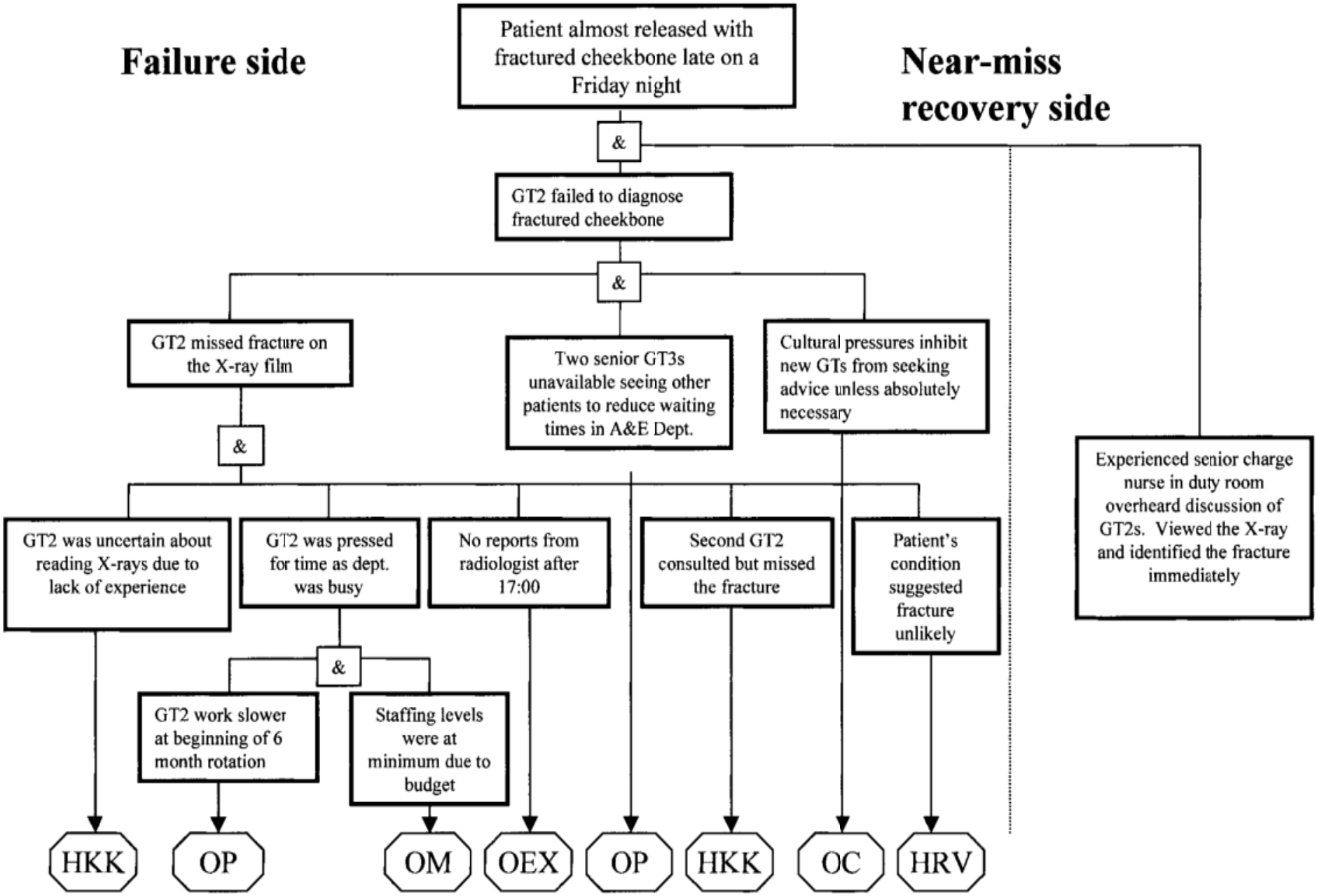
Root Causes of Medical Errors

Code	Category	Definition
	Latent errors	**Errors that result from underlying system failures**
	Technical	Refers to physical items such as equipment, physical installations, software, materials, labels, and forms
TEX	External	Technical failures beyond the control and responsibility of the investigating organization
TD	Design	Inadequate design of equipment, software, or materials; can apply to the design of workspace, software packages, forms, and label design
TC	Construction	Correct designs that were not constructed properly; examples include incorrect set-up and installation of equipment in an inaccessible area
TM	Materials	Material defects found; examples could be the weld seams on blood bags, defects in label adhesive, or ink smears on preprinted labels or forms
	Organizational	
OEX	External	Organizational failures beyond the control and responsibility of the investigating organization
OP	Protocols/Procedures	The quality and availability of protocols that are too complicated, inaccurate, unrealistic, absent, or poorly presented
OK	Transfer of Knowledge	Failures resulting from inadequate measures taken to ensure that situational or site-specific knowledge or information is transferred to all new or inexperienced staff
OM	Management Priorities	Internal management decisions in which safety is relegated to an inferior position when there are conflicting demands or objectives; this is a conflict between production needs and safety—an example of this is decisions made about staffing levels
OC	Culture	A collective approach, and its attendant modes, to safety and risk rather than the behavior of just one individual; groups might establish their own modes of function as opposed to following prescribed methods—an example of this is not paging a manager on the weekend because that was not how the department operated; "It's just not done."
	Active errors	**Errors or failures that result from human behavior**
HEX	External	Human failures originating beyond the control and responsibility of the investigation organization
	Knowledge-based behaviors	
HKK		The inability of an individual to apply his or her existing knowledge to a novel situation—an example is a trained technologist unable to solve a very complex antibody identification problem
	Rule-based behaviors	
HRQ	Qualifications	The incorrect fit between an individual's qualification, training, or education and a particular task—an example would be expecting a technician to solve the same type of difficult problems as a technologist would
HRC	Coordination	A lack of task coordination within a health care team in an organization—an example would be an essential task not being performed because everyone thought that someone else had completed the task
HRV	Verification	The incorrect or incomplete assessment of a situation, including related conditions of the patient/donor and materials to be used before beginning the task—an example would be failure to correctly identify a patient by checking the wristband
HRI	Intervention	Failures that result from faulty task planning and execution; this would be selecting the wrong rule or protocol (planning) or executing the protocol incorrectly (execution)—an example would be washing red cells by the same protocol as that used for platelets
HRM	Monitoring	Monitoring of process or patient status—an example could be a trained technologist operating an automated instrument and not realizing that a pipette that dispenses reagents is clogged
	Skill-based behaviors	
HSS	Slip	Failures in the performance of highly developed skills
HST	Tripping	Failures in whole-body movement; these errors are often referred to as "slipping, tripping, or falling"—examples would be a sample tube slipping out of one's hands and breaking, or tripping over a loose tile on the floor
	Other factors	
PRF	Patient-related Factors	Failures related to patient/donor characteristics or actions that are beyond the control of the health professional team and influence treatment—an example would be a patient who deliberately uses another patient's identity card in seeking treatment
	Unclassifiable	**Failures that cannot be classified in any of the current categories**



The causal tree describing a near-miss event involving a fractured cheekbone, from an accident and emergency department. The acronyms at the very bottom of the figure are classification codes for the various events shown in the tree. For example, "OK" indicates an organizational failure in transfer of knowledge. See Table 1 for definitions of these codes. The dotted vertical line without a code indicates the separation between the failure side and the recovery side of the casual tree.