CME-Concept

"Patient Safety"

Identify errors
Avoid incidents
Correct consequences

- Learning from Errors -

Imprint

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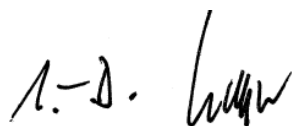Wegelystr. 3 / Herbert-Lewin-Platz
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The safety of the patient is the most fundamental of medical concerns. This is why, very early on, the German State Medical Councils decided to take responsibility for the clarification of errors in medical treatment and now, through the Commission of Experts and Arbitration Boards, offer patients the chance to clarify allegations of treatment errors.

Furthermore, as a result of the increasing complexity of modern medicine, it has become necessary to develop forward-looking preventive instruments and not only to offer the opportunity to sort out individual cases using hindsight. The German Medical Assembly 2005 therefore decided in favor of the introduction of critical incident reporting systems that can help recognize incidents and errors before they lead to any harm to the patient. At the request of the National Medical Council and the National Association of SHI-Accredited Physicians, the Agency for Quality in Medicine (AQuMed) set up an error reporting system which has been available to all German doctors since April 12, 2005.

The AquMed's CME-Concept "Patient Safety" represents a further milestone on the path we set out upon with our "Learning from Medical Errors" some time ago. Continuing Medical Education courses on the subject of "Medical Error and Risk Management" are already in considerable demand. The three-step CME-Concept presented here not only communicates the theoretical fundamentals won from error research, but also trains capabilities which will be necessary in order to implement error and risk management methods in everyday medical life. I very much hope that the new CME-Concept – "Patient Safety" will attract a large number of interested participants from hospitals and medical practices.

Prof. Dr. Dr. h.c. Joerg-Dietrich Hoppe
President of the German Medical Association

Wherever human beings interact and do so in ever more complex environments, potential errors or so-called near misses may occur. The reason for this is rarely a single event. Generally it is rather the result of a chain of unfavourable factors that eventually leads to an event which was not intended by any of the participants. If an error actually occurs, at least two people generally suffer as a result: the patient and the doctor who was responsible for the error, or at least feels responsible for it.

In order to support error avoidance and encourage the implementation of a new way of dealing with errors by means of a change in the error culture, the National Association of Statutory Health Insurance Physicians is actively involved in the field of patient safety. The CME-Concept "Patient Safety", as published by the Agency for Quality in Medicine, an organization established jointly by the National Association of Statutory Health Insurance Physicians and the German Medical Council, is unique in Europe and demonstrates our commitment to this subject. This commitment is reinforced by further activities and measures, such as the availability of an anonymous error reporting system (CIRSmedical), which is also provided by the AQuMed to all SHI-accredited physicians.

I very much hope that this CME-Concept will be seized upon and implemented by many groups of physicians. In order to further develop it, we would also be grateful for any suggestions and feedback.

Dr. Karl-Heinz Mueller
National Association of Statutory Health Insurance Physicians – Board of Directors

Table of Contents

1. Foreword

In recent years, patient safety has attracted public attention throughout the world, and its importance has been discovered by the media and politicians [1; 2]. But public health professionals are rather uncertain how to deal with the subject due to a combination of ignorance, the fear of getting involved, questions of legal responsibility and probably also adverse publicity on (medical) errors in the press.

The aim of the CME-Concept presented here is to provide structured assistance. It describes topics and processes with the help of which interested professionals, laypersons and others who are active in the realm of public health can learn about patient safety. It thus encourages the development of a "culture of error and safety awareness" with the ultimate aim of increasing patient safety. The CME-Concept also takes into account the ever more complex demands made on those who work in the field of public health.

The appendix contains a glossary containing the most important terms pertaining to patient safety and serves two functions: On the one hand, it is an attempt to provide a guide for teaching content and on the other, by defining the most important terms from the field of patient safety, an attempt to provide the basis for communication between those involved - something which is vital for a culture of safety.

