Shifa International Hospitals Ltd.

SCOPE
SHIFA CENTER OF PROFESSIONAL EXCELLENCE

SHIFA FOUNDATION
making an effort

3rd ANNUAL MEDICATION MANAGEMENT CONFERENCE

(AMMC - 2023)

16 December 2023 | Hotel Margalla, Islamabad

Pharmacists strengthening the health systems

Abstract Book

ACCME ACCREDITED

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The Faculty/Speaker, CME Planning Committee, Reviewer, Moderator and any individual connected to this activity confirms that they do not have any relevant financial relationships with any commercial interests to disclose.

Program

16 December, 2023

S#	Sessions	Timings	Speakers
1.	Registration	8-9 am	-
2.	Opening, National Anthem, Tilawat	0900	Host
	Welcome Note; Chairperson Organizing Committee AMMC-Shifa 2023		**Salwa Ahsan** *Chief of Pharmacy, Shifa International Hospitals Ltd.*
3.	Key Note Address	0920 am	**Asim Rauf** *CEO, Drug Regulatory Authority of Pakistan*
4.	**National Medicine Policy – Paving the way for a better healthcare system**	0940 am	**Ayyaz Kiani** **Karim Hussain Khan**, Director of Nursing eShifa *Medicine Policy Consultant, US Pharmacopeia (USP)*
5.	**Uplifting the healthcare system - Academia to ensure practice-ready workforce**	1000 am	**Dr. Syed Atif Raza** *Professor, Punjab University College of Pharmacy - Lahore*
6.	**Pharmacy video**		
7.	**Setting up a Patient Safety Organization (PSO) - Need and Challenges**	1030 am	**Shannon Davila** *Director, Total Systems Safety at ECRI – USA*
8.	**Fun Quiz**		
9.	**Tea break (with Posters gallery & stall visit)**	**60 min**	**Shifa Pharmacy Showcase Video**
10.	**Pharmacist Oath – a promise that fuels our passion**	1150 am	**Sumaira Khan** *Head of Pharmacy, Tabba Heart Institute - KHI*
11.	**Preparation of Nursing workforce for medication administration safety**	1210 pm	**Dr. Raisa Gul;** *Dean, Shifa Nursing College & Tameer e Millat University* **Karim Hussain Khan**, Director of Nursing eShifa
12.	**Need of National Patient Safety Policy**	1230 pm	**Dr. Zakiuddin Ahmed** *CEO-Digital Care, Director-RIHIS (Riphah), Adjunct Professor Digital Health HSA*
13.	**Fun Quiz**		
14.	**Lunch, Namaz break**	**60 min**	**Shifa Pharmacy Video** **Poster gallery & stall visit**
15.	Oral poster Presentation - 5 mins Each	45 min	Poster presenters
16.	**How Implementing a robust clinical pharmacy service promotes medication safety?**	3:00 pm	**Sheikh Hussam Latif** *Chief Pharmacist, Mukhtar A. Sheikh Hospital - Multan*
17.	**Community Pharmacy Practice - an Integral part of Healthcare system**	3:20 pm	**Amoos Bajwa** *Region Director Emerging Leader | CVS Health - USA*
18.	**Fun Quiz**		
19.	Winner announcement; **Best Poster Presenters**		Judges
20.	Shields presentation (Org. Committee)		Guest of honor
21.	Vote of Thanks, Conference closing		**Salwa Ahsan**, *Chief of Pharmacy*
22.	Group Photo - Refreshment		

Foreword

All praises to Allah, this is the second 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-2024 In Sha Allah!

Salwa Ahsan

Chairperson Organizing Committee
Chief of Pharmacy,
Shifa International Hospitals Ltd,
Islamabad

Keynote

Mr. Asim Rauf

Chief Executive Officer,
Drug Regulatory Authority
of Pakistan

Faculty

Mr. Ayyaz Kiani

Lead Consultant for the
National Medicine Policy
at PQM+/USP

Mr. Amoos Bajwa

Region Director Emerging
Leader, CVS Health,
Atlanta, Georgia

Dr. Raisa Gul

Dean at Faculty of Nursing
and Midwifery,
Shifa Tameer-e-Millat
University, Islamabad

Faculty

Mr. Karim Abdul Hussain

Director Nursing
Shifa Integrated Healthcare Technologies (Pvt) Ltd.

Dr. Zakiuddin Ahmed

Director
Riphah Institute of Healthcare Improvement & Safety (RIHIS)
Chairman, International Conference on Patient Safety (ICPS)

Ms. Shannon Davila

Director of ECRI's Total System Safety, USA

Faculty

Mr. Sheikh Hussam Latif

Chief Pharmacist,
Mukhtar A. Sheikh Hospital,
Multan

Ms. Sumaira Khan

Head of Pharmacy
Tabba Heart Institute
Karachi

Dr. Syed Atif Raza

Principal
Punjab University College
of Pharmacy, Lahore

ANNUAL MEDICATION MANAGEMENT CONFERENCE

M M A C

Abstracts

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Abstracts

Oral Presentations

1 Clinical Pharmacists' Role in Identification and Management of Medication Errors in Different Wards of a Hospital in Karachi

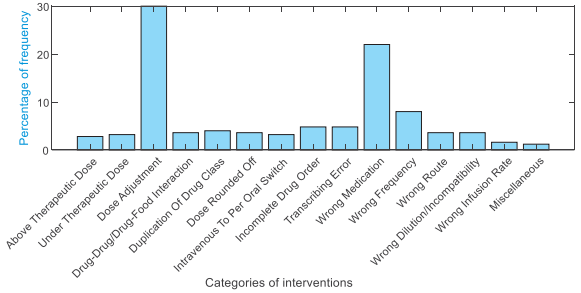
Anum Sattar[1]*,
Safila Naveed[1],
Hina Rehman[2]

[1]Jinnah University for Women, Karachi, Pakistan.

[2]Jinnah Sindh Medical University, Karachi, Pakistan

Background:

Medication errors are a frequent issue within healthcare facilities. The ratio of patients who suffer harm due to these errors, in contrast to those who do not, is a concerning 100:1. Unexpectedly, only about 30% of drug-related injuries in hospitals can be attributed to specific medication errors that could have been avoided. Despite this, the extensive use of medications has resulted in a significant increase in the inclusive number of unnecessary demises.



Aim:

The study aimed to identify and address errors in hospital practice, focusing on management malpractices and treatment errors, and the pharmacist's role in recognizing these errors.

Methodology:

A cross-sectional case study, conducted in a private hospital in Karachi and including 200 patients, was assumed to explore drug therapy errors and evaluate the pharmacist's contribution in their detection.

Results:

Clinical pharmacists assessed 200 patients for prescription errors during the provisional, of whom 110 (55%) were females and 90 were male patients (45%). In 200 individuals, 250 faults (1.25 per each) were found and effectively handled. The following frequency of faults was found: Above TherapeuticDose7(2.8%), UnderTherapeuticDose8(3.2%), DoseAdjustment75(30%), Drug-Drug/Drug-Food Interaction 9 (3.6%), Duplication of Drug Class 10(4.0%), Dose Rounded Off 9 (3.6%), Intravenous to Per Oral Switch 8 (3.2%) Incomplete Drug Order 12(4.8%), Transcribing Error12(4.8%), Wrong Medication 55(22%) Wrong Frequency 20(8%) Wrong Route 9(3.6%) Wrong Dilution/Incompatibility 9(3.6%) Wrong Infusion Rate 4(1.6%) Miscellaneous 3(1.2%).

Conclusions:

The drug therapy regimens of patients are found to be less effective, and more precisely, they are interfering with the disease profiles and co-morbidities of the patients. The drug therapy for patients should be designed according to the need, efficacy, response of the body, response of the co-morbidities, and safety parameters.

2 Impact of Clinical Pharmacist Interventions in Renal compromised patients at a Public Sector Tertiary Care Hospital

Yasmin Baluch*[1],
Aasma Hamid[2],
Zoya Sarwar[3],
Khushboo Noor[3],
Wardha Tanveer[3],
Mehreen Raza[4],
Ale Zehra[5]

[1]Assistant Manager,
Clinical Pharmacy, DUHS,
[2]Director Pharmacy, DUHS
[3]Pharmacist, DUHS,
[4]Assistant Manager,
Pharmacy ware house, DUHS,
[5]Assistant Professor,
Dow College of Pharmacy, DUHS

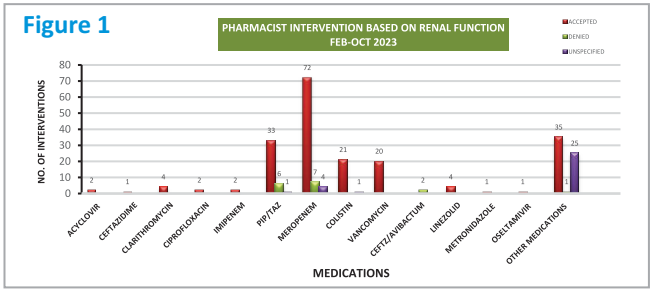
Background:

In LMICs, the public healthcare services are crucial for reducing the burden of morbidity and mortality in population especially for patients with conditions like impaired kidney function.[1] Proper medication dosing is essential to achieve optimal therapeutic results while minimizing drug-related complications. Clinical pharmacist interventions (CPIs) act as a collaborative approach to enhance healthcare outcomes by optimizing patient care through pharmacist expertise.[2]

Objective:

To assess the therapeutic and economic influence of CPIs on the implementation of renal dosing protocols in a resource limited public health care sector.

Figure 1



Methods:

A retrospective analysis was conducted during the period of Feb- Oct 2023. Patients with renal impairment were identified initially at medical ICU and then the scope was extended to surgical ICU, HDU and stroke unit. Clinical pharmacists assessed the medication regimens and data was collected on various aspects, including baseline patient information, medication regimens, laboratory values and pharmacokinetics principles. The interventions including renal dose adjustments and recommendations for therapeutic alternatives were documented and analyzed. Specific outcome measures such as appropriate medication dosing resulting in improving patient safety and cost effectiveness.

Results:

A total of 245 interventions were meticulously undertaken, with acceptance rate of 95% (n=219). The majority of these interventions, precisely 74%, were related to antimicrobial dosing, while the remaining 24% included others medications. Among antibiotics, Meropenem showed the highest percentage of interventions i.e., 45% followed by Piperacillin/tazobactam (21%) and Colistin (12%) as shown in Figure # 01. The cost effectiveness against the renal dose adjustments resulted into a significant savings of $3,174.

Conclusion:

In spite of many challenges being faced in public sector hospital, this study highlights the far-reaching impact of CPIs, extending beyond healthcare outcomes to the realm of economic relief in hospitalized patients.

Reference:

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3 Impact of Cognitive Behavioral Intervention on Adherence and Quality of Life of Epileptic Patients

Matti Ullah[1]*
Iqra Farooq [1,2]

[1]Faculty of Pharmacy, Hamdard University, Islamabad Campus, Hamdard University, Pakistan.

[2]Shifa International Hospital, Islamabad, Pakistan

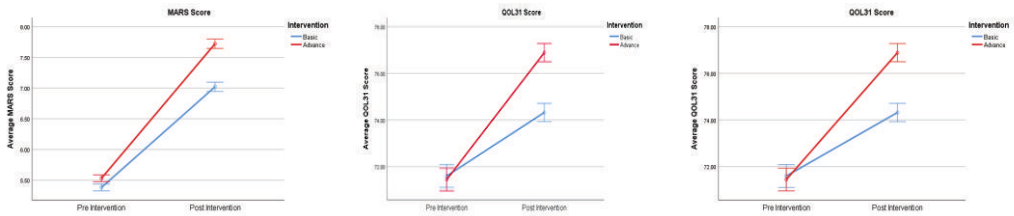
Background:
Epilepsy is a chronic neurological disorder affecting millions of individuals worldwide, often requiring long-term medication management to control seizures. Despite the availability of effective anti-epileptic drugs (AEDs), medication adherence remains a significant challenge for many patients, leading to inadequate seizure control and reduced quality of life.

