly in the last decade that their control systems were often still in development when they arrived on battlefields in Iraq and Afghanistan. Despite many of the systems being based on technology very similar to the average PC—and the level of automation in drones continuing to increase as operations move from flying with a joystick to a mouse—the Department of Defense [has still not developed human factors standards](#) for ground control station systems, even as the systems have matured. Considering how much human factors engineering goes into nearly every bit of other weapons system procurement (and having worked as a contractor at the Army Test Lab at Aberdeen Proving Grounds at one point, I can attest that it's significant), that's a bit of a surprise.

The authors of the report were Dr. Qaisar "Raza" Waraich (an engineer at Smartronix who recently completed his PhD at George Washington University) and GWU faculty members Dr. Thomas A. Mazzuchi, Dr. Shahram Sarkani, and adjunct instructor David F. Rico (who has also done UAS design work for the US Navy). They surveyed 20 drone operators about the characteristics of their ground-control station systems and found that there was a 98 percent overlap in the input and output devices used by ground control workstations and those used by general purpose computers. Some devices even drew from the realm of computer and console gaming.

Therefore, they concluded, drone systems could benefit greatly from the application of [well-established ergonomic standards](#) for general-purpose computing workstations—specifically, the Human Factors and Ergonomics Society and American National Standards Institute's ANSI/HFES-100-2007 standards for computing workstations.

"The IO category of ANSI/HFES 100-2007 specifies the ergonomic shape of auxiliary input devices that best conforms to humans, bodily constraints, and layout," Waraich and his co-authors wrote. If the DOD used the standard as the basis for acceptable drone pilot workstations, [such as button layout specifications](#) that take hand and finger movements into account and try to avoid those that can cause hand fatigue, "many [drone] mishaps may be avoided."

Hopefully, the FAA will take [human factors](#) into account before it starts certifying any drones to fly in US airspace.

<http://www.fas.org/sgp/crs/natsec/R42718.pdf>

<http://erg.sagepub.com/content/21/1/25>

NTSB Uses Laser Scanners at Accident Scenes

The NTSB recently began using laser scanners as a replacement to standard camera photography to record important data at accident scenes. A camera records in two dimensions, but a laser scanner adds virtual reality by viewing evidence in three dimensions. The scanners mount on a tripod and rotate 360 degrees to digitally record everything within about 300 feet, accurately correlating the time for the signal to return to help build not only three-dimensional still photos, but also [digital simulations of past events](#). Because the scanners cannot see the back of an object, the device is moved to a variety of locations at the scene to build a complete picture.



The data gathered from the scanners can be digitally reassembled to provide information accurate enough to measure tire skid marks or even the deformation of damaged vehicles. The digital scanners also mean that simulations can offer viewers the opportunity to put themselves at any location to observe what occurred before or during an accident.

UCF scientist may have golden solution for pilots hit by laser pointers

Most people see gold as a high-end sign of wealth. Jayan Thomas sees it as a high-tech remedy for a [safety threat](#) that has worried the aviation industry for years.

The University of Central Florida scientist envisions his research in gold nanotechnology could one day produce "[laser-proof](#)" [glasses](#) coated with gold to protect airline pilots from being temporarily blinded by a laser shot from the ground.

"Are we working on a bulletproof vest for the eyes? Yes, that's probably a pretty good analogy for what we're developing here," said Thomas, an assistant professor of chemistry in UCF's NanoScience Technology Center.

With nearly 3,500 such "laser incidents" having occurred in the U.S. last year - including 298 in Florida and 58 in Metro Orlando - experts say [there's a fertile market](#) for such a product if it works. But Thomas and his collaborators at Carnegie Mellon Institute in Pittsburgh face some serious hurdles before the idea becomes a reality - not the least of which are the federal government's new deficit-reduction budget cuts.



If those "sequester" budget cuts remain in place, nearly \$9 billion will be eliminated from scientific research this year alone, according to the American Association for the Advancement of Science.

That means competition for grants will become more intense than ever, said Thomas, who plans to apply for money from the Air Force and the National Science Foundation for his latest project.

