



Shaukat Khanum Memorial Cancer Hospital & Research Centre

# Pharmacy Newsletter

**Volume XII, Issue # 2, 2022**

*Issued By:*

Drug Information Centre, SKMT

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## P&TC Updates:

Pharmacy & Therapeutics Committee (P&TC) has approved following drugs during 2022 at SKMCH&RC:

1. **Apixaban Tablet** – as regular formulary item.
2. **Alectinib Capsules** – as regular formulary item (restricted by cost).
3. **Pegylated Filgrastim 6 mg Injection** – as regular formulary item.
4. **Thiotepa Inj** - as regular formulary item (2 patients per year)

### Drugs deleted from Formulary

1. **Ranitidine** (All dosage forms).

### Drugs Recalled

1. **Syp. Famotidine** (Specific brands) – Only applicable to Lahore site as other sites did not procure recalled brands.



## "The first time in history of human research": Cancer Drug Trial, Cures All!

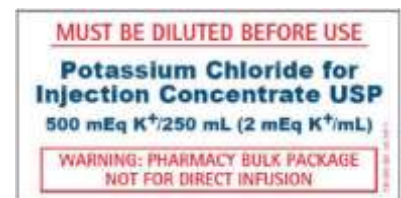
Cercek et al., has published a prospective phase 2 study in which single-agent, an anti-PD-1 monoclonal antibody, was administered every 3 weeks for 6 months in patients with mismatch repair-deficient stage II or III rectal adenocarcinoma, followed by standard chemoradiotherapy and surgery. Patients who had a clinical complete response after completion of dostarlimab therapy would proceed without chemoradiotherapy and surgery. A total of 12 patients have completed treatment with dostarlimab and have undergone at least 6 months of follow-up. All 12 patients had a clinical complete response (100%; 95% confidence interval, 74 to 100), with no evidence of tumor on magnetic resonance imaging, <sup>18</sup>F-fluorodeoxyglucose-positron-emission tomography, endoscopic evaluation, digital rectal examination, or biopsy. At the time of this report, no patients had received chemoradiotherapy or undergone surgery, and no cases of progression or recurrence had been reported during follow-up (range, 6 to 25 months). In terms of safety, no adverse events of grade 3 or higher have been reported. So it was concluded that mismatch repair-deficient, locally advanced rectal cancer was highly sensitive to single-agent PD-1 blockade. Neoadjuvant dostarlimab for 6 months represents a promising new treatment for patients with stage II/III dMMR rectal cancer [and] larger multicenter clinical trials with longer follow-up and disease-free survival and overall survival end points are needed.

Ref.: Cercek A, Lumish MA, Sinopoli JC, et al. PD-1 blockade in mismatch repair-deficient, locally advanced rectal cancer. *N Engl J Med*. Published online June 5, 2022. doi:10.1056/NEJMoa2201445



## Potassium Chloride for Injection Concentrate in EXCEL Plastic Bags

B. Braun recently announced a new presentation of potassium chloride for injection concentrate (2mEq/mL) in a 250 mL EXCEL container plastic bag with blue and red labelling, and a blocked medication port. The 250 mL product is a pharmacy bulk package and should only be used in a pharmacy admixture service where it is restricted to the preparation of admixtures for intravenous (IV) infusions.



ISMP has received several communications from pharmacists and pharmacy technicians who are concerned about the potential risk for this product's presentation to be mistaken for other B. Braun or another companies IV infusion bags. The potassium chloride for injection in the bag is highly concentrated and can stop a patient's heart if accidentally administered undiluted, resulting in a fatal outcome. USP added a requirement for the cap of the glass container and the overseal of the cap to be black and bear the words: "Must Be Diluted." However, there is no cap or overseal used with plastic bags. This alert is intended to bring immediate attention to this issue. Organizations deciding to utilize this product should take the following steps to prevent potentially fatal medication errors:

1. Ensure that only the pharmacy can purchase, store, and utilize this product.
2. After purchase and upon receipt of the potassium chloride for injection concentrate bags, pharmacy staff should immediately open the case and affix large, bold, auxiliary warning labels to the overwrap on both sides of all bags.

**Note:** ISMP is in communication with B. Braun, and dialog is underway about additional ways to enhance the proper identification of this product to reduce the potential for product confusion.

Ref.: *Potassium Chloride For Injection Concentrate in EXCEL plastic bags*.

