Original Article

Availability and Affordability of Essential Palliative Care Medicines in Nepal: A Cross-Sectional Study

Rajeev Shrestha, BPharm, Bruce Hayes, MPH&TM, Arjun Poudel, PhD, and Daniel Munday, PhD

INF Nepal Green Pastures Hospital and Rehabilitation Centre (R.S., B.H., D.M.), Pokhara, Nepal; School of Clinical Sciences (A.P.), Queensland University of Technology, Brisbane, Queensland, Australia

Abstract

Context. The government of Nepal adopted the 2017 Nepalese National Strategy for Palliative Care (NSPC), which proposed that Essential Palliative Care Medicines (EPCMs) listed by the International Association for Hospice and Palliative Care (IAHPC) should be available at each healthcare institution. In 2017 after the issuing of NSPC, the Lancet Commission developed an EPCM list.

Objectives. To evaluate the inclusion of EPCMs recommended by both IAHPC and Lancet in national medicinal programmes, their availability, and affordability in Nepal.

Methods. A cross-sectional descriptive study of the availability of EPCMs in Nepal, and their inclusion in the national essential medicines list, government health insurance medicines list, government fixed rate medicines list, and free medicines list. Affordability was assessed using the World Health Organization Daily-Define-Dose and the Nepal Government-defined minimum daily wage.

Results. A total of 27 of 33 (82%) of the IAHPC-EPCMs and 41 of 60 (68%) of the recommended formulations were available in Nepal. All the Lancet Commission recommended EPCMs were available in Nepal. Morphine was available in all formulations used in palliative care. 22%, 18%, and 10% of IAHPC-EPCMs were available cost-free via district hospitals, primary healthcare centers, and health posts, respectively. The government had not included opioids on both free and fixed price lists. A total of 24 of 33 (73%) IAHPC-EPCMs were available on the Government Health Insurance Medicines List. A total of 19 of 41 (46%) available EPCMs were affordable.

Conclusion. Many EPCM formulations included in NSPC of Nepal are not available, and most available EPCMs are unaffordable if purchased out-of-pocket. While the availability is better with the government health insurance scheme, many people are not registered for this. Further improvements should follow the development of a Nepalese palliative care formulary. J Pain Symptom Manage 2024;000:1−8. *© 2024 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.*

Key Words

Affordability, availability, essential palliative care medicines, Nepal, palliative care

Key Message

This brief survey reported the scenario of the availability and inclusion of essential palliative care medicine in the government medicinal program of Nepal. Many IAHPC-recommended EPCMs are not available and not all these are available through the government health insurance scheme. The Lancet Commission recommended EPCMs are all available. Although the IAHPC-EPCMs are recommended in the National Palliative Care Strategy of Nepal, alternatives may be available. The proposed way forward is to develop a comprehensive palliative care formulary for Nepal.

Address correspondence to: Rajeev Shrestha, BPharm, INF Nepal Green Pastures Hospital and Rehabilitation Center, Pokhara-15, P.O. Box: 28, Pokhara, 33700 Province Gandaki, Nepal. E-mails: rajiv2stha@gmail.com, rajeev.shrestha@nepal.inf.org

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Introduction

To provide universal health coverage for palliative care, the World Health Organization (WHO) has stressed the importance of high-quality primary and community/home-based health care, which is affordable to all.[1] In Nepal, the government adopted a National Strategy for Palliative Care (NSPC) developed by the Nepalese Association of Palliative Care (NAPCare) in 2017.[2] Palliative care was included in the National Health Policy 2019.[3] NSPC aimed to provide palliative care services for all within 10 years, including the provision of essential palliative care medicines (EPCMs).[4]

The International Association for Hospice and Palliative Care (IAHPC) developed a list of 33 EPCMs in 60 formulations in 2007.[5] The Lancet Commission developed a more restricted list of 21 medicines for an essential package of palliative care and pain relief health services in 2017, which would be suitable for low and lower-middle-income countries such as Nepal.[6] The NSPC adopted the longer IAHPC-EPCMs list suggesting that these should be made available at all levels of healthcare in Nepal from health posts to tertiary hospitals at an affordable cost.[4] The Lancet Commission list was not available when the NSPC was published.

