Annals of Oncology 24 (Supplement 11): xi24–xi32, 2013
doi:10.1093/annonc/mdt500

Formulary availability and regulatory barriers to accessibility of opioids for cancer pain in Asia: a report from the Global Opioid Policy Initiative (GOPI)

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Asia is a heterogeneous region with substantial variability in economic, social and palliative care development. While the global consumption of opioids has increased, the consumption in most Asian countries has not increased at the same rate. This is the first comprehensive study of opioid availability and accessibility for cancer patients in Asia. Data are reported on the availability and accessibility of opioids for the management of cancer pain in 20 of 28 countries. The countries in the report represent 2515 million of the region's 2612 million people (96%). With the exception of Japan and South Korea, opioid availability continues to be low throughout most of Asia. Formulary deficiencies are severe in several countries, in particular Bangladesh, Myanmar, Afghanistan, Kazakhstan and Laos. Even when opioids are on formulary, they are often unavailable, particularly in the same countries. Access is significantly impaired by widespread over-regulation that continues to be pervasive across the region.

introduction

Asia is a heterogeneous region with substantial variability in economic, social and palliative care development. The region has diverse governance within its nations and is of diverse cultural origins and religious affiliations. Some of the region's countries have undergone significant political and social change over the last two decades. Palliative care provision is at varied stages of development throughout the region [1]. Few countries in the region have palliative care policies, and in many parts of the region pain management has been surrounded by myths, cultural bias and attitudes formed from historical experiences with opioids.

Asia carries a disproportionate part of the global burden of liver, esophageal and stomach cancer; with 50-70% of new cases worldwide occurring in Asia [2]. The incidence of lung and breast cancers is rising dramatically. The majority of patients with cancer are diagnosed with advanced-stage disease, and often the only realistic treatment options are pain relief and palliative care. Registry data from the region indicate that the regional burden of cancer continues to increase largely because of an aging and growing local population coupled with an increasing adoption of cancer-causing behaviors, particularly smoking.

Palliative care services throughout the region vary in their development. Singapore, and China-Hong Kong have very developed palliative care programs and have been rated highly in global surveys [3]. Other countries such as Afghanistan, Pakistan, Laos and Cambodia have poorly developed palliative care [1]. But even in some of those nations with well-developed palliative care, opioid consumption has often remained low (Figure 1).

While the global consumption of opioids has increased, the consumption in most Asian countries has not increased at the same rate. The area included in this report includes countries from two World Health Organization (WHO) regions namely the South East Asian Regional Organization (SEARO) and the Western Pacific Region Organization (WPRO). The morphine consumption in each region is compared with the increase in global consumption over the last 30 years (Figure 2). The WPRO increase has largely been due to an increase in opioid consumption in Australia, Japan and South Korea. There has been little increase in opioid consumption in SEARO, a region that includes India, which is considered independently in another report in this supplement [4].

The Asian Pacific Hospice and Palliative Care Network (APHN) has been active in the region with growth in palliative care in some of the regions of middle- and high-income countries. AHPN and the International Association for the Study of Pain have been working to start national palliative care associations and pain chapters within low-income countries of the region. But many impediments remain throughout the region in making opioids available to cancer patients.

This is the first comprehensive study of opioid availability and accessibility for cancer patients in Asia.

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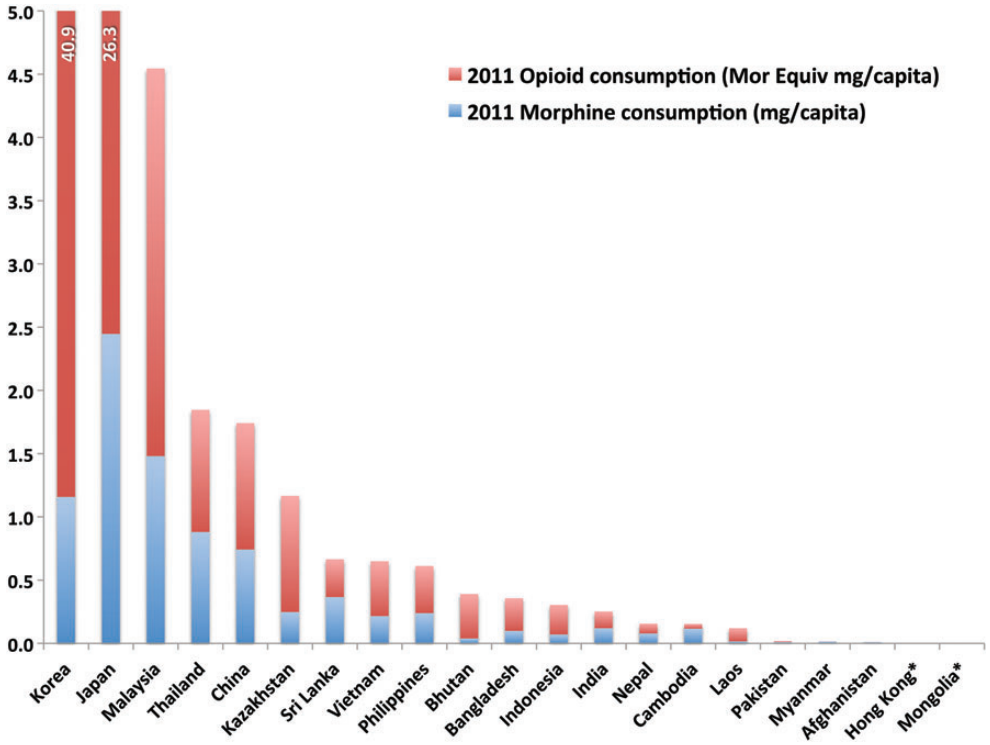

Figure 1. Rank order of opioid consumption (mg/capita in morphine equivalence without methadone) for surveyed Asian countries. Countries marked with * did not report.