<https://www.ismp.org/sites/default/files/attachments/2022-05/NAN-20220517.pdf> [accessed June 2022]

## World No Tobacco Day

The World Health Organization celebrate World No Tobacco Day on 31<sup>st</sup> May to draw global attention to the tobacco epidemic and the preventable death and disease it causes. The department of pharmaceutical services at SKMCH&RC Lahore, celebrated this day by stepping out of the box by interacting with professionals from other departments as well as patients through creative displays of anti-smoking props, photo frame and a pledge taking chart.

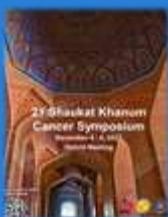
Being an integral part of the leading cancer care hospital nationwide, it is crucial for the wellbeing of our communities to comprehend the devastating consequences of smoking. This led the pharmacy department to take an initiative to send a gentle reminder hospital wide.

This yearly celebration informs the public on the dangers of using tobacco and what health organizations are doing to fight the tobacco epidemic. Pharmacists can provide more information on smoking cessation, therapies used, and make a personalized care plan for you along the way.

Celebrating these days serve as a means of reminder that by living tobacco free; your breathing and heart health is improved.



## Upcoming Events – 21st annual Shaukat Khanum Cancer Symposium



21st annual Shaukat Khanum Cancer Symposium (SKCS) is to be held in Lahore, from the 4th to the 6th of November 2022. The meeting has been organized as a hybrid event, with options to attend in person, or virtually. It will also include, sessions to exchange latest knowledge and expertise related to oncology Pharmacy. You can register yourself @ <https://shaukatkhanum.org.pk/symposium2022/registration/>

## Septic Shock – Restrictive vs Liberal fluids

Sepsis and severe sepsis, are one of the leading causes of mortality and significant healthcare costs. Over the period of last two decades, several interventions have improved survival and shortened overall length of stay. There are three important pillars in the treatment of sepsis:

- 1- Fluid resuscitation
- 2- Timely broad spectrum Antibiotic Administration
- 3- Vasopressors therapy



In fluid resuscitation, timing and adequacy are as important as avoidance of volume overload. According the latest surviving sepsis campaign: international guidelines for management of sepsis and septic shock, at least 30 ml/kg of IV crystalloid solution should be given during first 3 hours of resuscitation. Furthermore, fluid administration should be guided by the dynamic markers of resuscitation. Volume endpoints and the approach to titration, are still topics of clinical controversy. Fluid resuscitation therapy is an essential part of sepsis treatment but overaggressive fluid therapy practices may augment Glycocalyx degradation. In a systematic review and meta-analysis by Jonathan *et. al.*, a restrictive fluid management did not show any significant mortality difference compared to patients treated with a more liberal fluid management strategy [pooled risk ratio (RR) 0.92, 95 % confidence interval (CI) 0.82–1.02,  $I^2 = 0$  %]. However a conservative/restrictive fluid strategy resulted in increased ventilator free days (mean difference 1.82 days, 95 % CI 0.53–3.10,  $I^2 = 9$  %) and reduced length of ICU stay (mean difference –1.88 days, 95 % CI –0.12 to –3.64,  $I^2 = 75$  %). In CENSER trial, although there was no mortality difference between the two groups, but patients who received early norepinephrine had better 6 hours of shock control.

In conclusion, fluid resuscitation should be tailored using dynamic markers and clinical judgment.

Ref: Silversides, J.A., Major, E., Ferguson, A.J. *et al.* Conservative fluid management or deresuscitation for patients with sepsis or acute respiratory distress syndrome following the resuscitation phase of critical illness: a systematic review and meta-analysis. *Intensive Care Med* **43**, 155–170 (2017). <https://doi.org/10.1007/s00134-016-4573-3>

## Pharmacy Services to health community in KPK

Shaukat Khanum Memorial Cancer Hospital Research Centre, Peshawar, is providing cancer treatment to hundreds and thousands of patients belonging to the region. At the same time, the Department of Pharmaceutical Services, Peshawar, is also contributing in provision of quality healthcare and effective pharmacotherapy to these patients. Our Peshawar team is also providing facilities to the community with their expertise in aseptic services.

In local healthcare providers' medium, SKMCH&RC Peshawar, is delivering Total Parenteral Nutrition (TPN), intravitreal Bevacizumab and Magic mouth wash, prepared under one roof at a Joint Commission International (JCI) accredited facility. In Khyber Pakhtunkhwa, our team is only source for providing TPN to the community.



