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Review Article

Role of Hospital Pharmacist in Infection Prevention and Control

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Abstract: According to the General Health-System pharmacists have an obligation to take part in the infection control initiatives of Hospital. This duty results, in part, from pharmacist' comprehension of and control over the use of antibiotics within the healthcare system. Additionally, the National Health Mission thinks that participation on multidisciplinary work groups and committees within the health system is the best way for pharmacist to effectively participate in infection control programmes and support the appropriate use of antibiotics throughout the health system. These initiatives should reduce the likelihood of antimicrobials being misused, lowering the danger of infection for other patients and staff members while also improving the treatment outcomes for patients with infectious disorders.

Keywords: Health care system, pharmacists, Antimicrobial & Prevention.

INTRODUCTION

Improving patient outcomes across the different practise contexts of health systems requires identifying and lowering the risks of contracting and transmitting infections among patients, healthcare professionals, and others. A multidisciplinary infection control committee oversees the majority of health systems' infection control programmes. Depending on the health system, the infection control committee's (or its equivalent) specific programme and duties may vary.

The infection control committee typically creates organisational guidelines and practises addressing [1].

1. The administration and delivery of healthcare services for patients and workers.
2. Infection prevention and control education for workers, patients, families, and other carers.
3. Monitoring tools to monitor the development and spread of diseases.
4. Tracking surveillance systems to use of antimicrobial and development of resistance.

Roles and Responsibility of Pharmacist [2, 3]

Reducing the spread of diseases, advocating the prudent application of antimicrobial drugs, and educating medical personnel, patients, and the general public are all duties of pharmacist in the area of infection control.

Reducing the range of infections

In all relevant practise settings within the health system, pharmacist should take part in initiatives to prevent or limit the transmission of infections among patients, healthcare providers, and others. This might be done by using:

1. Being an active member of the infection control committee (or an analogous group).
2. Giving guidance to the healthcare system on the choice and application of suitable sterilants, disinfectants, and antiseptics.
3. Setting up internal pharmacy policies, practises, and quality control programmes to avoid tainting medication made in or given out by the pharmacy division. In the preparation and management of sterile items, this is of utmost importance.1 The establishment of appropriate personnel policies and provisions for cleaning pharmaceutical equipment, such as laminar-airflow hoods and bulk-compounding equipment, as well as restrictions on staff members' activities due to cold, flu, or other infectious conditions, are additional factors to take into account.
4. Promoting the use of single-dose packets rather than multiple-dose containers for sterile drug items, unless the area is sterile.
5. Offering guidelines for how frequently dressings, other intrusive devices, intravenous

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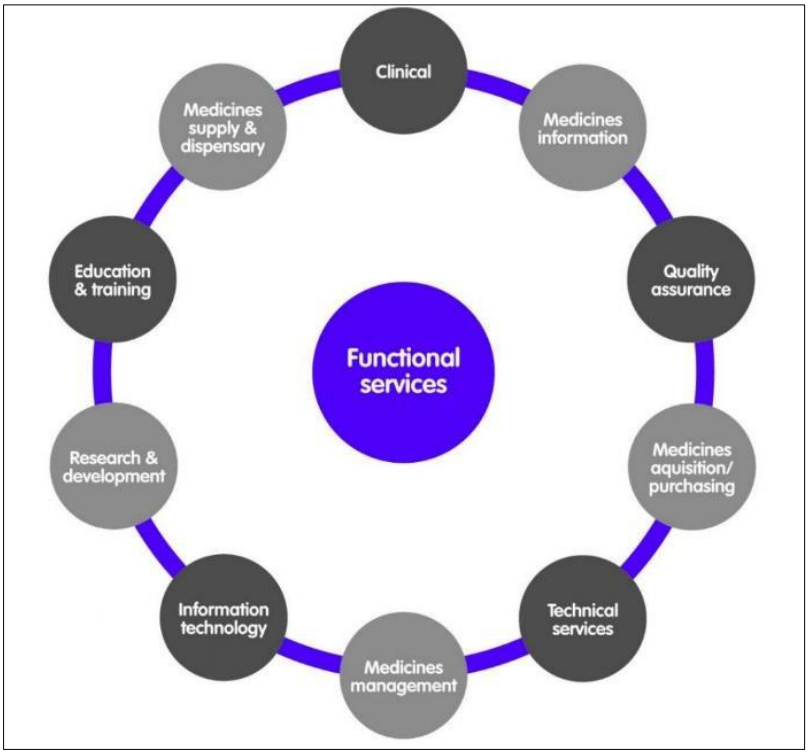
administration sets, or monitoring equipment should be changed. Additionally, collaborating with the people and committees within the healthcare system in charge of picking and managing tools and equipment for administering medications intravenously.

