Mystifying medicines and maximising profit: antibiotic distribution in community pharmacies in Thailand

Panoopat Poompruek[a], Anna Perris[b]*, Phakha Whanpuch[c], Clare Chandler[b], Luechai Sri-ngernyuang[c]

[a]Department of Community Pharmacy, Silpakorn University, Nakhon Pathom, Thailand; [b]Department of Global Health and Development, London School of Hygiene and Tropical Medicine, London, UK; [c]Department of Society and Health, Mahidol University, Nakhon Pathom, Thailand

Corresponding author: Anna Perris; anna.perris1@lshtm.ac.uk

London School of Hygiene and Tropical Medicine

15-17 Tavistock Place, London WC1H 9SH United Kingdom

Abstract

Thailand's antimicrobial stewardship strategy has focussed on promoting 'rational drug use' in the public sector, to reduce the threat of drug resistance and control healthcare expenditure. The strategy's next ambition is to attend to the private sector, where antibiotics are widely available over the counter without prescription. Using ethnographic and survey data, this paper follows antibiotics through community pharmacies, to explore drug distribution and access, and identify potential challenges for stewardship. We extend the analytical frame beyond 'irrational' dispenser-customer transactions, to explore the logics of practice of a multiplicity of actors in the context of a highly competitive pharmaceutical market. Highlighting the role of the pharmaceutical industry in mystifying medicines, we show how antibiotics are collapsed into a category of 'strong medicines' and requested by customers using 'prescriptions by proxy'. We further examine how Thailand's drug regulation and classificatory systems, historically orientated around access to medicines, enable the proliferation of antibiotics in the context of contemporary efforts to control distribution. Recognising the negotiations involved in dispensing antibiotics in a pluralistic health system, we attempt to reconfigure allocations of responsibility, advocating for stewardship approaches that take into account local ecologies of care, as well as implications for access, equity, and accountability.

Keywords: Thailand, antibiotics, community pharmacies

Introduction

Antibiotics are widely available to purchase over the counter in community pharmacies in Thailand, without prescription. Currently, there are 4,237 antimicrobial products registered for human and animal use in Thailand, representing 24% of total drug registrations (Food and Drug Administration, Ministry of Public Health, Thailand, personal communication, 4 February 2021). The diversity of antibiotics available reflects a drug distribution and classification system orientated around access to essential medicines, where the regulatory focus has historically been on access to safe and quality medicines, and pharmaceuticals have been commodified as key healthcare deliverables. In the context of a highly competitive pharmaceutical market and pluralistic health system, antibiotics can be seen as a 'meeting point' (Van der Geest, 2006), undergoing a constant rearticulation through the mediation of a diverse set of interests, exchanges and practices (Seeberg, 2012). In this paper, we explore the distribution of antibiotics and mystification of medicines in community pharmacies in Thailand, to understand the proliferation of antibiotics available, and potential barriers to antibiotic stewardship.

Antimicrobial resistance (AMR) is recognised as a serious global concern, with significant health, social, and economic consequences. Globally, AMR is associated with approximately 700,000 deaths per year, with the burden of AMR appearing to disproportionately affect low- and middle-income countries (LMICs) (Ministry of Public Health and Ministry of Agriculture and Cooperatives, 2016; O'Neill, 2016). In Thailand, there are approximately 88,000 antibiotic resistant infections, and 38,000 associated deaths per year, accounting for up to THB 42 billion in economic losses (Pumart et al., 2012; Sumpradit et al., 2017). The 'overuse' and 'misuse' of antibiotics is commonly cited as a key driver of AMR (Holmes et al., 2016). At an international level, the declining effectiveness of currently available antibiotics, combined with a limited research and development pipeline, has

prompted a renewed focus on efforts to preserve the efficacy of antibiotics and mitigate the spread of AMR through antimicrobial stewardship (AMS).

The Global Action Plan on antimicrobial resistance (GAP), adopted by member states at the World Health Assembly in 2015, outlines international efforts to mitigate the impact of antimicrobial use, and minimise the spread of AMR (World Health Organization, 2015). Thailand's first National Strategic Plan on AMR (2017-2021) (NSP) sets out six strategic objectives which are more specific than those in the global template (Ministry of Public Health and Ministry of Agriculture and Cooperatives, 2016). Following the NSP, antibiotic reclassification has been prioritised as the first step to controlling antibiotic distribution in Thailand, with the aim of ensuring 'access when needed, while preventing excessive use that may accelerate antimicrobial resistance' (Sumpradit et al., 2021)08/06/2022 08:46:00. This has involved market withdrawal of particular antibiotics (such as oral colistin and antibiotic lozenges for sore throats) and a three-phase re-classification plan based on the WHO AWaRe classification (World Health Organization, 2019). These efforts are ongoing, however, policy-makers are aware that reclassification affects a wide range of stakeholders, and attempts to regulate distribution of antimicrobials requires community engagement and 'clear explanations' of the rationale behind reclassification (Sumpradit et al., 2021).

