LATVIJAS UNIVERSITĀTE
ANNO 1919

MF Medicīnas fakultāte

Economic, social, cultural and organizational aspects of healthcare

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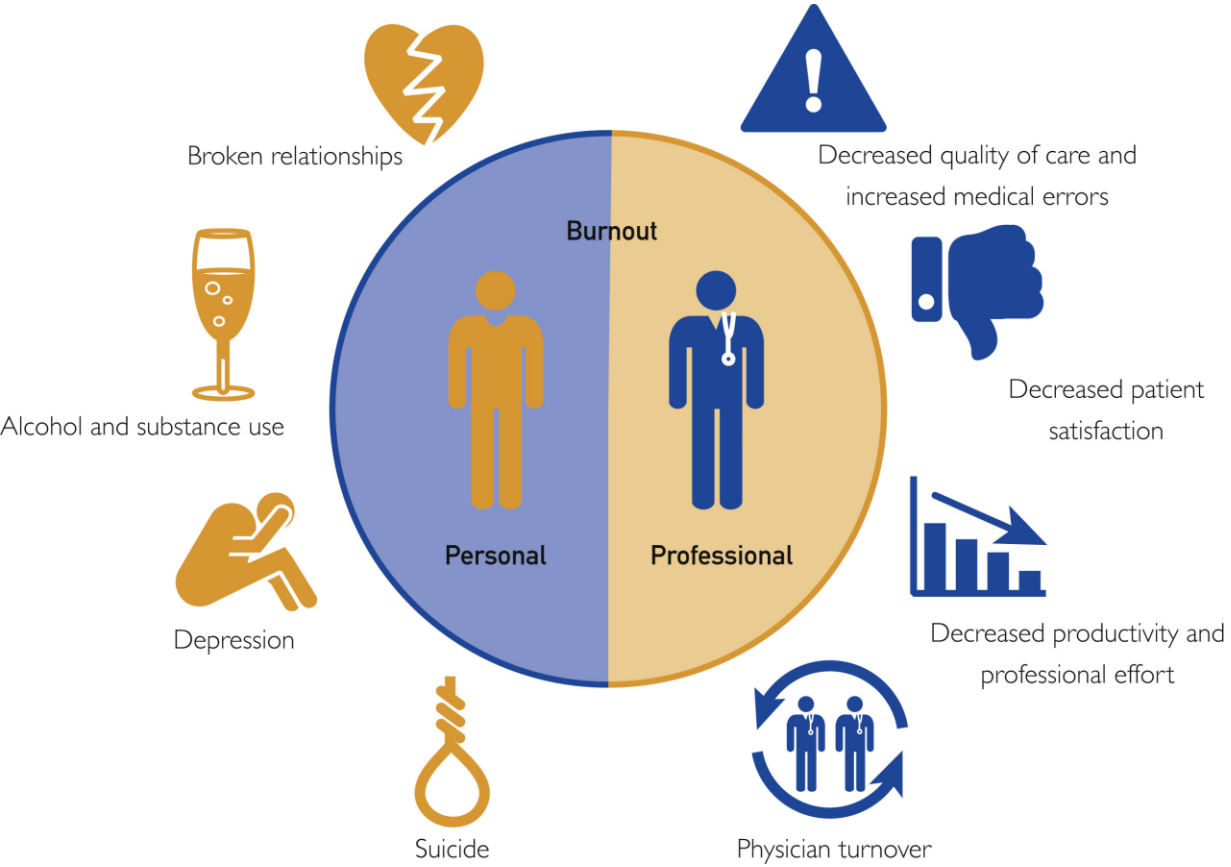
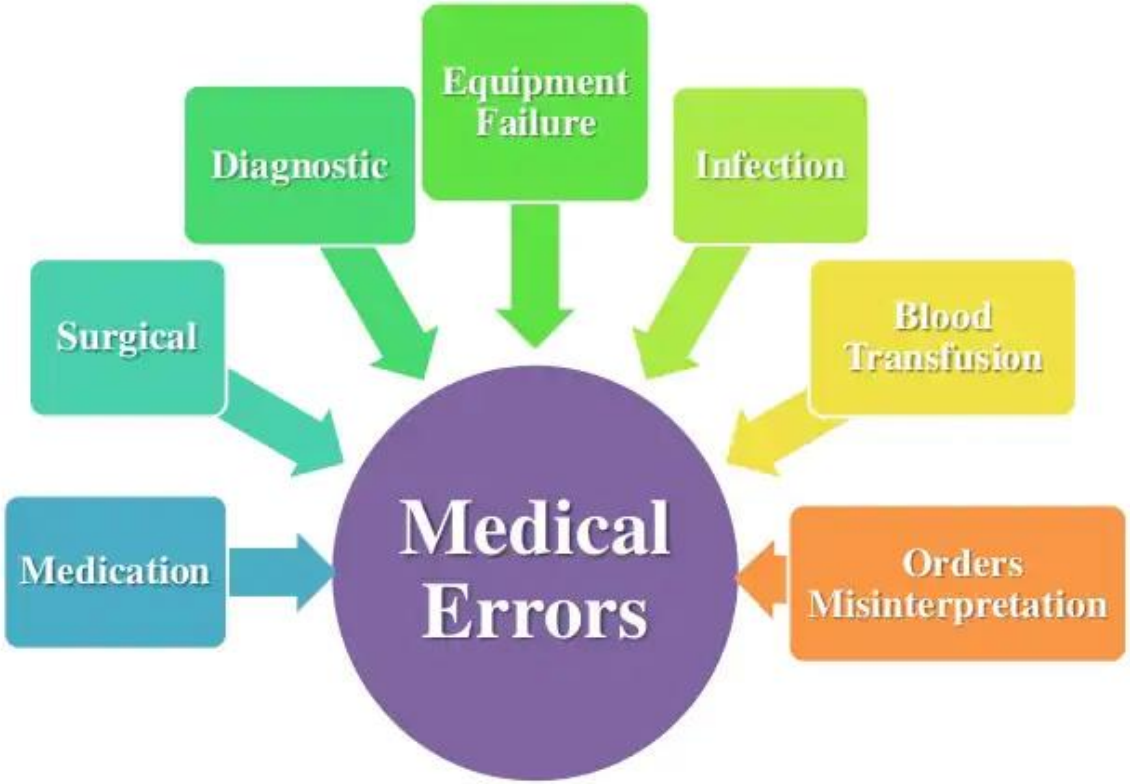
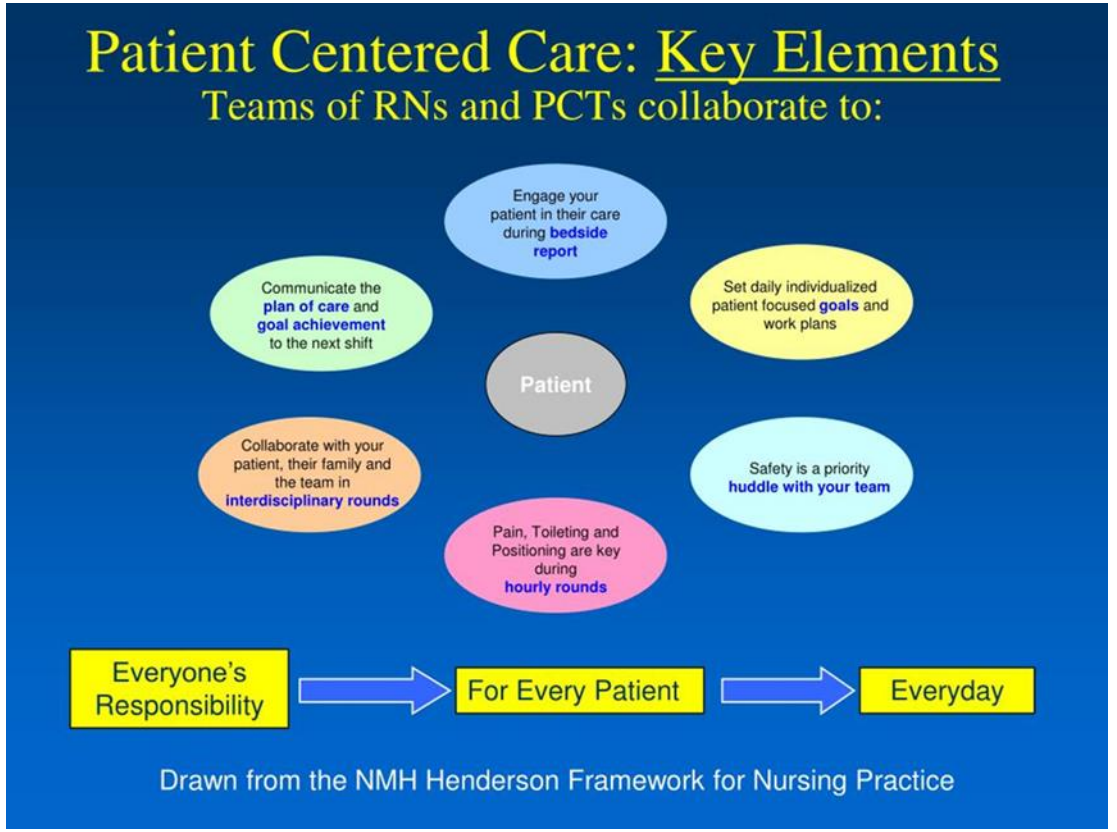
THE ROLE OF THE PHYSICIANS IN THE ANALYSIS OF ACCIDENTS AND ERRORS


Broken relationships
Decreased quality of care and increased medical errors
Burnout
Alcohol and substance use
Decreased patient satisfaction
Personal
Professional
Depression
Decreased productivity and professional effort
Suicide
Physician turnover


Diagnostic
Equipment Failure
Infection
Surgical
Blood Transfusion
Medication
Medical Errors
Orders Misinterpretation

Content of the lecture

- Patient safety culture
- Safe reporting-learning system
- Analysis of various human factors

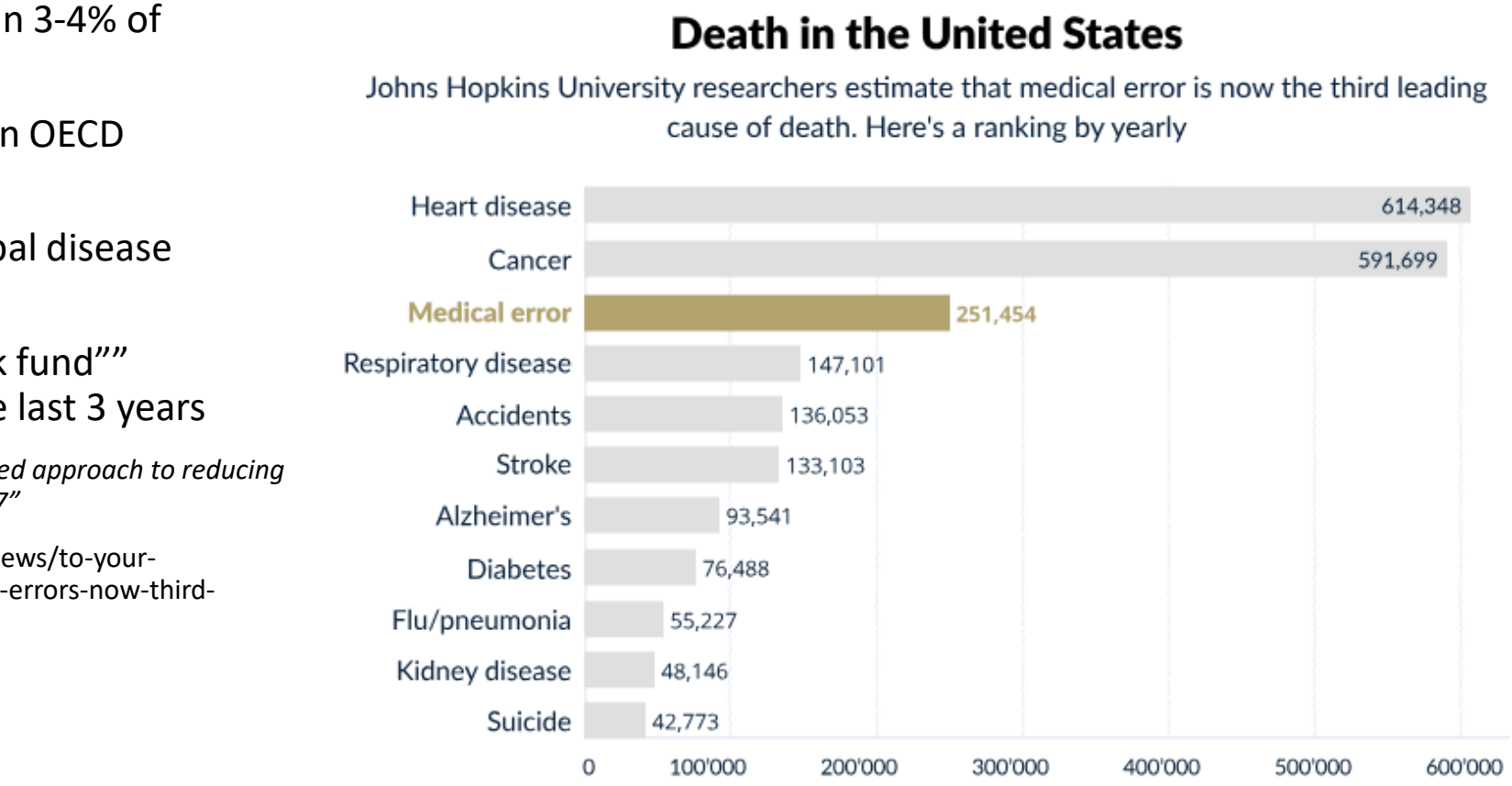


What happens on the patients' journey…

- Injury occurs during treatment in 8-12% of patients
- Inadvertent accidents occur in 3-4% of hospitalizations
- 15% of disease expenditure in OECD countries
- The leading cause of the global disease burden
- 30% increase in" Medical risk fund"" expenditures" in Latvia in the last 3 years

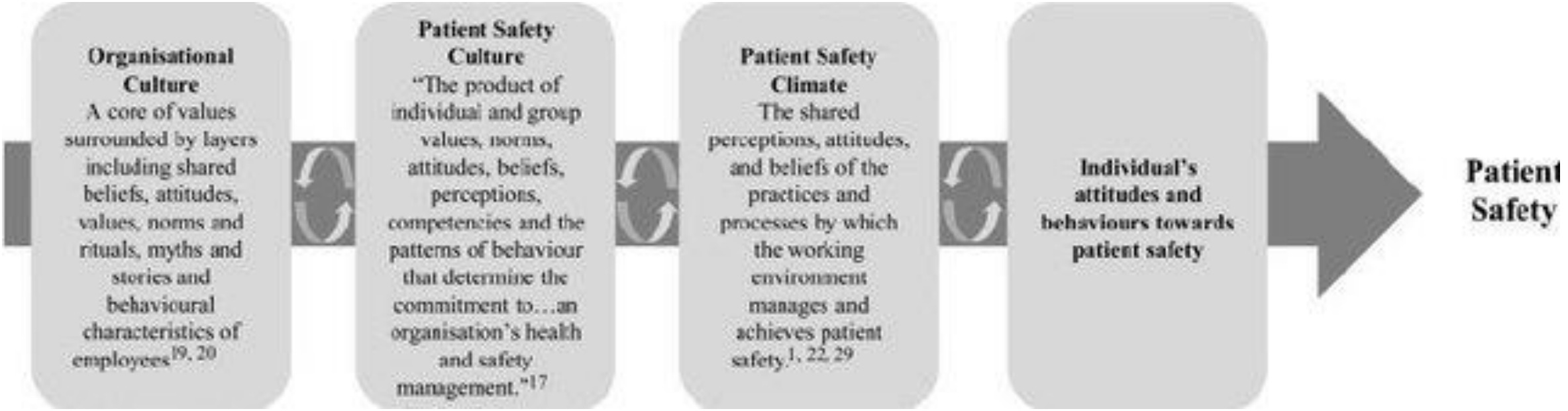
L.Slawonski at al "Strengthening a value-based approach to reducing patient harm at the national level.OECD.2017"

Source: https://www.washingtonpost.com/news/to-your-health/wp/2016/05/03/researchers-medical-errors-now-third-leading-cause-of-death-in-united-states



Culture of patient safety

Morello RT, Lowthian JA, Barker AL, et al Strategies for improving patient safety culture in hospitals: a systematic review BMJ Qual Saf 2013;22:11-18



Basic principles of safe patient care and Elements of safety culture

Basic principles of safe patient care

1) revitalization of safe patient care in medical culture

2) effective communication and teamwork

4) the transition from a culture of blame to a culture of responsibility

5) management of different behaviors and behaviors in clinical practice

6) informing patients about unforeseen results

Victor J. Dzau

7) measuring performance and evaluating progress

E.Palčeja

Elements of safety culture

- **Open culture** - employees feel “comfortable” when discussing security incidents and risks with both colleagues and managers

• Fairness - **honesty** - in case of incidents or listening to problems, treats employees, patients, caregivers honestly, openly, with empathy and tact

• **Reporting culture** - Employees trust the local reporting system and report to draw managers' attention to adverse events that occur

• **Learning culture** - the organization is ready to learn from problems, communicate about them with colleagues

• **Informed culture** - the organization has learned from experience and can identify and mitigate future incidents as it learns from incidents that have occurred

Challenges for patient safety

Visibility - a problem recognized at the individual patient level, often interpreted as a "strange phenomenon" and not related to everyday

Ambiguity

- is the patient dying from a malfunction or a serious medical condition?
- System error or individual error?
- Which side to take?

Complexity

In a hospital as a complex system, anything has an impact on patient safety

It can create a feeling of "tremendous force majeure“

Which aspect of security is more important?

Legislation or equipment, number of employees?

- **Professional autonomy**
- responsibility for the patient

The negative aspect of the positive feature is the unconditional requirement to provide good care

Safety Competencies Framework Domains

"The Safety Competencies" Canadian Patient Safety Institute 2020

- **Patient safety culture** improvement involves recognizing the importance of ongoing collaboration and the commitment to advocate for change
- High-performing **interprofessional teams** demonstrate capabilities and competencies that are essential to efficient, effective, and safe collaborative practice
- **Effective communication** is beneficial to patients and healthcare providers, builds trust, and is a precondition of obtaining patient consent
- Healthcare providers **collect and monitor** performance data to assess risk and improve outcomes
- **Optimizing** the human and environmental factors that support the achievement of best human performance is an essential safety competency for all healthcare providers
- **Open, honest, and empathetic disclosure** and appropriate apologies benefit patients and families, health providers, and their organizations.

