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Experience

Public Health Outreach in Impoverished Areas of Cambodia: Addressing the Issues Related to Prescription Practices

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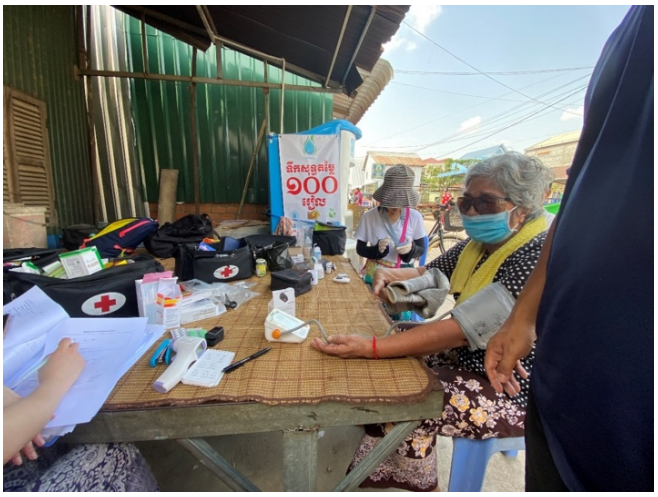
The Experience

The first and second authors of this manuscript participated in a two-week public health internship organized by Projects Abroad in Phnom Penh, the capital of Cambodia, from February to March 2023. During this period, we visited various locations such as elementary schools, community spaces, and facilities for people with disabilities in impoverished areas on the outskirts of Phnom Penh, conducting activities such as basic health check-ups and outreach lessons on health. In Japan, we engaged in fieldwork as medical students, focusing on identifying community challenges and considering how medical students could offer solutions. Our focus area was characterized by single-parent households whose children frequently suffer from relative poverty and a diverse foreign resident population, especially from the Asian region.[1] We participated in this internship to learn lessons on how to sustain and enhance our outreach activities in Japan. In this paper, we address the issues related to prescription practices observed through health check-ups during our internship, such as polypharmacy and medication misuse.

We visited each location every 1-2 weeks for health check-ups with a local pediatrician and staff from Projects Abroad. We brought simple diagnostic equipment such as thermometers, sphygmomanometers, glucometers, pulse oximeters, paper-based medical records, and a medication box (*Figure 1*).

The primary target of the health check-ups was older people residing in the surrounding areas. Since we visited during the day, most consisted of women, who kept to their houses. We conducted brief health interviews and vital sign checks for patients. We also prescribed medications from a limited range of drugs based on the patient's symptoms without making a specific diagnosis since the diagnostic equipment and medications were limited. For example, if a patient complained of stomach aches, we prescribed omeprazole as a response, irrespective of the specific location or nature of the abdominal pain. This may not happen in high-income countries, but this is not a rare practice in low and middle-income countries, especially in impoverished areas.

Figure 1. **Health Check-Up Station Operated by Medical Interns in Phnom Penh, Cambodia.**



Through this internship, we noticed two prescription-related issues: polypharmacy and medication misuse. First, easy access to medicines may promote polypharmacy in Cambodia. As there are over 3000 pharmacies in cities in Cambodia,[2] citizens could get medications without prescriptions at lower costs compared to medical institutions, potentially leading to self-medication.[3] When self-medication is the main source of pharmacotherapy, it can easily lead to polypharmacy, especially considering that our targets were older women, who generally have multiple symptoms. The clinical implications of polypharmacy cannot be overlooked; for instance, studies have reported that elderly patients prescribed more than five medications experienced a 4.5-fold increase in the incidence of falls,[4] and free-drug combination regimen increased the risk of medication non-

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compliance by 24% compared with fixed-dose combination.[5] In our check-ups, the most commonly prescribed medication for suspected hypertension was calcium channel blockers, which have numerous adverse effects such as constipation. To treat these adverse events, patients took medicines themselves from pharmacies, resulting in prescribing cascades. However, through these repetitions, we could neither identify if patients took medications through pharmacies nor what kind it was, since in some cases, patients themselves did not even know. Therefore, we proposed introducing documentation similar to Japan's prescription record books, which have been widely adopted to address polypharmacy. The prescription record book enables different facilities to share patients' medication records and serves to prevent excessive or duplicate prescribing. It would be helpful if patients could record the medications, they purchased at the pharmacy so that physicians would know what medications patients take during their health check-ups.

The second issue was medication misuse. The local physician verbally explained to patients about the effects, dosage, timings (such as morning, afternoon, evening, or before or after meals), and quantities of each prescribed medication. It is difficult to remember the details of medications just by listening to the explanation, especially when multiple medications are prescribed. Some people overdose on their medications, while others have low adherence due to a lack of understanding of the role of their medications. A previous study focusing on impoverished areas of Cambodia has indicated that individuals with lower family income tend to exhibit lower adherence rates.[6] Since our target area was characterized by relative poverty, addressing the medication information was significant. Therefore, we designed Drug Information Leaflets (DILs) indicating detailed information about each medication, which has been reported to improve medication adherence (*Figure 2*).[7]