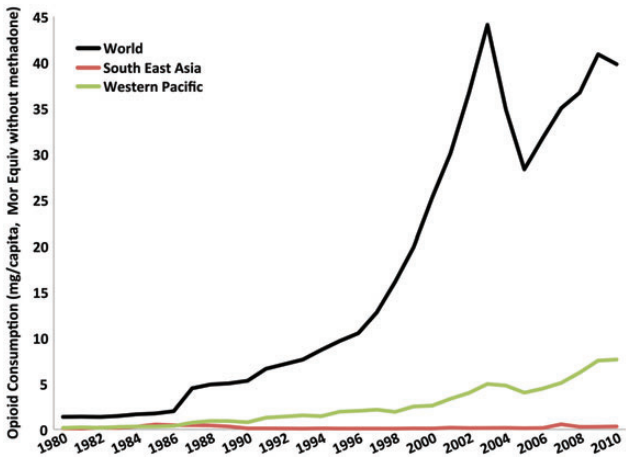

Figure 2. Comparison of opioid consumption (mg/capita in morphine equivalence without methadone) between the World, WHO South East Asia Region (SEARO), and WHO Western Pacific Region (WPRO) from 1980–2010.

methodology

Asia is defined for the purposes of these studies as countries extending from Japan in the East to Pakistan in the West, and from Mongolia and Kazakhstan in the North to Indonesia in South. Representatives from 20 countries submitted reports: Afghanistan, Bangladesh, Bhutan, Cambodia, China, China-Hong Kong, Indonesia, Japan, Kazakhstan, The Republic of Korea (South Korea), Laos, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam (see Cherny et al. [5]).

results

Data are reported on the availability and accessibility of opioids for the management of cancer pain in 20 of 28 countries. No data were submitted from Brunei, Maldives, Mongolia, Singapore, Taiwan, Tajikistan, Turkmenistan and Uzbekistan. The countries in the report represent 2515 million of the region's 2612 million people (96%). Afghanistan is also presented with the Middle East [6], and India is included in a separate paper [4].

formulary availability and cost of opioids for cancer pain

The availability of opioids and their cost to consumers are summarized in Figure 3 and show great variability throughout the region. Codeine and Morphine were the mostly commonly available formulations. China, Malaysia and the Philippines had all seven medicine formulations available, while five other countries (China-Hong Kong, Japan, South Korea, Thailand and Vietnam) had six of the seven formulations. Cambodia and Laos only had access to injectable morphine, while Kazakhstan had access to only injectable morphine and transdermal (TD) fentanyl. Seven countries (Afghanistan, Bangladesh, Bhutan, Cambodia, Kazakhstan and Laos) did not have oral immediate release (IR) morphine available. Five countries only had access to three formulations (Afghanistan, Bangladesh, Bhutan, Myanmar and Pakistan). Oxycodone IR was available in five countries, and methadone was available in seven countries. Fourteen of 20 countries had access to TD fentanyl.

In approximately half of the countries (11 of 20), the medicines were provided to patients at no cost or <25% of the

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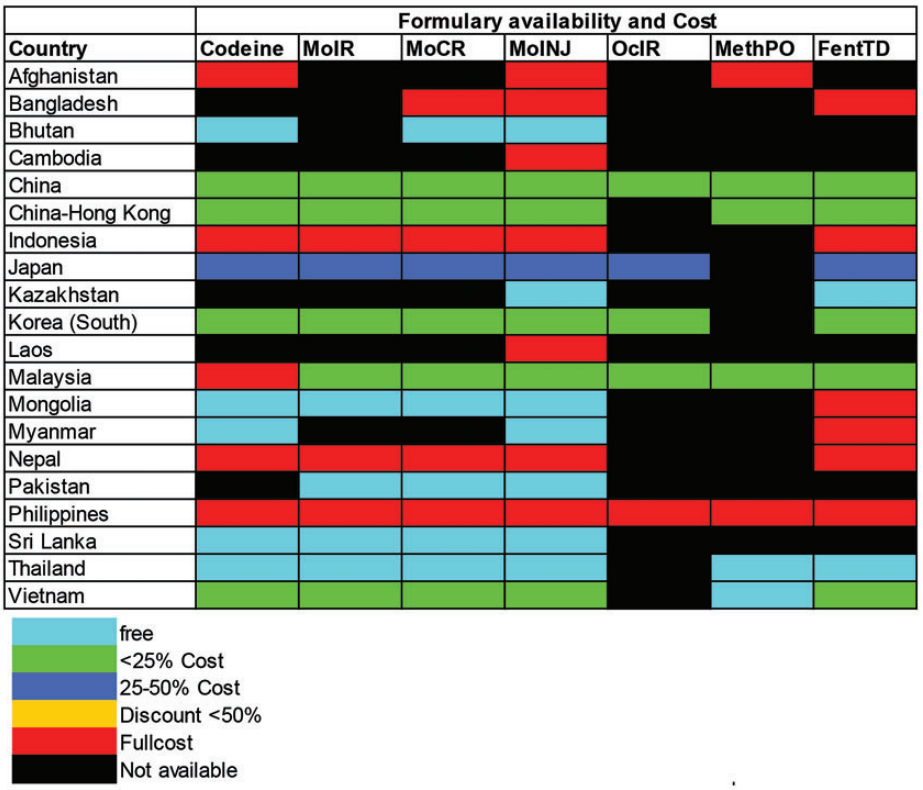

Figure 3. Formulary availability and cost to patients of the seven essential opioid formulations of the International Association for Hospice and Palliative Care (IAHPC) in Asian countries. MoIR = immediate release oral morphine, MoCR = controlled release oral morphine, MoINJ = injectable morphine, OcIR = oral immediate release oxycodone, FentTD = transdermal fentanyl, MethPO = oral methadone.