"It's going to be very difficult, very difficult," said the laser researcher, who has won hundreds of thousands of dollars in grants since coming to UCF two years ago from the University of Arizona. So far, his laser-proof-eyewear project has been financed solely by UCF and Carnegie Mellon.

Through atomic engineering, they have created "gold nanoclusters" - more than 200,000 times smaller than the tip of a pen - that have "optical limiting" qualities. That means the tiny gold particles [can block and extinguish high-energy laser beams](#) while allowing harmless visible light to pass through.

If the lab work eventually translates into a commercial product, it could be a breakthrough in laser-safe eyewear, said Dan Macchiarella, a professor at Embry-Riddle Aeronautical University in Daytona Beach.

Although he is not familiar with UCF's specific research, Macchiarella said military pilots have used gold-tinted laser-safe eyewear for a long time, though it is effective only against certain frequencies of laser beams.

"If there is a solution they're developing that could be applied to lasers [of all strengths and wavelengths](#), that would certainly be a big advancement," he said.

Human Factors: Your Role in Accident Prevention

Cathy Landry of Northrop Rice Aviation Training Solutions spoke on “Human Factors: Your Role in Accident Prevention” on March 5, 2013, to an audience of HELI-EXPO 2013 attendees in Las Vegas. The one-hour presentation was part of the HAI Rotor Safety Challenge, a new program of [safety education](#) that is free to HELI-EXPO® attendees.



Landry began by asking attendees, “What is your role in maintaining safety in your environment?” She then delivered an overview of the human factors that affect aviation maintenance. We have a tendency to focus on large, dramatic disasters, whether natural or man-made. However, Landry cited the [Heinrich ratio](#), developed by industrial safety pioneer Herbert Heinrich in the 1930s, which says that for every fatal accident, there are 10 nonfatal accidents, 30 reportable incidents, and 600 unsafe acts or at-risk behaviors. Focusing on reducing the 600 unsafe acts will ultimately curtail the number of reportable incidents, lower the number of nonfatal accidents, and in the end, [may even save a life](#).

Landry introduced the acronym of [AWESM](#) (“awesome”) to help attendees remember the different types of unsafe acts that can occur:

- [Action slip](#). This occurs when a task is incorrectly executed.
- [Workaround](#), or deviations from procedures. Landry pointed out that workarounds are particularly dangerous when used by senior personnel or those responsible for training others, as the deviation from procedure is then passed onto others.
- [Expertise error](#). This can either be a lack of knowledge or a skill deficit.
- [Situational awareness error](#). These errors occur when a person’s acts are based on an inaccurate picture of a situation, stemming from either a misperception or an assumption based on incomplete information.
- [Memory lapse](#). Sometimes we simply forget. Other times, we are distracted, perhaps by a co-worker or a problem at home.

“One critical issue in aviation maintenance is [accurate reassembly](#),” said Landry, showing an illustration of a bolt with eight nuts and commenting that, while there is only one way to take it apart, there are more than 43,000 different reassembly combinations.

This is one reason why distractions are such a problem in aviation maintenance. She recommended several fixes:

- **First, be assertive.** Don't be afraid to tell the person who is interrupting you that you need some extra time to finish your task. Also, Landry noted, we all have the right not to answer our cellphones. Let it go to voicemail and finish what you were doing.
- **Second, create a record of where you were in your task.** Landry advised her audience to carry a pad of fluorescent sticky notes with them. When interrupted, post a quick note to remind yourself of where you were in the task.
- When you have any doubts, take **"three steps back,"** advised Landry. Take the time to review your work so far. Make sure that you know exactly where you paused in the checklist and what the next step should be.

