Faculty of Pharmacy
Pharos University in Alexandria
Scientific Forum 2026

PSF-IPP 2026

"Interprofessional Pharmacy Practice for Safe Drug Use & Patient Well-being"

18th April 2026

Faculty of Pharmacy
Pharos University in Alexandria, Alexandria, Egypt

"Interprofessional Pharmacy Practice for Safe Drug Use & Patient Well-being"
PSF-IPP 2026

Scientific Forum / 2026

18th April

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Welcome

It is a profound pleasure to welcome you to the Faculty of Pharmacy, Pharos University in Alexandria, Egypt, for our scientific forum; ***"Interprofessional Pharmacy Practice for Safe Drug Use & Patient Well-being". The event will take place on April 18, 2026, in the PUA Grand Hall.***

In an increasingly complex healthcare system, the patients' safety and the optimization of their well-being is our highest professional duty. Achieving this demands collaboration, communication and a shared vision among all healthcare providers.

This one-day scientific forum is dedicated to explore innovative interprofessional approaches, that place the pharmacist as an integral, collaborative partner, who works closely with physicians, nurses, and other healthcare providers. The ultimate goal is to generate actionable insights and best practices that elevate the safe use of drugs and significantly improve patient well-being across all healthcare settings.

During this day, we will hear from leading healthcare experts, share innovative practices, and engage in vital discussions that hopefully will shape the future of pharmacy practice.

We appreciate your valuable contribution and look forward to seeing you at PSF-IPP 2026.

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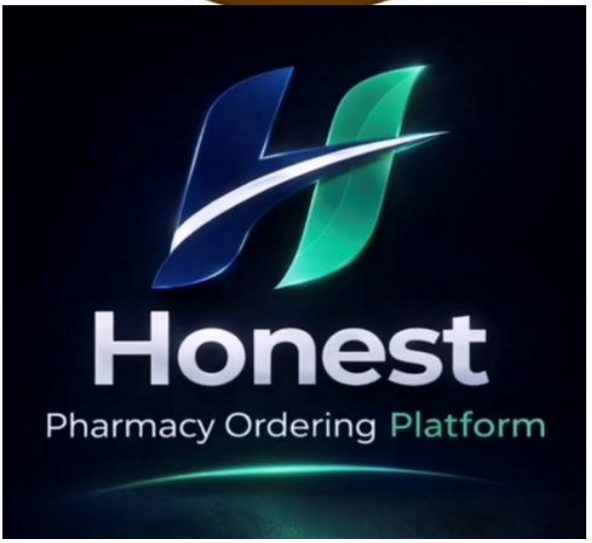
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Chair Persons

Prof. Alyaa Ramadan.
Vice Dean of Education & Student Affairs, ***Faculty of Pharmacy, Alexandria University.***
Prof. Wessam El-Refaie
Professor of Pharmaceutics, ***Faculty of Pharmacy, Pharos University.***
Assoc. Prof. Ming Ming Wen
Associate Professor of Pharmaceutics, ***Faculty of Pharmacy, Pharos University.***

Plenary Speakers

"Clinical Pharmacist: An Indispensable Companion to Nephrologists"

Prof. Ahmed Fathi El-Keraie

MD, PhD, FISN, FRCP Edin
Head of Nephrology & Transplantation Unit
Alexandria University – Egypt.

"Can Genomics Help Us Survive the AMR Pandemic?"

Prof. Ramy Karam Aziz

Professor of Microbiology and Immunology,
Faculty of Pharmacy, Cairo University
Head of MARC Biosciences Research Laboratories, Egypt.

"Learn, Plan, Lead: A Roadmap for Interprofessional Excellence"

Assoc. Prof. Noha Alaa Hamdy

Assoc. Prof. of Clinical Pharmacy
Acting Head of Clinical Pharmacy and Pharmacy Practice Department
Faculty of Pharmacy, Alexandria University– Egypt.

Keynote Speakers

Interprofessional Collaboration in Pharmacovigilance: Aligning Practice, Policy & Patient safety

Dr. Amr Saad

Senior Pharmacovigilance & Regulatory Affairs Leader | WHO Consultant | Founder of EPVC & Arab PV Guidelines

"The Operating Room Pharmacist: A Critical Partner in the Surgical Team for Medication Safety and Optimal Patient Outcomes."