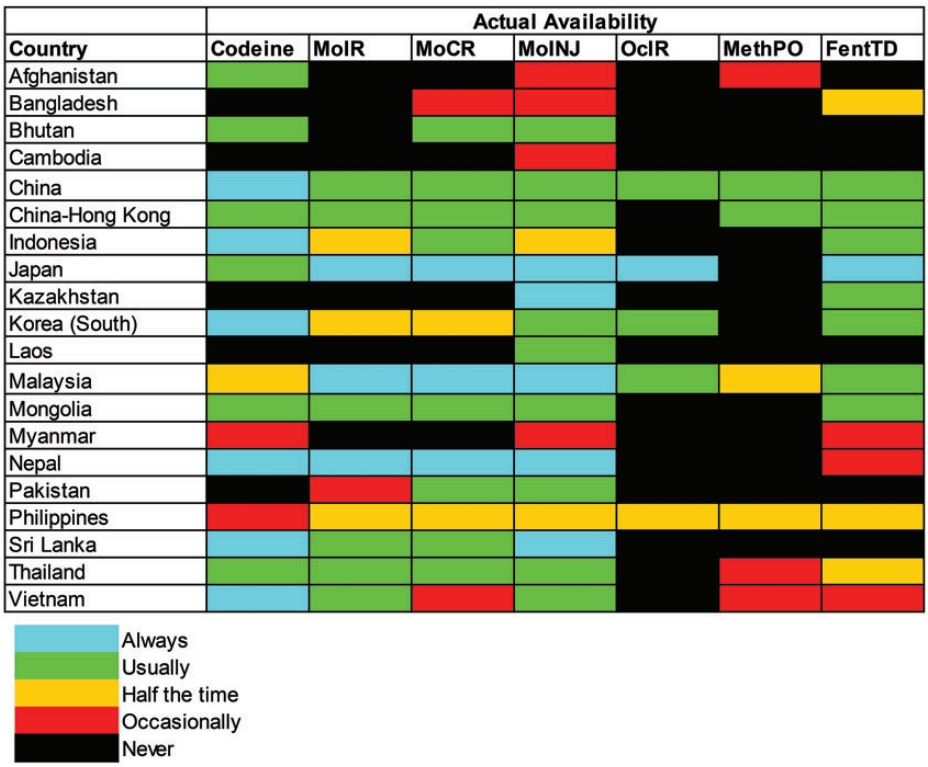

Figure 4. Actual availability of the seven essential opioid formulations of the IAHPC in Asian countries. MoIR = immediate release oral morphine, MoCR = controlled release oral morphine, MoINJ = injectable morphine, OcIR = oral immediate release oxycodone, FentTD = transdermal fentanyl, MethPO = oral methadone.

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cost. Patients paid full cost of all medications in Bangladesh, Cambodia, Indonesia, Laos, Nepal and the Philippines.

Most formulations were reported available 'always' and 'usually' (Figure 4). However, Pakistan reported only occasional IR morphine, while Afghanistan, Bangladesh, Cambodia and Myanmar reported only occasional access for those opioid formulations on formulary.

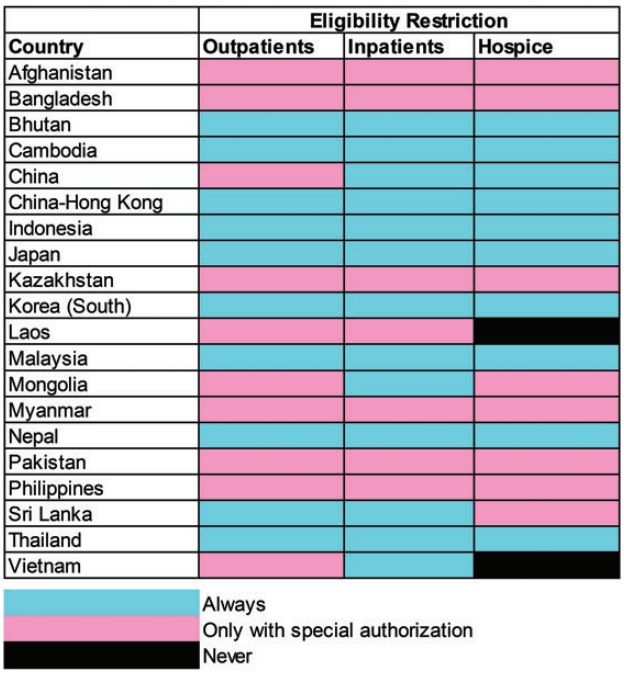

Figure 5. Eligibility restrictions for cancer patients in Asian countries.