Present Situation in Patient Care

- Complex work environment
- Multiple interfaces: patients, various departments/institutions, technology, …
- Error proneness: errors are often made – sometimes irreversible errors – and there are rarely opportunities for experimenting or trying things out
- Recognition of the risk involved in medical interventions
- Reflections on the profession: changes in internal and external demands on the health care profession; the increasing importance attached to safety by society
- Involvement in the international discussion on patient safety
- Self assessment of risk by responsible patients
- A focus on the role of human interaction (human factors) in strategies to prevent errors is an opportunity to intervene in the health care system (patients cannot be standardized, so only limited automation is possible)

- Transparency of health care through the compilation of data and use of pseudonyms (retrospective recognition of quality care and errors)

2. The CME-Concept "Patient Safety"

Confidence in medical care is extremely important for any health care system. By introducing patient safety, the CME-Concept presented here is a further step towards comprehensive quality management. This approach goes beyond the traditional understanding of patient safety by the health care professions, namely to find and apply the right treatment following a differential diagnosis.

In the field of patient safety, it is essential to understand that when working with patients – despite the greatest possible caution and application of the best available medical knowledge, - adverse events and incidents will occur. Sometimes, the desired success of a therapy will not be attained because of an error.

The structure of the CME-Concept *"Patient Safety"* is based on results from high risk industries such as petrochemistry, nuclear power and aviation, which for several decades have been concerned with human beings in complex work environments, the resulting potential error sources and their elimination. The **first step** in the CME-Concept is to create a readiness to examine and discuss human error-proneness in complex systems and the resulting danger to patient safety.

In a **second step,** strategies for the implementation of measures and forms of communication are described which make it possible to detect potential error sources early and to work effectively towards their elimination.

This CME-Concept contributes to medical quality management. Since it is relevant to all medical personnel, the authors would like to invite all medical professions to critically appraise the content of the CME-Concept and to communicate candidly any comments or suggestions, as well as to recommend changes to the content which would more adequately reflect the needs of their own professional groups.

2.1 Aims of the CME-Concept

The CME-Concept *"Patient Safety"* pursues the following aims:

2.1.1 Substantive Aims of the CME-Concept

Promote Error Awareness and a Culture of Safety

- To destroy current taboos
- To create an information base
- To encourage an objective discussion
- To develop strategies
- To raise the awareness of the need for changes in work processes
- To communicate the importance of patient safety in an acceptable way

Increase Confidence when dealing with the Subject of Patient Safety

- To reduce fears
- To build trust
- To strengthen communications
- To become acquainted with the activities of others and learn from one another

Promote Safety in Health Care

- To allocate competencies for the implementation of patient safety measures
- To further improve work environments
- To foster a positive perception of the topic by patients

2.1.2 Methodological Aims of the CME-Concept

Professionalization

- To provide information sources to interested parties
- To allocate competencies to those active in the health care process
- To provide guidance to instructors

Applicability in Different Contexts

- Modular Structure [with elements which can be employed individually]
- Comprehensible and comprehensive selection of modules to suit target group
- Implementation possibilities in basic and advanced training, as well as continuing education
- Quality development in health care institutions

2.2 Target Groups for the CME-Concept

- As information for all interested parties
- As a foundation for continuing education and training for doctors
- As a guideline for multipliers and those bearing responsibility
- For the general use of those active in heath care

2.3 Design of the CME-Concept

2.3.1 Participants

- As a result of the CME-Concept's modular structure, courses and presentations can be provided to participants with differing knowledge levels and from different professional backgrounds.
- The CME-Concept can either be provided within a general framework (topic-based), or within a specific framework (for example for multipliers, as quality management for leaders, for doctors with their own practices, nurses, etc.)

2.3.2 Didactics

- The courses should pay special attention to the importance of intuitive clarity and experience-based learning. Therefore the continuing education courses should involve a large number of case studies, practical exercises and opportunities to share experiences. "To have heard is not to have understood, to have understood is not to have learned, to have learned is not to have acted …"

2.4 Stepwise Structure of the CME-Concept "Patient Safety"

The CME-Concept on *patient safety* serves as a guideline for education, further education and continuing education in the field of patient safety in both the practice and the hospital. Thus the design of the seminars can vary greatly. However, in accordance with recommendations, they must:

- Include the subjects, content and learning goals specified for each qualification step/level
- Ensure the general conditions are suitable for conducting the seminars appropriately, and
- Take the methodological recommendations of the CME-Concept into adequate consideration

Examples of how a seminar may be structured are presented below; the following models are based on the practical experience of previous seminars in other fields of education, further education and continuing education, paying special attention to the quality assurance / medical quality management curricula.

