

**Original research article**

# The risk assessment and quality of life management in emergency health care system in a rural set up: A simulating model

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**Abstract**

The concept of risk assessment in emergency health care system is not always very clear but the ways we assess the risk in the management of the health care in the emergency situation may be a condition close to a conflict poor environment. We followed a model of a team to deal with the patients of heterogeneous groups asked for emergency care in a rural tertiary care hospital. We followed the process of assessment and observed the conditions of the admitted patients by the group discussion with the persons accompanied the patients. We observed with the basic care system and attempted to derive the conflict poor conditions. We observed for the periods from 8 am to 8 am. We also assessed the conflict poor state by which we limited the number of indoor admission and unnecessary indoor ward stay. We also assessed the quality of life and reduced the conflicts significantly. The ongoing management with the critical conditions. We considered all the observed patient as if a serious one and managed accordingly with our team. This model also came as a cost effective one following the socio-scientific medical approaches.

**Keywords:** Risk & benefit, quality of life, quantity of life, cost & benefit

**Introduction**

Every aspect in the management of quality of life is dictated by the risk assessment. The mode of management is ill defined and not yet assessed with optimum satisfaction of the service provider as well as those of the beneficiaries. The art in science is a stretchable factor by which discord generation in the management of a patient in the form of emergency care is partially explained mimicking the tip of an iceberg. The whole act is a multidirectional approach which is not available in our model.

‘...many decisions can be made purely on the basis of collective learning and personal experience while others require evidences in the process of risk management’<sup>[1]</sup>.

**Our objectives**

**Primarily to assess risks of mortality and morbidity in ER in patients**

a) Patients are attended in the emergency are managed & assessed as quick as possible following the model<sup>[2]</sup> [art in science] and modified sepsis-<sup>[3]</sup> model of Sequential organ failure assessment [SOFA]<sup>[4]</sup>. Altered mental state, fast respiration rate, low BP. [science in art].

**Secondary**

- b) To minimize the indoor admission by keeping close assessment in the observation room with the compact team <sup>[3]</sup> formed on that day schedule.
- c) This is a preliminary assessment on the ‘cost versus benefit’ in quality of life management.

There is no cost assessed for the management of a costly human life particularly in the management of an

emergency health care system but still we are there to assess it in terms of a business. There are ways to think that what percentage of an infrastructure is really needed to keep a man in a *safe zone*, the art of science that dictate the life management akin to achieving a comfortable profit in fare business.

A checklist for the safety measurement in life care system.

The study is a preliminary observations carried out in the Clinic at Kolkata and IIMSAR,Haldia jointly. This was performed for a 24 hours [from 8am to 8am].

Inclusion criteria: All the patients attended the hospital emergency on the 4<sup>th</sup>.of November2022 from 8 am to the next morning till 8 am.

**Exclusion criteria:** the patients of Obstetrical emergencies.

The study design was based on the four steps as dictated by the well accepted mnemonics SWOT

- Strength of the study is by the immediate and late state of quality of life improvement through an organized approach.
- Weakness of the study: long term follow up is essential but our study is too short to be free from biasness.
- **Opportunity:** The initial management in emergency is more suitable so that delay in the process of management may deteriorate the condition. So prognosis is altered.
- **Threats:** In emergency is another event which hinders the scientific decision in the process of management. Human, bacterial, viral, fungal, chemical threats are immediate and poorly assessed in the short time of management.

**Methodology**

Patient	Age, Sex, BMI, Functional status
Disease	Severity, previous investigations, complications
Co-morbidity	Cardiac, respiratory, renal, hepatic, neurological, endocrine, metabolic, hematological, pregnancies. preterm birth
Surgery	Open Vs. Laparoscopy, elective or emergency, one stage Vs. multiple,
Physiology	Temperature, blood gases, hematocrit, leukocyte count, urine output, conscious level, blood pressure, coagulation status

[B] The design of the study model has been modified to a form as below:  
Asking questions and assessing simultaneously the following parameters.