As she concluded, Landry challenged her audience to take a personal role in maintaining a safe environment for themselves, their co-workers, and their clients and passengers by following these steps to reduce unsafe behaviors:

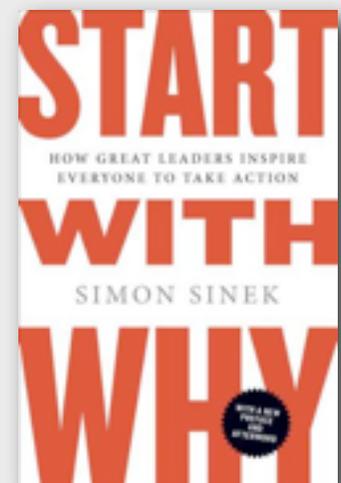
- **Be aware of your environment.**
- **Recognize physical, mental, and skill-related limitations** and their effect on your ability to maintain a safe environment.
- **Avoid distractions.**
- **Follow procedures.** If the procedure is in error or doesn't reflect what you believe is a best practice, then follow the procedure to change that procedure!
- **Work to ensure that your communications** are correct, complete, and concise. Pay attention to both what you are communicating and what others are trying to communicate to you.

How does one idea do so much?

Simple - It doesn't matter what you do, it matters **Why** you do it.

With a little discipline, anyone can learn to inspire. Start With Why offers an unconventional perspective that explains WHY some people and organizations are more innovative, more profitable, command greater loyalties from customers and employees alike and, most importantly, are able to repeat their success over and over. These are not the one hit wonders.

These are the ones who change the course of industries or even society.



Because it's all based on how people think and act, this unique view of the world has application in big business and small business, in politics and non-profit. Though some people have a natural ability to start with WHY, [this book](#) offers compelling evidence that, with a little discipline, anyone can learn to do it.

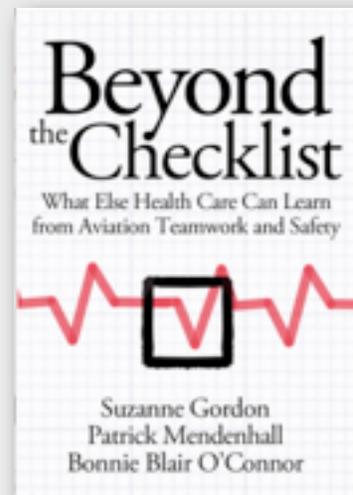
<http://www.startwithwhy.com/Portals/0/Files/TED.html>

<http://www.startwithwhy.com/>

Review: Air Safety Lessons Could Save Lives in Hospitals

Beyond the Checklist: What Else Health Care Can Learn from Aviation Teamwork and Safety

Suzanne Gordon, Patrick Mendenhall, and Bonnie Blair O'Connor, authors of *Beyond the Checklist: What Else Health Care Can Learn from Aviation Teamwork and Safety* (ILR Press, 2013), argue the workplace democracy lessons of aviation's "[Crew Resource Management](#)" safety program can reduce medical errors. The book includes a foreword by famed Captain "Sully" Sullenberger, hero of a near-crash.



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Barrel Roll A Boeing 707

Who in [their right mind](#) would do a barrel roll in a Boeing 707?

It is 1955 and the first commercial jet airliner, built by Boeing Aircraft, is in the flight test stage. This new aircraft would cut the flying time to anywhere in the world by half and shrink the world like never before!

The chief test pilot for Boeing, Tex Johnston, has been asked by Bill Allen (CEO of Boeing) to take the new Boeing 707-80 aircraft up for a demonstration fly by over the Gold Cup Day for the unlimited hydroplane races during Seafair Week in Seattle, WA circa 1955. Tex Johnston Takes Control

Unbeknownst to Mr. Allen Tex (he should have known what a pilot with the name "Tex" might do) decided it was the perfect time to demonstrate for all time the quality of the Boeing 707-80 aircraft.

With just Tex and a co-pilot aboard they flew the new aircraft over the waters of Seattle as ordered, but Tex had decided that a barrel roll in the Boeing 707-80 was in order. So there, in full view of thousands of spectators, Tex proceeded to do a 1G barrel roll in the Boeing 707-80 flight test aircraft.



See The Video Here:

http://www.youtube.com/watch?feature=player_embedded&v=AaA7kPfC5Hk

Delta's Most Senior Pilot Retires After 45 Years

Capt. 'Cal' Flanigan Never Missed A Day Of Work

His flying career spanned 37 years, 12.5 million miles, 27,000 hours, and 95 different cities. And last Friday, Delta Captain Calvin "Cal" Flanigan hung up his captain's hat.

