

Pharmacy Practice Newsletter

"Know what's new... Optimize care"



VOLUME 3, ISSUE 3, September 2026

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Introduction

The Central Administration of Pharmaceutical Care in the Egyptian Drug Authority is keenly interested in upgrading the pharmaceutical services provided to patients and boosting the pharmacotherapy-related knowledge of all healthcare providers, which will positively impact the patient's health and safety.

From this point, the General Administration of Drug Utilization and Pharmacy Practice (DU&PP) is pleased to publish the *Pharmacy Practice Newsletters*, which aim to aid practitioners in their mission to optimize care. Our newsletter covers topics related to pharmacotherapy and pharmacy practice. The newsletter will provide an up-to-date, concise summary that fits perfectly into the healthcare provider's tight schedule.

We utilize accredited resources and indexed journals, integrating the best available research into clinical care to support the decision-making process for healthcare professionals. To optimize patients' treatment plans and ensure their safety and efficacy, clinicians must closely follow the literature for any updates related to their practice, given the dynamic nature of clinical research.



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EDA Publications

Guidance for Oncology Pharmacy Practice (2025) Pharmacist's Role in Personalized Medication Management (Part One)

The Clinical Pharmacy Team within the Drug Utilization and Pharmacy Practice Administration has issued the 'Pharmacist's Role in Personalized Medication Management'.

The guide is part of the EDA's ongoing efforts to standardize pharmacy practice and enhance pharmacists' skills. This guidance was reviewed by the Oncology Pharmacy Practice Guidance Committee, which is responsible for the discussion and scientific evaluation of oncology pharmacy practice guidance. The committee comprises distinguished professors from the National Cancer Institute and Egyptian universities, as well as experts from leading healthcare institutions across Egypt.

Aim of this guidance: EDA's guidance is designed for oncology pharmacists working in hospitals and oncology care centers. Its primary aim is to provide them with essential knowledge and practical insights into precision medicine, empowering them to support personalized cancer therapy. By understanding the history, objectives, tools, applications, limitations, and future directions of precision medicine, oncology pharmacists will be better equipped to contribute to multidisciplinary cancer care teams, optimize medication therapy management, and enhance patient outcomes through individualized treatment strategies.

Content of the guidance: This guidance offers a structured overview of the principles, tools, and applications of precision medicine in oncology, with a particular focus on the evolving role of pharmacists. It highlights the common challenges, including side effects, warnings, precautions, and patient counseling considerations. The guide is intended to help integrate precision medicine into existing pharmacy workflows, ensuring pharmacists are prepared to deliver optimal, patient-centered care.

This first part of the guidance specifically covers lung cancer, breast cancer, and colorectal cancer. A subsequent chapter is planned to expand on additional cancer types not included in this edition.

The pharmacists can easily use the guidance's visuals and printable educational resources for patient counselling and healthcare provider educational materials.



For access to the guidance, "Egyptian Guidance for Oncology Pharmacy Practice (2025): Pharmacist's Role in Personalized Medication Management (Part One)", please visit the EDA official website via





Clinical Pharmacy Tips

Role of pharmacist in precision medicine

Introduction

⇒ Our understanding of the molecular mechanisms underlying cancer development and evolution has evolved rapidly over recent years, and the variation from one patient to another is now widely recognized. Consequently, one-size-fits-all approaches to treatment have been superseded by precision medicines that target specific disease characteristics, promising maximum clinical efficacy, minimal safety concerns, and reduced economic burden.



⇒ Precision oncology, treating the right patient with the right treatment at the right time, encompasses a range of rapidly evolving approaches to cancer therapy that take advantage of the ever-increasing knowledge provided by molecular biomarker profiling ⁽¹⁾.

⇒ Precision medicine, often regarded as synonymous with personalized or individualized medicine, represents a transformative methodology that incorporates genomic, environmental, and lifestyle data to inform clinical decision-making. This approach is fundamentally rooted in understanding the functional implications of genetic (and corresponding proteomic) variations at the cellular level ⁽²⁾.

⇒ Precision medicine refers to tailoring treatments to a subpopulation with a common susceptibility to a specific disease or similar response to a specific drug. Precision medicine is a significant opportunity made to take an individualized approach. This differs from the conventional “one-size-fits-all” approach to diagnostics, drug therapy, and preventive drugs ⁽²⁾.

