

# Pharmacist Rethink through a Planetary Health Lens

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## Abstract

Planetary Health is a rapidly developing field that is gaining momentum and significance as the world grapples with the devastating effects of infectious diseases, climate change, biodiversity loss, complex food insecurities, and international competition for resources. These challenges are often attributable to the financial activity made by nation states and increasing disposable individual wealth. The outcomes have created a perfect storm of events that, if not managed properly, threatens the health of current and future generations. Given the front-line role pharmacists play within health system in the community and institutional levels, the profession is uniquely positioned to make a meaningful impact to planetary health. This article aims to explore contributions pharmacists can make to secure planetary health.

## Keywords

pharmacist, pharmacy practice, planetary health, eco-health, medication disposal

### What do we already know about this topic?

The field of Planetary Health is a new an emerging one, the role of physicians are starting to be defined.

### How does your research contribute to the field?

However, the role of the Pharmacist who can make a valuable impact to this field has not yet be clearly articulated in the literature and it seek to identify these roles.

### What are your research’s implications toward theory, practice, or policy?

The article guides pharmacist on steps they can implement in their day-to-day practice to improve health outcome overall.

## Introduction

“Pharmacy Strong,” the theme for this year’s Pharmacy week, highlighted the indispensable efforts of pharmacists and pharmacy assistants globally as actors across the economic spectrum of healthcare systems. As stakeholders within the healthcare systems it is imperative that we include Planetary Health as part of future Pharmacy Week celebrations and clinical training, since pharmacists have the ability to make and innovate meaningful changes in various aspects of its profession, educate patients on the importance of lifestyle changes and advocate for healthier industry standards.<sup>1</sup> By inculcating planetary health into pharmacy theory and practice, bolstering “Pharmacy Strong” will, by extension, contribute toward making Planetary Health strong.

## What Is Known about This Topic

Planetary health is a transdisciplinary field that encompasses all spheres of human health and human impacts on the

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environment. The impact of the healthcare system on the environment has not been fully quantified, however, numerous studies have shown that healthcare facilities do leave a carbon footprint.<sup>2</sup> In this regard, further studies should be done to quantify these effects on the environment so that innovative solutions are created to mitigate the effects created by our professional practice.

The key elements of sustainable governance include clinical effectiveness, research and development, education and training, clinical audit and quality improvement, risk management, and openness. Within this framework, the practice of pharmacy can strengthen its implementation and enforcement of planetary health at all levels of theory and practice in the profession. By creating insight to pharmacy providers and facilitating buy-in from the pharmacy practitioners, the profession has a key role in influencing public behaviors and advocating for changes that ultimately benefit the planet.

### Potential Impact of This Topic

In most developing lower income countries, pharmacists are more easily accessible, thus they are sometimes the first, and often the last healthcare professional that members of the public interact with. Their accessibility and frequency of interaction with patients can potentially allow them to identify diseases earlier; this pharmacist-physician model has shown benefit for patients.<sup>3</sup> This is inherently linked to the trust that is placed in pharmacists in all communities and especially in underserved environments where pharmacists may represent the highest level of the public's interface with healthcare professionals. As a result, should pharmacists become advocates for planetary health, this is likely to propagate environmental consciousness and promote efforts of conservation. There have been no guidelines or research that articulate specific and actionable points for pharmacists to achieve these lofty goals—this paper will describe nutrition and diet, reducing the carbon footprint, and medication disposal as an introduction to some of the methods by which the theory and practice of pharmacy can be rethought through the planetary health lens.

### Disease Detection

Pharmacists have been found to play an integral role in the early detection and prevention of diseases and it is expected that this role should be expanded in the field of Planetary Health. The skills learnt and developed in the fight against Non-Communicable Diseases such as charting changes, taking histories, and monitoring key parameters can now be transposed to the field of Planetary Health. Early identification and referral to a physician by pharmacists can lead to diagnosis and treatment at the preliminary stage, thus, the risks that are associated with the disease may be decreased or prevented. This interplays with Planetary Health since it has been demonstrated that developing complications from diseases increase healthcare utilization and costs and by

extension will increase financial burdens on countries.<sup>4</sup> This potential saving, if realized, can be used by planning divisions to boost other aspects of healthy communities such as parks which have been noted to increase physical activity and decrease the burden of non-communicable diseases.<sup>5</sup> This can therefore create a positive cycle which has the potential to control direct and indirect expenses and allows for investment into healthy people and spaces.