Among the positive consequences of the introduction of quality management in healthcare is that the methods that have been developed as a result (group work, the systematic analysis of the healthcare process, the recognition of patients' needs and experimentation with new solutions) promote creative action and encourage participants to take on additional responsibilities and regard their work as a personal challenge.

Continuing education can be offered on the following levels:

- I: Basic knowledge with emphasis on "information"
- II: Professional (basic) skills qualification with emphasis on application
- III: Additional qualification for multipliers with an emphasis on communicating and teaching skills to others

The demands of the individual levels are shown in the following table:

I. Basic Knowledge/Information	II. Basic Skills Qualification	III. Additional Qualifications/ Multipliers
1. Target Groups: • Doctors pursuing further education • Medical students	**1. Target Groups:** • Doctors pursuing further education	**1. Target Groups:** • Doctors pursuing further education • Medical specialists • Doctors in leadership positions
2. Requirements: • Medical studies (MD)	**2. Requirements:** • Relevant professional experience	**2. Requirements:** • Preferably leadership/multiplier role
3. Aims: • Communicate fundamentals • Understand importance of patient safety in healthcare	**3. Aims:** • Communicate extensive knowledge, fields of application and patient safety skills	**3. Aims:** • Communicate competencies and responsibilities for patient safety in participants' professional fields
4. Length and type: • About 4 hours • Continuing education seminar • Courses, seminars	**4. Length and type:** • About 16 hours • Courses, seminars • Projects, real-life scenarios	**4. Length and type:** • About 20 hours (40 hrs in all) • Seminars • Projects
5. Content: • Basic knowledge • Definition, aims and patient safety environment • "Awareness of errors"	**5. Content:** • Intensification of subjects from the basic course • Patient safety as an integral element of healthcare • Basic communication skills	**5. Content:** • Leadership and communication skills • Auditor training • Method training • Evaluation
6. Course Completion: • Certificate of participation	**6. Course Completion:** • Find a solution to a real-life scenario/ take part in a colloquium • Proof of qualification (certificate of participation)	**6. Course Completion:** • Presentation of individual projects/scenarios • Proof of qualification (certificate of participation)

3. Areas of instruction/Modules of the CME-Concept

For each instructional level (see table above), topics can be combined in modules – thus the continuing education can be tailored to suit different target groups and diverse needs. In this context the following should be kept in mind:

- Target group
- Scope
- Content
- Consolidation of content

In the following, the aims of the individual aspects of patient safety are described and topics are presented in terms of keywords.

A Fundamentals: Key Terms and Currently Available Data

B Error research/The Psychology of Safety

C Communication/Teamwork

D Instruments/Realization/Training

A Fundamentals

In this area of instruction, general information is presented on the importance of patient safety and its development as a subject of interest, especially in an international context following the publication of the IOM report "To Err is Human" [3]. The background and importance of the subject for healthcare and professional self-determination will also be introduced. At the same time, difficulties in making useful international comparisons due to the lack of systematic data in Germany, as well as problems with the interpretation of available international data and literature will be presented. As an introduction, an over-view of the nomenclature is necessary, especially of terms such as "adverse event", "error" and "harm", as well as their meanings for the medical profession. Furthermore, an overview of existing institutions and their contributions to patient safety is provided. This includes arbitration boards, which can make detailed analyses of mistakes and resulting opportunities for continuing education, and of patient complaints. The institutions established in German-speaking countries including Austria and Switzerland, such as ombudsmen and the Stiftung Patientensicherheit (patient safety foundation) in Switzerland, as well as the Aktionsbündnis Patientensicherheit (Action alliance patient safety) in Germany will be discussed in some detail. Finally, the opportunities and the goals that can be achieved though the realization of greater patient safety in widely differing fields will be presented and discussed, whereby the legal aspects of this topic will also be touched upon.

Field of Instruction	Content of Instruction
General Content	- Importance of patient safety, development as a subject; background/status of current data/literature
Types of Error	- Introductory overview of types and frequency of errors, degrees of severity and consequences - e.g. active errors/active failures
Case Studies	- Case studies within the context of available data and work processes - Errors - Harm - Adverse Events
Overview of Patient Safety Initiatives	- Existing institutions/instruments (arbitration boards, management of complaints in hospitals, Action Alliance Patient Safety, ombudsmen, patient lawyers [Austria]). Motivation to promote patient safety
Legal Aspects	- Injury compensation, due diligence, negligence, principle of responsibility

B Error Research/The Psychology of Safety

This area of instruction encompasses important aspects when dealing with errors and their causes. The current traditional (person-based) approaches in medicine are taken into account, as well as lessons from other fields that have dealt extensively with human factors research such as industry and aviation. Classical error theory, which deals not only with person-based causes, but also system-based causes of errors and adverse events, will also be discussed. The psychological aspects of errors and the resulting barriers to their elimination also play an important role. In addition, the evolution of safety cultures in fields of industry known as High Reliability Organizations, which are to be found in the likes of the nuclear and aviation industries, will also be discussed [4]. This will be followed by a description of the programs and their strategic realization which have taken place in these industries over the last few years.