An oncology clinical pharmacist contributes to personalized medication management by implementing the following practices:

1. Interpretation and application of pharmacogenomic information

Pharmacists can interpret pharmacogenomic test results and translate genetic information into actionable medication-related recommendations, particularly for drug selection and dosing. Their expertise in pharmacokinetics, pharmacodynamics, and medication therapy puts them in a strong position to apply genotype-guided treatment recommendations. ⁽³⁾

2. Individualizing drug selection and dosing

The pharmacist can integrate genetic and molecular information with other patient-specific factors—including age, organ function, comorbidities, concomitant medications, drug interactions, adherence, and laboratory data—to optimize medication selection and dosing. ⁽³⁾

3. Optimizing targeted anticancer therapy

In oncology, pharmacists can contribute to selecting and optimizing targeted therapies according to actionable biomarkers and molecular alterations. This includes ensuring that the selected treatment is appropriate for the patient’s tumor profile and reviewing the regimen for potential drug–drug and drug–gene interactions. ⁽³⁾

4. Monitoring and management of treatment-related toxicities

Pharmacists play an important role in identifying, preventing, monitoring, and managing adverse effects associated with targeted therapies and other personalized treatment approaches. This may include recommending supportive care, dose modification, treatment interruption, or referral to the oncology team when appropriate.

5. Patient education and counseling

Pharmacists can explain genetic/biomarker test results and their implications for treatment in understandable language. They can counsel patients regarding expected benefits, potential adverse effects, adherence, drug interactions, and the importance of monitoring. American Society of Health-System Pharmacists (ASHP) specifically identifies patient and healthcare-professional education as a core pharmacist duty in clinical pharmacogenomics.⁽³⁾

6. Multidisciplinary collaboration

Personalized medicine requires collaboration among pharmacists, oncologists, geneticists, genetic counselors, laboratory professionals, nurses, and other healthcare professionals. Pharmacists can serve as medication experts within this multidisciplinary team and help translate molecular or genetic findings into practical pharmacotherapy decisions.⁽⁴⁾

7. Clinical decision support and informatics

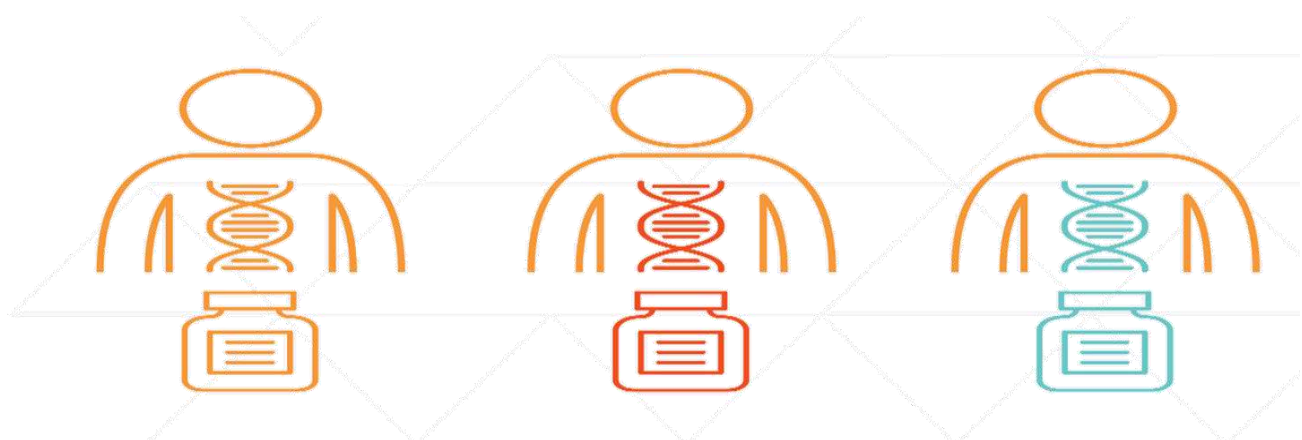
Pharmacists can contribute to integrating pharmacogenomic and molecular information into electronic health records and clinical decision-support systems, including alerts that help clinicians recognize relevant drug–gene or biomarker–treatment relationships at the point of care.⁽⁵⁾