What happens on the patients' journey…

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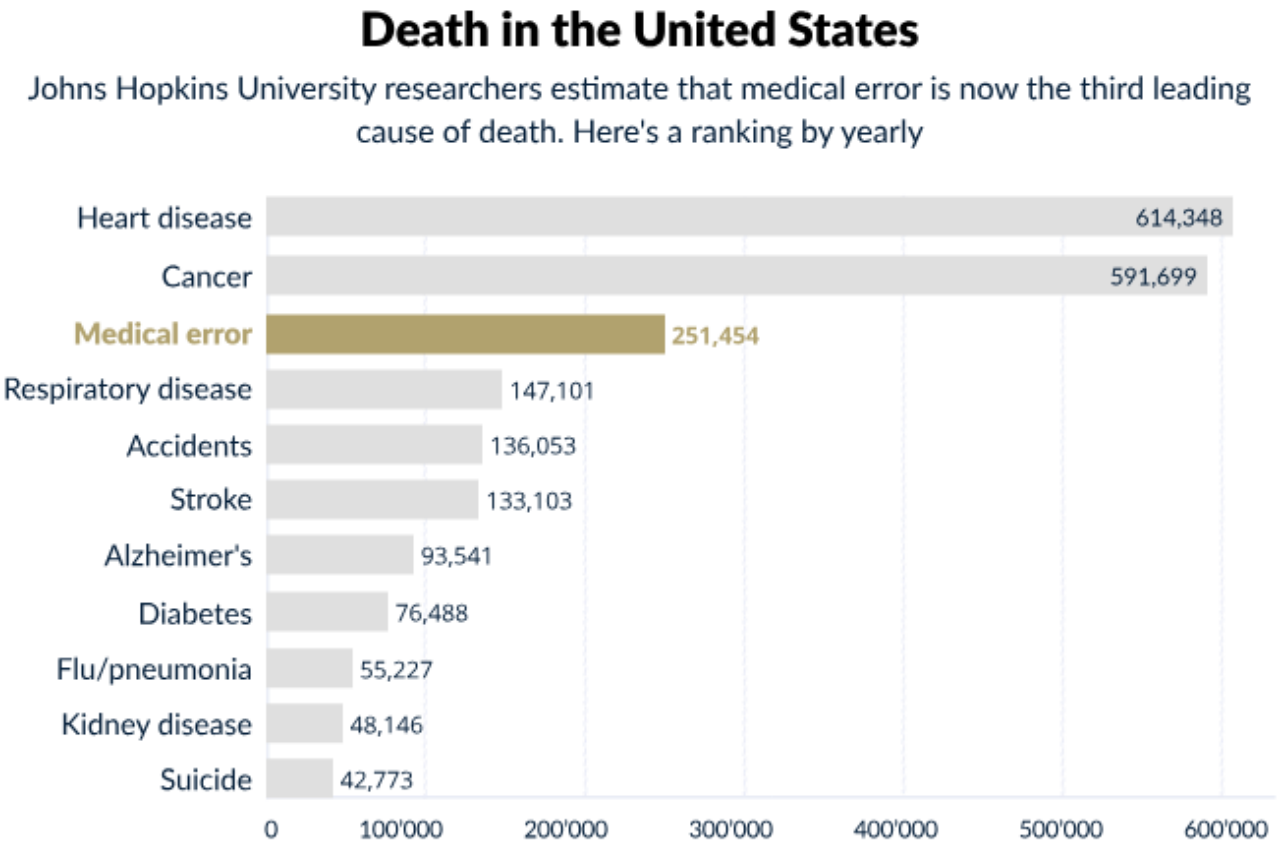
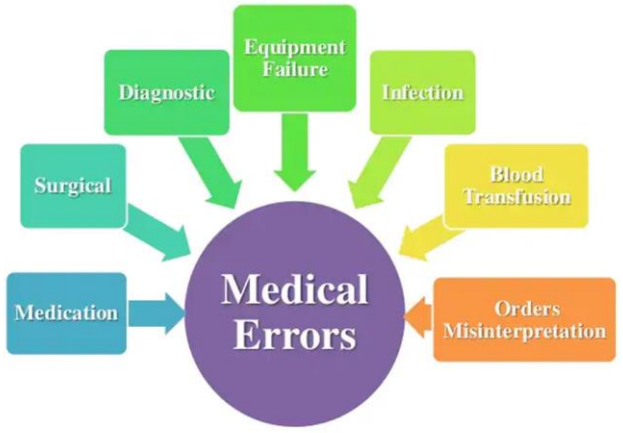


Types of health care mistakes

- Healthcare errors
  - Failure to diagnose / incorrect diagnosis
  - Failure to utilize or act on diagnostic tests
  - Inappropriate use or outmoded diagnostic tests / treatments
  - Failure to monitor or provide follow-up
  - Wrong site surgery, medication errors
  - Transfusion mistakes



- Nosocomial infections
- Patients falls
- Pressure sores
- Phlebitis associated with intravenous lines
- Restraint related strangulation
- Preventable suicides
- Failure to provide prophylaxis
- Prescribing errors
- Administration errors
- includes failure to monitor drug levels and side effects of treatment

Reasons why clinicians do not report and disclose errors and near misses (Reporting Barriers)

Fear and understanding

Fear

of being blamed for negative patient outcome

other providers will consider provider who made the error incompetent

patients will develop negative attitudes

of "telling" on someone else

of adverse consequences from reporting

Understanding

Disagreement with the organizations' definition of error

Some incidents, i.e., near misses, thought too trivial/unimportant to report

No perceived benefit

Administrative/Management/ Organizational

Lack of feedback on reported errors

Persistence of the culture of blame/shame, blaming the individual

Poor match of administrative response to errors with severity of errors

Providers forget to make a report, too busy

Extra work involved in reporting

Secure reporting-learning system

The main elements

Secure reporting means that the employee will not be tricked or punished as a result of reporting and case analysis

non-punitive

confidential

independent

expert analysis

timely

systems-oriented

! responsive

Human factors or ergonomics

- **Clinical human factors** in clinical practice is the improvement of clinical performance by understanding the results of teamwork, tasks, equipment, workplace, culture, organization and human behavior and opportunities, and the application of this knowledge in clinical practice (Catchpole, 2017)
- **Human factors or ergonomics - the interaction between humans and the technical components of a complex system**

Human factor analysis and classification system

- The use of human factor analysis and classification system in practice helps **to see the real causes** that can be influenced
- It is a **way to move away from blaming** people with a systemic approach and responsibility
- Corrective actions **to reduce the recurrence of the accident** in the future can be directed at the employee level
- **Both** at the organizational level - the management of the “human element”,e.g.,

employee evaluation and training process (including situation simulation in the practical environment)

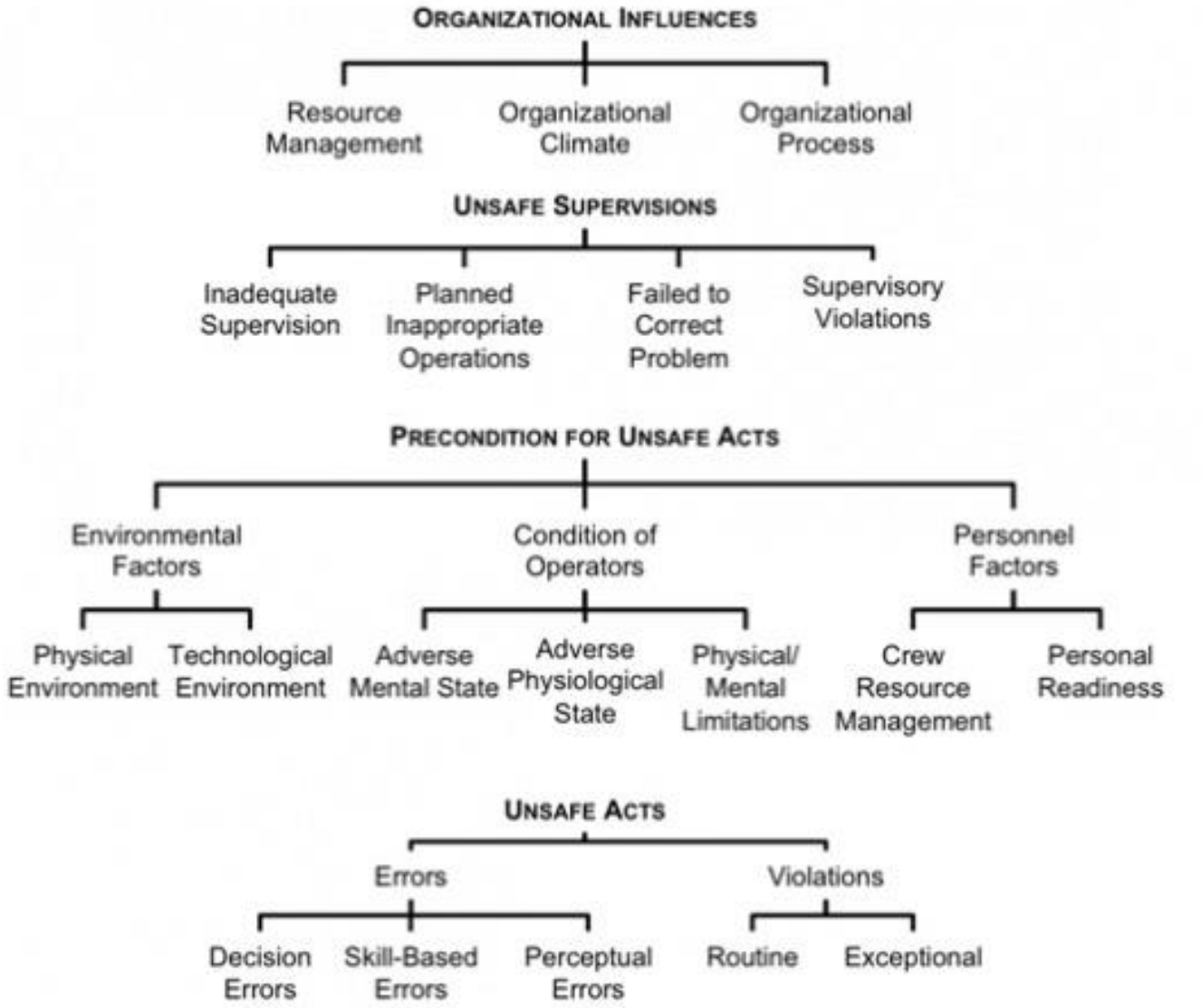
communication structuring

safe process

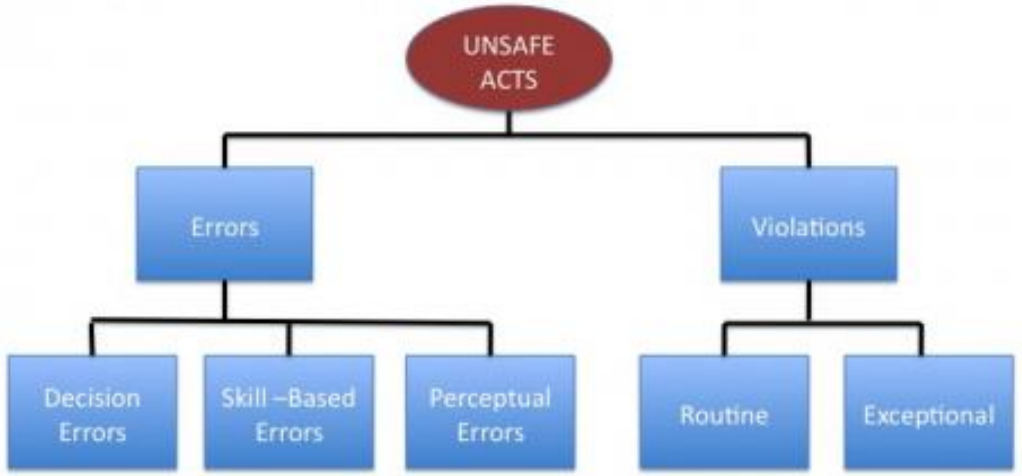
provision of human-friendly equipment

room design etc.

Human factor analysis and classification system

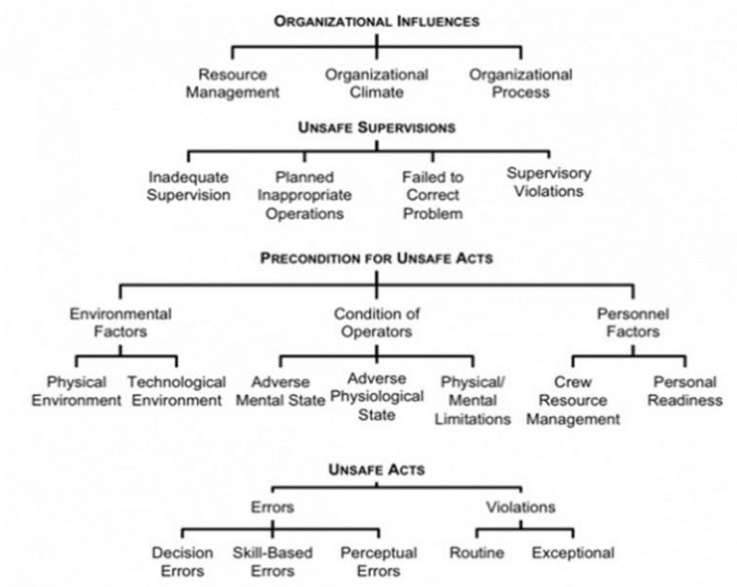


Unsafe acts



Unsafe acts

- Errors
- Violations



Errors

Skill-Based Errors

- Errors which occur in the doctor's execution of a routine, highly practiced task relating to procedure, training or proficiency and result in an unsafe a situation (e.g., fail to prioritize attention, checklist error, negative habit)
- **Decision Errors**

Errors which occur when the behaviors or actions of the doctors proceed as intended yet the chosen plan proves inadequate to achieve the desired end-state and results in an unsafe situation (e.g, Faulty assessment of pre-test probability ,overestimating or underestimating disease likelihood)

Both types of error can easily lead to improper testing (too much or too little) and missed diagnoses

- **Perceptual Errors** Errors which occur when an operator's sensory input is degraded, and a decision is made based upon faulty information

Errors

- **The error of decision** occurs when there is a lack of information, knowledge or experience

In essence, information, together with knowledge, skills and experience, is the basis for identifying a situation or what is happening in a particular moment, which may happen in the near future, which also includes the time and environment context in which the situation needs to be understood (situation awareness)

Clinical Decision Making. MSD manual for professionals
https://www.msdmanuals.com/professional/

- **Skills-based mistakes**

Skills-based errors occur when a physician misses out on a task that is familiar to him or her

- **Perception error**

Quite often, these mistakes occur when you misread a doctor's prescription or mix a medicine with a similar look or name (sound)

The confusion of the right and the left is also often a mistake of human perception

Errors

Violations

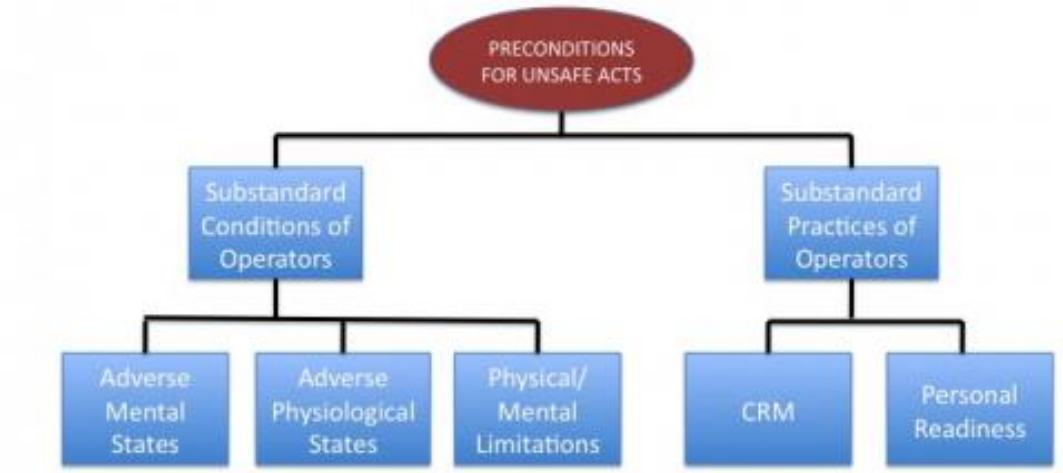
- **Routine Violations:** are often manifested in the fact that certain activities are not performed, even though they are set out in internal guidelines, regulations, etc. c. types of regulations

For example, ignoring the principles of hand hygiene in connection with wearing rings or other safety procedures (for example, clinicians do not perform the activities specified in the surgical checklist or do not mark the operation site)

- **Exceptional Violations:** Violations which are an isolated departure from authority, neither typical of the individual nor condoned by management

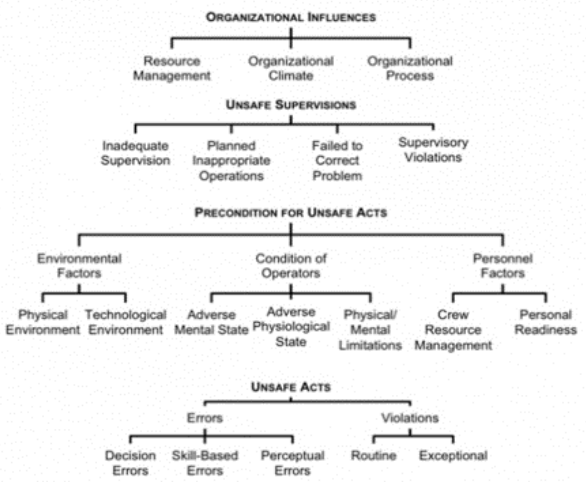
They may be caused by a situation or circumstance (for example, if a doctor starts a transfusion of a whole blood from a colleague in a patient with severe trauma and massive bleeding who cannot expect a blood supply)

Preconditions for Unsafe Acts



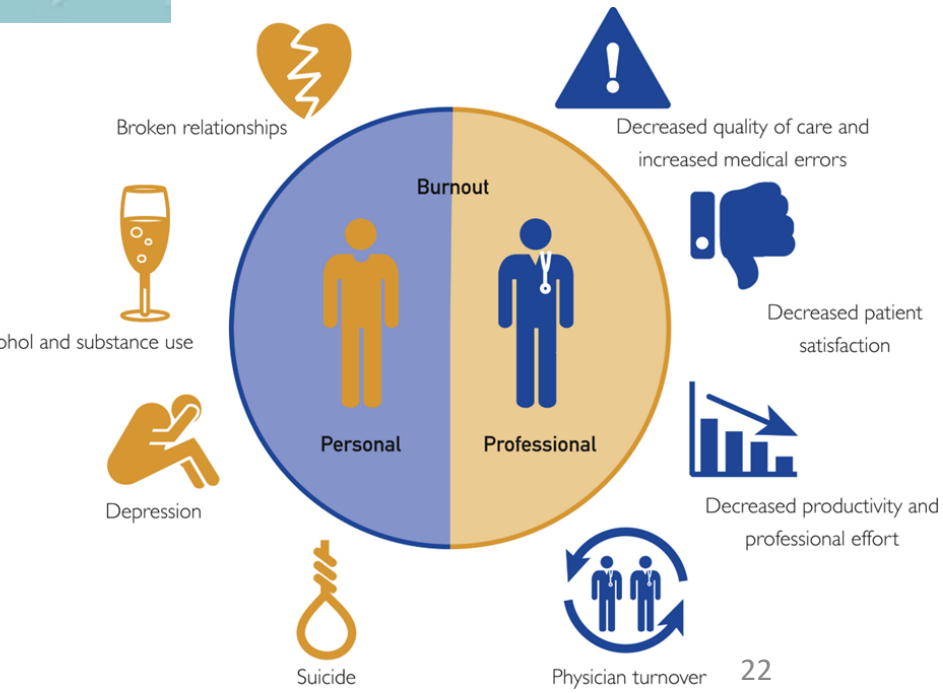
- Environmental factors
- Condition of staff
- Personnel factors

Human factor analysis and classification system



Environmental Factors and Condition of The Medical staff

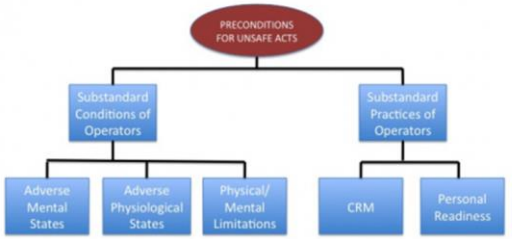
Pierādīts, ka vairāku uzdevumu vienlaicīga veikšana samazina efektivitāti un veiktspēju, jo smadzenes vienlaicīgi spēj koncentrēties tikai uz vienu lietu.



