



PHARMACY BULLETIN

Shifa International Hospitals Ltd.

شفا انٹرنیشنل ہسپتال لمیٹڈ

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Shifa International Hospital Islamabad, Pakistan won 25th ISMP Cheers Award!

The Institute for Safe Medication Practices (ISMP) gives Cheers Award annually to winners who have set a standard of excellence for others to follow in the prevention of medication errors and adverse drug events. The landmark 25th anniversary award ceremony was held on December 6, 2022, Las Vegas, NV.

Shifa International Hospital – Pharmacy is being honored for implementing **Camera Assisted Verification for chemotherapy admixture services**. Following the ISMP's Targeted Medication Safety Best Practices for Hospitals, the Shifa team put into place an affordable, workable solution to ensure that the proper ingredients and amount of each medicine was confirmed prior to being added to the final chemotherapy IV bag. With support from leadership, the project was funded for a total of approximately \$915 US dollars. Shifa International Hospital's successful initiative serves as an example of what healthcare organizations that cannot afford advanced technology such as gravimetric analysis equipment, barcode and robotic applications, and IV workflow software can accomplish to prevent errors.

Shifa Chemo Pharmacy reviews ~4000 chemo orders quarterly and this system helped us in preventing several chemo admixing errors, thereby making the process much safer.



Salwa Ahsan, Chief of Pharmacy Shifa receiving award from Rita Jews, President ISMP, in 25th ISMP Annual Cheers Award (Las Vegas USA)



Inside this issue

- ◇ Shifa International Hospital Islamabad, Pakistan won 25th ISMP Cheers Award
 - ◇ Common Cold vs COVID-19
 - ◇ Short-term vs Conventional Glucocorticoid Therapy in Acute Exacerbations of COPD
 - ◇ Continuous Infusion of Ceftazidime/avibactam
 - ◇ Adverse drug reactions update
- and much more.....

Congratulations!

Rehan Anjum

Assistant Manager Clinical Pharmacy



Department of Pharmacy is proud to share that, Rehan Anjum, Assistant Manager Clinical Pharmacy is now the **first Pakistani Board Certified Infectious Diseases Pharmacist BCID** from the Board of Pharmacy Specialties (USA).

This certification is another milestone achieved toward specialty-based pharmacy practice, and it will definitely help improve Antimicrobial Stewardship in the hospital which is certainly the need of the day.

Is it a Common Cold or COVID-19?

Rehan Anjum (Assistant Manger Clinical Pharmacy)



Infection from a virus is followed by an incubation period. During this time, the patient does not show any signs or symptoms of infection. This is a key difference between the common cold and COVID-19. Symptoms of the common cold usually appear 1 to 3 days after exposure to a cold-causing virus, whereas COVID-19 symptoms usually appear in 2 to 14 days following exposure to SARS-CoV-2.

The common cold and COVID-19 have many symptoms that overlap. These symptoms primarily include body aches, cough, runny nose, and sore throat. But some symptoms apply only to COVID-19.

Loss of smell and/or taste is a common warning sign of COVID-19 infection. This is especially true if a patient has this symptom without a runny or stuffy nose. Another symptom more common to COVID-19 infection than the common cold is diarrhea.

Symptoms of Common Cold and COVID-19					
Symptoms	Common Cold	COVID-19	Symptoms	Common Cold	COVID-19
Chills	Rare	Common	Nausea/Vomiting	Rare	Sometimes
Confusion	Rare	Common	New loss of smell/taste	Sometimes (with stuffy nose)	Common
Cough	Common	Common (Dry)	Runny/stuffy nose	Common	Common
Diarrhea	Rare	Sometimes	Shortness of breath	Sometimes	Common
Dizziness	Rare	Common	Sore throat	Common	Common
Fever	Sometimes	Common	Sneezing	Common	Rare
Headache	Rare	Common	Tiredness	Sometimes	Common
Muscle Aches	Sometimes	Common			

Reference: Similarities and differences between flu and COVID-19. CDC. Updated September 28, 2022. Accessed December 10, 2022.



Breast milk of people vaccinated against COVID-19 provides protection to infants

Muhamamd Gulzaib
Peadiatric Clinical Pharmacist

A new study from the University of Florida provides more evidence that the breast milk of people vaccinated against COVID-19 provides protection to infants too young to receive the vaccine. This latest study follows up on findings published in 2021 showing that the breast milk of vaccinated people contained antibodies against SARS-CoV-2, the virus that causes COVID-19. The new study, published in the *Journal of Perinatology*, analyzed the stool of infants that consumed this breast milk and found SARS-CoV-2 antibodies there as well.

