

# Pharmaceutical Care in Public Health Centers: A Scalable Solution for Overburdened Health Systems

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Pharmacists have made significant progress/strides in moving from their traditional role of dispensing in community pharmacies to providing pharmacotherapy consultation in hospitals, advising in the pharmaceutical industry, and participating in decision making within regulatory health agencies. Yet despite these advances, their presence remains limited in primary public health centers, particularly in low- and middle-income countries (LMICs) (1).

In resource-limited settings, public health centers are the primary and often only source of care for underserved populations. These facilities serve as the primary point of healthcare access for vulnerable communities, including low-income families, as well as displaced individuals such as asylum seekers, refugees, and migrants. The WHO has highlighted that pharmacists are increasingly recognized as key contributors to primary care in several high-income countries, but similar integration is lagging in LMICs (2,3). However, public health centers are often under-resourced and overburdened, making comprehensive, continuous care difficult to sustain.

Most public health centers in Iran have a core team comprising family physicians, midwives, and nurses on a full-time basis. In some larger centers, a psychologist, social worker, dentist, or nutritionist may also be available on a part-time basis. Notably, pharmacists are absent from this staffing model. One overlooked but vital area is structured pharmaceutical care, encompassing medication reconciliation, adherence support, pharmacovigilance, and patient-centered counseling. This is an essential component of effective healthcare that is often under-prioritized or entirely absent in such settings.

Even where medicines are supplied free of charge, such as vaccines, nutritional supplements, or treatment courses for tuberculosis and hepatitis C, their inappropriate use and premature discontinuation remain common because prescribers rarely have the time or tools to deliver comprehensive counselling. For displaced and marginalized populations, barriers such as illiteracy, language gaps, mental distress, and unstable living conditions further complicate adherence, creating a

dangerous disconnect: availability and access to affordable medications without adequate patient education.

This results in double the waste for scarce health system resources, since not only has it made the human resources and medicinal supplies available at a cost to the public health system, but in the case of communicable diseases, it could also threaten the wider community through continued disease transmission and antimicrobial resistance.

Pharmacists, with their specialized knowledge of pharmacotherapy, are uniquely positioned to bridge these gaps. Evidence from humanitarian settings demonstrates that embedding pharmacists in primary care teams improves adherence and reduces medicine-related errors. Yet in LMIC public health centers, their potential remains largely untapped (4).

In Iran's public health centers, the role of pharmacists in public health networks should not be confined to dispensing or stock-management roles. They should be incorporated as core members of interdisciplinary teams, delivering medication therapy management (MTM), supporting vaccination services, and running antimicrobial stewardship and chronic-disease adherence programs.

The public-health dividends are substantial. Completion of vaccination series prevents outbreaks; optimized antimicrobial use slows resistance; and sustained therapy for non-communicable diseases averts costly complications. Ensuring that patients understand and adhere to their medicines is therefore both a clinical necessity and a public-health imperative. Integrating pharmacists can also relieve physicians during health emergencies and crises (5). When hundreds of new arrivals must be registered, screened, and vaccinated in a single day, pharmacist-led medication reconciliation and counselling can help prevent dangerous omissions and duplications.

This editorial proposes a scalable, three-step model for LMICs: (i) supervised service-learning programs/

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rotations for senior pharmacy students and clinical pharmacy residents in public health centers; (ii) development of pharmacist-led medication adherence and self-care initiatives at public health centers; and (iii) formal recognition of pharmacist services with remuneration mechanisms by insurance plans analogous to pharmacotherapy consultations in hospitals (6). To demonstrate value and drive policy adoption, programs should include simple outcome metrics, such as adherence rates, refill gaps, or reported adverse events, to document the impact of pharmacist involvement and inform decision-makers. Pharmacists can also contribute expertise in nutritional supplementation, complementary and traditional medicines, as well as pharmacovigilance for novel or complex therapies – areas that currently overstretch other health professionals (7,8).

In a crisis-ridden world, especially post COVID-19, re-imagining pharmacists' roles is no longer optional (9). Aligning with the 2024 World Pharmacists Day theme of 'Pharmacists: meeting global health needs', LMIC health systems must leverage this workforce to achieve Universal Health Coverage (10). Ensuring vulnerable patients receive not only medicines but also the knowledge and support to use them correctly (safely and effectively) moves health equity from aspiration to reality.

It is time to recognize pharmacists as essential members of the multidisciplinary public-health team capable of lending their expertise to transforming population health from the ground up. Future implementation research should focus on quantifying cost-effectiveness, population-level health outcomes, and equity impacts of pharmacist integration in public health programs to better inform and guide policymakers.

### Conflicts of Interest

The authors have no conflicts of interest to declare.

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