Dr. Kareem AL-Farsi

Sr. Supervisor Clinical Pharmacist of OR & SICU Pharmacy Research Pharmacist of the Clinical Trials Unit at Children's Cancer Hospital 57357 – Egypt

"Voices of Care, Nursing Complementary Contribution to Interprofessional Excellence."

Miss. Eman Sobhy

Quality Specialist, Nursing Department at Main University Hospital, Alexandria – Egypt

"Beyond Trial & Error: The Pharmacist's Role in Precision Pharmacotherapy for Safer Patient Care"

Dr. Nur Aizati

Senior Lecturer of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia – Malaysia.

Oral Presentations' Session

Dr. Amirah Mohd Gazzali

Senior Lecturer of Pharmaceutical Technology Universiti Sains Malaysia

"Interprofessional Collaboration in Combating Drug – Resistant Tuberculosis: Integrating Drug Design & Antimicrobial Stewardship"

Master, Ashraf AlamEldin Noah

Alexandria Clinical Research Administration, Directorate of Health Affairs, Egyptian Ministry of Health and Population, Alexandria, Egypt

"Interpretable Machine Learning Reveals Key Renal-Metabolic Biomarkers Predicting Metabolic Syndrome in Pregnancy"

Master, Hala Ahmed Abo El-Hassan

Clinical pharmacy and pharmacy practice department, Faculty of Pharmacy, Pharos University in Alexandria, Egypt

"Non-Invasive AI-Powered Cardiovascular Risk Assessment in Early Metabolic Dysfunction Among Egyptian Adults"

PhD, Soha Said Mohamed

Clinical Oncology Department, Alexandria University.

"Incidence of Adverse Effects induced by Targeted Therapy in Cancer Patients at Oncology Department Alexandria University"

Pharmacist, Mariam Hesham Mohamed Hafez

Demonstrator of Pharmacology and Therapeutics, Faculty of Pharmacy, Pharos University in Alexandria, Egypt

"Antibiotic Stewardship in Hematology Patients with Febrile Neutropenia"

PUA- Pharmacy
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PSF-IPP 2026

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18th April 2026

Timeline

Forum Timeline (9:00am - 4:15pm)

9:00 - 10:00

Registration

10:00 - 10:30

Quran Kareem

Welcome Speech

Prof. Maged El-Ghazouly
Dean of Faculty of Pharmacy
Pharos University in Alexandria

Prof. Mahmoud Mohy Eldin
University President
Pharos University in Alexandria

Plenary Speakers' Session

Prof. Alyaa Ramadan (Chairperson)
Vice Dean of Education and Student Affairs
Faculty of Pharmacy, Alexandria University

10:35 - 10:55

"Clinical Pharmacist: An Indispensable Companion to Nephrologist"

Prof. Ahmed Fathi El-Keraie
MD, PhD, FISN, FRCP Edin
Head of Nephrology & Transplantation Unit
Alexandria University - Egypt.

11:00 - 11:20

"Can Genomics Help Us Survive the AMR Pandemic? "

Prof. Ramy Karam Aziz
Professor of Microbiology and Immunology,
Faculty of Pharmacy, Cairo University
Head of MARC Biosciences Research Laboratories, Egypt

11:25 - 11:45

"Learn, Plan, Lead: A Roadmap for Interprofessional Excellence"

Assoc. Prof. Noha Alaa Hamdy
Assoc. Prof. of Clinical Pharmacy
Acting Head of Clinical Pharmacy
and Pharmacy Practice Department
Faculty of Pharmacy, Alexandria University

11:45 - 12:15

Discussion

12:15 - 1:00

Coffee Break

Keynote Speakers' Session

Prof. Wessam El-Refaie **(Chairperson)**
Professor of Pharmaceutics, Faculty of Pharmacy,
Pharos University

1:00 - 1:15

"Interprofessional Collaboration in Pharmacovigilance: Aligning Practice, Policy & Patient safety"

Dr. Amr Saad
Senior Pharmacovigilance & Regulatory Affairs Leader
| WHO Consultant | Founder of EPVC & Arab PV Guidelines

1:20 - 1:35

"The Operating Room Pharmacist: A Critical Partner in the Surgical Team for Medication Safety and Optimal Patient Outcomes."

