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**Medicines in Health Systems: Advancing access,  
affordability and appropriate use**

**Chapter 5 – Annex 3**

**Thailand's Antibiotic Smart Use Initiative**

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Incentives in the healthcare delivery system—both financial and non-financial—often are misaligned. This can result in underuse, overuse and misuse of drugs. For antibiotics, overuse can drive greater drug resistance. Thailand’s Antibiotics Smart Use (ASU) project has sought to improve the rational use of these medicines through a step-wise approach beginning by improving education over antibiotic use and overuse locally and lowering barriers to behavioral change by offering alternative treatments for non-bacterial infections.

ASU has unfolded in three phases. It began as a partnership with pharmacists and doctors from Srinakharinwirot University and Chulalongkorn University. They piloted educational and training reforms to improve rational prescribing in 10 hospitals and 87 primary health centers in the Saraburi province. During this first phase, the provincial health office monitored four areas: antibiotic prescription rates; provider attitudes of effectiveness and knowledge of antibiotics; non-prescription rates in cases of non-bacterial infections; and patient health and satisfaction. Applying these same indicators, the second phase scaled up this intervention to 44 hospitals and 621 primary health centers in 3 provinces and two hospital networks. The National Health Security Office (NHSO) piloted a pay-for-performance system to realign financial incentives to prescribers and providers. Under the guidance of the Thai FDA, local health authorities managed this initiative with additional assistance from the NHSO and the Health Systems Research Institute. The third phase has strengthened and grown this network to 22 public hospital systems in 15 provinces, with the focus on longer-term sustainability (1).

Without hierarchical leadership, Antibiotics Smart Use built decentralized networks that engaged local partners to adapt these guidelines in their own healthcare settings and communities. These local partners were comprised of networks of multidisciplinary groups across the healthcare, government and academic sectors. They included hospital directors, provincial health administrators, university researchers, medical and pharmacy students as well as local physicians, nurses and pharmacists.

Thailand’s Drug Act classifies antibiotics as drugs with potentially serious side effects or *ya-an-talai* which literally means dangerous drugs. Colloquially, however, antibiotics are sometimes called *ya-gae-ug-sep*, which means “drugs that counter inflammation.” This reinforces the layperson’s belief that all inflammatory symptoms can be cured with antibiotics, whether or not the cause is bacterial. Through local partners, Antibiotics Smart Use has worked to address these local misperceptions about the purpose of these important medicines.

The program targeted three conditions not requiring antibiotic treatment--upper respiratory infections, acute diarrhea and simple wounds. Antibiotics Smart Use focused its efforts on healthy ambulatory patients older than 2 years old, but took care in excepting those who were hospitalized, diagnosed with diabetes or a compromised immune system, or suffering from serious co-morbidities.

In the first phase of the ASU intervention, educational programming consisted of a half-day training focused on clinical guidelines targeting physicians, nurses and pharmacists. These efforts bolstered provider self-confidence that antibiotics were neither appropriate nor needed for treating patients with a viral infection. The program equipped healthcare providers with posters and pamphlets to communicate better with patients and white light illuminators in lieu of flashlights to improve the diagnosis of sore throat. Sharing the names of healthcare providers committing to the pilot along with the treatment guidelines helped to encourage greater local participation by others.

During the pilot phase, hospitals received seed money from WHO and the Thai FDA to fund the implementation and evaluation process. ASU officials found that local networks took initiative in approaching these problems. The ASU project has encouraged ownership among local partners by enabling them to brand and design locally effective methods to improve the use of antibiotics in their communities, bolstered by regional and national support networks and educational and some financial guidance (1). The project seeks to integrate these changes into local healthcare systems by influencing individual behavior rather than enforcing guidelines through a heavy-handed, top-down approach.