The study also measured and tested **antibodies found in the mothers' blood plasma and breast milk soon after vaccination and then again about six months later**. The researchers found that the antibodies in the plasma and milk of vaccinated people were better able to neutralize the virus, though they also observed that antibody levels decreased at the six-month mark, which other vaccine studies have found as well.

The researchers say larger studies are needed to answer that question, as this latest study included 37 mothers and 25 infants, a relatively small number of participants. **Currently children under sixth months of age cannot receive the vaccine, so breast milk may be the only avenue for providing immunity.**

Reference: Stafford, L.S., et al. (2022) Detection of SARS-CoV-2 IgA and IgG in human milk and breastfeeding infant stool 6 months after maternal COVID-19 vaccination. *Journal of Perinatology*



Cefazolin and ertapenem combination therapy for refractory MSSA bacteremia

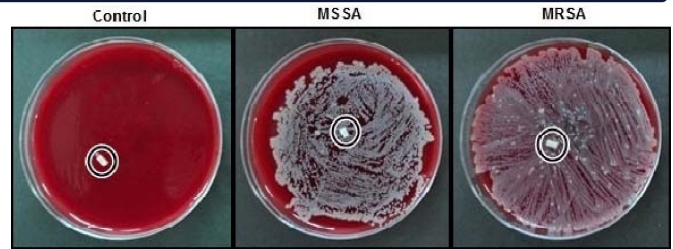
Ahsan Shazad Clinical Pharmacist

In infections with a high inoculum of **methicillin-susceptible Staphylococcus aureus (MSSA)**, there appears to be a **“Cefazolin Inoculum Effect”** where there is a significant rise in the minimum inhibitory concentration in the presence of a high inoculum of bacteria. **Endocarditis** is a classic example of a clinical infection with a high bacterial load.

A recent case series shows the successful treatment of **11 patients with persistent MSSA bacteremia**. The authors discovered apparent synergy against MSSA with Cefazolin & Ertapenem combination.

All 11 cases experienced successful clearance of the bacteremia with the combination therapy. Six of the 11 cases were confirmed infective endocarditis. Two of the endocarditis patients had exceptionally large vegetations exceeding 2cm. Blood cultures were drawn daily in only 9 of the patients, and in 8 of those, the bacteremia cleared within just 24 hours. All 11 patients survived until hospital discharge.

Reference: *Potent Activity of Ertapenem Plus Cefazolin Within Staphylococcal Biofilms: A Contributing Factor in the Treatment of MSSA Endocarditis, Open Forum Inf Dis, Vol 9, Issue 5, May 2022*



Pakistan's National High Alert Medicines Guidelines

Developed by **Pakistan Society of Health-System Pharmacist (PSHP)**, approved by the **Drug Regulatory Authority of Pakistan (DRAP)**, are now officially published on the DRAP's website.

<https://www.dra.gov.pk/publications/guidelines/pharmacovigilance/>

DRAP in its official notification vide letter No. F. 9-7/2022 PV (PS), dated September 27, 2022 have directed **all public & private hospitals to:**

- Develop high alert medications list specific to their setups within 6 months (by March 2023)
 - Conduct training and awareness sessions on managing high alert medication & develop reporting culture of adverse drug reactions/ events
 - Display the approved list in prominent places within pharmacies, doctors' offices and nursing stations and
 - Inform all the healthcare staff about the list
- ⇒ DRAP in its letter has also further instructed the drug Inspectors to ensure displaying of list in the hospital pharmacies.

World Antibiotic Awareness Week November 2022

World Antibiotic Awareness Week (WAAW) is celebrated from November 18-24 every year. Shifa International Hospital (SIH) also actively celebrated WAAW to raise awareness of antimicrobial resistance and promote the responsible use of antimicrobials. Shifa doctors, nurses and pharmacists promoted the public awareness about rationalize antimicrobial use through education walks, television programs, posters, video messages etc. Team engaged public and healthcare providers equally as it's a shared responsibility to judiciously use the antibiotics. **Remember it's a global health threat and we have to act NOW!**



Short-term vs Conventional Glucocorticoid Therapy in Acute Exacerbations of Chronic Obstructive Pulmonary Disease

Israr Khan (Resident Pharmacist)

Guidelines advocate for systemic steroid therapy in the management of acute exacerbations of COPD. Multiple randomized clinical trials have shown the benefits on clinical outcomes of COPD (Reduction of LOS and quicker recovery of FEV1). The optimal dose and duration for COPD is not really known. Furthermore, long-term use of glucocorticoids can cause osteoporosis, diabetes mellitus, and most importantly is a risk factor for increased mortality in COPD.