Patient	Age, Sex, BMI, Functional status
Disease	Severity, previous investigations, complications
Comorbidity	Cardiac, respiratory, renal, hepatic, neurological, endocrine, metabolic, haematological, pregnancies. preterm birth
Surgery	Open Vs. Laparoscopy, elective or emergency, one stage Vs. multiple,
Physiology	Pulse, Temperature, respiration, urine output, conscious level, blood pressure
Modalities	USG, CT, X-ray, MRI, random glucose, ECG [done according to the need]

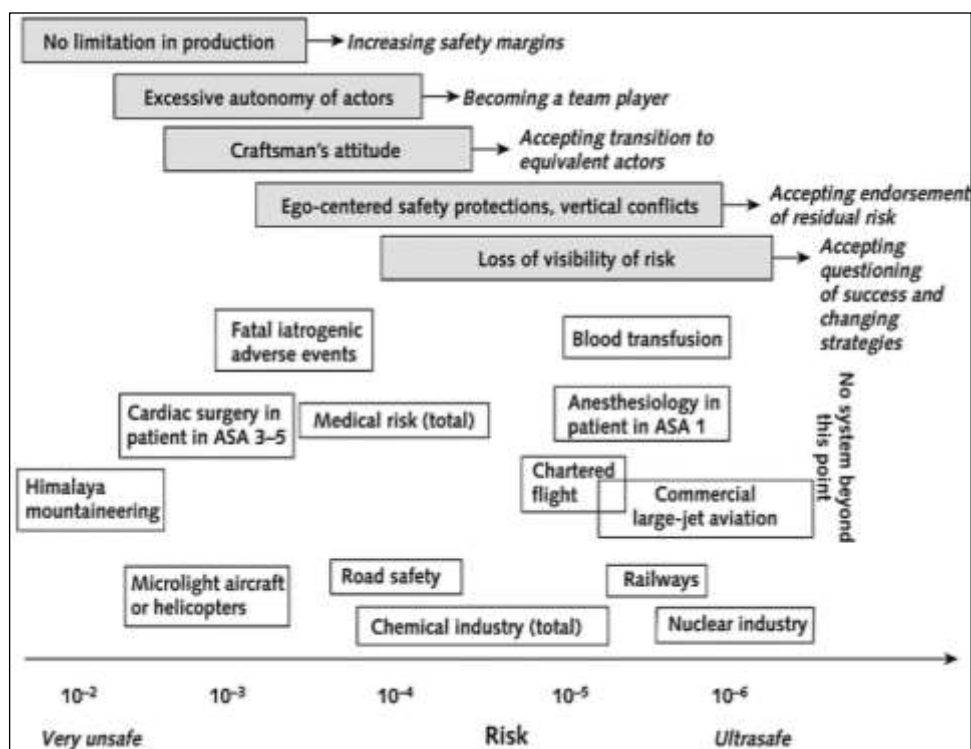
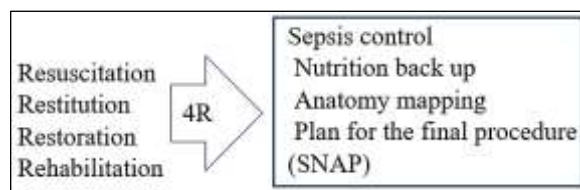
The infrastructure means *man, money and materials* when man is the corner stone for the sustainable act. They are the total team worked in this emergency room. This air-conditioned emergency has eight observation beds. The team members were primarily discussed within themselves about the strategic plan to work in a common group with a predefined home work to follow from the beginning to end. The team members are as below<sup>[3]</sup>.

Medical officer	1
House staff	1
Internee	1+ (1)
Paramedical trainees (BSF & health assistants)	4
Group-D	2
Nursing staff	1
Medical student (final year)	1

The steps of management we followed with basic control in observation/ER room as below:

1. Attended the patient without delay and allowed to *sit or rest on bed*.
2. Asked about the condition [in short].
3. Pulse, BP, in need pulse oxymeter is applied for assessment.
4. We took the help of ECG, X ray.
5. We excluded CT, MRI in this emergency because they are rarely available in rural set up and mostly avoided in emergency life care procedure.

We followed the management procedure in the format:



**Discussion**

There are arguably only two indications for medical management-improvement of symptoms (quality of life) and improvement of prognosis (quantity of life). The likelihood of achieving a meaningful improvement in symptoms or prognosis (the benefit) must be balanced against the risk of death or an outcome that results in a reduced quality of life (the cost)<sup>[2]</sup>. Sequential organ failure assessment [SOFA] score, OVUL [Oxygen lack-alteration of mental state (GCS < 14), Volume decrease in systolic BP <100mmHg, respiration rate>22/min, Urine output.5ml/kg/hr, WBC count > [10x 10<sup>12</sup>]] [goes high and lactic acidosis. Life threatening organ dysfunction caused by a deregulated host response to infection. Integrated Human Blood Banking System.

