

FIP CONGRESS 2024:

A reflection from a young pharmacist

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Introduction

I had the privilege to attend my first-ever international pharmacy conference, the 82nd World Congress of Pharmacy and Pharmaceutical Sciences which was held in Cape Town by the International Pharmaceutical Federation (FIP) from 1-4 September 2024. This was an incredible experience that brought together pharmacists from all over the world to hold discussions shaping the future of pharmacy in the beautiful city of Cape Town. The congress reinforced the evolving role of pharmacists and emphasized their critical contributions to shaping the future of healthcare, particularly in low- and middle-income countries like South Africa. With the theme of *“Innovating for the Future of Healthcare”*, the sessions focused on advancements in digital health, sustainability, patient-centric care, and innovations that can change pharmacy practice for the better.

Transformation to Equitable and Quality Healthcare

Dr. Pakishe Aaron Motsoaledi, South Africa’s Minister of Health, delivered a captivating speech on South Africa’s journey toward equitable and quality healthcare. He emphasized the role of pharmacists in addressing public health challenges and disparities, especially within the anticipated National Health Insurance (NHI) system, highlighting the necessity for universal access to healthcare. His address touched on the importance of bridging the healthcare gap and ensuring that quality healthcare is not a privilege, but a right for all South Africans, especially in under-resourced areas. The transformation requires concerted efforts from all healthcare professionals as by working together we will be able to transform the health system and serve humanity.

The Evolving Role of the Pharmacist

One of the focal sessions explored the continuously expanding role of pharmacists. In today’s healthcare environment, pharmacists are no longer simply traditional compounders of medicines, but they are at the forefront of patient care, directly involved in disease management, health promotion, and preventive care. As primary healthcare providers, they engage patients through e-health platforms, telemedicine, and pharmacogenomic interventions, contributing significantly to better healthcare outcomes. In a resource strained healthcare environment like sub-Saharan Africa, where respiratory diseases such as lower respiratory tract infections (LRTIs) remain the leading cause of morbidity, pharmacists have become trusted sources for managing these conditions. The role pharmacists play in administering point-of-care testing and managing diseases such as diabetes, respiratory infections, and malaria was also underlined as vital to strengthening public health systems.

The session shifted my mindset, making me realize that the future of pharmacy is now, and I must fully equip myself for this evolving role to make a meaningful impact.

Pharmacists in HPV-Related Diseases and Cancer's Elimination

This session shed light on the pivotal role pharmacists play in the elimination of HPV-related diseases, particularly cervical cancer. Pharmacists are uniquely positioned to educate patients on HPV vaccination and the importance of regular screening. The session discussed efforts to drive vaccination campaigns, ensuring broad public access to vaccines as part of cancer prevention initiatives. Such proactive measures such as vaccinating both girls and boys at early ages, supported by pharmacists, are essential in the global effort to eliminate HPV-related cancers, especially in underserved communities. During a breakout session, I had the opportunity to meet a pharmacist heading an immunization-delivery project to deliver vaccines to those in need, in Africa. This project has the potential to support governments in enabling access to vaccines to save lives. Observing the amazing work colleagues are doing worldwide inspired me to do more, in my own area of practice as a young pharmacist.

Advancing Opportunities for Patient-Centric Drug Delivery Systems

Innovations in patient-centric drug delivery systems were highlighted as a game-changer in the pharmaceutical industry. The session focused on innovating more efficient, accessible and user-friendly drug administration methods that cater to individual patient needs. This includes developing technology that makes treatments easier to manage at home, reducing the strain on healthcare facilities and improving patient adherence. This employs a holistic approach to patient care and their quality of life. Pharmacists are involved in implementing these new drug delivery systems, helping patients manage chronic conditions more effectively. For example, in special patient populations such as pediatrics, geriatrics and pregnant women, drug safety, efficacy and quality profile with minimal side effects is desirable to improve patient compliance and shorten treatment regimens for both communicable and non-communicable diseases.

Microneedle Technology

The session / discussion around microneedle technology showcased its potential to revolutionize drug delivery, offering a painless, minimally invasive alternative to traditional injections. Microneedle patches are very small hypodermic needles that provide transdermal delivery system for therapeutic drugs and vaccines. The ability for patients to administer medication at home without needing complex equipment is a breakthrough, particularly in resource-limited settings. This technology has the potential for improving adherence to treatment regimens and enhancing patient comfort, especially for long-term therapies. Its affordability also makes it a feasible option for healthcare systems looking to scale up treatment availability, they offer improved thermostability and easy storage and transport due to their miniature form. One of the key limitations highlighted was their

inability to administer drugs over a large surface area, hence the STAR particles technology for topical delivery was implemented to address this gap.

STAR particles, compared to traditional gel topical agents, perform better in enhancing treatments such as cancer, showing positive results in clinical trials. The use of microneedles for intracellular fluid targeting was another fascinating innovation discussed. By making tiny, painless punctures in the skin without causing bleeding, microneedles can deliver drugs to specific areas, such as the suprachoroidal space of the eye, offering more precise treatments with minimal side effects. This development has the potential to revolutionize how we treat eye diseases and other conditions that require localized delivery of therapeutics.

Boosting Brain Cognitive Function with Multivitamins

Could a simple pharmacy purchase benefit brain health?