Objective:
The aim of the study was to evaluate the impact of pharmacist-led cognitive behavioral intervention on adherence, reduction in ADRs, Seizure's frequency, medication related problems (MRPs) other than ADRs and overall quality of life of epileptic patients.

Methodology:
The study was done as a randomized single-blind two-arm clinical trial. Participants were randomly divided into two groups and were provided with basic and advance pharmacist-led Cognitive Behavioral intervention (CBI) including counselling about their medication schedules. Pre-validated questionnaires i.e., MARS-10 and QOLIE-31 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. After 3-months patient's adherence and QOL scores were evaluated which showed an increase 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. The study shows that the pharmacist-led cognitive behavioral intervention is a successful technique to help control seizure episodes and increase adherence as well as quality of life of the patients. Moreover, as the advance group showed better adherence and QoL, this proves that more the pharmacist involved in patient care, better the outcomes are.

Conclusion:
Pharmacist led CBI approach can be adopted as an effective intervention method for improving epileptic patients' adherence and quality of life.



4 Medication management: Leveraging pharmacist expertise in medication consumption, safety and availability in emergency department of cardiac public hospital

Aniqa Batool,
Hafiza Rabia Sakrani,
Uroosa Ajaz,
Saima Saleem
Jibran Bin Yousuf

National Institute of Cardiovascular Disease, Karachi, Pakistan

References:

1. Al-Badriyeh D, Kaddoura R, AlMaraghi F, Homosy A, Al Hail M, El-Kassem W, Rouf PV, Fadul A, Mahfouz A, Alyafei SA, Abushanab D. Impact of clinical pharmacist interventions on economic outcomes in a cardiology setting in Qatar. Current Problems in Cardiology. 2023 May 25:101838.
2. Valença-Feitosa F, Dos Santos MR, Carvalho GA, dos Santos Alcantara T, de Oliveira Filho AD, de Lyra-Jr DP. Cost-effectiveness of medication reconciliation performed by a pharmacist in pediatrics of a hospital: A randomized clinical trial protocol linked to a pharmacoeconomic study. Research in Social and Administrative Pharmacy. 2023 Mar 1; 19(3):550-6.
3. Arunmanakul P, Chaiyakunapruk N, Phrommintikul A, Ruengorn C, Permsuwan U. Cost-effectiveness analysis of pharmacist interventions in patients with heart failure in Thailand. Journal of the American Pharmacists Association. 2022 Jan 1; 62(1):71-8.
4. Dawoud DM, Smyth M, Ashe J, Strong T, Wonderling D, Hill J, Varia M, Dyer P, Bion J. Effectiveness and cost effectiveness of pharmacist input at the ward level: a systematic review and meta-analysis. Research in Social and Administrative Pharmacy. 2019 Oct 1; 15(10):1212-22.

Background

Healthcare costs are rising worldwide, due to unhealthy living style of population, the prevalence of medication errors, increased burden of cardiac chronic diseases and polypharmacy.

Aims and objectives

- To reduce the economic burden in public sector hospital.
- Ensuring the optimum use of medicines.
- Impact of pharmacist in medication management.

Design

Retrospective observation study

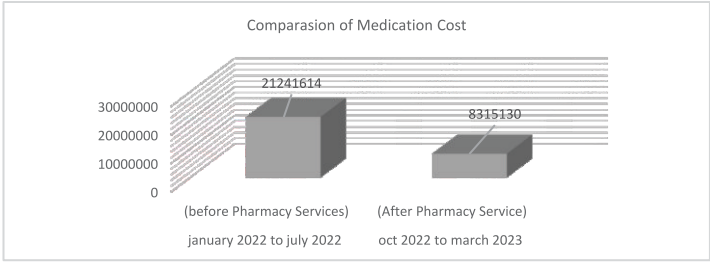


Figure 1: Graphical presentation of cost reduction on medication in emergency department.

Methodology

A comparative study was conducted in cardiac public hospital, before and after the pharmacy services in emergency department. The data was obtained from the central medication store of the cardiac hospital and analyzed from January 2022 to march 2023. Along with that customized strategies were developed and implemented to ensured safe use of medication and inventory control first time in public sector cardiac hospital.

Results

The figure no. 01 showed the 60% reduction in cost to total cost on utilization into medication consuming in emergency department of public sector hospital.

Conclusion

This retrospective study showed the huge reduction in the cost burden on medication consumption which ensured the safe use of medication. Pharmacist involvement in the medication management in emergency department resulted in the proper use of medication with maximum availability of medication.

5 Successful Implementation of Safe Practice for Adult IV Push Medication in a Tertiary Care Hospital

Dr Muhammad Amir*,
Shahid Hussain,
Aimun Danish

Department of Pharmacy Services,
Sindh Institute of Urology and Transplantations,
Karachi, Pakistan

Background

In 2017, Hurricane Maria caused a severe shortage of infusion bags, resulting in a paradigm change of medication administration practice from intermittent infusion to intravenous push In 2020, The Institute for Safe Medication Practices proposed Safe Practice Guidelines for Adult IV Push Medications. Different study showed that RTA medication prepared in the Sterile Area of a Pharmacy reduces the risk of harm, nurses' time for medication administration, and the cost of medications. Based on the recommendation of ISMP, we decided to conduct a pilot study on the implementation of sterile compounding and administration of IVP Medication in adult patients admitted to the hospital.

Methods

We conducted a review of dispensing records and literature review for IVP for different medications. A list of medication was created with different strength. Parameter were determined such as pH, osmolarity were determined. The stability of products were determined by literature review at initial stage, later stability test was also conducted.

Results

Four medication were selected for IVP administration, which were meropenem, pipercillin-tazobactam (piptaz), omeprazole and ceftriaxone. The pilot was initiated from January- March, 2023. The Table 1 provides details of different IVP push compounded and dispensed. During this time, 31,206 IVP was administered to around 8000 patients. During this period, we received no ADR form relating to these medication or complaints from nurses for phlebitis. Physicians, also, did not raise any concern in any difference in health comes.

Conclusion

Our study has shown that IV push medications not only improves the delivery system but also reduces nursing time in preparation. Hence, it is recommended that national wise guideline should be prepared to benefit from these services.

6 Potentially inappropriate medicines use based on 2019 Beer's criteria among geriatric patients presented to hospitals of Abbottabad

Sidra Noor[1]*,
Ammarah Ijaz[2],
Laiba Iftikhar[2],
Muhammad Waqar[2],
Zara Shoaib[2],
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[1]Shifa College of Pharmaceutical Sciences, Shifa Tameer-e-Millat University, Islamabad.

[2]COMSATS University Islamabad, Abbottabad campus, Abbottabad.

Background:
Geriatrics are predominantly exposed to drug related problems due to alterations in age-related pharmacokinetics and pharmacodynamics. Consequently, challenge the selection of an appropriate pharmacotherapy for older adults. Further, potentially inappropriate medications (PIMs) in such patients are associated with adverse health consequences, repeated hospitalization, and a higher risk of mortality.

Aim/Objectives
This study assessed the inappropriate use of medicines based on 2019 Beer's Criteria among geriatric patients presented to hospitals of Abbottabad, Khyber Pakhtunkhwa.

Design/Methods
An observational cross-sectional study was conducted from May to June 2023. Data was collected from two hospitals of Abbottabad, Khyber Pakhtunkhwa i.e., Abbottabad International Hospital and Jinnah International Hospital. Hospitalized patients having ≥60 years of age were included in study. Patients who were at the end stage of their life and at intensive care units were excluded. PIMs were identified using Beer's Criteria 2019.

Results
Out of 100 geriatric prescriptions, males (71%), age range 65-70 years (58%), and patients having intermediate education (34%) were predominant. Approximately, 83% patients received PIMs, out of which, 63% received PIMs of category A. Omeprazole (42%), dexamethasone (18%), and aspirin (16%) were frequently prescribed PIMs. Polypharmacy and potential drug-drug interactions (pDDIs) were observed in 38 and 37 prescriptions, respectively. A total of 17 prescriptions had major type of pDDIs.

Conclusions
Our study indicates high prevalence of PIMs, polypharmacy, and pDDIs. Omeprazole is commonly identified PIMs. Recommendations on how to optimize prescriptions for geriatrics and implement de-prescribing strategies are urgently needed.

References

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3. Tian F, Chen Z, Zeng Y, Feng Q, Chen X. Prevalence of use of potentially inappropriate medications among older adults Worldwide: A systematic review and meta-analysis, JAMA Netw Open. 2023;6(8):e2326910-.

7 Enhancing Pediatric Total Parenteral Nutrition (TPN) Preparation: Design and Validation of a Custom Calculator for Improved Efficiency and Patient Safety

Rehan Anjum*,
Shinza Arshad,
Almas Zahid

Department of Pharmacy,
Shifa International Hospital
Islamabad

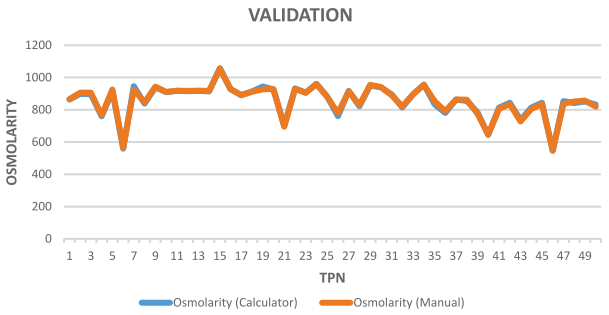
Background
Shifa International Hospital's Pharmacy Services have revolutionized the preparation of Total Parenteral Nutrition (TPN) by implementing a sophisticated system under stringent sterile conditions. Precision in TPN component calculation, considering factors like osmolarity and IV line specifications, is crucial in adhering to physicians' instructions. The shift from a manual, error-prone process lacking tailored online calculators to a streamlined approach not only promises significant error reduction but also eases the workload on healthcare professionals.

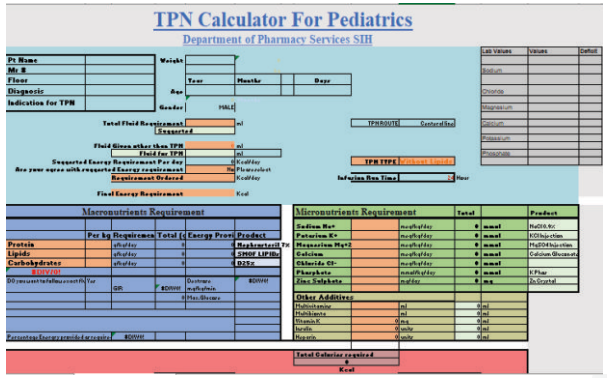
Aim/Objective
The objective was to design a pediatric TPN calculator specifically suited to our facilities, alleviating manual calculation, and generating custom calculation sheets and TPN labels with improved efficiency and safety.

Design/method
The process includes making an Excel file with input, processing, calculation, label, and error sheets. The calculator asks users to input patient details, TPN specifics, macronutrient and micronutrient quantities, and product selection based on physician orders. The resulting calculation sheet shows patient information, TPN components, selected products, quantities, total fluid, calories, and osmolarity. At the same time, an automated label includes important patient data, TPN component measurements, fluid volume, calories, osmolarity, infusion rate, route, preparation, and expiry details.

Result
Validation compared 50 manual TPN forms with the calculator's output, revealing close matches in macronutrients and fluid quantities, along with accurate total calories. However, slight discrepancies in osmolarity arose due to the calculator's inclusive approach to micronutrients and avoidance of rounding figures.

Conclusion
The calculator proves its worth by expediting TPN order dispensing, ensuring timely administration, and offering numerous advantages. It enhances time efficiency, reduces workload, provides automated suggestions for patient-specific needs, and issues pop-up notifications for potential issues. Additional features include predicting values, preventing volume overload, addressing micronutrient needs, differentiating between TPN types, calculating micronutrients, auto-generating labels, determining infusion details, indicating calorie percentages, and issuing prompt notifications for errors. This advanced tool not only delivers comprehensive nutrient information but also allows customization, showcasing a move towards automation for heightened patient safety. Its integration into daily operations signifies a substantial leap in leveraging technology to minimize errors and prioritize patient well-being.