**a. Integrated Human Blood Banking System [IHBS]**

The concept of Human Blood Banking system is not a newer device, but appears to be reviewed again and again. A group of people will be registered as an ‘individual living bank’ to serve people as and when necessary. The system should be interconnected by the telephone or by mail. The recent mode of whatsapp also goes as a powerful engine for area wise services. This is one way to minimize the load of stored blood in a bank.

In the text of the open truth, no one is immune from criticism or from comparison of their results with those of their peers. The act in terms of professionalism is on the other side of justification in the text of a critical management. The object is one that is life is first and limb second. In a subject of an injury by a bullet the common and the important steps are followed that points towards the lifesaving approach than to concentrate on the act of removal of bullet that may be more damaging to the system even with risks in life care. The common causes of professionalism in the subject to objective assessment are four Cs. Common sense, competence, commitment and compassion. All that is true to its nature is to adhere to the *legal side* of the fact<sup>[5]</sup>.

Again it is said that success is not always a sign of good judgment, equally failure may result from factors you could not have anticipated<sup>[6]</sup>.

Observations in our ER [COM &JNMH] with a simulation in of rural set up in COMJNMH with discharged [D] and admission [A] of a random control [irrespective of *time, disease and major assessment for risk*]:

Result Analysis

Age group (yrs)	Man [M]	Woman[F]	< 1hr [D]	< 2hrs [D]	[A] M/F
1-10	4	6	8	2	0/0
11-20	5	9	11	2	0/1
21-30	21	8	23	2	3/1
31-40	23	12	18	8	6/3
41-50	12	9	10	5	4/2
51-60	12	4	4	0	7/5
61-80	9	3	2	0	8/2
81+	3	1	0	1	2/1
Total[1 to81+]	<b>89</b>	52	<b>76</b>	<b>21</b>	30/15

[A-admission, D-discharge, F-woman, M-man]

1. The risk depends on three basic factors like disease type, management procedures and assessment scheduled. The specificity and sensitivity assessment is also an important factor.
2. The risk does not mean hospital admission. The art and science in our simulating model indicate that a team bound assessment is life saving and generates multi directional data.
3. The cost of hospital stay may also be reduced if the model is followed even in the rural set up.

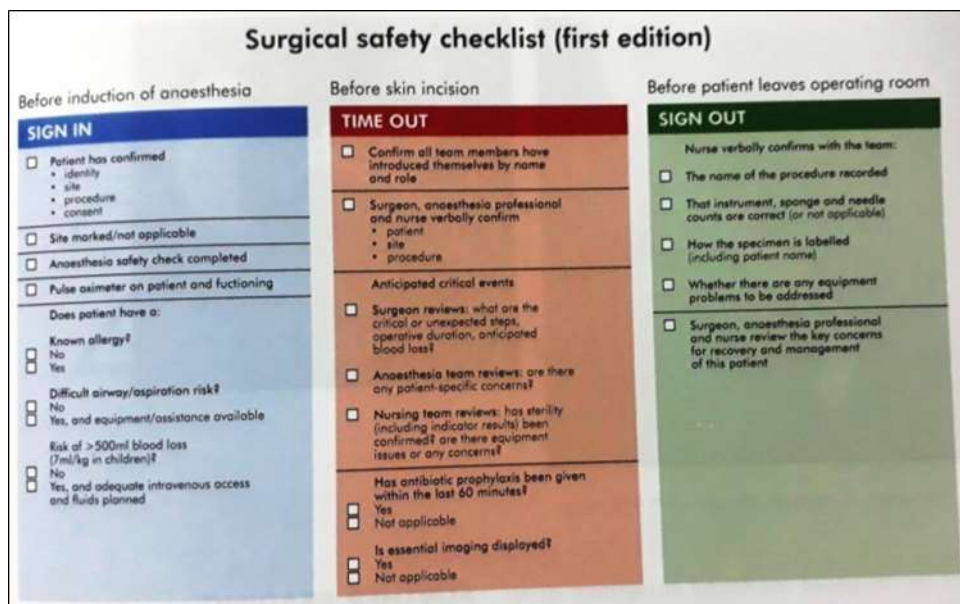
Different models for assessment of risks in health care system:

The overall safety profile of an industrial system is measured by reporting on the number of adverse events over a time interval for example, an annual rate. The figures are generally weighted according to the volume of activity, such as number of miles traveled per year.

