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Concept of Quality services in Medical Science with special assurance to Super specialty surgical practice

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1. INTRODUCTION

Quality is one of very important concept in medical sciences more so in super specialty like Neurosurgical delivery systems. Like other medical fields quality concepts were brought intentionally in neurosurgical field as well. Survival of fittest is the dictum of the time. Development of specialty and super specialty hospitals and popularity of neurosurgical centers in international market has brought high competition. The current medical science and neurosurgical scenario emphasize on quality care rather than traditional holistic care only. Public are more aware for health care and now demanding high quality in all specialty specially, super specialty like neurosurgery. Influence of medical insurance also emphasizes the very need of quality in all medical specialty including neurosurgery as in other fields of medical science necessitating significant change in medical practice. Management Guru Deming has further taken the standard from quality management to the extreme of concept of total quality management (TQM) which being applied to all the fields of medicine including Neurosurgery.

Standards: a statement of expectation that defines the structure and process that must be substantially in place in an organization to enhance the quality of care.

Quality: The degree of adherence to pre established criteria or standards.

Quality assurance Part of quality management focused on providing confidence that quality requirements will be fulfilled.

Quality improvement: Ongoing response to quality assessment data about a service in ways that improve the process by which are provided to consumers/patients

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Quality assurance programs are tools used by neurosurgical health organization to establish a quality management system and to improve continually on quality of medical services. Increasing expenditure and disease burden also demands quality control in Medical care.

Definition: Quality assurance (QA) is an activity where the primary objective is to monitor, evaluate or improve the quality of Medical care delivered by Medical care providers.
QA should be integral part of all Medical including neurosurgical delivery systems specially that in operation theatres.

Health is a fundamental right

Organizations spends huge amount of money, time and man power, to get into quality system process. Many national and international organizations are available for accreditation or certification of hospitals and services in term of quality. Quality is never an accident; but is result of dedicated and intelligent efforts. All humans are entitled with basic right and freedom. It is all about our basic need to live our lives with respect and dignity. The very common human right includes "right to equality" before the law," life and liberty", freedom of thought "and freedom of expression". Apart from all these basic rights, health are also declared as the "fundamental human right" that satisfies the need for physical and mental well being. The Universal Declaration of human right, adopted by the United Nations in 1948, proclaimed that "everyone has the right to a standard of living, adequate for health and well being of oneself and one's family including food, clothing, housing and medical care."

2. MEDICAL AUDIT

Medical audit is defined as "a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change." There may be different types audit done to improve current standard to the desired state of total quality management (TQM). The types may be Infection control audit, Critical areas audit, Medical record audit, and equipment audit. Medical audit is a cycle that has several procedures. This cycle consists of methodical procedures. They include setting up of best practices, taking necessary action to enhance health system, and monitoring improvements.
The process includes following steps

(a) The recognition of problem or issue.
(b) Set criteria and standard for the purpose of audit.
(c) Data Gathering is done accurately.
(d) Compare performance with criteria and standards set already.
(e) Applying changes when outcome is satisfactory or as desired. The same is circulated for universal adoption.
(f) Re-Audit: The audit are repeated after specific time period. It validates whether changes applied have the intended result.

Quality Management Systems and accreditation authorities

Today hospitals practice various quality management systems through accreditation. Several accreditation bodies at national and international level have been established quality management systems through various standards specific to patient care and safety.

Some of the bodies for accreditation are as follows
(A) Joint commission International (JCI): JCI was formerly known as joint commission on accreditation of hospital organization (JACHO) and joint commission on accreditation of hospitals (JACH).

JACH is a US based nonprofit organization formed in 1951 with mission to maintain and elevate the standards of health care delivery system through evaluation and accreditation of health care organizations. The American college of physician (ACP), the American hospital association (AHA), the American medical association (AMA), and the Canadian medical association (CMA) joins with the ACS to create the JCAH. JCAH started hospital standardization through establishing a standard process. In 1970 publication of accreditation manual for hospitals (AMH) made the transition from minimum standard to optimal achievable standards. In 1972 the JCAH required the holding of medical audits and developed a retrospective outcome oriented method, the performance evaluation procedure (PEP) designed in objectively reviewing and evaluating care service. In 1985 they included specific Quality assurance chapter in the manual. In 1986 it stimulated to create a situation of focused improvement of quality continuously with clinical and administrative means.