8 Application of learning management system in the knowledge enhancement of pharmacists on High Alert medications: A prospective cohort study

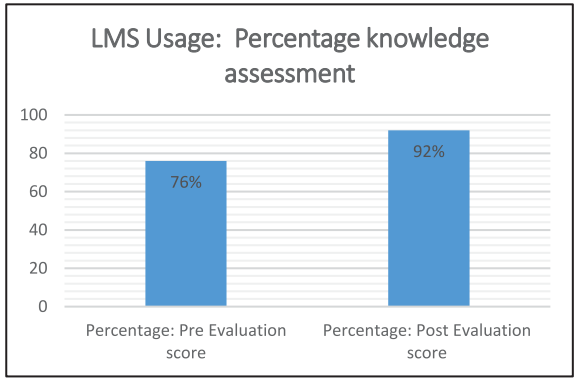
Huba Gulzar*
Rehan Anjum
Naiha Tahir
Muhammad Gulzaib
Shinza Arshad

Department of Pharmacy Services,
Shifa International Hospital
Islamabad

Introduction:
High Alert Medications (HAMs), poses a significant threat in increasing medication errors. It is highly important to address this crucial issue and spread awareness on how to manage them effectively and appropriately. DRAP has put forward with the guidelines for the management of high alert medications. In low-middle income countries like Pakistan, ensuring patient safety with limited resources is a real challenge.
In the era of technological advancement, leveraging Learning Management Systems (LMS) is crucial for disseminating knowledge among healthcare professionals. Recognizing the pivotal role of pharmacists, we've introduced a comprehensive LMS course to enhance their awareness.

Objective:
To assess the effectiveness of learning management system in enhancing the knowledge of pharmacists on High Alert Medications.

Methods:
Identification of resources paved the way for developing courses in line with DRAP, creating an interactive learning experience. In this study, thirty pharmacists engaged in an intensive LMS course centered on high alert medications, featuring eleven comprehensive modules online. These modules integrated interactive tools like MCQs, match the column, etc. The subsequent enrollment on LMS facilitated pretest evaluations, followed by post-evaluations for a comprehensive assessment of knowledge acquisition. It is complemented by a feedback form gauging the LMS's effectiveness. Statistical analysis was performed using MS Excel.



Results:
Thirty pharmacists completed the course and underwent pre-evaluation and post-evaluation tests. Knowledge enhancement was 76% in the pre-evaluation test, increasing to 92% post-evaluation, demonstrating a substantial knowledge increase with LMS. This underscores the effectiveness of LMS in enhancing knowledge while saving time and facilitating them to learn at their own ease and comfort.

Conclusion:
Implementing a Learning Management System (LMS) is invaluable for enhancing pharmacists' knowledge and proficiency in managing high-alert medications. Advocating for its official integration as part of national-level training for all pharmacists across organizations is imperative. This would provide a standardized platform for comprehensive learning, ensuring accessibility and understanding of high-alert medications through real-life examples at each pharmacist's convenience.

9 Protecting patients from Harm: The Critical Contribution of Pharmacists in Ensuring Safe Medication Management Through Renal Dose Adjustment

Huba Gulzar*,
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Asghar S,
Rehan Anjum,
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Department of Pharmacy,
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Introduction:

The kidneys are remarkable organs that play a crucial role in maintaining the body's homeostasis. Chronic kidney disease (CKD) is a widespread health condition affecting millions of people worldwide. The global burden of Chronic Kidney disease is inevitable as around 10% of the adults are CKD patients leading to 1.2 million deaths and 28 million years-lost-of-life each year. Chronic Kidney Disease will become the fifth leading cause of mortality around the globe by 2040. Pharmacists play a crucial role in managing CKD patients, adjusting medications to prevent complications and improve outcomes.

Methods:

From January 2022 to December 2022, a prospective study was conducted at Shifa International Hospital to investigate the impact of pharmacist-led interventions for patients being treated with medications requiring renal adjustments. Patient data was retrieved from the Shifa Management database. The study focused on adjusting medication doses based on the patient's reduced creatinine clearance. Data from each month was compiled and analyzed to assess the effectiveness of pharmacist-led interventions in optimizing patient medication regimens.

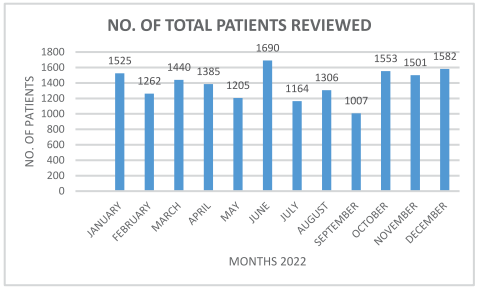

FIGURE 1: GRAPH REPRESENTING NUMBER OF PATIENTS WITH RENAL DOSE ADJUSTED IN EACH MONTH

Results:

During the whole one year 16620 patients were reviewed as potential candidates for renal dose adjustment. And dose adjustment was performed according to patient kidney function for 1,385 patients (8.3%) ensuring patient safety and enhancing efficacy for the patients. Pharmacist reduced adverse events, toxicity and potential patient harm that could have resulted if the doses had not been adjusted. Along with it with reduced dose requirement 1,042,003 (1.04 million) Pakistani rupees being saved as a result of pharmacist interventions in renal dose adjustment over the course of the year.

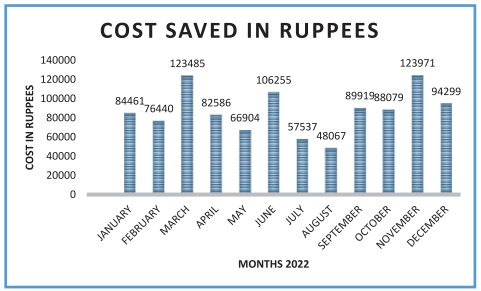

FIGURE 2:GRAPH REPRESENTING PATIENT'S COSTS SAVED EACH MONTH

Conclusion:

The critical role of pharmacists in promoting patient safety through preventing dosing errors was evident, and leading to reduced hospital stays and the prevention of chronic effects that could have resulted from incorrect dosages and also reduction in patient cost. Thus hypothesis was accepted.

10 Unveiling Affordable Solutions: A Seven-Year Study on Overcoming Multi-Drug Resistant Typhoid Fever

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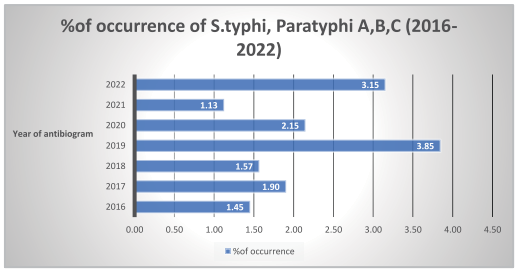
Background:
Typhoid fever, caused by the bacterium Salmonella typhi, is characterized by clinical features such as step-ladder patterned high-grade fever, constipation or diarrhea, chills, and myalgias, etc. The microbe has a fecal-oral route of transmission, and it primarily spreads in low-resource areas with a poor socioeconomic standing. This has given birth to newer and more powerful strains, such as Multi-Drug Resistant (MDR)-Typhoid: resistant to three antibiotics; ampicillin, trimethoprim-sulfamethoxazole, and chloramphenicol, and XDR-Typhoid: resistant to five antibiotics; chloramphenicol, ampicillin, co-trimoxazole, fluoroquinolones, and third-generation cephalosporins. Only three antimicrobial drugs, namely: azithromycin (oral), carbapenems, and tigecycline (parenteral) are effective against the XDR strains (1). This, in addition to restricting treatment options for physicians, also poses an increased threat to patients who might develop a severe life-threatening illness. Due to higher resistance occurring over the years, moving to other options such as meropenem has been considered as a crucial need. However, cost-effective approaches need to be utilized such as azithromycin.

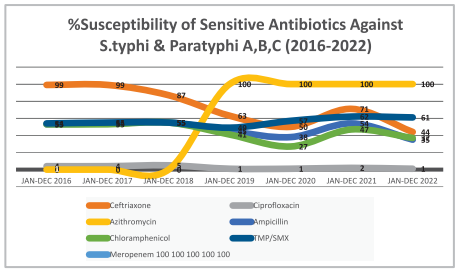
Aim/Objective:
Considering other cost-effective approaches to overcome multi-drug resistance

Design/Method:
Observational study over a period of seven years was conducted. Antibiograms were utilized to determine % occurrence of s. typhi, paratyphi A,B,C along with %susceptibility of antibiotics from 2016 to 2022. Antibiotics (Ceftriaxone, Ciprofloxacin, Azithromycin, Ampicillin, TMP/SMX, and chloramphenicol) were compared in terms of % susceptibility. Finally, from the most susceptible antibiotics, cost-efficacy was measured by comparing azithromycin and meropenem

Result
It was observed that there had been an increase in % occurence of typhoid fever over the years with the highest occurring in 2019 and 2022. Ciprofloxacin was shown to have the lowest mean %suceptibility (2.57%), with azithromycin having the highest mean %susceptibility (100%) while meropenem showed an overall mean % susceptibility of 100%. In terms of cost, an over all saving of Rs.94610/- would be made for a 10-day treatment when comparing cost of treatment of meropenem vs azithromycin.

Conclusion
In brief, the study addressed challenges posed by multi-drug resistant Salmonella typhi in typhoid fever over seven years. A concerning increase in cases, particularly in 2019 and 2022, was noted. Ciprofloxacin exhibited the lowest susceptibility, while Azithromycin and Meropenem showed the highest. However, cost-effectiveness favored Azithromycin, emphasizing the need for affordable alternatives to combat multi-drug resistance and ensure accessible treatment for typhoid fever patients.





11 Precision in Vancomycin Dosage Management: Investigating AUC/MIC Implementation at a Tertiary Care Facility for Enhanced Therapeutic Efficacy and Safety

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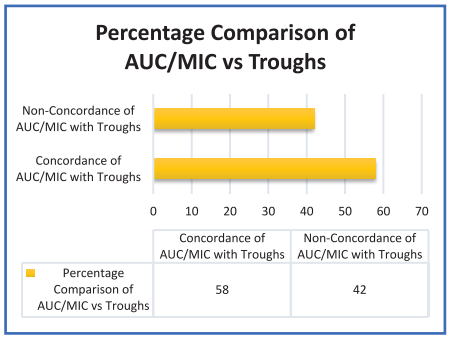
Background:
Vancomycin therapeutic drug monitoring is really a concern because of its toxicity and efficacy. There has been a dynamic evolution of consensus guidelines of Vancomycin therapeutic monitoring. The 2009 consensus guidelines stated that, "trough serum vancomycin concentrations are the most accurate and practical method of monitoring the effectiveness of Vancomycin". However, the recent consensus guideline 2020 advocates for a transition to AUC/MIC-guided dosing and monitoring, based on accuracy and safety in the administration of vancomycin with target AUC/MIC 400-600 mcg.hr/L

Problem Statement:
The utilization of diverse methodologies, such as trapezoidal integration and AUC/MIC determination, poses a formidable challenge, exacerbated by resource constraints prevalent in developing countries like Pakistan. So the surrogate markers of AUC/MIC the trough levels are still being used in many parts of the world. This disparity between available methods and recommended practices raises critical concerns regarding the feasibility and adequacy of current monitoring approaches, particularly in resource-limited healthcare settings of Pakistan.

Aim of the study:
The aim of the study is to implement the AUC/MIC therapeutic drug monitoring of vancomycin and its relevance to the trough level monitoring.

Methodology:
A comprehensive literature review was conducted to identify the most accurate online resource for determining AUC/MIC in the context of Vancomycin dosing. According to literature, Vancopk was found to be most accurate and precise in predicting AUC/MIC among other online resources. Patients requiring vancomycin were enrolled in the study and a prospective study was conducted, utilizing the hospital's electronic database for data collection. Data was then evaluated and results were deduced.



