PRIVATE PHARMACIES AS FIRST POINTS OF HEALTHCARE ACCESS:

Participatory Action Research for Good Pharmacy Practice Implementation in the Lao People's Democratic Republic (Lao PDR)

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BACKGROUND

Private pharmacies in Lao PDR serve as **primary access points** for medications and health advice, particularly in underserved areas where formal healthcare facilities are limited. However, these pharmacies often operate with minimal regulatory oversight, inconsistent adherence to **Good Pharmacy Practices (GPP)**, and limited integration into the national health system. A key concern is the **widespread sale of antibiotics without prescriptions**, driven by **low health literacy on antimicrobial resistance (AMR)** and **economic pressures** on pharmacy operators. This contributes to inappropriate self-medication, poor medication adherence, and rising AMR rates, which are among the highest in Southeast Asia. Efforts to improve GPP adoption and antimicrobial stewardship in private pharmacies have faced challenges due to resource constraints, lack of formal training, and limited incentives for compliance. **Strengthening regulatory frameworks, workforce capacity, and health system integration would be critical to ensuring safe and effective pharmaceutical practices.**

Fig(1). Private Pharmacy (Class I) in Luang Prabang, Lao PDR

METHODS

This study employed a **participatory action research (PAR) approach** with a **mixed-methods design** to assess barriers to Good Pharmacy Practices (GPP) implementation and co-develop solutions in private pharmacies in Lao PDR. The study was conducted in Vientiane Capital and Luang Prabang over three phases:

PHASE I

In-Depth Interviews (IDIs) & Direct Observations

- **IDIs** with n=20 private pharmacy operators on knowledge, attitudes, and practices (KAP) regarding GPP and antimicrobial stewardship.
- **Direct observations** assessed medication storage, dispensing behaviors, inventory management, and cold-chain compliance.
- **GPP compliance tool** used to score adherence to national and WHO standards.

PHASE II

PAR Activities & Focus Group Discussions (FGDs)

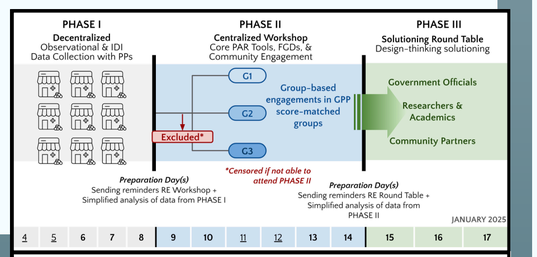
- **Problem Tree Analysis** to systematically map root causes of non-adherence to GPP.
- **Seed Analysis** to identify and prioritize key constraints in infrastructure, regulation, and workforce capacity.
- **FGDs** to facilitate peer-led discussions on challenges and solutions.

PHASE III

Co-Design & Solution Development

- n=25 stakeholders (MOH Lao PDR, ICARS, academia, private sector) convened to refine solutions.
- **Stakeholder Mapping** analyzed roles in pharmacy regulation.
- **Design Thinking Methods:**
  - **SCAMPER** model for structured ideation.
  - **Rapid Prototyping** for feasibility testing.
  - **Fishbowl Discussions** to align policy pathways

Qualitative data from interviews and FGDs were thematically coded using ATLAS.ti, while quantitative data from GPP compliance scores and infrastructure assessments were analyzed descriptively, with findings synthesized into policy recommendations for MOH Lao PDR.



Fig(2). Schematic of Data Collection stage in three phases

RESULTS

OBSERVATIONAL & ASSESSMENT FINDINGS

Medication Dispensing Practices

- Frequent self-medication without prescriptions, with customers requesting drugs by name.
- Insufficient verification of drug interactions and inappropriate antibiotic dispensing.
- Lack of clear dosage instructions, treatment duration, and expiration dates on packaging.

Patient Counseling Deficiencies

- Minimal guidance on side effects, when to seek medical care, and proper medication use.
- Symptoms not adequately clarified before dispensing antibiotics.
- No designated space or time for patient counseling.

Inventory & Storage Challenges

- No tracking systems for expired or damaged stock; some expired medications remained in circulation.
- Improper storage, with medications kept in toothbrush holders or food containers.
- Cold-chain medications stored in domestic refrigerators alongside food, compromising efficacy.
- Inadequate heat protection, increasing risk of medication degradation.