Field of Instruction	Content of Instruction
How Accidents Happen/ Concepts of Safety	- Person-based (traditional) approach - System-based approach - Reason's "Swiss Cheese Model" as a model for system-based causes of critical incidents or adverse events and resulting conclusions [5-7] - Safety as a property of the system
Error Theory	- Unsafe acts: errors: slips and lapses, - Mistakes: rule-based and knowledge-based, - Violations: routine, optimizing, necessary or situational - Active and latent human failure
Psychology of Errors	- Blame and shame - Causes of errors: stress, awareness, heavy work load/ fatigue, misunderstandings; - Pushing the limits - Routine violations - Awareness and processing of information, - Motivation and Emotion - Decision theories - Recognition of one's own limits, autism - Dealing with the limitations of others
Safety in Organizations	- Properties/features of reliable organizations (Weick, Roberts, Reason) - Safety awareness in other fields, development of safety in industry (nuclear industry, oil industry, aviation) - Importance of safety thinking for all participants - Preparation for and dealing with adverse events - Instruments to promote safety at work (training, incident reporting, cultural changes, quality circles etc)
Safety Culture, Barriers and Overcoming Them	- Creating a culture of safety - Challenge professional self-confidence - Reasons for processes of change - Self interest as obstacle to change, innovation - "Killer phrases" (phrases that terminate further discussion) as defense mechanisms - Power relations in processes of change

C Communication/Teamwork

Communication as an Essential Element

In this area of instruction, communication and communication strategies, as well as the promotion of teamwork are presented in their roles as integrative elements in the development of a culture of safety. At the same time, the advantages and disadvantages of communication standards and well-known communicational causes of errors, as well as the importance of goal-oriented and successful communication will be referred to. A further aspect is communication with patients and the public after adverse events have occurred. Therefore individual communication strategies and strategies for communication with the public will be presented and the importance of communication for these two important fields discussed. Additionally, team processes and the effects of these on hierarchies, especially on power relations and, in particular, power gradients within teams, are presented. Attention will be paid to the fact that the allocation of roles in team processes entails rights and obligations which team members adopt and on the basis of which they must prove themselves within team processes. Analogies will be drawn to other fields that have gone through similar processes in recent decades, especially aviation, and these will be discussed. Addition-ally, the opportunities and limits to the standardization of processes, as well as the transferability of key processes from industry to medicine will be considered.

Field of Instruction	Content of Instruction
Communication: Fundamentals	- What is communication? Function of communication, types of communication, media - Fundamentals of communication theory, transmission models of communication (Schulz von Thun, Watzlawick)
Communication Problems	- Transmission problems - Problems of understanding
Functional Communication	- Standards for successful communication
Communication Standards	- Advantages and disadvantages of communication standards - Fields of application - Define and implement standards
Team Processes	- Teams: functions and requirements - Team processes and consequences/effects of hierarchies, power relations and power gradients within teams

Field of Instruction	Content of Instruction
	- Role behavior within teams
	- Responsibilities of team members and team leaders
	- Teamwork problems
	- Interdisciplinary teams
Decision-making in teams	- Shared mental models
	- Team briefings as a basis for shared action
	- Information processing in teams (confirmation bias, status as a distorting factor)
Analogies to Other Fields and Applicability to Medicine	- Communication and teamwork in other fields (industry/ aviation)
	- Possibilities to influence communication and teamwork (Training – Crew Resource Management (CRM) – standardization, requirements, laws)
	- Adoption/adaptation of processes for medicine, to suit special characteristics in medicine
Communication with the Patient after an Adverse Event Has Taken Place	- Distinction between adverse events/error/harm
	- Legal constraints
	- Appropriate communication / Conversation techniques
Communication with the Public after an Adverse Event has taken place	- Who is responsible?
	- Draw up preparatory plans
	- Decide how to communicate (strategy) how much information
	- Importance of the incident and its communication for the organization