regulatory restrictions to accessibility

Countries used a range of regulatory restrictions to limit accessibility of opioids. Most countries had considerable restriction and these are detailed below and summarised in Table 12.

requirement for permission/registration of a patient to render them eligible to receive an opioid prescription

Nine of the twenty countries have no patient restrictions. Six countries (Afganistan, Bangladesh, Kazakhstan, Myanmar, Pakistan and the Philippines) required registration for all three patient categories (i.e., outpatients, inpatients and hospice patients). In China and Vietnam special authority or registration was required only for outpatients, Mongolia required registration for both outpatients and hospice patients (Figure 5).

requirement for physicians and other clinicians to receive a special authority/license to prescribe opioids

All physicians are permitted to prescribe opioids in Afghanistan, Bhutan, Cambodia, China-Hong Kong, Indonesia, Japan, Korea, Malaysia, Nepal, Sri Lanka and Thailand. The remaining countries require special authorization for at least one physician group. Bangladesh only allows family doctors to write prescriptions in an emergency situation, while the same applies for surgeons in Mongolia. China does not allow family doctors to prescribe opioids. Nurses are allowed to prescribe with special authority in Bhutan and the Philippines, and in

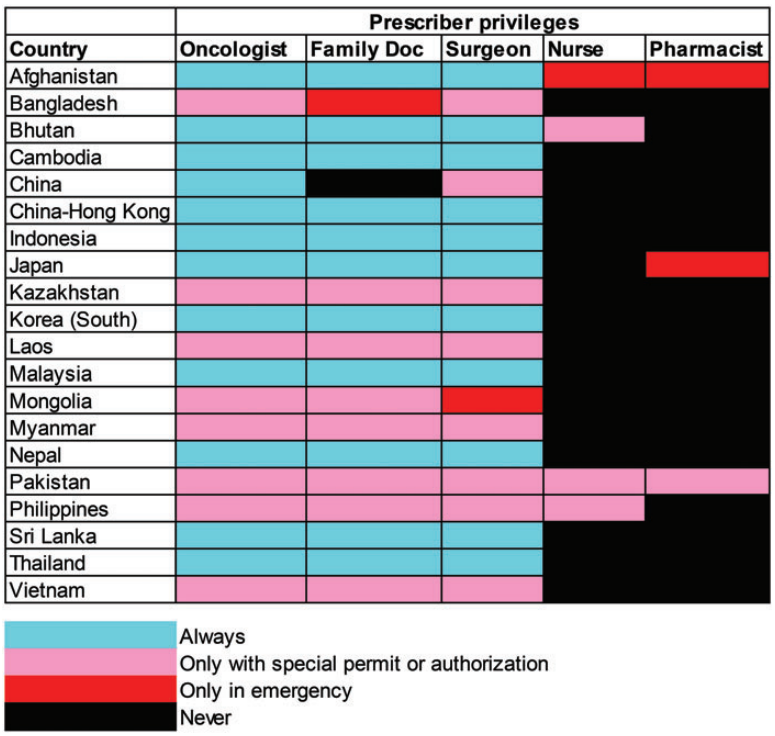

Figure 6. Opioid prescriber privileges for cancer patients in Asian countries.

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Country	Prescription forms: Duplicate or Triplicate	Special Prescr Forms	ready access to forms	Pay for forms
Afghanistan	not restrictive	restrictive	restrictive	not restrictive
Bangladesh	restrictive	not restrictive	Not relevant	Not relevant
Bhutan	not restrictive	not restrictive	Not relevant	Not relevant
Cambodia	restrictive	restrictive	restrictive	restrictive
China	restrictive	restrictive	restrictive	not restrictive
China-Hong Kong	not restrictive	not restrictive	Not relevant	Not relevant
Indonesia	restrictive	not restrictive	Not relevant	Not relevant
Japan	not restrictive	restrictive	not restrictive	not restrictive
Kazakhstan	Not relevant	restrictive	not restrictive	not restrictive
Korea (South)	not restrictive	restrictive	not restrictive	not restrictive
Laos	restrictive	restrictive	restrictive	not restrictive
Malaysia	not restrictive	not restrictive	Not relevant	Not relevant
Mongolia	not restrictive	restrictive	restrictive	restrictive
Myanmar	restrictive	restrictive	restrictive	not restrictive
Nepal	not restrictive	not restrictive	Not relevant	Not relevant
Pakistan	restrictive	restrictive	not restrictive	restrictive
Philippines	restrictive	restrictive	restrictive	restrictive
Sri Lanka	not restrictive	not restrictive	Not relevant	Not relevant
Thailand	not restrictive	restrictive	restrictive	not restrictive
Vietnam	restrictive	not restrictive	Not relevant	Not relevant

restrictive
not restrictive
Not relevant

Figure 7. Prescription restrictions in Asian countries.