Environmental & Structural Factors

- Pharmacies commonly located along dusty main roads, with open windows and entrances allowing contamination.

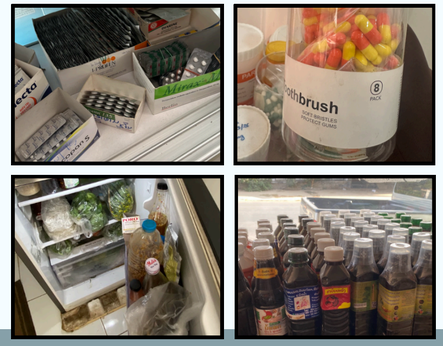


Fig 3 (top, left). Drugs are commonly dispensed by blister packs. **Fig 4** (top, right). Unidentifiable containers holding drugs. **Fig 5** (bottom, left). Domestic refrigerators holding food items. **Fig 6** (bottom, right). Unclear packaging for liquid drugs.

THEMATIC ANALYSIS

Diagram 1. Conceptual framework illustrating ice-berg phenomena of outcomes, issues, and underlying causes to practice standars of private pharmacies in Lao PDR

Expected Outcomes

- Complications from self-medicating
- Rise in Antimicrobial Resistance
- Poor health outcomes
- Limited access to healthcare

Visible Issue

- Variability in GPP Standards & Antimicrobial Stewardship

Root Causes

- Patient health literacy & behavior
- Separation from primary health care system
- Economic Constraints
- Manpower supply issues
- Regulatory gaps
- Drug sourcing in Lao PDR

Thematic analysis of IDIs and FGDs revealed critical insights into the challenges of self-medication, antimicrobial resistance (AMR), and healthcare access in Lao PDR.

- **Expected outcomes** included complications from self-medication, such as adverse drug reactions and delayed diagnoses, alongside a rise in AMR due to widespread antibiotic misuse. Poor health outcomes, including prolonged illness and increased hospitalizations, were linked to limited access to formal healthcare, particularly in rural areas.
- A **key visible issue** was the variability in Good Pharmacy Practice (GPP) standards, with inconsistent adherence to protocols, especially in rural and informal settings. Weak antimicrobial stewardship further exacerbated the problem, as pharmacies often lacked guidelines and training to promote rational drug use.
- **Root causes** were multifaceted. Low health literacy and cultural norms drove self-medication practices, while economic constraints pushed patients toward cheaper, unregulated alternatives. A fragmented healthcare system hindered coordination between pharmacies and primary care providers, and regulatory gaps allowed the sale of prescription drugs without oversight. Additionally, manpower shortages and challenges in sourcing quality-assured medications, particularly in remote areas, compounded these issues.

SOLUTIONING

The fieldwork was able generate and co-design solutions with the multiple stakeholders. However, amongst them is quintessentially an enhanced primary care framework in Lao PDR to integrates the functions of private pharmacies.

Private Pharmacies
Screenings
Vaccination
Medication Management

Patients
Access to care
Health literacy
Improved self-medicating practices

Primary Care Providers
Care plans
Oversights
Referrals

Diagram 2. Schema of potential enhanced primary care framework integrating private pharmacies

CONCLUSION

This study identified key barriers to GPP implementation in private pharmacies in Lao PDR and engaged stakeholders to co-develop feasible, policy-driven solutions. Key findings included:

- **Regulatory Gaps**: Weak enforcement of GPP standards and widespread over-the-counter antibiotic sales.
- **Resource Constraints**: Limited storage, inadequate inventory tracking, and lack of designated patient counselling areas.
- **Workforce Challenges**: Insufficient training on GPP and AMR, with difficulties in recruiting and retaining qualified staff.
- **Proposed Solutions**: Standardized medication labelling, pharmacy certification frameworks, structured training programs, public education and communication, and integration of private pharmacies into primary health delivery systems in Lao PDR.

Findings will support ICARS' research report and the draft national strategy for GPP and AMR in Lao PDR MOH. For future works, economic assessments will be conducted to understand economic implications for sustainable scaling GPP across Lao PDR. Health policy analyses and health impact assessments can further augment this work.

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