

**PREVENTION OF ERRORS IN HEALTH CARE- PATIENT (MEDICAL CUSTOMER)
SAFETY**

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Abstract:

We are all painfully aware of the problem of patient safety in health care. More specifically is the growing number of preventable deaths that occur in our nation's hospitals at an alarming rate. By Patient Safety, we mean prevention of harm to patients while receiving Health Care. Medical errors not only result in additional costs for hospitalization, litigation, hospital acquired infections, lost income and disability etc, but they also cause erosion of trust, confidence and satisfaction among the public and Health care providers.²

Patient Safety is the prevention of harm to patients. It is about eliminating preventable medical mistakes. Medical errors are common throughout healthcare system and result in significant morbidity and mortality. Medical related incidents are a common form of reported medical errors. In theory they should never occur. These mistakes are also called “Never events”. Some of these are avoidable and preventable events. 50% of these mistakes are preventable.

Some US estimate there are over 200,000 preventable deaths. This may be a conservative guess as other studies have put preventable deaths at over 400,000 annually according to James et al.³

Key words: Health Care, Preventable Medical Errors, Preventable Deaths, Patient (Medical Customer), Medical Customer Safety

Introduction:

“The 5th May is being celebrated all over the world as the Global Hand Hygiene Day”
WHO

Hospitals are scary places to be in. Volumes of investigations, life saving and life threatening medications, life support devices, complex diseases, delicate interventional procedures and marathon

surgeries – an error can be disastrous. Yet research shows that medical errors happening frequently.³

Medical Errors in India^[4]: In India recording 5.2 million injuries every year due to medical errors adverse events.¹ Worldwide recording 43 million injuries, 23 million year yeas healthy lives lost.

Topping the list is: Medication errors, 2. Hospital acquired infections, 3. Deep vein thrombosis.

These findings for the first time try to quantify the global burden of unsafe medical care across a range of adverse health events.⁴

“This is the first attempt to quantify the human suffering those results from unsafe care,” said lead author Ashish Jha, professor of health policy and management at HSPH. “We find that millions of people around the world are hurt, disabled and sometimes even die as a result of medical errors”.⁵

A **medical error** is a preventable adverse effect of care, whether or not it is evident or harmful to the patient. This might include an inaccurate or incomplete diagnosis or treatment of a disease, injury, syndrome, behavior, infection, or other ailment.

Globally it is estimated that 142,000 people died in 2013 from adverse effects of medical treatment up from 94,000 in 1990.⁵

A 2000 Institute of Medicine (IOM) report estimated that medical errors result between 44,000 and 98,000 preventable deaths and 1,000,000 excess injuries each year in U.S. hospitals.^{6,7,8} Some researchers questioned the accuracy of the IOM study, criticizing the statistical handling of measurement errors in the report,⁹ significant subjectivity in determining which deaths were “avoidable” or due to medical error, and an erroneous assumption that 100% of patients would have survived if optimal care had been provided.¹⁰

A 2001 study in the *Journal of the American Medical Association* of seven Department of Veterans Affairs medical centers estimated that for roughly every 10,000 patients admitted to the subject hospitals, one patient died who would have lived for three months

or more in good cognitive health had “optimal” care been provided.¹⁰

A 2006 follow-up to the IOM study found that medication errors are among the most common medical mistakes, harming at least 1.5 million people every year. According to the study, 400,000 preventable drug-related injuries occur each year in hospitals, 800,000 in long-term care settings, and roughly 530,000 among Medicare recipients in outpatient clinics. The report stated that these are likely to be conservative estimates. In 2000 alone, the extra medical costs incurred by preventable drug related injuries approximated \$887 million—and the study looked only at injuries sustained by Medicare recipients, a subset of clinic visitors. None of these figures take into account lost wages and productivity or other costs.¹¹

According to a 2002 Agency for Healthcare Research and Quality report, about 7,000 people were estimated to die each year from medication errors - about 16 percent more deaths than the number attributable to work-related injuries (6,000 deaths). Medical errors affect one in 10 patients worldwide. One extrapolation suggests that 180,000 people die each year partly as a result of iatrogenic injury.¹² One in five Americans (22%) report that they or a family member have experienced a medical error of some kind.¹³

The UN body quantified the number of surgeries taking place every year globally — 234 million. It said surgeries had become common, with one in every 25 people undergoing it at any given time. China conducted the highest number of surgeries followed by Russia and India. In developing countries, the death rate was nearly 10% for a major surgery.¹⁴

Where Medical Errors occur? Medical errors can occur anywhere in the health care system:

- Hospitals, Clinics, Outpatient Surgery Centers, Doctors' Offices.
- Nursing Homes, Pharmacies, Patients' Homes.