Country	Max Days Opioids Supplied
Afghanistan	5
Bangladesh	14
Bhutan	30
Cambodia	7
China	7
China-Hong Kong	Physician discretion
Indonesia	
Japan	28
Kazakhstan	10
Korea (South)	Physician discretion
Laos	7
Malaysia	60
Mongolia	7
Myanmar	7
Nepal	
Pakistan	14
Philippines	30
Sri Lanka	28
Thailand	30
Vietnam	10

28+ days
15-28 days
1-2 weeks
< 1 week
No submitted data

Figure 8. Maximum number of days opioid supplied on single prescription.

emergency situations in the Afghanistan. In Pakistan those who have a special authority are allowed to prescribe and in Afghanistan they are allowed to prescribe in emergency situations (Figure 6).

requirement for duplicate prescriptions and special prescription forms

Approximately half of the surveyed countries had restrictions on prescription forms. Cambodia, China, Laos, Mongolia, Myanmar, Pakistan, the Philippines and Thailand had restrictive access to these forms, while Cambodia, Mongolia, Pakistan and the Philippines required payment for these prescriptions (Figure 7).

prescription limits

Half of the countries had limits of ≤2 weeks of opioids. Afghanistan had a 5-day limit, while Cambodia and Laos, China, Mongolia and Myanmar had a 7-day limit. Bangladesh, Kazakhstan, Pakistan and Vietnam had 10–14 day limits. Malaysia allows a maximum supply of up to 60 days, while South Korea and China-Hong Kong have no limits (Figure 8).

limitations on dispensing privileges

Most countries reported that opioids were only available in hospital pharmacies. Five countries (Bangladesh, Cambodia, China, Myanmar and Sri Lanka) reported that accessibility to dispensing was very limited (Figure 9).

provision for opioid prescribing in emergency situations

An emergency situation is defined as one when there is an immediate need for relieving strong cancer pain but the physician is not able to physically provide a prescription. Examples include a pain crisis at night, on a public holiday or in a remote region. Only in Afghanistan were pharmacists allowed to prescribe in emergency situations. Only five states allowed emergency prescribing by fax or phone, namely Bhutan, Indonesia, Laos, Malaysia and Pakistan (Figure 10).

pharmacist privilege to correct technical errors on a prescription

In the situation of a patient presenting with a prescription that contains a technical error (no address, mis-spelling, missing value, etc.), only Bhutan, Japan, South Korea, Laos and Pakistan allowed pharmacists to correct technical errors (Figure 10, last column).

use of stigmatizing terminology for opioid analgesics in regulations

Over half the country reporters identified negative language existing in drug laws and half had laws forbidding driving while on opioids (Figure 11).

discussion

Cancer continues to be an increasing problem throughout the world with an increase in cancer incidence in low- and middle-

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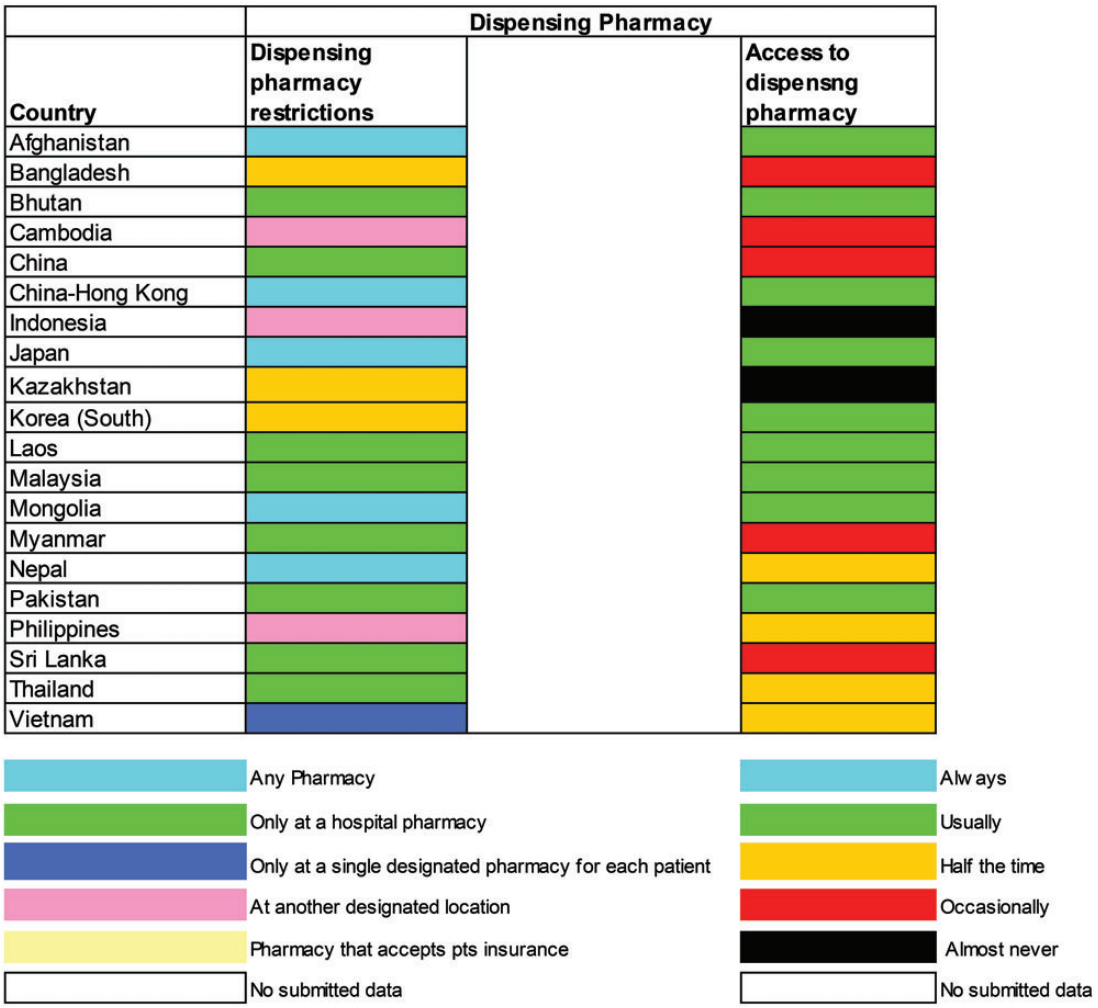

Figure 9. Dispensing pharmacy sites and their accessibility for Asian countries.

income countries. Overall the prevalence of cancer in Asia is high and most cancer patients present with advanced disease, commonly associated with moderate or severe pain.