Dr. Kareem AL-Farsi
Sr. Supervisor Clinical Pharmacist of OR & SICU Pharmacy
Research Pharmacist of the Clinical Trials Unit at Children's Cancer Hospital 57357 – Egypt

1:40 - 1:55

"Voices of Care, Nursing Complementary Contribution to Interprofessional Excellence."

Miss. Eman Sobhy
Quality Specialist, Nursing Department
at Main University Hospital, Alexandria - Egypt

2:00 - 2:15

"Beyond Trial & Error: The Pharmacist's Role in Precision Pharmacotherapy for Safer Patient Care"

Dr. Nur Aizati
Senior Lecturer of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia - Malaysia.

2:15 - 2:30

Discussion

Oral Presentations' Session

Assoc. Prof. Ming Ming Wen **(Chairperson)**
Associate Professor of Pharmaceutics, Faculty of Pharmacy, Pharos University

2:35 - 2:45

"Interprofessional Collaboration in Combating Drug – Resistant Tuberculosis: Integrating Drug Design & Antimicrobial Stewardship"

Dr. Amirah Mohd Gazzali
Senior Lecturer of Pharmaceutical Technology
Universiti Sains Malaysia

2:50 - 3:00

"Interpretable Machine Learning Reveals Key Renal-Metabolic Biomarkers Predicting Metabolic Syndrome in Pregnancy"

Master, Ashraf Alam Eldin Noah
Alexandria Clinical Research Administration, Directorate of Health Affairs,
Egyptian Ministry of Health and Population, Alexandria, Egypt

3:05 - 3:15

"Non-Invasive AI-Powered Cardiovascular Risk Assessment in Early Metabolic Dysfunction Among Egyptian Adults"

Master, Hala Ahmed Abo El-Hassan
Clinical Pharmacy and Pharmacy Practice Department, Faculty of Pharmacy,
Pharos University in Alexandria, Egypt.

3:20 - 3:30

"Incidence of Adverse Effects induced by Targeted Therapy in Cancer Patients at Oncology Department Alexandria University"

PhD, Soha Said Mohamed
Clinical Oncology Department, Alexandria University

3:35 - 3:45

"Antibiotic Stewardship in Hematology Patients with Febrile Neutropenia"

Pharmacist, Mariam Hesham Mohamed Hafez
Demonstrator, Faculty of Pharmacy,
Pharos University in Alexandria, Egypt

3:50 - 4:00

Discussion

4:00 - 4:15

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لتجـــــارة وتوزيـــــع الأدويـــــة

ON LINE , ON TIME , ON TARGET

Our Goal is the Same

لا تتردد ان تكون شريك نجاح لنا

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Clinical Pharmacist: An Indispensable Companion to Nephrologists

Prof. Ahmed Fathi El-Keraie

MD, PhD, FISN, FRCP Edin
Head of Nephrology & Transplantation Unit Alexandria University - Egypt.

Abstract:

Nephrology outpatient care represents one of the most therapeutically complex areas in our practice, where patients are frequently exposed to polypharmacy, overlapping comorbidities, and a high burden of medication-related risks.

Despite this complexity, structured clinical pharmacy integration in outpatient nephrology settings remains limited in many healthcare systems.

Our initiative represents a transformative model in which the clinical pharmacist is embedded as a core member of the nephrology outpatient team, redefining the standard of care through a proactive and comprehensive approach to medication management. Rather than functioning in a reactive or supportive capacity, the clinical pharmacist leads a longitudinal care process that begins prior to the patient encounter with in-depth review of clinical and pharmacotherapeutic profiles, enabling early identification of potential drug-related problems and formulation of targeted, evidence-based recommendations.

Within the clinical encounter, the pharmacist contributes directly to therapeutic decision-making through dynamic collaboration with physicians, real-time medication optimization, and patient-centered communication. This interaction extends beyond traditional counseling, empowering patients with individualized education tailored to their clinical context, thereby enhancing understanding, adherence, and engagement in their own care.

