Abstract Book AMMC - 2024

4th ANNUAL

MEDICATION MANAGEMENT CONFERENCE

12 October, 2024

Pharmacists: Meeting global healthneeds

Venue: Serena Islamabad

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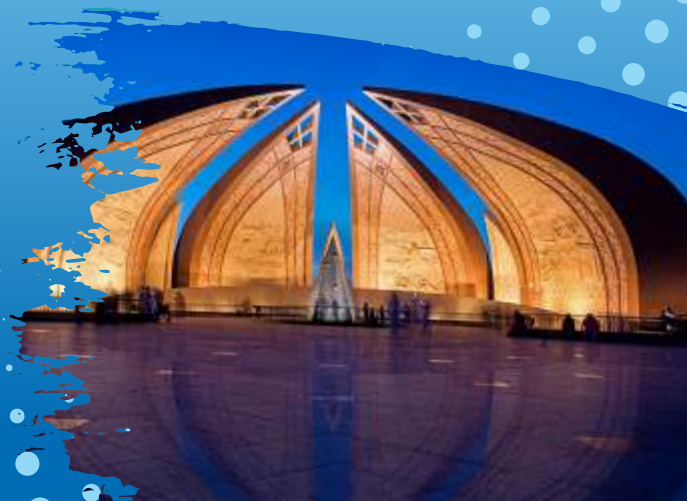


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4th ANNUAL
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12 October, 2024
Pharmacists:
Meeting global
healthneeds

Program

12 October, 2024

S#	SESSIONS	TIME	SPEAKERS
1.	Registration & Tea	8-9 AM	-
2.	Opening, National Anthem, Tilawat	9:00 AM	
	Welcome Note		**Salwa Ahsan**
			Chief Pharmaceutical Officer, SIH, Chairperson AMMC
3.	Key Note Address	9:20 AM	**Asim Rauf**
			CEO, Drug Regulatory Authority of Pakistan
4.	**Pharmacy video**	**9:40 AM**	
5.	**Community pharmacy in developing countries – need and challenges**	9:55 AM	**Paul Sinclair**
			President, FIP
6.	**Pharmaceutical Workforce development Goals - FIP**	10:10 AM	**Dr. Fazli Nasir**
			Chairman Department of Pharmacy, University of Peshawar
7.	**Pharmacy entrepreneurship – a snapshot of legal/regulatory requirements**	10:30 AM	**Sardar Shabbir**
			Secretary Quality Control Board, Focal person PV
8.	**Fun Quiz**	**10:50 AM**	
9.	Oral poster Presentation - 5 mins Each	11:20 AM	Poster presenters
10.	**Tea break (with Posters gallery & stall visit)**	**12:00 PM**	**Shifa Pharmacy Showcase Video (1100 am)**
11.	**Breaking the Silos: The power of inter-professional education & collaboration in healthcare**	12:20 PM	**Dr. Maimoona Siddiqui**
			Consultant Neurologist, Direct PGME and SCOPE, SIH
12.	**Ensuring medication safety in Chemotherapy – a multidisciplinary approach**	1240 PM	**Nasir Khan;** *Assoct. Director Nursing SKMCH & RC Lahore*
13.	**Developing Hospital pharmacy in public setup**	1:00 PM	**Shoukat Sahad**
			Head of Pharmacy, RMI
14.	Oral poster Presentation - 5 mins Each	1:30 PM	Poster presenters
15.	**Fun Quiz**	**1:50 PM**	
16.	Winner announcement; **Best Poster Presenters**	2:00 PM	Judges
17.	Shields presentation (Org. Committee)	2:15 PM	Guest of honor
18.	Vote of Thanks, Conference closing	2:20 PM	**Salwa Ahsan**
			Chief Pharmaceutical Officer, SIH, Chairperson AMMC
22	Group Photo		
19.	**Lunch (2: 30 pm)**		

Foreword

All praises to Allah, this is the fourth consecutive Annual Medication Management Conference hosted by ***Department of Pharmacy Services, Shifa International Hospitals Ltd.*** in collaboration with ***Shifa Center of Professional Excellence (SCOPE).***

The aim of establishing this conference is 2-folds. Firstly, to propagate the Safe, Effective, Affordable and Efficient use of medicines across the spectrum of healthcare in Pakistan; engaging all those who handle and use medicines i.e., doctors, nurses, pharmacists and patients etc., and bringing the experts on one platform for providing guidance for improvement.

The second objective is to unite the Pharmacy fraternity on one platform to complement each other with their knowledge, strengths and domain expertise; be it a Hospital, community, academia, industry or regulatory pharmacist.

Lastly, I would like to thank my Pharmacy organizing team, SCOPE and Shifa Media Team for making this a very successful and knowledge-packed event. I would also like to extend my sincere gratitude to the leadership of Shifa International Hospitals Ltd. for trusting us (pharmacists), empowering us and creating an enabling environment for a safer medication management and use system.

See you all next year too in AMMC-2025 In Sha Allah!

Salwa Ahsan

Chairperson Organizing Committee
Chief Pharmaceutical Officer
Shifa International Hospitals Ltd,
Islamabad

Keynote

Mr. Asim Rauf
CEO, Drug Regulatory Authority
of Pakistan

Mr. Paul Sinclair

President,
International Pharmaceutical
Federation (FIP)

Faculty

Dr. Maimoona Siddiqui
Director of Medical Education
& SCOPE
Shifa International Hospital.

Mr. Sardar Shabbir
Secretary Quality Control Board,
Focal person PV (Islamabad)

Dr. Shoukat Sahad
Chief of Pharmacy,
Rehman Medical Institute, Peshawar

Faculty

Prof. Dr. Fazli Nasir
Chairman Department of Pharmacy,
University of Peshawar

Mr. Nasir Khan
Assoct. Director Nursing,
Shaukat Khanum Memorial Cancer
H & RC, Lahore

Abstracts

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Oral Presentations

1 Prescription Analysis Of Geriatric Patients Residing In Old Age Home, Pakistan

Authors:
SumbalShabbir
Aeman Ihtisham
Farah Rashid
Dr. M. Abubakar
Dr. Matti Ullah.

BACKGROUND:
Geriatric patients usually take more than one medicine at a time due to comorbidity. As people age, physiological changes occur that impact how drugs are processed in their bodies. These changes can make older adults more vulnerable to adverse effects from medications. Understanding the appropriateness of medication prescriptions for geriatric individuals in old age home settings is crucial for ensuring their well-being. For this purpose, prescription analysis becomes a valuable area of study otherwise it can lead to increased healthcare costs, adverse drug events, drug interactions, and decreased functional capacity.

AIM/ OBJECTIVE:
The objective of this research is to analyze prescription of geriatric population in the old age home of Rawalpindi to assess drug interactions, poly pharmacy and appropriateness of prescriptions.

DESIGN/ METHODS:
Cross-sectional observational study design was used to conduct this study. In which data was analyzed by using Chi-square and independent sample T-test. A p-value <0.05 considered as statistically significant.

RESULTS:
A total of 60 inhabitants from four different old care homes of Rawalpindi, Pakistan were included in the final analysis. Mean age of elderly residents was 67.21 9.247, females with mean value 65.58 11.626 and males with mean value 67.70 8.522. In 52 elderly inhabitants, 28 were normal while rest presented with physical instabilities i.e. blindness, deafness. Drug interactions founded in prescriptions were 10 major, 57 moderate and 22 minor. The mostly prescribed antipsychotic in males was Quetiapine. Mostly moderate interactions were found in which it was discovered that Escitalopram use with aspirin elevates the risk of bleeding. Possibility of interaction rises if used in patients who are elderly or having kidney, liver diseases. Elderly were receiving inappropriate medicines according to Beer's criteria. Total 30 patients were using 54 medicines that were unsafe.

CONCLUSION:
Polypharmacy, drug interactions and use of unsafe medications has been found in multiple prescriptions of elderly population in old age homes that require clinical medication reviews.

2 Revolutionizing Antibiotic Stewardship: The Power of Days of Therapy Over Traditional Metrics

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Anjum R1,
Maria S1, Saleem A1

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Introduction:
Widespread overuse and inappropriate use of antimicrobial drugs continues to fuel an increase in antimicrobial resistance and leads to consequent treatment complications and increased healthcare costs.

Objective:
The primary objective of this study is to evaluate the effectiveness of DOT as a metric for measuring antibiotic consumption in various healthcare settings. The goal was to provide accurate consumption of antibiotic for each specialty and to implement timely interventions based on observed trends in antibiotic use.

Method:

Study Design: This will be a prospective study conducted in a tertiary care hospital setting and a specialized tool was developed to calculate antibiotic consumption across various specialties.

Study Population: The study will include patients admitted in medical, surgical wards and ICUs, all outpatients, incomplete medical records, and not antimicrobial therapy during the hospital stay are excluded from this study.

Intervention:
DDDs were used earlier to measure antibiotic consumption in Hospital but this don't provide specialty based data, to get specialty based data DOT tool was developed and based on the DOT data trends, targeted interventions were implemented to optimize antibiotic use. These interventions included revising antibiotic prescribing guidelines, providing feedback to prescribers, and enhancing staff education on antibiotic stewardship.

Data Collection:
Data collection for this study was conducted using the hospital's Management Information System (MIS). Initially, the MIS lacked critical elements, such as patient age, necessary for comprehensive analysis. To address these gaps, we collaborated with the MIS team to incorporate the missing data elements, thereby enhancing the efficiency and accuracy of the data collection process.

Outcome Measures:
Primary outcome measures included the accuracy of specialty-based antibiotic consumption data, the impact of interventions on reducing inappropriate use, and improvements in antibiotic stewardship. Secondary outcomes involved monitoring changes in antibiotic resistance patterns and assessing patient outcomes related to antibiotic use.

3 Assessment of Antibiotic Resistance Trends of the Community Acquired Urinary Pathogens.

Authors:
Ali Hassan[1]
Sheikh Abdur Rashid[2]

Background: Globally, urinary tract infections (UTIs) are common and frequently treated with antibiotics; as a result, organisms such as Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, and Enterococcus faecium have developed patterns of drug resistance. Treatment techniques become more complex because to variances in resistance based on gender.

Objective: In order to support regional efforts at antibiotic stewardship, this study examined trends in antibiotic resistance in UTI pathogens in a tertiary care hospital in Islamabad, Pakistan.

Methods: Over the course of six months, urine analysis and culture data from UTI patients were used in a retrospective observational study. IBM SPSS version 20 was used to conduct descriptive and inferential statistical studies in order to find resistance patterns and related variables.

Results: A notable level of resistance was noted for every pathogen. While E. Coli remained completely sensitive to colistin (0% resistance), it demonstrated 100% resistance to co- trimoxazole, ampicillin, and amoxicillin. Female Klebsiella pneumoniae isolates showed complete resistance to augmentin, ampicillin, and amoxicillin, and significant resistance to co- trimoxazole (91.4%) and ciprofloxacin (88.5%). While female isolates of Pseudomonas aeruginosa showed reduced resistance overall (33.3%), with the exception of co-trimoxazole (100%), male isolates showed complete resistance to numerous medicines. Male Enterococcus faecium was totally susceptible to colistin, but exhibited complete resistance to a number of medicines, with an 83.3% resistance rate to ciprofloxacin and cefepime.

Conclusion: To tackle growing resistance, especially in high-prevalence bacteria like E. coli in UTIs, the study concludes that focused antibiotic stewardship initiatives are critically needed. Localized data from this study can guide effective antibiotic selection and management strategies to optimize patient care and mitigate resistance emergence

Keywords: Antibiotic resistance, Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, antimicrobial stewardship

Table 01:

Table 1. Percentage Prevelance of Causative agent on Gender basis (n=200)

Causative Agent	Gender	Percentage Prevalence
E.coli	Male	18.5%
E.coli	Female	42.5%
Klebsiella Pneumonia	Female	17.5%
Klebsiella Pneumonia	Male	12.5%
Pseudomonas Aeruginosa	Female	3%
Pseudomonas Aeruginosa	Male	3%
Enterococcus Faecium	Male	3%

Source: Primary Data

4 The Impact of Structured Continuing Education (CE) Programs on Pharmacy Practice: From Perfunctory to Purposeful

Authors:
Noor Ul Assar[1]
Aimen Faheem[1]
Hina Tufail[1]
Muhammad Gulzaib[1]
Rehan Anjum[1]
Muhammad Hamza[1]

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Conclusion:
This study demonstrates a positive shift in pharmacists' attitudes toward CE in Pakistan. Well-structured, domain-specific CE programs, particularly those integrated into formal CME frameworks, are gaining recognition and value. Participants report higher engagement and perceive significant benefits to their professional practice from these high-quality CE sessions. Improving the delivery and relevance of CE programs could play a pivotal role in elevating the standards of pharmaceutical care across the country.

Background:
The role of pharmacists has expanded significantly beyond merely formulating and dispensing medications. Today, pharmacists are also responsible for providing pharmaceutical care and public health services. Patient-centered care requires pharmacists to maintain their competency through continuous improvement of their knowledge, skills, and performance. This necessitates their involvement in continuing education (CE) activities, which play a critical role in maintaining and enhancing the competencies of pharmacists. CE sessions ensure that pharmacists remain updated in their knowledge and skills, enabling them to provide safe and effective patient care. Various online resources, such as Up-To-Date, Sanford, Medscape, and the British National Formulary (BNF), are available to support this ongoing learning process. In Pakistan, the pharmacy sector has embraced CE programs to foster continuous professional development. However, there are several challenges that undermine the effectiveness of these programs. Key issues include a lack of professionalism in organizing and delivering CE sessions and insufficient focus on domain-specific content. As a result, many pharmacists perceive CE sessions as routine tasks rather than valuable learning experiences. This lack of engagement hampers knowledge acquisition, raising concerns about the overall quality of pharmaceutical care in the country. Despite these challenges, some institutions have adopted innovative strategies to improve the value of CE programs. For example, Shifa International Hospitals, Ltd. has implemented a model that emphasizes domain-specific CE sessions led by subject matter experts. These sessions are integrated into the hospital's Continuing Medical Education (CME) framework and assigned credit hours, highlighting their importance in professional development. This structured approach not only ensures the delivery of relevant and specialized content but also enhances participant engagement and improves knowledge retention.