Opioid consumption has been documented in various formats for Asian countries [7–9]. While many countries have shown an increase in consumption since 2000, most countries have 'concerning' consumption as defined by the International Narcotics Control Board (INCB) with a DDD (defined daily doses S-DDD) consumed per million inhabitants per day of <200 mg oral morphine equivalents [9]. The exceptions to this were China-Hong Kong, Japan and South Korea. All surveyed countries in Asia, except South Korea and Japan, have <10% of the anticipated Adequacy of Consumption Measure (ACM) for opioids (Table 1). ACM was not available for China-Hong Kong.

The approach to improving opioid consumption is guided by the WHO policy guidelines, *Ensuring Balance in National Policies on Controlled Substances, Guidance for availability and accessibility of controlled medicines* [10]. Moreover, the WHO Palliative Care Strategy states that *medication availability*, *education* and *government policy* must all be addressed and *implemented* if adequate pain relief and palliative care are to be provided.

medication availability

Approximately half the countries surveyed had limited access to the essential opioids as outlined by the IAHPC [11]. A number of countries have very limited access, particularly access to immediate release oral morphine. It is striking that even in countries with very limited opioid formularies, transdermal fentanyl was often among those formulations available with 14 of the 20 countries having that formulation available. It is widely recognized that pharmaceutical companies and importers are reluctant to invest in the registration and promotion of products, such as immediate release oral morphine or oxycodone that do not generate significant profit. In contrast, where there is room for profit from the promotion and marketing of proprietary products, such as transdermal fentanyl, there is greater commercial motivation.

Oral immediate release morphine has generally been available as tablets throughout the region with less reliance on morphine

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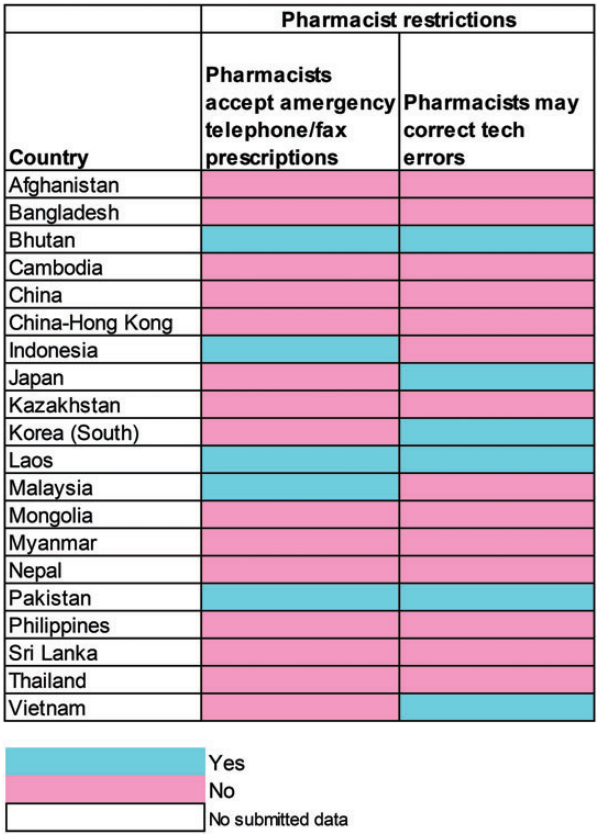

Figure 10. Pharmacy restrictions for Asian countries.

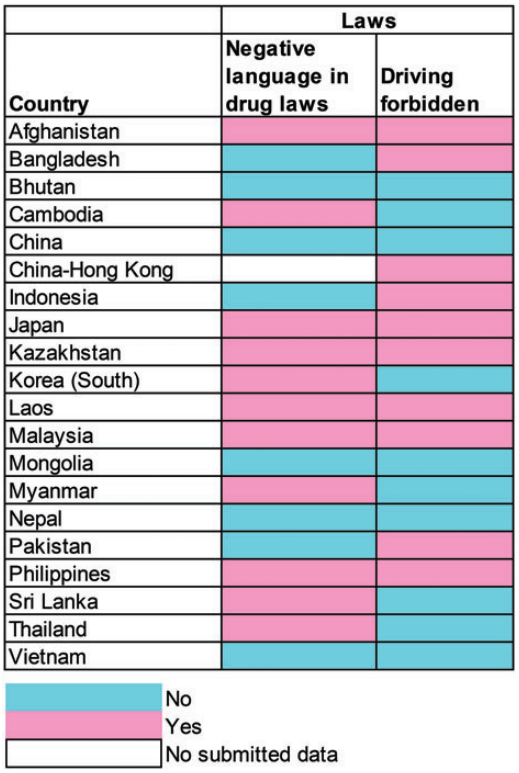

Figure 11. Negative laws regarding opioids in Asian countries.

syrup in Asia compared with other regions (e.g. Africa). Low-income countries usually rely on importing medications, while high-income countries often manufacture the various formulations within country. Due to import impediments, Nepal, a low-income country, has commenced production of its own immediate and controlled-release morphine [12].

education

Much work needs to be done in educating both patients and clinicians in the region on the role of opioids in cancer pain.