6. Advising sterile items and multiple-dose sterile product containers (if utilised) to be properly dated, labelled, and stored.
7. Promoting periodic screening for specific transmissible diseases (such as tuberculosis) and routine immunisation of the suitable people.
8. Encouraging all patients and healthcare professionals to take universal safeguards consistently.
9. Offering guidelines for how frequently patients should replace noninvasive medical devices like ventilator tubing and other items that could harbour bacteria.
10. Creating recommendations for the risk assessment, management, and monitoring of patients and healthcare professionals who have come into contact with people who are infected with an infectious disease that is transmissible.

Functional Services of Pharmacist



Promote the Rational Use of Antimicrobials

The prudent use of antimicrobial agents throughout the health system is a crucial clinical duty of the chemist. This duty in the context of infection control includes formulating plans to reduce the emergence of microbial strains that are resistant to treatment as well as to improve the therapeutic results for specific patients [4, 5]. The following duties could fall under this responsibility:

1. Assuring that the quantity and types of antimicrobial agents provided are suitable for the patient group treated by working within the pharmacy and therapeutics committee (or equivalent) framework, which may include infectious disease-related subcommittees. Such choices ought to be based on the requirements of certain patient populations and medical system microbiological trends. The creation of antimicrobial-use regulations that produce the best therapeutic results while reducing the possibility of the formation of bacteria strains that are resistant to treatment should be given top attention.
2. Promoting interdisciplinary cooperation within the healthcare system to guarantee that the therapeutic, experimental, and preventative applications of antimicrobial drugs produce the best possible patient outcomes. This could include protocols for the restricted use of antibiotics, therapeutic exchange, guidelines for therapy, and clinical care plans.3
3. Creating and running a multidisciplinary, ongoing antimicrobial monitoring programme that evaluates patient outcomes to determine the efficacy of antibiotic use guidelines across the entire health system.
4. Creating and studying quantitative data on the usage of antibiotics in order to do pharmacoeconomic analysis.

5. Assisting the microbiology laboratory in compiling susceptibility reports (at least annually) for distribution to prescribers within the health system to direct empirical therapy, and ensuring that appropriate microbial susceptibility tests are reported on individual patients in a timely manner. These reports might function best if they are organised by the location of the infection (for example, urinary pathogens, respiratory pathogens, or blood pathogens) or by the type of patient care provided (for example, intensive care unit, cancer, paediatric, ambulatory clinic, long-term care).

Educational Activities

The chemist's responsibilities also include educating and informing the public, patients, and other health professionals who interact with the practise settings of the health system about infection control [6-8]. Particular actions could include:

1. Providing clinical conferences, newsletters, and other educational forums on subjects like antimicrobial usage and resistance, decontaminating agents (disinfectants, antiseptics, and sterilants), aseptic technique and procedures, and sterilisation methods for health professionals.
2. Informing and guiding inpatients, patients receiving ambulatory care, and patients receiving home care about the following topics: following instructions for using antibiotics, handling and storing medication and administration equipment, and other infection control practises (such as disposing of medical waste).
3. Participating in public health education and awareness programmes that promote the responsible use of antibiotics, adult and child immunisation access, and appropriate infection control practises (such as proper hand-washing techniques) in order to prevent the spread of infectious diseases.

Summary

1. Pharmacist offering clinical conferences, newsletters, and other learning opportunities for health professionals on topics like antimicrobial usage and resistance, decontaminating agents (disinfectants, antiseptics, and sterilants), aseptic technique and procedures, and sterilisation methods.
2. Educating and advising inpatients, patients receiving ambulatory care, and patients receiving home care about the following subjects: adhering to instructions when using antibiotics, handling and storing medication and administration equipment, and other infection control practises (like getting rid of medical waste).
3. Participating in public health education and awareness projects that encourage the responsible use of antibiotics, adult and child vaccination access, and adequate infection control practises (such as proper hand-washing practises) in order to stop the spread of infectious diseases. The pharmacist may have a significant impact in each of these areas.