Visi iegūst, atrodoties biroja un koridora vidē, kurā nav trokšņa

Akustikas dēļ par 67% samazināts medikamentu patēriņš

Environmental Factors and Conditions of The Medical staff



Physical Environment

Factors that include both the medical staff setting (e.g., weather, noise, light) and the ambient environment (e.g., heat, vibration, lighting, toxins)

Technological Environment

Factors that include a variety of design and automation issues including the design of equipment and controls, display/interface characteristics, checklist layouts, task factors

Examples

The level of silence in hospitals should be the same as, for example, in libraries

Not only noise from nearby people or device alarms (especially in intensive care and emergency departments) but also phone calls, text messages or e-mails are noted as interference (Beyea, 2014)

Disruption of work, disruptive behavior is a recognized risk that increases the risk of possible injury or even death to the patient

Multitasking, when several tasks are combined at the same time, significantly increases the number of incidents

Adverse Mental State

Factors that include those mental conditions that affect performance (e.g., stress, mental fatigue, motivation)

Adverse Physiological State

Factors that include those medical or physiological conditions that affect performance (e.g., medical illness, physical fatigue, hypoxia)

Physical/Mental Limitation

The medical staff lacks the physical or mental capabilities (e.g., visual limitations, insufficient reaction time)

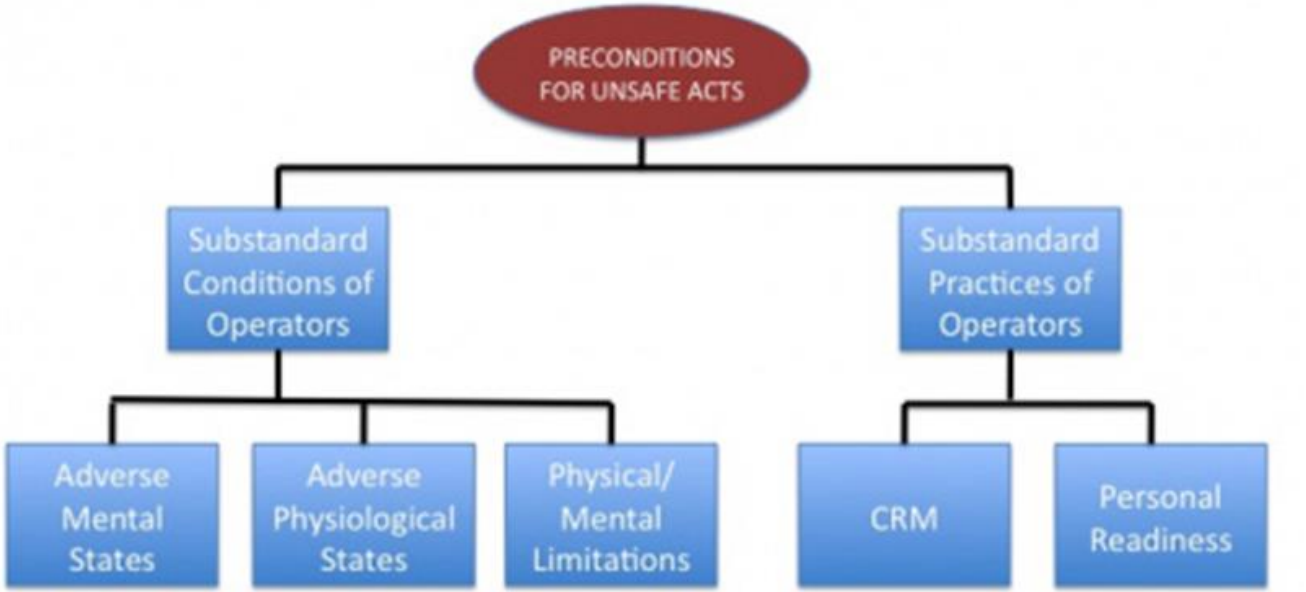
Personnel Factors

- **Crew Resource Management**

Factors that include communication, coordination, planning, and teamwork issues

- **Personal Readiness**

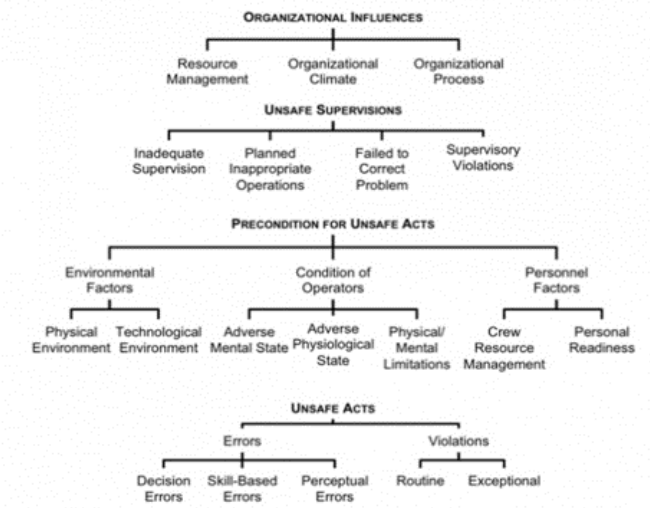
Refers to off-duty activities required to perform optimally on the job such as adhering to crew rest requirements, alcohol restrictions, and other off-duty mandates



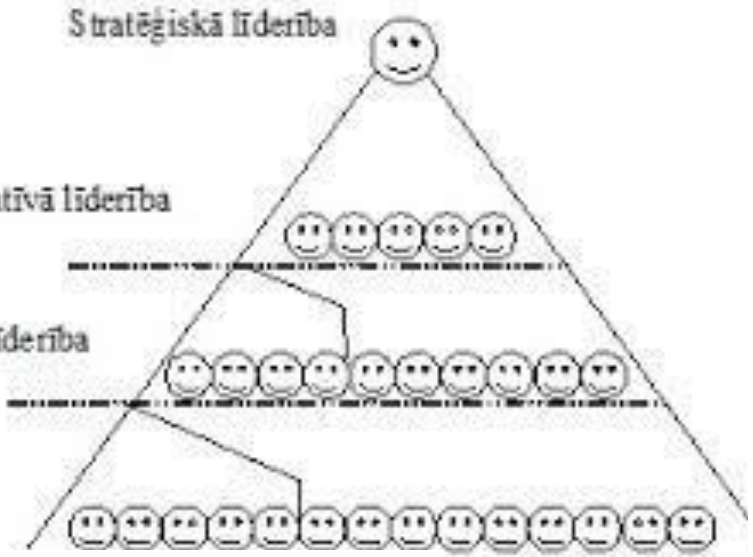
Unsafe Supervision

- Inadequate Supervision
- Plan Inappropriate Operation
- Fail to Correct Known Problem
- Supervisory Violation

Human factor analysis and classification system



Pārraudzības faktori Līderība Operacionālā plānošana Neveiksme zināmu eksistējošu problēmu koriģēšanā Uzraudzības ētika



Vadības stils

Autoritatīvs Vadītājs izmanto savu **varu**		**Demokrātisks** Darbiniekam tiek uzticētas lielākas **pilnvaras**
• **Tiešs** • **Saka, kas jādara, dod pavēles** • **Nevēlas uzklausīt un saņemt atgriezenisko saiti no citiem**	**Kā vada padotos**	• **Darbiniekus atbalstošs** • **Dod darbiniekiem iespējas** • **Citus rosinošs**
Vadītājs pieņem lēmumus pats un paziņo darbiniekiem	**Lēmumu pieņemšanas veids**	Darbinieki paši tiek iesaistīti pieņemšanā
• Orientēta uz uzdevumu izpildi • Bezpersoniska • Vadītājs reizēm iedveš bailes	**Radītā vide, atmosfēra darbā**	• Atvērta, radoša • Darbiniekus iedvesmojoša • Jūtams komandas gars
• Piekāpīgs • Bez pašiniciatīvas • Izpilda to, kas tiek likts	**Vadības stilam atbilstošākais darbinieka tips**	• Ar atbildības sajūtu • Aktīvs, pašmotivēts • Atvērts jauninājumiem, izmaiņām • Ir gatavs uzņemties risku

Uzraudzības ētika pārkāpumi

- Neētiska uzraudzība
- Nerespektē darbiniekus
- Nerespektē kompetences
- Pieņem uz īsu laiku
- Dažiem darbiniekiem privilēģijas

Unsafe Supervision

Leadership is the act of influencing a group of people to work as a team and around a goal

The main pillars of leadership

Personal empowerment

Technical capabilities Knowledge related to the company's field of activity

Poor supervision occurs when department managers, supervisors, nurses, senior specialists do not provide adequate on-the-job training, professional guidance or supervision of staff

Scheduling involves planning work shifts and assigning work tasks to specialists who are not adequately prepared to perform the tasks successfully, e.g. a certified specialist who has just started

Supervisory ethics violations

Unethical supervision

Disrespect for staff

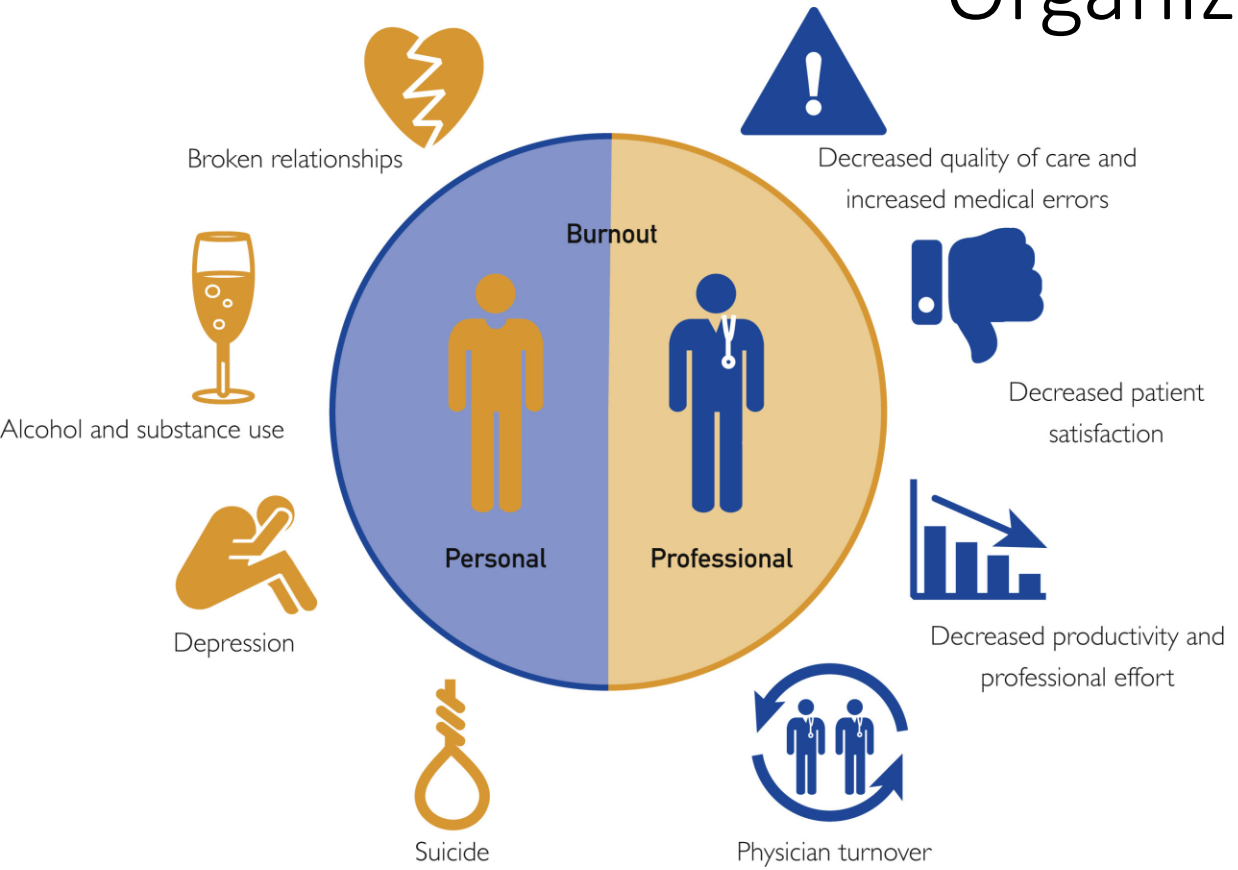
Does not respect competencies

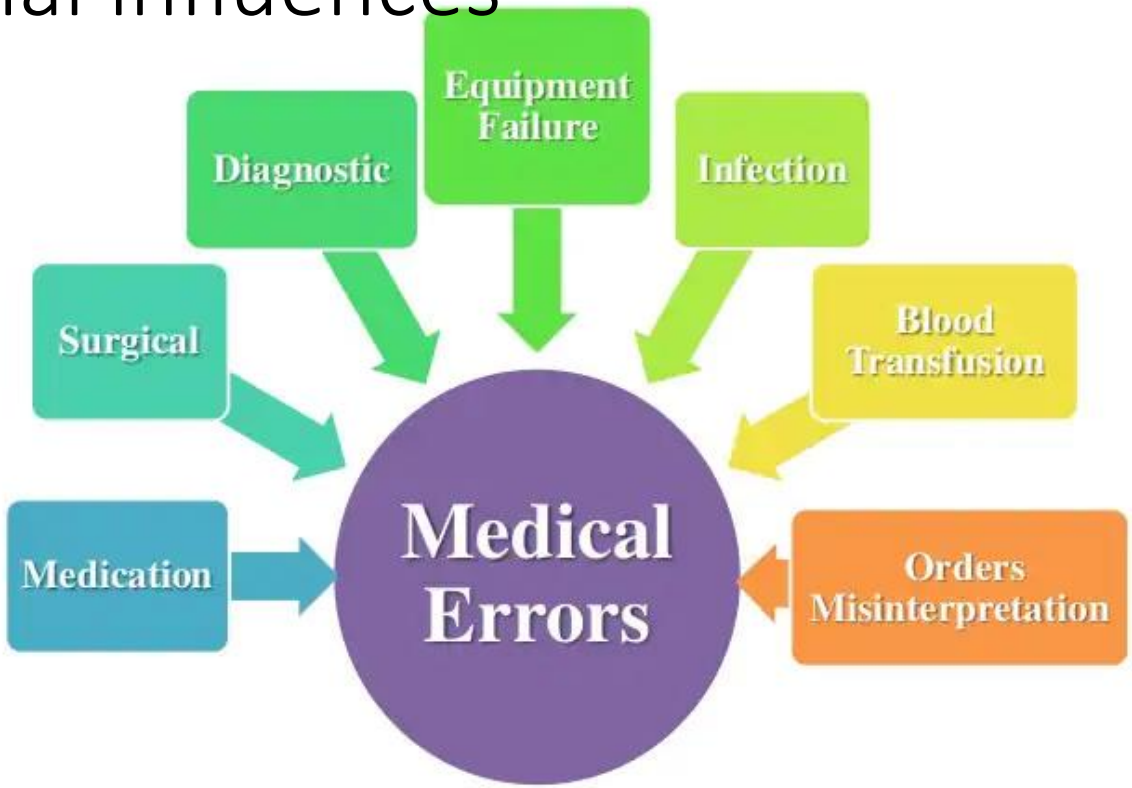
Short-term of employing

Privileges some staff

Without adequate supervision or motivation, staff may continue to 'do things the old way' or follow intuition rather than established treatment and care algorithms or guidelines

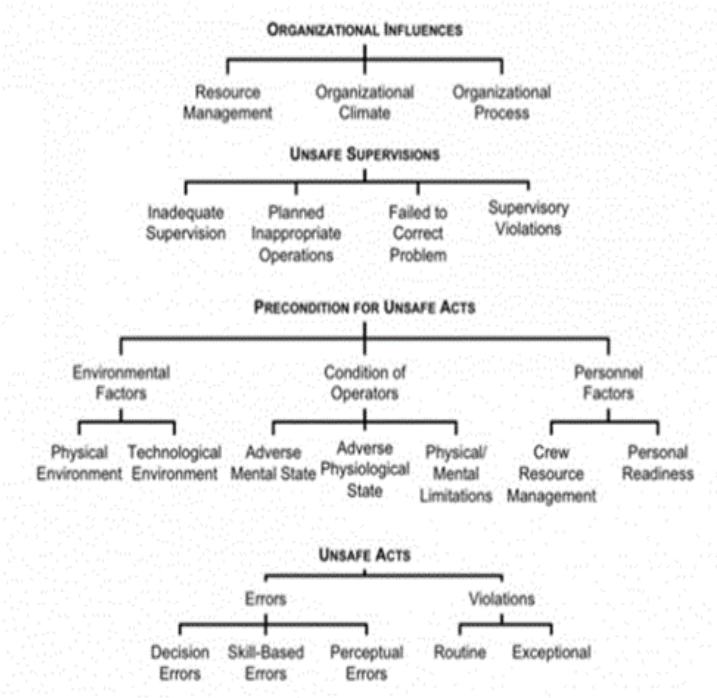
Organizational influences





Organizational influences

Human factor analysis and classification system



- **Resource Management**

The organizational-level decision-making regarding the allocation resources(e.g., human resources, monetary/budget resources, equipment/facility recourse)

- **Organizational Climate**:

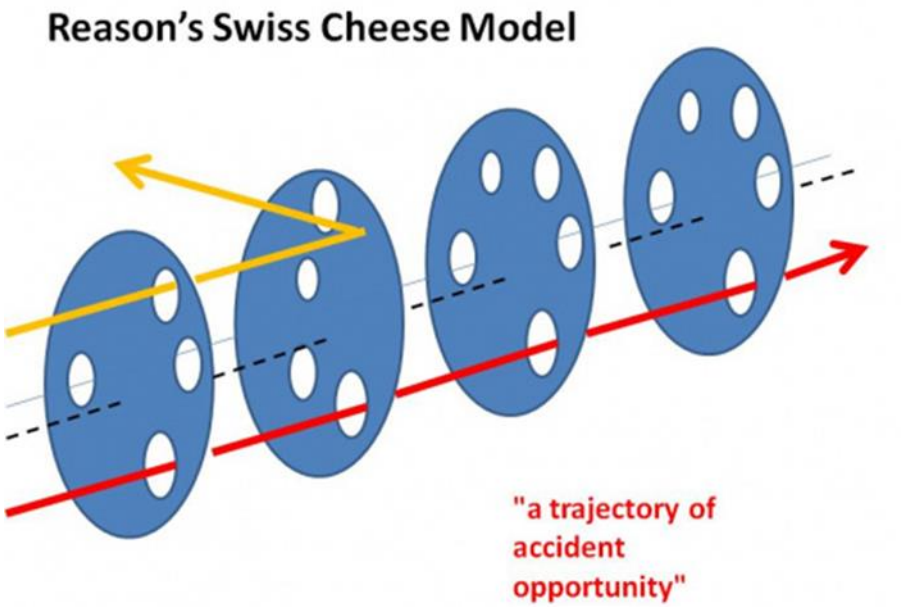
The working atmosphere within the organization (e.g., structure, policies, culture)

