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Lessons Learned from Aviation Safety

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Fred Manuele said we need to look at strong environment, health, and safety management systems. I could not agree more. Over my career, I have worked in three departments that had safety in their titles: Pre-Clinical Drug Safety Assessment, Environment, Health, and Safety, and Aviation Safety. The principles of Prevention through Design (PtD) are the same for all.

For example, physicians collect information on adverse effects of drugs from the field. They then turn this information over to the pharmaceutical companies. In response, the pharmaceutical companies evaluate the data and make necessary changes, such as altering the label of a drug, talking to practitioners about their findings, or pulling the product from the market. The data are then given to their Research and Development department and their molecular designers. They identify which portion of the molecular structure had the potential to cause the adverse side effects. The portion that is necessary for the preferred pharmacological effect is kept in. They try to maximize the good, while minimizing the bad. That's a good example of PtD.

Now, I am also responsible for the aviation industry. The same principles of PtD apply. How? Take, for example, our new Navy helicopter, the CH-53K Heavy Lift. We went back to the engineering department developing this new model with all of our data. Rising rates of ergonomic related injuries were being seen in the original model and our engineers were looking for ways to eliminate them. They designed safe manufacturing into the build process. From initial feedback, the Sikorsky Corporation will be very successful in controlling their future workers' compensation costs for employees building this new model.

Leading and trailing indicators of performance are something we study. Our mantra is that we want our helicopters to be the safest to fly (we have the lowest aviation accident rates in our field), the safest to build, and the safest to own. If anything happens in the field, we pick the information up through the customers and our reps, and give the data to the Aviation Safety Board. During routine maintenance other things may also be picked up. When we redesign parts, we immediately supply designers of the new models with them, as well as including them in the old models.

Our hazard resolution process is to: identify the potential hazard, assess the risk level, contain the hazard, investigate the root cause, eliminate or control the hazard, ensure the corrective action is effective, and convey information back to the programmers and engineers.

I want to talk about our helicopters being the safest to own. When I first got in the field, someone said to me at a conference, "It's unethical to fly people out to the oil rigs in anything other than the safest helicopter to fly." What about being the safest to own? For example, our aircraft are operated off of oil rigs in very harsh conditions, like the North Sea. This environment adds incredible challenges, such as extreme winds, and cold and slippery conditions. On occasion, our customers have to access the top of the helicopters, while parked on an oil rig platform, or on the back of a guided missile frigate in the North Atlantic. To accommodate this, we are engineering fall protection lanyard connection points onto the aircraft. Even in a hangar, working on the aircraft can be made safe.

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The CH-53K helicopter's maximum gross weight will increase to 84,700 pounds, versus 73,000 pounds for the CH-53E. It is being designed to carry a cargo load of 27,000 pounds (13.5 tons) 110 nautical miles, operating at an altitude of 3,000 feet and an ambient temperature of 91.5 degrees Fahrenheit. This is nearly double the capacity of the current CH-53E Super Stallions.

Our president was recently giving a presentation at a helicopter owner's conference on safety, and was discussing options, such as extended ground proximity warning systems. In the middle of his talk, he put his prepared remarks aside, and said, "You know what, this previously optional equipment is now mandatory on all Sikorsky commercial aircraft. If you want an unsafe aircraft, buy from our competitors." I asked him afterward what inspired him to say this and he replied, "…the market is ready for this − I could see in our customers' eyes that they wanted it."

The final point is on risk management. Eighty-six percent of our injuries are related to ergonomics. To address this issue, we signed a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH) and our Teamsters Local 1150 to work on this. We've asked NIOSH to evaluate, from an epidemiologist's perspective, and identify the similar exposure groups and the tasks associated with most of these injuries. NIOSH intends to give us a prioritized list of where we should focus. More importantly, they are going to do symptom surveys, so we know where someone is going to report an ergonomic injury next. We know this will raise our rate of injury, but we will know exactly where the bottom of the iceberg is.

Once we identify where to focus first, we will work with ergonomists and engineers to wangle these problems out of aircraft production, just like the pharmaceutical industry deletes portions of a molecule that accounts for adverse side effects. Our engineers are going to design appropriate interventions, then ask NIOSH to come back and reevaluate them.

We recently completed a company-wide employee survey. One of the questions we asked each employee was to rate safety in their work area. Seventy-nine percent of them rated safety as good or very good in their work area. 95% rated it as fair, good, or very good, which was up from just 42% in 2005. We will not be satisfied until 100% of the employees rate their work environment as very good, but, as you can see, the employees are on board with the process. The bottom line is you can give your employees a safe place to work, but your accident rate won't come down unless they work safely in it. These survey results show we're making excellent progress. Thank you.