Nepal has several approaches to making medicines available and accessible. It has developed an essential medicines list, some of which are available free of charge at district hospitals (DH), primary healthcare centers (PHC), and health post (HP) levels.[7,8] Nepal has taken other important steps to ensure access to EPCMs. Morphine is manufactured in Nepal in palliative care formulations.[9] Whilst many low-and middle-income countries (LMICs) have concerns that making opioids widely available might lead to misuse and therefore restrict who might prescribe opioids, this is not the policy in Nepal, where any registered medical practitioner is able to prescribe morphine. Reluctance to make morphine available at the primary care level in other LMICs might be related to concern over potential misuse, although this has not been a problem in South Africa, where it is available at this level.[10]

A wider selection of medicine is now available in Nepal through the recently introduced health insurance scheme, designed to facilitate universal health coverage.[11] Despite these developments, the majority of patients in Nepal still use out-of-pocket payments for medical and medicinal services; medication affordability is therefore also an important factor.[12–14] As no previous studies have been undertaken, this brief survey explored the availability of essential medicines in Nepal for palliative care, as recommended by IAHPC and the Lancet Commission, their inclusion on national medicine lists, and assessment of their affordability.

Method and Methodology

This was a cross-sectional descriptive study of EPCM as recommended by IAHPC (33 medicines in 60 formulations) and Lancet Commission for Pain and Palliative Care (21 medicines without specific formulations given).[5,6] These medicines were compared with those on official medicines lists. The official medication lists downloaded and studies included: the essential medicines list of Nepal (2021); free medicines lists for DHs, PHC, and HP; Government Health Insurance Medicine List (GHIML) and Government Fixed Price List (GFRML) for essential medicines.[7,8,11,15] Availability in Nepal was assessed through checking the hospital pharmacies of Green Pastures Hospital and Bhaktapur Cancer Hospital, which provide palliative care services in Nepal,[16,17] by cross-checking with three online pharmacies (annapurnapharmacy.com,[18] epharmacy.com.np,[19] pharmacy.norvichospital.com[20]), and finally the drug information section of the Nepali Department of Drug Administration.[21]

The assessment of affordability was carried out by comparing WHO Daily Define Dose (the average daily maintenance dose for the treatment of its main indication in adults) with Nepal's government-defined minimum daily wage (577 Nepali rupees per day).[22] Medicines are considered unaffordable if the cost for one month supply is more than one day's minimum wage. This criterion is taken referring to similar studies and WHO tools designed for measuring the affordability of medicines.[23–25] Since there are no specific average dose references for EPCM, previously published WHO-recommended Daily Define Dose for these medicines were used.[26,27] The affordability calculation was made from medicine cost (maximum retail price) information provided by Green Pastures Hospital.

Data were cross-checked and analyzed with descriptive statistics using Microsoft Excel 2010. The study was conducted from April to August 2023.

Results

Availability of Essential Palliative Care Medicine

A total of 27 of 33 (82%) of the medicines listed on the IAHPC list were available in Nepal; however, only 41 of 60 (68%) of the specific recommended formulations were available. Morphine was available in all formulations used in palliative care—immediate-release tablets and syrup, long-acting tablets, and injections.

A total of 17 of 33 (52%) medicines on the IAHPC list were included on the national essential medicine list, whilst only 29 of 60 (48%) of the specific formulations were included. A total of 24 of 33 (73%) medicines and 36 of 60 (60%) of the specified formulations on the IAHPC-EPCMs were on the government health insurance medicine list. A total of 11 of 33 (33%) (13

of 60 [22%] formulations) of the IAHPC listed medicines were available on the district hospital free medicines list, 9 of 33 (27%) (11 of 60 [18%] formulations) at primary care centres and 6 of 33 (18%) (6 of 60 [10%] formulations) at health posts. No opioids including morphine were included on free lists, and their prices had not been fixed by the government (Table 1).

All of the Lancet Commission-recommended essential medicines are available in Nepal. A total of 20 of 21 (95%) were available on the health insurance list, 18 of 21 (86%) on the Nepal essential medicines list, and 11 of 21 (52%) were on the government free medicines list (Table 2).

Affordability of Available Essential Palliative Care Medicine

The Fentanyl transdermal patch (25 mcg) was the most unaffordable preparation costing 2582.2 days minimum wage, while the lowest cost medicine was dexamethasone tablets (0.5 mg). Following fentanyl patch, octreotide injection, morphine injection, gabapentin capsule, and midazolam injection were the most expensive medicines—ranging from 10.1−320.3 times the daily wage (Table 3).