8. Medication safety

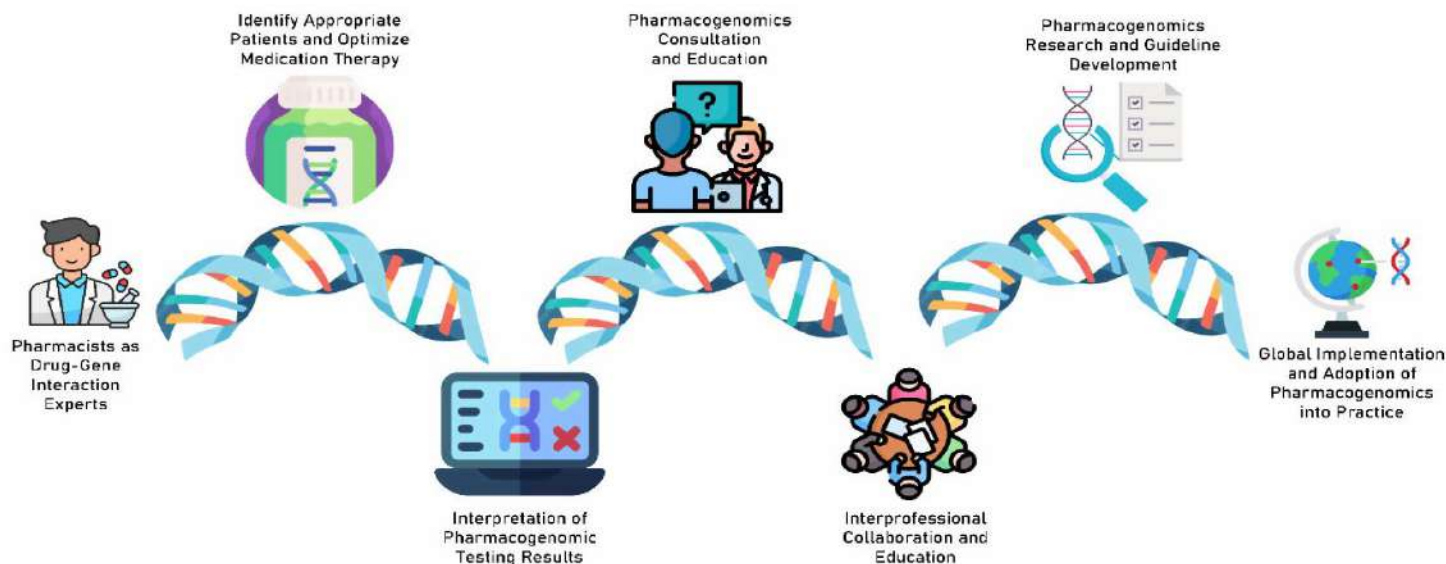
By incorporating pharmacogenomic information into medication review, pharmacists can help reduce the risk of ineffective therapy and adverse drug reactions and improve the safety of individualized treatment.⁽⁵⁾

9. Education, research, and implementation

Pharmacists can contribute to the development and implementation of precision-medicine services, clinical guidelines, educational programs, and research evaluating the clinical and economic impact of personalized pharmacotherapy.⁽⁴⁾



The potential roles of pharmacists in clinical pharmacogenomics



The Future of Personalized Cancer Medicine

Personalized cancer medicine improves treatment effectiveness while reducing side effects; however, several challenges remain. These include

- Not all cancer types and subtypes are eligible for individualized treatment
- Certain customized therapies are only accessible through clinical trials
- The cost of genetic testing can be high. It's not always covered by insurance plans. It also takes time to test the DNA and the genes in the tumor. The patient may have to wait longer to receive the customized care as a result,
- Targeted treatments are one type of tailored treatment that might be costly. ⁽⁶⁾