D Instruments/Implementation/Training

In this chapter, instruments, strategies and the implementation of instruments for the development of a culture of safety will be introduced. These instruments cover a broad range from patient complaints and critical incident reporting systems to simulations and simulators. Traditional instruments for the localization and analysis of errors such as root cause analysis and the significant event audit will be presented and their importance explained. Furthermore, great importance is attached to the evaluation of perceived medical risks in terms of the likelihood of an incident occurring and its po-

tential harm, as well as what this actually means for avoidance strategies in medical organizations.

Field of Instruction	Content of Instruction
Learning from Adverse Events	- Interviews (patients, members of staff, others) - Strategies - View adverse events as potential for optimization - Training, before and after
Patient Complaints	- Dealing with patient complaints - Possible causes of error - Subjective optimization potential - Legal measures
Incident Reporting	- Incident reporting by members of staff - Content and structure of incident reporting systems (errors, adverse events, harm, critical incidents, near misses) [8] - CIRS (Critical Incident Reporting System) and other systems - Use of reporting systems - Development and importance of reporting systems in other fields
Instruments of Error Analysis	- Root cause analysis (RCA): - Development, approaches in HROs (high reliability organizations) - Realization and implementation of RCA - RCA approaches in medicine (e.g. Clinical Risk Unit, University College London) and Association of Litigation and Risk Managers (ALARM) [9] - Veterans Affairs National Center for Patient Safety – Root Cause Analysis (RCA) [10] - National Patient Safety Agency - RCA Toolkit (description and implementation) [11] - Significant Event Audit (SEA) (Group discussion on the analysis and evaluation of a significant event) [12; 13]
Instruments for error avoidance (Assessment)	- Assessment of medical risks (probability of occurrence, harm potential) - Importance for healthcare organizations - FMEA (Failure modes and effects analysis)

Field of Instruction	Content of Instruction
Simulator Training	- "Incident Training" (Simulator)
	- Importance and content of simulator training
	- Scope and limits of simulations
	- Psychological aspects of simulator training
	- Organization based learning from individual errors
Human Factor Engineering	- Evolution of human factor engineering (HFE) in other fields
	- Boundary conditions for HFE
	- Adoption and adaptation of HFE for medical purposes
	- Transfer of results from RCA
	- Adaptation of work processes and requirements
	- Establish boundary conditions

4. Modular Content and Model Syllabus

The following table presents the subjects to be covered and a time schedule for a CME-Concept seminar on patient safety. Other continuing education seminars can be combined freely from the areas of instruction (see Point 3).

I. Basic knowledge / Information (4 hours)	II. Basic Qualification / Guideline (16 hours)	III. Additional Qualification/ Multipliers (20 hours)
• Patient safety (background, importance for doctor, patient, public) 45 mins.	• Fundamentals (consolidating the content) 180 mins.	• Theoretical approaches/ strategies 180 mins. • Human Factors 240 mins.
• Psychology of the error (causes, types etc) 60 mins.	• Theoretical approaches/ strategies 180 mins.	• Communications / Teamwork 180 mins.
• Error management/safety thinking in other industries (examples/strategies) 45 mins.	• Communications / Teamwork 180 mins.	• Instruments / Implementation / Training 180 mins.
• Error management as a part of QM (introduction) 45 mins.	• Instruments / Implementation/ Training 180 mins.	• Group and project work 240 mins.
• Discussion 45 mins.	• Group and project work 240 mins.	• Team and communication training 180 mins (in groups).

Model Syllabus for Continuing Education in Patient Safety (General Medicine)

I. Basic Knowledge / Information	II. Basic Qualification / Main Idea	III. Additional Qualification / Multipliers
Target Group: • Doctors pursuing further education • Medical students	**Target Group:** • Doctors pursuing further education	**Target Group:** • Doctors pursuing further education • Doctors with own Practice
Requirements: • Medical studies (MD)	**Requirements:** • Start of further education	**Requirements:** • Doctors with at least 5 years professional experience or who have finished their further education
Aim: • Communicate fundamentals • Develop understanding for importance of patient safety in healthcare	**Aim:** • Communication of knowledge, application fields and patient safety skills	**Aim:** • Communicate competencies and responsibilities for patient safety in participants' professional fields

4.1 Modules for the Third Level (Additional Qualification)

Preliminary remarks:

Since the subjects presented in this level of the CME-Concept "Patient Safety" require a comprehensive knowledge of communications and human factors, the modules are differentiated further in terms of content and subject matter.