Risk assessment [Bailey & Love]

SHELL MODEL<sup>[7]</sup>

[This is the check list for safety measurement before action]



Sepsis<sup>[3]</sup> criteria was followed [partially] to assess the risk in ER or admitted with anticipation<sup>[8]</sup>

PaO <sub>2</sub> /FiO <sub>2</sub> (mmHg)	SOFA
-------------------------------------------	------

	score
< 400	1
< 300	2
< 200 and mechanically ventilated	3
< 100 and mechanically ventilated	4
Glasgow coma scale	
13-14	1
10-12	2
6-9	3
< 6	4
Mean arterial pressure or administration of vasopressors required	SOFAScore
MAP < 70 mm/Hg	1
dop ≤ 5 or dob (any dose)	2
dop > 5 OR epi ≤ 0.1 OR nor ≤ 0.1	3
dop > 15 OR epi > 0.1 OR nor > 0.1	4
Bilirubin (mg/dl) [μmol/l]	
1.2-1.9 [ > 20-32]	1
2.0-5.9 [33-101]	2
6.0-11.9 [102-204]	3
> 12.0 [ > 204]	4
Platelets ×10 <sup>3</sup> /μl	
< 150	1
< 100	2
< 50	3
< 20	4
Creatinine (mg/dl) [μmol/l] (or urine output)	
1.2-1.9 [110-170]	1
2.0-3.4 [171-299]	2
3.5-4.9 [300-440] (or < 500 ml/d)	3
> 5.0 [ > 440] (or < 200 ml/d)	4

**Designing a Health Care-Specific Framework**

Health care must accommodate at least 3 additional industry-specific factors. First, risks in health care are not homogeneous. In many clinical domains, such as trauma surgery, the rate of serious complications is  $1 \times 10^{-2}$ , but not all complications are related to medical errors (44). Rather, the risks are inherent in the clinical circumstances. In contrast, some health care sectors, such as gastroenterologic endoscopy, are inherently very safe, with a risk for serious adverse events of less than  $1 \times 10^{-5}$  per exposure. Second, the magnitude and impact of human error are unclear in medicine. Fundamentally, 3 risks are combined in health care: that of the disease itself, that entailed by the medical decision, and that of implementing the selected therapy. These 3 risks generally do not move in the same direction. This complexity makes error prevention harder to predict and grasp. The prognosis for a terminally ill patient may change because of an audacious surgical strategy. However, the most audacious strategies are less evenly distributed in the profession, are the most demanding technically, and are the most prone to errors. Finally, the risk for personal harm, such as becoming infected with HIV, weighs on the clinical staff in a unique way.

**Table. A Two-Tiered System of Medicine**

Category	Type of System	
	Ultrasafe System	High-Reliability Organization
Example of industry	Nuclear power Commercial aviation Blood transfusion Anesthesiology* Radiotherapy	Military systems Chemical production Intensive care unit Surgical ward
Safety goals	Safety first Quality of work preserved against unacceptable pressure	Production first (imposed) Degree of safety as high as possible for the imposed level of performance
Safety level (in terms of risk per exposure)	Better than $1 \times 10^{-5}$ , possibly $1 \times 10^{-6}$	Better than $1 \times 10^{-4}$
Stability of the process	Well-codified and delineated area of expertise Ultradominant, rule-based behavior Consistent recruitment of patients (flow and quality)	Broad area of expertise Frequent knowledge-based behavior Unstable recruitment of patients (flow and quality)
Complexity of expertise required	Limited complexity	Potential complexity; severe and abnormal cases are challenging
Situational awareness	Actors are requested to follow procedure Equivalent actors Good at the managerial level	Reluctance to simplify Deference to expertise of individual experts Good among all actors, whatever their role and status
Supervision	Inside (team) and outside supervision and control (black boxes)	Inside supervision and mutual control (team supervision)
Teamwork	Effective teamwork and communication, resulting in good task sharing, controls, and collective routines	Effective teamwork and communication, with special attention to safe adaptation to the range of individual experts

\* Risk category 1 or 2 in the American Society of Anesthesiologists risk modification system.

**Conclusion:** To conclude our research, there are multiple ways to assess risks of mortality and morbidity in ER in patients. There must be a quick response team which could attend the patients in the emergency with discussed models and could apply all possible ways to save the maximum lives. To minimize the indoor admission by keeping close assessment in the observation room with the compact team formed on that day schedule. This is a preliminary assessment on the ‘cost versus benefit’ in quality of life management. This also can be done to minimize the cost and maximize the benefits.

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