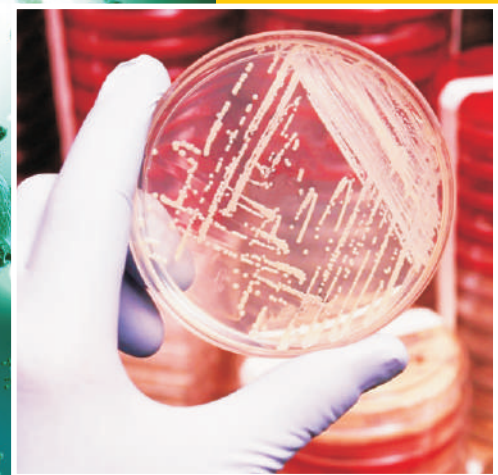
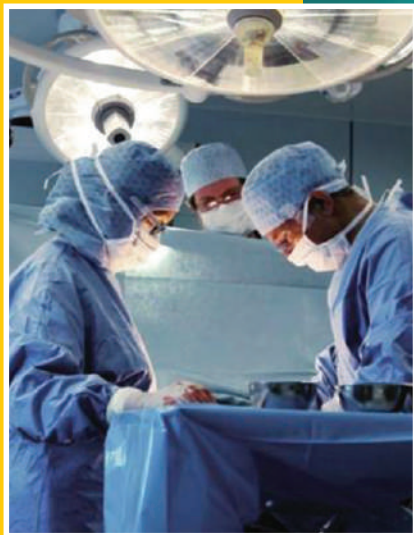


HOSPITAL-ACQUIRED INFECTIONS: STRATEGIC MANAGEMENT, CONTROL AND PREVENTION



**Emerging Antimicrobial Resistance Society
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Hospital acquired infections and antimicrobial resistance (AMR) are global problems and many epidemiological studies have raised the significant concern of these alarming issues especially in developing countries. This information booklet is developed for introducing "AWAKE 2013" programme to be launched first time in India with combined efforts of EARS and VMRC, India. VMRC, as an effort to contribute to the noble cause of fighting AMR, has undertaken the task to create awareness in India by celebrating the Antibiotic awareness day.

The indiscriminate use of antibiotics is widely practised in society especially in hospitals. The promotion of this campaign in form of this bulletin will help to reduce the incidences of HAIs and associated AMR. Prevention of Hospital-acquired infections (HAIs) is deservedly high on the agenda for patients, nurses and decision makers. Zero tolerance to HAIs is part of our mission to promote excellence in practice. This updated information will be a valuable tool for society and health care personnel to reduce the prevalence of HAIs. Use it together with the other, Wipe it Out leaflets and posters to promote good practice. It will help you to spare patients' financial burden, anxiety, inconvenience, disability and mortality.

Over 1.4 million people worldwide suffer from HAIs. The risk of HAIs in developing countries is many times higher than in developed countries. In India, the proportion of patients affected by a HAI can range from 10 to 30%. As per the study by Global Antibiotic Resistance Partnership (GARP) and Centre for Disease Dynamics, Economics and Policy

the rate of vancomycin-resistant enterococcus (VRE), a dangerous hospital infection, is five times higher in Indian ICUs than its prevalence in the rest of the world.





Sources and Risk Factors of HAIs-

- ✍ Person to person via hands of health-care providers, patients, and visitors
- ✍ Personal clothing and equipment (e.g. Stethoscopes, flashlights etc.)
- ✍ Improper or no handwashing and communal towels can be the main sources of HAIs Fomites or Hospital equipments like assisted ventilation apparatus, Suction and drainage bottles, I.V. lines – central and peripheral, Urinary catheters, Wounds and wound dressings, Dressing trolley.
- ✍ Increased length of hospital stay or Multiple hospitalizations.
- ✍ Very young or old aged patients
- ✍ Multiple invasive procedures (IV, tracheotomy, gastrostomy, Foley catheters).
- ✍ Wounds (non-intact skin, especially pressure ulcers).
- ✍ Severe underlying disease (immune suppression eg. AIDS).
- ✍ Administration of broad-spectrum antibiotics.