### Nutrition and Diet

Nutrition and diet are important contributors and indicators of planetary health. The EAT-Lancet commission implemented the planetary diet which restricts the amount of meat, dairy, and starchy vegetables consumed with an aim of sustaining health and protecting the planet.<sup>6</sup> Pharmacists have been noted to possess the appropriate platform to increase the patient awareness of the planetary diet and further encourage and support lifestyle change.<sup>7</sup> It is well documented in the case of vaccines that pharmacists have a significant role in health promotion at the community level because of the trust placed in the profession to guide health related decisions.<sup>8</sup> By extension, if the theory and practice of pharmacy adopted planetary health as a core aspect of the curriculum, this would allow the discipline to advocate a range of health promoting behaviors, focused on nutrition and diet, which would aim to improve health and optimize the management of long term conditions.<sup>9</sup> In order to make this aspect of health promotion actionable in pharmacies, the curriculum of pharmacists should also include tools of social marketing which would allow messaging on topics such as diet and nutrition to be tailored to align with international suggestions, present health risks in an understandable manner, and adjust the campaign to improve its effectiveness.<sup>10</sup>

### Reducing Carbon Footprints

According to Plastics Europe Market Research Group, the global plastics production reached approximately 360 tonnes in 2018.<sup>10</sup> This report goes on to detail the devastating effect plastics have on human health and the environment. The pharmacist can champion the reduction in plastics in 2 key areas: retail customer behaviors and disruption of industrial standards.

From the retail point, plastic pollution is tremendous in pharmacies ranging from the over packaging of cosmetics, various single-use dispensing bags for medication and use of an additional plastic bag for final checkout items. Pharmacists can help reduce the carbon footprint by using packaging that is eco-friendly instead of single use plastic dispensing bags. They can also omit the use of plastic bags for final checkout items and encourage patients to bring their own reusable bags. Pharmacists can educate the general public on the importance of cutting down plastic bag usage by counselling and further providing reading material to fully understand its importance.<sup>10</sup>

**Table 1.** Pharmacist Speciality (R<sub>x</sub>) and the Potential Planetary Health Intervention.

R <sub>x</sub> speciality	Intervention
Community/clinical pharmacist	Assist with the early detection of some diseases Educate patients on healthy diet Support healthy lifestyle changes Purchase eco-friendly dispensing bags Reduction and omission of single use plastic bags Encourage the use of reusable bags Counsel on proper medication disposal
Industrial pharmacist	Persuade manufacturers to use eco-conscious manufacturing methods Encourage the use of biodegradable and sustainable materials for packaging Enforce proper waste disposal techniques
Research	Implementation of proper waste disposal Educational campaigns on advice relating to proper disposal Programs on medical waste, safer chemicals, pharmaceuticals, and green purchasing
Policy making	Seen as an important contributor toward the environment and health care Can be a driving force toward eco-friendly products for the planet and future generations

From the industrial point, pharmacists can have key roles in pharmaceutical industry. The industrial pharmacist involved in regulatory affairs can work to persuade the manufacturers to use eco-conscious manufacturing methods and sustainable packaging materials. The industry can progressively improve the sustainability of packaging by using more cardboard instead of plastic, reusing expanded polystyrene boxes, and integrating stainless steel canisters in production. Apart from eco-conscious packaging, the industrial pharmacist should ensure that the industry is practicing proper waste disposal and that the residual waste is biodegradable. Industrial pharmacists should take the initiative to educate their colleagues on the importance of reducing the industry's carbon footprint by using less impactful ways of producing the final product.<sup>10</sup>

Additionally, pharmacists involved in research and development must ensure proper storage and disposal of raw materials and by-products in the preparation of drug formulations. In many instances, the utilization of sterile single use plastic based materials can be substituted where necessary with reusable autoclavable alternatives. The use of organic solvents in preparation should be closely monitored, recovered and reused.

## Medication Disposal

Studies have shown that improper drug disposal at a household level has led to medication traces getting its way into soil and inevitably water supplies. These traces cannot be removed via existing filtrations systems which results in medications becoming pollutants to both landfills and aquatic sites. Though there are guidelines for disposal of household medication, any methods other than incineration will cause leaching of pharmaceuticals into the environment. With the increasing world population and the skyrocketing number of persons suffering from Non-Communicable Diseases, there is also a rise of people

requiring lifelong therapies. Therefore, pharmacists now need to step up to address the planetary health challenges created by the improper disposal of drugs.<sup>10</sup> In many countries, pharmacists have initiated and lead medication take-back programs where community pharmacies act as drop off points for unused/expired medication. The roles played by the pharmacist can be found in Table 1.

For meaningful change to be realized, pharmacists should actively engage in a patient education process for disposal of drugs. Proper drug disposal techniques should be incorporated when counselling patients on the use of their medication. Now is the time to act and shift the paradigm of patient counselling to deal with an emerging problem.<sup>10</sup>

## Improving ECO-Consciousness of Pharmaceuticals

Over the years, the disposal of perished or unused products within the pharmaceutical industry has gained particular interest. Due to the unsafe practices that is involved in the packaging of medication, it is important to practice eco-conscious manufacturing methods. This is significant since it comprises of both the communal and industrial aspects of design, creation, and use of products in distinct manufacturing industries to reduce the impacts of harmful production on the environment.<sup>10</sup>

Some of these unsafe practices range from the high use of plastics in pharmacies to pharmaceuticals being dumped into the environment resulting in emission after use as well as medication that is thrown out via environmentally-unfavorable routes. These unfavorable practices can have a negative impact on the environment, human health, and animals. Therefore, it is vital to increase the awareness of eco-friendly choices and adopt more sustainable materials for packaging in order to protect the planet and future generations contained by the pharmaceutical industry.