Thailand has long been committed to tackling AMR and has been recognised for its antimicrobial stewardship efforts in the public sector (Sumpradit et al., 2017). The 'Antibiotic Smart Use' (ASU) program, established in 2007, was designed to promote rational drug use in public hospitals and community health centres through changing prescription practices for common, self-limiting conditions through education and training of healthcare professionals and patients. The programme was later extended to community pharmacies as a pilot project and has been identified as a model for promoting the rational use of medicines in Thailand (Sumpradit et al., 2012). However, antimicrobial stewardship efforts in the community have

been hampered by a paucity of data on antimicrobial consumption and use in community settings. Estimates of national antimicrobial consumption are currently based on import and sales data, however there is no comprehensive system for disaggregating antimicrobial consumption at the community level and monitoring distribution in the private health sector (Tangcharoensathien et al., 2017).

The private health sector in Thailand co-exists alongside government-run health facilities, and includes a variety of providers ranging from large private hospitals, clinics, community pharmacies, to informal drug-sellers (Liverani et al., 2020). Our focus in this paper is community pharmacies, which account for an estimated 26.7% of antimicrobial distribution in Thailand, and approximately 27.04% of total drug expenditure (Chanwatik et al., 2018; Donsamak, 2020). Community pharmacies are often the first point of contact for healthcare seeking in LMICs due to a range of factors, including ease of access, short waiting times, flexible opening hours, personal relationship, availability and cost of medicines (Basu et al., 2012). The proliferation of community pharmacies in urban areas reflects a lucrative and competitive medicines market in which pharmacies operate as profit-making businesses (Saramunee, 2011). The majority of pharmacies in Thailand (93%) are owned by private individuals who, to maximise profit, must maximise the number of customers and ensure customer satisfaction (Miller & Goodman, 2016). In her study of factors influencing the supply and use of antibiotics in community pharmacies, Donsamak found that customer satisfaction was frequently defined as the provision of antibiotics to achieve symptomatic relief from common ailments. In this way, antibiotics are built-in to 'good care', fuelling a potential conflict of interest embedded in financial and reputational incentives to dispense antibiotics (Donsamak, 2020).

Sales of antibiotics in Thailand are regulated by the Drug Act B.E. 2510 (1967) and amendments, overseen by the Drug Control Division of the Food and Drug Administration

(FDA) (The Constituent Assembly in the capacity of the National Assembly, 1967). The same drug classification system has been in place for over fifty years, with medicines classified into four categories. Most antibiotics are currently classified as 'dangerous drugs not requiring prescription'. This is in contrast to many other countries where antibiotics are classified as prescription medicines. In fact, Thailand is notable for its continued classification of a wide range of drugs, including antibiotics, as over the counter medicines (Leelavanich et al., 2020). Thailand's liberal drug classification system can be traced back to concerns around access to healthcare and medicines. Prior to the implementation of universal health coverage in 2002, health insurance was limited to government benefit packages and social security schemes, restricting access to healthcare and essential medicines. Concerns around access to medicines led to the distinction between Type I pharmacies - required to employ a full-time pharmacist and licensed to sell all types of medicines, including 'dangerous drugs' such as antibiotics - and Type II drugstores, licensed to sell non-dangerous household drugs. Nevertheless, antibiotics continue to be widely available from community pharmacies, and illegally distributed by drugstores, grocery shops and informal sellers throughout Thailand.

The existing anthropological literature has addressed patterns of use and distribution of pharmaceuticals in Thailand and other contexts. Anthropologists have advocated a 'biographical approach' to the study of pharmaceuticals, following medicines through their 'life-cycle' from production, marketing, and prescription to distribution, purchasing, consumption and efficacy – thereby broadening the scope of attention from the cultural interpretation of medicines, to an anthropology of pharmaceutical practice encompassing a wide range of political, economic, and social considerations (Geest et al., 1996; Nichter & Vuckovic, 1994). Multiple ethnographic studies have since detailed the specificities of pharmaceutical practice in different contexts, highlighting the often divergent interests and rationales of various stakeholders along the drug sales continuum (Kamat & Nichter, 1998).