Information for Health Care Professional to Prevent HAIs

- ✎ Hand hygiene is widely accepted to be the single most important factor for reducing the spread of disease. The diagrammatic representation demonstrates the hand hygiene procedure that should be followed when washing with soap and water or using an alcohol hand gel or rub.
- ✎ Hand should be decontaminated before and after direct contact with patient including following the removal of gloves.
- ✎ Health care professionals for effective decontamination should keep nails short, clean and polish free. Artificial nails must not be worn.
- ✎ Avoid wearing wrist watches, jewelry, stones in hospital.
- ✎ Any cuts, abrasions should be covered with water proof dressing.
- ✎ The recontamination of hand may occur on improper drying as wet surfaces are more to skin damage and microbial transfer. Therefore, disposable paper hand towels should be used to ensure effective drying.
- ✎ The main hazards of a sharps (needles, scalpels, stitch cutters, glass ampules and any sharp instrument) injury are hepatitis B, hepatitis C and HIV. To reduce the risk it is vital that sharps are used safely and disposed of carefully.
- ✎ If there has been exposure through contaminated HIV objects it is recommended to use the antiretroviral post exposure prophylaxis within an hour of exposure and the full course should last for four weeks.
- ✎ The risk of contracting HBV from needle stick exposure in a health care setting is much higher than HIV because the virus is both more infectious and has greater prevalence.
- ✎ It is recommended that all paramedical staff should be vaccinated against hepatitis B with monitoring of antibody titer levels and boosters, where inoculation injury occurs and titers are low.



Disinfection

- ✎ Maintain housekeeping surfaces (e.g., floors, walls, and tabletops) visibly clean on a regular basis and clean up spills promptly with proper disinfectant.
- ✎ Avoid large-surface cleaning methods that produce mists or aerosols or disperse dust in patient-care areas.
- ✎ After the last surgical procedure, wet vacuum or mop operation theater floors with a single-use mop and registered hospital disinfectant.
- ✎ Maintain vacuums in good repair, and equip vacuums with HEPA filters for use in areas with immunocompromised patients.
- ✎ Avoid unnecessary exposure of neonates to disinfectant residues on environmental surfaces by using registered disinfectants in accordance with manufacturer's instructions and safety manual.
- ✎ Critical instruments/equipments (those penetrate skin or mucous membrane) must be disinfected before and after use. e.g. surgical instruments.
- ✎ Semi-critical instruments /equipments (those contact with intact mucous membrane without penetration) must receive high level of disinfection before use and intermediate level disinfection after use. e.g. endotracheal tubes.
- ✎ For non-critical instruments /equipments, those in contact with intact skin and no contact with mucous membrane) require only intermediate or low level disinfection before and after use. e.g. ECG electrodes.
- ✎ In case of ultra sonic cleaner the machine should be drained, cleaned, dried, covered and left dry until required for further use. Log books and records must be kept by the designated person for both types of machines
- ✎ Follow manufacturers' instructions for cleaning and maintaining noncritical medical equipment.



Sterilization



- ✘ For all critical and semi critical items that are heat and moisture resistant (e.g., steam sterilization respiratory therapy and anesthesia equipment), steam sterilization is advised even when not essential to prevent pathogen transmission.
- ✘ Sterilization ensures that an object is free from viable microorganisms, including bacterial spores. Both acute and primary health care centre should actively work towards achieving central sterilising of reusable equipments.
- ✘ When central sterilization is not possible use pre-sterilised, single-use, disposable items.
- ✘ Flash sterilization is recommended for processing cleaned patient-care items that cannot be packaged, sterilized, and stored before use.
- ✘ Use flash sterilization when there is insufficient time to sterilize an item by the preferred package method.

Cleaning and sanitization

- ✘ Cleaning and sanitization of hospital premises like operating rooms, toilets, rooms and wards. Floors must be done regularly to maintain hospital hygiene and reduce the chances of nosocomial infections.

HAIs Control Measures

Food storage

- ✘ Food should be made and stored in properly clean and hygienic area in the hospital.
- ✘ Patients should not share drinks or food with other persons or family members.
- ✘ Patients with draining skin lesions or infected with *S. Aureus* should be restricted with food handling as it may enhance the chances of infections until there infection has resolved.
- ✘ Family members or care givers should wash their hands with medicated soap for a minimum of 15 to 20 seconds after direct contact with the patient or any items the patient has touched, before preparing food and before eating.