Flanigan was Delta's most senior pilot. He began his career [as a mechanic in 1968](#), and went on to earn his pilot certificate. He worked his way up to pilot in command of Delta's airliners. Fox News reports that Flanigan never missed a day of work through that entire career. While he'd had other opportunities to retire, Flanigan said that he wanted to fly until the very last day he was eligible. Delta's rules state that a pilot must retire at age 65, and Flanigan's 65th birthday was celebrated the day after his final flight.

He was greeted on arrival at Hartsfield-Jackson Atlanta International Airport on a flight from Los Angeles with a water cannon salute as he taxied to the ramp.

Flanigan said that he approached his retirement with mixed emotions, but that he recognized that it was time to "pass the baton." Delta Airlines spokesman Steve Dickson said it was unlikely that his long tenure and attendance record would ever be replicated. Meanwhile, now that they can, Flanigan and his wife plan to do more traveling ... together.



Taking a Load Off Your Feet Can Take Years Off Your Life

If all work and no play makes Jack a Dull Boy, all sitting and little standing on the job can make Jack or Jill an unhealthy boy or girl.

An Australian study of more than 200,000 men and women found that the longer people sit each day, [the greater their chances of dying earlier](#) than they might otherwise.

People who sit for 11 hours a day or more are 40 percent more likely to die within the next three years than those who sit for four or fewer hours per day, according to the University of Sydney School of Public Health study.

If you believe exercising three or four times each week cancels out the negatives associated with sitting at a desk for hours at a time, **you are mistaken**, according to the researchers. Study co-author Adrian Bauman says a person would need to exercise vigorously for at least one hour every day to offset the negative effects of sitting for hours.



The good news is that workers who need to do a lot of desk work aren't necessarily headed for an early grave, if they incorporate a new way of working—**standing rather than sitting**. Using a laptop at a standing desk can work wonders for your body and mind.

Here are some of the benefits of working from a standing position.

1. Standing for three hours of an eight-hour shift will allow the average person to burn off an extra eight pounds (3.6 kilograms) of fat per year, according to Dr. John Buckley, who specializes in cardiovascular rehabilitation at the University of Chester in England.
2. Standing burns nearly 50 calories per hour, while sitting causes the body's metabolic rate to plummet, putting you at increased risk for diabetes, heart disease and blood clots.
3. Your increased metabolic rate will improve circulation and stabilize your blood sugar, making it easier for you to focus on your work.
4. Standing also increases alertness. There is some literal truth to the statement about thinking on your feet, because many people say they get some of their best ideas while standing or pacing.
5. Your back will thank you if you stand. When you sit, you are not being supported by your back muscles, but rather by your chair. When you stand, your back muscles are supporting you and your posture is much improved.

If you are standing while using a computer, you will probably need a standing desk, which can cost hundreds of dollars to a couple of thousand dollars. Many employers won't support that kind of expense, **but there is a solution**.

You can perform work such as filling out forms or reading important material, while standing. You can also stand while addressing your workers at a meeting.

At the very least, get into the habit of getting out of your chair and moving every few minutes.

Even spending a couple of hours a day less sitting at a desk can help improve your health and leave you more clear-headed to perform your busy tasks.

Daylight Saving Time: A Case Study on the Impact of Sleep Loss

Have you ever wondered what would happen if you took millions of people and made them all get up an hour earlier than normal? Well, in many countries we do this every spring with the observance of Daylight Saving Time (DST). And the data researchers have gathered from this practice reveals [a variety of health and safety implications](#), and serves as a powerful testament on the importance of making sleep a priority.



[Click here to read the full article](#)

National Initiative Hopes to "Wake Up" Americans to Sleep Apnea



The American Sleep Apnea Association (ASAA) and ResMed's Wake Up To Sleep community have launched a national initiative to ["wake up" Americans](#) to the dangers of untreated sleep apnea and to educate them on available testing and treatments.

The joint initiative began on March 13, 2013 and will feature several online educational activities using video and social media, all leading up to [Sleep Apnea Awareness Day on April 18, 2013](#).

