PATEL HOSPITAL
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PHARMACY NEWSLETTER

Vol 1, October 2024

MPOX OUTBREAK TRIGGERS INTERNATIONAL HEALTH ALERT

Mpox, previously known as monkeypox, is a viral illness caused by the monkeypox virus, a species of the genus Orthopoxvirus. There are two distinct clades of the virus: clade I (with subclades Ia and Ib) and clade II (with subclades IIa and IIb).

In 2022–2023 a global outbreak of mpox was caused by the clade IIb strain. The 2022 mpox outbreak, declared a Public Health Emergency of International Concern by the WHO, differs from past outbreaks due to its global spread beyond endemic regions. It primarily spread through close contact, with cases reported across Europe, North America, and other non-endemic areas.

This international alert aims to prompt countries to strengthen surveillance, improve public health measures, and enhance vaccination strategies. Those most at risk include individuals with direct physical contact with infected persons, particularly within vulnerable communities.

This global declaration emphasizes the urgent need for coordinated global response strategies.

FDA APPROVES FIRST NASAL SPRAY FOR ANAPHYLAXIS

Neffy is an epinephrine single-dose nasal spray for emergency treatment in adult and pediatrics.

https://www.pharmacytimes.com/fdaupdates

FDA APPROVES DAPAGLIFLOZIN FOR PEDIATRIC PATIENTS WITH TYPE 2 DIABETES

FDA has approved dapagliflozin to improve glycemic control in pediatric patients aged 10 years and older who have type 2 diabetes.

https://www.pharmacytimes.com/fdaupdates

DRAP SETS STANDARDS FOR HOSPITAL PHARMACY ESTABLISHMENT

These guidelines outline a set of services that are expected from hospital pharmacy departments and are aimed at ensuring consistent, high-quality pharmacy services across all hospitals, ultimately benefiting patients and the healthcare system as a whole.

https://www.dra.gov.pk/news_updates/regulatory_updates/drap-finalized-guidelines-on-standards-for-establishment-of-hospital-pharmacies/

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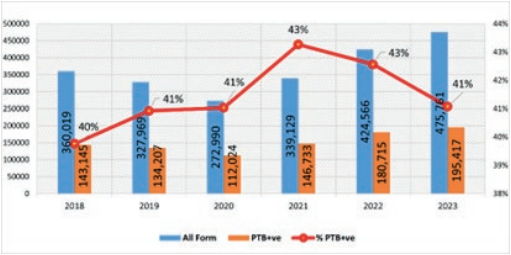
TUBERCULOSIS MANAGEMENT IN FOCUS: KEY INSIGHTS FOR HEALTHCARE PROVIDERS

KEY INSIGHTS FOR HEALTHCARE PROVIDERS

Tuberculosis (TB) is a contagious bacterial infection caused by Myco-bacterium tuberculosis, primarily affecting the lungs but capable of spreading to other organs. It remains one of the world's top infectious disease killers, particularly in low- and middle-income countries. In Pakistan, TB poses a significant public health challenge, with over 500,000 new cases reported annually, making it one of the top 10 high-burden coun-tries globally. The prevalence of TB in Pakistan is exacerbated by factors such as poverty, malnutrition, and limited access to healthcare services, underlining the need for enhanced public health interventions and awareness efforts to control the disease.



Situation	TB Treatment Regimen	Additional Recommendations
Standard Treatment for Drug-Susceptible TB	**Intensive Phase:** 2 months of INH, RIF, PZA, EMB	**Preferred Dosing:** Daily dosing
		- **Intermittent Therapy:**
		- 3 times per week if low risk of relapse and HIV-negative
		- 2 times per week (after 2 weeks of daily therapy) if daily or 3 times per week is difficult
		- **Preferred Dosing:** Daily dosing or 3 times per week
	- **Continuation Phase:** 4 months of INH, RIF	- **Once Weekly Regimen (INH 900 mg + RPT 600 mg):** Generally avoid
		- If used, reserve for HIV-uninfected patients without cavitation on chest radiography and who are smear negative at 8 weeks.
HIV and TB Co-Infection (Drug-Susceptible)	**6-month daily regimen** - **Intensive Phase:** 2 months of INH, RIF, PZA, EMB	**ART Timing:** - Start ART within 2 weeks of TB treatment if CD4 < 50/mm³
	- **Continuation Phase:** 4 months of INH, RIF	- Start ART by 8-12 weeks if CD4 > 50/mm³
		- **TB Meningitis:** Delay ART until 8-10 weeks of TB treatment, regardless of CD4 count
Culture-Negative Pulmonary TB (HIV Negative)	4-month regimen	Applicable to adults with AFB smear- and culture-negative pulmonary TB
TB Meningitis	- Standard TB treatment regimen	- **Adjunctive Therapy:** Dexamethasone for 6 weeks
TB Pericarditis	- Standard TB treatment regimen	- Corticosteroids not routinely recommended; reserve for selected cases