These studies prompt critical consideration of the public health focus on 'rational drug use' and access to essential medicines over the last twenty years (World Health Organization, 2002). More recent work has focussed on how drugs are conceptualised as efficacious in everyday lives, and continuously rearticulated in the context of a global pharmaceutical nexus (Hardon & Sanabria, 2017).

The recent focus on antimicrobial resistance as a key global health issue has provided further impetus for the anthropological study of antibiotic distribution and use in different settings (Broom et al., 2021; Chandler, 2019; Chen et al., 2020; Denyer Willis & Chandler, 2019; Nahar et al., 2020). Existing research suggests that pharmacy practice in LMICs in Asia is frequently characterised by 'deficient knowledge and inappropriate treatment' (Miller & Goodman, 2016; Morgan et al., 2011), including a lack of 'rational use of medicines' (World Health Organization, 2002). Working in this framework of rationality – where dispensing should be the product of a history, diagnosis and prescription – several previous studies have highlighted the ongoing inappropriate supply of antibiotics in community pharmacies in LMICs (Apisarnthanarak et al., 2008; Donsamak et al., 2021; Jaisue et al., 2017). This is often compounded by insufficient history taking, lack of referral for follow-up medical consultation, and limited provision of information about medicines to customers and consumers (Saengcharoen & Lerkiatbundit, 2010).

In Thailand, medically inappropriate use of antibiotics has been observed for over twenty years (Boonmongkon et al., 2002; Sri-Ngernyuang, 1997). Of particular concern is the ongoing distribution of 'yaa chud', a form of self-medication involving the use of non-prescribed poly-pharmaceutical packs, often including antibiotics and steroids, purchased over the counter from pharmacies and grocery stores (Sunpuwan et al., 2019) In addition, antibiotics continue to be widely conceptualised as 'anti-inflammatories' (*Ya kae-ak-seep*) or 'germ killers', resulting in clinically inappropriate use for conditions such as non-bacterial

gynaecological complaints (Boonmongkon et al., 2002) Recently, Haenssgen et al found that despite relatively high knowledge of antimicrobial resistance in rural areas of Thailand, there remains a disjunction between knowledge and use of antibiotics, suggesting that awareness raising activities may have unintended consequences. Rather, they call attention to the structural factors and contexts which may drive 'irrational use' (Haenssgen et al., 2020).

Building on this earlier work on the anthropology of pharmaceuticals and antibiotic use in Thailand, this paper considers why, despite considerable efforts to regulate the distribution of antibiotics and 'rationalise' their use, they remain widely available in the community. We propose the analytical framings of 'mystification of medicines' and 'prescriptions by proxy' to investigate the ways in which antibiotics are marketed, packaged, and conceptualised, and explore the dynamics of drug distribution and demand in privately-owned community pharmacies. First, we call attention to how, in the absence of required prescriptions, antibiotics are acquired and circulate in the community, through 'prescriptions by proxy' in the form of old packaging, requests for familiar products, or simply 'strong medicines' effective for inflammation. Second, we show how these forms of 'consumer demand' occur in the context of a highly competitive pharmaceutical market in which dispensers, pharmacists, and physicians mystify medicines through a variety of means, including repackaging bottled drugs without providing appropriate information to consumers or removing labels from packaging to prevent consumers acquiring them elsewhere. Third, we explore the role of the pharmaceutical industry in the mystification of medicines and proliferation of antibiotics in the community through the creation of 'unique' products marketed for different pharmacies.

We suggest that these strategies result in a situation in which consumers are often unaware that they are purchasing antibiotics and therefore unable to make informed decisions about their use. In addition, this situation continues to benefit multiple stakeholders, and consequently, attempts to regulate the distribution and use of antibiotics continue to be strongly

resisted. By exploring the multiple rationalities and rationales by which antibiotics are accessed in community pharmacies in Thailand, we attempt to shift the fault-lines of accountability and responsibility beyond the 'irrationality' of individual dispensers and consumers, to attend to the ongoing contingencies and negotiations involved in the procurement and distribution of antibiotics in Thailand.