Total parenteral nutrition (TPN) is a form of nutritional support given entirely via intravenous route. TPN contains proteins, carbohydrates, fats, vitamins, and minerals. Total parenteral nutrition (TPN) is a method of feeding that bypasses the gastrointestinal tract. The modality is used when a person cannot or should not receive enteral nutrition. TPN improves and maintains not only nutritional status but also the immunocompetence in patients with restricted food intake, because almost all essential nutritional substrates can be administered through

parenteral route alone, to meet energy requirements. These components of TPN are calculated by our parenteral nutrition speciality pharmacists.

SKMCH&RC, Peshawar's pharmacy provides Magic Mouthwash (MMW) to cancer patients. MMW is the term given to a solution used to treat mouth sores, oral mucositis caused by chemotherapy and radiation therapy, as well as to manage poor oral hygiene. Painful mucositis impairs the ability to eat and drink fluids and impacts quality of life and even result in the need for hospitalization for pain control and provision of total parenteral nutrition in order to maintain adequate nutritional intake during cancer treatment. Effective interventions to reduce severity, duration, and pain from oral mucositis can have a significant impact on health care costs as well as patient well-being. Incremental costs of mucositis more than double when grades are severe, and with more severe mucositis, overall cost of care is increased as much as \$7,102—mostly associated with hospital stays (Carlotto, Hogsett, Maiorini, Razulis, & Sonis, 2013).

We also provide cost-effective single-dose Bevacizumab for Intravitreal use. Bevacizumab is used for age related macular degeneration and diabetic macular edema. Its function is to preserve main cells for central vision. According to research ranibizumab and bevacizumab are equivalent in treating age related macular degeneration, while both have big difference in cost. Intravitreal bevacizumab application provides significant improvement in visual acuity of diabetic patients and clinical course of macular oedema.

*Ref.: Carlotto A, Hogsett VL, Maiorini EM, Razulis JG, Sonis ST. The economic burden of toxicities associated with cancer treatment: review of the literature and analysis of nausea and vomiting, diarrhoea, oral mucositis and fatigue. Pharmacoeconomics. 2013 Sep;31(9):753-66. doi: 10.1007/s40273-013-0081-2. PMID: 23963867.*

*Avastin and Lucentis are equivalent in treating age-related macular degeneration. <https://www.nih.gov/news-events/news-releases/avastin-lucentis-are-equivalent-treating-age-related-macular-degeneration> [accessed June 2022]*

## Fast Facts - MMU

The frequency of review of our hospital's formulary is

**Annually**

Medication Management & Use manual can be accessed through

**Intranet**

Primary purpose of P&TC is

**Administrative, Educational and Advisory**

High Alert Medication list is last updated in

**July, 2022**

Antibiogram is updated every

**Quarter**

Drug Information Center can be contacted at extension:

**3260**

Reference on stability of different types of insulins after opening is available in