Aims & Objectives:
To evaluate the quality and participant satisfaction in CE sessions.
To assess the future prospects of CE programs.
To examine internal and external CE sessions (including closed internal sessions).
To explore pharmacists' attitudes and perceptions toward continuing education by analyzing their participation in CE sessions.

Methodology:
This study utilizes a mixed-method approach, combining quantitative analysis of attendance data with qualitative feedback. It examines CE sessions held between 2022 and 2024, collecting data on attendance and participant satisfaction. Statistical analysis identifies trends and correlations, while thematic analysis interprets qualitative feedback. This dual approach provides deeper insights into pharmacists' attitudes toward CE activities.

Results:
Total 94 sessions have been conducted from 2022-2024.A total of 7,812 participants actively engaged in CE sessions. Feedback analysis revealed key findings: 89.2% of participants expressed high satisfaction with content relevance and delivery quality, 84.8% found the presentation methods effective, 90.9% were satisfied with the learning objectives, and 80.7% found the presentation materials useful. The average number of participants per session increased from 58 in 2022 to 138 in 2024, reflecting growing satisfaction and engagement.

5 Impact of Intravenous to Oral Switch in a Tertiary Care Hospital: Observational Study

Authors:
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Waseem Ullah[3]
Shams-un-nisa Sadia[4]
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Background:
Intravenous to Per Oral Switch (IV-to-PO switch) is a vital component of antimicrobial stewardship (AMS). IV-to-PO switch has reported benefits including reduced length of stay, healthcare costs, infection risk, and nurse workload. However, studies exploring IV-to-PO switches within the hospital settings of Pakistan remain scarce. This study aimed to quantify the impact of IV-to-PO switches within the local context.

Objectives:
The primary aim is to study the impact of the IV-to-PO switch program on length of stay and cost savings. Missed potential, along with quantifying specialty and antibiotic usage patterns were secondary objectives.

Methods:
It was a prospective observational study that explored patients' eligibility for IV-to-PO switch through discharge summaries presented at the Take-Home (TH) pharmacy of a tertiary care hospital in Islamabad, Pakistan.

Results:
An independent samples t-test performed for length of stay in patients with and without IV-to-PO switch showed non-significant results (p=0.599). The 142 IV-to-PO switches performed reported an 8.7% cost savings in total pharmacy bills. There was a significant difference between frequencies of IV-to-PO performed and not performed with frequency of switch performed greater.

Out of 142, 54 switches performed were from the obstetrics/gynaecology specialty with most switches belonging to switch therapy of ceftriaxone to cefixime.
Conclusions: Length of stay proved to be non-significant. However, cost savings and the difference between IV-to-PO switch performed and not performed showed a positive impact of IV-to-PO switch program.

6 Optimizing IV Infusion Therapy by Reducing Human Involvement Through the Use of Drug Libraries in Smart Infusion Pumps: A Quality Improvement Project

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Rehan Anjum

Salwa Ahsan
Farhan Jilani
Sundus Awan
Erum Iftikhar

Affiliation:
Department of Pharmacy,
Shifa International Hospital

Background:
Infusion-related medication errors, particularly with traditional gravity-fed devices, are associated with risks such as accidental free flow, inconsistent delivery rates, and dosing inaccuracies, leading to adverse drug events. These risks include programming errors like wrong dose, wrong route, and incorrect infusion rates. While infusion pumps address some of these issues by delivering medications at controlled rates, they still rely heavily on nurse input. Simple infusion pumps lack restrictions on dose rates, creating the potential for significant patient harm if incorrect parameters are entered. Smart infusion pumps equipped with Dose Error Reduction Software (DERS), as recommended by the Institute for Safe Medication Practices (ISMP), are designed to minimize these risks by using drug libraries and predefined dosing limits. Soft limits within DERS generate an alarm when infusion parameters approach predefined thresholds, while hard limits serve as absolute boundaries that cannot be exceeded or fallen below.

Aim:
To improve patient safety through the development and implementation of a comprehensive DERS drug library in smart infusion pumps at a tertiary care hospital.

Design:
We conducted a literature review to identify guidelines and protocols for developing drug libraries, standard dilutions, and establishing minimum and maximum dose limits with hard and soft limits. Resources such as ASHP's Standardize 4 Safety initiative, Critical Care Society UK standard dilutions, BNF, and Up-to-date were instrumental in this process. A DERS drug library was developed by pharmacy team, featuring over 25 commonly used medications, including inotropes, vasopressors, sedatives, and analgesics. After approval, the drug library was installed on smart infusion pumps, and nursing staff and physicians were trained on the correct use of DERS technology. Key performance indicators (KPIs) were set to evaluate the DERS utilization.

Results:
The primary key performance indicator (KPI) for this quality improvement project was library compliance of smart infusion pumps. A random sampling method was employed to measure the library compliance. In addition, drug dilution, infusion rate, and other relevant parameters were also measured. DERS compliance demonstrated a progressive improvement throughout the study period. Starting at 41% in June, compliance rose slightly to 44% in July. Following additional staff training, a significant increase was observed in August, with compliance reaching 73%.

Conclusions:
The pilot implementation of DERS in smart infusion pumps shows significant improvements in compliance and medication safety. Future plans include introducing QR code interoperability into the smart pumps. In this model, the physician will order the medication, the pharmacist will check for appropriateness and compound the preparation, and the nurse will scan the barcode on the compounded preparation to start the pump. The pump will automatically retrieve the physician's order and begin operation. Continued training and monitoring will further optimize the use of this technology and enhance patient care.

7 Two Phases Mixed-Method Study among Pakistani Community Pharmacists to Promote Rational Antibiotic Use

Authors:
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Background:
Antibiotic resistance (ABR) is an emerging global threat to public health. Substantial evidence has indicated that community pharmacists (CPs) can play a critical role in managing the ever-increasing threat of antibiotic resistance.

Aims/ Objective:
This study aimed to determine the knowledge, attitude, and practices of CPs (n = 180) towards antibiotics and antibiotic resistance as well as to improve the rational use of antibiotics.

Design/ Methods:
A two-phase mixed-methods (quantitative and qualitative) online study was conducted in Pakistan from August 2019 to March 2020 by using validated questionnaires and semi-structured interview data. Different statistical methods were used to tabulate the quantitative data, whereas inductive thematic analysis was conducted to categorize themes from the qualitative data and to draw conclusions.

Results:
Approximately 64.4% of the CPs were male (mean: 29–33 years old). Overall, CPs had good knowledge of and were familiar with multidrug-resistant organisms and their roles in ABR (65.6%, median = 1, and IQR = 1), although their knowledge was poor in differentiating some antibiotic groups with their respective ABR patterns (31.1%, median = 1, and IQR = 1). Most CPs have a positive attitude towards antibiotics, with most (90.0%) identifying ABR as a critical issue in public health (median = 1 and IQR = 0). Overall, CPs' practices towards antibiotics were somewhat acceptable, where they leaned towards educating patients about the rational use of antibiotics (52.8%, median = 1, and IQR = 1). The two main themes discovered (antibiotics and counseling of patients) were related to self-medication, while educational intervention is the main subtheme. ABR is multifactorial, with subthemes related to budget, time constraints, incompetent staff, the absence of CPs, the lack of training, and the enforcement of laws and regulations being the needs of the hour in Pakistan.

Conclusion:
Effective antibiotic stewardship programs, patient education, and awareness campaigns about antibiotics and ABR along with training of the CPs are important factors that must be addressed on time..

Keywords:
Antibiotics; antibiotic resistance; rational drug use; community pharmacist

8 Pharmacists clinical Interventions to Reduce Medication Errors and Improve Patient Safety

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Introduction:

Medication errors pose significant risks to patient safety and can result in adverse outcomes, prolonged hospital stays, and increased healthcare costs. Pharmacist interventions have been shown to effectively reduce medication errors and improve patient outcomes. This research aims to investigate the impact of pharmacist interventions on medication safety in a hospital setting.

Objective:

The primary objective of this study is to evaluate the effectiveness of pharmacist interventions in reducing medication errors and enhance the medication error reduction strategies.

Methods:

This prospective study will be conducted in a tertiary care hospital and will include patients receiving medications from outpatient, inpatient, and emergency room orders based on a provided dataset. Pharmacists will carry out various interventions, including addressing allergies, antibiotic combinations, brand/generic switching, drug form switching, and other medication-related issues like dosage adjustments and therapeutic duplication. Data on medication errors, pharmacist interventions, and patient outcomes will be collected prospectively from hospital records and pharmacy databases. The primary outcome will be the reduction in medication errors, while secondary outcomes will assess changes in medication adherence, adverse drug events, hospital readmissions, and hospital stay duration. Data will be analyzed using descriptive statistics for baseline characteristics and frequency of errors, with inferential statistics, such as chi-square tests and logistic regression, to examine the impact of pharmacist interventions on reducing medication errors.

Results:

A total of 39,561 pharmacist interventions out of 3,414,035 orders were recorded, addressing various medication errors. The most common were wrong dose (31.33%), wrong frequency (9.89%), brand/generic switching (7.19%), antibiotic combinations (6.03%), wrong drug prescribed (5.40%), and renal dose adjustment (5.35%). Other errors included wrong route, serum levels/TDM adjustments, interacting drugs, and illegible/incomplete orders, among others.

Conclusion:

Overall, the findings of this study underscore the invaluable contribution of pharmacists in improving medication safety in hospital settings. By addressing medication errors through targeted interventions, pharmacists play a pivotal role in enhancing patient safety, reducing healthcare costs, and improving overall quality of care. These results emphasize the importance of continued investment in pharmacist-led medication safety initiatives and underscore the need for collaborative efforts among healthcare providers to optimize medication management practices and enhance patient care outcomes.

9 Medication Use During Pregnancy In Patients Attended At Public And Private Prenatal Care In Islamabad, Pakistan

Authors:
Dr. Matti Ullah
Dr. Muhammad Abubakar
Ayesha Akram
Fatima Zahid
Rubab Ikram
Khuzaima Saman.

Background:
Inappropriate medication use during pregnancy can lead to adverse outcomes, highlighting the need to improve maternal healthcare practices. Pregnant women face challenges due to insufficient research on medication safety and efficacy. This study examines prescribing patterns among pregnant women in Islamabad, offering insights into medication use and emphasizing the importance of careful prescribing to enhance maternal and fetal health

Aim/objective:
Besides determining the prevalence and types of medications this study also aims to compare prescription patterns, assess adherence to guidelines (FDA categories and WHO indicators), and examine the use of specific drug classes like antibiotics, analgesics, and vitamins/mineral supplements. Moreover, prescriptions were assessed for brand and generic names of drugs to evaluated prescribing patterns.

Design/methods:
A descriptive cross-sectional design was employed using a random sampling technique to collect data from total 162 patients,81 from both public and private facility through structured interviews and snapshots of their prescriptions. The data collected included demographics, socioeconomic status, obstetric history, and medication use. Microsoft Excel and SPSS (Statistical Package for the Social Sciences) were used to organize medications by Anatomical Therapeutic Chemical (ATC) codes and Food and Drug Administration (FDA) pregnancy categories, with descriptive statistics applied for analysis.

Results:
The study found notable differences in prescribing patterns between public and private healthcare settings. In public hospitals, 75.2% of medications were from FDA Category A, while private hospitals had higher proportions of Category D (4.89%) and X (2.8%) drugs. Iron preparations were the most prescribed (27%), with more brand-name prescriptions in private hospitals, reflecting pharmaceutical marketing practices. Fewer antibiotics and injectables were prescribed in the public sector

Conclusion:
Significant differences in medication use were observed between public and private facilities, notably in FDA Category B, D, and X drugs. The prevalence of brand-name prescriptions in private settings suggests an influence of marketing and patient preferences. The low use of antibiotics and injectables reflects cautious prescribing practices. These findings offer valuable insights for improving medication practices and maternal and fetal health in similar settings. The study could lead to safer prescribing practices during pregnancy, improving maternal and fetal health outcomes.

10 Triggering Safety: The Power of ADR Trigger Tools in Pharmacovigilance

Authors:
Umme-Farwa[1]
Rehan Anjum[1]
Bushra Anjum[1]
Shinza Arshad[1]

Introduction

Adverse Drug Reactions (ADRs) are a critical concern in healthcare causing significant patient harm. The consequences of undetected ADRs can be catastrophic. These reactions can lead to severe complications, prolonged hospital stays, and, in some cases, death. Underreporting of ADRs remains a challenge, hindering the ability to take timely action. Automated reporting of ADR could be a solution to increase the ADR reporting. A trigger tool is defined as a data element within a health record that identifies the presence of an ADR that has occurred. By implementing ADR trigger tools in hospital settings, healthcare providers can enhance early detection of ADRs. This study explores the impact of ADR trigger tools on enhancing patient safety in a hospital setting, highlighting their role in strengthening pharmacovigilance practices.

Aim/Objectives:

- To evaluate the effectiveness of ADR trigger tools in improving the frequency, accuracy, and timeliness of ADR detection and reporting.
- To assess the impact of trigger tools on pharmacovigilance practices.

Methodology:

- **Study Design:** Retrospective Observational Study Design
- **Study Period:** over a period from January to June
- **Study Area / Setting:** Shifa International Hospital
- **A retrospective observational study** was conducted at Shifa International Hospital, by utilizing ADR trigger tool.

Approach:

- Quantitative analysis of ADR reporting data.

Result:

The ADR trigger tool identified a total of 41 ADRs. The majority of these reactions fell into two main categories: allergic reactions and infusion-related reactions.

- **Allergic Reactions:** A total of 24 cases were identified, accounting for **58.5%** of the ADRs detected by the trigger tool. These reactions included skin rashes, itching, and other hypersensitivity reactions caused by medications such as co-amoxiclav, fluconazole, and amoxicillin-clavulanic acid.
- **Infusion-Related Reactions:** A total of 11 cases were reported, making up **26.8%** of the ADRs identified. These reactions were primarily linked to medications such as vancomycin, oxaliplatin, and pembrolizumab, causing symptoms like shivering and localized rashes.

The remaining **6 ADRs (14.6%)** were attributed to other types of adverse reactions, further underscoring the importance of the ADR trigger tool in catching a wide range of drug-related issues.

The **highest number of ADRs was linked to** Antimicrobials.