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Medical Science, 2014, 11(41), 24-30,
http://www.discovery.org.in/md.htm

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In 1987 JACH changed its name to JACHO and the standards published by it in 1992 began the careful transition from quality assessment to a quality improvement approach.
1994 it implemented several important changes that included revised survey process applying performance standards around patient care. It also started indicator measurement system for initial data collection. It also started accreditation for health care networks and organization specific performance reports.
1997 JACHO launched ORYX, an evaluation in outcome and other performance measures into the process.
1998 Ernest A Codman Award was instituted for recognizing outstanding achievement by the hospital and individuals.
2000 the JACHO published international quality standards for hospitals and presented its first accreditation award.
2002, the JACHO established its first annual national patient safety goals and associated requirements for it.
2002 itself it launched Disease specific care certification.
2005, the WHO assigned joint commission and joint commission international, a collaborating centre for patient safety solutions.
In the year 2007 joint commission was renamed as joint commission international.
JCI is pioneer in accreditation and throughout the world various hospitals got accreditation from it.

A few Indian hospitals also got JCI accreditation in the recent past and many hospitals are under the process of JCI accreditation.

Patient safety goals established by JCI (2007):

1. To improve accuracy of patient identification.
2. To improve the effectiveness of communication amongst care giver
3. Improve the safety of using medications.
4. Reduce the risk of healthcare- associated infections.
5. Measures to prevent medication errors.
6. Reduce the risk of patient harm resulting from fall.
7. Reduce the risk of influenza and pneumococcal disease in hospitalizes old patient.
8. Reduce the risk of surgical fires.
9. Implementation of applicable national patient safety goals in the hospitals.
10. To encourage patients' active involvement in their own care as a patient safety strategy.
11. To prevent health-care associated pressure ulcers (bed sores).
12. The hospital to identify safety risk inherent in its patient's population.

(B) The Quality council of India and accreditation board for hospitals (NABH) and laboratories (NABL).
The national accreditation board for hospital and health care providers is part of quality council of India, set up to establish and operate accreditation program for health care organization. The board has structured its program in a way to set benchmarks for the progress of the health industry.

Standards for hospitals have been drafted by technical committees of NABH and contain a complete set of standards for evaluation of hospitals for accreditation. These standards provide "frame work for quality assurance and quality improvement" for hospitals. The standards focus on patient safety and quality of care. The standards focus on continuous monitoring of any sentinel events and exhaustive corrective actions ultimately leading to quality culture at all levels and across whole system and functions. The standards are equally applicable to hospitals and nursing homes in private as well as in government sector.

NABH Standards are included in following broad 10 areas:
1, Access, assessment and continuity of care (ACC)
2, Patient Rights and education (PRE)
3, care of patient (COP)
4, management of Medication (MOM)
5, Hospital Infection Control (HIC)
6, Continuous quality improvement (CQI)
7, Responsibility of management (ROM)
8, Facility management and safety (FMS)
9, Human resource management (HRM)
10, Information Management system (IMS)

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The accreditation process involves comprehensive review of compliance with standards. The Evaluation process incorporates interviews with patients, residents, nurses and other staff .It involves inspection of patient care area and hospital or nursing home departments for issues related to physical assessment of infrastructure, medical equipments, security, infection control, cleanliness, readiness to manage disasters etc. It involves comprehensive review of not only facilities but also of clinical competence to deliver services within its scope.

The assessment is done by qualified and trained assessors for objective evaluation of hospitals. The assessment team includes two or more health care professionals. The team comprises of clinicians, health care administrative, nursing supervisors, specialists (where required) depending on the size and scope of services being rendered by the hospitals.