**Medication Rooms**

How you get information about drug shortages

**Pharmacy (email of drug shortages)**

Hazardous medications are,

**All Intravenous Chemotherapeutic agents**

As per hospital policy patient own medication is

**Allowed in limited circumstances only with proper procedure SKMCH has**



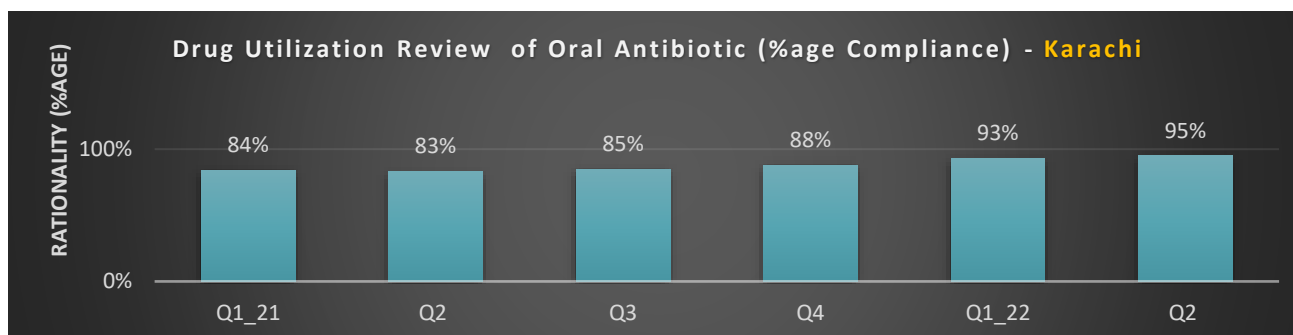
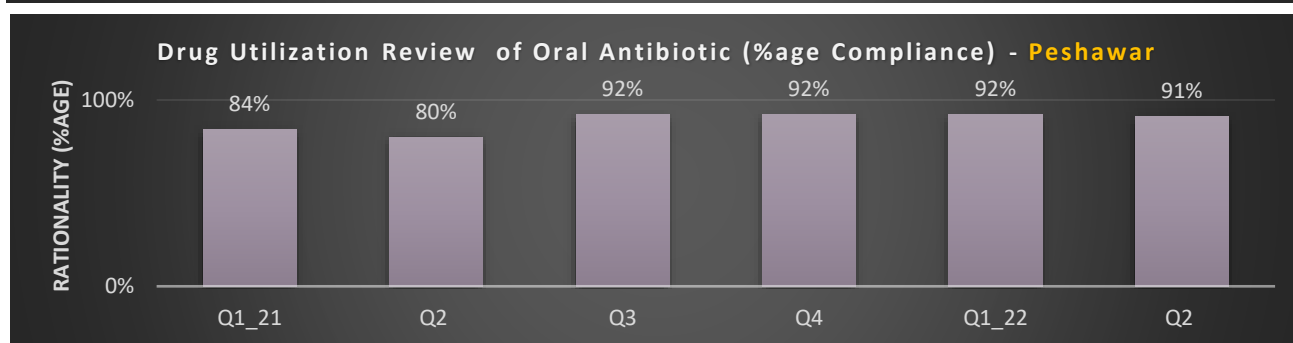
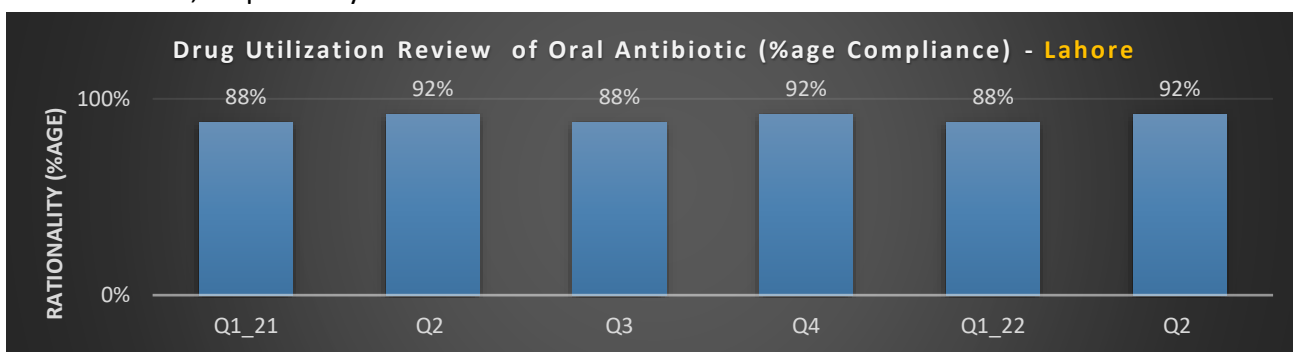
## Ambulatory Care Antimicrobial Stewardship Program (ACASP) at SKMT

ACASP is essential in ensuring rational use of antibiotics in OPD patients. It helps in reducing the economic burden associated with cost of antibiotics use and improve patient outcome by avoiding unnecessary use of antibiotics. It also helps in reducing the risk of antimicrobial resistance.

The program is headed by the P&TC (Pharmacy and therapeutic committee). The module is on-line in Hospital Information System (HIS). The SKMCH&RC software with online order system and therapeutic guidelines help physicians in ordering antibiotics in OPD setting with all necessary information including indication for prescription. HIS helps the pharmacist in appropriateness review before verifying and dispensing each antibiotic prescription. The effectiveness of ACASP functioning is measured through Drug Utilization Review (DUR) and is reviewed by ICC (Infection Control Committee) and P&TC. DUR is performed for most common antibiotics uses in our hospital dispensed through our out-patient pharmacy services.