Conclusion

ADR trigger tools demonstrate significant potential in enhancing ADR detection and reporting, contributing to improved patient safety in critical care settings. By systematically identifying ADRs, these tools help capture incidents that might otherwise go unreported, improving overall patient safety. These vital tools should be integrated into every healthcare setting across Pakistan, particularly in emergency departments and urgent care facilities, to transform patient safety and enable swift detection of ADRs. Embracing these cutting-edge solutions can drastically minimize the risk of adverse drug reactions, ensuring a safer, more effective healthcare experience for all patients. Future research should focus on refining these tools, exploring technological enhancements, and integrating them across broader healthcare environments to further optimize ADR detection and reporting. This highlights the importance of integrating ADR trigger tools in healthcare settings as a proactive approach to safeguarding patient safety and enhancing medication monitoring practices.


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Poster Presentations

1 Exploring Antibiotic Resistance And Sensitivity Across Diverse Communities

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[1]Noorfa Rukh Mentor
[1]Dr.Iqra Haider,
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Aims & Objective:
This study aimed to determined the prevalence of antibiotic resistance in clinical isolate from various patient populations.

Background:
Resistance is often defined as the inheritable ability of a cell to grow at high concentrations of an antibiotic.**[1]**Its mechanisms are many and varied**[2]**.Some factors that driving this issue across
diverse communities.Key aspects include:Overuse and misuse of antibiotics **[3]**,Genetic diversity and adaptability of microorganisms, facilitating the spread of resistant strains, and effective
treatments.The prevention of AMR is commonly cast as 'stewardship' or 'rational'
prescribing.**[4]**By understanding these factors researchers helps to develop responsible antibiotics and stewardship.

Methodology:
We collected 108 patients samples and perform susceptibility testing to find out antibiotic
resistance.Data analysis was performed using EXCEL, SPSS 20, and statistical significance was set at $p<0.5$.

Result:
The result showed that the Females generally show higher resistance rates compared to males across the tested antibiotics. Ciprofloxacin shows significant resistance in females (16%)
compared to males (12.5%). Drugs like Cefotaxime and Azetronam exhibit high susceptibility
rates, suggesting effectiveness against E. coli in both males and females. Intermediate responses are noted but are less significant compared to susceptibility and resistance rates. (Table 1) Males exhibit higher resistance rates for several antibiotics compared to females. Notable differences are observed in antibiotics like Cefotaxime, Azetronam, Ciprofloxacin, and Nalidixic acid. Some antibiotics (e.g., Pipemidic acid, Fosfomycin, Fusidic acid, Meropenem, and Erythromycin) show no resistance in both genders, indicating high effectiveness. Both genders exhibit zero
resistance to Pipemidic acid, Fosfomycin, Fusidic acid, Meropenem, and Erythromycin. (Table 2). Males exhibit resistance to a broader range of antibiotics compared to females. Notable
resistance in males includes Cefotaxime, Amoc-clav, Ceftriaxone, and Ampicillin. Females
exhibit resistance to fewer antibiotics but have higher resistance to Ampicillin (6%) compared to males (4%). Both genders show no resistance to Pipemidic acid, Fosfomycin, Nalidixic acid, Meropenem, Amikacin, and Erythromycin. Females show zero resistance to Cefotaxime,
Azetronam, Amoc-clav, Ceftriaxone, Cefixime, and Amoxicillin, indicating high effectiveness. (Table 3) Males exhibit resistance to Ciprofloxacin and Erythromycin only. Females exhibit low resistance to multiple antibiotics including Cefotaxime, Ciprofloxacin, Amoc-clav, Fusidic acid,
Ceftriaxone, Cefixime, Ampicillin, and Erythromycin. No resistance was observed in females for Azetronam, Pipemidic acid, Fosfomycin, Nalidixic acid, Meropenem, Amikacin, andAmoxicillin. Both genders show no resistance to Azetronam, Pipemidic acid, Fosfomycin, Nalidixic acid, Meropenem, Amikacin, and Amoxicillin, indicating high effectiveness. (Table 4)

2 Impact of Clinical Pharmacist Intervention on Medication Adherence and its association with clinical outcomes in chronic kidney disease in Islamabad

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Background
Chronic kidney disease (CKD) is a serious public health concern across the world due to its high incidence, morbidity, death, and economic burden. Medication adherence is important for slowing the progression of CKD

Objective
The aim of the study was to evaluate the effectiveness/impact of a clinical pharmacist intervention program on medication adherence, health related quality of life along with other clinical outcomes in chronic kidney disease.

Methodology
A 3-month randomized single blind interventional trial was performed to assess the benefit/effectiveness of a clinical pharmacist intervention in CKD patients. Pre-validated questionnaires i.e., MARS-10 and the RAND-36 tool to measure adherence and health-related quality of life, respectively.

Results
A total 129 participants were recruited, out of which 70 (54.3%) respondents were allocated to basic group and 59 (45.7%) respondents were allocated to the advance group through simple randomization. There was significant improvement in health-related quality of life and medication adherence at second as well as third visit (p<0.0001). Moreover, there was also significant improvement in systolic and diastolic blood pressure, suggesting better control of blood pressure with pharmacist's intervention. Multiple linear regression analysis showed that there was significant positive effect of intervention in advance group as compared to basic group (B= 0.431; p=0.03). Moreover, our model shows that the adherence score increased over subsequent follow-ups (B=2.606; p<0.0001). We also found that there was significant improvement in RAND-36 score at subsequent follow-up (B=327.013, p<0.0001), however, there was no impact of groups i.e. Basic or advance on RAND-36(p = 0.142).

Conclusion
Specialized interventions or clinical pharmacist role leads to, significant improvement in medication adherence and health related quality of life in chronic kidney disease patients.

3 Pain Management in the Emergency Room: Analyzing Compliance with the WHO Pain Ladder

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Background:
Effective pain management is a critical component of emergency department (ED) care, directly influencing patient outcomes. The World Health Organization (WHO) Pain Ladder Scale provides a structured, stepwise approach to analgesic administration, beginning with non-opioid medications and escalating to stronger opioids as pain intensity increases. Despite its global recognition, adherence to this protocol in the ED remains inconsistent. Given the classification of opioids as high-alert medications, due to their potential for misuse and significant adverse effects, proper compliance is essential to mitigate risks. This study aims to evaluate the level of compliance with the WHO Pain Ladder in an ED setting, identifying gaps in practice and suggesting areas for improvement.

Aims:
This study aims to assess the adherence to the WHO Pain Ladder Scale in the emergency department and to develop strategies for enhancing compliance through guidelines and targeted interventions.

Methodology:
A prospective study was conducted in the ED of Shifa International Hospital, Islamabad, between February 2024 and August 2024. A randomized convenient sampling technique was used to collect data. Patients of all ages presenting with pain and receiving analgesics in the ED were included in the study .Compliance with the WHO Pain Ladder Scale was assessed based on the treatment provided.

Results:
The study found that only 36.5% of patients received pain management in line with the WHO Pain Ladder, while 63.5% were treated outside the guidelines. Key issues in non-compliance included under treatment in 19% of cases, drug interactions in 33%, and overtreatment in 48%. These results highlight significant gaps in pain management within the ED, emphasizing the need for improvements to ensure proper pain relief and minimize risks associated with overmedication and drug interactions.

Conclusion:
Adherence to the WHO Pain Ladder Scale is linked to better pain management outcomes in the ED by promoting the appropriate use of analgesics based on pain severity. Improving compliance requires targeted educational initiatives, clear institutional guidelines, and quality improvement measures like system alerts for opioid prescribing. Crucially, counseling nurses on proper pain assessment in the ER is essential to ensure timely and accurate treatment. Future interventions should focus on post-intervention adherence and refining pain management protocols for optimal care in the ED.
Keywords: WHO Pain Ladder, Emergency Department, Pain Management, Analgesics, Opioid Compliance, Quality Improvement

4 Floor Stock Par Level Reduction

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Background:
Effective inventory management in hospitals is crucial for ensuring the availability of essential medicines while minimizing waste and reducing costs. Floor par levels refer to the minimum quantities of medicines that should be maintained on a hospital floor to ensure availability, improve workflow efficiency by ensuring quick access to essential medications. Regular monitoring and adjustment of these levels help optimize inventory and ensure timely patient care. This study focuses on the optimization of floor par levels—minimum inventory thresholds required on each floor of a hospital—to improve overall efficiency and medication safety.

Methods:
We conducted a comprehensive analysis of current inventory practices and floor par levels across various departments within the hospital. We analyzed existing inventory data and par level practices to identify potential efficiencies. By utilizing historical usage data, forecasting methods, and lean inventory principles, we identified opportunities for reducing excess inventory while maintaining or enhancing supply availability from nearby satellite pharmacies. This study examines the impact of reducing floor par levels to 40-50% of their previous values across various hospital departments.

Results:
Implementing these reductions led to a notable decrease in inventory carrying costs and space utilization, without compromising patient care quality or departmental operations. This approach not only decreased excess inventory to 50%, but also highlighted the need for continuous monitoring and adjustment of inventory practices.

Conclusion:
Our findings highlight the importance of dynamic inventory management strategies and provide a framework for other healthcare institutions seeking to optimize their inventory practices. Future research should explore the long-term impacts of these changes on hospital operations and patient outcomes.

5 Integrating AUC-Based Vancomycin Monitoring Systems in Tertiary care Hospital

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Background:
Vancomycin treats methicillin-resistant Staphylococcus aureus infections in hospitalized patients, yet nephrotoxicity is a major risk. According to 2020 guidelines of ASHP, IDSA and SIDP, dosing based on the ratio of vancomycin 24-hour area under the curve to minimum inhibitory concentration (AUC/MIC) is preferred over a trough-only vancomycin dosing approach to minimize the risk of acute kidney injury (AKI). These consensus guidelines recommend an AUC/MIC ratio of 400–600 mg*hour/L.

Aim:
The primary aim of this initiative was to implement Vancomycin AUC/MIC monitoring in tertiary care hospitals to improve dosing accuracy, minimize toxicity, and enhance therapeutic efficacy. By integrating AUC/MIC into clinical practice, the project sought to address gaps in traditional vancomycin dosing and monitoring approaches and provide a structured framework for individualized medicine.

Method:
The project commenced with an internal assessment to evaluate current vancomycin monitoring practices across tertiary care hospitals. Collaborating with key stakeholders, including infectious disease specialists, pharmacists, and clinical laboratories, a comprehensive protocol for AUC/MIC monitoring was developed. This protocol included guidelines for therapeutic drug monitoring (TDM), interpretation of AUC/MIC ratios, and adjustment of dosing regimens based on patient-specific factors. Furthermore, training sessions were organized for healthcare professionals to familiarize them with the new monitoring system and its benefits. Educational materials and resources were provided to support the transition from traditional methods to the AUC/MIC approach. The implementation phase involved integrating the AUC/MIC monitoring protocol into electronic health records (EHR) systems to facilitate real-time data access and decision-making.

Result:
The implementation of Vancomycin AUC/MIC monitoring was successfully carried out in several tertiary care hospitals, with the new protocol officially adopted by January 2023. The initiative led to improved dosing accuracy, reduced incidence of vancomycin-related toxicity, and enhanced patient outcomes. Preliminary data indicated a more consistent achievement of therapeutic targets. Feedback from healthcare professionals highlighted increased confidence in dosing decisions and a better understanding of vancomycin pharmacokinetics.

Conclusion:
The shift to Vancomycin AUC/MIC monitoring represents a significant advancement in the management of vancomycin therapy in tertiary care settings. By adopting this evidence-based approach, hospitals can enhance patient safety, optimize therapeutic efficacy, and reduce the risk of adverse drug events. This initiative underscores the importance of integrating advanced pharmacokinetic monitoring into clinical practice and sets a precedent for future advancements in antimicrobial stewardship and individualized medicine.

6 Pharmacist-Led Educational Intervention for Diabetic Patients: A Randomized Interventional Trial to Evaluate the Impact on Medication Adherence and Quality of Life

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Background
Diabetes management remains a critical challenge in healthcare. This study explores the effectiveness of pharmacist-led educational interventions in enhancing medication adherence and quality of life among diabetic patients. It aims to underscore the value of pharmacist-led initiatives in chronic disease management, demonstrating how these efforts can lead to significant improvements in patient outcomes and overall health-related quality of life.

Objective
The aim of the study was to evaluate the impact of a pharmacist-led educational intervention on medication adherence and quality of life (QoL) among diabetic patients through a randomized interventional trial.

Methodology
The study was done as a randomized clinical trial. Participants were randomly divided into two groups i.e. basic and advanced and were provided with pharmacist-led education including counselling about their medication and lifestyle modification. In advanced group, cognitive behavioral therapy was provided additionally. Pre-validated questionnaires i.e., MARS-10 and DQOL (RV-DQOL13) were used to evaluate adherence and quality of life. Patient satisfaction regarding pharmacist intervention was evaluated at the end of the trial.

Results
A total of 385 patients, 191(49.6%) were in basic group while 194(50.4%) were included into the advance group, base line adherence and QOL score of patients were 5.38 ± 0.58 and 71.59 ± 0.48 in basic group, 5.53 ± 0.55 and 71.44 ± 0.45 in Advance group. When the scores were reassessed after 3-months, we found a significant increase in patient's adherence and QOL scores in both the groups after the intervention to 7.02 ± 0.76 and 74.31 ± 0.39 in basic group and 7.72 ± 0.75 and 76.8 ± 0.39 in advance group, respectively ($p<0.0001$; RM-ANOVA for time). However, no significant difference was observed between basic and advanced group after the intervention ($p=0.966$ for adherence and $p=0.478$ for QoL). The study shows that although pharmacist-led educational intervention helps increase adherence as well as quality of life of the patients, the impact of cognitive behavioral therapy was not found in our study. Finally, we found that although patient satisfaction increased in both groups, the increase as significantly higher in the advance group as compared to basic group ($p<0.0001$; RM-ANOVA).

Conclusion
Pharmacist led education intervention can be adopted as an effective intervention method for improving Diabetic patients' adherence and quality of life.

7 Perceptions of Pharmacists' Role in Medication Management Among Medical Students

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Background:
The evolving role of pharmacists in contemporary healthcare settings has expanded beyond traditional dispensing to include critical functions in medication management, such as prescribing and patient counseling. Despite these advancements, medical students' perceptions of pharmacists' contributions in these areas remain underexplored. This study investigates these perceptions to understand how future clinicians view the role of pharmacists, aiming to enhance inter-professional collaboration and patient care.