Materials and methods

The research forms part of a larger multi-country project on social science perspectives on AMR. The wider project, 'Antimicrobials in Society', considers how antimicrobials enable everyday life in different settings. The Thai study used a multi-sited ethnographic approach to explore antibiotic distribution and access in the private sector, and the ways in which these are shaped by situated pharmaceutical histories, interests, and political economies. Tracing attempts to control medicines through the discursive identification of 'irrational' dispensers and consumers, we investigated how a particular global politics of knowledge, in the form of appeals to 'rational drug use' and antimicrobial stewardship, is translated in Thailand's national strategic plan on AMR and operationalised through regulatory and educational interventions.

Study setting

The field-site, 'Kai Jai', was located in a peri-urban area of central Thailand, about 50 kilometres from Bangkok. The area consists of eight communities spread over 12 square kilometres, with a population of approximately thirty thousand people. The majority of residents are economic migrants, including Thai nationals who have relocated from other parts of the country, as well as migrant workers from Myanmar. Formerly an agricultural region dominated by orchards and rice fields, today, the area is comprised of factories, shopping malls, offices, and apartments, interspersed with disused canals and neglected orchards. Within the local area we found 17 privately-owned community pharmacies, 6 private clinics, 2 public hospitals, 2 private hospitals, 2 sub-district health promoting hospitals, 1 municipality health

centre, and numerous other health facilities located just outside the area. The concentration of private facilities in the area reflects the large customer-base available in this industrialised urban location, resulting in a highly competitive and saturated pharmaceutical market.

Data collection

Fieldwork was conducted between August 2018 and November 2020, and included qualitative interviews, focus groups, participant observation, and a household drug survey. 26 semi-structured interviews were conducted with 20 key stakeholders, including community and hospital pharmacists (n=6), pharmacy inspectors (n=4), pharmaceutical sales representatives (n=3), FDA official (n=1), health activist (n=1), sub-district health promoting hospital officers (n=3) and migrant workers (n=2). Interviewees were recruited via local pharmacist networks using a purposive sampling strategy designed to include stakeholders with a range of roles and perspectives on antibiotic distribution in community pharmacies in Thailand. Interviews were conducted by PP and LS face-to-face or remotely online or via telephone and lasted between 40-60 minutes. Following a pre-defined topic guide, interviewees were asked about the distribution, prescription, dispensing, marketing, retail, access to, and use of antibiotics, as well as antibiotic use in Thailand and the local area. Three focus groups were conducted with health volunteers, working age residents, and elderly residents (n=21) recruited via the sub-district health promoting hospital. The discussions were based on a pre-defined topic guide, and topics included the health status of adults in the local area, access to health services, health seeking behaviour, and use of antibiotics.

Participant observation was conducted in two privately-owned (Type I) community pharmacies by PP, PW, and LS. Pharmacy 1 had no licensed pharmacist on site and was managed by unqualified ‘drug sellers’; Pharmacy 2 was owned by a pharmacist, however drugs were also dispensed by relatives. Observations were conducted during the day and evening, paying particular attention to information exchange and types of antibiotics dispensed.

Historically, it has been difficult to gain research access to private pharmacies. We used several strategies to approach the pharmacies in our study. First, a letter detailing the research and requesting fieldwork access was sent to the provincial health office, the director of the district hospital, and the district health office. Second, LS has been conducting fieldwork in this region for over twenty years and has long-standing research partnerships with local healthcare professionals. In addition, PP's dual role as a practising pharmacist and anthropologist facilitated research with local pharmacist colleagues. Interviews and observations at local pharmacies were arranged through these professional networks.

We also conducted a household drug survey in 95 households across three communities in the sub-district. Households were recruited via the community health centre and selected for participation based on availability during the research period. The survey included four sections: demographic information; health status; household medicines; medicine storage. Antibiotics were identified and categorised according to the World Health Organization's AWaRe classification database of antibiotics (World Health Organization, 2019). Follow-up questions were used to elicit further details about antibiotic access and use. In addition to ethnographic and survey data, we reviewed key legislation and policy documents relating to pharmaceutical regulation, distribution, and access in Thailand, and relevant to Thailand's antimicrobial resistance strategy.

Data analysis and ethical approval

Interviews and focus group discussions were conducted in Thai and audio recorded. Following data collection, interview recordings were transcribed verbatim and translated into English using a meaning-based approach. Fieldnotes were summarised and translated into English. A coding framework was developed through an inductive process whereby the authors independently reviewed the transcripts to identify recurrent themes and cross-check interpretations (Pope, 2000). Data from the household drug survey were entered into Microsoft

Excel 2019 and analysed using descriptive statistics including frequency, percentage, types and source of antibiotics found in each household. Ethical approval was obtained from the London School of Hygiene and Tropical Medicine Ethics Committee (Ref.15481, 2018), and Mahidol University, Thailand (Ref.159.1807, 2017). All participants were asked for their written informed consent to be involved in the research.