Following the visit, follow up with patients through continuous monitoring ensures sustained optimization of therapy, addressing effectiveness, safety, and adherence while adapting treatment plans to evolving patient needs.

This integrated model not only mitigates medication-related risks and reduces unnecessary treatment burden, but also streamlines clinical workflows and strengthens the quality of documentation.

By positioning the clinical pharmacist as an indispensable pillar of the nephrology outpatient clinic, this model demonstrates a paradigm shift from fragmented medication management to coordinated, patient-centered care. Its broader implementation has the potential to redefine nephrology practice, elevating both the safety and quality of care delivered to this high-risk group of multiple co-morbidity patients.

Can genomics help us survive the AMR pandemic?

Prof. Ramy Karam Aziz

Head of Biosciences Research Laboratories, MARC.
Professor of Microbiology and Immunology, Faculty of Pharmacy, Cairo University, Qasr El-Ainy St., 11562 Cairo, Egypt

Abstract:
Antimicrobial resistance (AMR) is a major global health challenge that is expected to cause more mortality than cancer in a decade. Members of the ESKAPE pathogens (Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, and Enterobacter species) are particularly alarming, as some of their strains are already resistant to all known antibiotics. Meanwhile, it is important to understand AMR from a broader evolutionary perspective, as a race for survival by bacteria under strong environmental and therapeutic pressures. From this standpoint, resistance emerges as a natural adaptive response encoded in microbial genomes. Advances in DNA sequencing and comparative genomics now allow researchers to explore these survival strategies at high resolution. By analyzing complete genomes and integrating subsystem-based annotations across large datasets, it becomes possible to link genotype to phenotype and identify genetic determinants of virulence, resistance, and adaptation. This presentation demonstrates how genome-centered approaches can help humans survive the AMR pandemic, in four different ways: (i) smart (high-resolution) epidemiology that tracks mutations and resistance genes in circulating strains, improving surveillance and outbreak

investigation; (ii) sequence-based diagnostics capable of differentiating closely related strains and detecting clinically relevant resistance markers; (iii) genome-based identification of novel therapeutic opportunities, including drug targets, antimicrobial peptides discovered through metagenomic mining, and precision bacteriophage therapies whose safety and efficacy can be verified through genome analysis; and finally (iv) smarter epidemiology, that relies on genome-scale monitoring and prediction of potential emerging AMR outbreaks.

Learn, Plan, Lead: A Roadmap for Interprofessional Excellence

Assoc. Prof. Noha Alaa Hamdy

Acting Head of Clinical Pharmacy and Pharmacy Practice department, Faculty of Pharmacy, Alexandria University

Abstract:

In pharmacy education and practice, effective interprofessional collaboration is essential for optimizing medication management, improving patient safety, and supporting high-quality, patient-centered care. Learn, Plan, Lead presents a structured roadmap designed to strengthen clinical pharmacy-focused interprofessional education (IPE) by aligning learning, planning, and leadership with established IPE competency frameworks.

The roadmap is organized around three interconnected pillars. Learn supports the development of core IPE competencies by strengthening pharmacists' understanding of professional roles and responsibilities, advancing medication-related clinical expertise, and promoting evidence-based and lifelong learning through digital tools. Plan focuses on collaborative curriculum and practice design, shared therapeutic goals, and adaptive strategies that respond to evolving healthcare systems and patient needs. Lead highlights ethical and participatory leadership in pharmacy that empowers teams, values professional diversity, and fosters innovation through reflective practice.

Key outcomes include improved interprofessional communication, stronger integration of pharmacy education with clinical practice, increased learner engagement, and enhanced leadership capacity to manage complexity in medication-centered, team-based healthcare environments.