This intriguing session was led by world memory champion Dominic O'Brien and Dr Howard Sesso. The presentation indicated tips to boost cognitive function and how to remember things by using association, imagination and location. It further highlighted that statistically, there are significant benefits of over the counter (OTC) multivitamins on cognitive brain function on both global cognition and episodic memory. The presentation highlighted the importance of pharmacists as key links between consumers and their decisions to support brain health. The effect of a daily multivitamin on global cognition over 2-3 years was shown to possibly reduce cognitive aging by 2 years compared to placebo. Pharmacists are at the forefront of advising patients on the adequate use of multivitamins, ensuring they choose products that are both safe and effective. This is relevant given the rising incidence of cognitive decline and mental health disorders globally, making brain health a critical area of focus.

Overview of AI and Its Relevance in Healthcare

Digital health and artificial intelligence (AI) were major themes widely discussed at the congress, reflecting their growing importance in modern healthcare that pharmacists should not shy away from. AI is transforming healthcare by reducing administrative burden to free up capacity for value-added tasks and efficient data analysis — enabling more accurate diagnostics, personalized treatment plans, and improved medication management. This session on AI explored the shift from being *product-centric* as the traditional role to being *patient-centric* as the evolving role of the pharmacist and the AI applications in pharmacy, including tailored treatment plans, precision medicine, medicine error detection, adverse drug event prediction, early detection of diseases and continuous monitoring. Pharmacists are integrating AI tools to optimize patient care, making healthcare delivery more efficient and tailored to individual needs. The relevance of AI in the future of pharmacy cannot be overstated, as it empowers both healthcare professionals and patients in meeting their therapeutic goals.

Sustainability in Pharmacy: A call to action

This session placed significant emphasis on sustainability, calling on pharmacists to take active steps in reducing the environmental impact of pharmaceutical products. Consumer education on the appropriate medicine disposal methods as a mitigation action to supporting eco-friendly pharmaceutical practices was highlighted. Pharmacists are encouraged to lead initiatives that contribute to environmental conservation. The session called for a collective effort within the pharmacy profession to adopt more sustainable practices, ensuring that healthcare innovation aligns with the principles of environmental responsibility such as e-labeling and the development of biodegradable formulations and medicine packaging. Pharmacies were also encouraged to participate in take-back programs however, the medical waste costs incurred by the pharmacies remain a barrier.

Pharmacogenomics: Individualized Therapy as the Future of Pharmacy

'If every person is different, why should your medication be the same?' One of the most exciting developments in pharmacy is the growing role of pharmacogenetics and its potential to revolutionize patient care through individualized therapy. The use of pharmacogenomics enables healthcare providers to tailor treatments based on a patient's genetic profile, which significantly improves drug efficacy, reduces adverse effects, and promotes better patient adherence. An important aspect of this approach is using PCR (polymerase chain reaction) techniques to lower the costs of genetic testing. Understanding drug behaviour at genetic level in the body, is crucial for optimizing therapeutic outcomes as pharmacists can make informed pharmaceutical decisions, ensuring that the therapy chosen will be both effective and safe for the patient.

It was highlighted in the session that in pharmacogenomics, identifying how genes behave—the phenotype—is key to predicting drug response. If a drug doesn't interact with a patient's genetic makeup as intended, the result can be reduced efficacy or unwanted side effects. Therefore, by leveraging pharmacogenetics insights, we can optimize therapeutic outcomes. However, barriers remain in fully implementing personalized medicine. One of the significant challenges is the limited scope of pharmacists, which restricts their ability to fully integrate pharmacogenomics into everyday practice. Additionally, drug responses are not solely dependent on liver metabolism. Pharmacodynamics and pharmacokinetics, particularly in how drugs cross the blood-brain barrier, are critical considerations. This highlights that drug efficacy is also reliant on receptor behavior in the body, not just metabolic processes.

The development of this field is further hindered by underdeveloped biopharmaceutical sectors and overburdened healthcare systems, especially in low- and middle-income countries. As the field continues to advance, pharmacists will play a pivotal role in its implementation, ensuring that therapies are tailored to the individual needs of patients for optimal health outcomes.

Early Detection and Monitoring of Chronic Conditions

Practical tools for supporting the role of the pharmacist in the prevention and management of long-term diseases were made accessible, allowing pharmacists to explore the use of toolkits and screening tools that enable early detection and continuous monitoring of chronic conditions for their patients. Pharmacists are increasingly equipped with accessible tools that help identify and monitor diseases like hypertension, diabetes, and cardiovascular conditions at early stages. These innovations empower pharmacists to intervene earlier, providing patients with timely advice and referrals to prevent disease progression. This patient-centered approach is critical in improving overall health outcomes and alleviates the burden on healthcare system. An immediate kidney function screening test by *Nova Biomedical* was showcased and could test for Creatinine and EGFR in 30 seconds from a capillary Finger stick Sample, this development will make a significant impact in the early identification and monitoring of chronic kidney disease (CKD) and Acute Kidney Injury (AKI) in community settings and reduce healthcare resource utilization.

Conclusion

Attending the Congress was an immensely enriching experience in my career, that broadened my perspective on the future of pharmacy and healthcare. It was exciting to meet colleagues from different spheres of pharmacy, exchange ideas and make connections. It was reassuring to observe that our South African standards of pharmacy practice are aligned with global practices as our scope is broad and our role is more patient centered. From the evolving role of pharmacists in managing chronic diseases and promoting public health, to the advanced innovations in drug delivery and AI-driven healthcare tools, this congress offered a glimpse into the future of pharmacy practice. I am empowered and motivated by the amazing work that pharmacists are doing globally with the patient being the point of focus. As the pharmacy profession continues to evolve, it is clear that continuous learning, innovation, and collaboration will remain the cornerstone of pharmaceutical health. *'Think Health, Think Pharmacy!'*

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