Results

In this section, we outline our findings based on ethnographic and survey data. We first describe pharmacy interactions - including requests for antibiotics through 'prescriptions by proxy' and the mystification of medicines in the context of a competitive pharmaceutical market. We then turn to a consideration of the regulatory and classificatory challenges which continue to enable proliferation of antibiotics in community pharmacies in Thailand.

Requesting antibiotics through 'prescription by proxy'

Sales of antibiotics in community pharmacies in 'Kai Jai' and the surrounding area are often customer-directed. In the absence of standardised packaging or required prescriptions, customers request antibiotics in a variety of ways. Strategies include describing the colour or shape of a familiar product, describing symptoms, requesting a particular brand or named antibiotic (e.g., 'amoxy' or 'yaa chud' mix), presenting a sample of packaging from a previous prescription, or occasionally providing a written prescription from a physician:

> *One evening, a middle-aged woman came to the store with an empty package of Cephalexin to show the seller. The woman had previously used the drug for a common cold. This time, when she had similar symptoms, she came with the leftover package of that drug to be sure that she would get the same. She told the seller, "I want to buy this strong drug to dry-up my nose", whilst showing him the empty packaging. On seeing*

the packaging, the seller turned his back and picked up a box of orange-grey capsules of Cephalexin 500 mg (Pharmacy observation, PP/PW).

Customers purchased antibiotics from pharmacies in our study area on behalf of themselves and others, for a variety of therapeutic and prophylactic reasons. In line with previous research, we found that antibiotics are commonly referred to as *'Ya kae-ak-seep'* – literally, 'a medicine to cure inflammation' – and widely understood as 'strong medicines' with quick effect, providing relief from a variety of common ailments, and enabling individuals to maintain activities of daily life in the context of economic and social precarity. Despite the interpretive collapse of different antibiotics into the category of 'strong medicines', customers are aware that these types of medicines are widely available in community pharmacies.

Whilst sales of antibiotics are theoretically restricted to licensed Type I pharmacies with a registered pharmacist, there is no limit on the quantity of antibiotics that can be purchased by a single individual or household. Customers frequently purchased bulk stocks of antibiotics on behalf of others, or on the recommendation of friends and relatives, as well as sharing medicines within and between households, or using left-over medications from previous prescriptions. In this way, packaging and prescriptions originating in other locations take on a life of their own, enabling request of medicines and prescription by proxy, and recalling successful resolution of previous symptoms.

Our household survey found that 32.63% of participating households (31/95) had a stock of antibiotics – of those households that had a stock of antibiotics, 81.08% had purchased them from the private sector. In the 31 households that had a stock of antibiotics, we found 37 individual items – an average of 1.19 per household. Amongst household antibiotic stocks, most were WHO-classified 'access' antibiotics such as amoxycillin, ampicillin, and tetracycline, although 3 households also had a stock of 'watch' category antibiotics, such as

Norfloxacin. In addition, through informal conversations with local pharmacists and pharmacy observations, we found that 1000-tab sized bottles of Tetracycline capsules are readily available and purchased by shrimp and fish farmers in the area, circumnavigating attempts to control antibiotic use in animal feed and agriculture.

The interactions between the private and public health sectors were also evident in customer descriptions of the various strategies through which they obtained 'strong medicines'. In the public sector, RDU targets mean that patients are often refused antibiotics for common, self-limiting conditions on the first visit to a healthcare facility, however, on the second visit for the same condition, patients are often able to procure antibiotics. Drug packaging from consultations with public healthcare providers is then taken to community pharmacies for 'refilling' at a later date for a separate condition, or continues to circulate amongst social networks as a prescription by proxy.

Mystification of medicines

Pharmacy dispensers described how they respond to customer requests by considering a number of factors, including presenting symptoms, the socio-economic status of the customer, and stock levels and availability of certain antibiotics in the pharmacy. For example, they might offer migrant labourers cheaper generic antibiotics based on an assessment of their working conditions and requirement for a 'quick fix' to enable them to return to work. One pharmacist-owner described how he tries hard to comply with rational drug use policies by avoiding dispensing antibiotics for common, self-limiting conditions. However, he confided that if a customer demands antibiotics, he will either accede to the request to avoid losing custom, or he might dispense paracetamol in a capsule-form as a similar-looking substitute, reasoning that, if the customer does not get what they want from the pharmacy, they will go and buy it from the grocery store instead.