The event is aimed at empowering patients to take an active stance in their own health care by improving awareness and diagnosis of untreated sleep apnea, a condition that affects **one in five** Americans, according to a joint press release from the organizations.

"Sleep apnea is a treatable disease, yet it goes undiagnosed in a high percentage of the population. Our goal is to put sleep apnea to bed and educate patients about how they can live a happier, more productive life with an effective sleep apnea treatment regimen," said Edward Grandi, executive director of the American Sleep Apnea Association.

Some of the featured activities of the month-long initiative will be:

- March 20: Twitter chat (#SleepApneaChat) beginning at 8:00 PM EST.
- April 10: Online discussion of sleep apnea from 8:00 PM to 9:00 PM EST.
- April 18: A video compilation release called "Faces of Sleep Apnea."

Persons who suffer from sleep apnea are **able to submit their own short video** that details their struggles and successes facing the disease.

Video submission details are available at Wake Up to Sleep's [website](#).

<http://www.sleepapnea.org>

<http://www.wakeuptosleep.com>

DOT Highlights Safety as Top Management Challenge

Enhancing aviation and surface safety remains the top priority for the U.S. Department of Transportation, concluded the department's Inspector General in a recent report of the agency's top management challenges. The IG acknowledges, however, that while the DOT has made progress on safety, **"it is faced with challenges to fine-tune** how it collects, verifies and uses safety data, and to bolster its industry oversight with respect to aircraft maintenance, inspector resources and pilot performance and training." It also raised similar concerns about data collection and analysis at the FAA.

The IG believes that the DOT has moved in the right direction by "meeting new airline safety requirements to advance voluntary safety programs at air carriers and improve pilot rest requirements," but believes the department has not done enough "to maximize [the use of] existing data to identify trends and root causes of safety issues, enhance risk-based oversight at carriers and repair stations and mitigate air traffic controller fatigue."

Another concern yet to be addressed is how to mitigate the rising number of operational errors made by air traffic controllers. The IG said while the total number of operational errors has remained at 2009-2010 levels, [the most serious mistakes have continued to rise in number](#).

Root cause of 787 battery issues may never be found: Boeing

Boeing says the root cause of the 787 battery failures may never be established, but that it is moving ahead with a solution aimed at getting the aircraft back in the air.

The 787 fleet was grounded on 16 January following two incidents in which their lithium-ion batteries failed after overheating and leaking electrolyte, resulting in significant charring. In the first incident, an auxiliary power unit battery on a Japan Airlines 787 failed while the aircraft was on the ground at Boston Logan International Airport, while in the second incident, an All Nippon Airways 787 had to be diverted to Takamatsu in Japan after the crew received a cockpit alert saying that the main battery had failed.

Boeing and battery manufacturer GS Yuasa have been working with the Japan Transport Safety Bureau and the US National Transportation Safety Board to investigate the battery incidents, [but no definitive cause has been found for the battery faults so far](#).

"In the events of Logan and Takamatsu, we may never get to a single root cause, but the process we applied to understand the improvements that can be made is the most robust process that we have ever followed," says Boeing's vice-president and chief project engineer, Mike Sinnett.

Boeing has proposed significant changes to the battery system aimed at making it easier to cool the lithium-ion cells, as well as a new containment solution which would prevent overheated battery cells from starting a fire.

It has also reworked the battery charger with reduced maximum charging levels, a higher maximum discharging level and a softened charging sequence.

The US Federal Aviation Administration has approved a certification plan for the modified systems, which will undergo rigorous laboratory testing and a validation flight test before being certified for use on the global 787 fleet.





Federal Aviation
Administration

SAFETY BEGINS WITH “ZERO VIOLATIONS”

By definition violations are deliberate and intentional deviations from the rules, procedures, instructions and regulations developed to foster safe and efficient operations and/or deviations from acceptable good practice. This should not be confused with the human condition of making mistakes. Both result in non-compliance but violations are preventable.

For more information contact your nearest FAA Team Representative or FAA Team Manager
or log onto <http://www.faa.gov/safety>