What are Medical Errors?

Medical errors happen when something that was planned as a part of medical care doesn't work out, or when the wrong plan was used in the first place.

Errors can involve:

- Medicines, Surgery, Diagnosis, Equipment, Lab reports.

They can happen during even the most routine tasks. Most errors result from problems created by today's complex health care system. But errors also happen when doctors and their patients have problems communicating. For example, a recent study supported by the Agency for Healthcare Research and Quality (AHRQ) found that doctors often do not do enough to help their patients make informed decisions. Uninvolved and uninformed patients are less likely to accept the doctor's choice of treatment and less likely to do what they need to do to make the treatment work.¹⁵

It is estimated that the risk of HCAI is up to 20 times higher than in industrialized countries and is approx 10% and 15-30% in acute care. In the area of medication safety, 77% of all reported cases of counterfeit and substandard drugs are from developing countries. At least 50% of medical equipment is unusable or only partly usable- resulting in substandard diagnosis & treatment. DGA-REPORT¹⁵

These preventable incidents occur, according to James, in five categories:

- errors of commission, omission, communication, context, and diagnostic.

When looking at this even more closely, however, the causes seem better aligned to:¹⁶

- Failure to diagnose and treat a complication in a timely manner
- Medication errors
- Overuse of blood transfusions
- Infections related to IVs
- Overuse of supplemental oxygen to infants
- Late or missed diagnosis of congenital heart disease in infants
- Hospital-acquired infections
- Lack of communication between care providers
- Need for a better reporting mechanism for errors and unsafe conditions.

Patient safety is a serious global public health issue. In recent years, countries have increasingly recognized the importance of improving patient safety. According to the WHO, 50% of medical equipment in developing countries is only partly usable due to lack of skilled operators or parts. As a result, diagnostic procedures or treatments cannot be performed, leading to substandard treatment.

What is Patient Safety?

- Patient safety means Prevention of Harm to Patients during Hospital Care. It is about
- Eliminating preventable medical mistakes by care givers
- Guarding against the impact of human error
- Establishing systems to safeguard patients' health and well-being. Magnitude of Problem: Developing Countries
- Only WHO estimates available
- Health care-associated infection up to 20 (WHO)

- Account for 77% of all reported cases of counterfeit and substandard drugs (WHO)
- At least 50% of medical equipment is unusable or only partly usable- resulting in substandard diagnosis & treatment (WHO)
- In India, nearly two-thirds of injections administered in unsafe manner (62.9%) (India CLEN Study 2002-04)
- Added Problems of Blood, Water, sanitation and waste management safety India Specific Concerns 1. Lack of Awareness 2. Lack of baseline Data 3. Lack of availability of a system for patient safety 4. Lack of dedicated financing After signing of India Pledge on patient Safety (by Director General of Health Services) in July 2006, the Directorate General of Health Services, Ministry of Health and Family Welfare Govt. of India has taken up patient safety issues on priority basis in the form of a new initiative “Hospital Patient Safety Initiative”.¹⁶

In 2002, WHO Member States agreed on a World Health Assembly resolution on patient safety. Estimates show that in developed countries as many as one in 10 patients is harmed while receiving hospital care. In developing countries, the probability of patients being harmed in hospitals is higher than in industrialized nations.¹⁷ At any given time, 1.4 million people worldwide suffer from infections acquired in hospitals. The risk of health care-associated infection in some developing countries is as much as 20 times higher than in developed countries.¹⁸

The World Health Organization (WHO) said on that “millions of people die each year from medical errors and infections linked to health care. It said that if the checklist is effectively used worldwide,

about 500,000 deaths could be prevented each year”.¹⁹ It is worth noting that these figures are likely to be an underestimate of the true picture; this is because of a well-recognized culture of under-reporting in almost all health-care systems.²⁰

‘Assessment of Injection Practices in India’-by the India indicates that a very large number (3 to 6 billion) of injections are administered in India every year. Nearly two-thirds of these injections are unsafe (62.9%). Govt. of India had signed a pledge in July 2006 to work to reduce health care-associated infections in collaboration with world alliance for patient safety.²¹