- The following modules are meant to be covered over a period of two days.
- In order to participate in the third level, participation in level II (Basic qualification) or proof of comparable knowledge are required.
- The instructors must have undergone comprehensive psychological training, or at least have an additional qualification in the field of Human Factors (e.g. accident assessor) or communications (e.g. quality management training). Knowledge of work processes and conditions in medical care are desirable.
- Both topics, especially "Communications and Teamwork" require exercises and case studies as methodological elements and should not be taught by means of a lecture.

4.2. Communications and Teamwork

4.2.1 Aims

- To understand communication processes
- To learn different communication models
- To know the forms of communication that are relevant for patient safety
- To know and recognize communication problems
- To recognize and know how to apply successful forms of communication

4.2.2 Methods

- Case studies
- Role-play and other exercises
- Discussions
- Impulse reports
- Transfer discussions

4.2.3 Content

Subject	Content
Fundamentals	- Transmission models of communication, e.g. Shannon-Weaver - Multiple level theories, e.g. Schulz von Thun - System theoretical and constructivist models, e.g. Watzlawick, F.Simon, Baecker, Stierlin, J.S. Schmidt - Relevance of communication models to patient safety - Communications in other high risk fields
Function of Communications	- Exchange information - Give orders - Coordination - Build and care for relationships
Forms of Communications	- Verbal, non-verbal, para-verbal communications; importance and problems
Mental Models	- Definition, significance for communications, - Shared mental models – construct and secure by means of communications - Role of written communications for patient safety

Subject	Content
Communication problems	- "Transmission error" - Problems of understanding – information processing, mental models - Problems of understanding – social and emotional problems
Special Forms of Communication	- Conflict management - Communication that cuts through hierarchies - Gender and culture specific communication patterns
Aids for Successful Communications	- Communication rules - Communication standards – function and limits
Communications following Incidents	- Talk to patients/relatives about errors and incidents - Team discussions on incidents – M&M-conferences, - Evaluation of incident reporting-systems
Teamwork Fundamentals	- Role of the team for patient safety - Interdisciplinary and inter-professional medical teams, special characteristics of ad-hoc teams - Teams in other high risk fields - Team structure and team roles, phases of team development - Hierarchy and power - Teamwork and organizational culture
Leadership	- Functions of leadership - Forms of leadership behavior, advantages and disadvantages - Formal and informal leadership, relevance for patient safety
Teamwork Problems	- Communication and information errors - Planning and coordination errors - Unclear lines of responsibility, diffusion of responsibility
Work Techniques for Teams	- Briefing / Team time-out - Debriefing - Organizing shift, gate and interface transfer - Feedback rules - Conflicts and conflict management

4.3. Human Factors

4.3.1 Goals

Understanding for

- Important human factors and their significance for patient safety
- Human factor research concepts
- Fundamental psychological and organizational factors that influence patient safety, and their role in context
- Recognition of error causes
- Ways of influencing behavior

4.3.2 Methods

- Case studies, also from other fields
- Impulse reports
- Shared experience
- Transfer discussions

4.3.3 Content

Theme	Content
Safety	- Safety as a process - What is a safety culture? - Safety and errors - Repetition: accident – incident – trivial event
Errors	- Error classification - Thought errors and action errors - Errors and accidents - "Normal" errors - Zero accidents - Wrong actions - Strategies to deal with errors
Avoiding Errors and Error Management	- Automation and its limits - Standardization and its limits - Incident Reporting (fundamentals)
Human Strengths	- What computers can't do

Theme	Content
Fundamentals of Action Psychology	- Awareness – attention control - Threshold (-change) - Awareness as a multi-level construction process - Situation awareness - Motivation – focus on competence motivation, social motivation, overcoming listlessness, need for security - Information processing – focus on economic considerations, memory, confirmation bias and other distortions - Fundamentals of action psychology – focus on different kinds of action and the regulation of intentions - Judge and decide
Human Limitations	- Ergonomic considerations - Fatigue - Circadian rhythms - Age - Influence of environmental factors (noise, heat, etc) – physiological limitations - Workload - Physiology of stress
Human Factors and Teams	- Leadership, communication - Hierarchy and power - Team dynamics under stress - Interdisciplinary teams - Situation awareness and shared mental models
Influence of the Organization	- Characteristics of a good safety culture - Characteristics of hospital and medical practice cultures