Drug	Population	Daily	Once-Weekly	Twice-Weekly	Thrice-Weekly
Isoniazid	Adults	5 mg/kg (typically 300 mg)	15 mg/kg (typically 900 mg)	15 mg/kg (typically 900 mg)	15 mg/kg (typically 900 mg)
	Children	10–15 mg/kg	…	20–30 mg/kg	…
Rifampin	Adults	10 mg/kg (typically 600 mg)	…	10 mg/kg (typically 600 mg)	10 mg/kg (typically 600 mg)
	Children	10–20 mg/kg	…	10–20 mg/kg	…
Pyrazinamide	Adults	18-26 mg/kg	…	36-53 Mg/kg	27-37 mg/kg
	Children	35 (30–40) mg/kg	…	50 mg/kg	…
Ethambutol	Adults	14-21 mg/kg	…	36-52 mg/kg	22-35 mg/kg
	Children	20 (15–25) mg/kg	…	50 mg/kg	…
Amikacin	Adults	15 mg/kg daily. Some clinicians prefer 25 mg/kg 3 times weekly. Patients with decreased renal function, including older patients, may require the 15 mg/kg dose to be given only 3 times weekly to allow for drug clearance.			
	Children	15–20 mg/kg	…	25–30 mg/kg	…
Levofloxacin	Adults	500–1000 mg daily	There are inadequate data to support intermittent administration.		
	Children	The optimal dose is not known, but clinical data suggest 15–20 mg/kg			
Moxifloxacin	Adults	400 mg daily	There are inadequate data to support intermittent administration		
	Children	The optimal dose is not known. Some experts use 10 mg/kg daily dosing, though lack of formulations makes such titration challenging. Aiming for serum concentrations of 3–5 µL/mL 2 h post dose is proposed by experts as a reasonable target.			

https://academic.oup.com/view-large/468780496?login=false
https://www.cdc.gov/tb/topic/treatment/guidelinehighlights.htm
https://www.cmu.gov.pk/ntp-national-tb-control-programme/

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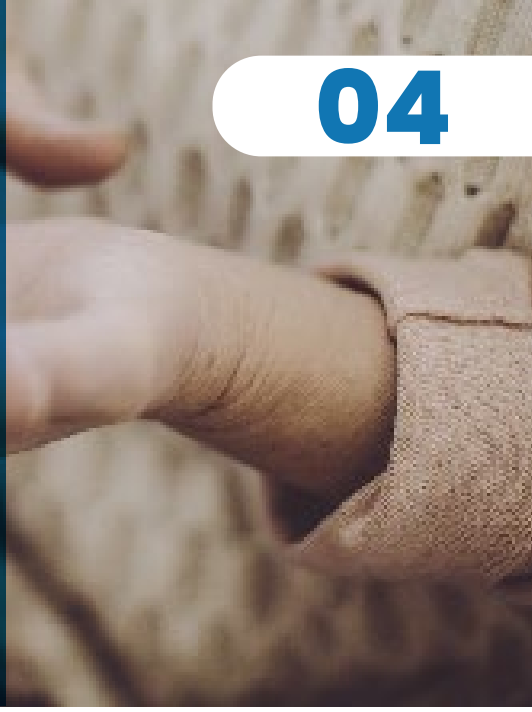
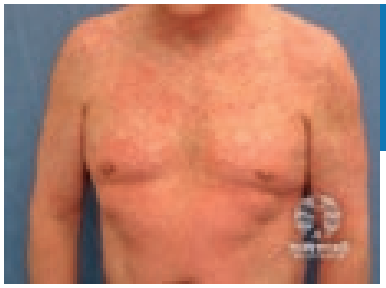
NAVIGATING DRUG INTERACTIONS: ESSENTIAL UPDATES FOR PHARMACY PRACTICE



International Safety Issues Risk of Rare & Serious DRESS with Levetiracetam & Clobazam.