Antibiotics purchased by pharmacies in wholesale quantities as 'bottled drugs' are commonly repackaged and sold for profit in smaller quantities or strips, without usage information, side-effect warnings, or product names. If customers cannot afford a complete course of antibiotics, they can purchase them in stages, buying a few pills at a time to see if they 'work' (resolve symptoms), and thereby utilising medicines as diagnostic devices in place of clinical consultation. Pharmacy owners justify this practice through appeals to environmental stewardship and equity, arguing that repackaging bottled drugs into smaller plastic bags reduces overall packaging costs and plastic waste, making antibiotics cheaper and more affordable for a wider range of customers.

During fieldwork, we frequently observed drug sellers dispensing antibiotics without providing any written or verbal information beyond dosing instructions. Some retailers appeared to purposefully mystify products by removing information labels from packaging, making medicines appear unique, and reducing customers' abilities to purchase these products elsewhere: *'They'll tear off the labels leaving only the blank pots, then put on the stickers indicating 'amoxy 500 dicloxa' to make sure the manufacturer remains unknown'* (Pharmaceutical representative, ID27). Further, the practice of dispensing 'yaa chud' continues to occur in pharmacies throughout our field site. Despite government attempts to control the distribution of yaa chud over the last fifty years, we found that pharmacy dispensers continue to sell antibiotics as part of poly-pharmaceutical packs with handwritten labels referring to the symptom or condition, rather than the contents of the drug package, resulting in a lack of awareness by the customer of the medicines they are purchasing:

> *The old man walked up to a drug seller in the community pharmacy and said, 'prepare me a yaa-chud for cold'. He explained that he had a runny nose, cough and slight fever. The seller then started preparing the yaa-chud by getting pills from different bottles –*

a white pill for runny nose, a white tablet for fever, a small yellow pill for cough, and a green-blue capsule of Amoxycillin. All the pills were then mixed together in one plastic bag and quickly handed to the customer in exchange for 60 baht without further comment (Pharmacy observation, PP/PW).

Similar mystification of medicines occurs in private medical clinics where physicians are allowed to manufacture, package, and dispense medicines, including antibiotics. Whilst community pharmacies are subject to regulation by the Drug Act B.E. 2510 (1967), private healthcare practitioners are regulated by professional acts and thereby escape regulatory oversight by the FDA.

Antibiotic differentiation and conceptual slippage

The marketing and advertising of antibiotics in Thailand further reflects the intense competition in the pharmaceutical market. To encourage customer loyalty, and compete in a saturated market, we found that pharmacy owners and physicians in private clinics work with drug manufacturers and representatives to stock 'unique' products. Pharmaceutical representatives advise retailers on the products available at other local facilities to ensure competitive advantage through product differentiation, or conversely, advise on the brands commonly prescribed by local clinics to ensure they stock these products. Consequently, multiple different versions of the same antibiotic product are manufactured with different colours, shapes, brand names and packaging. One pharmaceutical representative described this marketing technique as offering a point of differentiation when price points remained similar in local pharmacies:

'We need to find a point of sale […] we have a market survey to make our pill look unique to other manufacturers […] For example, we have a cheap Amoxil in pencil

capsules […] the pill becomes one of their [the retailer's] identities because there is no other hospital or pharmacy using the same pill because there's no text printed on the capsule […] It's mostly antibiotics, other medicines are difficult to change since the patients are familiar with the appearance of the pill' (Pharmaceutical representative, ID26)

Figure. 1

Amoxycillin products available in a community pharmacy in Thailand (Image credit: Panoopat Poompruek)

During fieldwork, we found that individual pharmacies commonly stock between 5-10 different versions of a single antibiotic. This variety enables dispensers to cater to the requests and circumstances of different customers. Different versions of the same antibiotic are also registered as separate products and marketed for particular symptoms under different brand names; for example, tetracycline is marketed for diarrhoea as Tc-mycin and Aureomycin, and for 'uterus pain' as Ganospec. These kinds of product differentiation strategies help to explain the proliferation of different versions of the same antibiotic in Thailand.