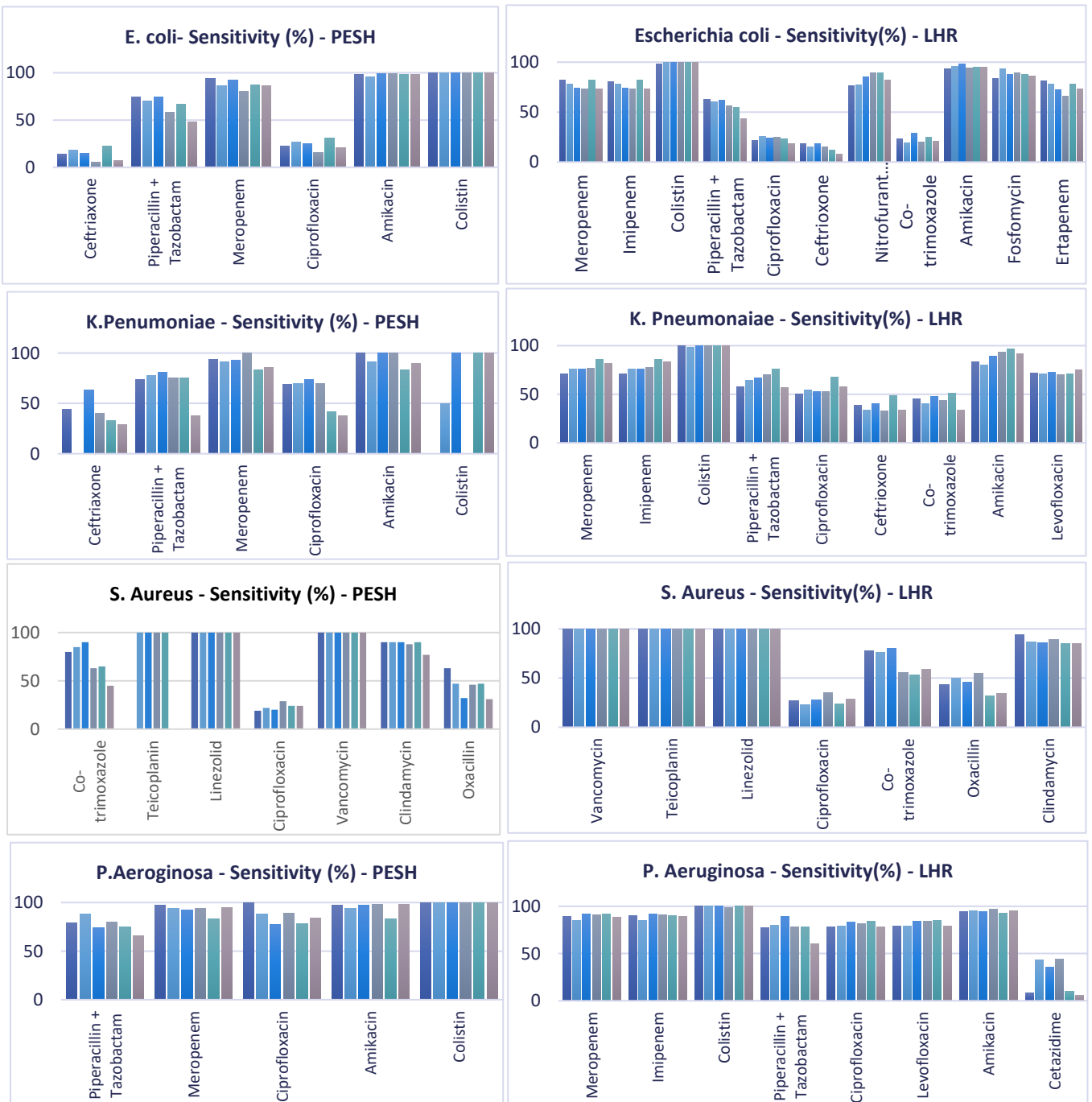
ACASP aims to rationalize antibiotic use in ambulatory care patients, improve patient outcomes with lesser risk of antibiotic associated side effects, reduce risk of antimicrobial resistance to 1st line antibiotics, and reduce the cost burden associated with unnecessary use of antibiotics.

Here is DUR data of past five quarters of all three centres (Lahore, Peshawar and Karachi). The rational use of antibiotics was 88%, 92%, and 92%, in first quarter of 2022, in SKMCH, Lahore, Karachi and Peshawar, respectively.



## Antibiogram: Key tool for Antibiotic Stewardship Program

The Shaukat Khanum Memorial Cancer Hospital & Research Centre, uses an annual antibiogram report as part of a quality initiative to improve the appropriate prescribing of antibiotics for Antibiotic Stewardship Program Team, which includes, Doctors, Pharmacists and Nurses. The infectious diseases team reviews the generated antibiogram report for in-house evidence-based approved treatment guidelines on at least the past 12 months of bacteriological laboratory results that are processed. Results of this report and its illustrations for key nosocomial infections are given below in Figures. The antibiogram report displays the antimicrobial percent (%) sensitivities for common organisms isolated from diagnostic specimens collected from laboratory data at Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore (LHR) and Peshawar (PSH).