It demands a complex system wide effort, involving a wide range of actions in performance improvement, environmental safety and risk management, including infection control safe use of medicines, equipment safety safe clinical practice and safe environment of care (WHO 2002). Medication errors, including those occurring in anaesthesia and intensive care, continue to be among the top 10 causes of overall mortality worldwide.^{22,23} Most anaesthetists would admit to having made at least one drug error in their working practice.²³

The estimated rate of drug errors is reported to be around one error in every 133 anaesthetics.²³ In intensive care practice, the incidence of adverse drug events is reported to be ~130 errors per 1000 patient days.²⁴

With regard to the timing of the critical incidents, adverse drug events are known to occur more frequently during the maintenance phase of anaesthesia (42%), compared with either during induction (28%) or at the beginning of the surgery (17%).²⁵

In the intensive care, the administration of a single dose of medication may require many individual steps. Errors related to the

administration of drugs are more frequent (53%), when compared with those related to prescription (17%), preparation (14%), or transcription (11%).²⁶

Approximately 1.3 million people are injured annually in the United States following so-called "medication errors". The National Coordinating Council for Medication Error Reporting and Prevention defines a medication error as "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer...related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use."²⁷

How can you help prevent medication errors?

When your doctor gives you a prescription, ask him or her to tell you the name of the drug, the correct dosage, and what the drug is used for. Be sure you understand the directions for any medications you may be taking including the correct dosage, storage requirements, and any special instructions.

In the hospital, ask (or have a relative or friend ask) the name and purpose of each drug you are given.

Be sure to tell your doctor the names of all the prescription and non-prescription drugs, dietary supplements, and herbal preparations you are taking every time he or she writes you a new prescription. This will help to prevent another type of medication problem, undesirable and potentially serious interactions among medications.

Finally, never be afraid to ask questions. If the name of the drug on your prescription

looks different than you expected, if the directions appear different than you thought, or if the pills or medication itself looks different, tell your doctor or pharmacist right away. Asking questions if you have any suspicions at all is a free and easy way to ensure that you don't become the victim of a medication error. U. S. Food and Drug Administration, "Medication error reports."²⁷

Among the drugs used during anaesthesia, intravenous drugs like induction agents, neuromuscular blocking agents, opioids, sedatives, anticholinergic drugs, and local anaesthetics have all been reported to be involved in wrong dose, wrong route, or wrong order errors.²⁸

It is important to note that at least 50% of HCAI are preventable. Every year unsafe injections result in 1.3 million deaths mainly due to Hepatitis B, Hepatitis C and HIV.²⁹

Ten (10) Systemic causes for healthcare errors:^{30, 31, 32, 33, 34}

1. Poor communication, unclear lines of authority of physicians, nurses, and other care providers.
2. Complications increase as patient to nurse staffing ratio increases.
3. Disconnected reporting systems within a hospital: fragmented systems in which numerous hands-offs of patients results in lack of coordination and errors.
4. Drug names that look alike or sound alike
5. The impression that action is being taken by others within the organisation.
6. Reliance on automated systems to prevent error.
7. Inadequate systems to share information about errors hamper analysis of contributory causes and improvement strategies.
8. Cost-cutting measures by hospitals in response to reimbursement cutbacks

9. Environment and design factors. In emergencies, patient care may be rendered in areas poorly suited for safe monitoring.

10. The American Institute of Architects has identified concerns for the safe design and construction of health care facilities.

11. Infrastructure failure.

Table-1 Surgical errors

Sl. no.	Surgical errors/ complications	No. Of cases	% per1000	Survival rate	Deaths	% per 1000	extra cost in millions of dollars
1	Accidental puncture/ laceration	111989	3.09	92.35		7.65	463.13
2	Foreign body left	2591	0.07	93.75	55	6.25	17.25
3	Anesthesia complications/ survival %	2357	0.24	98.56	726	1.44	1.88
4	Hemorrhage/ hematoma	24108	2.46	89.55		10.45	258.33
5	Physiological/ metabolic	6700	1.35	76.88	1327	23.12	183.64
6	Post -op pulmonary embolism	128738	8	93.44	8445	6.56	1397.39
7	Post-op respiratory failure	28940	8.1	69.03	6320	30.97	774.17
8	Wound dehiscence	6384	3.76	85.01	615	14.99	128.71
9	Infections	88286		86.84	3805	13.16	1706.39
10	Transfusion reactions	190	0.01	91.05	17	8.95	33.67
11	Un diagnosed	187289		95.69	24	4.31	1397.39
12	Total	587572	27.08	972.15	21334	127.85	6361.95

**Data source WHO ^{35, 36}

Table-2: Data regarding various errors and cost of it in developed countries ,developing countries and India.

