

Availability of Opioid Analgesics in Asia: Progress, Problems, Recommendations

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About the Pain & Policy Studies Group

The Pain & Policy Studies Group (PPSG) mission is to promote “balance” in international, national and state pain policies to ensure adequate availability of opioid analgesics and their appropriate medical use for patient care while addressing diversion and abuse. The PPSG also supports a global communications program to improve access to information about pain relief, palliative care, and pain policy.

The PPSG is designated the World Health Organization (WHO) Collaborating Center for Policy and Communications in Cancer Care, and publishes a WHO newsletter *Cancer Pain Release*. As a WHO Collaborating Center, the PPSG provides technical assistance to governments in Asia, Europe and Latin America, and established a WHO Demonstration Project in Calicut, India.

Much of the PPSG’s work, including new WHO Guidelines that are discussed later in this document, are available on their website at www.medsch.wisc.edu/painpolicy.

Section I-Cancer pain relief and opioid availability in the world

Relieving cancer pain

In 1986, the WHO said that implementation of currently available medical knowledge could relieve most pain due to cancer. WHO recommended that health professionals and governments use a three-step Analgesic Ladder to treat cancer pain. The successful implementation of the WHO Analgesic Ladder depends on the availability of drugs which are effective in relieving severe pain, such as morphine or other strong opioids, including fentanyl, hydromorphone, methadone and oxycodone. However, the availability of these drugs varies greatly from country to country.

Monitoring progress

The WHO monitors countries' consumption of opioids as one indicator of national progress to improve cancer pain relief (see Section IV, p. 7). Morphine is the principal indicator because it is the most widely available opioid analgesic for moderate to severe pain. Prior to 1986, the consumption of morphine throughout the world was low and stable. After 1986, the total global consumption of morphine began to increase substantially as some national governments and health professionals adopted the WHO Analgesic Ladder and as new opioid products became available more widely.

Morphine consumption in the world

The vast majority of the increased consumption of morphine has been in only ten industrialized countries: Australia, Canada, Denmark, France, Germany, Japan, Spain, Sweden, the United Kingdom, and the United States. These ten countries represent less than 15% of the world's population. It should be noted that the increased medical use of morphine in some countries is mainly for cancer pain, but in other countries morphine is used also for acute post-operative pain, AIDS pain, and chronic non cancer pain. The remaining countries of the world (a number of developed countries and all developing countries) represent approximately 85% of the world's population, yet consumed 13% of the morphine in 1999. In some developing countries, the lack of palliative care and opioids is particularly serious because, by the time most cancer patients are diagnosed, they have late-stage cancer that is often accompanied by pain.

Inadequate opioid availability

Although many countries have experienced little change in morphine consumption since 1986, some have recently begun to increase their use of opioids for cancer pain relief. Nevertheless, global consumption remains extremely low in comparison to the medical need, and many national governments have yet to address this important health priority. According to a survey of governments by the International Narcotics Control Board (INCB), injectable forms of morphine are more available than oral forms, and approximately one-half of governments reported that morphine is not available in all hospitals that treat cancer patients. In addition, only 60% of governments surveyed had endorsed the WHO Analgesic Ladder. Success in implementing the WHO Analgesic Ladder has been limited by the lack of opioid analgesics; future success will depend on governmental efforts to make opioids more available.

Impediments to availability: The INCB and the WHO have concluded that there are a number of impediments to the availability and use of opioid analgesics for cancer pain relief. Many government policies limit the quantity and duration of opioid prescriptions and impose special requirements for physicians who prescribe. National health priorities may not include cancer pain relief, as was evident in about half of the governments. In addition, health professionals, narcotic regulators and legislators may not realize there is a need for pain relief; they may be more concerned about narcotic addiction and diversion. In fact, 43% of governments that responded to the INCB survey said that they require physicians to report to the government those patients who are prescribed opioid analgesics.

Section II-Efforts to Improve Opioid Availability in the World

The WHO and the INCB are addressing the unmet need for opioid analgesics, and impediments to their adequate availability.

WHO activities to improve availability

The WHO recommends that national governments implement a three-part strategy to make cancer pain relief and palliative care a priority: (1) establish a national policy which supports pain relief and palliative care, public and professional education, and drug availability; (2) develop educational programs for the public and health professionals; and (3) ensure the availability of needed drugs for the treatment of pain and other symptoms. The WHO Collaborating Center for Policy and Communications in Cancer Care provides technical assistance to governments and health professionals to evaluate impediments to opioid availability and to monitor the progress to improve opioid availability while preventing diversion. Available data demonstrate that there has been little diversion of morphine despite a significant increase in its medical use for the treatment of pain.

WHO Guidelines: In 2000, WHO published “Achieving Balance in National Opioids Control Policy: Guidelines for Assessment,” which provides 16 guidelines that can be used by governments and health professionals to assess the national opioids control policies of any country. The document can be used to determine if national policies contain provisions and procedures that are necessary to ensure the availability of opioid analgesics that are essential for the relief of pain. The guidelines are derived from the international principle of “balance” in drug control policy. This principle, which is carefully and extensively documented in the publication, asserts that governments not only have an obligation to prevent drug abuse, but also to ensure the availability of opioid analgesics for medical purposes, and further, that efforts to prevent drug abuse and diversion must not interfere with the adequate availability of opioid analgesics for patients’ pain relief. The Guidelines are available on the PPSG website at www.medsch.wisc.edu/painpolicy.