Keynote Session

Interprofessional Collaboration in Pharmacovigilance: Aligning Practice, Policy, and Patient Safety

Dr. Amr Saad
Senior Pharmacovigilance & Regulatory Affairs Leader WHO Consultant
Founder of EPVC & Arab PV Guidelines

Abstract:

Pharmacovigilance implementation within Arab health systems
Pharmacovigilance (PV) implementation within the Arab regulatory authorities becomes prominent especially after publishing the "common Arab guidelines for pharmacovigilance".
However, the maturation level varies widely among different Arab health systems. Few countries are fully implementing while others are at early phases.
Evolution of the regulation
Different technologies, biological, vaccines, advanced therapeutic medicinal products (ATMPs), medical devices, cosmetics & herbal products are widely used alongside with pharmaceutical products. These necessitates re-tailored PV implementation, as well as, additional PV activities. On the other hand, PV practices should be enhanced for specific patient populations like: pediatrics, geriatrics, pregnancy & breast-feeding females. Bio-vigilance; Vaccinovigilance; ATMP-vigilance; medical device vigilance (MDV); Cosmitovigilance; & Hebavigilance, guidelines have been recently launched worldwide to address this new demand. Also, Paediatric-, Geriatric-, pregnancy- & Breast feeding-vigilances have also come to effect.

Next move

The Good Pharmacovigilance Practice (GVP) within the Arab region should be expanded to cover these new domains. This will significantly influence pharmacovigilance practice in general in the whole Arab world and will increase reporting rates and signal detection activities for these specific products/populations which in turn will add to the pool of patient safety.

The Operating Room Pharmacist: A Critical Partner in the Surgical Team for Medication Safety and Optimal Patient Outcomes

Pharmacist, Kareem AL-Farsi

Sr. Supervisor Clinical Pharmacist of OR & SICU Pharmacy Research Pharmacist of the Clinical Trials Unit at Children's Cancer Hospital 57357 – Egypt.

Abstract:

The operating room is a high-risk clinical environment where medication safety and rapid decision-making are essential for optimal patient outcomes. Pharmacists can play a vital role as part of the multidisciplinary surgical team by ensuring safe medication use and providing evidence-based pharmaceutical support.

This presentation will provide an overview of the role of the operating room pharmacist, including understanding the different operating room areas and responsibilities within the surgical team. It will also highlight the identification and management of commonly used anesthesia medications and the pharmacist's role in supporting the team during critical situations. In addition, it will discuss the key competencies and qualifications required for pharmacists working in the operating room setting.

Voices of Care, Nursing Complementary Contribution to Interprofessional Excellence

Miss. Eman Sobhy

Quality Specialist, Nursing Department at Main University Hospital, Alexandria – Egypt.

Abstract:

This session redefines the role of the nurse, not just as a caregiver but as the "Nursing Hub"—the vital center of the healthcare team. The talk will explore how the "Voice of Care" bridges the gap between pharmaceutical precision and patient safety.

It highlights the critical collaboration between nurses and pharmacists as the ultimate "double shield" against medication errors. By focusing on interprofessional excellence, the practical strategies to optimize drug administration and improve outcomes for both patient and healthcare provider will be discussed.

True excellence is not the achievement of one profession, but the seamless harmony of many; it is where pharmaceutical science meets nursing vigilance to create a safer world for our patients.

Beyond Trial and Error: The Pharmacist's Role in Precision Pharmacotherapy for Safer Patient Care

Dr. Nur Aizati Athirah Daud

Senior Lecturer of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, Malaysia.

Abstract:

Traditional prescribing often relies on a 'trial and error' approach, which can lead to suboptimal outcomes or severe adverse drug reactions (ADRs). Current approach in precision medicine seeks to replace this by integrating an individual's genomic data, environment, and lifestyle to ensure the right drug for the right patient. One important tool in precision medicine is pharmacogenomics (PGx). This presentation describes the translation of genetic variations into clinical phenotypes relevant for drug response and safety, and PGx implementation efforts in Malaysia.

A pharmacogenetics service in Universiti Sains Malaysia's Specialist Hospital was initiated with genotyping tests for HLA gene markers for antiepileptic-induced severe cutaneous adverse reactions (SCARs). It started with a multi-centre study that assessed 85 patients to evaluate the link between HLA-B alleles and SCARs. Using a rapid, in-house PCR-SSP genotyping method, a strong association was found between HLA-B*15:02 and the development of SCAR events. A genotyping panel for this marker, together with HLA-A*31:01, HLA-B*15:13 and HLA-B*15:21 markers, is now a point-of-care service at the Human Genome Centre, USM, which processed 41 requests from tertiary hospitals between 2022

and 2025 with a seven-day turnaround. These findings highlight the role of PGx in improving patient stratification and ADR prevention.