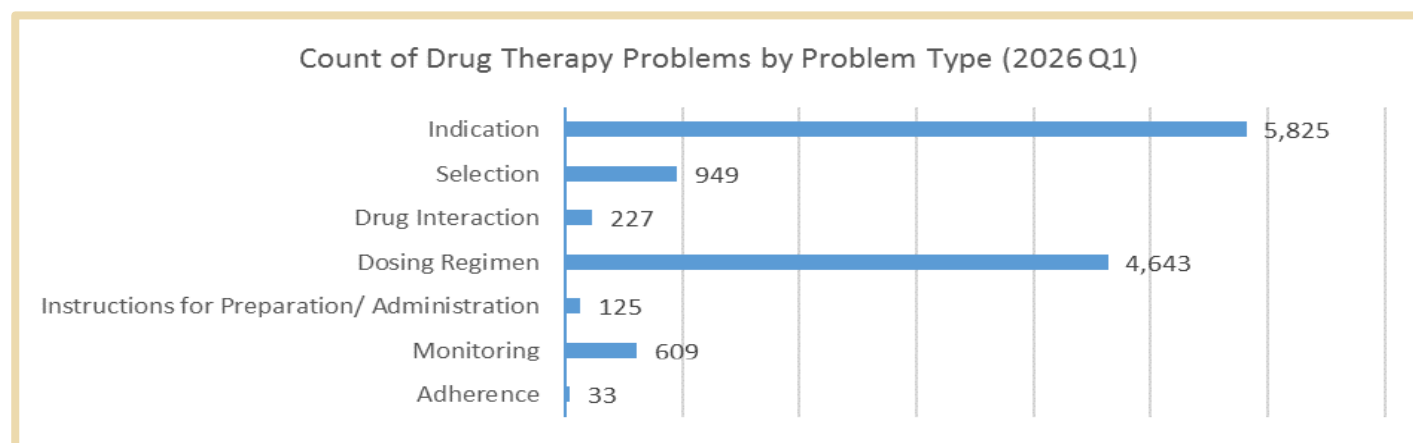
NO HARMe Reports Summary

About NO HARMe

The National Office for Handling and Reducing Medication Errors (NO HARMe) system was established in 2014 to gather national data on medication use errors. Since then, NO HARMe has been receiving voluntary reports on clinical pharmacy interventions and medication errors from pharmacists in public healthcare facilities. The system classifies medication errors into decision errors (drug therapy problems (DTP), process errors (ME), and a third category (DTP/ME overlap). In the following section, we showcase a quick summary of the reports sent to NO HARMe in the first quarter of 2026. For a detailed description of taxonomies and codes deployed by NO HARMe for statistical purposes, refer to the Drug Therapy Problems and Medication Errors Codes Reference on EDA's website. (You can access it through this link:

<https://edaegypt.gov.eg/media/imoffag1/dtp-me-reference-codes-guide-2025.pdf>)

In the first quarter of 2026, NO HARMe received 12,484 reports; 9,550 reports were DTPs (decision errors), 73 were medication errors (process errors), and 2,861 were DTP/ME overlaps. Problems involving decision errors (DTP + Overlap) occurred mostly at the indication and dosing checkpoints, as shown in the figure below.



Introduction

In the first quarter of 2026, the National Office for Handling and Reducing Medication Errors (NO-HARMe) received 12,484 reports. Ceftazidime was the **fifth most reported drug** (n=413, 3.28%). Clinical pharmacists reported that ceftazidime was being used without a clear indication (see Table 1).

Table 1. Count of ceftazidime reports by problem category in 2026-Q1

Problem Category	N	%
Unindicated Drug	129	31%
Unaddressed Need	16	4%
Selection	98	24%
Dosing Regimen	169	41%
Monitoring	1	0.2%

In this issue of the newsletter, we will focus on **ceftazidime** and why it is important to use it rationally.

Unnecessary Use of Ceftazidime

Ceftazidime is a third-generation cephalosporin antibacterial. Third-generation cephalosporins are broad-spectrum antibiotics with higher activity against Gram-negative pathogens. ⁽⁷⁾ Ceftazidime is noted, among other 3rd-generation cephalosporins, for its activity against *P. aeruginosa*. ⁽⁷⁾

When to Use Ceftazidime?

Ceftazidime is indicated for infections caused by aerobic Gram-negative bacteria. ⁽⁸⁾ The Infectious Diseases Society of America (IDSA) lists ceftazidime as one of the options for covering *P. aeruginosa* in patients with ventilator-associated pneumonia (VAP) or hospital-acquired pneumonia (HAP). ⁽⁹⁾ Ceftazidime is also listed by IDSA as an empiric treatment for complicated healthcare-associated intra-abdominal infections, as long as less than 20% of the local *P. aeruginosa* isolates are resistant. ⁽¹⁰⁾ Ceftazidime is listed by IDSA as one of the preferred options for the empiric treatment of urinary tract infections complicated with sepsis. ⁽¹¹⁾

Why Should Unindicated Medication Use Be Avoided?