***Figure 2*. Sample Drug Information Leaflets Utilized in Cambodian Public Health Outreach.**

ឈ្មោះថ្នាំ	ពេលណា (○=1 គ្រាប់)			អាហារ		តង្វិតាល
	ព្រឹក	ថ្ងៃត្រង់	ល្ងាច	មុន	ក្រោយ	
Multivitamin					○	អស់កម្លាំង, ភាពអត់ឃ្លាន, ភាពស្លេកស្លាំង ※ម្តងក្នុងមួយថ្ងៃ
PARACETAMOL	○	○	○		○	ឈឺក្បាល, ក្រុន, ក្រដាក់
AMLOCOR					○	5mg, 10mg សម្ពាធឈាមខ្ពស់
CALVIT-D	○	○	○			កង្វះជាតិកាល់ស្យូម, ជំងឺពុកឆ្អឹង
eyedrop						ចក្ខុវិស័យព្រិល ※1-3 ដងក្នុងមួយថ្ងៃ
LOKIT	○		○	○ (15 នាទីមុន។)		ឈឺពោះ
CTZ						អាស់ក្អែក,អាស់ច្រមុះ ※ម្តងក្នុងមួយថ្ងៃ
Diabetmin					○	ជំងឺទឹកនោមផ្អែម ※អាស្រ័យលើអ្នកជំងឺ
DECOLGEN						ឈឺក្បាល, ក្រុន ※រៀងរាល់ 6 ម៉ោងម្តង

ឈ្មោះថ្នាំ	ពេលណា (○=1 គ្រាប់)			អាហារ		តង្វិតាល
	ព្រឹក	ថ្ងៃត្រង់	ល្ងាច	មុន	ក្រោយ	
Multivitamin					○	អស់កម្លាំង, ភាពអត់ឃ្លាន, ភាពស្លេកស្លាំង ※ម្តងក្នុងមួយថ្ងៃ
PARACETAMOL	○	○	○		○	ឈឺក្បាល, ក្រុន, ក្រដាក់
AMLOCOR					○	5mg, 10mg សម្ពាធឈាមខ្ពស់
CALVIT-D	○	○	○			កង្វះជាតិកាល់ស្យូម, ជំងឺពុកឆ្អឹង
eyedrop						ចក្ខុវិស័យព្រិល ※1-3 ដងក្នុងមួយថ្ងៃ
LOKIT	○		○	○ (15 នាទីមុន។)		ឈឺពោះ
CTZ						អាស់ក្អែក,អាស់ច្រមុះ ※ម្តងក្នុងមួយថ្ងៃ
Diabetmin					○	ជំងឺទឹកនោមផ្អែម ※អាស្រ័យលើអ្នកជំងឺ
DECOLGEN						ឈឺក្បាល, ក្រុន ※រៀងរាល់ 6 ម៉ោងម្តង

Legend: The DILs included a photograph of the medication, names, effects, dosage, and timings (morning, afternoon, evening; before or after meals) written in the Khmer language.

Considering the low literacy rates, we tried to use more charts and photographs than text. In Cambodia, the literacy rates for individuals aged 15 and above were reported to be 73.6% (males: 84.7%, females: 64.1%) in 2007,[8] and 84% in 2021.[9] The area we visited for health check-ups consisted mainly of older women, and considering the particularly impoverished nature of our target region, the literacy rates would be much lower than the national average. The DILs were collaboratively discussed with the local staff, physicians, and other volunteers, focusing on their necessity.

Issues of polypharmacy and medication misuse can inadvertently jeopardize health. In Cambodia, non-communicable diseases (NCDs) are becoming a prevalent health issue. However, the untreated rates of NCDs in Phnom Penh are high, with reported rates for hypertension being 46.1% in males and 39.9% in

females, and for diabetes, 44.3% in males and 37.2% in females.[10] Our project plays an important role in caring for NCDs by continuously visiting specific areas. It is necessary to address polypharmacy and medication misuse to maximize the effectiveness of these health check-ups. Our medication record book and DILs could help solve some of these problems.

Recent outreach activities in Japan have been challenged by the need to respect local cultures and customs in targeted areas without overstepping boundaries as outsiders. However, our experience highlighted the potential to incorporate new approaches and methods from external perspectives. For example, introducing medication record books and DILs could improve local healthcare. Based on this experience, we aim to actively explore approaches that consider the resources and needs of the local community, examining the issues from an overarching perspective rather than feeling constrained as outsiders. Embracing the role of people from different areas or regions, we aspire to explore implementable approaches that could gradually disseminate and become integrated into the region's healthcare landscape, even in the years and decades to come.

Summary – Accelerating Translation

プロジェクト・アブロードがカンボジアの貧困地域で企画した2週間の公衆衛生インターンシップで、著者らはアウトリーチ活動の一環として地域住民の健康診断に参加した。私たちは、医療機器や薬剤の制限から、個々の患者の状態を診断したり考慮しない症状ベースの処方に起因する、ポリファーマシーや薬剤の誤用などの問題を特定した。私たちはこれらの問題に対して日本のお薬手帳や薬剤情報提供書のような文書の作成を提案した。お薬手帳は、患者が薬局で購入した薬を自身で記録してもらい健康診断の際に医師に提示することで患者がどのような薬を服用しているかを共有しポリファーマシーの予防につながると考えられた。さらに本地域の識字率が低いことを考慮し、薬剤情報提供書には薬の詳細とイラストを掲載した。私たちは、非感染性疾患の対処において持続的な治療の必要性と、革新的な医療アプローチや改善を地域社会に導入するための外部からの視点の可能性を強調した。

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