Results:
Evaluation of 143 patients was conducted, using an online AUC/MIC calculator. 58% of trough levels were in unison with corresponding AUC/MIC ratio. However, 42% of the population had a major conflict between trough levels and AUC/MIC ratio.

Conclusion:
The implementation of AUC/MIC for the therapeutic monitoring of Vancomycin proved successful at the tertiary care hospital the despite the challenges and utilization of minimum resources. This outcome signifies the effective integration of advanced monitoring methodologies in the clinical setting, enhancing precision in Vancomycin dosing management with no increased impact on cost.

Future aspects:
The scope of this study can be expanded to assess the concordance between the conventional Vancomycin trough range of 10-20 mg/L and optimal AUC/MIC, providing insights into the alignment of these monitoring parameters. Furthermore, the study holds potential for evaluating the efficacy and safety of implementing AUC/MIC specifically among inpatients, contributing valuable information to refine and optimize Vancomycin therapeutic strategies in the clinical setting.

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Poster Presentations

1 D-Dimer dynamics in Post-COVID Patients: Implications For Long-term Prognosis

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Background:
COVID 19 is a global pandemic afflicting a large population worldwide, with many experiencing severe illness and hospitalization. Emerging evidence suggests that some individuals may experience ongoing symptoms and complications, known as Long COVID, even after recovery from the acute phase of the disease. One potential biomarker for Long COVID is D-Dimer, a fibrin degradation product that reflects a prothrombotic state. This study aims at observing the trends of D-Dimer levels in post-COVID-19 patients followed for six months.

Methods:
Fifty-eight adult patients who had been discharged from hospital after their admission stayed in ICU and were recruited from hospitals in the local area. Following were the time intervals at which the D-dimer levels were measured i.e., at admission, discharge, 2, 4 Week, 8 Week, 12 Week and 6 months' post-discharge using an automated latex-enhanced immunoturbidimetric assay. Follow-up data has information on symptoms, previous history, and medication use. The trend of D-dimer levels over time was analyzed using k means clustering and visualized through Heat map, Clusters, and centroid trend lines.

Results:
The results of this study showed that D-dimer levels decreased significantly over time in post-COVID-19 patients, with mean levels decreasing from 1244 ng/mL at baseline to 159ng/mL at six months' post discharge. Furthermore, k means clustering was used to group the people according to the early and late recovery, it clustered the people who were showing the same response throughout the follow-up and centroid trend clearly showed the significant decrease in D-dimer level from admission to six months of follow-up after getting the treatment. We used Forest plot and (ANOVA) and a significant association was found between the D-dimer levels and the recovery of the patient taking medicine.

Conclusion:
This study suggests that D-dimer decreasing trend after getting the treatment in Long COVID or post-COVID-19 patients. It also provides the early and late recovery during follow-up as per patient response was investigated through clustering. The potential medicine underlying the association can be explained by further research on this topic which may also support our findings.

Keywords:
COVID-19, Clustering, D-Dimer trend, POST COVID-19, Syndrome

2 Abstract of Economic and clinical impact of pharmacist managed to convert iv to oral Omeprazole at DHQ Badin

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Objective

Safest and easy route of administering medicine is oral route. However, most of patients admitted in hospital with severe infections are initially treated with intravenous route followed by oral route of administration. In this study we described that how pharmacist managed to convert i.v form of Omeprazole in oral form on patients in District Headquarter Hospital Badin, Sindh, Pakistan whom Omeprazole administer for different types of diagnosis.

Method

A retrospective study was conducted on patients irrespective of their age and sex. We collected data from Health management and Information system software (HMIS) used in DHQ Badin. During the intervention proactive conversion period, pharmacist reviewed and intervened all Omeprazole orders. The total cost of Omeprazole was calculated of patients who converted from i.v to oral Omeprazole therapy.

Results

Total 1152 patients received Omeprazole. Total 281 quantity of iv Omeprazole prescribed while 4241 quantity of oral omeprazole was prescribed. Total cost saved from intravenous to Oral Omeprazole therapy was 339280.

Conclusion

The pharmacist managed i.v to p.o conversion service reduce cost, both on medication costs and total inpatient expenditures. This represents strong evidence for implementing the i.v to p.o service in Pakistan.

Key words

Omeprazole, Pharmacist, Pakistan.

3 Adverse Drug Reaction Reporting Practices of Nurses in Twin Cities of Pakistan

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Introduction:
In the present day situation when there is so much workload on the healthcare workers specially the nurses due to the increasing population, the risk of adverse drug reaction has been increased multiple times which is a direct measure of quality of health services. The present study aims to highlight the work attitude and practices of nurses regarding adverse drug reactions in twin cities of Pakistan.

Materials and Methods:
A descriptive cross sectional study design was opted. A structured questionnaire was developed, pilot tested and used to collect data. The questionnaire was self administered among the nurses in the hospitals of Islamabad and Rawalpindi to collect data. The data was screened and processed by SPSS version 21 for analysis.

Results:
The study found out that the nurses of middle age group irrespective of the gender are willing to identify and report the adverse drug reaction (75%) but unfortunately its not the case in case of junior nurses. It is also observed that a significant proportion of nurses don't even know the regulatory body for drug related matters (34%) and it is also reflected that 24% of the population perceives it wrong and doesn't know what is actual concept and working mechanism of adverse drug reporting.

Conclusion:
The study acknowledges the finding that most of the hospitals don't have a properly defined system for minimizing the adverse drug reactions, but at the same time it highlights that certain tertiary care setups have the system for it but needs supervision and needs to be synched with the need of present times.

Keywords:
Nurses, Identification, Documentation, Reporting

4 Enhancing Methotrexate Efficacy and Safety through Innovative Formulations: A Comprehensive Review

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Background:
The medical termination of pregnancy, psoriasis, rheumatological disorders, and some forms of cancer have all been successfully treated with methotrexate (MTX). When compared to conventional techniques, formulation and focusing strategies for MTX that include prodrugs, drug combinations, controlled release carriers, and multiparticulate systems have been reported to maximize clinical effectiveness, minimize side effects, and improve bioavailability. This review addresses the difficulties and successes of MTX's prodrug, drug conjugate, controlled release, and multiparticulate systems.

Methods:
Different novel medication conveyance strategies, for example, microspheres, nanoparticles, strong lipid nanoparticles, liposomes, prodrugs, and drug forms, have been investigated. These methodologies offer a difficult yet favorable device to limit unfavorable impacts and expand remedial results through site-explicit medication conveyance.

Results:
The prodrug and drug form approach, specifically, stands apart as a more biocompatible choice than multiparticulate frameworks and holds potential for commercialization. Clinical preliminaries focusing on RA and disease have exhibited the wide range movement of MTX. Furthermore, concentrates on early termination enlistment, when joined with misoprostol in a fixed-portion blend, have shown promising outcomes.

Conclusion:
MTX, a DHFR inhibitor, holds incredible commitment in treating conditions like cancer, RA, psoriasis, and autoimmune diseases. Due to its narrow safety margin, Therapeutic Drug Monitoring (TDM) is crucial for mitigating dangerous side effects. Controlled release formulations are essential due to MTX's limited oral absorption, reducing dosing frequency and enhancing bioavailability. Various delivery methods, including microspheres and liposomes, aim to minimize adverse effects. The prodrug and drug form approach, especially in RA and cancer trials, demonstrates potential for biocompatibility and commercialization. Furthermore, concentrates on early termination enlistment, when joined with misoprostol in a fixed-portion blend, have shown promising outcomes.

5 Etiology and Prescription Errors of Myocardial Infarction in Different Health Care Systems of Azad Kashmir, Pakistan

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Background.
Cardiovascular diseases (CVDs) including myocardial infarction (MI)/Heart attack are the leading cause of death worldwide. There is a need to identify risk factors that cause MI and due to multiple drugs used for the prevention and treatment of MI, the chances of prescription errors are relatively high.

Objectives.
The objective of this study was to identify the etiological factors related to heart attacks and major prescription errors.

Method.
We collected and assessed prescriptions and related medical histories of 100 myocardial patients (both inpatients and outpatients) in the public healthcare systems of Azad Kashmir, Pakistan. We analyzed the data using various parameters, including drug-drug interactions, dose, strength, frequency, duration of therapy, and etiology. Data was assessed using drug-drug interaction software (Medscape).

Results.
The study identified four major types of drug-drug interactions: synergistic (36.84%), antagonistic (27.819), pharmacokinetic (2.265), and pharmacodynamic interactions (33.08%). The study also found other prescription errors such as missing dose (25%), missing strength (18.75%), missing frequency (31.25%), and missing duration (18.75%). The leading causes of myocardial infarction were hypertension (29.27%), high cholesterol (28.05%), diabetes mellitus (23.17%), and stress (19.51%). Particular attention is required for prevalent risk factors associated with MI patients.

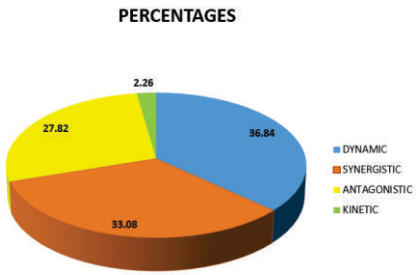

Figure 1: Percentages of the four major Drug-drug interactions found in our study.

Conclusion.
Prescription errors are common for patients with polypharmacy. By using different strategies like a better understanding of risk factors and prescription errors, increasing health literacy among patients, and constant training of health care professionals, we can overcome the risk related to MI and errors in prescription to decrease the mortality of Heart attack patients

6 Evaluation of Clinical Significance of Pharmacist Interventions

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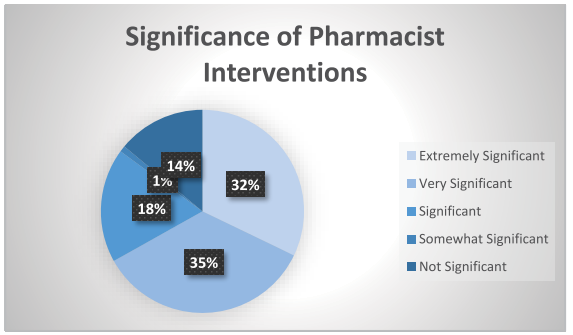
Background
Pharmacists play a crucial role in ensuring patient safety by optimizing medication use in complex medical treatments. Additionally, pharmacists contribute to healthcare delivery through medication review & reconciliation by eliminating medication errors

Objective
This research is a pilot study aimed at evaluating the clinical significance of pharmacists' interventions among various hospital departments such as critical care, gynecology, and more.

Methodology
104 Prescriptions with pharmacists' interventions were collected retrospectively from multiple departments of a tertiary care hospital. The interventions were classified into various types including dose change, brand change, etc. A panel of three pharmacists, including two clinical pharmacists and one community pharmacist then rated the clinical significance of these interventions on a Likert scale of 1 to 5, with 1 indicating no clinical significance and 5 indicating extremely significant or potential lifesaving intervention.

Results
The highest number of interventions was found in pediatrics department (25%) followed by general surgery (7%) and general medicine departments (7%). Of the 104 interventions, 93% were accepted, and 7% were not accepted. Majority of the interventions were related to dose change (26.9%) followed by brand change (18.3%) and, drug and therapy modifications (18.3%). Further, 15.40%, 7.7%, and 9.62% of interventions provided were related to administration and formulation, frequency, and wrong order, respectively. Clerical, duration change and removal of duplication were the areas where pharmacists intervened least (0.96% each). The Spearman correlation coefficient (rs) for all three analysts was above 0.75, suggesting a strong coherence in ratings between different pharmacists. 85% of interventions were rated significant or above, while 32% of interventions out of these were rated as extremely significant, with the potential of saving a life.



Conclusion
Pharmacists play an important role in healthcare delivery by ensuring patient safety. In cases where sub-therapeutic dose is prescribed, dosage adjustment ensures the therapeutic efficacy of drugs.

