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Editorial: Emerging talents in pharmacology: Drugs outcomes research and policies 2022

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Editorial on the Research Topic

[Emerging Talents in Pharmacology: Drugs outcomes research and policies 2022](#)

Introduction

This Research Topic is a contribution to the “emerging talents” article Research Topic dedicated to highlighting the work of student researchers. It is focused on the field of drug outcomes research and policies.

Across the world, students are undertaking key research as part of their education in Drug Outcomes Research and Policies; however, most of this research is not communicated to the wider audience. We recognize that this is because many student researchers find the thought of peer-review daunting. At Frontiers, peer-review is considered a collaborative process and the interactive peer-review is tailored to provide hands-on guidance and constructive feedback to researchers. Frontiers is committed to the development of emerging talents and wants to see student researchers strive for success at publications.

The research presented here highlights the quality and diversity of student researchers across the field of Drug Outcomes Research and Policies. For instance, one coauthor is working toward a Ph.D. in June 2024 because he feels that clinical practice should pay more attention to polypharmacy and potentially inappropriate medication use. The coauthor of another paper completed a Ph.D. in Pharmaceutical Sciences and Pharmacogenomics and is now working toward completion of post-doctoral research of real-world data science in June of this year. Dr. Radtke transitioned from a focus on rare diseases as an undergraduate to infectious diseases and global health, because these diseases are among the top causes of preventable child deaths worldwide. Unlike the findings presented in other papers in this series, less data are often available for the effectiveness of drugs in children especially for infectious diseases. And when these data are available, they are frequently underutilized (Radtke and Butte, 2022).

Improving drug treatment outcomes

As expected from the preceding perspective, most studies in this Research Topic concerned adults. Aspirin is an inexpensive antiplatelet agent with a long history of widespread use for secondary prevention of atherosclerotic cardiovascular disease (ASCVD) events and mortality. Within the last 10 years, mounting evidence has questioned the benefit provided by low-dose aspirin (75–325 mg daily) in primary prevention of ASCVD events. In 2022, a systematic review demonstrated a small but significant reduction in cardiovascular disease events (Guirguis-Blake et al., 2022). This evidence supports updated recommendations from the United States Prevention Services Task Force on the use of aspirin for the primary prevention of cardiovascular disease (US Preventive Services Task Force, 2022). An important unanswered question is how to identify patients that will benefit most from aspirin treatment in the setting of primary prevention. Hu et al. conducted a meta-analysis of studies measuring changes in carotid intima-media thickness (cIMT) as a biomarker for asymptomatic carotid atherosclerosis. While aspirin treatment reduced progression of cIMT in a subset analysis, no differences in cardiovascular disease events or mortality were observed. The benefits of aspirin treatment for secondary prevention of atherosclerotic cardiovascular disease events and mortality are fortunate indeed, but unfortunately this inexpensive treatment offers no such advantage for patients with asymptomatic carotid artery atherosclerosis.

Like cardiovascular disease, diabetes is a global health problem with significant economic and quality of life impact on patients worldwide. Treatment often involves expensive medications that must be self-injected subcutaneously. As new products become available, it is important to consider not only safety and efficacy, but also the economic impact for patients and healthcare systems. Han et al. conducted a cost-utility analysis of IDegLira in China, which became available in that country in April 2022. IDegLira is a fixed-dose combination of insulin degludec and the glucagon-like peptide 1 receptor agonist, liraglutide. While treatment of type 2 diabetes mellitus using IDegLira is more convenient for patients and likely to be cost-effective in several countries (Davies et al., 2016; Ericsson and Lundqvist, 2017; Hunt et al., 2017; Psota et al., 2017; Raya et al., 2019), the analysis conducted by Han et al. indicates that monotherapy with either drug alone is more cost effective in the Chinese national healthcare system. These data will be informative for policymakers as they navigate decisions related to IDegLira use in China.

One example of government regulated drug access is the National Centralized Drug Procurement (NCDP) in China. Huang et al. investigated the knowledge, attitudes and practice of pharmacists and other healthcare professionals towards NCDP, which is aimed at reducing drug costs for patients and healthcare systems. While over 40% of those surveyed had good knowledge about NCDP, less than one-quarter had positive attitudes and good practices. A primary factor contributing to negative attitudes and poor practices was lack of confidence in the safety and efficacy of generic NCDP drugs compared to the brand-name products. This

study suggests that more robust clinical evidence to support the equivalence of NCDP generics and brand-name drugs coupled with training of pharmacists and healthcare professionals may ultimately reduce drug costs.

Similarly, available drugs might be used more appropriately through interventions with healthcare providers. Tian et al. investigated the impact of the expert consensus on safety management of polypharmacy issued by the Chinese Association of Geriatric Research. In the study of outpatient prescriptions from tertiary hospitals in Chengdu, a city in southwestern China's Sichuan province, the expert guidance initially curbed both polypharmacy and potentially inappropriate medication use. However, the effect was lost over time and the authors infer that a multi-pronged approach may produce more sustainable effects.

Along with provider training and policy implementation, the success of patient treatment can be improved through development of new therapies. The paper by Wu et al. shows how the use of bicarbonate Ringer's solution after liver transplant better protects against acute kidney injury than more commonly used crystalloid solutions, while Jenkins et al. review current as well as developing therapies to lower urate levels and, thus, help prevent/treat gout.

Conclusion

Articles in this Research Topic present the work of student researchers including a perspective on evidence-based pediatric therapies, reviews of urate-lowering therapies and aspirin, two investigations of policy impact, a cost-utility analysis of a novel combination drug product, and a clinical trial of a novel crystalloid solution. Together, this Research Topic of articles highlights the diverse contributions of trainee researchers to drug outcomes research and policy around the world.

Author contributions

RL and LV wrote the initial draft, and JF and YS edited it.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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