Sharing Knowledge

What the evidence says about workplace health and safety topics in healthcare

To err is human

Planning for the human element in healthcare

Why were meds given to the wrong patient? Why was the needle recapped before disposal? Why lift manually when a ceiling lift was available? Why weren't gloves and a mask worn? Why wasn't the patient agitation noticed?

People are fallible - they make mistakes in even the best organizations. How we plan for and manage human error will determine whether the error happens in the first place, and whether the consequences are significant.

What is human error?

Human error is an imbalance between what the situation requires, what the person intends, and what he/she does.

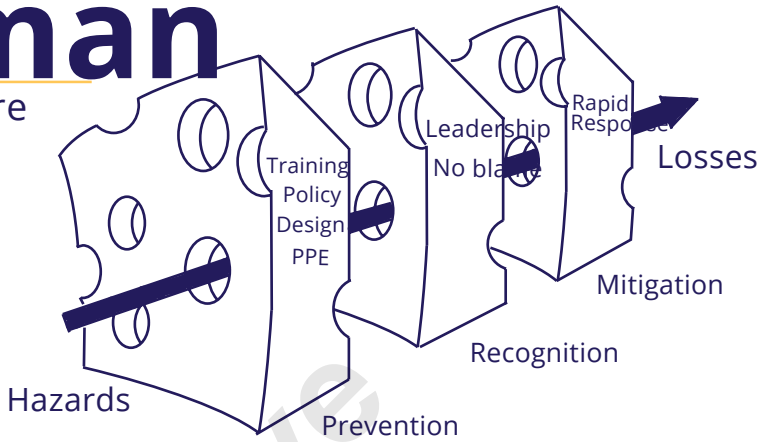
Human error happens when people:

- plan to do the right thing but with the wrong outcome (e.g., misdial a correct telephone number; give the correct meds to the wrong patient)
- do the wrong thing for the situation (e.g., recap a used needle; lift a patient without use of an assist)
- fail to do anything when action is required (e.g., ignore an alarm; fail to wear personal protective equipment; fail to report damaged equipment to maintenance)

Why do errors happen?

"We are only human" and have limited abilities. We will make mistakes. To answer the question of "why do errors happen?" or "why did this error happen?" it is necessary to look beyond the person who made the error.

Simply put, errors happen when multiple factors come together to allow them to happen. What we usually call 'human error' is really 'system error'. People are one part of a system that includes all of the other parts of the organization or work environment – equipment, technology, environment, organization, training, policies and procedures. Human error is rooted in failure of the system or the organization to prevent the error from happening, and if an error happens, failure to prevent the error from becoming a problem.



Swiss Cheese Model of Error Management
Adapted from Reason J. 2000. Human Error: Models and Management. BMJ, 320: 768-770.

For example: A worker whose job is pushing carts all day injures their shoulder and is unable to work.
Simple analysis: pushing carts caused the injury.

Human error analysis:

- The worker has been sore for several weeks but failed to report early symptoms because they could still work (error in early reporting and in worker training).
- Lack of scheduled cart maintenance led to damaged wheels and made maneuvering the cart difficult (error in policy and maintenance).
- Carts were too tall to see over when loaded; therefore full carts were pulled instead of pushed (error in purchasing and in job design).

Negative outcomes only arise when the situation allows human error and outcomes to occur.

Healthcare systems are designed with barriers and safeguards intended to prevent errors and to identify errors before they result in a negative outcome. Errors lead to problems when these defenses fail at several levels.

Occupational Health and Safety Agency for Healthcare in BC (OHSAH)
OHSAH works to reduce workplace injuries and illness in healthcare workers and return injured workers back to the job quickly and safely. OHSAH is committed to putting evidence-based information into the hands of workers, managers, and other decision-makers to facilitate informed decisions about improving workplace health and safety.

Managing Human Error

Human errors indicate a weakness in the system, not in the perso

What are the consequences of error?

Error is involved in the majority of workplace accidents that result in injury or illness to the healthcare worker. Errors can have a negative effect on healthcare workers' physical and emotional health, on patient health and on the organization.

A medication error may have a primary consequence for the patient's health, but will also have an effect on others:

- increased workload for patient care;
- stress, anxiety and guilt for the health care worker or pharmacy technician;
- stress for supervisors and managers.

These effects can influence the ability of the worker to provide quality care, risk of injury from physical demands, likelihood of making additional errors, and the organizational culture.

Managing Human Error in Healthcare

Avoid blaming people for mistakes and instead focus on improving aspects of the work environment at three levels:

1. **Prevent Error** – design systems to eliminate or minimize the possibility or error;
2. **Recognize Error**– identify mistakes and investigate contributing factors; and
3. **Mitigate Error** – minimize the negative consequences of errors for the patient, healthcare worker, and organization.

Preventing, recognizing and mitigating errors depend on the design of work systems and on creation of a safety culture.

Design work systems to anticipate mistakes and to promote high levels of human performance.

- standardize the work environment (e.g., location of sharps containers; design of patient rooms)
- select equipment with safety features (e.g., needle-less injection systems; filing cabinets with anti-tip drawer locks)
- provide backup for critical personnel and equipment
- ensure that personal protective equipment is accessible (e.g. gloves near the entrance to patient rooms) provide clear supervision and
- direction provide training in current work
- practices

Create a strong safety culture that relies not only on safe behaviours, but on sharing core values and beliefs at all levels of the organization:

- believe that safety is important;
- have confidence in preventive measures;
- support a no-blame approach to safety investigation.

Strong safety cultures grow in organizations where:

- Safety is an explicit goal of the entire organization, not just of individuals or departments;
- Employees participate and have input into decisions that influence their work or work environment;
- Leadership is visible and accountable;
- Training and education of staff are ongoing;
- The institution accepts responsibility for errors or incidents and focuses on the future ("how can we prevent this from happening again?" rather than "who did it?")
- Safety is continuously improved by critical analysis of existing systems and anticipation of potential problems before they occur, as well as investigation of accidents, incidents and near misses;
- Individuals are encouraged to observe, inquire, and report their conclusions to higher management;
- Employees, supervisors and managers who report safety concerns or errors are supported and praised rather than reprimanded.

Recognize that errors will happen, and plan for the human element in health care systems.

References

Kohn L., et al. 1999. To Err is Human: Building a Safer Health System. National Academy Press, Washington.

Reason J. 2000. Human Error: Models and Management. BMJ, 320: 768-770.

Reason J. et al. 2001. Diagnosing "vulnerable system syndrome": an essential prerequisite to effective risk management. Quality in Health Care, 10(sup II): ii21-ii25.

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ABOUT THIS DOCUMENT

The Occupational Health and Safety Agency for Healthcare (OHSAH), which operated from 1998-2010, was a precursor to SWITCH BC. Conceived through the Public Sector Accord on Occupational Health and Safety as a response to high rates of workplace injury, illness, and time loss in the health sector, OHSAH was built on the values of bipartite collaboration, evidence-based decision making, and integrated approaches.

This archival research material was created by OHSAH, shared here as archival reference materials, to support ongoing research and development of best practices, and as a thanks to the organization's members who completed the work.

If you have any questions about the materials, please email hello@switchbc.ca or visit www.switchbc.ca