7 Chemotherapy Induced Extravasation Management: A Comprehensive Insight from A Private Quaternary Care Hospital of Islamabad

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Background
One of the unintentional & most prevalent complication of chemotherapy regimen is "Extravasation". It requires prompt attention and aggressive interventions to mitigate subsequent consequences like phlebitis, pain, ulceration and even limb amputation. In Pakistan, due to poor management & resource constrains, there is no central database available to collect data regarding these events & thus these problems remain unaddressed and effecting quality of patient care.

Objectives
This study aims to quantify the frequency of extravasation events in the clinical setup where study is conducted & to evaluate the effect of short term vs long term chemo administration regimen on induction of extravasation.

Methodology
The patients included in current study were those who had been admitted to receive chemotherapy. Sample size was determined to be 20% of total population. Data collection spanned for 1 month. Patients files were reviewed retrospectively from January 2023 to August 2023. Prospective data collection was carried out in daycare & IPD units. Data was analyzed using SPSS version 21.0.

Results
Out of 251 patients, 52 cases were identified by quantitative analysis using statistical approaches. In current study 45 cases were from retrospective data review of 200 (22.5%) files while 7 occurred during data collection out of 51 (14%) identified cases. Out of 52 cases, incident in day-care was 3 (5.76%) while in IPD units' incident was 49 (93.24%). Incidence rates varied across age groups, and immediate management correlated with improved outcomes.

Conclusion
The integration of quantitative and qualitative methods ensured comprehensive insights into extravasation incidents. This study contributes valuable information to identify inadequacies in clinical practices and enhance protocols for chemotherapy administration, ensuring improved patient outcomes and safety at hospital's oncology department.

8 Pharmacist is the core for the rational use of antibiotics in pediatrics with congenital heart disease

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Jibran bin Yousuf

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Background
Congenital heart disease (CHD) is one of the birth defects. Research conducted in rural area showed prevalence for CHD is 3.4/100. Prevalence of CHD in Pakistani population is 11/1000, in non-Asian is 4.4/1000. CHD mainly includes tetralogy of Fallot, atrial sepal defect, ventricular septal defect, atrioventricular septal defect, patent ductus arteriosus and coarctation of the aorta. Treatment of CHD involves medications, surgeries, or heart transplant but pharmacist is responsible for medicines management, compounding, counseling, and pharmaceutical care plan. Pharmacist plays vital role in antimicrobial stewardship program, hence medicines especially antibiotics which are used in imperative/definitive treatment for cardiac pre/post-operative patients to reduce the risk of post-operative infection and also for any bacterial infection along with CHD are investigated in this study.

Aims and objectives
The main objective of this study is to high-lighten the significance of pharmacist for rational used of antibiotics in pediatric cardiac patients.

Design/Methods
Observational study on irrational use of antibiotic in pediatric cardiac specialized area.
Results: Total 107 intervention on irrational used of antibiotics was accepted just in three months, such as on use of restricted antibiotic (Linezolid) without septic workup, use of controlled antibiotic (Colistin) without loading dose/inappropriate dosing and irrational use (wrong dose/frequency) of antibiotic in pediatric patients without the involvement of pharmacist in treatment plan.

Conclusion
This study showed the used of restricted antibiotic (IV linezolid) on the basis of fever spike without septic workup/ID consult approval in admitted patients and prescription of (oral linezolid) to discharged patients who were on vancomycin treatment in hospital, inappropriate used of controlled antibiotic (Colistin) like without loading dose and irrational used of numerous of antibiotics like beta-lactam inhibitor/macrolide/fluoroquinolone/combinations of antibiotics. Hence, these investigations proved that pharmacist is the core for rational use of antibiotic in pediatrics without them there would be increase in antibiotic resistance and poor outcome.

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9 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 23 to October 23. 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 for a period of 6 months in 2022 to study the role of pharmacists in the management of anemia in hemodialysis patients.

Results:
On average 275 interventions were recorded in the study period resulting in a decrease in the cost burden of Rs. 3,63,620 (34%). The primary outcome, compliance to Epoeitin TDM protocol which was 34% in January that rose to 97% till September 2023.

Conclusion:
To conclude, this study underscores the pivotal role of pharmacists in the comprehensive management of erythropoietin therapy in hemodialysis patients. Chronic kidney disease's escalating global impact necessitates effective strategies to mitigate associated morbidity, mortality, and healthcare costs. The study's primary focus on anemia management within CKD patients not only emphasizes the significance of dose management but also addresses the crucial aspect of the economic burden borne by patients.

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10 From Vancomycin to Comprehensive Coverage: Building a Robust IV Dilution Program for Diverse Medical Needs in a Tertiary Public Health Care Setup.

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Background:
Patient safety is paramount in healthcare while medication errors represent a significant threat to this fundamental principle. Pre-mixed IV solutions address this concern by eliminating the need for manual drug dilution at the point of care. Ready-to-administer IV solutions simplify drug administration processes. DUH pharmacy services have started IV dilution program with limited resources.

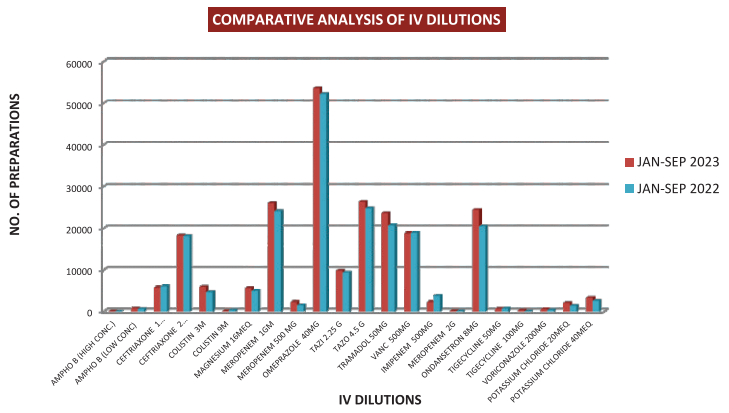
Aim:
The primary aim of the study is to establish a robust and efficient IV dilution program in a tertiary public healthcare setting to meet the diverse needs of both patients and healthcare professionals.

Methodology:
The retrospective analysis of year 2022 and 2023 reveals the successful implementation of an IV dilution program in a tertiary public healthcare setting. The program initially commenced with the preparation of a single drug, Vancomycin, under stringent aseptic conditions. Over time, the program expanded to encompass a diverse range of medications, including Meropenem, Ceftriaxone, Colistin, Tigecyclin, Imipenem, and electrolytes e.g. magnesium sulfate, and potassium chloride, aligning with the objective of enhancing patient medication safety and adhering to safe practice standards.

Result:
The results indicate a substantial increase in the consumption of pre-mixed IV dilutions between 2022 and 2023, with a total consumption of 217,059 units in year 2022 and 239,298 units in the year 2023. Notably, Omeprazole 40mg emerged as the most frequently used pre-mixed IV drug, followed closely by antibiotics. The preparation pattern of antibiotics displayed a consistent upward trend from 2022 to 2023 (figure 01).

Conclusion:
The IV dilution program has proven to be successful in providing a safe, reliable, and efficient means of medication administration in a diverse healthcare environment. The increasing usage of pre-mixed IV dilutions, particularly in the case of antibiotics, underscores the program's contribution to enhancing patient safety and promoting the responsible use of medications.

Figure 01:



11 Impact Of Dose Banding Strategy On Colistin-Induced Acute Kidney Injury: A Drug Utilization Study In A Tertiary Care Hospital

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Introduction
Colistin-induced acute kidney injury (AKI) is widely reported ranging between 14.3% and 76.1%. In 2019, an international guideline was released and endorsed by highly reputed international societies. A well-recognized Asian hospital evaluated the implementation of the 2019 guidelines in their institution. The result showed half of the patients received inappropriate doses and had a higher incidence of acute kidney injury (51.6%) . The hospital guideline of colistin was revised and implemented dose standardization and banding with pharmacist intervention. The drug utilization review was conducted to evaluate colistin-induced AKI in normal renal function patients.

Method
A drug utilization study was conducted to determine the incidence of colistin-induced in patients admitted to the hospital. Patients were included if they were 18 years of age and older, received colistin for ≥72 h, had serum creatinine monitoring, and have calculated creatinine clearance greater or equal to 50 ml/hr. In addition, patients with chronic renal disease or acute renal disease (AKI) or, who required any form of renal replacement therapy (RRT) at the time of colistin initiation, or renal transplant patients were excluded. A form was used to collect information from Sept- Jan 2023

Result
300 patients received colistin of which 59 patients had normal renal function. It was identified that only 17% of the patients suffered from AKI.

Conclusion
The data shows a reduction of colistin-induced AKI in normal patients by 34 % (51 vs 17%) after the implementation of new guidelines. Dose standardization with pharmacist intervention may have helped reduce AKI.

12 Improving Breast Cancer Care: Assessing the Effect of Medication Therapy Management on Drug-Related Polypharmacy Issues

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Bahawalpur Pakistan

Background:
The study addresses the critical need for a systematic pharmaceutical approach and coordinated treatment in the context of cancer's substantial morbidity and fatality rates. Specifically, it investigates the impact of Medication Therapy Management (MTM) services on breast cancer patients dealing with polypharmacy.

Aim/Objectives:
The aim is to evaluate the effects of MTM services on breast cancer patients managing polypharmacy. The study seeks to identify drug-related problems (DRPs), resolution rates, and factors influencing DRPs, such as the number of medications and comorbidities.

Study Design/Methods:
Conducted over 32 months, this observational, exploratory, descriptive, and retrospective study involved 350 patients. Sociodemographic and clinical information were systematically collected to assess the impact of MTM services. Patients were followed for an average of 29 months, allowing for a comprehensive evaluation.

Results:
Out of 120 identified DRPs (average of two per patient), 38.6% were in the resolution process, and 51.4% were successfully resolved. The study highlights the prevalence of DRPs in the categories of "Indication" (~38%) and "Safety" (around 24%). Safety-related DRPs demonstrated a high resolution rate, reaching an expected 60%. DRPs were common among patients using five or more drugs and managing three or more comorbidities.

Conclusions:
The study delves into the complexities of breast cancer treatment, emphasizing concerns related to "dosage too low" and showcasing extensive insights into DRPs, particularly in the "Effectiveness" area. Direct pharmacist interventions played a significant role in addressing safety-related DRPs, enhancing patient safety. Despite effective resolutions, collaboration between doctors and pharmacists, especially in the "Indication" category, requires improvement. Ongoing monitoring through 369 sessions underscores the importance of building a strong therapeutic connection. Age did not emerge as a significant factor, but factors like the number of comorbidities and drugs provided valuable insights for customized therapies. The study concludes that MTM, focusing on collaborative and patient-centered care, is essential for optimizing breast cancer treatment.

13 Perception and Awareness of Use of Antibiotics and Antimicrobial Stewardship among the Students of University

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Background
Misuse of antibiotics is very common and Antimicrobial resistance has become global threat both in hospital and community acquired infections. The main reason behind the misuse of antibiotics is being unaware of its consequences.

Aims and Objectives
This study aims to assess the perceptions about the use of antibiotics and knowledge about antimicrobial resistance among the university students.

Methods
A cross sectional study was conducted in university to test the knowledge about the use of antibiotics and antimicrobial resistance using a questionnaire with 18 questions divided into 4 sections including demographics, use of antibiotics, knowledge about antibiotics and AMR, behavior and perception at the time of the medical visit.

Results
Out of 380 questionnaire, 321 were completely filled with the response rate of 84.47%. most of students who filled the questionnaire were Females (68%) and were of the age group 16-25(81%) and their education level was bachelors (78%). 89.5% had used antibiotics during the year and only 52% have interrupted or changed the dose of antibiotic. They showed poor knowledge of antibiotics and Antimicrobial resistance where 78% did not hear the term AMR and 71% were unaware that its misuse make them ineffective for future use. Though 64% asked themselves from physicians to prescribe them an antibiotic but 86% of them agreed that individuals have responsibility in preserving the effectiveness of antibiotics

Conclusion
This research highlighted the limited knowledge of students regarding the global threat of AMR. It was found that most of the students had poor knowledge of the use of Antibiotics and Antimicrobial resistance but they perceive that they are responsible to preserve its effectiveness for future.