The use of antibiotics like ceftazidime without a clear indication adds to the cost of treatment and puts the patient at unnecessary risk for adverse reactions.

The unindicated use introduces risks, not only at the level of individual patients but also for public health, where increased exposure to antibiotics is tied to the emergence and spread of resistant bacterial strains. The Global Antimicrobial Resistance Surveillance System (GLASS) reports high resistance rates for ceftazidime in Egypt. ⁽¹²⁾ The mechanisms of ceftazidime resistance include hydrolysis by β -lactamases ⁽⁸⁾, which is why clinical treatment guidelines recommend combining ceftazidime with avibactam for the treatment of infections caused by resistant and difficult-to-treat pathogens. ⁽¹³⁾

Table 1. Proportions of isolates resistant to ceftazidime in blood and urinary tract infections in Egypt as reported to GLASS from 2020 to 2023. ^[12]

Infection	Pathogen	%
Blood	<i>E. coli</i>	83%
Blood	<i>K. pneumonia</i>	92%
UTI	<i>E. coli</i>	71%
UTI	<i>K. pneumonia</i>	82%

Preserving the Efficacy of Ceftazidime is Our Responsibility

Responsible prescribing of ceftazidime is essential to safeguard its clinical efficacy against critical Gram-negative pathogens. Non-judicious use accelerates the emergence of extended-spectrum β -lactamase (ESBL) and AmpC-mediated resistance, rapidly eroding the utility of this vital antipseudomonal agent. Combating antimicrobial resistance (AMR) is a shared responsibility across the healthcare continuum. By committing to rigorous diagnostic-driven prescribing, healthcare providers directly preserve ceftazidime's potency, protecting current treatment options and ensuring effective coverage for future patients facing life-threatening infections.

DU&PP News

Pharmaceutical Care Initiatives

In this issue of the Pharmacy Practice Newsletter, we highlight pharmaceutical care initiatives implemented between June 2026 and August 2026. Throughout this period, the Drug Utilization and Pharmacy Practice Administration team remained dedicated to enhancing medication awareness and strengthening pharmacy training programs. This was achieved through a series of targeted sessions tailored to the public, pharmacy students, community pharmacists, and hospital pharmacists. These initiatives included:

1) EDA Experience Exchange Hub (Triple E's Hub)

Triple E's Hub aims to strengthen national efforts by promoting and sharing best pharmacy practices across healthcare institutions in Egypt. Guided by the EDA's vision and aligned with Egypt Vision 2030, the Hub emphasizes building sustainable partnerships to support long-term development.

The scientific meetings held in July and August 2026 brought together hospital and clinical pharmacists to highlight their contributions to patient care, focusing on Hepatic Failure and Symptom Management Regarding Cancer Patients. Through educational case studies, these sessions are aimed at enhancing patient outcomes and reinforcing evidence-based practice, reflecting the EDA's commitment to advancing pharmaceutical services and rational medication use.

Aligned with the Hub's strategy, this meeting promotes the exchange of experiences among healthcare institutions from various sectors and governorates. They showcase clinical pharmacy interventions across diverse disease areas and foster collaboration among pharmacists, academics, and healthcare experts, strengthening knowledge exchange within the profession.



DU&PP News:

Pharmaceutical Care Initiatives

2) (Safe Medication... Save Life) Initiative

The initiative aims to improve public awareness of the safe and effective use of medications through a community engagement approach to build healthier, well-informed populations and optimize therapeutic outcomes. The sessions cover a broad spectrum of topics related to non-communicable diseases, including proper nutrition, risks of improper medication use, boosting immunity, hygiene, and healthy habits.