The popular product ‘Gano’, a brand of tetracyline widely marketed in Thailand for gynaecological conditions, including *‘mot luuk ak seep’* (‘uterus pain’), is an example of mystification of medicines resulting in unnecessary use of antibiotics unlikely to be effective for the intended condition. The packaging and name of this product closely resembles ‘Ganamycin’, a popular antibiotic used to treat sexually transmitted diseases (STDs). Consequently, customers frequently associate ‘uterus pain’ with STDs. A further conceptual slippage can be observed in the common use of Gano by men and women for undefined back-pain, which is commonly associated with ‘uterus pain’ (Sringernyuang, 2000). This cascade of interpretive logic has resulted in the long-term therapeutic and prophylactic use of ‘Gano’ as a self-treatment by customers for a wide range of non-bacterial conditions. As discussed above, these practices have been observed for over twenty years and our research shows they continue to be prevalent in community-settings in Thailand.

These diverse marketing and retail practices mean that customers are often unable to identify medicines and are frequently unaware that they are purchasing antibiotics. In addition, customer’s use of drug samples and packaging acquired elsewhere to request repeated dispensing of ‘strong medicines’ means that pharmacy dispensers are also often unable to identify the most appropriate course of treatment for the current ailment, and simply supply the requested product to resolve symptoms at a ‘cheap price’. Further, several pharmacy dispensers suggested that whilst they were aware of rational drug use guidelines, other over-riding factors, including customer expectations, financial incentives, the competitive context of the pharmaceutical market, lack of access to diagnostic facilities, and concern to offer a ‘positive outcome’ influenced dispensing decisions.

Regulatory challenges

The challenges facing those charged with protecting the public in terms of both access to, and ‘excess’, of antibiotics, are well summarised by members of the FDA: ‘the Thai health

system is structurally conducive to the overuse of antibiotics because it allows physicians to dispense drugs, pharmacists to prescribe them and patients to medicate themselves' (Sumpradit et al., 2012). Historically, the focus of the FDA has been on ensuring the quality, safety and efficacy of drugs, with limited attention to the distribution, price and other aspects of market control, enabling the proliferation of different versions of antimicrobial products (Sommanustweechai et al., 2018). A movement of pharmacist-activists and civil society groups have long been campaigning for regulatory reform to address this situation. However, despite the significant changes in Thailand's health system over the past 20 years, there have been limited amendments to the drug classification system. In addition, attempts to mandate a separation between prescribing and dispensing by restricting the roles of physicians and pharmacists to prescribing and dispensing respectively, have been met with strong opposition from physicians, pharmacists, and consumers who all continue to benefit from the ability to dispense or procure antibiotics (Sumpradit et al., 2019)

Recognising the significant political and bureaucratic barriers to regulatory reform, attempts to rationalise the distribution of antibiotics and promote antimicrobial stewardship in community pharmacies have recently been folded into 'educational' interventions through the implementation of accreditation schemes and the linking of licensing to practice guidelines. In 'Kai Jai', whilst there is no formal stewardship programme required in private pharmacies, the community pharmacy association has attempted to integrate antibiotic stewardship practices into continuing professional development through seminars on RDU at monthly meetings of the provincial pharmacy network. However, there has been limited buy-in from local pharmacists and business owners.

In 2014, the FDA revised the licensing application for new pharmacies, requiring them to adhere to Good Pharmacy Practice (GPP) guidelines, including recording an up-to-date inventory of medicine sales, and promoting the rational use of medicines (Donsamak, 2020).

However, we found that regulatory control of antibiotic distribution is hampered by problems of enforcement. Pharmacy inspectors reported that they struggled to effectively perform their surveillance role due to the rapid proliferation of pharmacies in urban areas, and the political challenges of enforcing regulations. These challenges often lead to tacit acceptance of regulatory infringements, including perfunctory inspections, prior warning, and negotiation of sanctions. Consequently, it is practically impossible to trace medicines from production to consumption in the community, and accurate assessment of the extent and form of antimicrobial distribution in community pharmacies remains elusive.