Role of Pharmacist when Antibiotic policy shall be prepared using following general principles [9, 10]

A programme for the use of antibiotics should be present in every healthcare facility. The aim is to prevent the selection of resistant bacteria by ensuring efficient, cost-effective prescribing. Using the local antibiogram and a multidisciplinary approach, develop guidelines. Continually educate clinicians on how to use antibiotics responsibly, and see to it that antibiotic rules are followed. Limiting antibiotic usage. Utilisation must be supported by a clinical diagnosis. Appropriate samples for bacteriological examination must be sent to the lab before beginning antibiotic treatment, and an antibiotic must be chosen based on the sensitivity pattern, the patient's tolerance, and the cost.

Basic duties are classified as follows:

According to hospital records, data analysis takes place every three months.

(a) Common etiological agents according to the infection site in

(i) Age groups
(ii) Patient location
(iii) Indoor (wards & critical care areas) and Outdoors (OPD)

(b) Antibiogram data according to the patient's location (outdoor (OPD), indoor (wards & critical care areas), age group, and site of infection.

Unusual resistant organisms must be confirmed and submitted to the National Centre for Disease Control (NCDC) for further characterisation.

The categorization of patients as 45 years of age and Community acquired infections (CAI)/Health care associated infections (HCAI)] as per standard treatment guidelines:

(i) Adults & older children (a) Guidelines for empirical antimicrobial therapy according to common clinical symptoms

- Infections in the bloodstream (BSI)
- Meningitis,
- UTI
- Pneumonia (a) Ventilator Associated Pneumonia (VAP) (b) Community Acquired Pneumonia (CAP)
- GIT Infections 5.
- Eye inflammation
- Mediastinitis

- ❖ Pharyngitis and tonsillitis
- ❖ Soft Tissue Infections of the Skin (SSTI)
- ❖ Genital Illnesses
- ❖ Osteomyelitis

Infants and young children (exceptional circumstances)

- ❖ First, meningitis Sepsis:
- ❖ Classification of antibiotics into first-line, second-line, and reserve groups of medications for pneumonia
- ❖ Pre-operative antimicrobials (i) Chemoprophylaxis (ii) Other invasive procedures
- ❖ Particular high-risk groups Prophylaxis for patients with immunosuppressed patients, splenectomy patients, and patients with rheumatic fever, for instance.
- ❖ Special clinical syndromes, such as STIs
- ❖ Medication monitoring
- ❖ Examining the surveillance information obtained from antibiograms and prescription audits.
- ❖ Training and education for all infection control initiatives in cooperation with the hospital infection control committee.
- ❖ Prevention strategies for the spread of antibiotic resistancei. Correct antimicrobial usage
- ❖ When administering antimicrobial therapy, the right dosage and length of time
  should be employed with an agent with the nar rowest spectrum possible.
  The proper dosage must be applied.
- ❖ Limit antibiotic use -
  The use of some antibiotics may be prohibited .
  rotating antibiotics in a class on a regular basis ; stopping antimicrobial therapy based on set p arameters.
- ❖ Execute recurring audits of prescriptions. Phar macy restrictions on hospital
  formularies. Customary and direct
  Taking precautions includes using PPE properl y and adhering strictly to hand
  hygiene rules. Isolation and cohorting of patien ts with multidrug resistant organisms (MDROs) infections or colonisation.
- ❖ HCP training and education.
- ❖ More patient:
  Specific devices and environmental cleansing.
  Adequate cleaning and sterilisation.
- ❖ Monitoring for organisms that are resistant to many drugs, especially in high-risk locations.

CONCLUSION

The availability of skilled trained pharmacist and their integration into healthcare systems, as has happened in rich nations, has the potential to significantly reduce the overuse of antibiotics in poor nations. The issue of catastrophic AMR in underdeveloped nations can be solved, even if this is just one of several interventions required. Studies from developed nations have shown that when pharmacist' roles within the healthcare system are strengthened, when they are acknowledged as members of the healthcare team to give advice on the prudent and safe use of medicines, and when university curricula and continuing professional education provide theoretical and practical knowledge and skills regarding the quality use of medicines, cost-effective optimal patient outcomes are achieved. Hospitals should establish antibiotic management involving pharmacists to ensure prudent and appropriate antibiotic use. Adopting these strategies will help developing countries overcome their growing vulnerability to growing antibiotic resistance.

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