Pharmacists are central to the PGx implementation. Their roles include identifying relevant PGx markers and eligible patients, developing clinical workflows, interpreting PGx results and performing medication therapy management. Recommendations are guided by evidence-based guidelines like the Clinical Pharmacogenetics Implementation Consortium (CPIC). While challenges such as high costs and infrastructure limitations remain, initiatives like Malaysia's MyGenom project are paving the way for routine PGx integration. Collaborative efforts are essential to realize the full potential of precision prescribing in global pharmacy practice.


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Oral Presentations' Session

Interprofessional Collaboration in Combating Drug – Resistant Tuberculosis: Integrating Drug Design & Antimicrobial Stewardship

Dr. Amirah Mohd Gazzali

Senior Lecturer of Pharmaceutical Technology, Universiti Sains Malaysia

Abstract

The continued emergence of drug-resistant tuberculosis threatens the effectiveness of established first-line therapies and highlights the need for comprehensive antimicrobial stewardship strategies. Pharmacists play a critical role not only in ensuring safe drug use but also in optimizing drug design, formulation, and preparation to preserve therapeutic efficacy.

This work presents complementary pharmaceutical approaches aimed at strengthening tuberculosis treatment. First, structural modification of available antituberculosis drugs may be explored through the rational design approaches to enhance the activity of the drugs. Research has shown improved activity of modified molecules compared to the parent drug.

In parallel, formulation and compounding considerations of the antituberculosis drugs could address the challenges that compromise therapeutic outcomes, such as the unavailability of pediatric-friendly dosage forms, which leads to low compliance and subsequently contributed to resistance development. Ensuring appropriate preparation and quality control of antituberculosis medicines remains essential for safe and effective patient care.

Together, these approaches illustrate the pharmacist's role across drug design, formulation, and stewardship practices. Future studies will further evaluate safety profiles to support responsible preclinical development and optimize patient well-being.

Keywords:

Drug-Resistant; Tuberculosis; Formulation; Structural Modification; Antimicrobial; Stewardship.

Interpretable Machine Learning Reveals Key Renal-Metabolic Biomarkers Predicting Metabolic Syndrome in Pregnancy

Master, Ashraf AlamEldin Noah

Ashraf A. Noah[1], Ayat Ibrahim[2], Ahmed S. Khalifa[2], Abdelrahman M. Abdelfattah[2], Amr Youssef[2], Youssef A. Abdullqader[2], Iman A.F. Aboelsaad[1]

[1]Alexandria Clinical Research Administration, Directorate of Health Affairs, Egyptian Ministry of Health and Population, Alexandria, Egypt
[2]Faculty of Pharmacy, Alamein International University, Egypt.

Abstract

Background: Metabolic syndrome (MetS) in pregnancy is a multifactorial condition involving metabolic and lifestyle-related determinants. Interpretable machine learning (ML) can handle high-dimensional data while identifying clinically relevant predictors.

Objective: To identify key predictors of MetS in pregnant women using interpretable ML applied to representative data.

Methods: Data were obtained from seven cycles of the National Health and Nutrition Examination Survey (NHANES, 2007-2023). MetS was defined as the presence of ≥ 3 of five components: hypertension, hypertriglyceridemia, low high-density lipoprotein cholesterol, BMI ≥ 30 kg/m^2, and fasting blood glucose ≥ 5.56 mmol/L.

The initial dataset comprised 983 features, including dietary intake variables from 24-hour recalls, sociodemographic characteristics, lifestyle factors, clinical history, and medication use. After

preprocessing, the analysis was restricted to pregnant women with fasting subsample weights (N = 151) and 147 features. A random forest (RF) classifier with 1,000 decision trees was trained using a 70/30 train-test split. Variable importance was assessed using Shapley Additive Explanations (SHAP), and an RF model including the five top SHAP-identified predictors was evaluated on the test set. Overall model discriminative performance was quantified using AUC, with 95% CI estimated from 2,000 bootstrap replicas.