In November 2023, the FDA issued a safety warning about the risk of Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) associated with the ant seizure medications levetiracetam and clobazam. DRESS is a rare but serious condition that can cause fever, rash, swollen lymph nodes, and significant organ damage, potentially leading to hospitalization or death. The warning highlights that DRESS symptoms can occur 2-8 weeks post-treatment and may present without a rash. Healthcare professionals are advised to inform patients of these risks and to add warnings about DRESS to the prescribing information. Patients should not stop the medications abruptly and should seek immediate medical attention if symptoms occur.



Risk of Myasthenia Gravis and Ocular Myasthenia with Statins

In February 2023, the EMA's PRAC recommended adding myasthenia gravis risks to statin product information, acknowledging that statins can induce or worsen this condition. Similarly, the UK's MHRA issued new warnings in September 2023, requiring statins to list myasthenia gravis as an adverse reaction with an unknown frequency. Healthcare professionals are advised to refer patients with suspected new-onset myasthenia gravis on statin therapy to neurology specialists, with possible discontinuation of statins based on individual risk. Patients should be alert for symptoms and consult healthcare providers without abruptly stopping the medication.

Risks Associated with the use of Valproic Acid in Women of Childbearing Potential & Minor Potential Risk in Male Patients.

In May 2023, the WHO advised against prescribing valproic acid to women of childbearing potential due to the high risk of birth defects and developmental disorders in children exposed during pregnancy. Lamotrigine or levetiracetam was recommended as safer alternatives. Women using valproate should be counseled on effective contraception and the risks of pregnancy, with specialist consultation advised for those planning pregnancy. The EMA's PRAC and the MHRA introduced new safety measures in 2023, recommending precautions for male patients treated with valproate during the three months before conception and emphasizing restricted use of valproate in women, along with updated warnings about neurodevelopmental risks and a Pregnancy Prevention Programme. The PRAEC also mandated updates to contraindications and warnings for valproate use.

References

www.dra.gov.pk/wp-content/uploads/2023/09/NPC-Newsletter-2023.pdf
www.fda.gov/media/174157/download?attachment

NHS GUIDANCE ON CONVERTING BETWEEN ANTICOAGULANTS

Starting Drug	Convert To	Recommendation
Vitamin K Antagonists (VKA) e.g. Warfarin	LMWH	For **DVT/PE treatment and prevention of recurrence**, stop warfarin and start LMWH when INR < 2.0 **For prevention of stroke and systemic embolism**: review thrombotic risk on a case by case basis. Consider startingLMWH when INR < 2.0
	Apixaban	Stop warfarin and start apixaban when INR < 2.0
	Rivaroxaban	For **prevention of stroke and systemic embolism**, stop warfarin and start rivaroxaban when INR ≤ 3.0 For **DVT/PE treatment and prevention of recurrence**, stop warfarin and start rivaroxaban when INR ≤ 2.5
Parental anticoagulants e.g. LMWH	Warfarin	Commence warfarin in combination with LMWH. Continue LMWH for at least 5 days and until INR has been therapeutic on 2 consecutive days then stop LMWH
	Apixaban	Switching can be done at the next scheduled dose. Do not administer simultaneously
	Rivaroxaban	Stop LMWH and start rivaroxaban 0 to 2 hours before the time that the next scheduled administration of LMWH would be due or at the time of discontinuation of a continuously administered parenteral medicinal product (e.g. intravenousunfractionated heparin)
Apixaban	Warfarin	Continue apixaban for at least 2 days after starting warfarin. After 2 days of co-administration of apixaban with warfarin,an INR should be obtained prior to the next scheduled dose of apixaban. Co-administration of apixaban and warfarin should be continued until the INR is ≥ 2.0
	LMWH	Switching can be done at the next scheduled dose. Do not administer simultaneously
	Rivaroxaban	Discontinue apixaban and start rivaroxaban at the time of the next dose of the apixaban
Rivaroxaban	Warfarin	Give rivaroxaban and warfarin concurrently until the INR is ≥ 2.0. For the first two days of the conversion period, standard initial dosing of warfarin should be used followed by warfarin dosing, as guided by INR testing. While patients are on both rivaroxaban and warfarin, the INR should not be tested earlier than 24 hours after the previous dose but prior to the next dose of rivaroxaban (any sooner and rivaroxaban will interfere with the INR result). Once rivaroxaban is discontinued INR testing may be done reliably at least 24 hours after the last dose
	LMWH	Give the first dose of LMWH at the time the next rivaroxaban dose would be taken
	Apixaban	Discontinue rivaroxaban and start apixaban at the time of the next dose of rivaroxaban

https://www.formularywkccgmtw.co.uk/media/1585/switching-between-oral-anticoagulants-and-lmwh.pdf