Discussion

Whilst more than three-quarters 27 of 33 (82%) of the medicines on the IAHPC-EPCM list were available in Nepal, only 41 of 60 (68%) of the specific listed formulations were available. This is comparable to the findings of an Asia-Pacific Hospice Palliative Care Network (APCN) 2017 study, where the full or at least partial availability of IAHPC-listed medications was reported in 65% of 12 surveyed countries.[28] The more limited Lancet Commission (2017) EPCMs for primary care settings in LMICs were all available in Nepal. This list includes 13 of 33 recommended medicines of the IAHPC list. The Lancet Commission does not specify formulations.[6] The IAHPC list has not been revised since 2007, and it is unclear whether these medications remain the most appropriate in palliative care despite it being the standard used in the National Palliative Care Strategy (2017).[4] This study did not attempt to judge the relative importance of the listed formulations and the importance of their availability or absence. Further work needs to be done in this respect and the development of a palliative care formulary is ongoing.

Anyone in rural areas can access subsidized health care including free medicines at district hospitals, primary healthcare centers, and health posts. This study found that palliative care medicines access in these healthcare facilities are severely restricted with only 33%, 27%, and 18% of IAHPC-EPCM in any formulation available, respectively. Indeed, only half (52%) of medicines on the Lancet Commission (2017) list, which should be available in a primary care setting, are covered in the free list of district hospitals. District hospitals are able to stock medicines in addition to the free medicines provided by the government as the institutions have pharmacies, although it is unclear how many hospitals use this facility. Supply of such medicines will be charged to the patient. Health posts and primary healthcare centres do not supply any form of laxative or opioid which for patients requiring palliative care is a major lack. The formulations of available medicines on the rural healthcare free list are also problematic, e.g., dexamethasone and diclofenac are only available in injectable and not oral form. Lack of appropriate medication, for the increasing numbers of people needing palliative care in rural Nepal, including lack of morphine, the internationally recognized indicator of adequate palliative care,[29] suggests Nepal has not yet given palliative care the priority in rural hospitals it committed to when it signed the 2014 WHO declaration and adopted national palliative care strategy in 2017.[1,2]

Only the fentanyl transdermal patch is available in Nepal as an alternative to morphine; oxycodone and methadone are unavailable. Fentanyl is hugely expensive and accessible only for those who can afford it "out-of-pocket," as it is not available on the government insurance list.[11] Whilst fentanyl is on the IAHPC list, it is questionable whether it is appropriate in LMIC like Nepal due to its high costs. Oxycodone was also reported as unavailable in India,[28] Nepal's vast southern neighbor, in 2017, however, a recent Indian study reported the availability of methadone and buprenorphine as possible alternatives to morphine in some areas.[30] Nepal needs to urgently review its access to alternative opioids and it is anticipated that advice on this will be included in the recommendations emerging from the work developing a national palliative care formulary.

Lack of access to free medication is particularly a significant challenge to patients residing in rural settings, who are mostly poor, elderly, and rely on government health posts and primary healthcare centers.[31] Many people living in urban areas, though not all, may be more able to afford using "out of pocket" medication. A further problem is that even medicines, which should be available in rural government health centers, are not consistently available due to poor procurement and distribution practices. Medicines in these institutions have also been reported to be of poor quality.[32,33] Further work developing policies, medication supply, prescribing guidelines, and medicines governance is needed to ensure effective and safe access to EPCM at all levels of health care in Nepal.

Only 19 of the available EPCMs were found to be affordable. The majority of EPCMs are covered by the government health insurance scheme with notable exceptions being fentanyl and the higher-strength

Table 1

IAHPC Recommended Medicines' Availability in Nepal and Inclusion in Government Medicinal Program Lists