## COVID-19 therapies and their comparison – An Update

Since the start of COVID 19 pandemic, a number of therapies have come into practice and others have been stop, in view of scientific knowledge. Pharmacists, are specialists in knowledge related to use of medicine, therefore, we are sharing detail comparison, in form of table, between oral therapies having Emergency Use Authorizations (EUA) by FDA. Furthermore, a comparison for use and activity against different variants of COVID-19 for monoclonal antibodies (Mabs) having EUA by FDA, in table 2 and table 3, respectively.

Table 1. COVID 19 Oral Therapies comparison

	Nirmatrelvir/Ritonavir (Paxlovid)	Molnupiravir (Lagevrio)
<b>EUA indication</b>	Treatment of mild-moderate COVID-19 in patients who are at high risk for progression to severe disease NOT authorized for use in patients hospitalized due to COVID-19	
<b>Mechanism of action</b>	Viral protease inhibitor → prevents viral replication	Nucleoside analog → interrupts viral replication
<b>Dose/duration</b>	300 mg nirmatrelvir/ 100 mg ritonavir twice daily for 5 days	800 mg twice daily for 5 days
<b>Patient considerations</b>	≥ 12 years old, ≥ 40 kg	≥ 18 years old Avoid in pregnancy
<b>Dose adjustments</b>	Dose-adjustment for eGFR 30-60 mL/min; “not recommended” in eGFR < 30 mL/min Avoid in severe hepatic impairment	None for renal or hepatic impairment
<b>Drug interactions</b>	Rivaxaban, Salmeterol(category X)	Cladribine(category X)

Table 2. Comparison of mabs for Treatment of COVID-19

	Bamlanivimab/ etesvimab	Casirivimab/imdevimab	Sotrovimab	Bebtelovimab
<b>Mechanism of action</b>	IgG monoclonal antibodies that neutralize the spike protein of COVID-10 which blocks spike protein attachment to human cells			
<b>Dose/duration</b>	Bamlanivimab 700mg plus Etesevimab 1400mg IV infusion x 1 dose within 7 days of symptom onset	Casirivimab 600mg plus Imdevimab 600mg IV infusion x 1 dose within 7 days of symptom onset	Sotrovimab 500mg IV infusion x 1 dose within 7 days of symptom onset	Bebtelovimab 175 mg IV push over 30 seconds x 1 dose within 7 days of symptom onset
<b>Patient considerations</b>	Approved in adults and pediatrics weighing at least 1kg	Approved for patients ≥ 12 years of age AND weighing ≥ 40 kg		
<b>Adverse reactions</b>	<ul style="list-style-type: none"> <li>➤ Hypersensitivity reactions including anaphylaxis and infusion related reactions have been observed</li> <li>➤ Infusion related reactions</li> <li>➤ Pruritus</li> </ul>			
<b>Monitoring</b>	Patient to be observed for 1 hour post infusion			
<b>Clinical Efficacy (Reduction in hospitalization/death)</b>	87% reduction	70% reduction	79% reduction	“Generally lower than the placebo rate reported in prior trials of other monoclonal antibodies in high risk patients”

Table 3. Comparison of mabs Variant Activity for Treatment of COVID-19

	Bamlanivimab/ etesvimab	Casirivimab/imdevimab	Sotrovimab	Bebtelovimab
<b>Delta variant</b>	+	+	+	+
<b>Omicron variant (BA.1)</b>	-	-	+	+
<b>Omicron subvariant (BA.2)</b>	-	-	-	+

Ref.: <https://www.covid19treatmentguidelines.nih.gov/therapies/anti-sars-cov-2-antibody-products/anti-sars-cov-2-monoclonal-antibodies/>



## DRAP has suspended the registration of 3 drug dosage forms

A meeting of Registration board was held at Drug Regulatory Authority of Pakistan (DRAP), and decisions were taken on suspension of registration of Diclofenac Potassium tablets (strengths of 75 & 100 mg), Famotidine liquid suspension (strengths of 10mg/ 5ml and 40mg/ 5ml) with specific brands only, and paracetamol, thioridazine and caffeine, combination tablet, over concerns on safety data. The Board, took its decision to suspend the products based on the reports of various reference regulatory authorities of the Board that include United States Food and Drug Administration (USFDA), Medicine and Health Product Regulatory Authority (MHRA), United Kingdom, Therapeutic Goods Administration (TGA), Australia, Health Canada and Swiss Medical Products Agency, Switzerland. These decision were taken after giving an opportunity of personal hearing to manufacturers holding registrations of these drugs. DRAP advises healthcare professionals, patients, and their attendants on not prescribing or using these drug products as there is very less data on quality, safety, and efficacy of these drugs.