Aim/Objectives:
The primary objective of this research is to explore medical students' perceptions regarding pharmacists' involvement in medication management, focusing on prescribing practices and patient counseling. The study aims to elucidate students' understanding, attitudes, and expectations towards pharmacists' roles to improve educational curricula and collaborative healthcare practices.

Design/Methods:
This cross-sectional study utilized a structured questionnaire distributed via Google Forms to medical students across various academic institutions. Data collection aimed to capture perceptions related to pharmacists' roles in prescribing and counseling. A sample of approximately 283 medical students from different stages of their medical education participated. Statistical analysis was conducted using SPSS software, including descriptive statistics and inferential analyses such as chi-square tests and regression analyses to explore relationships and perceptions.

Results:
59.8% of the participants supported that pharmacists should have a more prominent role in primary care setting. 49.1% of the participants stated the current integration of pharmacists in healthcare systems as fair. Despite these findings, majority of the medical students (38.4%) consider collaboration between pharmacists and physicians somewhat important for patient care. This could be attributed to the fact that only 2.8% of the students reported very frequent interaction with pharmacists during their medical education training. Similarly, only 6.4% of the participants felt very knowledgeable about the pharmacists' legal and professional responsibilities in patient care.

Conclusions:
The study underscores the critical role of pharmacists in medication management as perceived by medical students. The findings suggest a need for enhanced inter-professional education and clearer definitions of pharmacists' roles in clinical settings. Recommendations include incorporating more extensive pharmacist collaboration into medical curricula and advocating for policy changes to support integrated healthcare practices.

8 Collaborative drug therapy management: Improving Patient Care

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Background
Collaborative Medication therapy management is a term that has been used by the federal government to describe an evolving approach to care in which drug therapy decisions are coordinated collaboratively by physicians, pharmacists, and other health professionals together with the patient.

Objectives
Examine the impact of collaborative drug therapy management (CDTM) on patients' perceptions of care and health-related quality of life.
DESIGNS/METHODS

Randomized Controlled Trials (RCTs):
Patients are randomly assigned to either a CDTM intervention group or a control group. The outcomes, such as clinical effectiveness, adherence, and safety, are compared between groups.

Cost-Effectiveness Analyses:
Assess the cost of implementing CDTM compared to the outcomes achieved. This involves analyzing direct costs (e.g., pharmacist time) and indirect costs (e.g., hospitalizations avoided) to determine the overall economic benefit**.**

Cohort Studies: Patients receiving CDTM are followed over a period and compared to a cohort receiving standard care. Data on outcomes such as health improvements and cost-effectiveness are collected.

Study: *"Impact of pharmacist integration in multidisciplinary healthcare teams on patient outcomes" (2024)*

Study: *"Cost-effectiveness of collaborative drug therapy management: A systematic review" (2024)*

Study: The Effects of Pharmacist-Led Medication Therapy Management on Medication Adherence and Use of Non-Steroidal Anti-Inflammatory Drug in Patients with Pre-End Stage Renal Disease (2024)

RESULT
The involvement of pharmacists in the multidisciplinary care team can effectively provide medication-related recommendations, ensuring the effectiveness and safety of patients' medication use, and lead to better kidney function.

The study assessed how integrating pharmacists into multidisciplinary teams influenced patient outcomes. It found that CDTM within these teams led to improved medication management and increased team satisfaction, and the economic impact of CDTM interventions. It found that, while initial costs might be high, CDTM often resulted in cost savings over time due to reduced hospitalizations, improved medication adherence, and more efficient use of healthcare resources

CONCLUSION
These recent studies illustrate the expanding role of pharmacists in CDTM and the positive impact on patient care, medication management, and healthcare costs. The evidence supports the value of CDTM in various clinical settings, highlighting its potential to enhance patient outcomes and optimize medication use.

9 Coping with Medication Safety

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Introduction
Understanding the minimum and maximum doses of a medication is a critical issue that demands serious attention due to its profound implications for patient safety and treatment efficacy. The minimum dose represents the smallest amount needed to achieve the desired therapeutic effect. If a dose falls below this threshold, patients may experience a subtherapeutic effect, where the medication fails to produce the necessary health benefits, potentially prolonging illness or worsening symptoms. Conversely, the maximum dose is the highest amount that can be safely administered without risking significant harm. Administering a dose that exceeds this limit can lead to severe toxicity, causing harmful side effects and endangering patient health.

Objectives
1. **Ensure Patient Safety**: Mitigate the risk of adverse drug events by preventing under-dosing and overdosing.
2. **Enhance Therapeutic Efficacy**: Maintain drug therapy within the therapeutic range for optimal clinical outcomes.
3. **Standardize Dosing Practices**: Create consistent, evidence-based guidelines for medication dosing across the healthcare facility

Methodology
We analyzed dosing information for 1,400 generic drugs listed in our hospital formulary. The dosing data was meticulously extracted from FDA labels, clinical guidelines, pharmacopoeias, and peer-reviewed literature. To ensure accuracy, the information was cross-referenced with multiple sources, and any discrepancies were resolved through expert panel reviews. The compiled dosing data was then integrated into the MOAR database. We used descriptive statistics to analyze the dosing ranges and identify trends. Quality assurance was maintained through automated error checks, manual reviews, and periodic audits to ensure the data's accuracy and reliability.

Results:
We compiled and verified dosing information for 1,400 generic drugs listed in our hospital formulary. The data revealed a wide range of minimum and maximum doses, reflecting the diversity in drug classes and therapeutic applications. Detailed analysis identified significant trends and variations in dosing recommendations, which were incorporated into the MOAR database.

Conclusion:
This study enhances the MOAR database by providing comprehensive dosing guidelines for a substantial number of formulary drugs. The accurate, cross-referenced data supports better clinical decision-making and safer medication use. The integration of this information into MOAR ensures that healthcare professionals have access to up-to-date dosing recommendations. Ongoing updates and periodic reviews will be essential to maintain the database's accuracy and incorporate new clinical findings.

10 From over use to optimal use: The impact of prospective audit & feedback on optimizing use

Authors
Aimen Saleem

Abstract

Background:
Antimicrobial resistance (AMR) poses a profound challenge to global health, driven largely by the overuse of broad-spectrum antibiotics such as meropenem. In high-risk hospital settings, particularly within Nephrology, Critical Care, and Liver Transplant departments, meropenem has emerged as the most frequently utilized antibiotic, as indicated by days of therapy (DOT) and defined daily doses (DDDs). This antibiotic is commonly employed in the treatment of severe infections, including sepsis, healthcare-associated pneumonia, and complicated intra-abdominal infections. However, its extensive use, often initiated without strict diagnostic confirmation, raises significant concerns about the potential for promoting resistant organisms. This study investigates the patterns of meropenem usage within these departments, focusing on the conditions it was used to treat, with the objective of identifying opportunities for enhanced antimicrobial stewardship to curb AMR and preserve this critical therapeutic option.

Methods:
We conducted a detailed retrospective review of 55 patients administered meropenem from January to August 2024 across three key departments: Liver Transplant, Critical Care, and Nephrology. This analysis focused on metrics such as days of therapy (DOT), defined daily doses (DDDs), patient diagnoses, culture and sensitivity results, CRP levels, WBC counts, and the clinical justification for initiating meropenem. The objective was to identify patterns of unnecessary or inappropriate use and inform future stewardship efforts.

Results:
The findings reveal a concerning escalation in meropenem usage. Among the 55 patients reviewed, meropenem use increased by 42% in Nephrology, 35% in the Liver Transplant unit, and 28% in Critical Care. The majority of meropenem use was associated with managing severe sepsis, healthcare-associated pneumonia, and complicated intra-abdominal infections. In Nephrology, empirical treatment accounted for 62% of meropenem use, yet only 25% of these cases were confirmed by positive cultures, indicating a validated infection. In Critical Care, 40% of meropenem prescriptions were deemed unjustified, often administered despite negative culture results or when narrower-spectrum alternatives were more appropriate. In the Liver Transplant unit, 45% of meropenem courses were initiated without robust evidence of bacterial infection, frequently used prophylactically in post-transplant care.

Conclusion:
This study underscores a significant and troubling trend of meropenem overuse, particularly in treating conditions like sepsis and healthcare-associated pneumonia in high-risk departments such as Nephrology and Critical Care. The reliance on empirical therapy, coupled with frequent departures from evidence-based practice, highlights the urgent need for targeted antimicrobial stewardship initiatives. Optimizing meropenem use is essential to safeguard against the escalating threat of antimicrobial resistance and ensure the continued efficacy of this vital antibiotic.

11 Identification & Evaluation of Drug Related Problems in Patients

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Background
A Drug-Related Problem is an event involving drug therapy that actually or potentially interferes with desired health outcomes. DRPs specifically focus on problems related to the use of drugs. According to Hepler–Strand classification DRPs include adverse drug reactions, drug interactions, drug misuse or abuse, medication errors.

Aims/Objectives
This study investigates DRPs to assess their impact on patient safety and therapeutic effectiveness. The purpose of this study was to assess the prevalence and associated factors of DRPs. The analysis uncovered a high incidence of these issues, emphasizing the critical need for enhanced medication management and oversight. This research highlights the necessity for robust strategies to minimize DRPs and improve patient outcomes in clinical settings.

Methodology
A prospective study was conducted on a PWDT form from October 2023 to February 2024 at various hospitals including DHQ Haripur, King Abdullah Hospital Mansehra, and PIMS Islamabad & Ayub Teaching Hospital Abbottabad and a total of 100 patients were analyzed

Results
Among 100 patients, a total of 160 different drug-drug interactions (DDIs) were observed including aspirin combined with Clopidogrel and Ramipril each has 4 DDIs.
In 100 patients, about 36% had untreated conditions which included Anemia, hyperkalemia, gastric ulcer & infections.
A total of 20 instances of sub-therapeutic dosing were recorded across various drugs. Among these, Ceftriaxone stands out with three occurrences.
Moreover 38% of patients experienced improper drug selection where Ceftriaxone and Ciprofloxacin were most frequently involved.
The data indicates 14 instances of excessive drug dosing across several medications which include Ceftazidime, Ceftriaxone and Clopidogrel.
The data also revealed 32 instances of drugs being used without appropriate indications, with Gentamicin & Ceftriaxone being the most frequently misused.
A total of 20 ADRs were also reported in which Skin rash emerged as the most frequent ADR.

Conclusion
The frequency of these ADRs emphasizes the need for vigilant monitoring and management to enhance patient safety and therapeutic outcomes. There is a need for careful medication reconciliation, proper drug selection, accurate dosing, and proactive monitoring of ADRs. The findings highlight the need for ongoing attention to medication management practices to ensure effective and safe treatment for patient.

12 From Tradition to Innovation: A Comparative Analysis of the Novel PEN-FAST Risk Assessment Tool and Conventional Physician Reporting of Penicillin Allergy Severity

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Background:
Penicillin allergy is an IgE-mediated reaction occurring shortly after drug exposure. A penicillin allergy label is linked to a higher risk of MRSA (69%) and C. difficile (26%). However, fewer than 1% of the population are truly allergic to penicillins. Mislabeling can lead to unnecessary antibiotic avoidance, suboptimal treatment, higher healthcare costs, and increased antibiotic resistance. Proper evaluation of penicillin allergies is crucial for effective antimicrobial stewardship. PEN-FAST is a clinical decision-making tool that can identify patients with low-risk penicillin allergy who do not require skin testing prior to oral penicillin challenge.

Objective:
To compare the effectiveness of the novel PEN-FAST Risk Assessment Tool with traditional physician-reported evaluations in accurately determining the severity of penicillin allergies. By assessing both methods, we seek to identify discrepancies, enhance diagnostic accuracy, and ultimately improve patient safety and management in penicillin allergy cases.

Method:
A concurrent study was conducted in a tertiary care hospital involving 41 patients who experienced allergic reactions to penicillin from April 12, 2024, to July 2, 2024. Descriptive statistics were applied using IBM SPSS (Statistical Package for Social Sciences) version 20. The PEN-FAST calculator was used to assess the severity of penicillin allergies and to perform a comparative analysis.

Results:
Out of the 41 patients, 51% were classified as having a high penicillin allergy, 27% were classified as having a moderate allergy, and 22% were classified as having a low allergy. When comparing the collected data using the PEN-FAST calculator, there was a difference of 8 in the number of patients with high penicillin allergies, a difference of 4 in the number of patients with moderate penicillin allergies and a difference of 4 in the number of patients with low penicillin allergies. Therefore, using the PEN-FAST calculator, 4 patients were labeled as having a low penicillin allergy, 4 were labeled as having a moderate allergy, and 8 patients were labeled as having a high penicillin allergy.
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Conclusion:
while penicillin allergy labels are linked to increased risks of MRSA and C. difficile, less than 1% of the population is genuinely allergic. Our study, using the PEN-FAST calculator, revealed significant discrepancies in allergy severity classifications, with notable differences between reported and assessed levels of allergy. PEN-FAST is a simple tool that appears to accurately identify low risk penicillin allergies that do not require formal allergy testing.In future, we can implement the use of PEN- FAST calculator in our clinical setting.

13 Optimizing Turnaround Time in Outpatient Pharmacy Services: The Impact of Implementing a Queue Management System

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Background:
Pharmaceutical care is a vital component of healthcare services, and patient satisfaction in this area is essential for achieving better health outcomes. The lack of a queue management system in the outpatient pharmacy required patients to be called by name for medication pickup, resulting in delays, conflicts, and operational inefficiencies. Additionally, turnaround time (TAT) was not tracked, further exacerbating these issues. To resolve these problems and enhance service delivery, we implemented a new queue management system coupled with TAT tracking that not only will streamline the medication dispensing process but also improve patient satisfaction by ensuring timely and orderly service.

Aim:
The aim of this study is to evaluate the impact of implementing a queue management system on reducing turnaround time and enhancing patient satisfaction in outpatient pharmacy services.

Method:
This prospective observational cohort study was conducted from December 2023 to July 2024. From December 2023 to May 2024, turnaround time (TAT) was measured manually by assessing 20 randomly selected patients. TAT was defined as the interval from when a prescription was handed to the pharmacist to when the medication was received at the out-counter, with an average of 15 minutes.