SN	IAHPC Essential Palliative Care Medicine	SN	Formulation	ANM	Govt Free medicine list for			GFRML	GHIML	NEML
					DH	PHC	HP			
1	Amitriptyline	1	50-150 mg tablets	1	1	0	0	1	1	1
2	Bisacodyl	2	10 mg Tablets	1	0	0	0	0	1	1
		3	10 mg rectal suppositories	1	0	0	0	0	1	0
3	Carbamazepine	4	100-200 mg Tablet	1	1	0	0	0	1	1
4	Citalopram (or any other equivalent generic selective serotonin reuptake inhibitor except paroxetine and fluvoxamine)	5	20 mg Tablets	1*	0	0	0	0	1	1
		6	10 mg/5ml Oral Solution	0	0	0	0	0	0	0
		7	20-40 mg Injectable	0	0	0	0	0	0	0
5	Codeine	8	30 mg Tablets	1	0	0	0	0	1	1
6	Dexamethasone	9	0.5-4 mg Tablets	1	0	0	0	0	1	1
		10	4 mg/ml Injectable	1	1	1	1	0	1	1
7	Diazepam	11	2.5-10 mg Tablets	1	0	0	0	0	1	1
		12	5 mg/ml Injectable	1	1	1	0	0	1	1
		13	10 mg rectal suppositories	0	0	0	0	0	0	0
8	Diclofenac	14	25-50 mg Tablets	1	0	0	0	0	1	1
		15	50 and 75 mg/3ml Injectable	1	1	1	0	0	1	1
9	Diphenhydramine	16	25 mg Tablets	0	0	0	0	0	0	0
		17	50 mg/ml Injectable	0	0	0	0	0	0	0
10	Fentanyl (transdermal patch)	18	25 mcg/hr, 50 mcg/hr	1	0	0	0	0	0	0
11	Gabapentin	19	300 mg or 400 mg Tablets	1	0	0	0	0	1	0
12	Haloperidol	20	0.5-5 mg Tablets	1	0	0	0	0	1	1
		21	0.5-5 mg drops	0	0	0	0	0	0	0
		22	0.5-5 mg/ml Injectable	1	0	0	0	0	1	1
13	Hyoscine Butylbromide	23	20 mg/1 ml Oral Solution	0	0	0	0	0	0	0
		24	10 mg Tablets	1	1	1	1	0	1	1
		25	10 mg/ml Injectable	1	1	1	0	0	1	1
14	Ibuprofen	26	200 mg Tablets, 400 mg Tablets	1	1	1	1	0	1	1
15	Levomepromazine	27	5-50 mg Tablets	0	0	0	0	0	0	0
		28	25 mg/ml Injectable	0	0	0	0	0	0	0
16	Loperamide	29	2 mg Tablets	1	0	0	0	0	0	0
17	Lorazepam	30	0.5-2 mg Tablets	1	0	0	0	1	1	1
		31	2 mg/ml liquid/drops	0	0	0	0	0	0	0
		32	2-4 mg/ml Injectable	1	0	0	0	0	1	0
18	Megestrol acetate	33	160 mg Tablets	1	0	0	0	0	1	0
		34	40 mg/ml Solution	0	0	0	0	0	0	0
19	Methadone	35	5 mg Tablets	0	0	0	0	0	0	0
		36	1 mg/ml Oral solution	0	0	0	0	0	0	0
20	Metoclopramide	37	10 mg Tablets	1	1	1	1	0	1	1
		38	5 mg/ml Injectable	1	1	1	0	0	1	1
21	Midazolam	39	1-5 mg/ml Injectable	1	0	0	0	0	1	1
22	Mineral Oil Enema	40	Not mentioned	0	0	0	0	0	0	0
23	Mirtazapine	41	15-30 mg Tablets	1	0	0	0	0	1	0
		42	7.5-15 mg Injectable	0	0	0	0	0	0	0
24	Morphine	43	10 -60 mg Immediate release Tablets	1	0	0	0	0	1	1
		44	10 mg/5 ml Immediate release oral Solution	1	0	0	0	0	0	1
		45	10 mg/ml Immediate release Injectable	1	0	0	0	0	1	1
		46	10 mg Sustained release tablet	1	0	0	0	0	1	1
		47	30 mg Sustained release tablet	1	0	0	0	0	0	1
25	Octreotide	48	100 mcg/ml Injectable	1	0	0	0	0	1	0
26	Oral rehydration salts	49	Not mentioned	1	1	1	1	1	1	1
27	Oxycodone	50	5 mg Tablets	0	0	0	0	0	0	0
28	Paracetamol (Acetaminophen)	51	100- 500 mg Tablets	1	1	1	1	1	1	1
		52	500 mg rectal suppositories	1	0	0	0	0	1	1
29	Prednisolone	53	5 mg Tablets	1	1	1	0	0	1	1
30	Senna	54	8.6 mg Tablets	0	0	0	0	0	0	0
31	Tramadol	55	50 mg Immediate release Tablets/Capsules	1	0	0	0	0	1	0
		56	100 mg/1 ml Oral Solution	0	0	0	0	0	0	0
		57	50 mg/ml Injectable	1	0	0	0	0	1	0
32	Trazodone	58	25-75 mg Tablets	1	0	0	0	0	0	0
		59	50 mg Injectable	0	0	0	0	0	0	0
33	Zolpidem	60	5-10 mg Tablets	1	0	0	0	0	1	0
Total				41 (68)	13 (22)	11 (18)	6 (10)	4 (7)	36 (60)	29 (48)