The team conducts on-site awareness campaigns in public venues such as cultural centers, libraries, sports clubs, hospital outpatient clinics, and university community service centers across various Egyptian governorates. Community sessions held at locations including Madinat Nasr Sporting Club, New Cairo Aviation Sporting Club, Holi Lido Sporting Club, Heliopolis Aviation Sporting Club, El Bahr El Aazam Cultural Library, and Sakkara Cultural Library have engaged diverse groups of adults, women, and students. These sessions foster meaningful dialogue and form a key part of the EDA's efforts to strengthen drug awareness, enhance pharmaceutical services nationwide, and promote the optimal and rational use of medications.



DU&PP News:

Pharmaceutical Care Initiatives

3) (Unlock the Pharmacist's Potential) Initiative

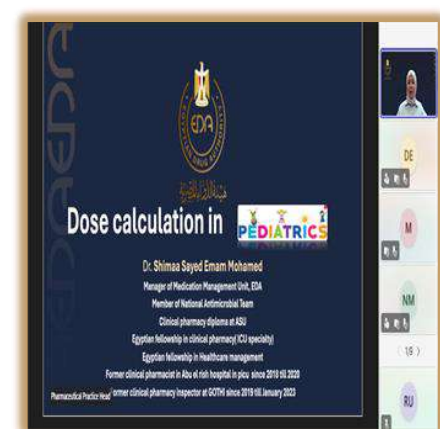
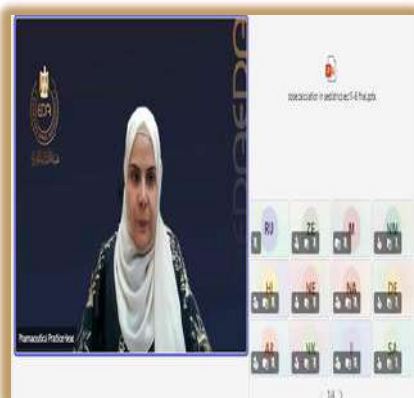
The initiative is designed to promote and sustain high-quality pharmaceutical practices while supporting continuous professional development. Implemented in alignment with the EDA's vision and its capacity-building strategies, it also reflects Egypt's broader commitment to advancing healthcare services.

Special emphasis is placed on community pharmacists, who serve as the frontline of public health and play a critical role in enhancing medication safety and accessibility. Through a series of monthly online webinars organized by the General Administration of Drug Utilization and Pharmacy Practice team, the initiative strengthens pharmacists' capacity to contribute to safer medication practices, improve patient outcomes, and ultimately support better public health across the community.

The selected topics include:

- Management of Anemia in Chronic Kidney Disease patients
- Calculation of Pediatric Drug Dosage
- Rational use of Anticoagulants and Antiplatelets
- Management of Dyslipidemia Treatment
- Management of Antibiotic Allergy
- Management of Deep Vein Thrombosis (DVT)

This comprehensive approach ensures participants receive up-to-date knowledge and best practices in the field.