In May 2024, a queue management system was introduced to improve efficiency. This system records the time of prescription entry, ready to dispense, and dispensed. Patients receive a token upon prescription submission, which is tracked on a display panel. The system signals when medications are ready for collection by turning the token green, reducing counter congestion and improving queue management. Delays in medication delivery can be traced through the system.

To assess the system's impact, we compared the average TAT of the manual system (December 2023 to April 2024) with that from the queue management system (May to July 2024). A random sample of 20% of patients each month was selected using Excel, and TAT was calculated using the formula: Average Turnaround Time = Total Time / Total Number of Patients.

Results:
The average turnaround time (TAT) during the period from December 2023 to April 2024, before the implementation of the queue management system, was 12.66 minutes. Following the system's implementation, the average TAT from May to July 2024 decreased to 5.25 minutes, representing a significant improvement over the previous period.

Conclusion:
The queue management system significantly reduced the average turnaround time from 12.66 to 5.25 minutes, enhancing operational efficiency, reducing patient conflicts, and improving overall satisfaction. This highlights the critical role of technology in optimizing pharmacy services and advancing patient care.

14 Bioinformatics paradigms: Computational strategies in drug discovery and design

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Drug discovery requires high cost and is a time-consuming process, and the facilitation of computer-based drug design methods is one of the most potential approaches to change this challenging situation. In fact, along with the current advancement of science and technology, especially in the field of bioinformatics, the stages of drug discovery can be significantly shortened while the cost is reduced and the efficacy of treatment increases. Bioinformatics tools and platforms can not only advance drug target identification and screening, but also support drug candidate selection and evaluate effectiveness of drug candidates. Computer-aided drug design which is also known as *in silico* method is further being bifurcated in to ligand-based and structure-based screening. Nowadays, ligand-based (pharmacophore) and structure-based (molecular docking) screening have merged into a platform that involves the processes of finding new target discovery for achieving promising leads. Besides, the high-throughput screen method is a popular method for drug candidate identification for detecting potential small molecules among a large amount of information in available data libraries. Since the early years of the twenty-first century, research has applied bioinformatics to screen targeted molecules using the high-throughput screening model. Bioinformatics also has a huge contribution in virtual screening through the early elimination of substances with undesirable properties through computers and *in silico* screening, thereby finding the closest compounds to the desired drug. Based on these tools and techniques, the efficacy of drug candidates can be easily and quickly determined, especially in individuals, which revolutionarily benefits drug validation and personalized pharmacological therapies.
Keyword: Drug discovery, *In silico*, Bioinformatics, Ligand-based, Molecular docking, Online tools.

15 Enhancing Medication Safety in Inpatient and Outpatient Pharmacies: Identifying Core Problems for a Comprehensive Quality Improvement Initiative

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Background:
Unsafe medication practices and errors are a leading cause of harm in healthcare systems, with global estimated cost of 42 billion USD annually. Errors may occur at any stage of the medication use process, from prescribing to administration and monitoring. Factors such as lack of knowledge, system weaknesses, inappropriate checking mechanism, human fatigue, poor environmental conditions, and staff shortages can lead to these problems from severe harm, disability, or even death of the patients. While interventions have been developed to mitigate medication errors, their implementation remains inconsistent. Medication errors, including wrong dosages and misinterpretations, contribute to over 1.5 million preventable adverse drug events each year. With the introduction of Electronic Health Records (EHRs) and Computerized Physician Order Entry (CPOE) systems, new challenges like alert fatigue and Look-Alike/Sound-Alike (LASA), High alert medication errors have been emerged. Additionally, increased-workloads and staff-shortages in pharmacies exacerbate the risks, making it imperative to address medication safety issues comprehensively.

Aims/Objectives:
This study aims to identify and address medication errors, particularly near misses(prescribing, dispensing near mis and incident reported data in inpatient (IPD) and outpatient (OPD) pharmacies,. The primary objective is to enhance medication safety by developing and proper implementation of various strategies to reduce the errors related to prescribing and dispensing, ultimately improving patient outcomes and healthcare quality.

Design/Methods:
Data was collected from January to August 2024 and analyzed using SPSS with a paired t-test to evaluate pre- and post-intervention. Several strategies, including LASA marking, system upgradation, and high-alert medication identification, staff training and counselling, issuing medication safety advisory, were implemented to capture and reduce errors. The focus was on near misses (prescribing, dispensing) and reported incident data.

Results:
The pre-intervention data revealed a significant number of prescribing errors 6867 (1.91%), with other errors are depicted in the graph and post intervention data showed total 5085(1.46%) prescribing errors. The pre and post data was compared which showed in OPD pharmacies there was reduction from 0.183% to 0.11% which showed p-value not less than <0.05 and in IPD pharmacies 0.03% to 0.02% near miss errors and the p-value is 0.013 which showed significant reduction in number of near miss errors in IPD pharmacies. The trends of incidents reported was mentioned as 51 (0.0068%) from Jul to Dec, 2023 which has compromised quality and patient safety therefore measures such as conducted RCA, system development, LASA marking and counseling of staff were taken to address these issue and post data analysis showed significant reduction of incidents i.e. 9 (0.0013%) from Jan to Jun, 2024.

Conclusions:
The implementation of targeted strategies, such as LASA marking, system upgradation , and high-alert medication identification, has significantly improved medication safety, particularly in the IPD setting. However, further advancements, including automated dispensing systems, could further reduce errors and enhance patient safety in both inpatient and outpatient pharmacies.

16 Effectiveness of Pharmacist-Led Interventions in Enhancing Caregiver's Knowledge of Antiarrhythmic Medication in Low-Middle Income Country

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Background:
Pharmacist provision in pediatric arrhythmia service is limited in low- middle income countries despite this chronic condition demands adherence to prescribed regimens for better therapeutic outcomes. Pharmacist-led education to caregivers in developed coun tries resulted in better compliance with treatment, however no similar studies conducted in low and middle income country (Pakistan). In view of this, outpatient pharmacist- arrhythmic service was established in collaboration with pediatric electrophysiologist to evaluate the impact of pharmacist counseling on pediatrics caregivers knowledge and pediatric supraventricular arrhythmia care.

Methods:
This Quasi-Experimental study was conducted at a tertiary care cardiac center in Pakistan. All caregivers' received one-on-one counseling sessions with a pharmacist. The Caregivers' knowledge, baseline and after two weeks of counseling sessions was evaluated using a self-developed structured 22-item questionnaire. A knowledge score (range: 0 to 100) was computed as $100x \frac{Number\ of\ correct\ responses}{22}$

Additionally, a 7-item 5-point rating satisfaction questionnaire was administered immediately after the session and a satisfaction score was computed as a sum (range 7-35) of responses to the 7-item satisfaction scale.

Results:
A total of 55 caregivers were included in this study, out of which 28 were mothers, 19 fathers, 3 brothers, and 5 were self. The Cronbach's alpha coefficient for the knowledge questionnaire was 0.92. The baseline mean knowledge score was 50.3 ± 19.4. After two weeks of counseling, the mean knowledge score was 83.7 ± 7.3 ($p<0.001$). The average satisfaction score was 34.25 ± 0.80.

Conclusion:
Pharmacist led counseling is an effective approach in augmenting the understanding of antiarrhythmic medication among pediatric patients and their caregivers.

Keywords:
Pharmacist; Counseling; Pediatric Arrhythmia; Counseling Electrophysiology

17 Clinical and Pharmacoeconomic Implications of Pharmacist Interventions on Carbapenem Antibiotic Use, in a Tertiary Care Hospital in Pakistan

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Background:
The emergence and spread of AMR are considered one of the most serious global public health threats. While carbapenems are broad-spectrum antibiotics, their overuse has only increased the problem. As members of the antimicrobial stewardship team, the contribution of pharmacists in ensuring proper use of antimicrobials-especially at the outpatient level, where controls are less strict-cannot be understated. Despite the dire need to rationalize the use of carbapenems, the evidence regarding the effectiveness of pharmacist-led interventions in OPDs in Pakistan is scant.

Objective:
The objective of this study was to evaluate the impact of the pharmacist-led interventions on carbapenem prescriptions in the outpatient setting at the tertiary care hospital of Pakistan, focusing on the intervention acceptance rate, type of interventions, and clinical and economical outcome thereafter.

Materials and Methods:
A retrospective study on carbapenem prescription intervention led by pharmacists was conducted from Aug 2023 to Aug 2024. Interventions, including adjustment of dosage, route of administration, and discontinuation, were extracted from patient records. Basic statistics, chi-square test for the rates of intervention acceptance, and the Wilcoxon signed rank test were used to analyze the change in the injection count and estimation of cost before and after the intervention.

Results:
A total of 5,625 prescriptions were reviewed; 87 prescriptions required the intervention of a pharmacist-a rate of 1.5%. Ninety-two percent, or 80 interventions, were accepted by physicians. The highest frequencies of interventions included renal dose adjustment and incorrect dosing. Applying the Wilcoxon signed-rank test, a significant reduction was observed in the number of injections post-intervention, p-value = 0.043, hence medication management was optimized. However, there was no statistical difference in the cost of injections, p = 0.348, which implies that the reduction in counts did not necessarily imply cost savings. The highest intervention rates were observed in two cases: Meronem 1g and Invanz 1g, standing at 1.9% and 2.7%, respectively.

Conclusion:
Pharmacist-led interventions significantly reduced Carbapenem injections without affecting overall costs, reflecting strong physician collaboration with a 92% acceptance rate. The key improvements involved correcting dosing errors and renal dose adjustments. Despite the lack of cost savings, the interventions optimized treatment. The study highlights the need for standardized renal dosing guidelines in outpatient settings and underscores the essential role of pharmacists in antibiotic stewardship.

18 Evaluating Potential Drug-Drug Interactions in Community Pharmacy Prescriptions in the Twin Cities of Pakistan

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Background:
Drug-Drug Interactions (DDIs) are one of the significant concerns in the healthcare system, specifically in community settings where patients receive medications from multiple prescribers. These interactions can sometimes be life threatening. Community pharmacies can play a crucial part in detecting and preventing some major DDIs. However limited knowledge has been established about the prevalence and extent of DDIs in such facilities to properly develop procedures to prevent and detect DDIs.

Aim and objective:
This study aims at addressing the degree and frequency of potential DDIs in Community pharmacy prescriptions to optimize patient safety and pharmacy practices. The secondary objective of this study is to determine the factors contributing to potential DDIs and exploring the role of community pharmacist in prevention of these interactions.

Methodology:
A cross-sectional observational study design was used to analyze Potential Drug-Drug Interactions in Community Pharmacy Prescriptions in the Twin cities of Pakistan. Prescriptions from outpatient Community pharmacies in various localities of twin cities were collected using a convenient sampling technique. Data was recorded in Microsoft excel sheets and analyzed for Potential Drug- Drug Interactions in the prescriptions.

Result:
In our evulation of prescriptions, 51.66 % of total prescriptions showed no interactions, while 7.3% showed interactions of Category B, 21.3% showed interactions of Category C. Furthermore 9.6% had Category D interactions, and 4.6% involved category X interactions. Moreover 73.3% of the prescriptions contained more than two drugs showing poly pharmacy.

Conclusion:
Results of this study reveal a concerning prevalence of potential DDIs in community pharmacy prescriptions in the Twin Cities of Pakistan. These findings emphasize the need for training and education of community pharmacists on the evaluation of drug interactions during the dispensing process. Furthermore polypharmacy is one of the major factors contributing to DDIs, so strategies to promote optimal prescribing patterns are required. Moreover the introduction of advanced software in pharmacies that automatically evaluates drug interactions during billing could serve as a protective barrier against potential DDIs, enhancing patient safety. By implementing these measures, we can minimize the risks associated with DDIs and promoting optimal medication use in the community setting.

19 Optimizing Azithromycin Use Through Pharmacist-Led Educational Initiatives

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Azithromycin remains one of the top five most prescribed oral antibiotics in the inpatient setting at Shifa International Hospital due to its effectiveness in treating common respiratory infections and its favorable pharmacokinetic properties, including a long half-life and immunomodulatory effects.
However, during the early stages of the COVID-19 pandemic, it was overprescribed, despite later trials confirming its lack of efficacy in treating the virus. This misuse has contributed to rising antibiotic resistance, a critical issue driven by both overuse and inappropriate prescribing.
Azithromycin is a crucial antibiotic in Pakistan, serving as the only oral option for extensively drug-resistant (XDR) typhoid. Yet, it is often unnecessarily prescribed for upper respiratory tract infections (URTIs), even in cases of Streptococcus pneumoniae, where resistance is increasing.

Methodology

Top specialties prescribing the antibiotic were identified. In-depth discussions were conducted with prescribers from these departments to understand the rationale for azithromycin use within their respective specialties. Following these consultations, feedback letters were shared with the prescribers, recommending suitable alternative treatments such as clarithromycin and tetracyclines. Additionally, alternatives like erythromycin were sourced and made available.
Azithromycin usage guidelines were subsequently updated based on the hospital's antibiogram, ensuring alignment with current resistance patterns. These revised guidelines were disseminated to prescribers to promote informed decision-making. A follow-up was taken after one quarter.
Furthermore, an advisory on the rational use of azithromycin was developed in collaboration with infectious diseases consultants. These advisory outlined criteria for appropriate azithromycin use and was circulated via email. It was also incorporated into the hospital's quarterly newsletter for broader awareness.

Results

A review of the top five specialties prescribing azithromycin identified pulmonology and critical care, internal medicine, dermatology, nephrology, and cardiology as the leading users.
Following a three-month follow-up, changes in prescribing practices were noted in both inpatient and outpatient settings. Several specialties, including oncology, dermatology, and employee health clinics, were no longer among the top prescribers.
In the inpatient setting, azithromycin usage demonstrated a significant reduction, with the defined daily dose (DDD) decreasing from 4.86 in Q4 2023 to 2.64 in Q2 2024.

Conclusion

Overprescribing azithromycin for infections where it is not indicated can contribute to unnecessary adverse drug reactions (ADRs) and the development of antimicrobial resistance.
Implementing targeted educational initiatives is an effective strategy for enhancing antibiotic stewardship and promoting patient safety.