Training and Education

- ✘ Training programmes for hospital staff in infection control and auditing compliance should be conducted on regular basis.
- ✘ The main purpose of training and education is to increase awareness, improve practices, change attitudes and monitor the system.

Vigilance & Administrative Support

- ✘ Government should ensure that general public and hospital staff are aware of the nosocomial infections and there consequences by spreading more

awareness.

- ✘ Health regulatory agencies should conduct regular check and audits of hospitals to monitor the adherence with the guidelines to prevent HAIs and may impose corrective measures in case of non compliance.



Prevention of HAIs in ICUs



- ✗ Patients admitted to ICUs have many fold higher risk to develop HAI than inpatient population because of immunocompromised status. Exposure of ICU patients to multiple antibiotics made the problem of antibiotic resistance more worse and special precautions must be taken during treatment of ICU patient to prevent and spread of HAIs.
- ✗ Hospital Staff with transmissible infections is not advised to work in ICU until receiving of proper treatment.
- ✗ For all health care providers working in ICU vaccination of Hepatitis B, meningococcal and varicella vaccines should be provided.
- ✗ Hospital Staff must change out of their uniforms and wear special ICU attire while working in the unit.
- ✗ Infection reporting and electronic surveillance programmes can be implemented in each hospital to control and monitor the prevalence of HAIs in ICU.



Preventive Measures for Patient to Control HAIs

- ✍ Hand hygiene- Medicated hand wash is the most effective way to prevent the nosocomial infections and should be practiced regularly during hospital visit or stay.
- ✍ Take a bath or shower before visiting a hospital.
- ✍ Common use of towels, personal belongings and food materials with other persons must be avoided during hospital stay
- ✍ Avoid visit of your friends and relatives in hospital if they themselves feel ill or have a cold
- ✍ Dirty clothes should be send regularly to laundry for washing
- ✍ Inform your nurse or doctor if you have had any recent infections.
- ✍ Use tissue paper during coughing or sneezing and keep your head away from others. Throw the tissue in dustbin and immediately wash your hands with medicated soap.
- ✍ Inform the hospital staff about unclean bathroom/toilet.
- ✍ Wear appropriate footwear during stay in hospital.
- ✍ Children's visit must be limited and If it is a necessary they must not interfere with Hospital equipments.
- ✍ Avoid the handling of any treatment device attached to you like tubes, wound dressings, catheter as contaminated hands may cause infection.
- ✍ Quit smoking altogether, or at least reduce the number of cigarettes during stay in hospital as smoking can slow down the healing process especially during surgery.
- ✍ Overweight patients are at high risk of getting an infection following surgery. Take a balanced and healthy diet to reduce your weight before surgery.
- ✍ Inform your doctor about a cold or fever before a planned operation as it may enhance the chances of developing a chest infection after the operation.
- ✍ If you are diabetic, you and your doctor should control your blood sugar levels as it may reduce the risk of infection after surgery.
- ✍ Touching and contact with other people's wounds or bandages should be avoided.
- ✍ Proper medical care should be taken for cuts, abrasions, or lesions which are prone to infections
- ✍ Refrain from picking at pimples, scabs, and other non-intact areas of skin.



Precautions to be Taken Care by Visitors

- ✍ Do not visit if you or someone else at home is unwell with, for example, a cold, flu.
- ✍ Clean your hands properly by washing them with soap under the running water or hand sanitizer before and after visit of hospital.
- ✍ Refrain visiting in club or in group at a time and don't bring children too often.
- ✍ Avoid sitting or lying on the patient's bed.
- ✍ Do not touch or handle the patient's wound, dressings, drips, drains, tubes or medical equipment.
- ✍ If you want to visit more than one patient at a time take the prior permission from hospital staff.
- ✍ While visiting contagious disease infected patients wear protective gears like gown, gloves or a mask as per the instructions of hospital staff.
- ✍ Do not enter a patient's room who is being nursed in isolation without checking with the nursing staff.



Do's and Dont's for Accidental Injury

If accidental injury occur

Immediately stop what you are doing and attend the injury

Encourage bleeding of the wound by applying gentle pressure - do not suck.

Dry and apply a waterproof dressing as necessary.

