American Society for Healthcare Risk Management
October, 17-20
Orlando, Florida

High Reliability Organizations: What Risk Managers Need to Know

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For a number of years now a group of scholars at the University of California, and at other locations, has been studying what we've come to call high reliability organizations, or HROs. Most other work to examine the issue of how you would design organizational processes in safety critical settings takes a decidedly individual look at what goes wrong, and looks for someone to name, blame, and then fire or train. We take a decidedly organizational perspective and have found that most errors are not individual problems but are the result of several system characteristics coming together at the same time.

[Gaba model]

Most errors then look something like this. They build up over time and are influenced by individuals, their work groups, management, organizational processes, etc. Today I'd like to define the processes underlying a high reliability organization, then give you some examples of non healthcare organizations that have tried or are trying to be HROs, and finally to point out what low reliability organizations or LROs do that is different from what HROs do. Then Dr. Daved Van Stralen, from Loma Linda University is going to share with you his experience in building a HRO in a medical setting.

[Overhead – What is an HRO?]

First of all, what is an HRO? It's an organization that conducts relatively error free operations, over a long period of time, making consistently good decisions, resulting in high quality and reliability operations. Here are the five processes we fell must

[Overhead – Process auditing]

The first characteristic of the model is process auditing or an established system for ongoing checks designed to spot expected as well as unexpected safety problems. Safety drills are in this category, as is equipment testing. Follow-ups on problems revealed in prior audits are critical.

[Overhead – Reward system]

The reward system is the payoff an individual or organization receives for behaving one way or another. Organizational theory shows that organizational reward systems have powerful influences on the behavior of people in them. Similarly, inter-organizational reward systems also influence behavior in organizations. Thus, for example, if a regulator in an industry points to one organization as the gold standard in that industry the reward has an effect on things that organization and the people in it will do. It also has an effect on what other organizations in the industry do as they try to emulate the gold standard.

[Overhead – Quality degradation}

Avoiding degradation of quality and/or avoiding developing inferior quality. This refers to the essential quality of the system as compared to the referent generally regarded as the standard of quality. Organizations need to constantly strive to maintain high quality standards.

[Overhead – Perception of risk]

There are at least two elements of risk perception. Whether or not there is knowledge of risk, and if there is knowledge that risk exists, the extent to which it is acknowledged and appropriately mitigated. Part two is the logical outgrowth of part one. Risk perception is a proactive process. Often the culture of an organization will promote NIMBY or "not on my watch" behavior and people simply ignore the possibility of risk.

[Overhead – Command and control]

Command and Control consists of five elements:

1. Migrating decision-making. The person with the most expertise makes the decision regardless of where that person is in the hierarchy.

2. Redundancy of people or hardware. This consists of some kind of back up system. Duplication doesn't count as redundancy because if both redundant systems are exactly alike both have a higher probability of failure than if the back ups are unalike but complementary.

3. Senior managers have the "big picture." They don't micromanage. They trust their subordinates are well enough trained that they can do their jobs without micromanagement. We have a lot of examples of catastrophic accidents because no one was overseeing the whole operation.

4. Formal rules and procedures. A definite existence of hierarchy but not necessarily bureaucracy in the negative sense. In the face of war military units often become flexible to meet changing conditions. But I've never heard of one that didn't have rules and procedures.

5. Training. Training is like the three rules of real estate – location, location, location. Well here it's training, training and more training. And what's the first thing to go when organizations find themselves in a financial bind?

[Overhead – The puzzle]

If your objective is developing a quality system in which reliability plays a big part here's how you might put the pieces of this model together.

In the United States possibly the archetypal HRO is the aviation industry – both commercial and military. Let me give you some statistics about its progress toward reliability.

[Overhead – Commercial aviation]

[Overhead – Navy aviation]

First, let's point out what can happen in commercial aviation the future if the mishap rate stays as low as it is today.

[Overhead – Commercial mishap rate]

As you can see we'll be losing an unacceptable number of aircraft, the equivalent of one 747 a week. I've read most of the publications on the patient safety rate in the U.S. In the future it could very well look like the projection for the commercial aviation situation – as the population grows older and more health care comes on line.

[Overhead – Navy aviation again]

As you can see from the overhead, the introduction of jet engines lead to an immediate lowering of the Navy's mishap rate, just as it did in commercial aviation. But, with the exception of the introduction of the angled deck and the Fresnel lens (called "the ball" in old wartime movies) all the rest of the fixes were managerial. Point them out.

[Overheads – 6 overheads on what Nimitz class carrier looks like and does]

And the Navy deals with a potentially very dangerous situation in aviation. Let's take a look:

[Overhead – Industries that have tried]

A number of other industries and organizations have adopted HRO processes. Here are some of them. Draw examples from overhead. Some of you have probably read

about Eric Knox'es use of these principles in obstetrics and some may know of the patient safety work in anesthesiology that David Gaba at Stanford and Jeff Cooper at Harvard helped pioneer, or Julie Nunes work at Kaiser in neonatal care. In each of these and the other cases on the overhead, the team members have tailor made the model processes to their own situations.

[Overheads – 3 overheads on what LROs do]

Before Daved talks to you about his experience in building an HRO in health care unit I'd like to point out to you what LROs do that HROs don't do.

[Overhead – It's the system….]

All in all we think organizations need to focus on their systemic processes that can lead to high or low reliability operations.