The ACC has 15 , COP 18, MOM 13, Pre 5,HIC 9, CQI 6, ROM 5, FMS 9, HRM 13,and IMS 7 standards. In total 100 standards and at least the organization must complies more than 70 standards, No compliance 0 point, more than 50% variable 5 points and full compliances will give 10 points. Total points are aggregated to find the full score. However there are essential variable which must be complied. They are marked either 0 or 10 .There will not be any partial compliances in their cases.

Steps required for accreditation:

It requires ten steps to betake for accreditation. It is based on self development, improvement in performance, learning and reducing risk. The steps includes

1 Obtain a copy of NABH Standards.
2, Carry out self assessment on status of compliance with the NABH standards.
3, Indentify.gap areas and prepare action plan to bridge the gaps.
4, Ensure that NABH standards are implemented and integrated with hospital functioning.
5, Obtain copy and submit application form for assessment.
6, Pay the accreditation fee.
7, NABH sends assessment program including dates and names of assessors.
8, Facilitate the assessment.
9, Receive recommendation on accreditations
10 Maintain quality improvement program based on continuous monitoring of patient care service

Quality assurance in health care is a process through which the level of desired quality is defined, pursued, achieved and maintained through the mechanism for detecting and correcting factors which prevent the achievement of the desired quality. Terms such as peer review, quality assurance, quality improvement, quality activities, quality studies, and audit (Including all types audit such as medical, clinical, surgical and record audit) are often used interchangeably. Quality assurance is a broad term that describes the overall efforts of the facility to achieve effective care without compromising on quality.

Quality health care is doing right thing, at right time, in right way, for the right person and having the best possible results.

3. QUALITY IMPROVEMENT (QI) METHODS AND MODELS

(A), Plan, Do, Check, ACT method (PDCA method) – It is one of the widely used QI method developed in 1920 by Walter Stewart and Deming. This method in health covers following aspect: I) Establish goals and objectives, II) Develop policies and procedures to guide workers.

(B), six steps method- It is a continuous quality improvement approach presented by Krousel Wood with focus on healthcare application. The six –step methodology used by this approach. The six steps are:

i) Record adverse or other outcomes of interest.
ii) Use statistical techniques to determine variation randomness.
iii) Suggestions to reduce adverse outcomes.
iv) Implement the suggestion on trial basis and monitor results.
v) If improvement occurs implement the suggestion and standardize.
vi) Seek further suggestion for improvement.

(C), Benchmarking- it is a process of comparing a hospitals performance against that of organizations that have been identified as excellent. There are three types of benchmarking.

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i) **Internal Benchmarking** –it compares performance between functional areas of or departments within an organization. For examples infection rate in department of Neurosurgery and department of pediatric surgery.

ii) **Competitive Benchmarking**- used to close the gap between organization performances with that of its industry competitors. It is also called performance bench marking. For example infection rate in department of neurosurgery of one hospital with that of other standard hospital with best result.

iii) **Comparative benchmarking** exercises examining a process in another industry to apply the principles that makes it effective to a similar process. For example success rate in hospital industry with any other successful industry.

Quality assurance includes all evaluation activities conducted in the facility. Many quality care assurance programs focus on improving the quality of care by

--Reducing avoidable deaths

---Reducing avoidable complications.

---Reducing unnecessary surgeries or invasive procedures.

---Identify omissions of necessary services.

---Reducing unnecessary readmissions.

Risk management –

Medical services including Neurosurgical services are prone to various risks. Risk is an event or situation that could potentially result in any event, or situation that could potentially result in an injury to an individual or financial loss to the hospital /organization. Effectively managing those is a major activity in any quality assurance program. The objective are

*Minimize the potential for injuries occurring.

*Minimize the potentially compensable events (PCEs)

*respond appropriately to the injured patient.

*Anticipate and plan for ensuring liability when injuries occur.

*Prevent or reduce financial loss.

To effectively **risk management program** should perform the following steps—

1) **Risk Identification**-Identify risks usually by incident reporting. For example needle sick injuries, patient or employee falls, Medication errors (wrong drug, wrong dose).
2) **Risk analysis**- analyze the risk (rate of incidence, how and why it so happened and by whom and where).
3) **Risk evaluation**- evaluates the risks in work areas were it is likely to happen.
4) **Risk Reduction /mitigation/elimination** – try to reduce or altogether mitigate or eliminate by taking appropriate actions.