Many countries have commenced palliative care training in the region. In Japan, palliative care has developed significantly in the last 15 years as part of its comprehensive cancer control plan [13], including the recent release of new cancer pain guidelines [14]. But in many other counties in Asia, the palliative care knowledge among clinicians has not advanced as effectively. Of 219 Thai physicians, 62.1% had inadequate knowledge and 33.8% had negative attitudes towards opioids for cancer pain relief. The physicians identified both the lack of training opportunities and the periodic shortages of opioids as the greatest barriers to opioid availability [15].

There are Asian data to suggest that even when physicians have appropriate knowledge there are still barriers to implementation. This was illustrated by a survey of 200 clinicians in the Philippines. In this survey the responding physicians demonstrated a high level of awareness of the WHO analgesic ladder (72%) and the availability of opioids in their areas of practice (89.57%) but only 60% had applied for a license to prescribe opioids. Furthermore, there was a perceived resistance to prescribe strong pure opioid agonists and a preference to use step 2 combination formulations [16].

Patient concerns regarding the use of opioids for the management of cancer pain have been evaluated in Japan [17]. This study demonstrates the continuing presence of patient barriers and fears regarding the use of opioids to relieve pain.

government policies and regulations

Overall, this study found widespread evidence of over-regulation of opioid prescribing for the management of cancer pain. With the exception of Bhutan, Japan, Indonesia Nepal and South Korea, the majority of responding countries in the region reported four or more restrictive regulations that impaired access to opioids for pain relief (Figure 12). Indeed, there is an urgent need for regulatory review and the repeal of unnecessarily burdensome barriers to accessibility. The role of policy makers and regulators is critical in opioid availability. A Thai survey of physicians included a survey of 58 policy makers and regulators [15]. Three quarters of the policy makers and regulators had inadequate knowledge regarding the use of opioids in the management of cancer pain and two-thirds had negative attitudes regarding opioid analgesics.

Combined workshops with clinicians and regulators have taken place in the Philippines, Indonesia and Thailand. However, these alone have not resulted in significant increases in opioid consumption within individual countries. Increases in opioid consumption have been seen in two Asian countries that have engaged in the International Pain Policy Fellowship

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Program [18], namely Nepal and Vietnam [19]. India, Bangladesh and Sri Lanka are now participating in the International Pain Policy Fellowship Programs in collaboration with their respective governments. Other recent efforts have been made with the APHN with the support of the Lien Foundation 'Train the Trainers' programs have been carried out in Bangladesh, Myanmar, Laos and Cambodia.

Further strategies for improvement are given in the 'Next steps in access and availability of opioids for the treatment of cancer pain: reaching the tipping point?', the final chapter of this supplement [20].

Table 1. Comparison of S-DDD and %ACM [7–9] for selected Asian countries

	S-DDD 1997–1999[a]	%ACM 2006	S-DDD 2007–2009	%ACM 2010
Afghanistan	ND	ND	ND	0.01
Bangladesh	1	0.68	7	0.35
Bhutan	<1	ND	21	7.76
Cambodia	10	ND	6	0.10
China	30	1.10	68	1.18
China-Hong Kong	180	ND	208	ND
Indonesia	10	0.18	20	0.16
Japan	280	13.66	1023	15.54
Kazakhstan	50	ND	70	0.25
Korea (South)	210	7.2	1342	46.99
Laos	5	0.15	3	0.09
Malaysia	40	1.2	116	3.22
Mongolia	15	0.26	56	0.64
Myanmar	<1	0.03	<1	0.01
Nepal	2	0.17	9	0.39
Pakistan	<5	0.05	5	ND
Philippines	10	0.35	11	0.43
Sri Lanka	17	1.09	26	0.77
Thailand	60	1.33	67	1.65
Vietnam	10	0.49	29	0.65

[a]Calculated from International Narcotics Control Board (INCB) graphs.
S-DDD, defined daily doses consumed per million inhabitants per day; ACM, adequacy of consumption measure.

conclusion

With the exception of Japan and South Korea, opioid availability continues to be low throughout most of Asia. Formulary deficiencies are severe in several countries, in particular Bangladesh, Myanmar, Afghanistan, Kazakhstan and Laos. Even when opioids are on formulary they are often unavailable, particularly in the same countries. Access is significantly impaired by widespread over regulation that continues to be pervasive across the region.

There are substantial needs for educational initiatives, formulary review, and regulatory review and reform in most of the participating countries in this region.

funding

Self-funded by the coordinating partner organizations.

disclosure

The authors have declared no conflicts of interest.

references

1. Lynch T, Connor S, Clark D. Mapping levels of palliative care development: a global update. J Pain Symptom Manage 2013; 45(6): 1094–1106.
2. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. Int J Cancer 2010; 127(12): 2893–2917.