20 The Implementation Level of Antimicrobial stewardship Activities in Public-Private Tertiary care Capital Hospitals: From Healthcare Professional's Perspective

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Background:
Inappropriate use of antibiotics can lead to resistance, ADRs, poor patient outcomes, and increased medical cost (File et al., 2014) where antimicrobial stewardship program (ASP) plays a significant role in facing such issues in healthcare systems (Nathwani et al., 2019). Effective AMS programs focus on ensuring the rational use of antimicrobials to preserve their efficacy, enhance patient safety, and reduce cost by reducing adverse effects and spread of AMR (Neil O. Fishman, 2006). Despite the launch of Pakistan's National Action Plan (NAP) for antimicrobial resistance in 2017 and notification of mandatory ASP implementation by the National Institute of Health (NIH) in 2021 (National Institute of Health, 2017), there is no such data on the implementation of ASP in different tertiary care hospitals in the capital.

Objective:
This study aimed to assess the practices and effectiveness of ASP in capital tertiary care hospitals by evaluating healthcare professionals' (Physicians, Pharmacists, and Nurses) knowledge about its level of implementation.

Methodology:
A descriptive cross-sectional study was conducted using a pre-validated structured questionnaire-based Google form distributed among healthcare professionals (Physicians, pharmacists, nurses) practicing in capital tertiary care hospitals. The sample size was calculated using the Raosoft calculator and the selection of the HCPs was done using convenient and snowball sampling. HCPs who are practicing in tertiary care hospitals were included in the study and those who have not given consent to fill out the questionnaire or either practicing in primary or secondary care were excluded. The data was refined and analyzed using Microsoft Excel and SPSS.

Results:
A total of 366 HCPs responded among them 242 are from private hospitals and 124 are from public sector hospitals. HCPs were asked about the level of implementation of AMS activities at their hospitals including the presence of a hospital ASP committee, the existence of the policy, knowledge about the NAP guidelines, audit and feedback procedure, surveillance reporting, etc. (Table)

Conclusion:
The study points out the practice of ASP in capital tertiary care hospitals, despite having the policy on a national level, and highlights the importance of implementing further ASP strategies, and continuous awareness programs for healthcare providers.

21 Evaluation of potentially Inappropriate Medication in Older Population

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Background.
Geriatrics population is 14% of total population and is increasing very rapidly and will become 25% by the end of 2024. Increase in age results in irreversible as well as inevitable decline in body function making elderly people intensively prone to diseases. The growing disease burden among the elderly in Pakistan presents significant challenges for the healthcare system. In this context, geriatric pharmacotherapy plays a crucial role in addressing the unique healthcare needs of the aging population, making it an increasingly important aspect of our healthcare system.

Aim/Objectives
The aim of this study was to evaluate the potentially inappropriate medication (PIM) and polypharmacy in elderly people.

Design/Methods
Prescriptions of 256 geriatric patients in both in and out-patients were examined from September 2023 to March 2024 from different hospitals of Hazara area, in this cross-sectional study. Pharmacotherapy and medication records were evaluated in accordance with Beer's criteria 2023.

Results
Results were displayed as frequencies and percentages. A total of 25% of Potentially Inappropriate Medications (PIM) were identified, out of 1744 prescribed medications. Most PIM belong to category "A" of Beer's criteria 2023, medications to be avoided in older adults. Aspirin (6.82%) and Proton Pump Inhibitors (PPIs) specifically Omeprazole (4.84%) were the leading PIM of total medications used by older people. Polypharmacy was observed in 83% of our study population of which 11% had excessive polypharmacy. Out of 1744 prescribed drugs 47.6% of drugs were found to be interacting with each other, out of those interacting drugs 19.3% were having major interactions, 77.5% moderate and 3.13% with minor interactions.

Conclusion.
The findings of this study reveal the prevalence of clinically significant proportion of PIM used by the older population. Polypharmacy and potential drug-drug interactions identified were the leading concerns in geriatric pharmacotherapy. The PIM identified in this study pose significant concerns. It is crucial that healthcare providers should adhere to established clinical guidelines like Beer's criteria, to reduce the medication related issues, including drug interactions and the risk associated with the polypharmacy.

22 Antibiotic Utilization In The Emergency Department Of A Tertiary Care Hospital: A Reteropective Observational Study

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Background
The judicious application of antibiotics in the emergency department remains an ongoing and subjective concern. While empirical use of antibiotics is imperative in specific cases, it is crucial to recognize that their indiscriminate selection can contribute to community-wide consequences (Roskilde, 2010). The implementation of an Antimicrobial Stewardship Program becomes paramount to mitigate the incidences of antimicrobial resistance and enhancing overall patient outcomes. Antimicrobials are the second most common therapeutic class prescribed in E.Ds. Up to 50% of antimicrobial courses prescribed in hospital are inappropriate, and community emergence of resistant organisms is an increasing concern. In Australia, the 2015 National Antimicrobial Prescribing Survey involving 281 hospitals found that 21.9% of antimicrobial prescriptions were inappropriate. Obtaining quantitative data on antibiotic prescribing practices is an essential precursor to initiate effective antimicrobial stewardship in the emergency department.
The WHO 13th General Programme of Work 2019–2023 includes a country-level target of at least 60% of total antibiotic consumption being Access group antibiotics.

Aims/Objectives
The primary aim of this study was to assess the patterns of antibiotic utilization, serving as a crucial component of surveillance for the hospital's Antimicrobial Stewardship Program

Methodology
Conducted as a retrospective observational study, we utilized the hospital database to extract relevant details of all patients visiting the emergency department over the period from September 2022 to August 2024. Antibiotic use was assessed monthly, with each antibiotic's prescribing pattern determined by calculating the number of antibiotic doses relative to the total number of patients.
Antibiotic utilization was also evaluated as per WHO AWARE classification.

Results
Throughout the study period, 78,615 patients sought care in the emergency department. Of these, 27,515 patients (35%) were prescribed at least one oral or intravenous antibiotic. Ceftriaxone emerged as the most frequently prescribed antibiotic. Additional commonly prescribed antibiotics included meropenem, vancomycin, and piperacillin-tazobactam, with a notable increase observed in meropenem use. Of significance, the use of restricted antibiotics such as colistimethate sodium and linezolid was negligible. Average use of reserved antibiotic such as azithromycin was not more than 3%. However, a notable increase in oral fosfomycin was increased such that it was found as fifth most commonly prescribed antibiotic since last 3 quarters. Use of WATCH group antibiotics was more than 80%.

Conclusion
The findings also shed light not only on quantitative analysis but also analysed antibiotic usage according to WHO AWARE classification system. These findings underscore the imperative need for ongoing surveillance and targeted interventions within the emergency department to optimize antibiotic use and enhance patient care outcomes.

23 Pharmacotherapy of pediatrics

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Background:
Due to limited research on drug use in this population. Also, to our knowledge, many medication errors were observed in the prescriptions which led us to analyze the therapy plans.

Aim/objectives:
To assess and evaluate the current pattern of drug use, potential DDIs, and PIMs.

Design/Methods:
An observational descriptive study was carried out in Abbottabad, on 150 pediatric patients hospitalized with non-communicable diseases. Prescriptions were analyzed for potential DDIs and PIMs using updated BNF criteria and WHO prescribing indicators. Data analysis was performed using MS Office 2010, employing descriptive statistics.

Results:
1. Ceftriaxone is the most frequently overdosed medication at 25%, followed by Dexamethasone and Leviceratam at 11%.
2. The majority of interactions among prescribed medicines fell into the moderate category.
3. Ceftriaxone is the most commonly used drug without indications, at 16%, followed by Furosemide and Meropenem, each at 9%.
4. Vomiting is the most commonly untreated condition at 24%, followed by fever (15%) and cough (11%).
5. The most improper drug selected was ceftriaxone accounting for 32%.

Conclusions:
The study included the majority of male patients, and the most common diagnoses were pneumonia, LRTIs, and RTI, these conditions require complex pharmacological interventions, which can increase the risk of DDIs and adverse effects. The study identified significant occurrences of sub-therapeutic dosing, particularly with paracetamol and excessive dosing with ceftriaxone. (DDIs) pose significant risks, such as nephrotoxicity such findings underscore the necessity for vigilant monitoring of drug regimens to prevent adverse outcomes. In some cases, medications were prescribed without proper indication, exposing patients to unnecessary drug-related risks. Additionally, untreated conditions, and excessive or subtherapeutic dosing, can lead to toxicity or ineffective treatment, respectively.

24 Assessment of Depression, Anxiety and Stress Among Medical and Non-medical

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Undergraduate University Students

Introduction:
Mental health issues are becoming more and more threatening globally. University students are at major risk of mental illness as perusing higher education is not easy, the university period is taken as a risk period for the onset of these mental disorders and most of the lifetime mental illnesses start typically from young age.

Objective:
The aim of this study was to assess depression, anxiety and stress among university students in Mirpur AJK, Pakistan.

Methodology:
A cross-sectional study was performed in 500 students of public and private universities from May 2023- July 2023. A convenience sample of 250 medical and 250 non-medical students who were within age 18-24years was taken through self- administered questionnaire. Depression, anxiety and stress scale-21 items and patient health questionnaire-9 items were used. Data was statistically analyzed by IBM-SPSS (version 25).

Result:
The data of 33.3% male and 66.8% female students were included in the study. The findings revealed that female students 67.66% were more depressed than males 32.33%. Non-medical participants, of age between 18-20 years 60% (SD±0.46) were more prevalent to mental issues. The overall assessment of depression, anxiety and stress among participants were 75.6%, 74.1% and 70.6%. Depression and anxiety were seen to be more prevalent among undergraduate students. On DASS-21 and PHQ-9, hostelites, 1st year students, poor economic status and family history of mental illness were significantly (<0.05) depressed. It was seen that life events, hobbies, no. of friends were not much significant with depression, anxiety and stress. All the subscales were found to have inverse relation with academic performance of the students.

Conclusion:
Females were more depressed among non-medical students. The factors associated with depression, anxiety and stress were age, academic year, satisfaction, physical well-being, possible stressors, self-rated mental health.
Keywords: Mental-health, DASS-21, PHQ-9, depression, anxiety, stress, university student.

25 Defining Pediatric Dosage: The Impact of Pharmacometrics and Simulation

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Introduction:
The emergent and innovative approach of pharmacometrics in clinical pharmacy practice has shown great improvements, especially in the pediatric population[1,2]. In pediatric clinical settings, the implementation of pharmacometrics-based insilico models can rectify the dosings. This review narrates the gaps between theory and its practical application in low-middle-income countries to unlock the full clinical potential of pharmacometrics in pediatrics, neonates, and young infants.

Methods:
SANRA—a scale for the quality assessment of narrative review articles is followed for review writeup[3]. Data design focusing on the clinical studies involving pediatrics, neonates, and young infants with relevant observational cohort studies and randomized controlled trials were included. Published articles were collected by using databanks like Google Scholar, Cochrane, SpringerLink, and PubMed from January 2014 and August 2024 and keywords like pharmacometrics, pediatrics, neonates, clinical setting, and dose optimization were used. A total of 40 articles were included in this review.

Results:
3,170 search results were shown about pharmacometrics insilico modeling in hospital settings in the domain of the pediatric population. 1,820 were the clinical trials and 418 case studies were reported. Treatment approaches studied, mostly focused on antimicrobials and immunosuppressants. These findings underscore the potential of advanced modeling techniques to enhance the safety, cost-efficiency, and effectiveness of pediatric drug therapies. Additional insights into methods, conditions, and treatment variations could deepen our understanding of their impact.

Conclusion:
These pharmacometric insilico models offer valuable insights into clinical decision-making, enhancing safety, cost efficiency, and effectiveness in healthcare without requiring any clinical trials. These innovative but underutilized models are still in their infancy stage. To integrate them effectively into clinical practice, further research is needed.

Keywords:
Clinical Setting, Dose Optimization, Neonates, Pharmacometrics, Pediatrics

26 Assessment of effectiveness of renal dosage adjustments recommendation by clinical pharmacist at a tertiary-care Hospital

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Background:
The global increase in kidney diseases, particularly in low- and middle-income countries, highlights the importance of drug dosage adjustment to prevent economic loss and adverse drug reactions. The physician acceptance to clinical pharmacists' recommendations will improve patient outcomes and reduce cost of treatment. This study will help different healthcare settings in Pakistan and other developing countries to understand the importance of interventions made by clinical pharmacists in improving quality of patients thereby, reducing cost related to drugs used in renal impairment (Sukkha et al., 2020).

Aim:
The aim of this study is to assess the physician's acceptance and cost saving of renal dosage adjustment recommendations by clinical pharmacists in a tertiary-care hospital.

Design:
This study was a retrospective descriptive design. Data was collected from the EMR at Shifa International Hospital, Islamabad between 2021 and 2024 of the patients whose dose adjustments were already done by the clinical pharmacists. This study focused on assessing the physicians' acceptance rate of drug dosage recommendations and cost saved by these recommendations. The data was analyzed by descriptive and inferential statistics.

Results:
The total number of patients were 400 from which 390 were included in the study after eliminating all the outliers. Among them 235 were male, 154 were female and 1 was not specified, on the basis of age 186 were pediatric, 94 were adults and 110 were geriatrics. Out of 390, the acceptance/ non acceptance ratio was 314:33, 7 were discharged and 42 were on dialysis. In total 506 interventions 390 were antibiotics, 45 were antipyretic and 25 were antiepileptic, the most adjusted antibiotics were meropenem, vancomycin, piperacillin-tazobactom and colistin. The overall cost saved in four years was approx. 1.9 million rupees, however Rs. 70284 in 2021, Rs. 1490018 in 2022, Rs. 88927 in 2023 and Rs. 256458 in 2024.

Conclusion:
This study will establish the significance of clinical pharmacists' interventions for renal dose adjustments and the higher acceptance rate of physicians will help in improving patient's outcomes and reduction in cost of treatment on yearly basis.

27 Triggering Safety: The Power of ADR Trigger Tools in Pharmacovigilance

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Introduction

Adverse Drug Reactions (ADRs) are a critical concern in healthcare causing significant patient harm. The consequences of undetected ADRs can be catastrophic. These reactions can lead to severe complications, prolonged hospital stays, and, in some cases, death. Underreporting of ADRs remains a challenge, hindering the ability to take timely action. Automated reporting of ADR could be a solution to increase the ADR reporting. A trigger tool is defined as a data element within a health record that identifies the presence of an ADR that has occurred. By implementing ADR trigger tools in hospital settings, healthcare providers can enhance early detection of ADRs. This study explores the impact of ADR trigger tools on enhancing patient safety in a hospital setting, highlighting their role in strengthening pharmacovigilance practices.