- **Operational Process**:

Organizational decisions and rules that govern the everyday activities within an organization (e.g., operations, procedures, oversight)

The root cause analysis

The root cause analysis



ROOT CAUSE ANALYSIS

" Root cause analysis is a structured team process that assists in identifying underlying factors or causes of an adverse event or near-miss "

*Marketing management,Kottler&Keller

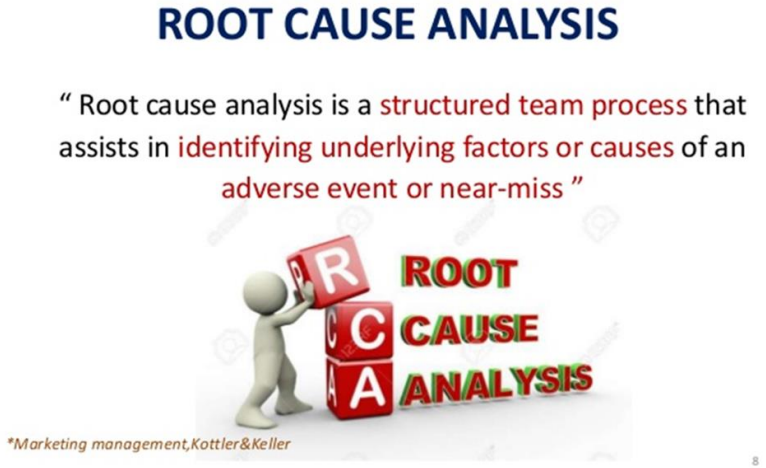
The goals and instruments of a root cause analysis

To determine

- what happened
- why it happened
- what can be done to reduce the likelihood of a recurrence

The steps

1. is inter-disciplinary, involving experts from the frontline services
2. involves those who are the most familiar with the situation
3. continually digs deeper by asking why, why, why at each level of cause and effect
4. identifies changes that need to be made to systems
5. to make clear the need to be aware of and sensitive to potential conflicts of interest



Instruments

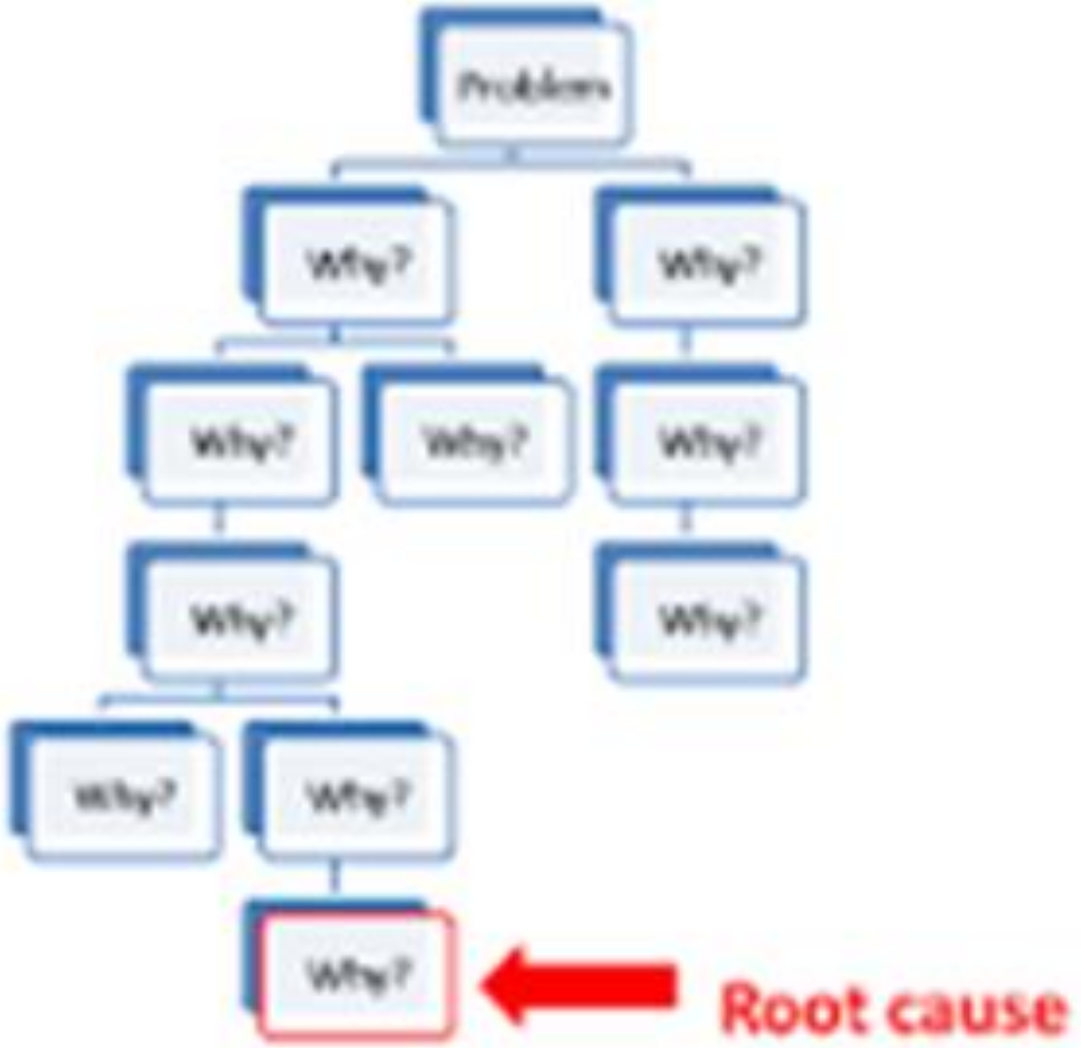
5 Whys

The Fishbone Cause-and-Effect Diagram

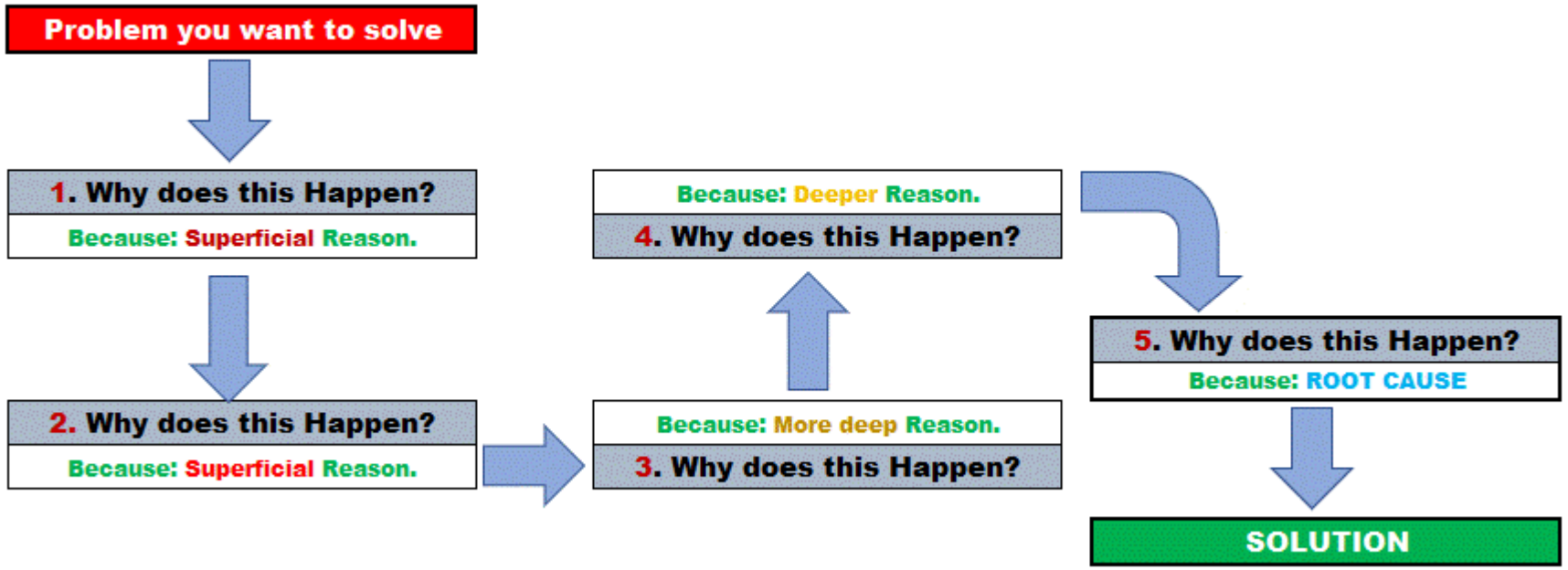
The Swiss Cheese Model

The origin of the 5 Whys

- The 5 Whys technique was developed within the Toyota Motor Corporation as a critical component of its problem-solving training
- . . . by repeating why five times, the nature of the problem as well as its solution becomes clear”
- What is the 5 why approach?
- The primary goal of the technique is to determine the root cause of a defect or problem by repeating the question "Why?" five times. The answer to the fifth why should reveal the root cause of the problem



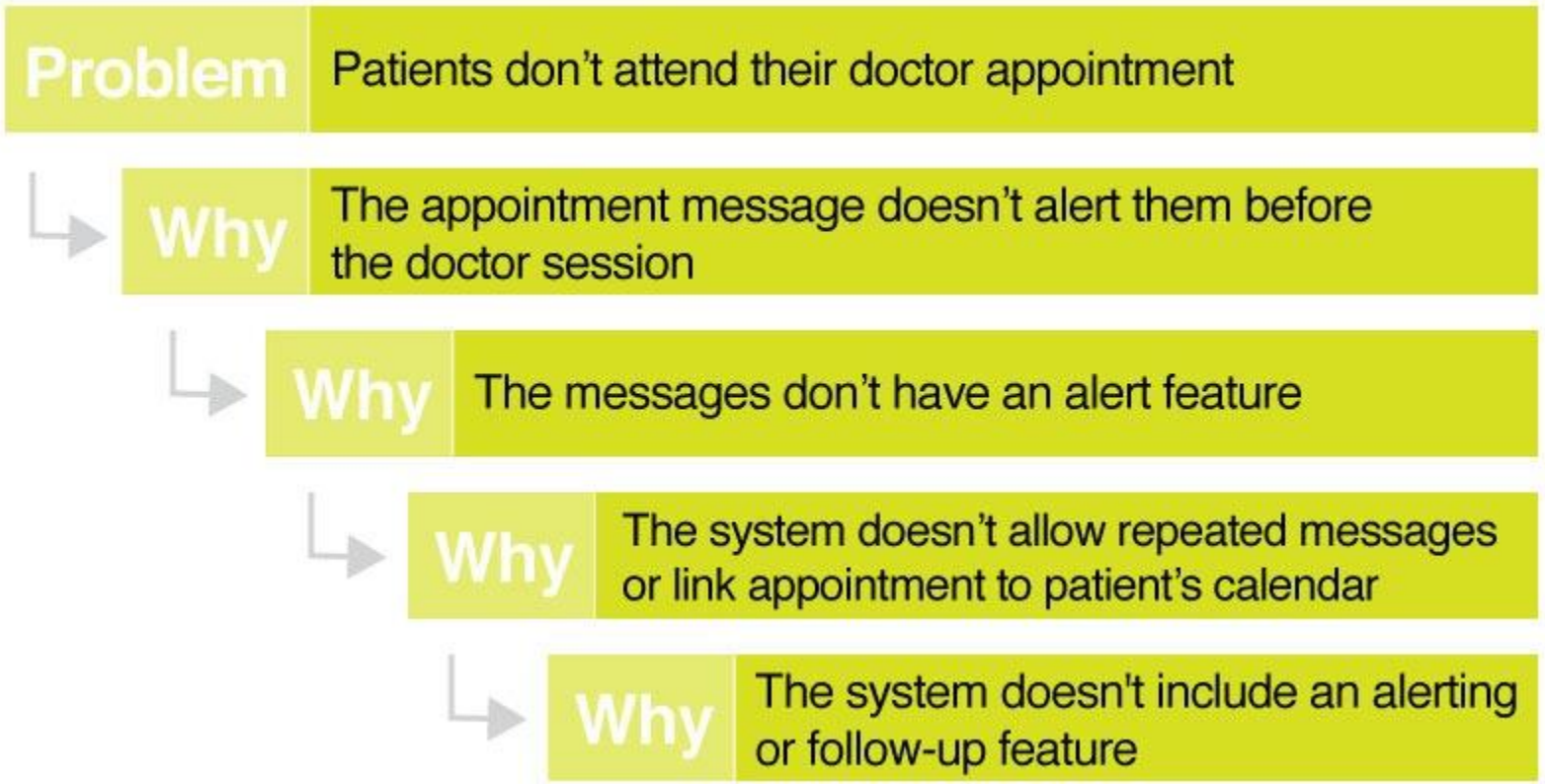
The “5 Whys” is **a Problem-solving method for identifying root causes of problems** by asking five consecutive times “Why this happened?”



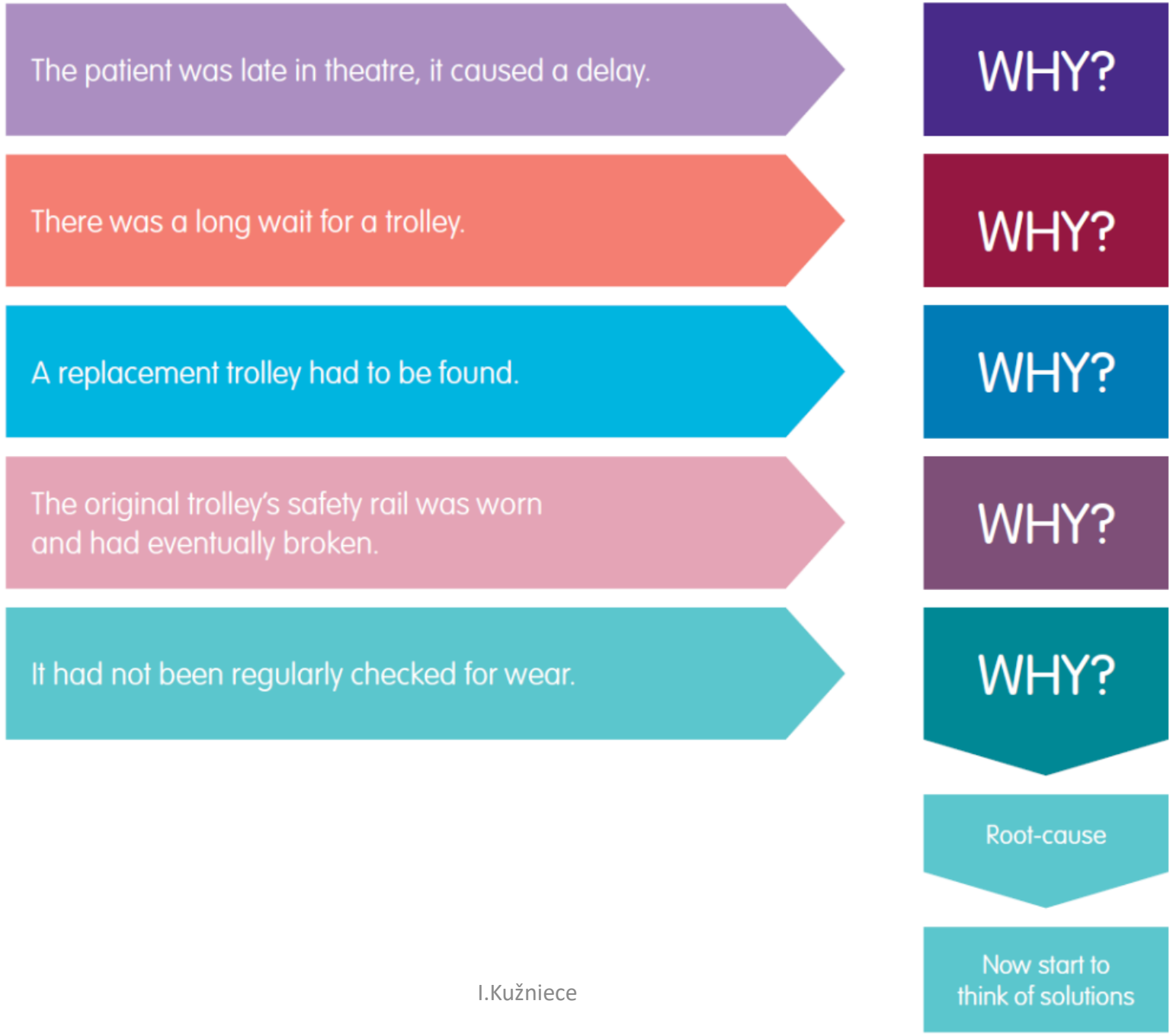
An example


What is happening?
PROBLEM:
Physicians are feeling frustrated during office visits.
Why is it happening?
1 Physicians don't have the supplies they need.
Why is that?
2 Supplies are hard to find.
Why is that?
3 Supplies are stored in different places.
Why is that?
4 Different people are stocking the supplies in different places.
Why is that?
5 There is no standard protocol for supply storage.