DU&PP News: Pharmaceutical Care Initiatives

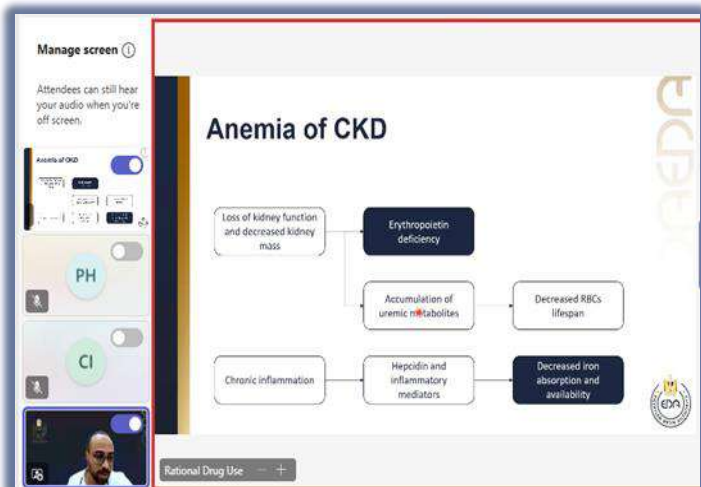
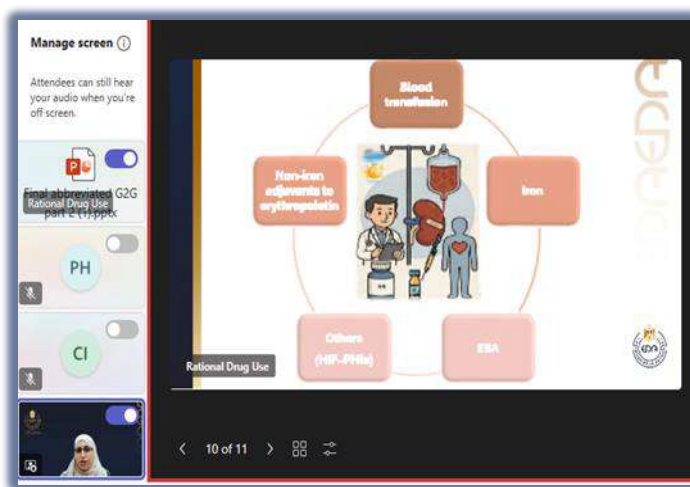
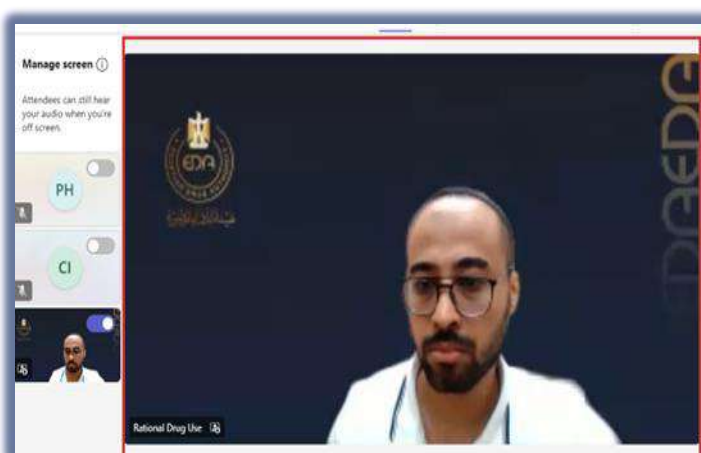
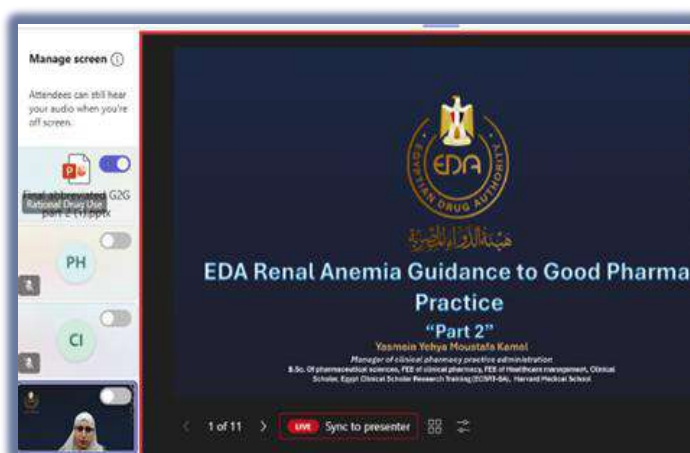
4) Guide-to-Guide (G2G) Approach initiative

The Guide-to-Guide (G2G) initiative aims to enhance awareness among hospital and community pharmacists of the practice guides issued by the General Administration of Drug Utilization and Pharmacy Practice at the EDA. Developed in line with scientific evidence and international standards, these guides aim to enhance pharmaceutical practice, improve healthcare quality, and promote patient safety.

As part of this initiative, the EDA organizes virtual sessions to provide structured overviews of its published guides. In July 2026, the focus was on the EDA Renal Anemia Guide to Good Pharmacy Practice, which serves as a key reference for implementing evidence-based approaches in the management of anemia in chronic kidney disease while supporting the safe and effective use of essential therapies.

All EDA guides undergo a rigorous scientific review led by expert committees comprising academic professors in pharmacy and medicine, as well as experienced healthcare professionals. This collaborative process ensures that the guides remain scientifically robust, clinically relevant, and aligned with current evidence.