*instead of citalopram, escitalopram 5,10,20 mg and Fluoxetine 10,20 mg Capsules are available in Nepal and all of these are available in GHIML and Fluoxetine 20 mg in NEML. Serial Number (SN), National Essential Medicines List (NEML), Government Health Insurance Medicines List (GHIML), Government Fixed Rate Medicines List (GFRML), Available in Nepalese Market (ANM)

Table 2
Lancet Commission Recommended Medicines' Availability in Nepal and Inclusion in Government Medicinal Program Lists

SN	Lancet Commission Essential Pall Care Medication (2017)	ANM	Government Free medicine list for			GFRML	GHIML	NEML
			DH	PHC	HP			
1	Amitriptyline	1*	1*	0	0	10 mg and 25 mg oral tablet	1*	1*
2	Bisacodyl (Senna)	1*	0	0	0	0	1*	1*
3	Dexamethasone	1*#	1#	1#	1#	0	1*#	1*#
4	Diazepam	1*#	1#	1#	0	0	1*#	1*#
5	Diphenhydramine (Chlorpheniramine, cyclizine, or dimenhydrinate)	1*^	1*	1*	1*	0	1*^	0
6	Fluconazole	1*"`	1*"	1*	0	150 mg oral capsule	1*"`	1*`
7	Fluoxetine or other selective serotonin-reuptake inhibitors (sertraline and citalopram)	1*	0	0	0	0	1*	1*
8	Furosemide	1*#	1*#	1*#	1*	0	1*#	1*#
9	Hyoscine butylbromide	1*#	1*#	1*#	1*	0	1*#	1*#
10	Haloperidol	1*#	0	0	0	0	1*#	1*#
11	Ibuprofen (naproxen, diclofenac, or meloxicam)	1*^	1*	1*	1*	0	1*^	1*^
12	Lactulose (sorbitol or polyethylene glycol)	1^	0	0	0	0	1^	1^
13	Loperamide	1*	0	0	0	0	0	0
14	Metoclopramide	1*^#	1*#	1*#	1*	0	1*#	1*#
15	Metronidazole	1*^#	1*^#	1*^#	1*^	0	1*^#	1*^
16	Morphine (oral immediate-release and injectable)	1*^#	0	0	0	0	1*#	1*^#
17	Naloxone Parenteral	1#	0	0	0	0	1#	1#
18	Omeprazole	1*#	0	0	0	20 mg oral capsule	1*#	1*#
19	Ondansetron	1*^#	0	0	0	0	1*^#	1*^#
20	Paracetamol	1*^#°	1*^#	1*^#	1*^	500 mg oral tablet, 125mg/5ml Syrup, 100 mg/ml drop	1*^#°	1*^#°
21	Petroleum Jelly	1"	0	0	0	0	1"	0
Total (Percentage)		21 (100)	11 (52)	10 (48)	8 (38)	4 (19)	20 (95)	18 (86)

Note: * = Oral tablet, # = Injectable, " = Topical semisolid, ^ = Oral liquid, ` = Eye drops, ° = Suppositories; Serial Number (SN), National Essential Medicines List (NEML), Government Health Insurance Medicines List (GHIML), Government Fixed Rate Medicines List (GFRML), Available in Nepalese Market (ANM)

long-acting morphine (30mg). Interestingly, there are no previous publications, which have reported the affordability of EPCMs except for morphine oral IR and essential opioid formulations by the opioid watch project.[26,27] In our study, the cost of one month of oral morphine 10 mg IR tablet was equivalent to 2.3 days minimum wage. Although this is unaffordable, it is comparatively cheap compared to other lower-middle income countries: the Philippines (29.5) and India (20), but costlier than in high-income countries, the U. K. (0.8) and Spain (0.3).[26] More research is needed on the pricing of EPCMs as previous studies have also reported the existence of price variation and lack of proper price control mechanisms of essential medicines as a pertinent challenge in Nepal;[34–36] how this affects EPCM is unclear.