Sl. No.	Events	Developed countries	Developing countries	Total	India
1	Surgeries	80 millions	154 millions	234 millions	29 millions
2	Errors	14million	27millions	43millions	5.2millions
3	Readmissions	14.20%	12.70%	13.50%	12.50%
4	Drug errors	5%	9%	6.50%	9.50%
5	Infections	2.50%	3%	2.90%	4%
6	Temporary disability	59%	55%	56%	55%
7	Permanent disability	33%	35%	33.60%	35%
8	Deaths (major surgeries)	6.60%	10%	8%	!0%
9	Working days lost	7.2million days	15.5 million/d	22.7 million/d	3.5 million/d
10	Financial implications	\$1.3billion	\$1.5 billion	\$2.8 billion	\$0.4billion

* Source: ^{4,36}

Discussion:

Patient safety challenges

As per WHO 1 in 10 patient receive harm during the treatment process 1.4 million people worldwide suffer from infections acquired in hospitals. There is a 1 in 1 000 000 chance of a traveller being harmed while in an aircraft. In comparison, there is a 1 in 300 chance of a patient being harmed during health care

Since 2009, The 5th May is being celebrated all over the world as the Global Hand Hygiene Day in India too; many hospitals undertook activities to promote awareness on hand hygiene in health care workers.

1. The prevention of health care associated infections (HCAI) and the prevention of surgical complications have been recognized as major issues and taken up as global patient safety challenges, calling for action by health care facilities across the globe.
2. The first challenge is "**Clean care is safer care**" and addresses the problem of health care associated infection with focus on the improvement of hand hygiene - the single most important factor to prevent HCAI.
3. The second challenge is "**Safe Surgery Saves Lives**" calling for application of standards of care and the implementation of a simple check list called the safe surgery check list. The check list includes a series of simple checks to be done before induction of anaesthesia, before making the incision and after the operation is over.
4. The Global Patient Safety Challenge "**Clean care is safer care**" was launched in 2005 and the Indian Govt participated in the launch through a video link.
 - The aims of this initiative are:
 - A. A successful, healthy outcome of patient care • Safe, error-free care •
 - B. Reporting Performa: Error reporting is encouraged through non-punitive

system. It is followed by Root Cause Analysis to find out why adverse event occurred and taking appropriate steps to avoid it in future.

- C. Events on 5th May, 2009 (Save Lives: Clean your Hands initiative): All Government Hospitals were invited to register for the Save Lives: Clean your Hands initiative of WHO and many from India
- D. It has been recommended to introduce Alcohol based hand rub especially in critical care areas to ensure proper hand hygiene at the bedside and reduction of hospital acquired infections.
- E. For improving knowledge and skills for proper Bio-medical waste Management three levels of training modules developed for Doctors, Nurses and Group D employees.
- F. Posters on Hand Hygiene in Health Care, both using soap and water and alcohol based formulation along with prototypes given to hospitals for display at all strategic locations.
- G. Various other patient safety measures have been introduced like trainings in infection control and Bio-medical waste management for different levels of Health workers, Hospital Associated Infection (HAI) & Patient safety Dr. Charoo Hans Head, Department of Microbiology Dr.R.M.L. Hospital New Delhi

Prerequisite for a hospital is that it **SHOULD DO NO HARM TO SICK HAI** is growing as problem. HAI are common & significant cause of morbidity & mortality among hospitalized patients & compromise patient safety. **HAI** is important quality indicator of patient safety. WHO First Global Patient Safety Challenge, "**CLEAN CARE IS SAFE CARE**" has brought into focus the prevention of HAI. Core message is that "**SIMPLE MEASURES SAVE**

LIVES” – like **HAND HYGIENE** Health care-associated infection (HCAI) General measures: IEC activities, Surveillance, standard and isolation precautions

- Antibiotic control
- Develop programme to prevent & manage these infection which includes Medical exam on recruitment, immunization status & exposure to disease and Immunization for HCW - HBV, Tetanus etc
- Blood safety • Injection safety

WHO safety goals:

A. The assumption of safety in the **FIRST DO NO HARM**

"Safety is the most provision of healthcare is as fundamental as care itself. The basic dimension of performance necessary for the improvement of healthcare Safety is the underlying reason for risk management, infection control. It is the reason we insist on control, and environmental management programs. Qualified clinical practitioners and support staff, validating education, expertise, and other credentials; providing appropriate orientation and continuing education; and performing periodic appraisal.