What is the REDUCE Trial?

- **RED**uction in the **U**se of **C**orticosteroids in **E**xacerbated COPD

What they did:

- Randomized Placebo Controlled, Double-Blind, Non-Inferiority Multicenter Trial
- Subjects: 314 patients with COPD
- Treatment with *40mg of prednisone daily for 5 days versus 14 days*

Primary Outcome:

- Time to next exacerbation within 180 days

Results:

- Exacerbation rate 35.9% (short term treatment) vs 36.8% (conventional treatment)
- Median time to exacerbation 43.5 days (short term treatment) vs 29 days (conventional treatment)
- No difference in mortality
- No increase in need for mechanical ventilation between treatment regimens
- Hypertension developed or worsened in 11.6% (short term treatment) vs 17.8% (conventional treatment)
- No difference in hyperglycemia in the two groups

Limitations:

All patients, regardless of GOLD classification were treated with inhaled long-acting Beta-agonists, glucocorticoids, and tiotropium. All patients received antibiotic treatment regardless of sputum production or procalcitonin level. Most of the patients in this study had severe or very severe COPD

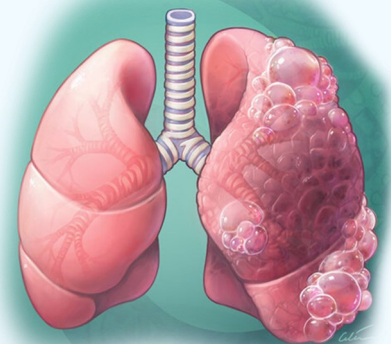
Conclusion:

A 5-day treatment with systemic glucocorticoids is **non-inferior** to 14 day treatment and significantly reduces glucocorticoid exposure. It may be reasonable to treat patients with 5 days of glucocorticoids for COPD exacerbations.

The change of recommendations from long courses to short courses of oral corticosteroid therapy for acuter exacerbation of COPD in 2014 was strongly associated with a **decrease in pneumonia admissions and all-cause mortality**, in favour of short courses of OCS.

References:

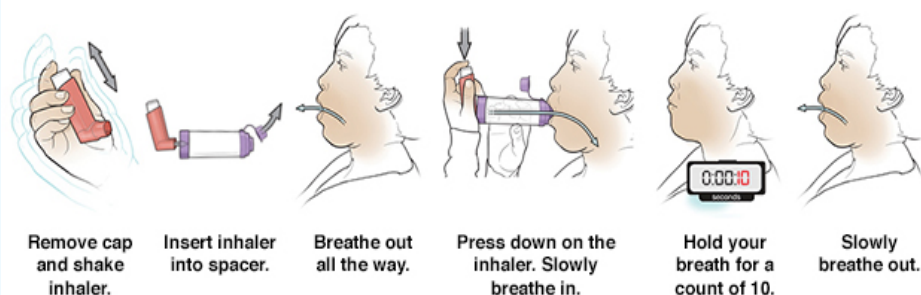
- Leuppi JD et al. Short-Term vs Conventional Glucocorticoid Therapy in Acute Exacerbations of Chronic Obstructive Pulmonary Disease: The REDUCE Randomized Clinical Trial. JAMA 2013; 309 (21): 1 – 9. PMID: 23695200.
- Sivapalan P, Ingebrigtsen TS, Rasmussen DB, et al COPD exacerbations: the impact of long versus short courses of oral corticosteroids on mortality and pneumonia, BMJ Open Respiratory Research 2019



Counseling makes a difference..

Inhaler/Rota-haler use is the cornerstone of asthma treatment. Many patients do not accomplish treatment goals because their device use techniques are improper.

It is important that on each encounter, doctors, nurses and pharmacists reinforce the correct device use techniques among patients .



