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国家精品课程



Steventive Medicino

Hospital safety Management

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Instruction of the lesson

- What is hospital safety (HS)?
- •Why is the HS important?
- What is the contents of hospital
 safety management (HSM)?
- •What is the target population in HSM?
- How can we prevent adverse events in hospital?



1. DEFINITIONS AND HIGHLIGHT



Safety management - the definition

The development of systems to prevent accidents, injuries, and other adverse occurrences in an institutional setting.

(MeSH 2009)



MeSH: The Medical Subject Heading



Risk management - the definition

The process of minimizing risk to an organization by developing systems to identify and analyze potential hazards to prevent accidents, injuries, and other adverse occurrences, and bv attempting to handle events and incidents which do occur in such a manner that their effect and cost are minimized (minimize loss).

(MeSH 2009)



Safety and risk management (SRM) - the definition

(WHO 2009)

<u>Hospital safety management:</u> Activities or measures taken by an individual or a health care organization to prevent, remedy or mitigate the occurrence or reoccurrence of a real or potential safety event.





Why is HS always important?

Every events could lead to:

- Death
- Permanent disability
- Physical injury
- -Mental impairment
- Prolonged hospitalization (length of stay, LOS)
- Economic losses
- -Negative social consequences (legal proceeding, loss of reputation)



Data about HS (death)

In 1999, the Institute of Medicine (IOM) estimated that between 44 000 and 98 000 people die each year from medical errors in hospitals alone, thus making medical errors the eighth leading cause of death in the USA.



Data about HS (costs)

- The National Health Service in the UK pays around 400 million ponds every year to settle clinical negligence claims every year.
- 1999, the United States Agency for Health care Research and Quality (AHRQ) reported that preventing medical errors has the potential to save about US\$ 8.8 billion per year.





Complex system

A hospital is a complex system, like a large machine.

医务人员

后勤人员

管理人员

- The hospital safety refers to comprehensive issues including:
 - -hospital itself
 - -the people in it
 - -the environment in/around it



Hospital safety management system (HSMS)

- The basic principles on the construction of the hospital safety management system:
- 1. <u>People oriented: patients and staffs</u> Patient: safety and health Staffs: occupational safety
- 2. <u>Prevention first</u> (risk management)





Superstructure of HSMS

1. Organizational strategy

- Responsibility of leadership
- Safety management committee
- 2. Regulations/rules, Inspection, and checklist
 - -Rule-making
 - Administrative monitoring
 - Self-checking



2. HARMFUL FACTORS AND ADVERSE EVENTS



The adverse events







Please give me some examples of the adverse events, which could occur in hospitals.

Table B.1.2. Some adverse events reported in Australia and the USA [19]

Type of adverse event	USA	Australia
	(% of 1 579 total events)	(% of 175 total events)
Suicide of inpatient or within 72 hours of discharge	29	13
Surgery on wrong patient or body site	29	47
Medication error leading to death	3	7
Rape/assault/homicide in an inpatient setting	8	N/A
Incompatible blood transfusion	6	1
Maternal death (labour, delivery)	3	12
Infant abduction/wrong-family discharge	1	-
Retained instrument after surgery	1	21
Unanticipated death of a full-term infant	-	N/A
Severe neonatal hyperbilirubinaemia	-	N/A
Prolonged fluoroscopy	-	N/A
Intravascular gas embolism	N/A	-

Source: Runciman B, Merry A, Walton M. *Safety and ethics in health care: a guide to getting it right*, 2007 [24]. N/A indicates that this category is not on the official list of reportable sentinel events for that country.



Harmful factors in hospital

- 1. Hospital professional factors (iatrogenic factors):
 - ① Technical factors (inadequate professional competence, inexperience operation ...)
 - ② Drug-induced factors: inadequate use of medication



2. Hospital environment factors

- Infection: high density of pathogen, susceptive people (suppressed immunity), cross-infection
- 2 Radiation: for diagnose or therapy
- ③ Facilities: fire, water, electricity, wet floor,
- ④ Pollution: bacteria, virus, mold, air, water, noise, medical waste
- (5) Diet: food poisoning



- 3. Hospital management factors: organizational problem
- 4. Hospital related social factors
 - (Q: what are they?)
 - -e.g. worse economic condition of the hospital
 - -Lack of health care resource in local overload of employees in the hospital
 - -Violence in workplace



3. MEASURES FOR HOSPITAL SAFETY



How deal with HS? What is the measure?

◆Firstly, we should know who is the target population?



The target population



Everything and everyone in health care institutes



- According to the types of objects, HSM could be divided into:
 - Patient safety management
 - Staff safety management



3. 1 PATIENT SAFETY



Why is patient safety relevant to health care?

Is hospital a place for healing? Standing in, lying out! Adverse events occur not because people intentionally hurt patients, but rather due to the complexity of health-care systems today, where the successful treatment and outcome for each patient depend on a range of factors, in addition to the competence of each individual health-care provider.