The implementation of proper waste disposal techniques should be highlighted in order to mitigate its harmful impacts. One such technique includes educational campaigns carried out by pharmacists to their patron in communities on advice relating to proper drug disposal. Apart from this, measures can be put in place for persons to return any unused pharmaceuticals to the pharmacy or place permeant drug drop boxes at appropriate places where residents can drop off unwanted, expired, or unused medications.<sup>10</sup>

## Pharmacist as Researchers

Human health and well-being are inseparably link to the environment and with the increase in global environmental changes such as pollution, threatening human health and well-being, pharmacists have the expertise to respond instantly through mitigation, adaptation, and advocacy. Pharmacist can therefore create research agenda across interventions made and the success they are having in the community and institutional setting. Industrial pharmacists research can also change the health care internationally to diminish the environmental footprint of environmental medical waste and develop safer chemicals and develop green supply chains.<sup>10</sup>

## Pharmacist as Policy Makers

Although pharmacists are seen as an important contributor toward a positive impact in transforming the landscape of health care and public health, many however are isolated from policy development for planetary health. This is because; many are not adequately well-informed to feel confident to do so. As such, a necessity to upskill and educate both practising and present health professionals to exercise environmentally sustainable practices to protect the environment and human health.<sup>11</sup> Where they can play a very important role in development of policies across the health sector, in areas such as manufacturing, community health, and institutional health which many medical professionals do not have access too.

## Conclusion

As the world struggles to cope with the accelerating levels of interdependent industrialization it must also be cognizant of the multiple threats to human and environmental health. The paradigm shifts of health to include the planet must take the forefront of health policy considerations. The reality remains that many of the policy shifts require individual behavioral patterns to change which means that all health-care workers have an added responsibility. The pharmacist sits at the cusp of patients who are well enough to make informed decisions and sick enough to require intervention, giving this group of professionals a unique niche in being able to influence public health measures.

The implication of the points raised in this introductory paper is that the practice of pharmacy can have an influence on planetary health and therefore practice guidelines and

policy that govern the profession must make planetary health a pivot upon which the curriculum is taught, the profession is regulated and quality improvement bench markers are created.

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## References

- Hermansyah A, Sukorini AI, Asmani F, Suwito KA, Rahayu TP. The contemporary role and potential of pharmacist contribution for community health using social media. *J Basic Clin Physiol Pharmacol*. 2019;4:30(6): 329.
- Pollard AS, Taylor TJ, Fleming LE, Stahl-Timmins W, Depledge MH, Osborne NJ. Mainstreaming carbon management in healthcare systems: a bottom-up modeling approach. *Environ Sci Technol*. 2013;47(2):678-686.
- Hwang AY, Gums TH, Gums JG. The benefits of physician-pharmacist collaboration. *J Fam Pract*. 2017;66(12): E1-E8.
- Cheng SW, Wang CY, Chen JH, Ko Y. Healthcare costs and utilization of diabetes-related complications in Taiwan: a claims database analysis. *Medicine (Baltimore)*. 2018;97(31):e11602. doi:10.1097/MD.00000000000011602
- Schipperijn J, Cerin E, Adams M, et al. Access to parks and physical activity: an eight country comparison. *Urban For Urban Green*. 2017;27:253-263. doi:10.1016/j.ufug.2017.08.010
- Hirvonen K, Bai Y, Headey D, Masters WA. Affordability of the EAT–Lancet reference diet: a global analysis. *Lancet Glob Health*. 2020;8(1):e59-e66.
- Awad A, Abahussain E. Health promotion and education activities of community pharmacists in Kuwait. *Pharm World Sci*. 2010;32(2):146-153.
- Petrelli F, Tiffi F, Scuri S, Nguyen C, Grappasonni I. The pharmacist's role in health information, vaccination and health promotion. *Ann Ig*. 2019;31(4):309-315. doi:10.7416/ai.2019.2264
- Steed L, Sohanpal R, Todd A, et al. Community pharmacy interventions for health promotion: effects on professional practice and health outcomes. *Cochrane Database Syst Rev*. 2019;12(12):CD011207. doi:10.1002/14651858.CD011207.pub2
- Loss J, Nagel E. Social marketing—seduction with the aim of healthy behavior? *Gesundheitswesen*. 2010;72(1):54-62. doi:10.1055/s-0029-1241890
- McLean M, Madden L, Maxwell J, et al. Planetary health: educating the current and future health workforce. In: Nestel D, Reedy G, McKenna L, Gough S, eds. *Clinical Education for the Health Professions*. Springer; 2020:1-30.