The government health insurance scheme has a special discount and additional support service for geriatric patients, who are mainly in need of palliative care.[37] Whilst the government health insurance scheme offers hope for universal health coverage, many people have not registered and there are reported dropouts from the scheme. Due to congested clinics and poor service, many patients are said to prefer to visit private clinics, where health insurance scheme is not available.[12,38] Similarly, although services are supposed to be provided at all levels of government healthcare, health insurance services are mostly provided through district and regional hospitals. Health posts and primary healthcare centres do not have pharmacies or trained pharmacy staff and only stock medicines on the free medicines list supplied by the government. Therefore, the health insurance scheme in its current form may not be reliable enough to ensure the provision of EPCMs to patients needing palliative care, particularly in rural settings.

Strength and Limitations

This is the first study evaluating the inclusion of EPCM availability, including in government medicinal programmes' in Nepal. It is possible that alternative medicines of EPCMs are available, which do not appear on the IAHPC or Lancet Commission lists; these have not been explored. The study has not explored the actual prescribing practices of palliative care medicines in Nepal, which is known from other studies to not always follow internationally recommended best practices such as prescribing in generic names and

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Table 3
Affordability of IAHPC and Lancet-Recommended Essential Palliative Care Medicines in Nepal

Essential Palliative Care Medicine			ATC Code	Defined Daily Dose	Total Monthly Quantity Consumption	Unit Price	Government Fixed Price (NRs)	Cost for One Mo	No. of Days of Wages for One Mo Treatment
Generic Name	No.	Lowest Available Strength							
Diazepam	1	2 mg tablet	N05BA01	10 mg	150	1.8	NA	270	0.5
	2	10 mg injection	N05BA01	10 mg	30	35	NA	1050	1.8
Lorazepam	3	1 mg tablet	N05BA06	2.5 mg	75	2	2	150	0.3
	4	2 mg injection	N05BA06	2.5 mg	37.5	26.16	NA	981	1.7
Midazolam	5	5 mg injection	N05CD08	15 mg	90	65	NA	5850	10.1
Gabapentin	6	100 mg capsule	N03AX12	1800 mg	540	11.04	NA	5961.6	10.3
Carbamazepine	7	100 mg tablet	N03AF01	1000 mg	300	1.8	NA	540	0.9
Amitriptyline	8	10 mg tablet	N06AA09	75 mg	225	2.4	2.4	540	0.9
Trazodone	9	25 mg tablet	N06AX05	300 mg	360	3.8	NA	1368	2.4
Mirtazapine	10	7.5 mg tablet	N06AX11	30 mg	120	7	NA	840	1.5
Zolpidem	11	5 mg tablet	N05CF02	10 mg	60	10	NA	600	1.0
Loperamide	12	2 mg capsule	A07DA03	10 mg	150	6.24	NA	936	1.6
Oral rehydration salts	13	20 gm sachet	A07CA	NA	NA	–	NA	–	–
Octreotide	14	100 mcg injection	H01CB02	700 mcg	210	880	NA	184800	320.3
Metoclopramide	15	10 mg tablet	A03FA01	30 mg	90	3.16	NA	284.4	0.5
	16	10 mg injection	A03FA01	30 mg	90	8.35	NA	751.5	1.3
Haloperidol	17	0.25 mg tablet	N05AD01	8 mg	960	2.77	NA	2659.2	4.6
	18	5 mg injection	N05AD01	3.3 mg	19.8	10.4	NA	205.92	0.4
Hyoscine	19	10 mg tablet	A03BB01	60 mg	180	10.3	NA	1854	3.2
	20	20 mg injection	A03BB01	60 mg	90	33	NA	2970	5.1
Dexamethasone	21	8 mg injection	H02AB02	1.5 mg	6	12	NA	72	0.1
	22	0.5 mg tablet	H02AB02	1.5 mg	90	0.34	NA	30.6	0.1
Prednisolone	23	2.5 mg tablet	H02AB06	10 mg	120	1	NA	120	0.2
Bisacodyl	24	5 mg tablet	A06AB02	10 mg	60	3	NA	180	0.3
	25	10 mg suppository	A06AB02	10 mg	30	21.44	NA	643.2	1.1
Ibuprofen	26	200 mg tablet	M01AE01	1200 mg	180	0.66	NA	118.8	0.2
Diclofenac	27	50 mg tablet	M01AE01	100 mg	60	3.33	NA	199.8	0.3
	28	75 mg injection	M01AE01	100 mg	40	48.67	NA	1946.8	3.4
Paracetamol	29	500 mg tablet	N02BE01	3000 mg	180	1	1	180	0.3
	30	500 mg suppositories	N02BE01	3000 mg	180	25.9	NA	4662	8.1
Codeine	31	15 mg tablet	R05DA04	100 mg	200	6	NA	1200	2.1
Morphine	32	10 mg immediate-release tablet	N02AA01	100 mg	300	4.5	NA	1350	2.3
	33	10 mg/5 mL, 60 mL syrup	N02AA01	100 mg	25	100	NA	2500	4.3
	34	10 mg injection	N02AA01	30 mg	90	100	NA	9000	15.6
	35	10 mg sustain release tablet	N02AA01	100 mg	300	6	NA	1800	3.1
Tramadol	37	50 mg capsule	N02AX02	300 mg	180	12	NA	2160	3.7
	38	50 mg injection	N02AX02	300 mg	180	18.78	NA	3380.4	5.9
Fentanyl (transdermal patch)	39	25 mcg patch	N02AB03	1200 mcg	1440	1034.7	NA	1489925	2582.2
Megestrol acetate	40	40 mg tablet	NA	NA	–	–	NA	–	–
Chlorpheniramine	41	4 mg tablet	NA	NA	–	–	NA	–	–
Fluconazole	42	150 mg capsule	J02AC01	200 mg	40	24	24	960	1.7
Fluoxetine	43	20 mg capsule	N06AB03	20 mg	30	6.2	NA	186	0.3
Furosemide	44	20 mg tablet	C03CA01	40 mg	60	1.2	NA	72	0.1
	45	20 mg injection	C03CA01	40 mg	60	11	NA	660	1.1
Lactulose	46	3350 mg/5 mL, 100 mL	A06AD11	6700 mg	3	190	NA	570	1.0
Metronidazole	47	200 mg tablet	J01XD01	1500 mg	225	2	NA	450	0.8
Naloxone	48	0.4 mg injection	NA	NA	–	–	NA	–	–
Omeprazole	49	20 mg capsule	A02BC01	20 mg	30	4	4	120	0.2
Ondansetron	50	4 mg tablet	A04AA01	16 mg	120	6.5	NA	780	1.4
	51	4 mg injection	A04AA01	16 mg	120	20	NA	2400	4.2
Petroleum jelly	52	50 gm tube	NA	NA	–	–	NA	–	–