An example


Problem
Patients don't attend their doctor appointment
Why
The appointment message doesn't alert them before the doctor session
Why
The messages don't have an alert feature
Why
The system doesn't allow repeated messages or link appointment to patient's calendar
Why
The system doesn't include an alerting or follow-up feature

An example


The patient was late in theatre, it caused a delay.
WHY?
There was a long wait for a trolley.
WHY?
A replacement trolley had to be found.
WHY?
The original trolley's safety rail was worn and had eventually broken.
WHY?
It had not been regularly checked for wear.
WHY?
Root-cause
Now start to think of solutions

An Example

A patient had the wrong leg amputated

1. Why was the wrong leg was amputated?
   The Doctor could not see the marking and thought it was the wrong leg that was marked

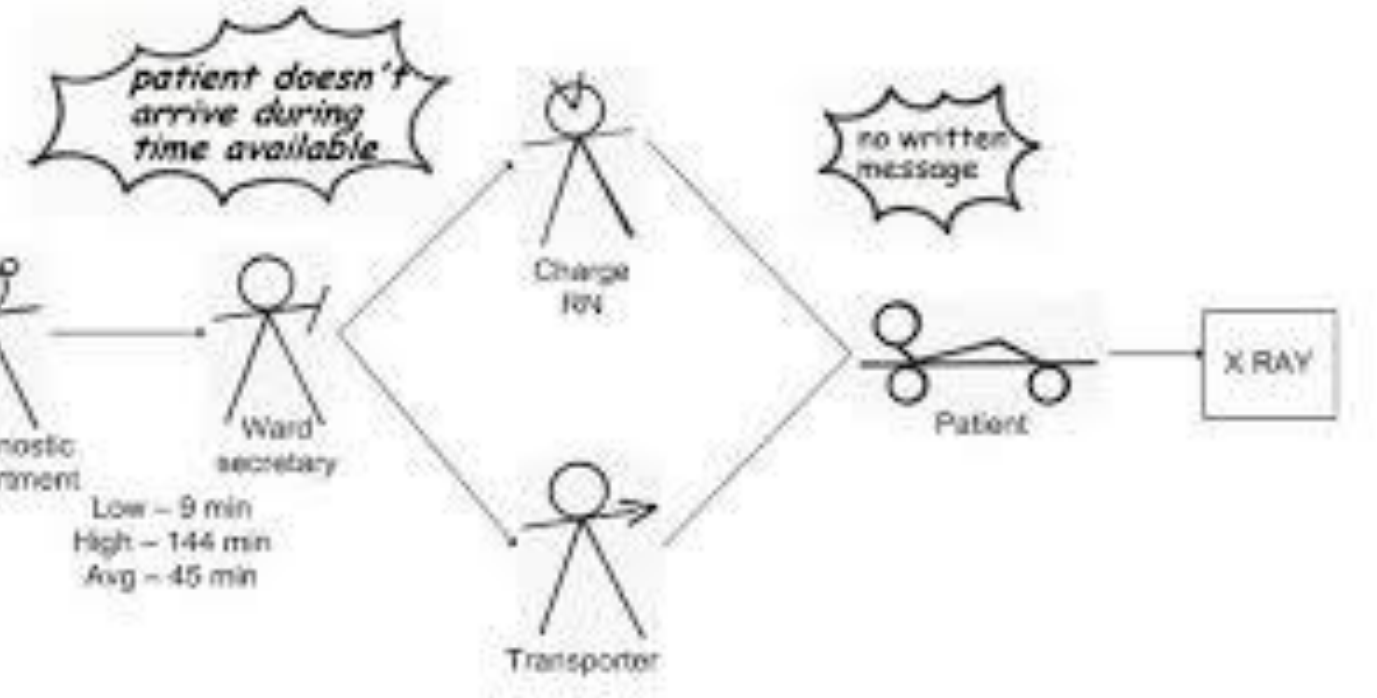
2. Why?
   The patient gave consent the night before the surgery to a registrar who does not perform the surgery and was not familiar with the patient. They marked the leg a washable marking in the wrong place.

3. Why?
   They didn't know about using a waterproof making tool and they were unaware of how the marking was to be completed

4. Why?
   They were new and the department didn't have a formal induction process for new registrars

5. Why
   No one ever said they should have an induction process

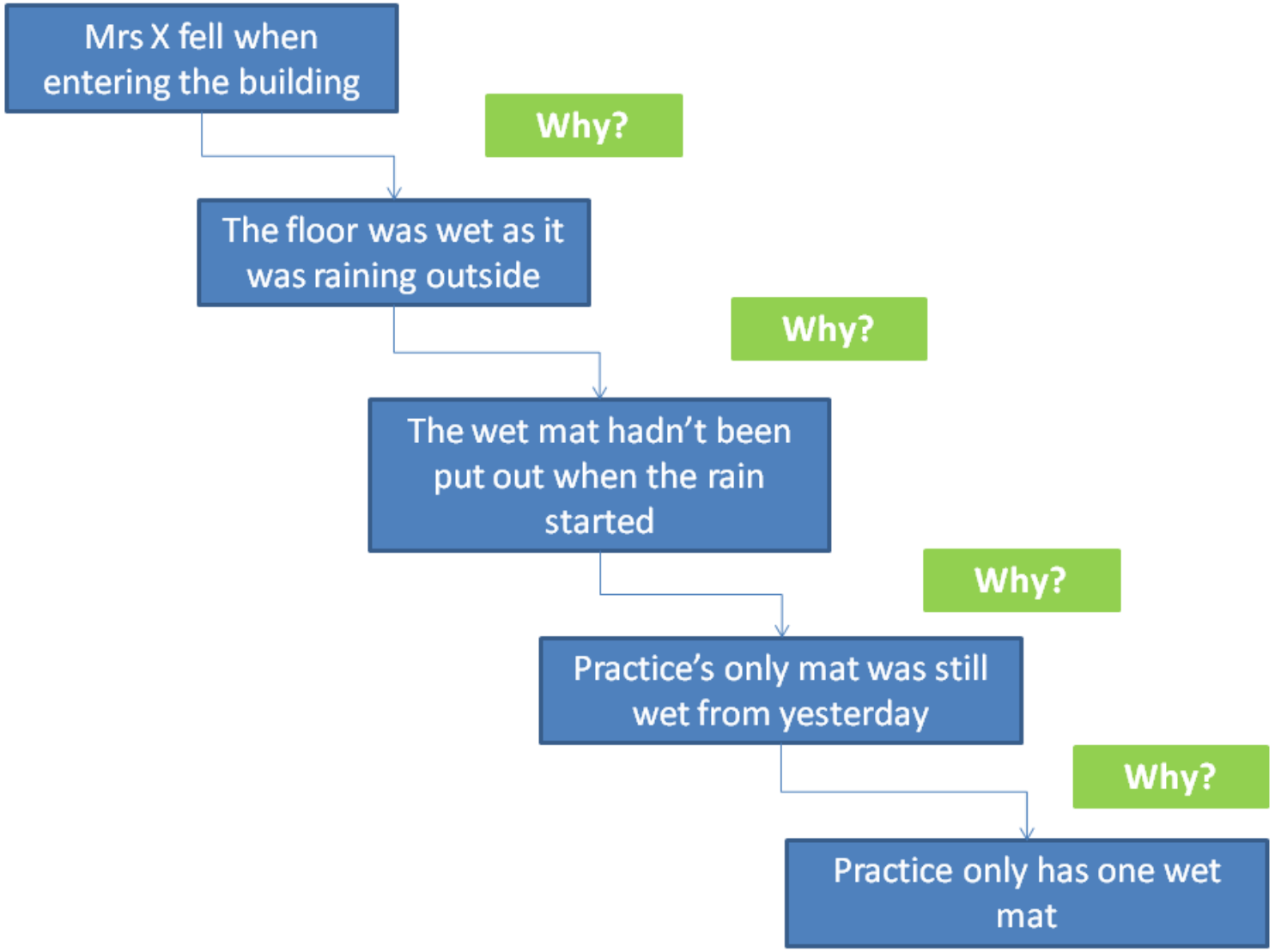
An example



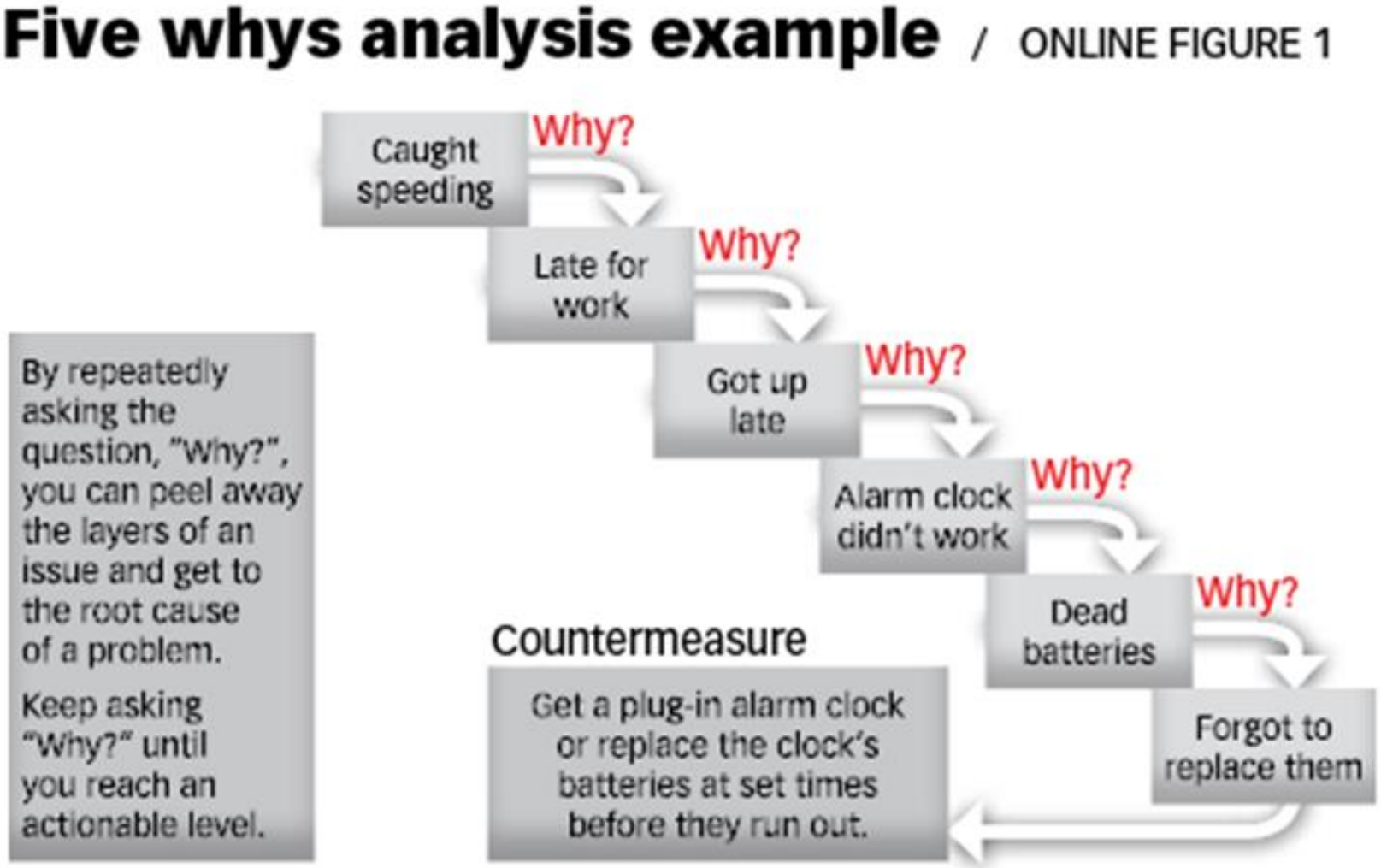
Problem: Backups in diagnostic departments

- Why? Patients arriving late
- Why? Transporter not called on time
- Why? Ward secretaries are busy and often forget
- Why? No written message
- Why? No protocol
- Why? Transport unable to locate patient
- Why? Page does not include patient location (name only)
- Why? No standard protocol for transport paging
- Why? Patient not ready for transport
- Why? Nurses unaware of prescribed test
- Why? No mechanism to inform RN of scheduled procedure

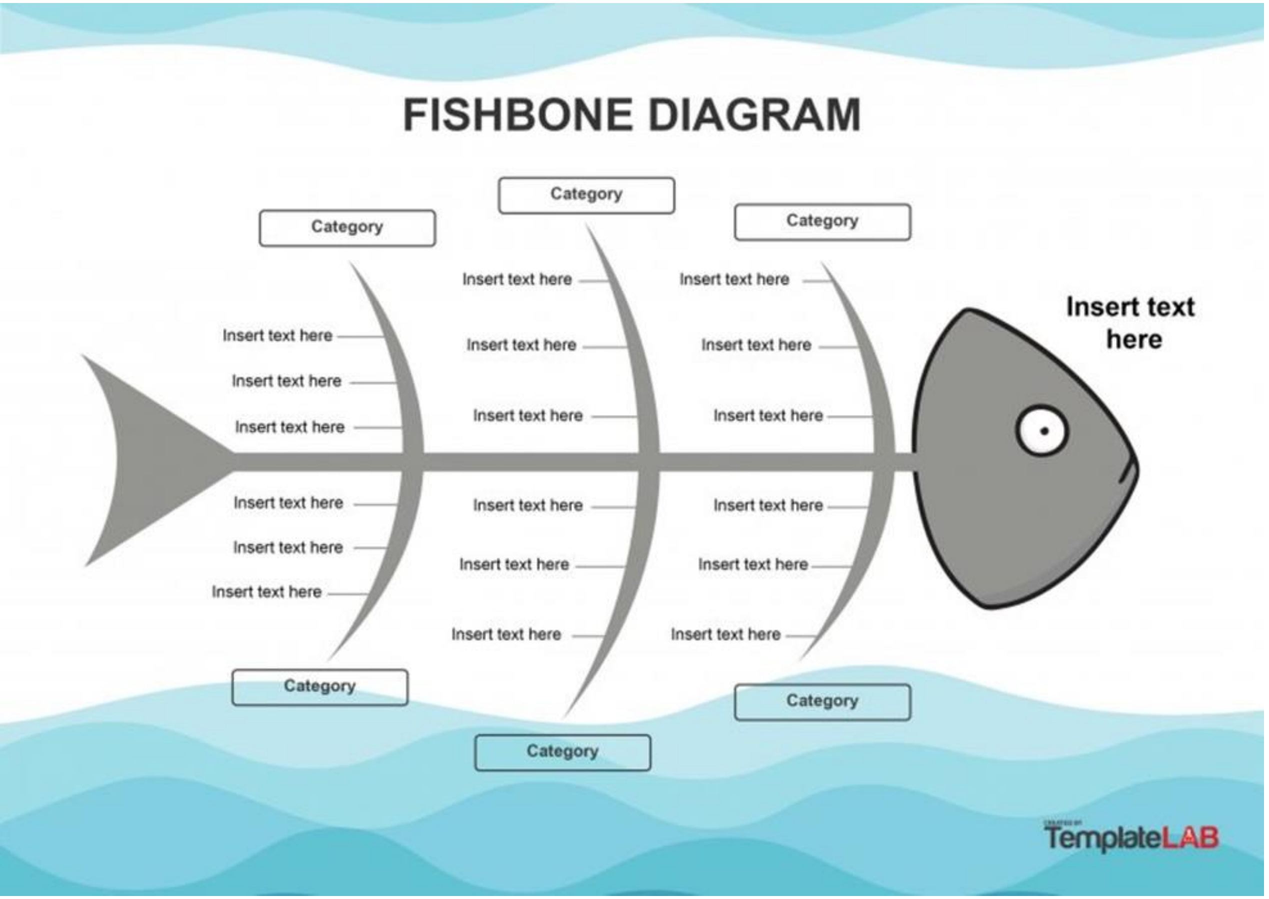
An example


Mrs X fell when entering the building
Why?
The floor was wet as it was raining outside
Why?
The wet mat hadn't been put out when the rain started
Why?
Practice's only mat was still wet from yesterday
Why?
Practice only has one wet mat

Piemērs


Five whys analysis example / ONLINE FIGURE 1
Caught speeding
Why?
Late for work
Why?
Got up late
Why?
Alarm clock didn't work
Why?
Dead batteries
Why?
Forgot to replace them
By repeatedly asking the question, "Why?", you can peel away the layers of an issue and get to the root cause of a problem.
Keep asking "Why?" until you reach an actionable level.
Countermeasure
Get a plug-in alarm clock or replace the clock's batteries at set times before they run out.

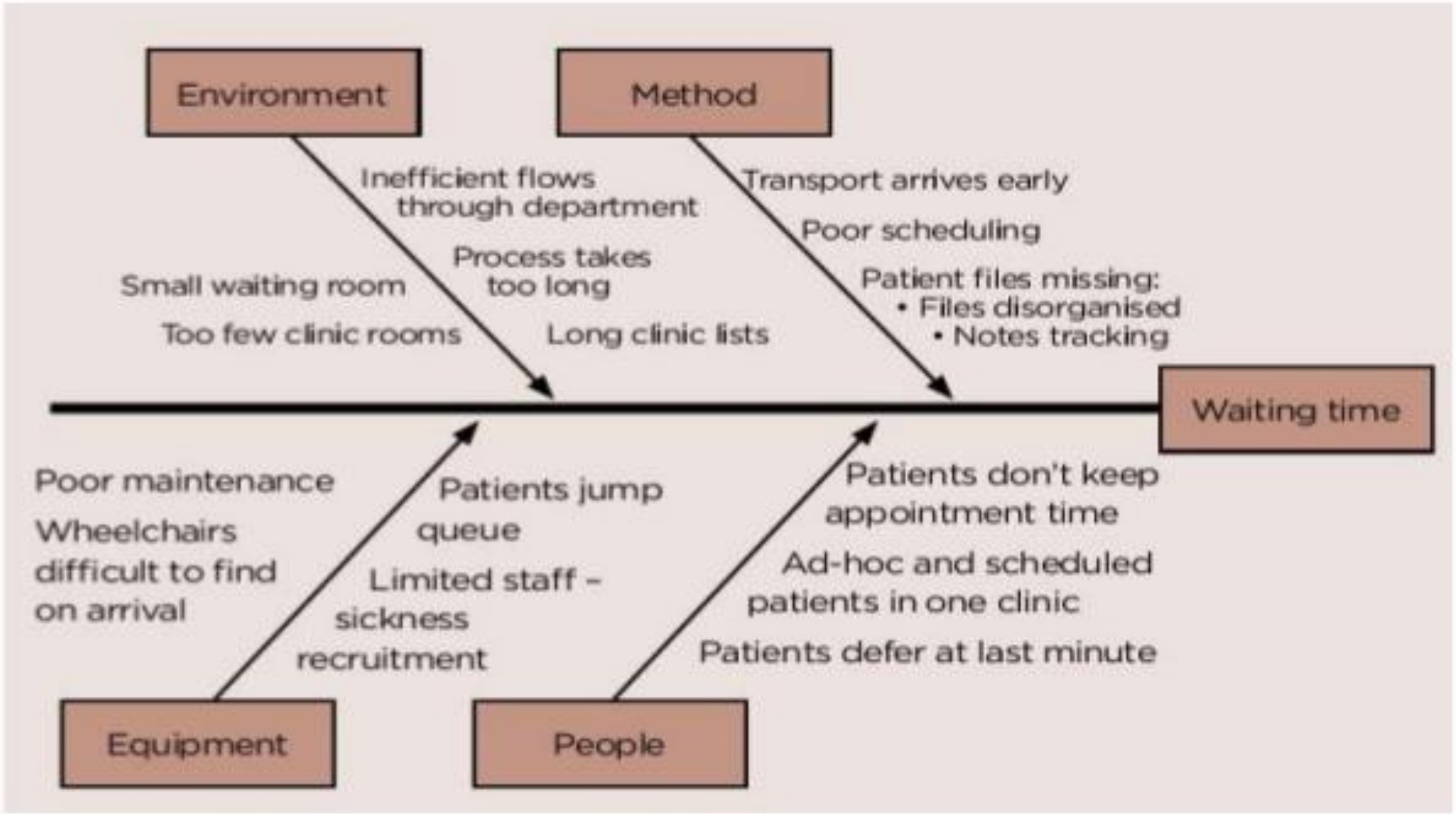
The Fishbone Cause-and-Effect Diagram



- The Fishbone Diagram was invented by Professor Kaoru Ishikawa of Tokyo University, a highly regarded Japanese expert in quality management
- He first used it in 1943 to help explain to a group of engineers at Kawasaki Steel Works how a **complex set of factors could be related to help understand a problem**
- The *defect* is shown as the fish's head, facing to the right, with the *causes* extending to the left as fishbones; the ribs branch off the backbone for major causes, with sub-branches for root-causes, to as many levels as required