When so many and varied types of health-care providers (physicians, midwives, dentists, surgeons, nurses, pharmacists, social workers, dieticians, and others) are involved, it would be very difficult to ensure safe care, unless the system of care is designed to facilitate the timely and complete exchange of information among all the health professionals involved in caring for the patient.



Measures for patient safety (1)

1. Human factors

The study of human factors examines the relationship between human beings and the systems with which they interact by focusing on improving efficiency, creativity, productivity and job satisfaction, with the goal of minimizing errors.





Importance of human factors

♦ A failure to apply human-factors principles is a key aspect of most adverse events (harm to patients) in health care. Therefore, all health-care workers need to have a basic understanding of humanfactors principles. Health-care workers who do not understand the basics of human factors are like infection control professionals who do not understand microbiology.



What does the study of human factors involve?

Human factors is a discipline that seeks to optimize the relationship between technology and humans, applying information about human behaviour. abilities, limitations, and other characteristics to the design of tools, machines, systems, tasks, jobs and environments for effective, productive. safe and comfortable human use.



- Overall, human factors is the study of all the factors that make it easier to do the work in the right way.
- To improve tools, facilities, resource and workflow.



Human factors= Ergonomics









卫生间防滑



卫生间 扶手

Lead door

Abrasive floor

Railing in toilet



Examples: Putting knowledge of human factors into practice

- Avoid relying on memory
- -Make things visible
- Review and simplify processes
- Standardize common processes and procedures
- Routinely use checklists
- Decrease reliance on vigilance



Measures for patient safety (2)

2. Patient care under systematic thinking.

- Health care is rarely carried out by single individuals. Safe and effective care is dependent not only on the knowledge, skills and behaviours of front-line workers, but also on how those workers cooperate and communicate in the work environment, which itself is usually part of a larger organization.



In other words, patients depend on many people doing the right thing at the right time. That is, they depend on a system of care. Being a safe health-care professional requires an understanding of the complex interactions and relationships that occur in health care.



The Swiss cheese model



Successive layers of defences, barriers & safeguards



The Swiss cheese model

 Reason created the Swiss cheese model to explain how faults in different layers of a system lead to incidents. This model shows how a fault in one layer of a system of care is usually not enough to cause an accident.



- Adverse events usually occur when a number of faults occur in a number of layers (for example, fatigued workers plus inadequate procedures plus faulty equipment) and momentarily line up to permit a "trajectory" of accident opportunity.



- To prevent these adverse events from occurring, Reason proposed the use of multiple defenses in the form of successive layers of protection (understanding, awareness, alarms and warnings, restoration of systems, safety barriers, containment, elimination, evacuation, escape. and rescue), designed to guard against the failure of the underlying layer.







A culture of blame

When something wrong happened, the traditional approach is to blame the health-care worker, who most directly involved in caring for the patient.





- -While the tendency to blame an individual (the person approach) is strong - and very natural - it is unhelpful and actually counterproductive for a number of reasons.
- Whatever role that the blamed healthcare worker may have had in the evolution of the incident, it is very unlikely that his/her course of action was deliberate/intentional in terms of patient harm.



- Most health-care workers involved in an adverse event are very upset by the prospect that their action may have been in some way contributory. The last thing they need is punishment. The natural tendency in such situations is to limit reporting. Workers will be hesitant to report incidents if they believe that they will then be blamed for anything untoward that may have happened.



Blame culture is unhelpful

If such a culture of blame is allowed to persist, a health-care organization will have great difficulty in decreasing the chance of adverse incidents of a similar nature occurring in the future.



Measures for patient safety (3)

- 3. Report on Laboratory Critical/Panic Value (Safety check)
- 4. Making Safety policy and following
- 5. Being an effective team player
- 6. Good communication in your team (Patient is also a member of your team!)



What should patients help to do for their self-safety?

- Ask questions
- Provide accurate information
- Speak up!
- Follow the plan



3.2 MEDICAL STAFF SAFETY



Occupational hazards

- Physical factors: Sharps injuries (Syringe-stabbed injury), Radiation
- Chemical factors: Toxic materials
 (Medication, Disinfectant)
- Biological factors: Bacteria, Virus etc.
- Sychosocial factors: Work overtime, Workplace violence (linguistic injury, Physical Violence)



The solutions(1)

◆For physical factors: Ergonomics / Human factors: Needleless injector





The solutions (2)

- ◆For chemical factors: Following rules and operation instructions, Protective clothing (mask, gloves...)
- For biological factors: Preventive clothing & activities (vaccinate)





The solutions (3)

◆For psychosocial factors: rational social policy, legal protection





Hospital violence

- In USA 35-80% medical workers experienced various violence in their workplace.
- In China, no data was shown, but the serious violence occurs frequently in media reports.

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