If blood and body fluids splash into your mouth, do not swallow.

Rinse out several times with cold water.

If blood and body fluids splash into your eyes

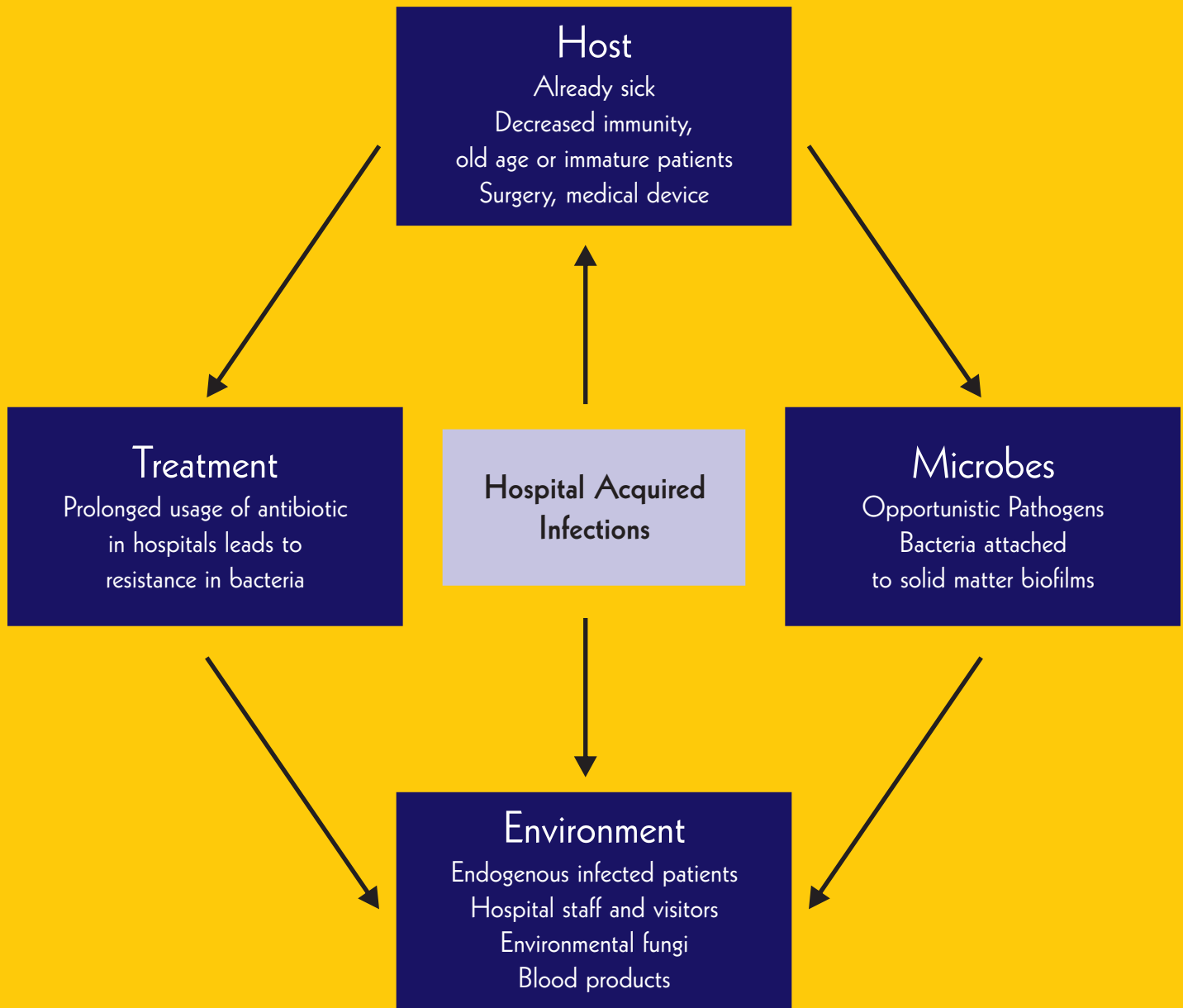
Irrigate with cold water

If the injury is from a used needle or instrument

Risk assessment should be carried out with a microbiologist, Infection control doctor or consultant for communicable disease control.



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Contact Us

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