Results: SHAP analysis identified serum uric acid, creatinine, phosphorus, and γ-glutamyl transferase as the most influential predictors of MetS, surpassing traditional variables. Renal biomarkers demonstrated the highest global importance, with mean absolute SHAP values approaching 0.12. The RF model exhibited moderate discriminative performance on the test set, which included a limited number of MetS cases (N = 4), achieving an AUC of 0.65 (95% CI: 0.41–0.85).

Conclusion: Interpretable ML identified renal–metabolic biomarkers as the strongest predictors of MetS in pregnancy in NHANES. Future research is recommended to investigate the role of renal-metabolic pathways in MetS development during pregnancy.

Keywords:

Metabolic syndrome; Pregnancy; Machine learning; SHAP; Renal biomarkers; NHANES.

Non-Invasive AI-Powered Cardiovascular Risk Assessment in Early Metabolic Dysfunction Among Egyptian Adults

Master, Hala Ahmed Abo El-Hassan

Hala A. Abo El Hassan[1], Noha A. Hamdy[2], Inas M. Masoud[3], Mohamed I. Sanhoury[4], Labiba K. El-Khordagui[5], Ahmed El-Yazbi[6]

[1]Clinical Pharmacy and Pharmacy Practice Department, Faculty of Pharmacy, Pharos University in Alexandria, Egypt.
[2]Clinical Pharmacy and Pharmacy Practice Department, Faculty of Pharmacy, Alexandria University, Egypt.
[3]Pharmacology and Therapeutics Department, Faculty of Pharmacy, Pharos university in Alexandria, Egypt.
[4]Cardiology and Cardiovascular Diseases Department, Faculty of Medicine, Alexandria University, Egypt.
[5]Pharmaceutics Department, Faculty of Pharmacy, Alexandria University, Egypt.
[6]Pharmacology and Therapeutics Department, Faculty of Pharmacy, Alamein International University, Egypt.

Abstract:

Introduction: Cardiovascular diseases are increasingly causing deaths in low- and middle-income countries like Egypt, driven by obesity, diabetes, and metabolic syndrome. Metabolic dysfunction can lead to cardiovascular autonomic neuropathy (CAN), which carries a higher mortality risk and may begin in the prediabetic stage. Early detection of CAN in seemingly healthy individuals is vital and can be managed with lifestyle changes. However, traditional cardiovascular risk assessment

tools are often unsuitable for young adults and resource-limited settings. While cardiac autonomic reflex tests (CARTs) and adiposity measures are promising for diagnosing CAN, identifying it early in healthy individuals remains challenging. Additionally, heart rate signals can provide insights into cardiovascular health.

Objective: Develop a reproducible model to non-invasively categorize apparently healthy Egyptians of all ages by cardiovascular risk, enabling early identification of high-risk individuals for timely lifestyle changes and preventive treatments.

Methods: After obtaining the ethical approvals, 35 diabetic, 23 prediabetic, and 44 nondiabetic individuals were recruited. They underwent baseline ECG, CARTs, and body composition analysis. Then, machine learning models were developed: a convolutional neural network for ECG analysis and a support vector machine for classification and regression tasks.

Results: Among CARTs, only the Valsalva maneuver differentiated diabetics from non-diabetics, though it had limited early risk prediction value. In contrast, the deep breath test significantly improved the predictive power of adiposity measures for early cardiovascular risk using a support vector machine model, likely due to its sensitivity to early parasympathetic dysfunction. Furthermore, after digitizing 5-minute resting ECG signals from paper ECGs, our Convolutional Neural Network-Long Short-Term Memory model effectively classifies ECG images into Diabetic, Non-diabetic, and Prediabetic categories, allowing for the prediction of cardiovascular risk with an accuracy of 94%.

Conclusion: We implemented early cardiovascular risk detection using simple and affordable tools like ECGs, CARTs, and adiposity measures, promoting preventive care in resource-limited settings.

Keywords:

Metabolic syndrome; Cardiovascular autonomic neuropathy; Cardiovascular risk assessment tools; Cardiac autonomic reflex tests; Machine learning models; support vector machine model; Convolutional Neural Network.