At Shaukat Khanum Memorial Cancer Hospital & Research Centre, Department of Pharmaceutical Services, Lahore, Peshawar and Karachi, the issue was taken under active consideration. As per standard good clinical practices, the information was dissipated to all consultant physicians, with recommendation of medication substitution for patients receiving any of these drugs in ongoing pharmacotherapy. A drug recall protocol was initiated to track and trace, all the patients who have been dispensed any of these medicines, and advice to stop using these drug products, and further seek guidance from medical team on its replacement.

Ref: [https://www.dra.gov.pk/publications/meeting\\_minutes/registration\\_board/partial-minutes-of-317th-meeting-of-registration-board/](https://www.dra.gov.pk/publications/meeting_minutes/registration_board/partial-minutes-of-317th-meeting-of-registration-board/)



## Appropriateness Review: JCI Recommendations

In areas where “unit emergency stock medication” is placed and pharmacy review is not possible / delayed, a trained individual staff nurse will conduct a review of critical elements a) through d) for the first dose and a full appropriateness review will be conducted by the designated licensed pharmacist within 24 hours.

- Allergies
- Fatal drug/drug interactions
- Weight based dosage
- Potential organ toxicity



## Extravasation

**Extravasation** injury is defined as the damage caused by the efflux of solutions from a vessel into surrounding tissue spaces during intravenous infusion. The damage can extend to involve nerves, tendons, and joints and can continue for months after the initial insult.



### Minimization and Prevention of Extravasation

Correct  
**Site**

Correct  
**Cannulation**

Correct  
**Technique**

Correct  
**Knowledge**

## Sharing is Caring- Presentations, Webinars, Conferences & Publications

The pharmacy department, as per tradition, has participated in various events and continued on this trajectory, in the last quarter of 2022.

### 1. CME – Pharmacist role in oncology care setting – Cost & Safety Projects at SKMT.

Mr. Omar Akhlaq Bhutta, Associate Director Pharmacy, Shaukat Khanum Memorial Cancer Hospital & Research Centre, conducted a Continuing Medical Education (CME) session in Türkiye. Mr. Omar, taught the participant about the role of pharmacist in oncology care settings and aspects of participation and conducting cost and safety projects.



### 2. Pharmacy education in Pakistan, Seminar at IUB.

Faculty of Pharmacy, Islamia University, Bahawalpur, conducted a seminar on 'Critical appraisal of pharmacy education in Pakistan, special focus on pharmacy practice and discipline'. Mr. Shahbaz Ahmad Khan and Mr. Muhammad Rehan Khan, presented at the event, and enlightening the participants upon the aspect of pharmacy practice in hospitals.



### 3. ASP Seminar at RLCP.

Rashid Latif College of Pharmacy, Lahore organised a seminar on topic of Antibiotic Stewardship Program. Mr. Omar Akhlaq Bhutta, Associate Director Pharmacy, Shaukat Khanum Memorial Cancer Hospital & Research Centre, presented and enlightened the participants on the topic.



### 4. ECCMID 2022, Lisbon.

32<sup>nd</sup> European Congress of Clinical Microbiology & Infectious Diseases (ECCMID) took place in Lisbon, Portugal from 23-26 April 2022 – for the first time as a hybrid event both onsite and online. Mr. Muhammad Rehan Khan, Assistant Manager/Clinical Pharmacy Specialist Infectious Disease, was invited as speaker, in the onsite setting. The topic he presented was based on, 'Antibiotic availability gaps in high vs low resource countries'.



## Certificate of Achievement – Impacting Opioid Crisis



**Adeel Siddiqui**  
Clinical Pharmacist



## Welcome New Team Member – Manager Pharmacy Lahore

### Education and Qualification:

Pharm-D: Doctor of Pharmacy Punjab university Lahore Pakistan  
 BCOP: Board Certified Oncology Pharmacist, USA  
 BCSCP: Board Certified Sterile Compounding Pharmacist, USA  
 Specialized in Advance Immuno-Oncology, Harvard Medical School, USA  
 CCSP: Certified Compounding Sterile Preparation Pharmacist ASHP, USA  
 CPHQ: Certified Professional in Health Care Quality, NAHQ USA  
 Registered Pharmacist Pakistan, Saudi Arabia, UAE



**Mr. Khurram Shahzad**  
Manager Pharmacy  
SKMCH & RC, LHR

## Publications

- 1- Anti-cancer medicine shortages in an oncology tertiary hospital of Pakistan: A five-year retrospective study, Published in Journal of oncology Pharmacy Practice (Impact Factor: 1.416)