Country	Eligibility Restriction	Physician Precriber Resrictions	No emergency prescriptions by Fx/Phone or non medical prescribing	Limited prescription duration	No pharmacist authority to correct prescription	Increase bureaucratic burden of precriptions	Restricted dispensing sites	Negative language in laws	Number of restrictive domains (N/8)
Bhutan						Yes	Yes		2
Japan						Yes		Yes	2
Korea (South)			Yes					Yes	2
Indonesia					Yes	Yes	Yes		3
Nepal			Yes		Yes	Yes			3
China-Hong Kong			Yes		Yes	Yes	Yes		4
Malaysia					Yes	Yes	Yes	Yes	4
Pakistan	Yes	Yes				Yes	Yes		4
Vietnam	Yes	Yes	Yes				Yes		4
Mongolia	Yes	Yes	Yes	Yes		Yes			5
Sri Lanka	yes		Yes		Yes		Yes	Yes	5
Thailand			Yes		Yes	Yes	Yes	Yes	5
Afghanistan	Yes			Yes		Yes	Yes	Yes	5
Bangladesh	Yes	Yes	Yes		Yes	Yes	Yes		6
Cambodia			Yes	Yes	Yes	Yes	Yes	Yes	6
Philippines	Yes	Yes			Yes	Yes	Yes	Yes	6
Laos	Yes	Yes		Yes		Yes	Yes	Yes	6
China	Yes	Yes	Yes	Yes	Yes	Yes	Yes		7
Kazakhstan	Yes	Yes	Yes		Yes	Yes	Yes	Yes	7
Myanmar	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	8

Figure 12. Summary for Asian countries of regulatory barriers to opioid access for cancer pain relief.

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3. The Quality of Death: Ranking end-of-life care across the world [Internet]. eiu.com. (cited 2013 Oct 12). http://www.eiu.com/site_info.asp?Info_name=qualityofdeath_lienfoundation&page=noads.
4. Cleary J, Simha N, Panieri A et al. Formulary availability and regulatory barriers to accessibility of opioids for cancer pain in India: a report from the Global Opioid Policy Initiative (GOPI). Ann Oncol 2013; 24(Suppl 11): xi33–xi40.
5. Cherny NI, Cleary J, Scholten W et al. The Global Opioid Policy Initiative (GOPI) project to evaluate the availability and accessibility of opioids for the management of cancer pain in Africa, Asia, Latin America and the Caribbean, and the Middle East: introduction and methodology. Ann Oncol 2013; 24(Suppl 11): xi7–xi13.
6. Cleary J, Silbermann M, Scholten W et al. Formulary availability and regulatory barriers to accessibility of opioids for cancer pain in the Middle East: a report from the Global Opioid Policy Initiative (GOPI). Ann Oncol 2013; 24(Suppl 11): xi51–xi59.
7. Duthey B, Scholten W. Adequacy of opioid analgesic consumption at country, global, and regional levels in 2010, its relationship with development level, and changes compared with 2006. J Pain Symptom Manage 2013. http://eutils.ncbi.nlm.nih.gov/entrez/eutils/elink.fcgi?Dbfrom=pubmed&id=23870413&retmode=ref&cmd=prlinks (in press).
8. Seya M-J, Gelders SFAM, Achara OU et al. A first comparison between the consumption of and the need for opioid analgesics at country, regional, and global levels. J Pain Palliat Care Pharmacother 2011; 25(1): 6–18.
9. International Narcotics Control Board. Report of the International Narcotics Control Board on the availability of internationally controlled drugs: ensuring adequate access for medical and scientific purposes New York: United Nations. 2011; 1–88.
10. World Health Organization. Ensuring balance in national policies on controlled substances: Guidance for availability and accessibility of controlled medicines Geneva: World Health Organization; 2011; pp88. http://www.who.int/medicines/areas/quality_safety/guide_nocp_sanend/en/index.html.
11. De Lima L, Krakauer EL, Lorenz K et al. Ensuring palliative medicine availability: the development of the IAHPC list of essential medicines for palliative care. J Pain Symptom Manage 2007; 33(5): 521–526.
12. Mauer M, Bishnu P, Dowla R et al. Asian Pacific Hospice Congress 2013 Proceedings. The International Pain Policy Fellowship. Bangkok. Oct 2013.
13. Eguchi K. Development of palliative medicine for cancer patients in Japan: from isolated voluntary effort to integrated multidisciplinary network. Jpn J Clin Oncol 2010; 40(9): 870–875.
14. Yamaguchi T, Shima Y, Morita T et al. Clinical guideline for pharmacological management of cancer pain: The Japanese Society of Palliative Medicine Recommendations. Jpn J Clin Oncol 2013; 43(9): 896–909.
15. Srisawany P, Harun-Or-Rashid, Horosaw T et al. Knowledge, attitudes and barriers of physicians, policy makers/regulators regarding use of opioids for cancer pain management in Thailand. Nagoya J Med Sci 2013; 75: 201–212.
16. Javier FO, Calimag MP. Opioid use in the Philippines—20 years after the introduction of the WHO analgesic ladder. European J Pain 2012; 1(S1): 19–22.
17. Morita TT, Miyashita MM, Shibagaki MM et al. Knowledge and beliefs about end-of-life care and the effects of specialized palliative care: a population-based survey in Japan. J Pain Symptom Manage 2006; 31(4): 11–11.
18. Bosnjak S, Maurer MA, Ryan KM et al. Improving the availability and accessibility of opioids for the treatment of pain: the International Pain Policy Fellowship. Support Care Cancer 2011; 19(8): 1239–1247.
19. Krakauer EL, Ngoc NTM, Green K et al. Vietnam: integrating palliative care into HIV/AIDS and cancer care. J Pain Symptom Manage 2007; 33(5): 578–583.
20. Cleary J, Radbruch L, Torode J et al. Next steps in access and availability of opioids for the treatment of cancer pain: reaching the tipping point? Ann Oncol 2013; 24(Suppl 11): xi60–xi64.

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