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14 Prescribing Practices of Broad Spectrum Antibiotics in a Secondary Care Hospital: An Observational Study

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Background
This study investigated broad-spectrum antibiotic usage in a secondary care hospital. Analysis covered gender, age groups, specimens, culture sensitivity, pathogens, and prescription trends. Antibiotic stewardship programs curbed inappropriate use.

Aim/Objectives.
The objective is to implement antibiotic prescribing practices, giving emphasis to broad-spectrum use, culture sensitivity, and prophylactic or empiric usage. This pilot study underscores concerns in antibiotic practices, attributing a higher incidence to self-medication, lack of prescriptions, illiteracy, and unhygienic practices. Malnutrition exacerbates infections, and hospital antibiotic use in developing countries is frequently empiric and inappropriate, as diagnostic tools are lacking.

Design/Methods
The study was single centered, conducted in a secondary care hospital setup. It was observational and cross-sectional over of a time period of three months conducted for prescribing trends of antibiotics in patients admitted in hospital. Sampling was done by convenience random sampling method.

Results:
In a secondary care hospital, an observational study examined antibiotic utilization among admitted patients. Demographics included a mean age of 28.30±23.29 years, with varying gender frequencies. Culture sensitivity tests were limited to 10% of cases. Prescription trends across wards highlighted cephalosporins as the predominant antibiotics, followed by quinolones, alone or in combinations.Pediatrics: Respiratory, gastric, meningitis prevalent. ER had 91.9% patients with diarrhea, accidents. Gynecology prescribed most antibiotics for maternal cases aged 16-45. Urology: Male dominance; UTIs, kidney disease, abscess common.

Conclusions
Hospital challenges in restricting extended spectrum cephalosporins involve rationality and diagnostic tools. Antibiotic stewardship is crucial to educate and minimize risks.

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15 Experience of pharmacists with anti-cancer medicine shortages: results of a qualitative study in Pakistan

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Background
Anti-cancer medicine shortages are serious and persistent concerns worldwide, especially in low-middle-income countries.

Objectives
This study aimed to examine the current situation of anti-cancer drug shortages in Pakistan, its determinants, impacts, adopted mitigation strategies, and proposed solutions.

Method
Qualitative semi-structured, in-depth interviews were conducted with 25 pharmacists in oncology hospitals in Pakistan from August to October 2021. Data was collected in person and online. All interviews were recorded and subjected to inductive thematic analysis after being transcribed verbatim.

Results
Most participants experienced anti-cancer drug shortages that increased during the pandemic. Etoposide, paclitaxel, vincristine, dacarbazine, and methotrexate were frequently short. The important causes were the compromised role of regulatory authorities, lack of local production, and inventory mismanagement. The impacts were delayed/suboptimal treatment and out-of-pocket costs for patients, patients' prioritization, increased workload, negative work environment, and patients' trust issues for pharmacists. Few proactive and counteractive actions were used to manage shortages. The participants proposed that a vigilant regulator's role is needed to revise policies for all stakeholders, support manufacturers for local production of anti-cancer drugs, their raw materials, and other stakeholders financially at their level to increase access to these medicines. Moreover, increasing communications among stakeholders, managing inventory appropriately, and increasing research studies on cancer are also recommended.

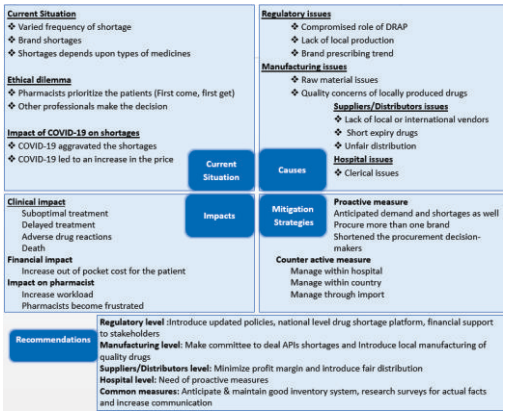

Figure 1: Current situation of anti-cancer drug shortages, its determinants, impacts, adopted mitigation strategies, and proposed solutions.

Conclusion
Based on outcomes, anti-cancer medicine shortages are a current issue in Pakistan. The governmental authorities need to play a vigilant role in revising policies for all levels of the drug supply chain, allocate incentives for stakeholders, establish a cancer registry, and drug shortage platform, and promote local production of oncology drugs and more research studies. The stakeholders should collaborate and manage inventory appropriately.

16 The Nephroprotective Potential of Synthetic Phenolic Compound Against Gentamycin Induced Nephrotoxicity

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Introduction:
The present study is basically conducted to see the effect of synthetic phenolic compound 5-a on gentamycin induced nephrotoxicity. Gentamicin, classified as an aminoglycoside antibiotic, possesses potent bactericidal effects specifically targeting aerobic gram-negative bacteria used in most of the hospital setting which is associated with nephrotoxicity. Nephrotoxicity refers to the toxic effects of substances, such as medications or chemicals, on the kidneys, leading to a rapid deterioration in kidney function. The 5-a significantly improves the oxidative stress ,the behavioural parameters & weight assessment, and markedly improved the renal toxicity by improving the renal parameters.

Objective:
The purpose of this study is to see the pharmacological effect of synthetic phenolic compound 5-a against gentamycin induced nephrotoxicity by reversing the toxic effects in kidney and ultimately improving the renal functions, haematological values, and oxidative stress markers.

Methods:
The study was conducted on five groups of whister albino rats (n=5) of 200-220g weight.

- Group 1: Normal control (normal saline)
- Group 2: Negative (Gentamycin)
- Group 3: Positive (Dexamethasone)
- Group 4: Low dose (5-a)
- Group 5: High dose (5-a)

Study was conducted for consecutive 8 days with 12 hrs light/dark and proper food and water consumption, the rats received the GM an hour after the administration of 5-a and on 9th day the rats were euthanized and sample of blood,serum and tissues were collected.
Results: The neutrophils (34.9 ± 0.53c), (33.3 ± 0.50d)and WBC(11.7 ± 0.24c),(13.8 ± 0.11b) counts was improved, Crcl and BUN was improved in treatment groups , respectively,the oxidative stress markers GSH, GST, Catalase, MDA, NO improved remakebly.Each of the value then represents ± S.E.M (n=5), analyzed by using One-way ANOVA using the Duncan test for multiple comparisons.

Conclusion:
The overall nephrotoxicity can be reduced after the administration of compound 5-a, that leads to the effective usage of GM in most of the hospitals settings for treating of majority of gram-negative infections.

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17 Socio-clinical Impact of COVID-19 &Vaccine Hesitancy – A comparison between Urban and Rural Population of Bahawalpur

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Background
COVID-19 Pandemic was global outbreak of corona virus which led to dramatic loss of human life worldwide and presented an unprecedented challenge to human mental & physical health, social life, and economics. Vaccine hesitancy was also a factor which contributed further spread of disease.

Aim/Objectives
This study aims to observe and compare COVID-19 impact on the social, financial, and psychological lives of urban and rural residents, and also to see the trend of vaccine hesitancy both in general population and to compare it between urban and rural setting.

Methods
Cross-sectional retrospective and descriptive study design was conducted by enrolling 400 general population of Bahawalpur. Stratified sampling approach was used by distributing a questionnaire to the respondents. Written and informed consent was taken from the respondents who were willing to participate in study. Data were analysed using SPSS. (IBM v22)

Table , Different Level of Impact Seen on Rural and Urban Population of Bahawalpur

Variables		Rural		Urban		significance(urban vs Rural) p value
		frequency	percentage	frequency	percentage	
Social	no impact	0	0%	1	0.5%	0.13
	mild impact	18	18.0%	38	18.3%	
	moderate impact	63	63.0%	123	59.1%	
	high impact	19	19.0%	46	22.1%	
	Total	100	100.0%	208	100.0%	
Financial	no impact	4	4.0%	8	3.8%	0.89
	mild impact	32	32.0%	82	39.4%	
	moderate impact	49	49.0%	87	41.8%	
	high impact	15	15.0%	31	14.9%	
	Total	100	100.0%	208	100.0%	
Psychological	no impact	1	1.0%	2	1.0%	0.69
	mild impact	42	42.0%	78	37.5%	
	moderate impact	47	47.0%	105	50.5%	
	high impact	10	10.0%	23	11.1%	
	Total	100	100.0%	208	100.0%	
Vaccine Hesitancy	hesitant	33	33%	51	24.5%	0.11
	non hesitant	67	67%	157	75.5%	
	Total	100	100	208	100	

Results
Levene's test and independent t test was done. No significant mean differences were observed between the groups (P>0.05) for Social Score, Financial Score, and Psychological Score, irrespective of assumed equal variances. In contrast, significant mean differences were found for the variable vaccine hesitancy between groups. (p=0.011, C.I -1.17 to -0.154).

Conclusion
This study highlights that predominantly moderate to mild effects across social, financial, and psychological dimensions was seen in both urban and rural residents. These findings underscore the widespread influence of the pandemic on diverse aspects of individuals' lives, regardless of their location. Vaccine hesitancy data reveals higher levels in the rural population, necessitating further investigation for targeted intervention strategies. Management of vaccine hesitancy by proper awareness programs are needed especially for rural communities, to make them more confident about vaccines so that in future if we encounter such epidemic diseases, we better combat against them. The study emphasizes the need for customized public health approaches, tailored to the unique challenges and perspectives of both urban and rural communities, to mitigate adverse effects, enhance vaccine acceptance, and foster a more cohesive response.

18 Elevating Patient Care: Integrating the Pharmacist's Role in Implementation and Compliance Monitoring of High-Dose Extended-Interval Amikacin Therapy in Tertiary Care Hospital

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Background:
Amikacin, a crucial antibiotic for gram-negative infections, poses challenges with its narrow therapeutic index. Despite the recommended need for therapeutic drug monitoring, hospitals often neglect assessments due to limited awareness and high costs. Aminoglycosides, like Amikacin, carry risks of ototoxicity (18%-37%) and nephrotoxicity (7.5%-15%). The 2016 Infectious Diseases Society of America guideline advocates hospital implementation of pharmacokinetic monitoring for aminoglycosides to cut costs and reduce adverse effects in antibiotic stewardship programs.

Objectives:
The aim of this study was to evaluate and enhance the compliance of amikacin dosing and therapeutic monitoring protocols within a healthcare setting.

Method/Study Design:
In this prospective observational cohort study spanning May to October 2023, we investigated the compliance of Amikacin in hospitalized patients over a six-month period. The study encompassed all in-patients who received Amikacin for at least three days, irrespective of gender or age. Exclusion criteria mirrored those for extended interval dosing of Amikacin. Amikacin daily dose was 15 or 20 mg/kg. Therapeutic drug monitoring was conducted, and dose adjustments using aminoglycosides clin calc calculator.

Data included 77 patients, 42 patients were in pre intervention period and 35 patients in post intervention period. Identify potential areas of non-compliance or challenges hindering adherence to established guidelines after analyzing pre-intervention data. Targeted intervention sessions were held in challenging areas like the Medical Intensive Care Unit (MICU) and Surgical Intensive Care Unit (SICU).

Results:
Pre-intervention assessment of 42 patients revealed that 57% (24) adhered to the Amikacin Therapeutic Drug Monitoring (TDM) protocol, and 61.90% (26) followed the dosing protocol established by SIHL. Following the intervention, TDM protocol compliance increased to 77% (27 out of 35 patients), and dosing protocol adherence rose to 85.71% (30 out of 35 patients). In the pre-intervention TDM assessments, 29.2% were optimal, and 70.8% were supratherapeutic. Post-intervention, TDM assessments showed improvement, with 48.1% optimal and 51.9% supratherapeutic.

Conclusion:
The overall compliance with the Amikacin protocol increased from 64% in the pre-intervention phase to 86% in the post-intervention phase. These findings indicate a positive impact of the intervention on both TDM and dosing protocol compliance, suggesting enhanced patient safety and therapeutic efficacy.