B. International Patient Safety Goals we are supposed to follow,

Goal1. Identify Patients Correctly
Goal 2: Improve Effective Communication

Goal 3: Improve the Safety of High-Alert Medications

Goal 4: Ensure Correct- Site, Correct-Procedure, Correct Patient Surgery

Goal 5: Reduce the Risk of Health Care –Associated Infections

Goal 6: Reduce the Risk of Patient Harm Resulting from Falls

1-IDENTIFY PATIENTS CORRECTLY

Requirement: The organization
a. Use and develops an approach to improve accuracy of patients’

identification.

b. Before administering medications, of at least two patient identifiers.

c. Before taking blood and other specimens for blood, or blood products.

d. Before providing treatments procedures and clinical testing.

2- IMPROVE EFFECTIVE COMMUNICATION Requirement The organization develops an approach to improve the effectiveness of communication

a. Verbal and telephone order or test result is written down among caregivers.

b. The order or test result is by the receiver and read back by the receiver.

c. Confirmed by the person who gave the order.

3-IMPROVE THE SAFETY OF HIGH-ALERT MEDICATIONS Requirement:

The organization develops an approach to improve the safety of high-alert

a. Policies to address the location, labeling, and storage of medications.

b. Concentrated electrolytes are not present in concentrated electrolytes.

4- ENSURE CORRECT-SITE, CORRECTPROCEDURE, CORRECT-PATIENT SURGERY Requirement:

The organization develops an approach to ensuring

a. Ensure the correct-site, correct procedure, and correct-patient surgery

b. Mark surgical site correct site, correct procedure, and correct patient

c. Verify that identification and involve the patient in the marking process

d. Use documents and equipment needed are on hand, correct, and functional time-out procedure before starting a surgical procedure

5- REDUCE THE RISK OF HEALTH CARE– ASSOCIATED INFECTIONS

Requirement: The organization develops an approach to reduce the risk of health

a. Policies to reduce the risk of health

- care-associated infections
- b. Adopt or adapt currently published and generally care-associated infections
- c. Implement an effective hand hygiene accepted hand hygiene guidelines program

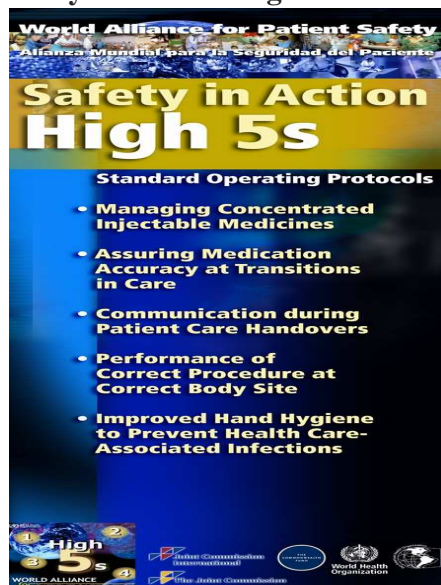
6-REDUCE THE RISK OF PATIENT HARM RESULTING FROM FALL

- Requirement: The organization develops an approach to reduce the risk of patient
- a. Policies to reduce the risk of patient harm resulting from falls.
 - b. Implement initial assessment of patients for fall resulting from falls.
 - c. Implement measures to reduce fall risk and reassessment when indicated.

WHO Patient Safety works to ensure that patient safety measures and solutions can be implemented in a variety of health-care settings worldwide. Our work on implementation ranges from providing guidelines for national and sub national patient safety reporting & learning systems, to solutions to common patient safety issues. Details on all of these are available below.

- Reducing bloodstream infections Preventing bloodstream infections from central line venous catheters.
- Information Model for Patient Safety The Minimum Information Model for Patient Safety, stems from the Conceptual Framework in International Classification for Patient Safety (ICPS) and intends to facilitate harmonization of patient safety incident reporting systems.
- Reporting and learning systems WHO Draft Guidelines for Adverse Event Reporting and Learning Systems is designed to help countries develop or improve reporting and learning systems in order to improve the safety of patient care.
- Technology: Identifying and clarifying the role and objectives of technology in improving patient safety, both in the developed and developing world.
- High 5s: Addressing safety problems through implementing standardized solutions and measuring progress in 9 countries worldwide.