Appendix

Glossary Patient Safety, important terms [14]

Accident	Random event that is unforeseen, unfortunate and unexpected.
Active Error	Active errors occur at the level of the frontline provider (such as administration of wrong dose of a medication) and they are easier to measure because they are limited in time and space
Adverse event (AE)	an incident in which harm resulted to a person receiving health care
Adverse drug event (ADE)	Any noxious and unintended effect of drug that occurs at doses used in human for prophylaxis, diagnosis, or treatment
Classification (of medical error)	Classifications of medical error include: - Type of health care service provided (e.g., classification of medication errors by the National Coordinating Council for Medication Error Reporting and Prevention). - Severity of the resulting injury (e.g., sentinel events, defined as "any unexpected occurrence involving death or serious physical or psychological injury" by the Joint Commission on Accreditation of Healthcare Organizations [JCAHO]). - Legal definition (e.g., errors resulting from negligence). - Type of setting (e.g., outpatient clinic, intensive care unit). - Type of individual involved (e.g., physician, nurse, patient).
Complication	an adverse patient event related to medical intervention
Error	An error is defined as the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim. Errors can include problems in practice, products, procedures, and systems
Error Reporting System	Errors witnessed or committed by health care providers may be reported via structured data collection systems. Reporting systems, including surveys of providers and structured interviews, are a way to involve providers in research and quality improvement projects
Failure [active]	Active failures are unsafe acts or omissions committed by those whose actions can have immediate adverse consequences – pilots, surgeons, nurses etc. The term includes: - Action slips or failures, such as picking up the wrong syringe - Cognitive failures, such as memory lapses and mistakes through ignorance or misreading a situation - "Violations" – deviations from safe operating practises, procedures , or standards. In contrast with errors, which arise primarily from informational problems (forgetting, inattention, etc), violations are more often associated with motivational problems such as low morale, poor examples from senior staff, and inadequate management generally
Failure [latent]	Latent failures stem from fallible decisions, often taken by people not directly involved in the workplace. In medicine, latent failures would be primarily the responsibility of management and of senior clinicians at the time when they take decisions on the organisation of their unit. Latent failures provide the conditions in which unsafe acts occur; these work conditions include: - Heavy workloads - Inadequate knowledge or experience - Inadequate supervision - A stressful environment - Rapid change within an organisation - Incompatible goals (for example, conflict between finance and clinical need) - Inadequate systems of communication

	- Inadequate maintenance of equipment and buildings.
	These are the factors that influence staff performance and may precipitate errors and affect patient outcomes
Incident	an event or circumstance resulting from health care which could have, or did lead to unintended and/or unnecessary harm to a person, and/or a complaint, loss or damage
Latent Error	Latent errors include system defects such as poor design, incorrect installation, faulty maintenance, poor purchasing decisions and inadequate staffing. These are difficult to measure because they occur over broad ranges of time and space and they may exist for days, month or even years before they lead to more apparent error or adverse event directly related to patient care
Medical error	Medical error is defined as the failure of a planned action to be completed as intended (i.e., error of execution) or the use of a wrong plan to achieve an aim (error of planning)
Medication error	Medication error is defined as a dose administered differently than ordered on the patient medical record, they are viewed as system defects. There are several categories defined as follows: - unauthorized drug - extra dose - wrong dose - omission - wrong route (i.e. orally instead of intramuscularly) - wrong form - wrong technique - wrong time
Near miss	a near miss is any event that could have had adverse consequences but did not and was indistinguishable from fully fledged adverse events in all but outcome. Near misses offer powerful reminders of system hazards and retard the process of forgetting to be afraid.
Patient safety	Patient safety is the avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the processes of health care. These events include "errors", "deviations" and "accidents." Safety emerges from the interaction of the components of the system; it does not reside in a person, device or department. Improving safety depends on learning how safety emerges from the interactions of the components. Patient safety is a subset of healthcare quality.
Slip	Skill-based errors are called slips, they are unconscious glitches in automatic activity. Slips are errors of action, they occur when there is a break in the routine while attention is diverted.

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