Incidence of Adverse Effects induced by Targeted Therapy in Cancer Patients at Oncology Department Alexandria University

PhD, Soha Said Mohamed

Shrouk E. Fawzy[1], Nadeen H. Hussein[1], Donia E. Genena[2], Nesma A. Ali[2], Soha S. Mohamed[1]

[1]*Alexandria Clinical Oncology Department, Alexandria University*
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Abstract:

Background: Targeted therapy has emerged as a cornerstone in modern oncology, offering precision treatment with improved outcomes and fewer systemic toxicities compared to traditional chemotherapy. However, despite its specificity, targeted agents are associated with notable adverse drug reactions (ADRs) that require vigilant monitoring. Methods: A cross-sectional study was conducted at the Oncology Department of Alexandria University Hospital between January 2024 and April 2025, aiming to identify the frequency and nature of ADRs associated with targeted therapies and evaluate the role of clinical pharmacists in their management. Data from 277 cancer patients receiving targeted therapy for breast cancer and colon cancer, anti-human epidermal growth factor receptor -2 (anti-HER-2) therapy includes trastuzumab (Herceptin®, Ogivri®) and ado-trastuzumab emtansine (Kadcyla®), anti-vascular epidermal growth factor receptor (anti- VEGFR) bevacizumab (Avastin®) and anti-epidermal growth factor receptor (anti- EGFR) therapy such as cetuximab (Erbitux®), and panitumumab (Vectibix®) were analyzed. Conclusion: Herceptin® was

the most frequently used drug (51.6%), followed by Ogivri® (25.3%). ADRs were most reported with Vectibix® (45.5%) and Kadcyla® (29.2%), while Herceptin® and Ogivri® had lower incidence rates (16.1% and 10%, respectively). The most frequent ADRs included cardiac toxicity, hypersensitivity reactions, dermatologic side effects, and electrolyte imbalances. The findings underscore the essential role of clinical pharmacists in detecting, managing, and preventing ADRs, through pre-therapy assessments, real-time monitoring, patient education, and multidisciplinary collaboration empowering the cancer patient safety while receiving targeted therapy.

Keywords:

Targeted therapy; Adverse drug reactions; Cancer patients.

Antibiotic Stewardship in Hematology Patients with Febrile Neutropenia

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Abstract:

Background: Febrile neutropenia (FN) is a critical, life-threatening complication among hematology patients due to its profound immunosuppression and high susceptibility to infections. Immediate empirical therapy is urgently required, yet clinicians opt to international guidelines without referring to local susceptibility data. This study aimed to develop an institution-specific antibiogram using susceptibility profiles of organisms isolated from patients in Alexandria Main University Hospital (AMUH) to guide empiric antibiotic selection.

Methods: A retrospective, observational study was conducted at AMUH from March 2024 to June 2025. Microbiological data from 177 clinical cultures of adult hematology patients with FN were collected. Results were interpreted according to CLSI breakpoints, and WHONET software was used to analyze susceptibility and resistance patterns. Resistance patterns were compared against international guideline recommendations (IDSA/NCCN).

Results: Pus (44.5%), blood (27.1%) and respiratory specimens (17.5%) were the most frequently collected clinical specimens. Findings revealed a predominance of gram-negative organisms (85.7%), particularly Klebsiella spp. (35%), Escherichia coli (18.6%) and Pseudomonas spp. (17.5%). A considerable proportion of these isolates exhibited multidrug-resistant (MDR) and extensively drug-resistant (XDR) profiles, with notable carbapenem resistance among Enterobacterales and Acinetobacter spp. Additionally, Candida spp. emerged in bloodstream isolates, often fluconazole-resistant.

Conclusion: This study established the first local antibiogram specific for hematology patients with FN at AMUH, revealing alarming resistance rates to guideline-recommended empirical therapies. These findings reinforce the urgent need for antibiogram-guided strategies to optimize empirical therapy and improve clinical outcomes in FN management.

Keywords:

Febrile Neutropenia; Hematology; Antibiogram; Antimicrobial Resistance; Antimicrobial Stewardship; Bacterial Isolates; WHONET.

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