Process for decision-making in the management of drug product shortages

Huba Gulzar (Resident Pharmacist)

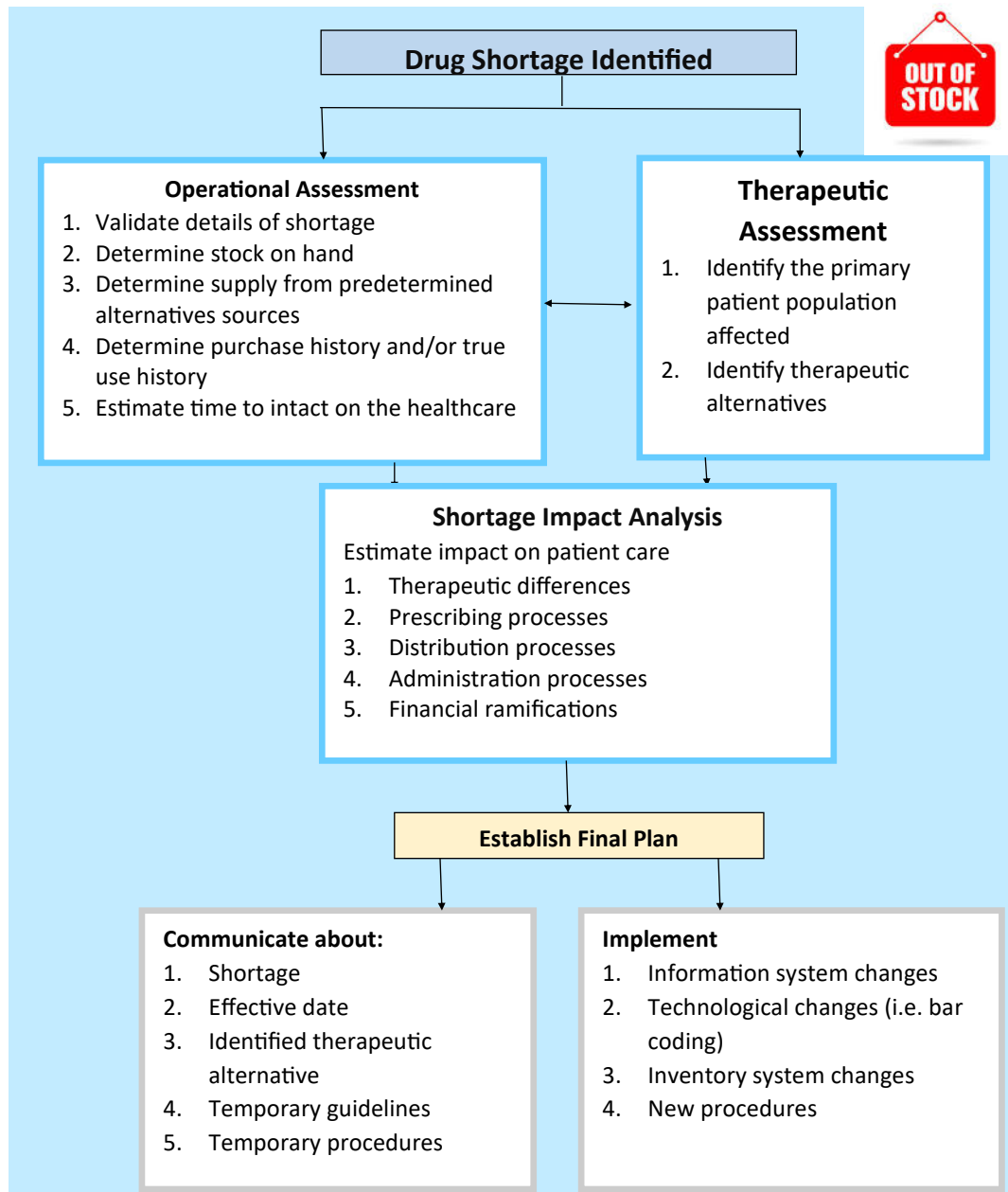
Pakistan is facing multiple acute drug shortages due to economical crises. Pharmacists have to be vigilant to manage these drug shortages. A drug product shortage is defined as a supply issue that affects how the pharmacy prepares or dispenses a drug product or manages patient care when prescribers must use an alternative agent.

Shortages can be the result of one or a combination of factors throughout the supply chain. Drug product shortages can:

- Adversely affect drug therapy
- Compromise or delay medical procedures result in medication errors and patient harm.

Although it is impractical to prepare for every potential shortage, proper planning can reduce adverse effects on patient care and healthcare organization costs and prevent problems from escalating into crises.

Managing drug product shortages is particularly complex for practitioners in hospitals and other acute care settings because these facilities routinely treat patients with acute or emergent conditions, use a significant number of medically necessary or single-source products, and use high cost new drugs and technologies.