To access the EDA Renal Anemia Guide to Good Pharmacy Practice, follow this link: https://edaegypt.gov.eg/media/k0mb41s4/eda_guide_anemia_in-ckd-pharmacy-practice.pdf



DU&PP News:

Future Fighters Against AMR – One Health 2026

Empowering the Next Generation to Combat Antimicrobial Resistance

As part of the Egyptian Drug Authority's ongoing efforts to promote the rational use of antimicrobials and support national and global efforts to combat antimicrobial resistance (AMR), the Egyptian Drug Authority successfully implemented the second edition of the **"Future Fighters Against AMR – One Health 2026"** program from 31 August to 4 September 2026 in Cairo.

The program was implemented through collaboration between the Egyptian Drug Authority (EDA), the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), and ReAct Africa. This collaboration reflects a strong partnership between national and international stakeholders to build the next generation's capacity and strengthen awareness and action to address the growing threat of antimicrobial resistance.

Building on the success of the first edition, the second edition represented an important step forward in expanding its scope and impact. While the previous edition focused primarily on pharmacy students from Egyptian universities, Future Fighters Against AMR – One Health 2026 brought together students from the faculties of Pharmacy, Veterinary Medicine, Agriculture, and Biotechnology.

This multidisciplinary participation reflects the principles of the One Health approach, which recognizes the close interconnection between human, animal, and environmental health. Addressing antimicrobial resistance requires coordinated action across multiple disciplines and sectors, making the engagement and empowerment of future professionals an essential component of sustainable efforts to combat AMR.

Over five intensive days, participants took part in a diverse program of interactive lectures, workshops, discussions, and practical training activities. The program addressed a wide range of key topics, including:

- Understanding AMR through a One Health Lens
- Antimicrobial Stewardship: Human and Veterinary Perspectives
- Youth Engagement and One Health Communication
- Leadership, Advocacy and One Health Policy
- Action Planning, Partnerships and Sustaining One Health Engagement

One distinctive feature of the program was its innovative hybrid training model, which combined face-to-face activities with virtual sessions delivered by international experts and academics. Experts from



WHO, FAO, and ReAct Africa contributed a series of online lectures and training sessions, providing participants with the opportunity to benefit from diverse regional and international expertise and perspectives.

Approximately **50** students representing 26 faculties and colleges from different disciplines related to the One Health approach participated in the program, alongside many academic supervisors. Over the five days, participants demonstrated remarkable enthusiasm, commitment, and active engagement in the various learning activities.

The interactive workshops provided students with a valuable platform for dialogue, collaboration, and the exchange of ideas. Participants highlighted the significant impact of the program on enhancing their understanding of antimicrobial resistance, strengthening their practical and professional skills, and increasing their awareness of the important role that young people can play in driving positive change within their communities.

The Egyptian Drug Authority believes that investing in university students and developing the capacities of young professionals is a fundamental pillar of sustainable efforts to combat antimicrobial resistance. Empowering young people with the knowledge, skills, and confidence to act as advocates for the rational use of antimicrobials will contribute to building a generation capable of supporting health awareness and driving meaningful change across society.

Through initiatives such as Future Fighters Against AMR – One Health 2026, the Egyptian Drug Authority continues to demonstrate its commitment to supporting national and international efforts to address antimicrobial resistance, strengthening collaboration across disciplines and sectors, and advancing the implementation of the One Health approach.

By bringing together future pharmacists, veterinarians, agricultural specialists, and biotechnology professionals, the program represents an important investment in the leaders of tomorrow—future fighters equipped to protect human, animal, and environmental health and contribute to a safer and more sustainable future in the fight against antimicrobial resistance.

If you wish, I can also create a shorter, more journalistic newsletter version suitable for publication on the EDA website or in an official monthly newsletter.





About DU&PP

The Drug Utilization and Pharmacy and Pharmacy Practice General Administration (DU&PP) is concerned with rationalizing medication use and reducing medication errors. The General Administration is also concerned with developing pharmaceutical practices, enhancing Egyptian pharmacists' skills, issuing pharmacy practice guidelines, preparing national drug lists and the Egyptian drug formulary, and providing numerous training programs. It also aims to raise community awareness and promote the safe and effective use of medications by conducting awareness campaigns and pharmaceutical care initiatives among all segments of society to ensure patient safety and achieve optimal drug use.

Our publications, including clinical practice guides, newsletters, and the Egyptian National Formulary, are available at the official EDA website and can be accessed via the following hyperlinks or QR codes:

Guides



Newsletters



Formulary



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