Note: 1 Nepali rupee (NR) = 0.0079 United States Dollar (USD) on 09, August 2023.
ATC = Anatomical and Therapeutic Category, NRs = Nepalese Rupees, NA = Not Available, IAHPC = International Association for Hospice and Palliative Care, Mo = Month.

prescribing therapeutically equivalent alternative medicines.[39] There are few similar studies from other LMICs with which to compare Nepal's performance in the supply of EPCMs. Similarly, the cost calculation for the affordability is taken from only one palliative care providing hospital pharmacy; there might be a variation in cost depending upon the different brands available in different pharmacies. As this study was conducted in Nepal only, its immediate findings are limited to Nepal although it may have particular relevance to other South Asian countries. We anticipate, however, that the methods used and insights will be of benefit in other LMIC, which face similar challenges in access to EPCM.

Conclusion

Currently, many of the EPCM formulations recommended by the IAHPC and included in the NSPC of Nepal are not available. All the more restricted EPCMs recommended by the Lancet Commission are available. Most of the available EPCMs were judged to be unaffordable if purchased out-of-pocket. Very few medicines are available free of charge in government healthcare settings with decreasing availability through secondary to primary level care centres. While the government health insurance scheme offers improved availability by covering a broader range of recommended medicines, not all individuals are registered for it. Alternative suitable medications may be available and further work is being undertaken through the development of a national formulary for palliative care.

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RS and DM conceptualized the study and developed the method. RS performed data collection and analysis, discussing findings with other authors who suggested and supported further analysis. RS and DM wrote the original draft of the manuscript. All authors substantially revised and approved the study.

Ethical approval was not sought, as there was no direct involvement of human participants and their data in this study.

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