Aim/Objectives:

- To evaluate the effectiveness of ADR trigger tools in improving the frequency, accuracy, and timeliness of ADR detection and reporting.
- To assess the impact of trigger tools on pharmacovigilance practices.

Methodology:

- **Study Design:** Retrospective Observational Study Design
- **Study Period:** over a period from January to June
- **Study Area / Setting:** Shifa International Hospital
- **A retrospective observational study** was conducted at Shifa International Hospital, by utilizing ADR trigger tool.
- **Approach:**
- Quantitative analysis of ADR reporting data.

Result:

The ADR trigger tool identified a total of 41 ADRs. The majority of these reactions fell into two main categories: allergic reactions and infusion-related reactions.

- **Allergic Reactions:** A total of 24 cases were identified, accounting for **58.5%** of the ADRs detected by the trigger tool. These reactions included skin rashes, itching, and other hypersensitivity reactions caused by medications such as co-amoxiclav, fluconazole, and amoxicillin-clavulanic acid.
- **Infusion-Related Reactions:** A total of 11 cases were reported, making up **26.8%** of the ADRs identified. These reactions were primarily linked to medications such as vancomycin, oxaliplatin, and pembrolizumab, causing symptoms like shivering and localized rashes.

The remaining **6 ADRs (14.6%)** were attributed to other types of adverse reactions, further underscoring the importance of the ADR trigger tool in catching a wide range of drug-related issues.
The **highest number of ADRs was linked to** Antimicrobials.

Conclusion

ADR trigger tools demonstrate significant potential in enhancing ADR detection and reporting, contributing to improved patient safety in critical care settings. By systematically identifying ADRs, these tools help capture incidents that might otherwise go unreported, improving overall patient safety.
These vital tools should be integrated into every healthcare setting across Pakistan, particularly in emergency departments and urgent care facilities, to transform patient safety and enable swift detection of ADRs. Embracing these cutting-edge solutions can drastically minimize the risk of adverse drug reactions, ensuring a safer, more effective healthcare experience for all patients.
Future research should focus on refining these tools, exploring technological enhancements, and integrating them across broader healthcare environments to further optimize ADR detection and reporting. This highlights the importance of integrating ADR trigger tools in healthcare settings as a proactive approach to safeguarding patient safety and enhancing medication monitoring practices.

28 Economic And Regulatory Factors Influencing The Adoption Of Herceptin And Rituximab Biosimilar In Clinical Practice

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This study investigates barriers to the adoption of biosimilars, specifically focusing on Herceptin (trastuzumab) and Rituximab in oncology. Despite their potential to reduce healthcare costs and increase patient access, their uptake remains limited. The research explores regulatory, economic, and perceptual barriers and offers recommendations for overcoming these challenges.

Introduction:
Biosimilars are designed to lower healthcare costs and expand access to biological therapies. However, the adoption of Herceptin and Rituximab biosimilars has been slower than expected. This study aims to identify factors contributing to this limited adoption, despite the biosimilars showing comparable efficacy and safety to the original drugs. Regulatory bodies such as the US FDA and EMA support biosimilars without compromising safety standards. The growing acceptance among oncologists is anticipated to lead to increased market share and lower pharmaceutical costs, ultimately improving access to treatment.

Aims/Objectives:
- Identify key barriers to the adoption of Herceptin and Rituximab biosimilars, analyze their impact on decision-making, and recommend strategies for improving uptake.

Study Design and Methodology:
- **Study Design:** Retrospective Observational Study
- **Study Area/Setting:** Shifa International Hospital
- **Team Involved/Participants:** Patients

Data Collection:
A survey was conducted among patients at Shifa International Hospital, where data from the patient responses were compared for both the biosimilars (Herceptin and Rituximab) and their originator drugs. This analysis aimed to explore usage patterns, specifically examining the influence of oncologists' decisions, patient awareness, and economic factors on the adoption of biosimilars.

Data Analysis:
Quantitative methods were used to identify themes and factors affecting biosimilar adoption.

Result:
Ristova Inj 500mg205Rituximab 500mg71 **Total276** Among 317 total participants,
- 74% and 80% of participants were influenced by their oncologists' decisions, significantly affecting biosimilar adoption for Ristova and Herceptin respectively.
- 60% and 20% lacked awareness, and 26% and 20% sought more affordable alternatives for Ristova and Herceptin respectively, impacting the usage of biosimilars.

Conclusion:
To improve the adoption of biosimilars, it is essential to address regulatory, economic, and perceptual barriers. Enhancing education and communication about biosimilar efficacy and safety, streamlining regulatory processes, and creating more significant economic incentives could help increase their use in clinical practice.

29 Role Of Pharmacists In Pharmacoeconomics and Dose Management Of Erythropoietin In Hemodialysis Patients

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Background
Chronic kidney disease (CKD) is a public health priority as it is the third fastest-growing cause of death globally, associated with markedly high morbidity, mortality, and excess health-care costs. Anemia is a perennial and serious complication of chronic kidney disease (CKD) that occurs during the early stage of the disease and intensifies as the kidney function deteriorates. Along with dose management, another important factor that needs to be focused on is the cost burden on the patient. It is the responsibility of the pharmacist to ensure cost effectiveness as well along with prior focus on medication management.

Aim
The study aimed at identifying the prescribing errors, associated financial burden, and factors leading to irrational use of Epoetin alpha (Epokine) in Hemodialysis Patients after implementation of TDM of erythropoietin.

Method:
It was a post-intervention study that started from January 2023 to July 2024. Erythropoietin prescriptions were always monitored by pharmacists by reviewing serum Hemoglobin levels and TDM was performed for each prescription.
TDM Performa for erythropoietin was developed as an intervention after a retrospective observational study that was conducted to study the role of pharmacists in the management of anemia in hemodialysis patients.

Results:
On average 25 interventions were recorded every month resulting in a decrease in the cost burden of Rs 779369. The primary outcome, compliance to Epoetin alpha (Epokine) TDM protocol which was 34% in January rose to 98% till july 2024.

Conclusion:
The implementation of therapeutic drug monitoring (TDM) for Epoetin alpha significantly reduced prescribing errors and financial burden in hemodialysis patients. Monthly interventions led to a dramatic increase in protocol compliance from 34% to 98%, highlighting the effectiveness of pharmacist-led oversight in managing anemia. This study underscores the critical role of TDM in optimizing treatment and reducing costs.

30 Assessing Knowledge and Attitudes of Healthcare Providers on Catheter-Associated Urinary Tract Infections: A Cross-Sectional Study

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Introduction:
Urinary Tract Infections (UTIs) are inflammatory disorders primarily caused by the abnormal growth of pathogens. Community-acquired UTIs are the second most common infections in community settings. Catheter-associated urinary tract infections (CAUTIs) are a prevalent form of healthcare-associated infection, accounting for over 30% of infections in acute care hospitals and 25% of all hospital-acquired infections. CAUTIs are frequently associated with indwelling catheters, with each additional day of catheterization increasing the risk of infection by up to 5%. The most common causative agents of CAUTIs include *E. coli* (21.4%), *Enterococcus* (14.9%), *Pseudomonas aeruginosa* (10%), *Klebsiella pneumoniae* (7.75%), and *Enterobacter* (4.15%). Prevention strategies focus on minimizing catheter use duration and adhering strictly to infection control guidelines.

Objective:
To assess the knowledge, attitudes, and practices of healthcare professionals concerning the prevention of CAUTI.

Methods:
Study Design:
This cross-sectional study was conducted in both public and private hospitals in Rawalpindi and Islamabad, Pakistan. Five hospitals were selected, including three public and two private. Researchers used a semi-structured questionnaire to assess the knowledge, attitudes, and practices of healthcare professionals regarding CAUTI prevention. Data were collected over a specific period and analyzed using SPSS software.

Data Collection:
A total of 160 questionnaires were distributed, with 139 completed and included in the study. Data collection spanned from January 2023 to April 2023. A structured dichotomous-scaled questionnaire on knowledge and practice, and a modified Likert-scale for attitudes were utilized. The study targeted healthcare professionals from various departments in public and private hospitals. The questionnaire was validated by senior professionals, including senior doctors and heads of nursing and paramedic departments. The validated questionnaires were then distributed among nurses, doctors, and paramedic staff, who completed and returned them. Only the questionnaires meeting the inclusion criteria were analyzed. Data were compiled in SPSS software for analysis, using various statistical methods, including frequency tables, Chi-square tests, and standard deviation calculations.

Results:
Out of 139 participants, 44.6% were aged 26-30 years, 50.4% were male, 51.1% had a Bachelor's degree, and 52.5% were doctors. About 59% had 1-3 years of professional experience. In terms of CAUTI knowledge, 63.3% had adequate knowledge, while 36.7% had moderately adequate knowledge. Regarding attitudes, 31.6% had a favorable attitude, 53.3% had a moderately favorable attitude, and 15.1% had an unfavorable attitude. In terms of practice, 77.7% followed adequate practices for CAUTI prevention. Most participants demonstrated a good understanding of key CAUTI prevention measures, although some misconceptions persisted, particularly regarding catheter use and preventive measures.

Conclusions:
CAUTI is one of the most common hospital-acquired infections. This study found that participants generally had adequate knowledge, attitudes, and practices regarding CAUTI prevention. Hospitals should implement infection prevention programs and regularly monitor policies and procedures for CAUTI prevention. Educational programs on basic catheter care are also essential to educate healthcare professionals and reduce the risk of CAUTI in patients.

31 Impact Of Pharmacist-led Interventions In Improving Patient Care In The Emergency Department Of A Tertiary Care Hospital

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Background
Around 1 in every 10 patients is harmed in health care and more than 3 million deaths occur annually due to unsafe care. In low-to-middle income countries, as many as 4 in 100 people die from unsafe care. Emergency department is a critical area where it is necessary to respond and treat patients urgently and accurately. Some prevalent medicine related issues such as dose adjustments, drug interactions, antibiotic combinations, therapeutic or class duplication may occur in emergency department setting while dealing patients. Pharmacist-led interventions have the potential to enhance patient care through medication management, antimicrobial stewardship, pain management, patient education, and interdisciplinary collaboration.

Objectives
The primary objective of this study is to evaluate the impact of pharmacist-led interventions on improving patient care in the ED of a tertiary care hospital.

Aims:
Specific aims include assessing the influence of these interventions on medication safety, clinical outcomes, patient satisfaction, and healthcare.

Methods:
A prospective observational study was conducted to evaluate pharmacist interventions during one year July-2023 to June-2024. Total number of patients who visited emergency department during the year was also collected. MIS data base was used to collect the interventions data. Quantitative data of interventions was collected. Interventions were evaluated in the form of different categories such as wrong dose, wrong route, drug interactions and other such important factors.

Results:
A total of 45,625 patients visited emergency department during the study period. Patients who didn't receive any oral or IV medication were excluded from the study. Hence a total of 39769 patients were included in the study. 566 pharmacist interventions were recorded during this period. Among these interventions, 299(56%) were related to dose adjustments, 56 (9%) were related to wrong route, 53(9%) were related to change in the drug prescribed. 43 (7.5%) were related to wrong dosage form/strength. Other interventions were related to wrong frequency, antibiotic combination and others.

Conclusion:
This study underscores the importance of pharmacist-led interventions in the emergency department of a tertiary care hospital. The findings reveal that pharmacists plays a key role in enhancing patient safety by identifying and rectifying medication-related issues such as dose adjustments, incorrect routes, and inappropriate drug prescriptions. By actively participating in the emergency care team, pharmacists contribute to reducing the risk of medication errors, thereby improving overall patient outcomes. The presence of pharmacists in the emergency department is not just beneficial but essential for ensuring safe and effective patient care, ultimately leading to better clinical outcomes and increased patient satisfaction.

32 Optimizing Medication Safety: The Role of Pharmacist-Led Drug Information Services

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Introduction:
Medication errors and adverse drug reactions are significant challenges in healthcare, contributing to patient harm and increased healthcare costs. Pharmacists, as medication experts, are crucial in mitigating these risks by providing timely and accurate drug information. This study analyzes the role of pharmacist-led drug information services in enhancing medication safety within a quaternary care hospital.

Methods:
A retrospective analysis was conducted using drug information logs from the hospital's Management Information System (MIS) over an 18-month period, from January 2023 to June 2024. The data encompassed 5,766 drug-related queries, classified by type, source, and outcome. Inquiries ranged from dosing guidelines to complex drug-drug interactions, with responses informed by evidence-based resources such as Micromedex, UpToDate, textbooks, and peer-reviewed research articles. The inquiries were categorized based on their nature (internal from healthcare providers within the hospital and external from other facilities).

Results:
The analysis revealed that **51.5%** of inquiries were related to dosing information, followed by **25.5%** concerning the availability of medication. Pharmacists addressed **7.9%** of queries related to dose adjustments and **6.3%** concerning dilution and administration. Notably, **83.97%** of inquiries originated from doctors within the hospital, with a small percentage from nurses **2.48%** and external callers **6.64%**. Pharmacists' intervention ensured the provision of accurate and timely drug information, directly contributing to safer medication practices.

Conclusion:
Pharmacist-led drug information services are integral to optimizing medication therapy and enhancing patient safety. The comprehensive nature of inquiries addressed underscores the critical role pharmacists play in supporting healthcare providers through evidence-based recommendations. Continued investment in these services is vital for advancing medication safety and improving healthcare outcomes.

Keywords: Pharmacist, drug information services, medication safety

33 Transforming Diabetes Care: Pharmacist-Led Education and Its Impact on Patient Knowledge, Self-Management, and Health Outcomes

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Background
Optimal diabetes management is one of the main strategies that could help improve health outcomes among the population affected by the illness. The current evidence indicates that pharmacist-led education has proven to be effective in the management of diabetes, improving the knowledge of patients and the self-management of the disease.

Objective
The aim of the study was to evaluate the impact of pharmacist-led education on diabetes-related knowledge, self-management & clinical outcomes of diabetic patients.