- ## Phlebitis

Phlebitis is a common and potentially serious adverse effect of potassium chloride (KCl) infusion, characterized by vein inflammation, pain, and redness at the infusion site. To minimize risk, it's crucial to dilute KCl by using hospital guidelines, administer it slowly through a large vein, and monitor the infusion site closely. Severe cases can lead to thrombophlebitis or vein damage, requiring prompt intervention.

ACHIEVEMENTS OF PHARMACY 2024:

Introduce online Intervention system

Online intervention records are vital in point-of-care departments as they enhance communication, ensure accurate documentation, and allow for real-time tracking of clinical decisions. This improves patient outcomes by enabling timely interventions and continuity of care across healthcare providers.

In-patient TPN Preparation:

Total parenteral nutrition (TPN) is crucial in tertiary care hospitals for patients who cannot meet their nutritional needs through oral or enteral routes. It supports recovery by providing essential nutrients intravenously, helping to prevent malnutrition and associated complications in critically ill patients.

Intrathecal Preparation for In-patient

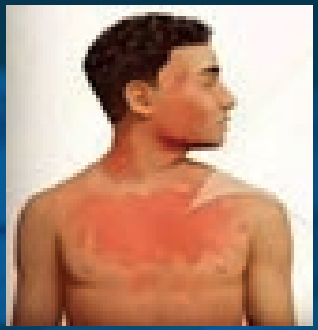
In-house intrathecal preparation is critical for patient care as it ensures the availability of sterile, customized medications tailored to individual patient needs, reducing the risk of contamination and errors. This approach enhances patient safety and supports timely treatment, particularly in critical care settings.

Enoxaparin customized syringes for out-patient:

Customized preparation of enoxaparin syringes for outpatients ensures accurate dosing, enhances patient adherence, and minimizes medication errors

- ## Redman Syndrome

Triggered by rapid infusion of vancomycin, is marked by sudden flushing over neck and face, hypotension, tachycardia, and chest pain. Immediate treatment involves halting the infusion, administering antihistamines to alleviate symptoms, and resuming vancomycin at a slower rate more (**1-2 hr**) if required. This approach helps prevent recurrence and manages the reaction effectively.



Internship certificate distribution ceremony

WPD'23 glimpse

Baqai Medical University Students visited Patel Hospital

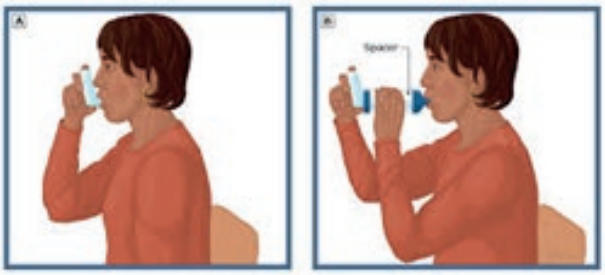
WPD'23 glimpse

Monthly Educational Seminar

WPD'23 glimpse

The Pharmacist's Role in Asthma Management

Asthma is a common chronic respiratory condition that impacts millions of individuals worldwide, requiring a comprehensive and collaborative approach to treatment. Pharmacists, with their extensive knowledge of medications and patient care, are key players in ensuring effective asthma management. This summary highlights the essential contributions pharmacists make in managing asthma, following established guidelines and best practices.



Key Contributions of Pharmacists in Asthma Management
Medication Management and Inhaler Technique:

- Pharmacists play a critical role in ensuring patients receive the correct asthma medications and are skilled in using their inhalers properly. Proper inhaler technique is essential for effective medication delivery and asthma control. Pharmacists can provide hands-on training and correct any misuse.