Continuous Infusion Ceftazidime/avibactam in patients with MDR Gram-negative bacterial infection

Halim Ur Rehman Clinical Pharmacist

Ceftazidime-Avibactam is a combination of 3rd generation cephalosporin and a novel beta-lactamase inhibitor that is active against multiple drug resistant organisms (MDRO). Like other beta lactams it also follows the time-dependent kinetics. **Therapeutic drug monitoring (TDM) of β -lactams in critically ill patients has been correlated with better clinical outcomes.** Evidence on TDM of newer β -lactams such as ceftaz/avibact via continuous infusion (CI) is very limited.

A recent study on 31 patients assessed the advantages of TDM and CI of Ceftazidime-avibactam in the MDRO. The PK/PD therapeutic target was defined as $100\%fT > 4 \times MIC$ of the causative pathogen, and $100\%fT > 10 \times MIC$ was considered overexposure. Ceftazidime/avibactam total daily doses ranged from 1 g/0.25 g to 6 g/1.5 g. Twenty-six patients (83.9%) achieved target range, 48.4% of which were overexposed ($100\%fT > 10 \times MIC$). Dose reduction was suggested in 16/28 (57.1%) patients and dose maintenance in 12/28 (42.9%). Overall clinical cure was observed in 21 (67.7%) patients, and 18 of these (85.7%) achieved a $100\%fT > 4 \times MIC$.

Administering ceftazidime/avibactam by CI enabled the desired PK/PD target to be achieved in a large proportion of patients, even at lower doses than those recommended for a 2 hrs extended infusion. Study suggests that the use of CI with TDM may be a useful tool for reducing initial doses, which could help to reduce antimicrobial-related adverse effects and treatment costs.

Reference: Fresan D, Luque S, PK/PD and TDM of ceftazidime/avibactam administered by CI in patients with MDR Gram-negative bacterial infections. J Antimicrob Chemother. 2023 Jan 10

Do You Know?

Average daily adult dose (2.5g q8h) of Cefaz/Avibact costs Rs 23500!

Hence rational antibiotic use is extremely important

- Send cultures before starting antibiotics
- De-escalate where indicated
- Avoid unnecessary combinations

Reporting Adverse Drug Reactions (ADRs):

Spontaneous reporting based on the suspicion of an ADR is an important part of pharmacovigilance (PV) but, overall, ADRs are vastly underreported across the healthcare settings.


- The majority of unintended, harmful reactions to medicines (ADRs) are **preventable** (in some instances as many as 60%).
- A substantial portion of ADRs comprise of **allergic reactions**. Tagging proper drug allergy status of patients could prevent future occurrences of ADRs/Allergic reactions
- **Report ADR even if it's a known affect of a drug**, as this data is helpful to see the incidence and severity of that reaction in our own population
- **Trigger sensing** like dispensing of antidote or stat dose of antihistamine inj. to a patient could also help to find an ADR.

Always Report ADR! Irrespective of the certainty, nature, type or severity of the reaction

Examples of 'Preventable ADRs'

- | | |
|---|---|
| 1. Acyclovir induced AKI | Proper hydration (oral / IV) |
| 2. Vancomycin induced Red Man Syndrome | Proper dilution and slow rate of infusion |
| 3. Quinolone induced infusion reactions | Slow rate of infusion |
| 4. Amphotericin induced infusion reactions | Pre-medicate and slow rate of infusion |
| 5. Iron induced infusion reactions | Test dose, proper dilution and slow rate |
| 6. Chemo extravasation | Proper catheter, proper dilution, frequent assessment, knowing the antidote |
| 7. Vancomycin induced AKI | Proper hydration, AUC based dosing |

Just once I would like to read a medication label that says:
WARNING'
May cause permanent weight loss, remove wrinkles and increase energy."




REPORT ADR
Adverse Drug Reaction

HOTLINE: EXT 3477, 3492
Shifa Pharmacy

Reporting of ADR is duty of ALL
Report ADR to increase patient Safety

Congratulations



Halim Ur Rehman
Critical care Clinical Pharmacist, Shifa

has successfully completed
Clinical Skills Certificate for International Pharmacy, from:
American Society of Health-System Pharmacist (ASHP)- USA

Formulary Updates (Visit Shifa Intranet Home Page—click Medication Updates for details)			
Brand	Generic	Class	Indications
Niproso Tablets	Naproxen + Esomeprazole	NSAID + Proton Pump Inhibitor	Pain management with GI protection
Tetrabenazine tablet	Same	VMAT2 inhibitors	Chorea
Levhale nebule	Levalbuterol	Beta-2 agonist	Bronchospasm
Trimbow Inhaler	Beclometasone dip., Formoterol, Glycopyrronium	Anti-Asthmatic	Asthma, COPD

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