Discussion

This research responds to observations that antimicrobial products, including critically important antibiotics, continue to be widely available in community pharmacies in Thailand over the counter without prescription. In the context of a renewed global impetus on antimicrobial stewardship following the development of the global action plan on AMR in 2015 and Thailand's national strategic plan on AMR in 2017, this has fuelled concerns around 'excessive access' to antimicrobials through 'irrational dispensing', resulting in self-medication and 'irrational use'. Our findings prompt a discussion that problematises the politics of knowledge inherent in behavioural approaches underlying current stewardship scripts. Highlighting the role of pharmaceutical companies in the mystification of medicines in a competitive pharmaceutical market, we shift the focus upstream to the diverse actors involved in the proliferation and promotion of antibiotics in community pharmacies in Thailand. As a result of the ongoing mystification of medicines by manufacturers, pharmaceutical representatives, pharmacy and clinic owners, and dispensers, customers are often unaware that they are purchasing antibiotics, and antibiotics are characterised generally as 'strong medicines' effective for inflammation.

These practices are enabled and maintained by a drug regulation and classification system that has remained substantively the same for over five decades. Thailand's Drug Act B.E. 2510 (1967) is orientated around ensuring the safety and efficacy of medicines. Whilst the stated rationales of Thailand's drug classification system align with other countries to classify prescription and non-prescription drugs according to the required involvement of health professionals, drug safety profiles, and other drug characteristics, the long-standing classification of antibiotics as 'dangerous drugs not requiring prescription' does not align with these concerns. As a result of the ongoing classification of the majority of antibiotics as 'dangerous medicines', antibiotics continue to be widely and legally dispensed in type I pharmacies, as well as illegally in type II drugstores and by other informal suppliers.

Following the implementation of universal health coverage, Thailand has increasingly turned its attention to promoting 'rational drug use' and antimicrobial stewardship by controlling access to and distribution of antibiotics through reclassification and regulation. However, failure to achieve significant traction with regulatory reform has led to an increasing emphasis on the politics of persuasion, through the folding of regulatory changes and guidelines into pharmacy accreditation and licensing schemes. These measures do not appear to resonate widely with a dispensing system that is primarily dictated by a commercial model in which customers equate access to antibiotics with 'good care', and business owners are keen to maintain custom by ensuring customer satisfaction. In addition, efforts to improve pharmacy dispensers' knowledge and practice through educational interventions aimed at promoting RDU have had limited success (Chalker et al., 2005). Indeed, the disparities that we observed between pharmacist's stated and actual dispensing practices suggest that interventions based primarily on a knowledge-deficit model will have limited impact in the context of significant social and economic pressures to dispense antibiotics.

By highlighting the mechanisms through which antibiotics are mystified in the context of a competitive pharmaceutical market, we have attempted to problematise the characterisation of dispensers and consumers as 'irrational' or ignorant. Rather, individuals negotiate often conflicting rationales and realities in their interactions with other actors, including pharmaceuticals. For example, whilst the 'mystification of medicines' by dispensers can be understood as a strategy to maintain a market advantage, our informants also justified this practice through appeals to environmental stewardship, increased accessibility to antibiotics for poorer customer, and prevention of self-medication through unmarked packaging. Similarly, whilst many customers appear to be unaware that they are purchasing antibiotics and subsume them under the category of 'strong medicines', this does not simply betray pharmacological ignorance. Rather, 'strong medicines' are utilised and recognised as a means through which to quickly recover from illness and maintain productivity in the face of precarity or insecurity. In this way, antibiotics can be understood as a 'quick fix' for care in lieu of addressing more systematic challenges, such as timely access to appropriate healthcare (Denyer Willis & Chandler, 2019). Interventions that focus solely on education, or regulation of dispensers as gatekeepers, fail to attend to these everyday contingencies and the pragmatic decision-making involved in the use of antibiotics, as well as the ways in which antibiotics are woven into local ecologies of care.

Conclusions

Framing antibiotic stewardship in terms of preventing irrational dispensing and self-medication by ill-informed providers and consumers obscures the complex dynamics and negotiations involved in procuring and consuming antibiotics in Thailand. By expanding the analytical frame beyond dispenser-consumer transactions, we have traced the influence of a diverse set of actors in mystifying medicines and ensuring antibiotics are 'built-in' to good care. These practices are embedded in a regulatory and classificatory system orientated around access to

essential medicines in the context of a pluralistic health system and competitive pharmaceutical market. Contemporary efforts to regulate distribution of antibiotics in community pharmacies and disrupt a system that continues to benefit a wide range of stakeholders face significant political and bureaucratic barriers. Further research to identify the specific levers to 'rationalise' antibiotic distribution in community pharmacies in Thailand should take into account the incentives of industry and professional actors across the system, rather than placing the burden of changing antibiotic use solely on dispensers and consumers.

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Declaration of interest statement

No potential conflict of interest reported by the authors.

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