Safety check lists-Figure1



Safety check lists-Figure2



Safety check lists-Figure3: The WHO Surgical Safety Checklist was developed after extensive consultation aiming to decrease errors and adverse events, and increase teamwork and communication in surgery. The 19-item checklist has gone on to show significant reduction in both morbidity and mortality and is now used by a majority of surgical providers around the world.

Surgical Safety Checklist

World Health Organization

Patient Safety
A World Alliance for Better Health Care

Before induction of anaesthesia
(with at least nurse and anaesthetist)

Before skin incision
(with nurse, anaesthetist and surgeon)

Before patient leaves operating room
(with nurse, anaesthetist and surgeon)

Has the patient confirmed his/her identity, site, procedure, and consent?

 Yes

Is the site marked?

 Yes
 Not applicable

Is the anaesthesia machine and medication check complete?

 Yes

Is the pulse oximeter on the patient and functioning?

 Yes

Does the patient have a:

Known allergy?

 No
 Yes

Difficult airway or aspiration risk?

 No
 Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?

 No
 Yes, and two IVs/central access and fluids planned

Confirm all team members have introduced themselves by name and role.

Confirm the patient's name, procedure, and where the incision will be made.

Has antibiotic prophylaxis been given within the last 60 minutes?

 Yes
 Not applicable

Anticipated Critical Events

To Surgeon:

 What are the critical or non-routine steps?
 How long will the case take?
 What is the anticipated blood loss?

To Anaesthetist:

 Are there any patient-specific concerns?

To Nursing Team:

 Has sterility (including indicator results) been confirmed?
 Are there equipment issues or any concerns?

Is essential imaging displayed?

 Yes
 Not applicable

Nurse Verbally Confirms:

 The name of the procedure
 Completion of instrument, sponge and needle counts
 Specimen labelling (read specimen labels aloud, including patient name)
 Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:

 What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged. Revised 1 / 2009 © WHO, 2009

Figure-4 Safety Goals

National Patient Safety GOALS

2012

Goal 1 Improve the Accuracy of Patient Identification

Use at least two patient identifiers: patient's full name and date of birth (not to be the patient's room number) when administering medications or blood products, taking blood samples and other specimens for clinical testing, or providing any other treatment or procedure.

Minimize confusion errors related to patient misidentification.

Goal 2 Improve the Effectiveness of Communication Among Caregivers.

Report critical results of tests and diagnostic procedures to the appropriate staff on time.

Critical results of tests and diagnostic procedures fall significantly outside the normal range and may indicate a life-threatening situation. The objective is to provide the responsible licensed caregiver those results within an established time frame so that the patient can be promptly treated.

Goal 3 Improve the Safety of Using Medications.

Label all medications, medication containers (e.g., syring, medicine cups, basins), or other solutions on and out the door to hold in preoperative and other procedural settings.

Reduce the likelihood of patient harm associated with the use of Anticoagulation therapy. Take extra care with the patient who takes the medicine to their blood.

Goal 7 Reduce the Risk of Health Care-associated Infections.

We comply with current Centers for Disease Control and Prevention (CDC) Hand Hygiene guidelines. Implement evidence-based practices to prevent health care-associated infections due to 1. Multi Drug Resistant Organisms, 2. Central Line Associated Bloodstream Infections 3. Surgical Site Infections, 4. Catheter Associated Urinary Tract Infections.

Goal 15 The Organization Identifies Safety Risks Inherent in its Patient Population. (Suicidal Ideation)

The organization identifies patients at risk for suicide. Applicable to psychiatric hospitals and patients being treated for emotional or behavioral disorders in general hospitals.

Find out which patients are most likely to try to commit suicide.

Universal Protocol (UP 1)

The Universal Protocol (UP1) explains how to prevent a procedure on a wrong patient, wrong side and wrong site. It ensures that the correct surgery is done on the correct patient and at the correct site on the patient's body.

Conduct a pre-procedure verification process as stated in the Universal Protocol (UP1).

Mark the correct site on the patient's body where the surgery is to be done.

Pause and Conduct a "time-out" immediately before starting the procedure as described in the UP1.

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Conclusion:

Pointers towards improved patient safety measures

- Make patient safety an awareness priority amongst healthcare personnel and patients.
- Create a healthcare culture of safety
- Initiate routine safety assessment
- Implement vigorously known safety practices
- Incorporate patient safety into all healthcare professional training
- Deal promptly with professional misconduct leading to medical errors.

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