Development of Personalized Asthma Action Plans:

- Personalized asthma action plans are crucial for effective asthma management. Pharmacists, by working closely with other healthcare providers, help develop these plans, which offer clear instructions for daily management and steps to take during worsening symptoms. These plans empower patients to take control of their asthma.

- These action plans are particularly important in ensuring that children with asthma have the support they need in various environments, such as at school or home.

Patient Education and Support:

Pharmacists provide essential education on asthma triggers, such as allergens, smoke, and exercise-induced asthma, and offer practical advice on how to avoid these triggers, contributing to better asthma control. Additionally, they counsel patients on lifestyle changes like smoking cessation and physical activity, which can significantly improveasthma outcomes.

Collaboration with Healthcare Providers:

Pharmacists play a critical role in ensuring patients receive the correct asthma medications and are skilled in using their inhalers properly. Proper inhaler technique is essential for effective medication delivery and asthma control. Pharmacists can provide hands-on training and correct any misuse.

Conclusion

Pharmacists are indispensable in the multidisciplinary approach to asthma management. Their roles in medication management, patient education, and collaboration with other healthcare providers contribute significantly to improving patient outcomes. By adhering to established guidelines and best practices, pharmacists help reduce the burden of asthma on patients and the healthcare system.

References

Global Initiative for Asthma (GINA). (2023).

Centers for Disease Control and Prevention (CDC). (2022).

National Asthma Education and Prevention Program (NAEPP). (2020).

American Lung Association (ALA). (2023).

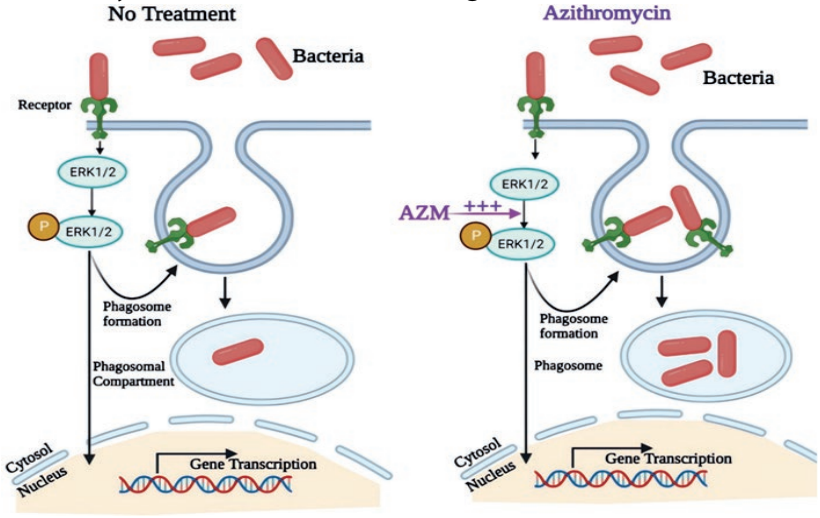
ANTI-INFLAMMATORY EFFECTS OF AZITHROMYCIN IN CYSTIC FIBROSIS

By Saman Jamal (Clinical Pharmacist)

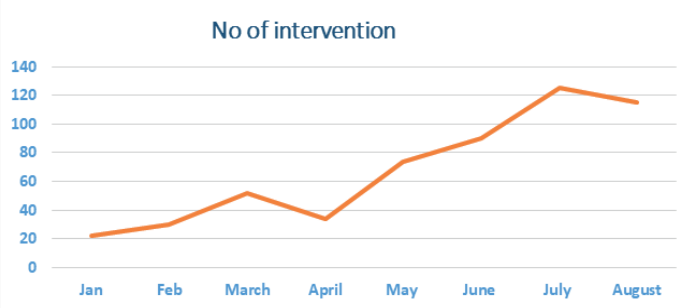
Those with cystic fibrosis who take azithromycin report better lung function and fewer pulmonary exacerbations after treatment. These benefits are most likely a result of macrolides' immunomodulatory qualities. In CF mice, AZM increases the polarization of anti-inflammatory M2 macrophages and decreases the production of pro-inflammatory cytokines of M2. The precise mechanisms behind these effects are still completely unknown.