In Cha-lae District in Songkha Province, ASU advocates added the principles of rational use of antibiotics into their own local "health constitution," and they signed memoranda of understanding with grocery store owners not to sell antibiotics over the counter. In the Muaklek District in Saraburi, the ASU network enlisted not only local hospitals, but also the community bank in efforts to promote rational use of antibiotics. The community bank rewarded patients who successfully completed a self-assessment quiz on how to care for oneself without antibiotics in the face of an upper respiratory infection, acute diarrhea or a simple wound. An educational booklet provided a checklist of steps for self-care, from drinking enough fluids to getting enough sleep, in responding to an upper respiratory infection. The reward took the form of reimbursement for grocery items such as sugar or vegetable oil. This initiative engaged stakeholders across the community (2).

The network harnesses and shares success stories from local partners within the provider, hospital and pharmacist networks. In propagating this intervention, social media, the ASU website and a newsletter distributed to health facilities helped to spread the word to all 77 provinces. A sequence of meetings brought together local stakeholders to evaluate the effectiveness of their current approach and to strengthen cooperative efforts. Extending this outreach, seed monies supported data collection and monitoring by hospitals, and training on treatment guidelines increased physician confidence. DVD players offered a way to educate patients; however, this did not always compete effectively for the attention of patients waiting to be called in crowded waiting rooms (1).

The first stage of the ASU project resulted in impressive declines in antibiotic prescription rates in hospitals (decreases ranging between 18% and 23%) and in primary health centers (decreases between 39% and 46%) (3). Scaling up the ASU project, the second phase has involved 44 hospitals and 621 health centers in three provinces as well as two hospital networks. A third phase began in 2010 to ensure sustainability of these policy initiatives.

Persuaded by the success of ASU's phase 2 results, the National Health Security Office (NHSO)--responsible for universal health coverage for 47 million Thais--changed the capitated, pay-for-performance system to ensure greater compliance with antibiotic prescribing guidelines. It did so by moving from a process evaluation to an output evaluation. The process evaluation had relied on a checklist of key activities while the output evaluation measured the actual level of antibiotic prescriptions for upper respiratory infections and acute diarrheal cases.

In addition to these measures, ASU developed packages of herbal medicines for non-bacterial infections to offer providers another option for treatment. These traditional Thai medicines were approved on the national formulary for relieving symptoms of viral infections and were packaged in capsules similar to antibiotics. This afforded an alternative for prescribers who might otherwise have overprescribed antibiotics to placate patients insistent on drug treatment. However, herbal medicines are not without side effects, and providers are being taught that the best treatment at times may be watchful waiting.

The ASU project also recognized that pharmacists were rewarded for dispensing more antibiotics under a fee-for-service system. This fee-for-service system still applies to Thai civil servants and those willing to pay privately out-of-pocket. To curb potential overuse of antibiotics in these setting, the ASU project conducted a pilot study that focused on lowering consumer demands for these drugs.

Participating pharmacies enabled consumers to self-diagnose whether they likely had a bacterial throat infection based on four clinical criteria. Using a stand with a mirror, the patient could examine his own tonsils with a tongue depressor and white light illuminator and contrast this against side-by-side pictures of typical bacterial and viral throat infections. When consumers asked for antibiotics, pharmacists would ask them for their self-evaluation. By providing alternatives that relieved the patients' symptoms, the pharmacists both reduced inappropriate antibiotic use and also realized income from offering these substitute remedies. While not preventing the over-the-counter purchase of antibiotics, the pilot study found that over 90% of the 998 patients fully recovered and greater than 80% were satisfied with treatment outcomes (2).

ASU believes these types of interventions may be the next step to addressing challenges in the fee-for-service model. The ASU project has also looked into the incentives under the Diagnosis-Related Group-based payment system and into establishing an audit system that would provide hospital-level comparisons. Where positive financial incentives may not suffice, these may, in the future, need to be complemented by negative financial incentives, or penalties.

The Antibiotics Smart Use project in Thailand shows the interplay between providers and patients, national guidelines and locally inspired efforts to implement them, and incentive systems and culturally mediated interventions. The project reveals the importance of local stakeholder ownership as well as the challenges of sharing and scaling these practices and sustaining such efforts.

## References

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