The major categories of causes of the problem(Methods

- Machines (equipment)
- People (manpower)
- Materials
- Measurement
- Environment



*Nursing Times 16.04.13/ Vol 109 No 15 / www.nursingtimes.net

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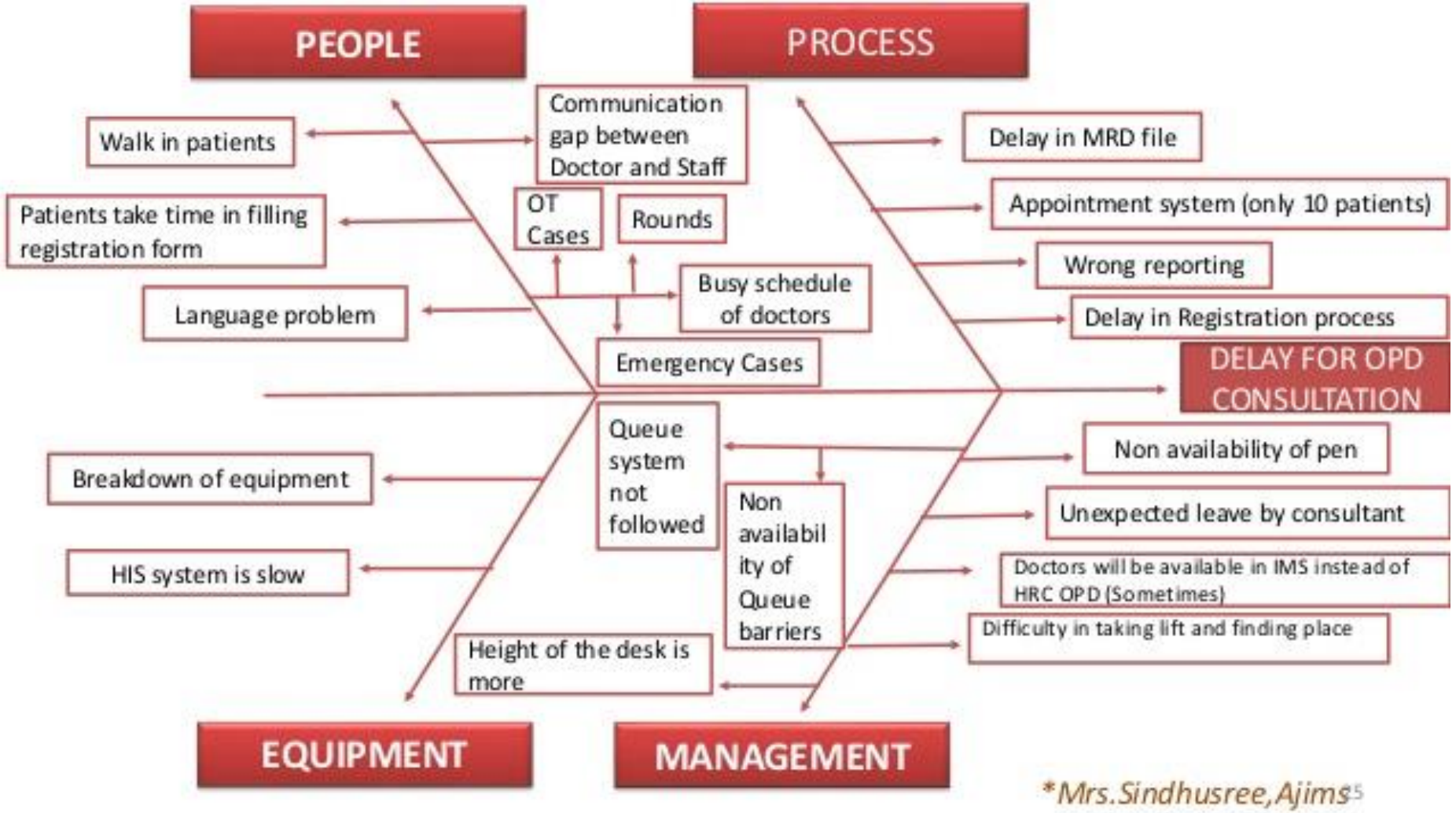
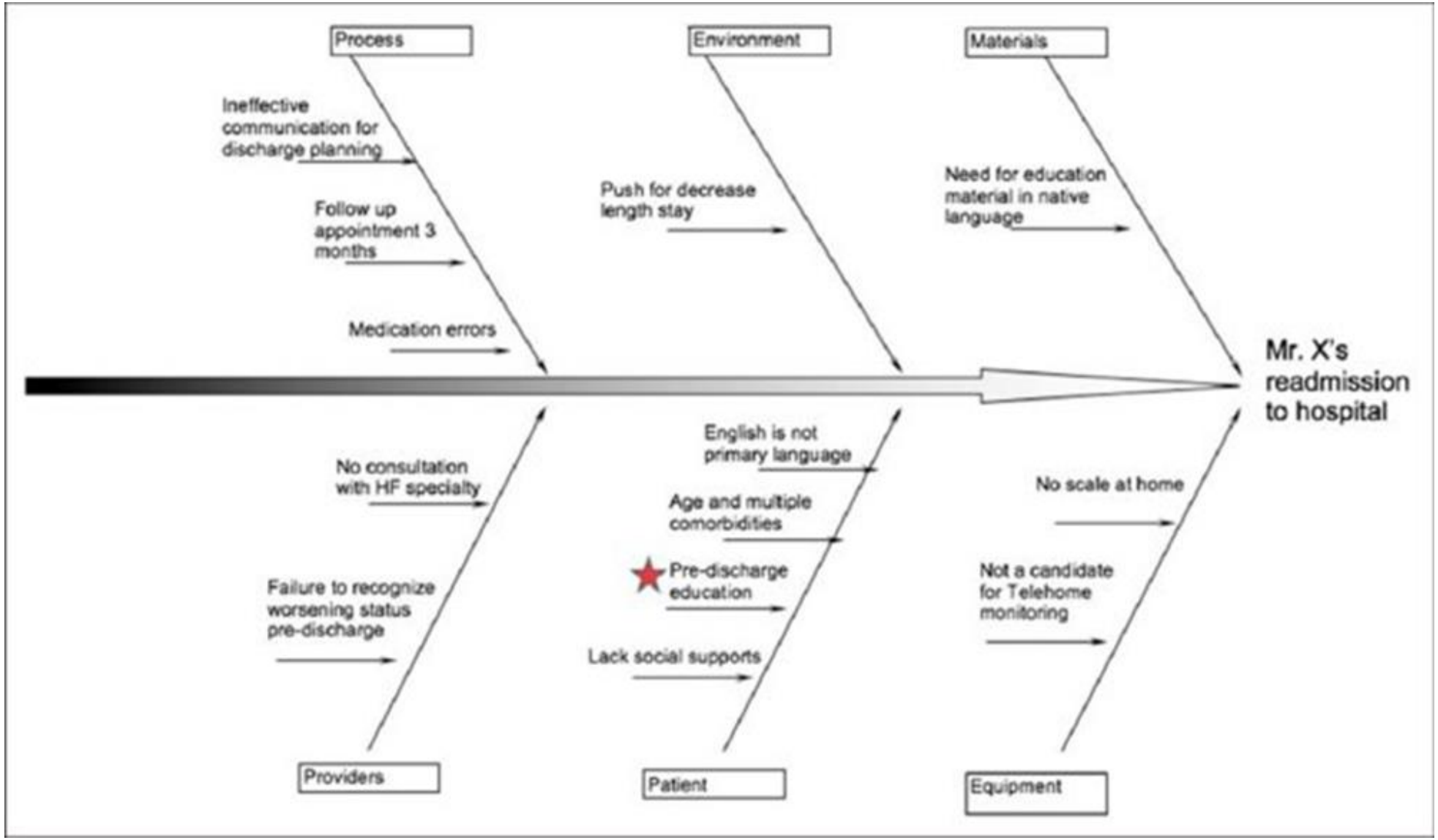
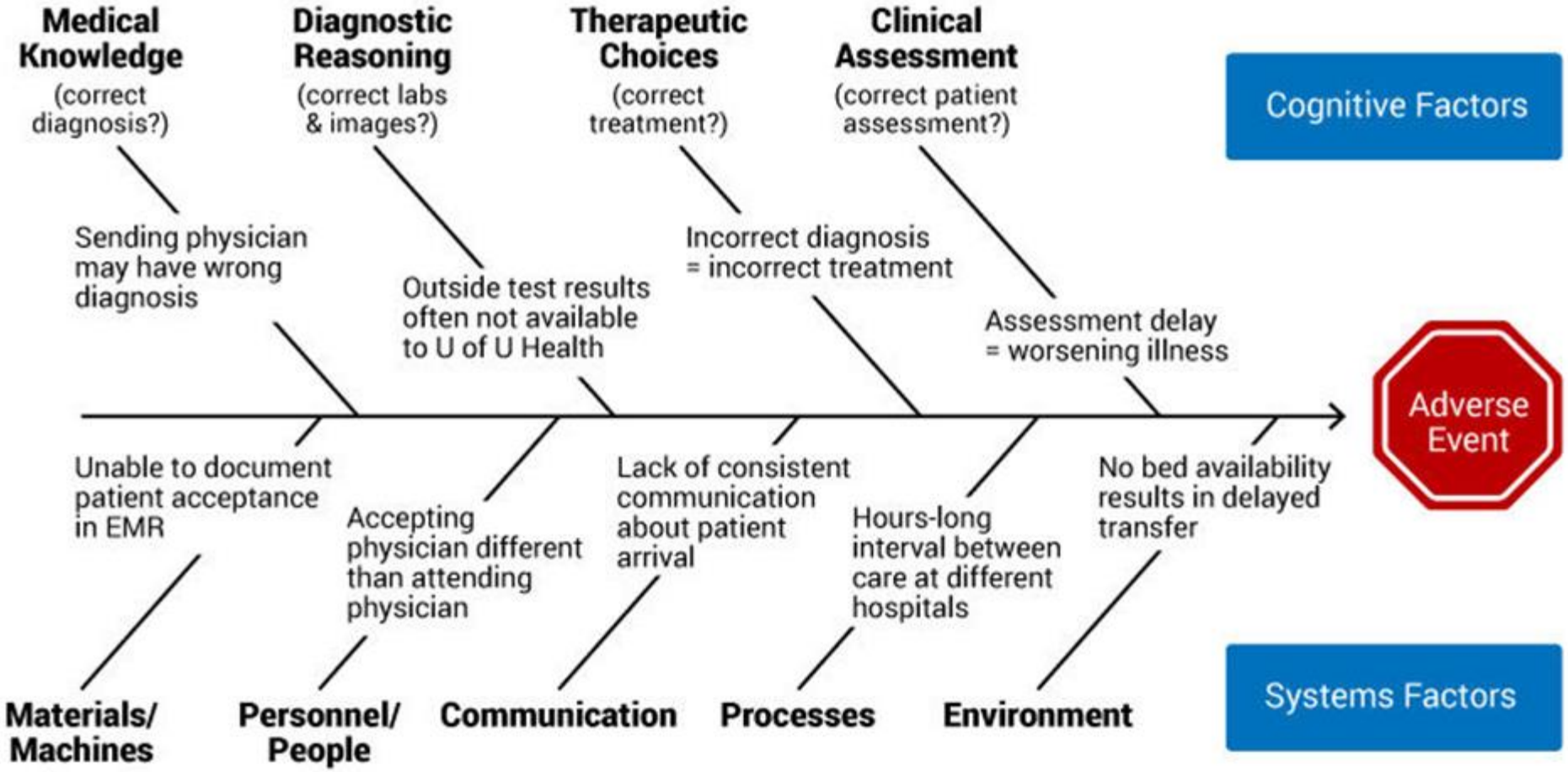
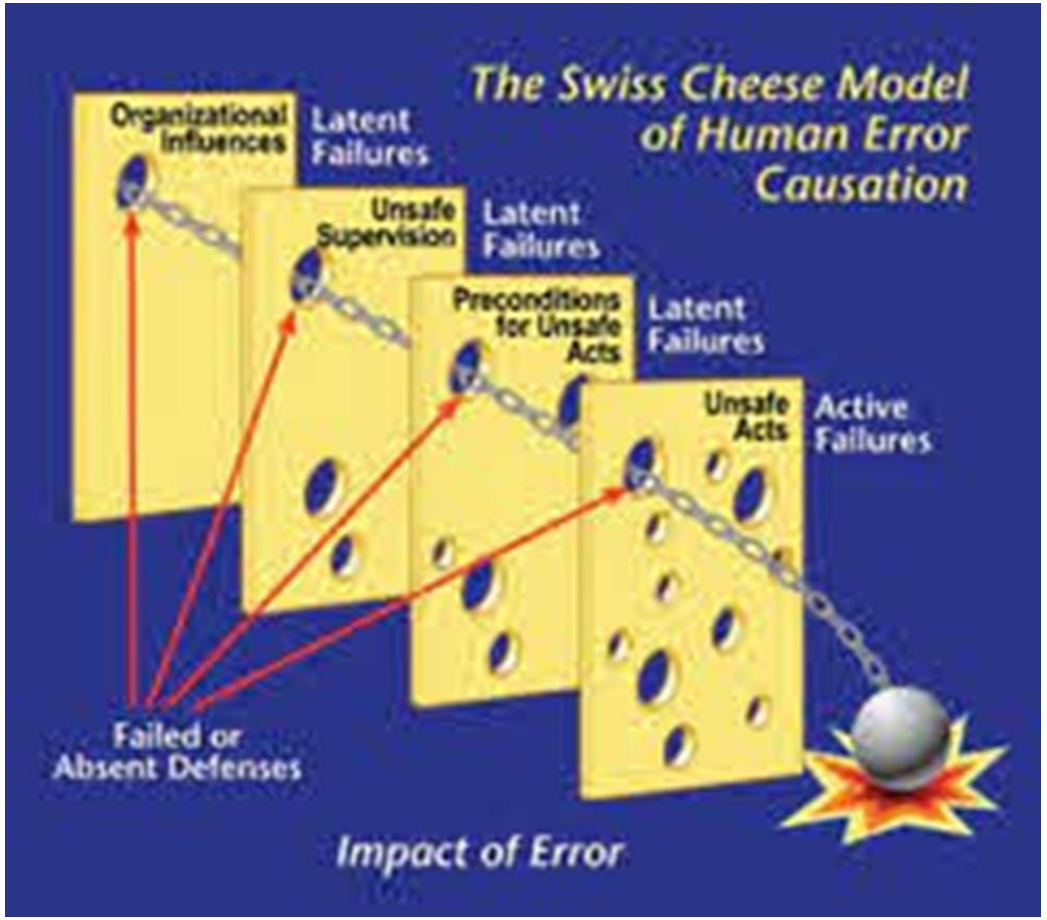

PEOPLE
PROCESS
Communication gap between Doctor and Staff
Walk in patients
Patients take time in filling registration form
Language problem
OT Cases
Rounds
Busy schedule of doctors
Emergency Cases
Delay in MRD file
Appointment system (only 10 patients)
Wrong reporting
Delay in Registration process
DELAY FOR OPD CONSULTATION
Queue system not followed
Non availability of pen
Unexpected leave by consultant
Non availability of Queue barriers
Doctors will be available in IMS instead of HRC OPD (Sometimes)
Difficulty in taking lift and finding place
Breakdown of equipment
HIS system is slow
Height of the desk is more
EQUIPMENT
MANAGEMENT
*Mrs.Sindhusree,Ajims


Process
Environment
Materials
Ineffective communication for discharge planning
Follow up appointment 3 months
Medication errors
Push for decrease length stay
Need for education material in native language
Mr. X's readmission to hospital
No consultation with HF specialty
Failure to recognize worsening status pre-discharge
English is not primary language
Age and multiple comorbidities
Pre-discharge education
Lack social supports
No scale at home
Not a candidate for Telehome monitoring
Providers
Patient
Equipment


Medical Knowledge
(correct diagnosis?)
Diagnostic Reasoning
(correct labs & images?)
Therapeutic Choices
(correct treatment?)
Clinical Assessment
(correct patient assessment?)
Cognitive Factors
Sending physician may have wrong diagnosis
Outside test results often not available to U of U Health
Incorrect diagnosis = incorrect treatment
Assessment delay = worsening illness
Adverse Event
Unable to document patient acceptance in EMR
Accepting physician different than attending physician
Lack of consistent communication about patient arrival
Hours-long interval between care at different hospitals
No bed availability results in delayed transfer
Materials/ Machines
Personnel/ People
Communication
Processes
Environment
Systems Factors

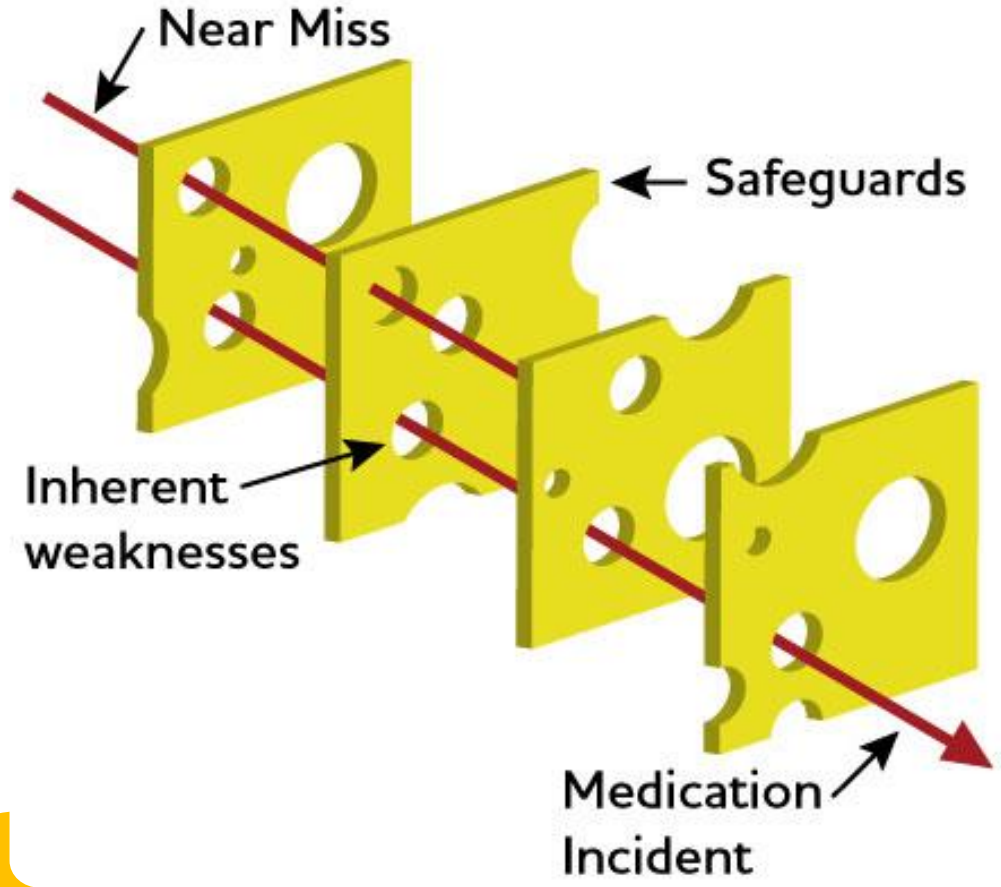
The Swiss Cheese Model



James Reasons Swiss Cheese Model is a simple metaphor to **visualize how patient harm happens, based on a systems approach**