19 Assessment of prescribing trends using WHO prescribing indicators in Twin cities of Pakistan

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Background:
Rational use of medications is highly desired across the globe to guarantee the best possible patient outcomes. However, irrational drug use is a medical dilemma of the current time. Inappropriate prescribing leads to polypharmacy, antibiotic resistance, adverse drug events, and increased healthcare costs. Improving healthcare outcomes requires an understanding of the adherence to established prescribing standards. Within this framework, the study sought to evaluate drug use trends and their correspondence with the core prescribing indicators of the World Health Organization (WHO).

Aim:
The study aimed to evaluate drug use patterns according to WHO core prescribing indicators.

Methodology:
A prospective cross-sectional study design was used to analyze prescribing trends in twin cities using WHO prescribing indicators and was compared with standard WHO optimal values. A total of 300 prescriptions from outpatient pharmacies in various localities of twin cities were collected using a convenient sampling technique. Data was recorded in Microsoft excel sheets and analyzed for compliance with WHO core prescribing indicators.

Result:
The results of the study highlighted that a total of 1190 drugs were prescribed, averaging 3.97% drugs per encounter, which exceeded the WHO's recommended range. Antibiotic prescriptions per encounter were notably high at 35.67%, surpassing the WHO's suggested range. Conversely, percentage of encounters with injectables prescribed was 8.67%, falling below the WHO's specified range. Moreover, there was a significant deviation from the practice of generic prescribing, with only 3% adherence.

Conclusion:
The study concluded polypharmacy, overutilization of antibiotics, and a notable deviation from generic prescribing highlighting the need for adherence to WHO's prescribing guidelines. Therefore, there is a need for rational drug use to align prescribing practices with WHO guidelines, particularly in limiting excessive antibiotic use and promoting generic drug utilization.

20 Efficacy of Various Routes and Dosing Strategies of Sodium Polystyrene In Management of Hyperkalemia in Emergency Department of a Tertiary Care Hospital: Retrospective Study

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Introduction:
Hyperkalemia is defined as a serum or plasma potassium level, usually greater than 5.0 mEq. Mild hyperkalemia is usually asymptomatic, high levels of potassium may cause life-threatening cardiac arrhythmias, muscle weakness, or paralysis. Symptoms usually develop at higher levels, 6.5 mEq/L to 7 mEq/L. Sodium polystyrene is a resin most commonly used to treat mild to moderate hyperkalemia.

Objective:
The aim of this study was to assess the efficacy of different doses (15, 30, and 60 g) of sodium polystyrene and routes in emergency management of hyperkalemia in emergency department as hyperkalemia is an emergency condition and no specific guidelines are there for SPSS dosing.

Methodology:
A retrospective study was conducted, 200 patient's data were collected from pharmacy database Shifa Int. Hospital from 1st, January 2022 to 30th, July 202. 121 patients met the inclusion criteria (various routes, dosing 15,30, 60 and combination, serum potassium concentration >5.1mmol/L of either gender). Patients on dialysis were excluded from the study.

Result:
Out of 121 patients, 37 (30%) patients received oral therapy, 58 (47.9%) received rectal and 26 (21.48%) patients received both combination, average reduction in serum potassium was 0.901, 1.14 and 1.46 for oral, rectal and both routes respectively. Similarly, 12 patients receive 15 g dose, mean reduction in serum potassium was 1.13 while 43 and 33 patients receive 30 and 60 g, the mean decrease was 1.14 and 1.18 respectively. Mean decrease in serum potassium after administration of combination doses was 1.33.

Conclusion:
Higher dose and combination of oral and rectal routes have more efficacy in mild Hyperkalemia management.

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21 Silencing The Alarm: Revitalizing CPOE-CDSS Integrated Pharmacy Alerts For Enhanced Patient Care

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Background:
In the constantly evolving field of healthcare, medication alerts play a critical role in ensuring patient safety. They help prevent medication errors, identify potential drug interactions, and warn against allergies. For pharmacists, medication alerts are invaluable tools that aid in making informed decisions and managing medication therapy effectively. However, the issue of alert fatigue is a significant concern. Alert fatigue happens when healthcare professionals become desensitized to constant warnings, which can pose a serious risk to patient safety.

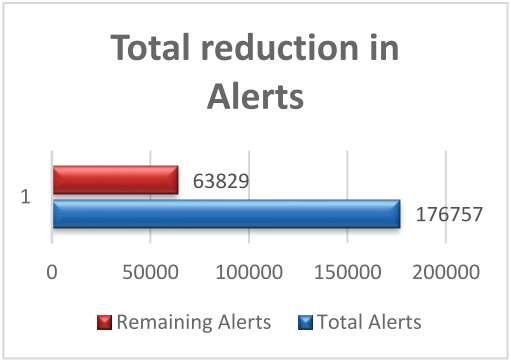
Aim:
The main objective is to reduce alert fatigue in the pharmacy MIS system by implementing tailored strategies that focus on optimizing the integration of the Computerized Pharmacists Order Entry-Clinical Decision Support System (CPOE-CDSS) at Shifa International Hospital (SIH).

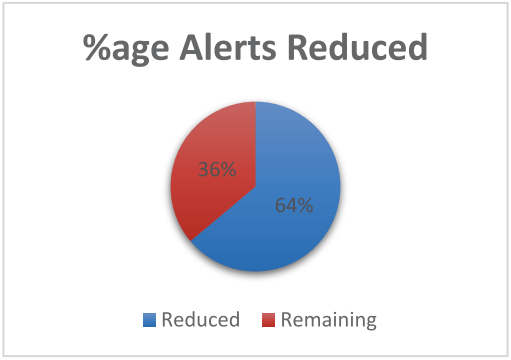
Method:
This project focuses on improving the Pharmacy Management Information System (MIS) at SIH by implementing a strategic intervention using the Plan-Do-Study-Act (PDSA) framework. The goal is to address alert fatigue, which is a phenomenon where healthcare professionals, especially pharmacists, become desensitized due to the constant flow of warnings.

Results:
Post-implementation assessment revealed that the total number of alerts was significantly reduced from 176,757 to 63829, which represents an overall decrease of 63.89%. The CPOE-CDSS system effectively addressed alert fatigue by reducing the number of specific types of alerts, including redundant, false allergies, and high-alert medications. As a result, the system enhanced patient safety and refined the overall quality of care.

Conclusion:
SIH faced the challenge of alert fatigue within its pharmacy MIS system. To overcome this issue, they implemented evidence-based strategies and focused on integrating CPOE-CDSS. This project was based on the PDSA framework and was highly successful in significantly reducing the number of alerts. The initiative not only ensured more precise clinical decision-making but also elevated the standard of patient care.

Keyword:
Management Information System (MIS), Computerized Pharmacists Order Entry-Clinical Decision Support System (CPOE-CDSS), Shifa International Hospital (SIH)





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22 Assessment of Patient Compliance to Anticoagulants through Patient Counselling by the Use Of Visual Technology

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Background
Oral anticoagulants, including warfarin and direct oral anticoagulants (DOACs) like rivaroxaban and apixaban, are widely used to prevent thrombosis in cardiovascular events. DOACs have shown advantages over warfarin in meta-analyses, especially in atrial fibrillation stroke prevention, with improved safety and efficacy. However, both types carry bleeding-related risks. Warfarin, a vitamin K antagonist, poses an elevated bleeding risk in atrial fibrillation patients. Designated as high-alert medications, anticoagulants contribute to prolonged hospital admissions and bleeding events, highlighting the need for monitoring and counseling, especially in self-administered cases. A survey reveals knowledge gaps in patients regarding dietary recommendations, NSAID risks, and other adverse effects, underscoring the critical role of pharmacists in patient counseling. This abstract explores the implications of these findings for patient care and proposes strategies to optimize oral anticoagulant management.

Aim/Objectives
The aim of the study is to enhance patient adherence and safety in anticoagulant use through improved counseling under e-Shifa services. Objectives include investigating challenges in counseling for at-home anticoagulant users, assessing the impact of errors on outcomes, evaluating deficiencies in patient education, and implementing a technical method for enhanced counseling.

Design/Methods
The study, conducted at a tertiary care hospital, adopts a cohort design with mixed methodology, focusing on e-shifa services. Over one year, the research assesses non-compliance to anticoagulants and the efficacy of visual technology as a counseling tool.

Results
Results from a sample of 30 patients show a 48% increase in knowledge post-intervention and a 21% rise in adherence when visual technology is implemented. Improvements include better understanding of medications (97%), knowing what time to take them on missed doses (58.7% for Apixaban/Rivaroxaban, 72.3% for Warfarin). Higher adherence was assessed post-intervention of 64% on taking anticoagulant with or without food, while 60% adherence was seen with medications that were previously stopped by self.

Conclusion
The study concludes that patient counseling for online orders, facilitated by visual technology, improves adherence to anticoagulants, considering their safety profile. The recommendation is to implement this process for all warfarin, rivaroxaban, and apixaban orders through e-Shifa services, contributing to optimized patient education and counseling practices in at-home anticoagulant use for safer and more effective medication management.

23 Unveiling the Impact: A Comprehensive Study on Contrast-Induced Acute Kidney Injury (CI-AKI) in Pakistan - Analyzing Iodinated Contrast Media (ICM) Variations, Demographics, and Gender Disparities

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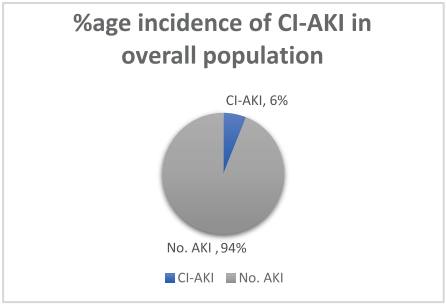
Background:
Acute Kidney Injury (AKI) can occur as a result of contrast media administration during medical imaging procedures, which poses significant risks. Iodinated Contrast Media (ICM) containing iodine atoms enhances visibility in X-rays and CT scans. Despite the global evidence, there is a lack of specific data on Contrast-Induced AKI (CI-AKI) in Pakistan. Therefore, a comprehensive study is needed to establish evidence-based practices.

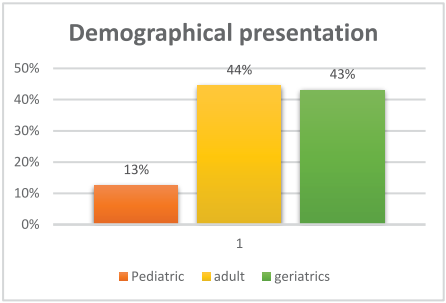
Aim:
To investigate the impact of different iodinated contrast media (ICM) salts on acute kidney injury (AKI), analyze it by age group, and find the gender-based ratio.

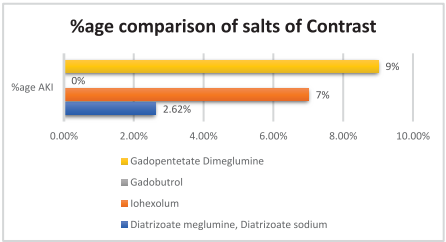
Method:
An observational study was conducted in the Radiology department from January to October 2023. The study collected pre- and post-contrast administration data from 2750 patients. The study identified a change in serum creatinine of ≥0.3 mg/dl as CI-AKI. The study also conducted demographic analysis and assessed the percentage of harm associated with various salts of ICMs.

Results:
Among 1180 eligible patients, CI-AKI incidence was 6%. Demographic breakdown revealed pediatric (13%), adult (44%), and geriatric (43%) risk percentages. Different ICMs exhibited varied AKI incidences: Iohexolum (Kopaq 6.968%), Diatrizoate meglumine, Diatrizoate sodium (Gastrografin 3%), Gadobutrol (Gadovist 0%), and Gadopentetate Dimeglumine (Omnivision 8.695%). The gender-based ratio of 46:26 highlighted a higher incidence among males.