Methodology
This quasi-experimental study includes diabetic patients who participated in an educational program conducted by a pharmacist. The intervention program was conducted with the aim of improving the knowledge, self-care & health outcome of patients affected with diabetes. Pre-validated questioner DKQ and DMSQ used. After 3-month post-program level measurements were made on the basis of diabetes knowledge, diabetes self-management which includes fasting and random blood glucose levels & baseline HbA1c levels. Due to the non-parametric nature of the data, the Wilcoxon Signed Rank Test was conducted for statistical analysis.

Results
a total of 385 patients, the mean HbA1c level decreased significantly from 12 ± 2 before intervention to 10 ± 1 after intervention ($p < 0.0001$; Wilcoxon Signed Rank Test), thus indicating improved glycemic control. Regression analysis yielded that the model predicting pre-post differences in HbA1c was significant: $F(4, 381) = 15.100$, $p < 0.001$, and hence pre-post differences in DMSQ, together significantly predicted changes in HbA1c levels. The pre-post differences in FPG and RPG were significantly positively associated with HbA1c change; on the other hand, only DMSQ proved to be a significant predictor of HbA1c improvement: $F(1, 384) = 9.735$, $p = 0.00$

Conclusion
The diabetes-related knowledge and clinical outcomes improved significantly with the pharmacist-led educational intervention. It was reflected by an increase in DKQ scores and a decrease in levels of HbA1c, fasting blood glucose, and random blood glucose. In this way, it shows evidence that education performed by a pharmacist is one of the effective kinds of approaches for an improvement in care regarding diabetes, an appropriate self-management, and, finally, patient outcomes.

34 Evaluation Of Community And Hospital Pharmacy Practices Regarding Dispensing Of Narcotics And Controlled Drugs: A Simulated Client Approach

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Background
Narcotics and controlled substances are materials with a high potential for misuse and a significant risk of resulting in substance use disorders and addiction. All controlled substances that exhibit considerable potential for abuse are classified under Schedule G of the Pakistan Drug Rules 2017. Although laws have been to regulate the sale of such substances, their implementation is not being executed in accordance with the intended spirit, which is crucial for controlling the misuse and abuse of narcotics.

Aims/Objectives
The overall aim of this study was to evaluate the knowledge level of pharmacy personnel concerning legal requirements and best practices for dispensing controlled substances, with the aim of identifying knowledge gaps and to analyze the impact of current dispensing practices on patients' safety and treatment outcomes.

Methodology
The simulated client approach involves trained researchers as regular patients visiting the study settings for requesting narcotics. This method provides a realistic evaluation of service quality and compliance with narcotic dispensing regulations. Direct interviews with dispensing personnel were conducted, and responses were recorded in a pre-designed questionnaire later to maintain the confidentiality of the data. Data were analyzed using SPSS version 20. The selection criteria for pharmacists and other respondents included qualifications and authority to dispense narcotics.

Results
Among 130 pharmacies visited 79.2% were community pharmacies and 20.8% hospital pharmacies where the participants were 39.2% dispensers, 15.4% pharmacists, 40.8% technicians, and only 4.6% sales representatives. In this study, 88.5% of the pharmacies did not provide the requested medication, while only 11.5% dispensed the medication, which included only alprazolam (7.69%) and bromazepam (3.8%) among all the narcotics and controlled substances requested at pharmacies. These medications were predominantly dispensed upon insistence. Furthermore, only 1 or 2 tablets of alprazolam and bromazepam were provided. Approximately 90% of respondents inquired about a prescription, while only 10% did not.

Conclusion
The study highlighted current dispensing practices of narcotics and controlled substances, adherence to laws and impact on patients' safety. Furthermore, study highlighted the need for ongoing awareness programs to educate healthcare providers on narcotic guidelines with the goal to minimize the risks associated with misuse of narcotics.

35 Implementing The Ppi Stewardship! Not Every Patient Requires Ppi

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Background:
Proton pump inhibitors (PPIs) are most commonly prescribed medications, but their overuse has been associated with various adverse effects. The overuse of proton pump inhibitors (PPIs) has become a significant concern in clinical practice, particularly in outpatient settings. A previous study conducted in 2022 at a tertiary care hospital revealed that 86% of the prescription included PPIs, indicating a troubling trend towards overprescription and raising alarms about potential adverse effects associated with long-term PPI use. Recognizing the need for intervention, implementing a comprehensive PPI stewardship program aimed at promoting rational prescribing practices was suggested.

Objective:
To implement a PPI stewardship program and evaluate its impact on reducing PPI prescriptions.

Methods:
We conducted a quality improvement initiative, in response to the alarming initial findings. Our intervention involved the patient and healthcare provider education, implementation of pharmacist-led interventions in unindicated PPI use and regular audits. We compared PPI prescription rates before and after the implementation of the stewardship program.

Results:
Following the implementation of our PPI stewardship program, we observed the following trend in the PPI prescriptions.

- The rate of PPI prescriptions decreased from 86% in our initial audit to 22% (63/285) post-intervention, representing a **73.9% reduction** in PPI prescribing.
- Omeprazole was the most commonly prescribed PPI at **52.50%**, followed by esomeprazole at **31.85%**. then pantoprazole accounted for **11.90%**, dexlansoprazole for **1.75%**, lansoprazole for **1.40%**, and rabeprazole for **0.60%**.

Conclusion:
This outcome not only highlights the effectiveness of targeted stewardship efforts but also underscores the importance of ensuring that PPIs are prescribed only when clinically indicated. The findings suggest that with appropriate oversight and education, it is possible to mitigate the risks associated with unnecessary PPI use, ultimately enhancing patient safety and optimizing medication management.

Keywords:
Proton pump inhibitors, medication stewardship, prescription audit, quality improvement

36 Role of Community Pharmacist in Managing Hypertension in the Community Settings of Rawalpindi and Islamabad: Questionnaire Revalidation and Application

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Dr. Matti Ullah,
Muhammad Bin Zakir

Background:
Hypertension poses a significant global health challenge in terms of morbidity and mortality. Understanding pharmacists' contribution to the management of hypertension in a community setup is important for improving public health outcomes. However, pharmacists are well-positioned to alleviate this burden through their expertise.

Aim/ objective:
The main objective of this study was to revalidate a scale in Pakistani settings for assessing the involvement of pharmacists in managing hypertension in community pharmacies. The study also sought to assess the services and interventions related to hypertension management offered in real- life settings and to gauge patient satisfaction with these services and interventions.

Design/ methods:
A cross-sectional survey-based analysis was conducted from November 2023 to February 2024 to assess the impact of community pharmacist counselling on the blood pressure of patients attending community pharmacies in Rawalpindi and Islamabad, Pakistan. Ten community pharmacies were randomly selected and hypertensive patients were included in the study. Data were collected using a validated questionnaire covering medication management, disease state education, disease state management, and care plan monitoring. Statistical analysis was performed by using the Statistical Package for the Social Sciences (SPSS) software version 27, employing descriptive statistics, t- tests, and analysis of variance (ANOVA) for data comparison.

Results:
The questionnaire was deemed revalidated with a Cronbach's alpha > 0.75. A total of 400 patients were included in the final analysis. The participants' mean age (±SD) was 47 (±16) years old and 51.4% were male. An independent T-test and ANOVA were performed, revealing that pharmacists play a crucial role in managing hypertension in the community setting, particularly in medication management and disease state education. However, there are gaps in disease state management and care plan monitoring.

Conclusion:
The study underscores the vital role of pharmacists in managing hypertension within community pharmacies. While pharmacists play a crucial role in medication management and patient education for health conditions, there are notable opportunities for improvement, particularly in disease state management and care plan monitoring. These findings emphasize the importance of enhancing pharmacist engagement, providing additional training, and increasing expertise in disease management to optimize patient outcomes.

37 Impact of Medication Administration Unit establishment on ER PATIENT LOAD

Authors:
Rukhsana bibi
Faisal Aziz Sandeela
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Salwa Ahsan

Introduction:
Medication administration under supervision of trained staff is very important. Emergency services of the hospital also provide such services where patient could have their intravenous drug administration. Due to the nature of the emergency unit it increase the burden on the ED. So medication administration unit services have been established separately on Dar-ul-Shifa Neurology floor since October 2023. These quality services were introduced to streamline drug administration for patients and alleviate congestion in busy clinics and the emergency room (ER).

Aim and objectives:
When the emergency department (ED) experiences a surge in patient volume, it becomes overwhelmed, leading to a crowded waiting room and delays in care. This can increase the risk of patient harm or deterioration in their condition. Proper admission of true emergency cases into the ED can optimize time, materials, and resources, reducing the risk of patient harm and potentially saving lives.

Methods:
Since October 2023, Medication administration unit quality services have been established. Patients with less critical conditions, referred from various clinics to the ED for medication, are now being transferred to the MAU for admission. The MAU facilitates IV, IM, and SC drug administration. A comparison of patient numbers at MAU and the ED from October 2023 to June 2024 was conducted to assess the impact on ED load. Data indicates an inverse relationship: an increase in MAU patients correlates with a decrease in ED load. All orders are processed by qualified pharmacists, and interventions are made as necessary.

Results
A **chi-square test** was performed to assess the difference in the number of patients in the Emergency Department (ED) and Medical Intensive Care Unit (MAU) before and after the intervention. The number of patients in the ED decreased 15%, The test showed a statistically significant difference $\mathbf{p} < 0.001$.

Conclusion:
The establishment of the Medication Administration Unit (MAU) has significantly reduced the burden on the Emergency Department (ED). A chi-square analysis revealed a statistically significant shift in patient distribution, with more patients being managed in the MAU for IV, IM, and SC drug administration, thereby alleviating congestion in the ED. This intervention has improved resource allocation and reduced delays in emergency care, enhancing overall patient safety and care quality.

38 Safe and Effective Medicine Administration: The Impact of a Standardized Protocol on Sliding Scale Insulin Administration

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Background:
Medication errors, particularly in insulin administration, are a critical concern in healthcare systems worldwide. In Pakistan, the prevalence of these errors is exacerbated by the lack of standardized protocols, leading to significant adverse events in diabetic patients. Sliding scale insulin (SSI) regimens, which involve adjusting insulin doses based on blood glucose levels, are particularly prone to errors without a standardized approach. Medication errors and adverse events are significant concerns in the administration of sliding scale insulin (SSI) in clinical settings. Variability in insulin dosing protocols can lead to inconsistent patient outcomes.

Objective:
To evaluate the effectiveness of a standardized protocol in reducing medication errors and adverse events associated with SSI.

Methods:
A retrospective analysis conducted in a tertiary care hospital over a 12-month period in which participants were adult patients receiving SSI for glycemic control. A standardized SSI protocol, including clear guidelines for insulin dosing, monitoring, and adjustments was implemented**.** Pre- and post-implementation data on medication errors, adverse events (e.g., hypoglycemia, hyperglycemia), and patient outcomes were collected and analyzed.

Results:

Reduction in Medication Errors:
Implementation of the standardized protocol resulted in a significant reduction in medication errors related to SSI administration. Pre-Implementation error rate was 15% while Post-Implementation error rate was 5%.

Reduction in Adverse Events:
There was a notable decrease in adverse events post-implementation. Hypoglycemia incidents reduced from 10% to 3% while Hyperglycemia incidents reduced from 12% to 4%.

Patient Outcomes:
Improved glycemic control was observed, with a higher percentage of patients achieving target blood glucose levels. Before Implementation of SSI, 55% patients lied within target blood glucose range. After Implementation, 80% patients lied within target blood glucose range.

Conclusion:
A standardized SSI protocol effectively decreases medication errors and adverse events, enhancing patient outcomes. Continued monitoring and periodic review of the protocol are essential to sustain and further improve patient safety and glycemic control.

Past Winners

AMMC 2023

Oral Presentation

1

1st Position:
Application of learning management system in the knowledge enhancement of pharmacists on High Alert medications"
Huba Gulzar , Affiliation Shifa International Hospital Islamabad

2

2nd Position:
Assessment of Patient Compliance to Anticoagulation though Patient through patient counselling by the Use of Visual Technology
Almas Zahid , Affiliation Shifa International Hospital Islamabad

3

3rd Position:
Potentially inappropriate medicine used based on 2019 Beer's criteria among geriatric patients presented to hospital of Abbottoabad
Ammarah Ijaz , Affiliation Comsats University Abbottabad

3

3rd Position:
Impact of Clinical Pharmacist Interventions in Rental Comprised patients t a public tertiary care hospitals
Mehreen Raza, Affiliation Dow University of Health Science Karachi

Past Winners

AMMC 2023

Poster Presentation

1

1st Position:
Assessment of Prescribing trends using WHO prescribing indicators in Twin cities of Pakistan
Aisha Altaf , Affiliation Shifa Tameer e Millat Univeristy Islamabad

2

2nd Position:
A quality improvement project to increase compliance with Heparin Infusion Protocol in a Tertiary Care Hospital
Aimen Faheem , Affiliation Shifa International Hospital Islamabad

3

3rd Position:
Improving Breast Cancer Care: Assessing the Effect of Medication Therapy Management on Drug-Related Polypharmacy Issuse
Amir Noor , Affiliation Islamia University Bahwalpur

3

3rd Position:
Unveiling Affordable Solutions: A Seven-Year Study on Overcoming Multi & Extensively-Drug Resistant Typhoid Fever
Almas Zahid, Affiliation Shifa International Hospital Islamabad

Annual Medication Management Conference (AMMC – 2025)

Submission of abstracts for the upcoming **Annual Medication Management Conference (AMMC) Shifa 2025** will be closed on July 20, 2025.

Department of Pharmacy Services, Shifa International Hospitals Ltd in collaboration with Shifa Center of Professional Excellence (SCOPE) is organizing this conference, since 2021, with an aim that pharmacists from different domains of the profession are united on one platform with a common goal i.e., learning and implementing the "Safe & Effective Medication Management & Use" across the healthcare sector in Pakistan.

Abstract submission:
All abstracts must present original research or quality/patient safety improvement project. The abstracts reporting data pending will not be accepted. Submission implies that the material has not previously been presented or published elsewhere before presentation at Annual Medication Management Conference (AMMC – 2024).

Results and Awards:
There are cash prizes for winners for oral and poster presentations. The results are decided by our jury members and announced on the day of event after the presentations.

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