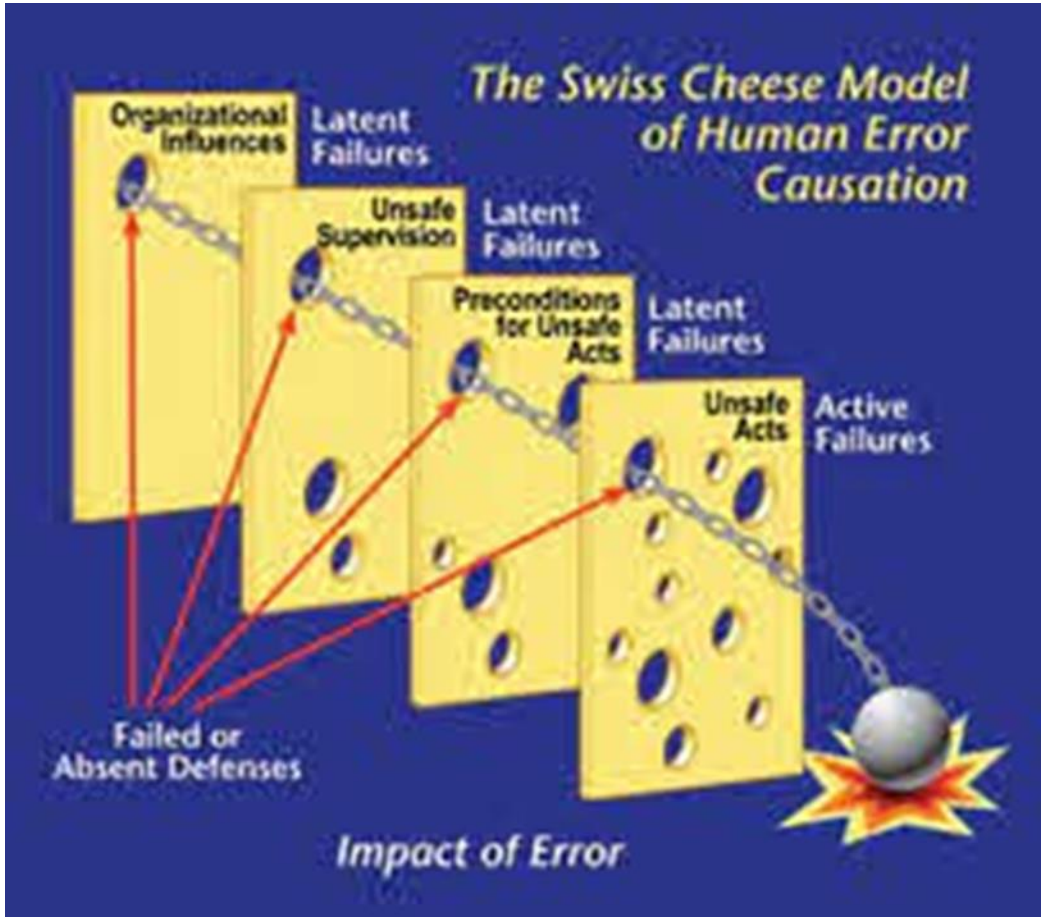
https://www.youtube.com/watch?v=MfWpMrEOlJ8&t=59s

SWISS CHEESE MODEL



- In the Swiss Cheese Model, each slice represents a safeguard, while the holes represent inherent weaknesses.
- Normally, a second or third slice would stop an error from fully penetrating, resulting in a near miss
- If the holes line up, however, a medication incident may occur

The Swiss Cheese Model

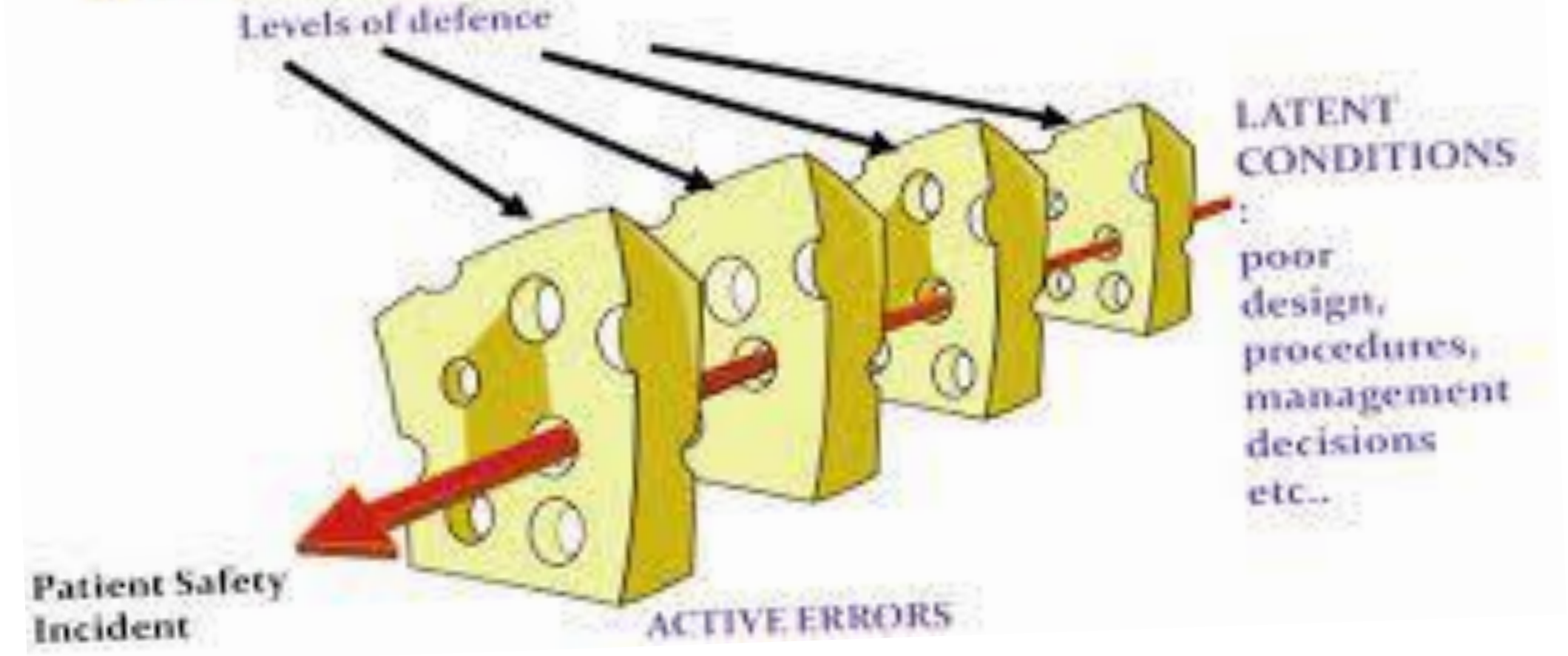


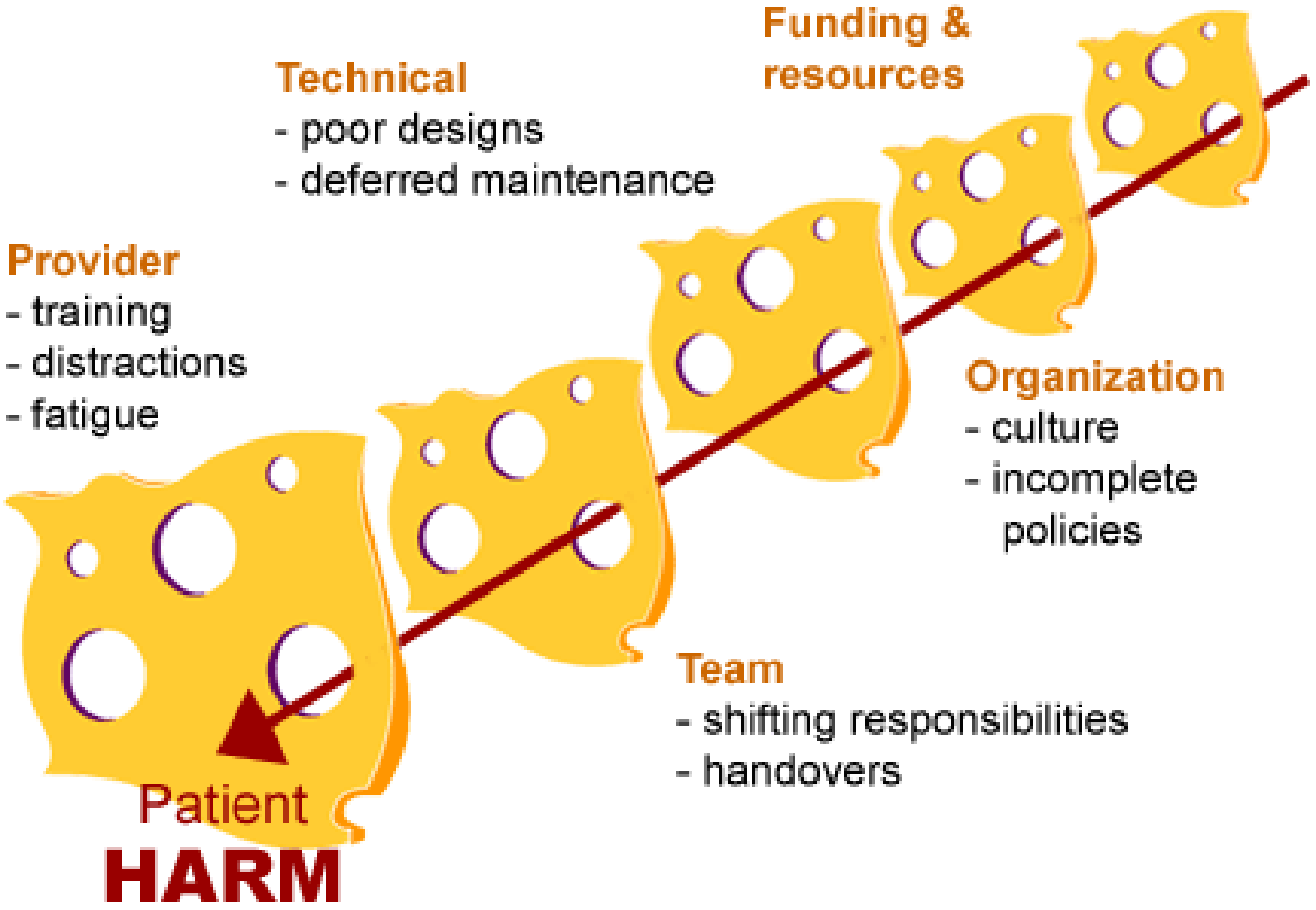
When such an event does occur, it happens because of a breakdown within each of the defenses, visually represented when the holes align

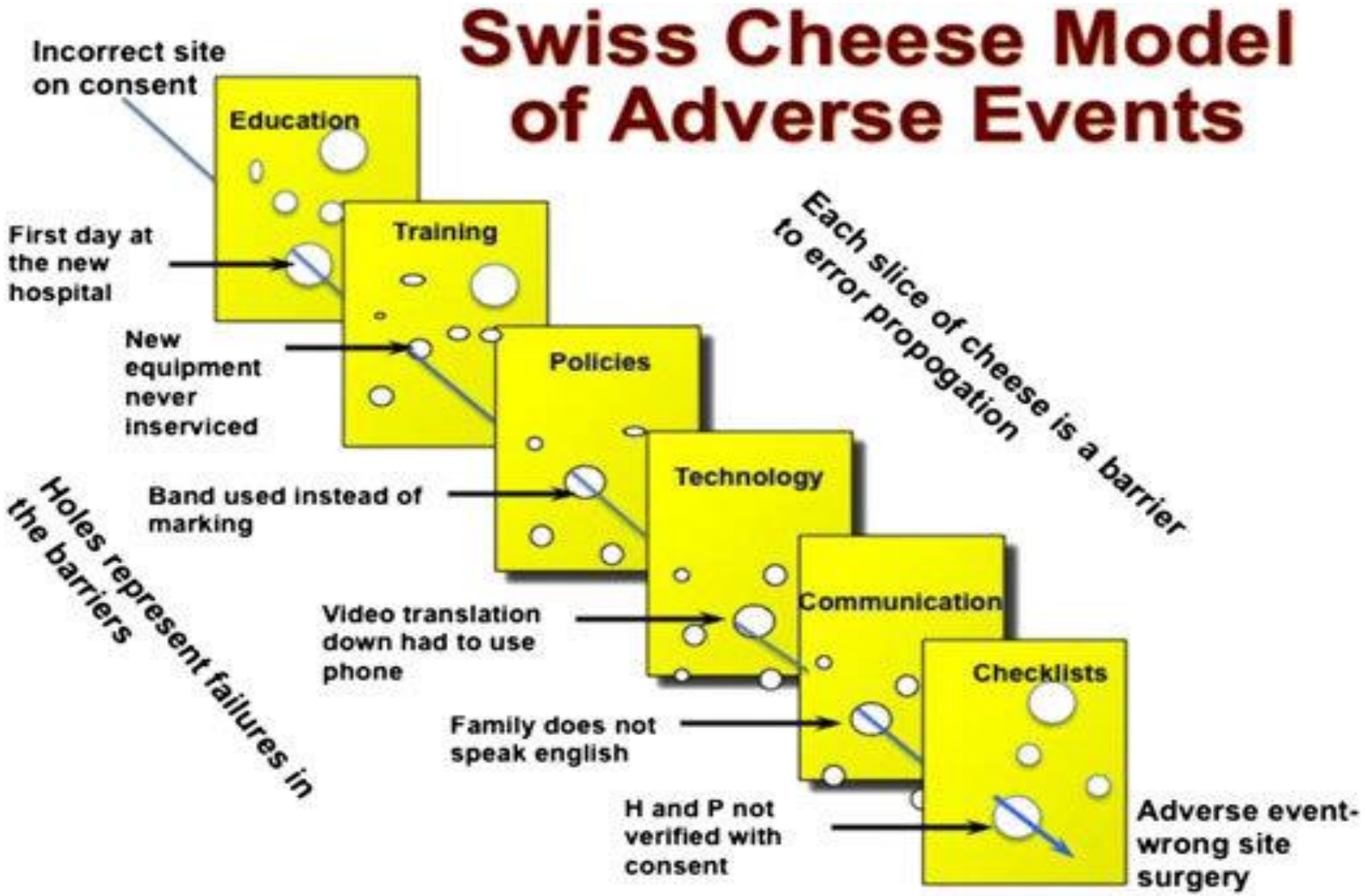
From a problem-solving approach, by revealing these gaps or breaches, **the model highlights that there are many ways (potential solutions) to prevent recurrence**

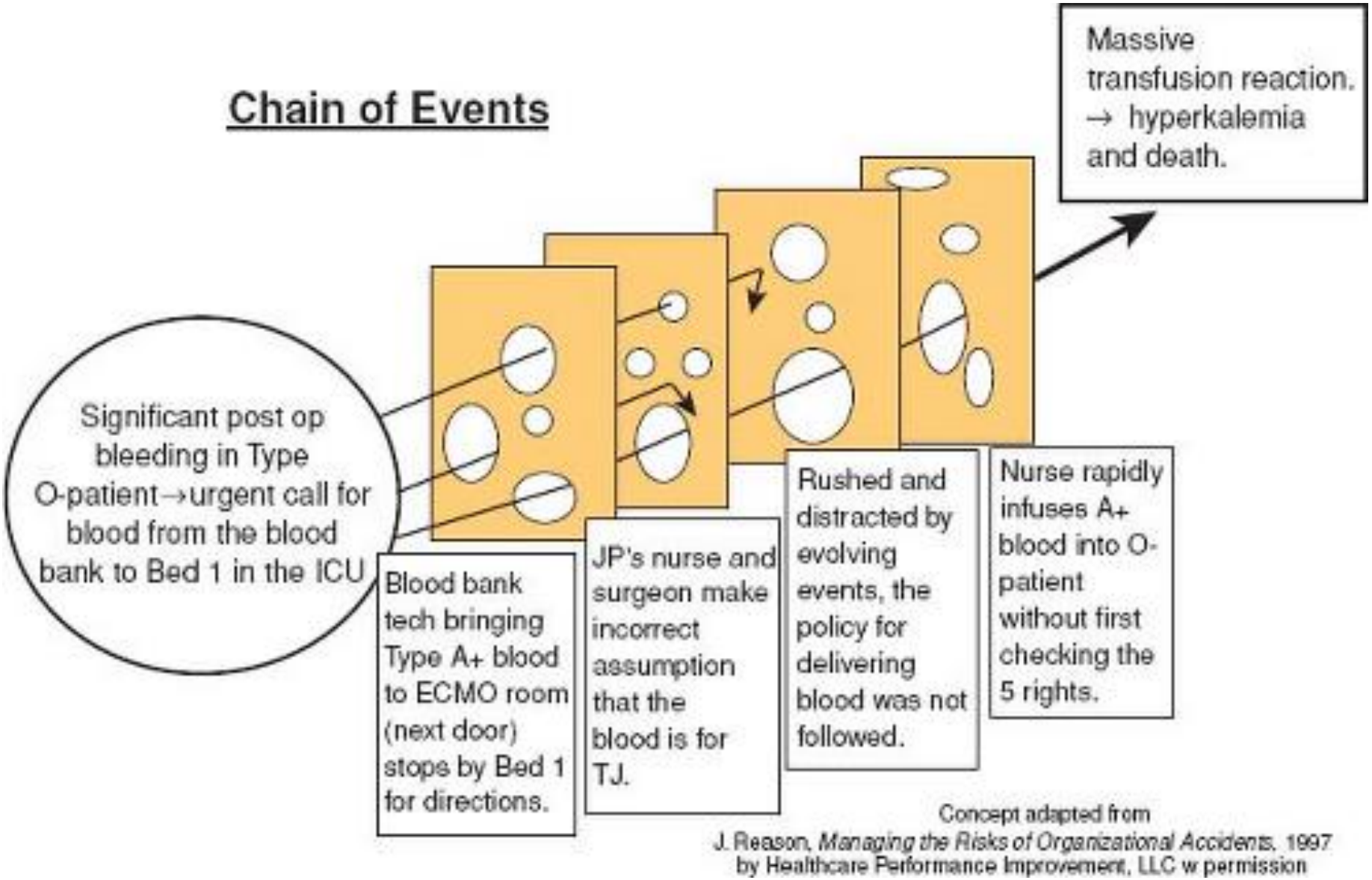
The more opportunities that are revealed, the more effective the organization becomes at preventing problems