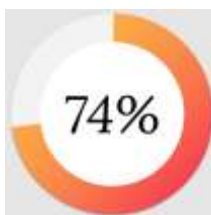
## Local Purchases on Pharmacy Imprest

### Cost Reduction Strategy

Multiple strategies were used to reduce the cost related to local purchases from pharmacy impost which leads to significant cost reduction in local purchase and ensure timely availability of products. The study mainly conducted on Lahore site and all strategies are implemented on Karachi & Peshawar Pharmacies. The study also presented in P&TC (02\_2022)

#### Local Purchases – Year Wise

Pharmacy Cash Imprest (LHR)



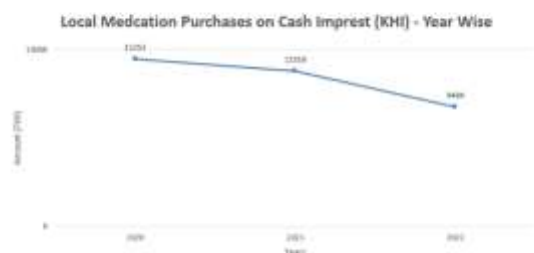
#### Local Purchases – Year Wise

Pharmacy Cash Imprest (PESH)



#### Local Purchases – Year Wise

Pharmacy Cash Imprest (KHI)



## Drug Resources at SKMT

Other than pharmacy drug information services extension 3260, the hospital information system enables the users to access individual drug monographs which are updated on regular intervals, as drug resources. The pathway is as following.

1. Login HIS
2. Search “Query Medicine” in the “Start with” menu & open it
3. Type required drug name in the generics
4. Click on “Clinical Monograph”



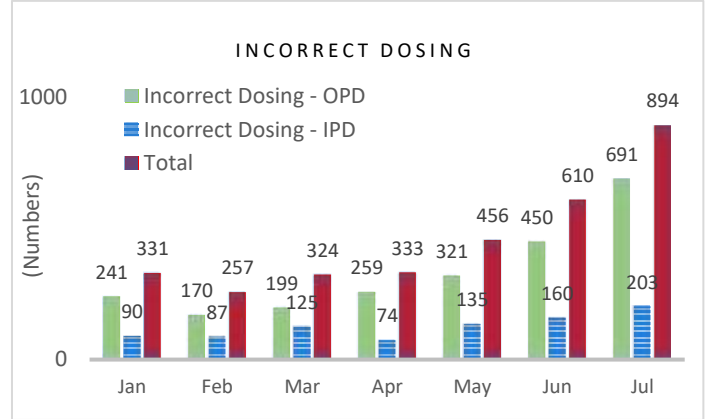
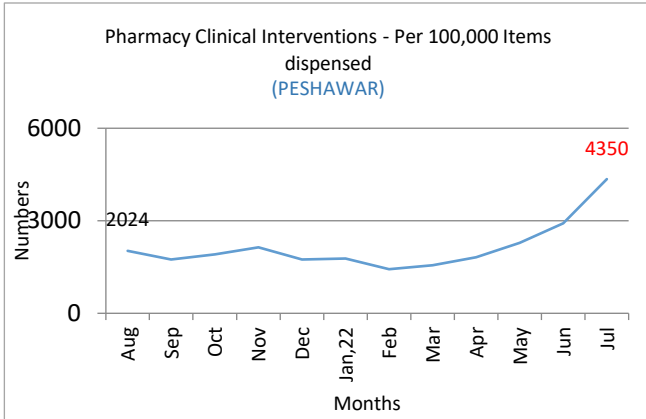
Hospital formulary & Parenteral handbook can access through Intranet and Treatment guidelines (T. Guidelines) in HIS.

Prescribing guidelines including concentrated electrolytes are available in T. Guidelines



## Pharmacy Clinical Interventions – Trend in Peshawar

Recent increase in the interventions in July, is owed to the implementation of certain strategies, such as, staff education on review of prescriptions, new dosing guidelines and focus on cost-effectiveness interventions. Pharmacy will conduct fresh education session for physician to improve good prescribing practices.



## Errors Associated with LASA Drugs – Learning Experience

Department of Pharmacy believes on continuous improvement and replicate its learning from one site to another. Medication errors associated with look-alike, sound-alike (LASA) drugs were reported significantly high in 2016, and considering this Pharmacy (Lahore site) took an initiative and introduce an in-house-built medication stacking plan which significantly reduce the errors. Based on its effectiveness the same pattern was introduce in Peshawar and Karachi (See graphs below)