Sentinel events:

A relative infrequent unexpected incident related to system or process deficiencies, which leads to death or major and enduring loss of function (at least for 2 weeks or more) for a recipient of health care service.

For examples

a) Surgical events

--surgery performed on the wrong body parts

--surgery performed on wrong patient

--wrong surgical procedure performed on the wrong patient.

---retained instruments in patients discovered after surgery/ procedure.

--patient death during or immediately post surgical procedure.

--Anesthesia related event.

b) Device or product events

--Patient death or serious disability associated with, the use of contaminated drugs, device, products supplied by the organization/the use or function of device in a manner other than the device's intended use / the failure or break down of a device or medical equipment/the intra vascular air embolism.

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C) Environmental events

-- Patient death or serious disability while being cared for in a health care facility associated with
--a burn incurred from any source/ a slip, trip, or fall/ an electric shock/ the use of restraints or bed rails

d) Care management events: Patient death or serious disability associated with a hemolytic reaction due to the administration of ABO- incompatibility blood or blood products

Medication errors leading to the death or serious disability of patient due to incorrect administration of drugs for example omission error/ dose error / dose preparation error / wrong time error/ wrong rate of administration error/ wrong patient error

--- Patient death or serious disability associated with an avoidable delay in treatment or response to abnormal test results.

e) Criminal events-- any care ordered or provided by impersonating a clinical member of staff.
--Abduction of patient.
--Sexual assault on a patient within or grounds of health care facility.
-- Death or other injury of a patient or staff member resulting from a physical assault or other crime that occurred within or the ground of the health care facility.

Standard Precautions:

1, A method of infection control in which all human blood and other body material or fluid are considered infectious for HIV ,HBV and other blood borne pathogens, regardless of patient history . it encompasses a variety of practice to prevent occupational exposure , such as the use of personal protective equipment (PPE) , disposal of sharps and safe housekeeping.

2, Set of guidelines protecting first aiders or healthcare professionals from pathogens. The main message is "don't touch or use any thing that has the victim's body fluids on it without a barrier." It also assumes that all body fluid of a patient is infectious, and must be treated accordingly.

Standard precautions apply to blood, all body fluids, secretions and excretions (except sweat) regardless of whether or not they contain visible blood, non-intact skin and mucous membranes.

Quality indicators:

1, **percentage of medication errors**
(Total no of medication error in given period of time/ total no of discharge and deaths in that period) x 100

2, **Percentage of transfusion reactions**
(Total no of transfusions in a given period / total no of transfusions in that period) x 100

3, Urinary tract infection rate
(No of urinary catheter associated UTIs in a given period / No of urinary catheter days in that period) x1000

4, Respiratory infection rate
(No of ventilator associated pneumonias in a given period / no of ventilator days in that period) x 1000

5, Intra vascular device infection rate
(No of central line associated blood stream infection in a given period / No of central line days in that period) x 1000

6, surgical site infection rate
(No of surgical site infection in a given period / no of surgeries performed in that period) x 100

7, **Incidence of bed sore after admission**
(No of patients who developed new/ worsening of pressure ulcer in a given period / No of discharges and deaths in that month) x 100

8, **Bed occupancy rate and average length of stay**
Bed occupancy rate –
(No of in patient days in a given period / No of available bed days in that period) x 100

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Average length of stay (combined and specialty wise)
(No of in patient days in a given period / No of discharges and deaths in that period of time) x 100

9, **incidence of needle stick injuries** (injury due to sharp)
(No of parentral exposure in a given period of time / no of in patient days in given period of time) x 100

The above points are symbolic only. Idea of quality is very vast and involves each and every step we take in the profession what is called as total quality management (TQM). Quality should be inherent in every walk of work areas of the organization what may be called as institutionalization of quality. It should come in day to day practice involuntarily to become successful.

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