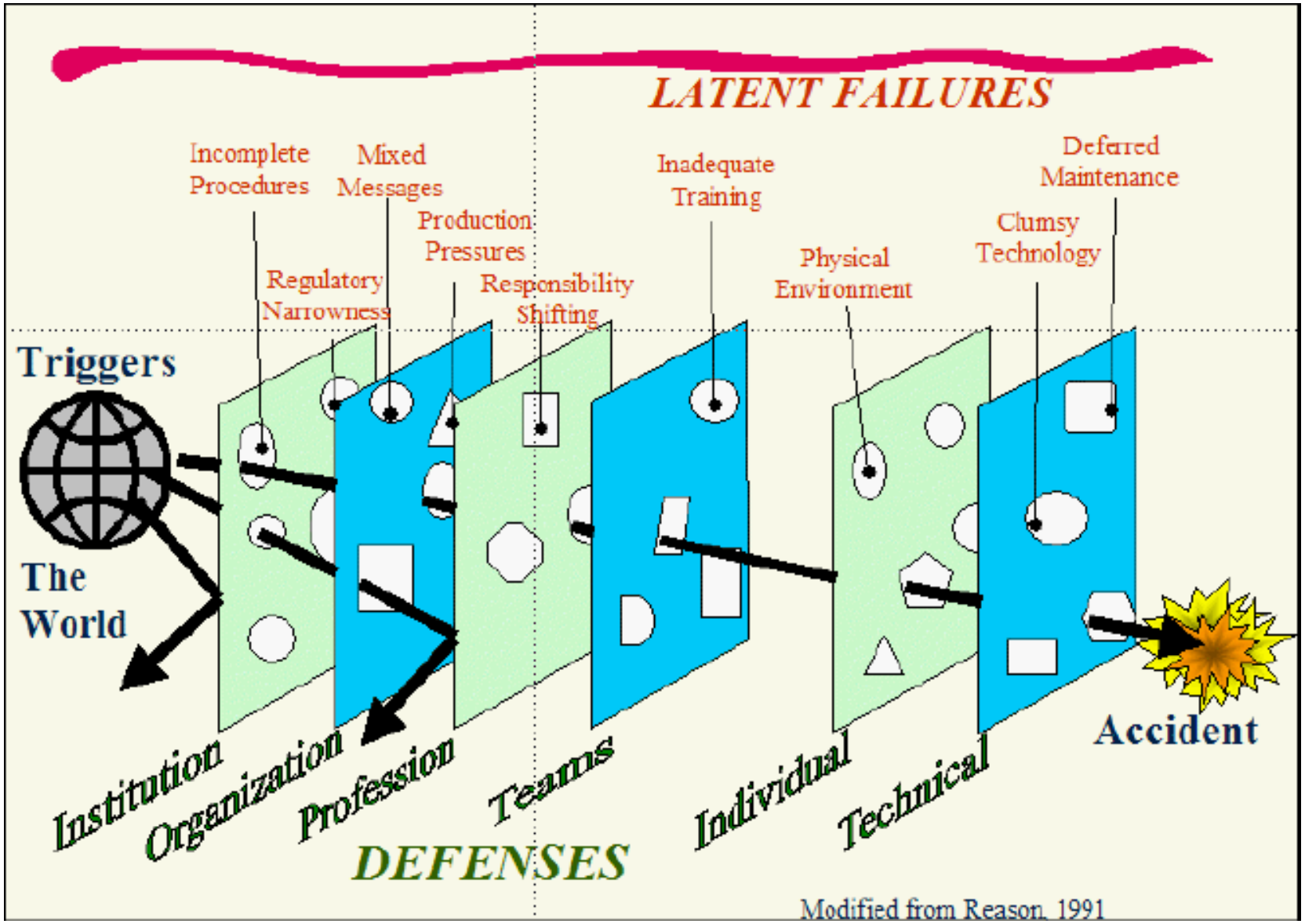
Reason's Swiss cheese model

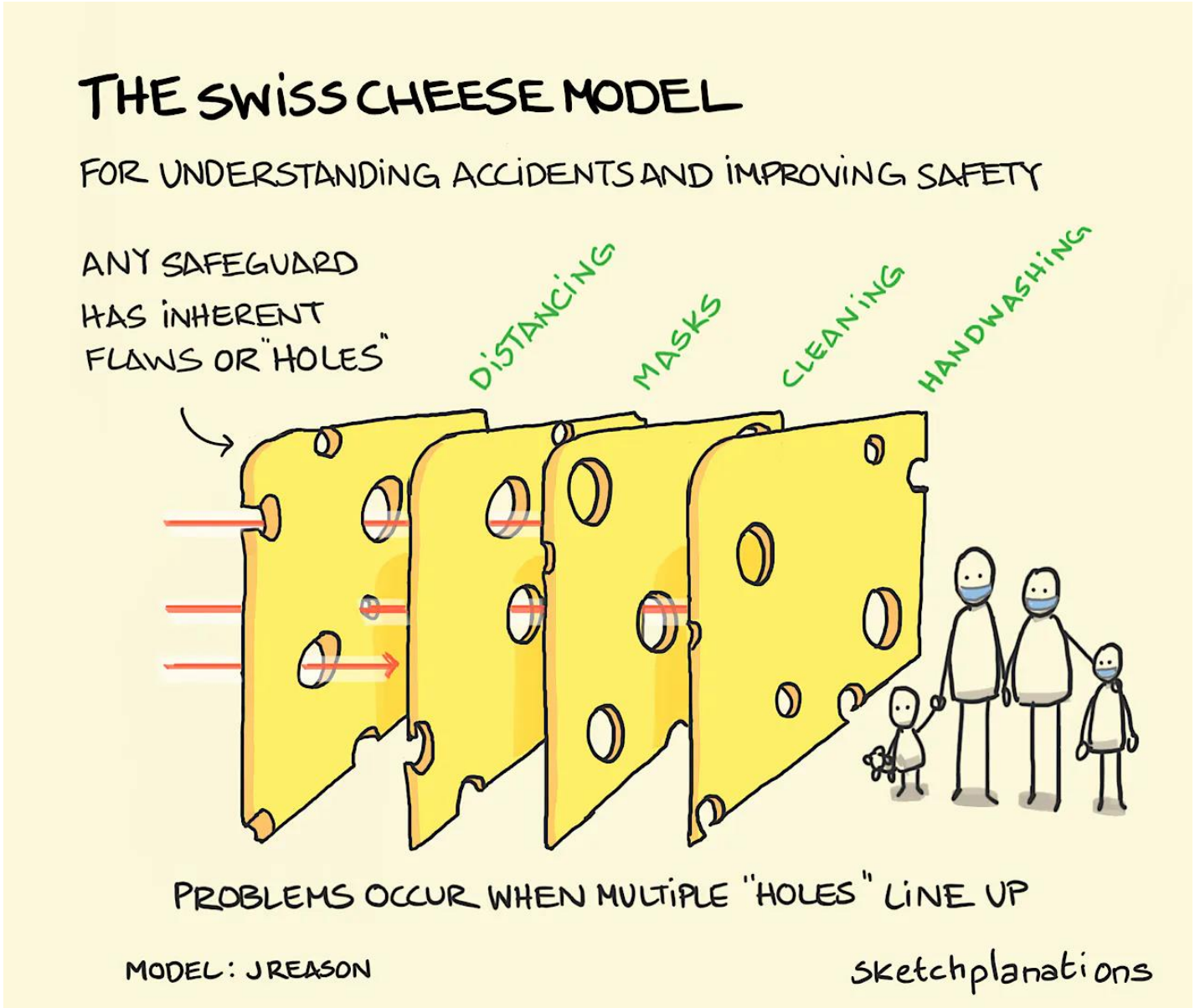



Funding &
resources
Technical
- poor designs
- deferred maintenance
Provider
- training
- distractions
- fatigue
Organization
- culture
- incomplete
policies
Team
- shifting responsibilities
- handovers
Patient
HARM


Swiss Cheese Model of Adverse Events
Incorrect site on consent
Education
First day at the new hospital
Training
New equipment never inserviced
Policies
Band used instead of marking
Technology
Video translation down had to use phone
Communication
Family does not speak english
Checklists
H and P not verified with consent
Adverse event- wrong site surgery
Each slice of cheese is a barrier to error propogation
Holes represent failures in the barriers


Chain of Events
Massive transfusion reaction. → hyperkalemia and death.
Significant post op bleeding in Type O-patient→urgent call for blood from the blood bank to Bed 1 in the ICU
Blood bank tech bringing Type A+ blood to ECMO room (next door) stops by Bed 1 for directions.
JP's nurse and surgeon make incorrect assumption that the blood is for TJ.
Rushed and distracted by evolving events, the policy for delivering blood was not followed.
Nurse rapidly infuses A+ blood into O- patient without first checking the 5 rights.
Concept adapted from
J. Reason, Managing the Risks of Organizational Accidents, 1997
by Healthcare Performance Improvement, LLC w permission


LATENT FAILURES
Incomplete Procedures
Mixed Messages
Production Pressures
Regulatory Narrowness
Responsibility Shifting
Inadequate Training
Physical Environment
Clumsy Technology
Deferred Maintenance
Triggers
The World
Institution
Organization
Profession
Teams
Individual
Technical
Accident
DEFENSES
Modified from Reason, 1991


THE SWISS CHEESE MODEL
FOR UNDERSTANDING ACCIDENTS AND IMPROVING SAFETY
ANY SAFEGUARD HAS INHERENT FLAWS OR "HOLES"
DISTANCING
MASKS
CLEANING
HANDWASHING
PROBLEMS OCCUR WHEN MULTIPLE "HOLES" LINE UP
MODEL: JREASON
sketchplanations


HOW TO STOP COVID-19:
THE SWISS CHEESE MODEL
The more steps you take,
the safer you are against COVID-19.
→ uihc.org/covid-toolkit
Avoid large indoor gatherings (no more than 10)
Keep social distance
Wear a mask
Wash your hands
UNIVERSITY OF IOWA HEALTH CARE

Human factor models influencing factors

Factors related to the task

Patient factors

Individual employee-related factors

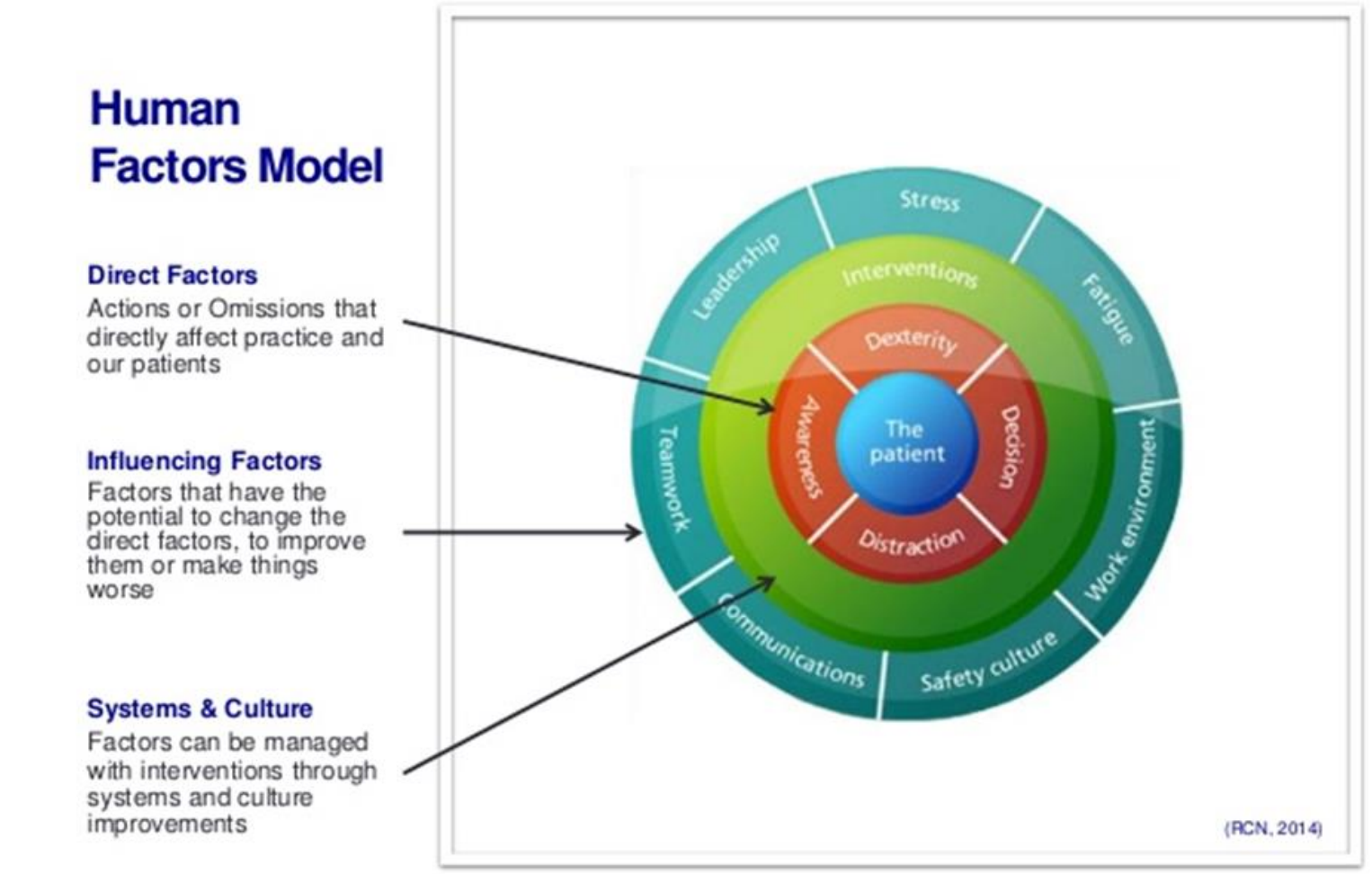
Communication factors

Teams and social factors

Education and training factors

Working conditions

Organizational and strategic factors



Influencing factors

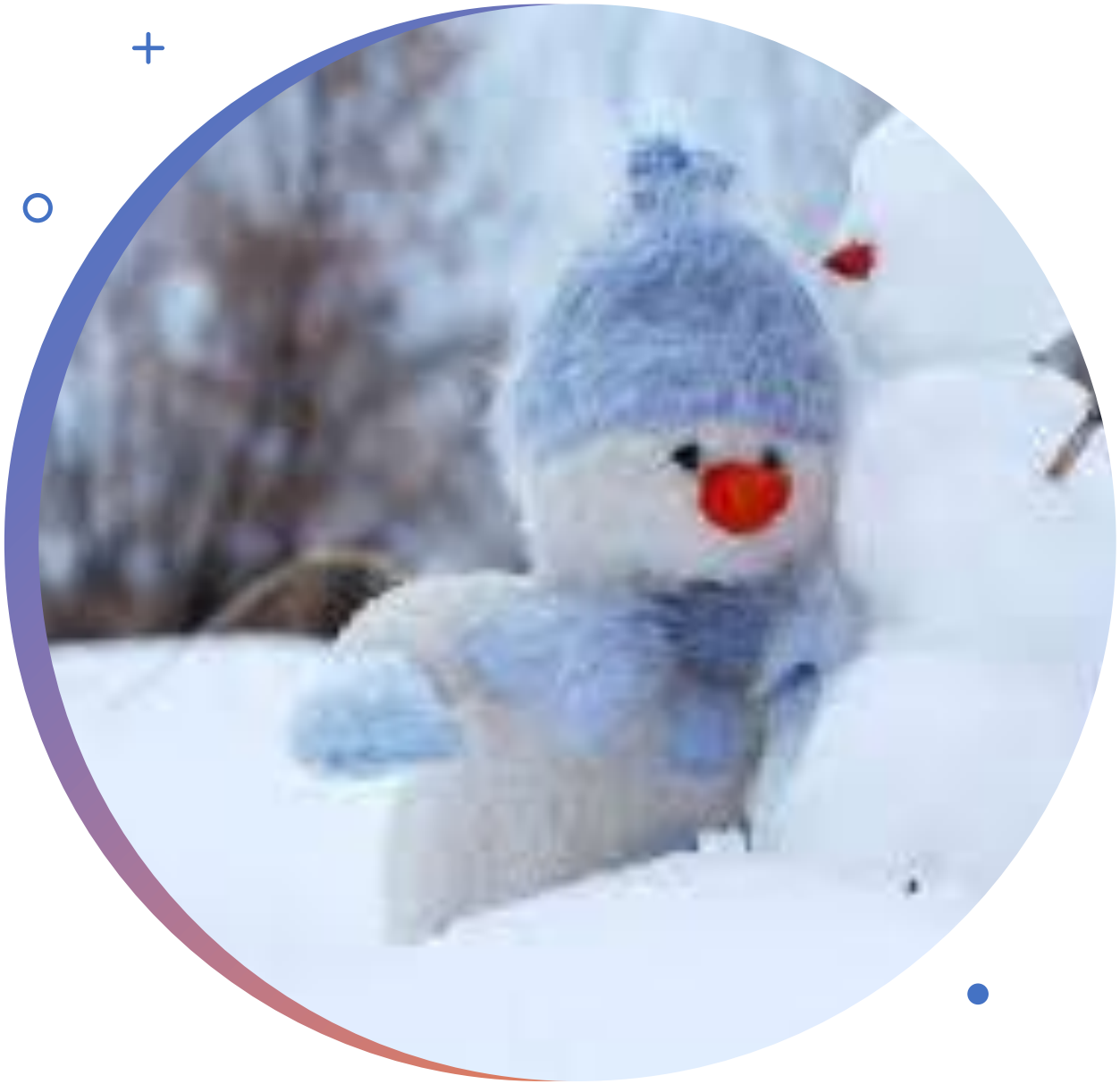
- **Factors related to the task**: guidelines, procedures, their availability, understanding, applicability, updating, decision making, availability of research results, availability of senior consultants, councils, etc. c.)
- **Patient factors** usually grouped as the patient's clinical condition (co-morbid, complicated, serious condition), social, cultural, psychological, physical factors
- **Individual employee-related factors**: psychological, work relationships, home problems, fatigue, overwork, boredom, confusion, lack of attention, stress, well-being, bad habits, illness, etc.) that affected the event
- **Communication factors**: written, oral, non-verbal information may be ineffective, confused, delayed, unclear, possible inadequate tone of voice, slang, use of abbreviations, language difficulties, unclear entries, information for the wrong position or other person, body language
- **Teams and social factors**: communication between team members, management style, lack of respect for the leader, lack of understanding of roles and responsibilities, team “openness”, reaction to problems.

Are duties defined, is it known, understood, or is effective leadership

- **Education and training factors**: availability and quality of training programs for staff to perform direct duties or respond to emergencies, maintenance of competence, supervision of training
- **Working conditions**, heat, poor lighting, noise, layout of premises, unsuitable place for certain functions, procedures, overcrowded compartment, dirt

Work shift planning, working hours, rest time, number of staff per patient, administrative factors (systems for prescribing medicines, checking doses, etc.), call buttons.

- **Organizational and strategic factors** organizational structure (eg hierarchical), priorities, external "brought in" risks (foreign policy, contracts, use of "external" equipment, terms and conditions of contracts), leadership, safety culture, etc. c



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