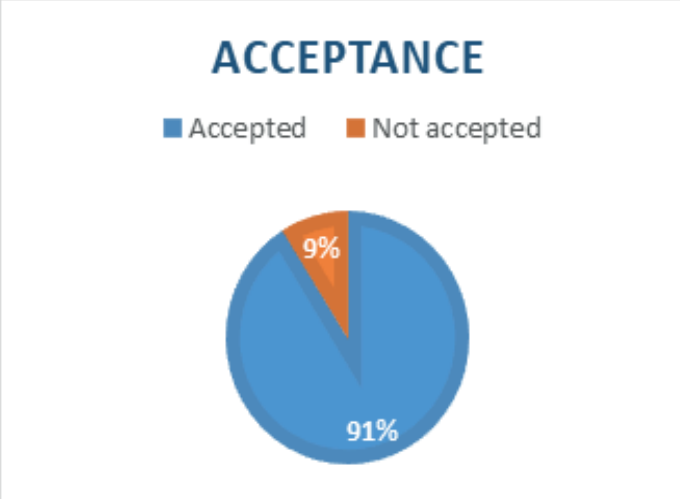
Azithromycin, given three times weekly to infants with cystic fibrosis from diagnosis until age 36 months, has been shown to reduce airway inflammation and pulmonary exacerbations thereby reducing morbidity in the first year of life. This was concluded on the basis of a phase 3 randomized, double-blinded trial where infants (aged 3 to 6 months) were randomly assigned on a 1:1 basis to receive azithromycin (10mg/kg three times weekly) or placebo until the age of 36 months. Effect of azithromycin on inflammatory markers has also been tested on children with cystic fibrosis. A study found a significant decrease in high-sensitivity C-reactive protein in 129 subjects treated with chronic azithromycin compared to placebo at 39 weeks, but no significant difference at 78 weeks, supporting a transient immunomodulatory effect. However, there was no impact on the level of Calprotectin, myeloperoxidase, absolute neutrophil count and total white blood cells.

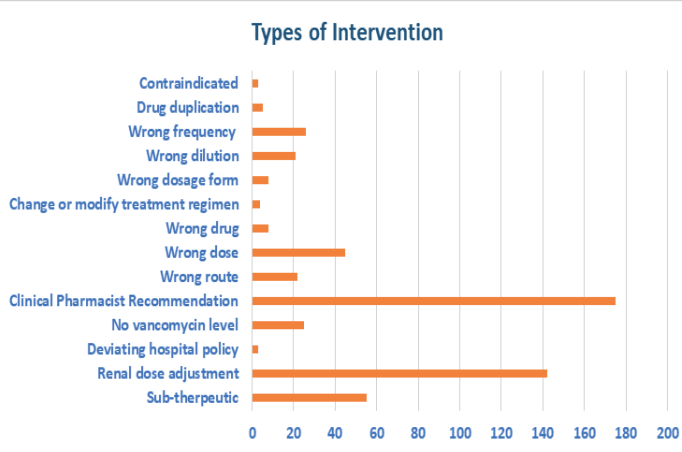
Many potential immunomodulatory effects of azithromycin have been reported including down-regulating prolonged inflammation, decreasing airway mucus secretion, inhibiting bacterial biofilm.



Clinical Pharmacy Statistics (Jan'24-Aug'24)







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PATEL HOSPITAL PHARMACY EXPANDING QUALITY CARE

We are thrilled to announce the launch of Patel Hospital's first-ever outpatient pharmacy 24/7, a significant step forward in our mission to deliver exceptional healthcare services. Our outpatient pharmacy is designed with patient care at the forefront, ensuring the availability of high-quality medications stored under optimal conditions to maintain their efficacy. In addition to the outpatient pharmacy, we are proud to introduce our Emergency Room (ER) pharmacy, which is dedicated to providing timely medication delivery for critical and ambulatory care. To further extend our services, we have also opened an outreach pharmacy in Maymar. This new location brings our trusted services closer to the local community, making it easier for residents to access the medications and care they need.

OUR OPD PHARMACY services offers:

- Access high-quality meds sourced with the utmost care.
- Medications stored at ideal temperatures for maximum efficacy.
- Receive personalized care from our skilled Pharmacist.
- We focus on your needs to provide the best support for your medication regimen.

Our services include:

- Inpatient Pharmacy (IPD Pharmacy).
- 24/7 Outpatient Pharmacy (OPD Pharmacy).
- Clinical Pharmacy.
- Emergency Room Pharmacy (ER Pharmacy).
- Sterile Compounding.
- Non-Sterile Compounding.