Conclusions:
The incidence of contrast-induced acute kidney injury (CI-AKI) in Shifa, Pakistan is 6%, which falls within the global range of 2-18%. However, the lack of specific CI-AKI data in Pakistan highlights the need for evidence-based interventions. It is crucial to develop tailored preventive strategies based on the type of iodinated contrast media used and patient demographics. This will help improve the quality of diagnostic services, reduce complications, and enhance patient outcomes







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24 An overview of Pharmacist role in appropriateness review of Prescriptions At E-Shifa, A Telemedicine Project in Tertiary Care Hospital

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Background
Telemedicine is another innovation that has incorporated in healthcare system and has become its integral part. Similar to all other healthcare systems, pharmacist is the vital part of telemedicine as well. This revolutionary change demands a thorough analysis of the roles that different healthcare providers play in maximizing telehealth results. Patients of this healthcare system are at distant places but even then it is important to ensure that medicines are supplied only after appropriateness review which makes the presence of pharmacist necessary in telemedicine. Their knowledge goes beyond the boundaries of a traditional pharmacy because they actively participate in telemedicine interventions, guaranteeing that patients receive tailored and efficient drug advice. Whenever a pharmacist intervenes or suggests any change in medicine depending upon dose, interaction or any other factor, it is termed as intervention.

Aim
The study aimed to emphasize and evaluate the role and presence of pharmacist in telemedicine as medicines are dispensed upon virtual orders and delivered. The purpose was to demonstrate how telemedicine interventions led by pharmacists improve the quality of patient care by focusing on better medication adherence and patient education.

Methods
It was a prospective observational study. Shifa database was used to collect data about interventions recorded by pharmacists in Shifa telemedicine pharmacy named as E-Shifa. Interventions data was collected for 3 years since January'21 to October 23. Retrieved data on pharmacist interventions in telemedicine. Found important variables in the dataset that were associated to patient outcomes, pharmacist involvement, telemedicine interventions, and any other relevant parameters.

Results:
It was found that the rate of intervention increased. The number of interventions was 42, 78 and 175 in the years 21,22 and 23 respectively. In 2021, 9 interventions were about wrong dose and 6 interventions were about renal dose adjustment. In the year 2022, 13 interventions were about wrong dose and 5 interventions were about renal dose adjustment. Whereas, in the year 2023,23 interventions were about wrong dose and 23 interventions were about renal dose adjustment. Other significant interventions were about wrong route, incomplete order, interacting drugs and hepatic dose adjustment.

Conclusion
To sum up, the study's apparent improvement in healthcare outcomes is directly related to the proactive telemedicine interventions made by pharmacists, demonstrating the pharmacists' crucial role in the provision of quality health care.

25 A Quality Improvement Project To Increase Compliance With Heparin Infusion Protocol In A Tertiary Care Hospital

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Background:
Heparin is used widely in hospitals to treat and prevent blood clots caused by certain medical conditions or medical procedures. It is indicated for prophylaxis and treatment of venous thrombosis and its extension, prevention of postoperative deep venous thrombosis and pulmonary embolism, cerebrovascular accident, and prevention of clotting in arterial and cardiac surgery. Additionally, it is used to prevent clotting during dialysis and surgical procedures.

Anticoagulants like UFH are known to be high-risk medications according to the Institute of Safe Medication Practice (ISMP). Activated partial thromboplastin time ratio (APTTr) monitoring is necessary for patients receiving UFH to ensure therapeutic anticoagulation and reduce side effects. Because it's a high-alert medication any error related to it can cause lethal effects

Objectives:
The purpose of this study is to assess the improvement of patient care through achieving therapeutic outcomes and minimizing ADRs.

Methods:
Identify whether heparin use at our hospital in adults was consistent with the directed protocol or not. This was done by implementing of protocol that was designed throughout the hospital and then following the patients to monitor their compliance with the protocol. The pharmacy database (MOAR) of Shifa International Hospital Islamabad was used to gather information about the relevant patients. Patients were also visited one-on-one to check the documentation of their infusion regimen to identify the root cause analysis.

Results:
Baseline data on 54 patients who received heparin infusions in intensive care units and wards, between August 15, 2022, and September 30, 2022, were collected. Out of 54 patients, 20 patients (37%) were those on whom the protocol was not followed completely. The APTT target was met in 25 patients (46.30%). 15 patients (27.77%) had supra-therapeutic APTT, while 14 patients (25.92) had sub-therapeutic APTT. To assess protocol compliance, baseline data on 72 patients who received heparin infusions in intensive care units and wards, between August 15, 2023, and November 30, 2022, were collected. Out of 72 patients, 14 patients (19.4%) were those on whom the protocol was not followed completely. The APTT target was met in 45 patients (62.5%). 5 patients (6.9%) had supra-therapeutic APTT, while 8 patients (11.11%) had sub-therapeutic APTT.

Conclusions:
Based on pre-data, it is indicated that the heparin infusion protocol was not adequately followed, as evidenced by the discrepancy between lab findings and unmet therapeutic target. Consequently, there is an essential need to train postgraduates, medical officers, and nurses on how to correctly fill out a form, how to choose the right dose based on the right indication, how to Reduce the time between sampling and reporting. Pharmacist follow up must be planned for each patient and TDM is required to be performed every day. After training throughout year, there is a huge change in figures. Compliance improves greatly.

26 Growth outcomes of Preterm neonates following early parenteral nutrition administration in NICU of a Tertiary Care hospital, Pakistan

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Background:
The achievement of adequate nutritional intake in preterm infants is challenging and may explain the poor growth seen in these babies. Preterm neonates, mostly <1500 g and/or 32 weeks gestation, are prone to a prolonged stay in neonatal intensive care unit (NICU) due to poor nutrition and subsequent growth failure. Growth failure, particularly in preterm neonates is associated with long term malnutrition and poor developmental outcome. Total parenteral nutrition (TPN) is now widely practiced in management of preterm neonates. It is currently a useful strategy to achieve optimal postnatal growth, especially when enteral nutrition is compromised because of prematurity and/or underlying illnesses. Early TPN (< 48 hours of life) in preterm neonates leads to earlier attainment of birth weight and improved weight at discharge. However, complications can occur that include (but not limited to) line sepsis, cholestasis, TPN formulation, monitoring and cost facilities.

Objectives:
We determined whether earlier administration of early TPN benefits growth outcomes in preterm infants.
Methods: We conducted a retrospective observational study that included all inborn infants admitted in NICU of Shifa International Hospital, Pakistan, over a period of 6 months from April 2023 to October 2023. The study included all inborn patients between 25-36 weeks who received TPN within 48 hours of life for 5-7 days and were discharged from NICU. Nutritional data included age and gestation of start of TPN, weight and age at the time of discharge. Outcomes of interest included total duration of TPN given, time to reach full feeds, duration of NICU stay.

Results:
A total of sixty infants received TPN in the duration of 6 months out of which 4 expired at < 7 days. Thirty nine patients were born at <33 weeks of gestation, 30 had a birth weight of < 1.5 kg and 42 received TPN for < 7 days. There were 4 patients who received TPN for > 14 days. Average time for infants to reach full feeds was 7-10 days and 26 patients required hospitalization for more than 10 days.

Conclusions:
Infants who received TPN from second day of life achieved their target feeds within 10 days of life (DOL) and 56.6 % were discharged home on before 10 DOL with their weight at or above the birth weight.

Keywords:
Total Parenteral Nutrition, Prematurity, Growth outcome.

27 Knowledge, Attitude, and Practices of Oncology Nurses Regarding Handling of Cytotoxic Drugs in Tertiary Care Hospital, Islamabad

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Islamabad

Background:
The achievement of adequate nutritional intake in preterm infants is challenging and may explain the poor growth seen in these babies. Preterm neonates, mostly <1500 g and/or 32 weeks' gestation, are prone to a prolonged stay in neonatal intensive care unit (NICU) due to poor nutrition and subsequent growth failure. Growth failure, particularly in preterm neonates is associated with long term malnutrition and poor developmental outcome. Total parenteral nutrition (TPN) is now widely practiced in management of preterm neonates. It is currently a useful strategy to achieve optimal postnatal growth, especially when enteral nutrition is compromised because of prematurity and/or underlying illnesses. Early TPN (< 48 hours of life) in preterm neonates leads to earlier attainment of birth weight and improved weight at discharge. However, complications can occur that include (but not limited to) line sepsis, cholestasis, TPN formulation, monitoring and cost facilities.

Objectives:
We determined whether earlier administration of TPN benefits growth outcomes in preterm infants.
Methods: We conducted a retrospective observational study that included all inborn infants admitted in NICU of Shifa International Hospital, Pakistan, over a period of 6 months from April 2023 to October 2023. The study included all inborn patients between 25-36 weeks who received TPN within 48 hours of life for 5-7 days and were discharged from NICU. Nutritional data included age and gestation of start of TPN, weight and age at the time of discharge. Outcomes of interest included total duration of TPN given, time to reach full feeds, duration of NICU stay.

Results:
A total of sixty infants received TPN in the duration of 6 months out of which 4 expired at < 7 days. Thirty-nine patients were born at <33 weeks of gestation, 30 had a birth weight of < 1.5 kg and 42 received TPN for < 7 days. There were 4 patients who received TPN for > 14 days. Average time for infants to reach full feeds was 7-10 days and 26 patients required hospitalization for more than 10 days. There were TPN related complication in 3 patients (One had developed cholestasis, 2 of them had TPN related infection.

Conclusions:
Infants who received TPN from second day of life all achieved their target feeds within 10 days of life day of life with 56.6 % were discharged home before 10 days of life with their expected weight increased with the birth weight.

28 Antibiotic Utilization In The Emergency Department Of a Tertiary Care Hospital: A Retrospective 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). A study that was carried out in Veterans Affairs hospital ED, US indicated that 39% of antibiotic prescriptions were inaccurate. The implementation of an Antimicrobial Stewardship Program becomes paramount to mitigate the incidences of antimicrobial resistance and enhancing overall patient outcomes. Obtaining quantitative data on antibiotic prescribing practices is an essential precursor to initiate effective antimicrobial stewardship in the emergency department.

Aim:
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.

Method:
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 October 2022 to September 2023. 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.

Results:
Throughout the study period, 41,361 patients sought care in the emergency department. Of these, 13,017 patients (31%) 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 2%. However, a notable increase in oral fosfomycin was increased.

Conclusion:
The findings also shed light not only on quantitative analysis but also analysed antibiotic usage according to 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.

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Past Winners

AMMC 2022

Oral Presentation

1. **Use of Define Daily Dose Methodology to Ensure Rational Use of Antibiotics**
   Shinza Arshad, Shifa international hospital

2. **Impact of educational intervention on Adverse Drug Reaction reporting in a tertiary care hospital, Pakistan**
   Fizza Afzal, Shifa international hospital

2. **Pharmacist intervention for rationalizing the use of Drugs**
   Arsh Zafar, Shifa international hospital

3. **Economic Evaluation of Pharmacist Led Intervention Using Integrated Health System in Public Sector Tertiary Care Hospital of Pakistan**
   Muhammad Amir, Sindh Institute of Urology & Transplantation

Past Winners

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Poster Presentation

1. **Anti-cancer medicine shortages in Pakistan: results of a cross-sectional survey**

   Sundus Shukar, School of Pharmacy, Xi'an Jiaotong University, Xi'an, Shaanxi, China

2. **Application of Failure Mode Effect Analysis (FMEA)to Improve Safety in Dispensing of compounded medicines in a hospital pharmacy**

   Nabeel Qamar Alvi, Shifa International Hospital

3. **Assessment of Legibility and Completeness of Prescriptions at Tertiary Care Hospitals: A Cross-Sectional Study**

   Tehseen Haider, Rawalpindi medical college

Annual Medication Management Conference (AMMC – 2024)

Submission of abstracts for the upcoming **Annual Medication Management Conference (AMMC) Shifa 2024** will be closed on July 20, 2024.

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 – 2023).

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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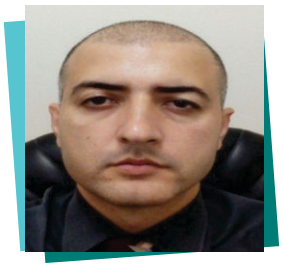

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