INCB activities to improve availability

The INCB is the international narcotics regulatory authority for the United Nations. The INCB monitors national governments’ implementation of the Single Convention on Narcotic Drugs, 1961, a treaty that governs availability of narcotic drugs in the world.

According to the Single Convention, opioids (narcotic drugs) are indispensable for the treatment of pain and suffering, and governments should ensure their adequate availability for all medical and scientific purposes, while preventing addiction and diversion. Thus, it is the responsibility of national governments (most governments are parties to this treaty) not only to prevent misuse and diversion, but also to ensure availability of opioids for medical needs. The INCB and other United Nations organizations, such as the Commission on Narcotic Drugs, have recognized that opioids are not sufficiently available in the world. The INCB has requested all national governments to (a) re-evaluate their medical needs for opioids, (b) identify and address impediments, and (c) communicate with health professionals to determine the unmet medical need for opioid analgesics.

INCB recommendations to national governments

The following recommendations have been made by the INCB to governments:

- (a) Governments that have not done so should determine whether there are undue restrictions in national narcotics laws, regulations or administrative policies that impede prescribing, dispensing or needed medical treatment of patients with narcotic drugs, or their availability and distribution for such purposes, and should make the necessary adjustments;
- (b) Governments that have not done so should, in response to the recommendations contained in the 1989 special report of the Board, critically examine their methods for assessing medical needs for narcotic drugs and should make suitable arrangements for ensuring their availability;
- (c) Governments should establish a system to collect information from medical facilities that care for surgical, cancer and other patients, from organizations that are working to improve the rational use of narcotic drugs and from manufacturers, distributors, exporters and importers and should establish groups of knowledgeable individuals to assist in obtaining information about changing medical needs;
- (d) Governments should add to their annual estimates of requirements for narcotic drugs a margin of 10 per cent to allow for the possibility of increased consumption from such general causes as population growth, evolution of health services and trends in the incidence of diseases and their treatment and, if need be, should add an even greater margin in countries or territories where there is rapid economic and social development or rapid expansion of the medical use of drugs, including the introduction of new formulations or drugs;
- (e) Governments that experience interruptions in supply of narcotic drugs because of delays in importation or for other reasons should examine the situation and develop a system to accomplish in a timely manner the steps involved, such as issuing licences, arranging for payment, carrying out paperwork, transporting the drugs, taking the drugs through customs and distributing the drugs to medical facilities;
- (f) Governments should determine whether their national narcotic laws contain elements of the 1961 Convention and the 1972 Protocol that take into account the fact that the medical use of narcotic drugs continues to be indispensable for the relief of pain and suffering and the fact that adequate provision must be made to ensure the availability of narcotic drugs for such purposes and to ensure that administrative responsibility has been established and that personnel are available for the implementation of those laws;
- (g) Governments should inform health professionals about the WHO analgesic method for cancer pain relief;
- (h) Governments should communicate with health professionals about the legal requirements for prescribing and dispensing narcotic drugs and should provide an opportunity to discuss mutual concerns;
- (i) Governments should inform the Board about progress and needs concerning implementation of the present recommendations;
- (j) Governments that did not reply to the 1995 questionnaire of the Board should do so.

Additional recommendations

The following advice can be offered to health professionals who want to make cancer pain relief a priority:

- (a) Know how to assess a cancer patient's pain, how to treat pain and other symptoms including side effects, and how to monitor the patient and change treatment as necessary;
- (b) Follow the legal requirements for writing prescriptions;
- (c) Identify potential impediments to pain relief with the patient, family, colleagues or the institution (such as lack of knowledge about pain or opioids, or fear of addiction), and address these impediments systematically using the resources which are available;
- (d) Convince your colleagues and administrators that the WHO cancer pain relief program should be implemented as part of good medical practice, and should be a high and permanent priority for your institution;
- (e) Explain the WHO cancer pain relief program to your government representatives and ask them to ensure that your National Cancer Control Program allocates resources to cancer pain relief and palliative care, and that the Ministry of Health ensures the availability of opioid analgesics and other needed drugs, and works to remove undue restrictions on prescribing and patient access to pain relief.

Section III-Selected References

Colleau SM. Special Issue on the International Narcotics Control Board Survey of Governments. *Cancer Pain Release*. 1996;9(Supplement):1-4.

International Narcotics Control Board. *Availability of Opiates for Medical Needs*. In: Report of the International Narcotics Control Board for 1995. New York, NY: UN; 1996.

Joranson DE. Availability of opioids for cancer pain: Recent trends, assessment of system barriers, new World Health Organization guidelines, and the risk of diversion. *Journal of Pain and Symptom Management*. 1993;8(6):353-360.

Pain & Policy Studies Group. *Improving Cancer Pain Relief in the World—1997-1999: A Report on Three Years of Work*. Madison, Wisconsin, USA: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center for Policy and Communications in Cancer Care, 2000.

Rajagopal MR, Joranson DE, Gilson AM. Medical use, misuse and diversion of opioid analgesics in India. *Lancet*, in press.

Selva C. International control of opioids for medical use. *European Journal of Palliative Care*. 1997;4(6):194-198.

World Health Organization. *Achieving Balance in National Opioids Control Policy: Guidelines for Assessment*. Geneva, Switzerland: WHO; 2000.

World Health Organization. *Cancer Pain Relief With a Guide to Opioid Availability*. Second ed. Geneva, Switzerland: WHO; 1996.

Key publications about opioid availability

There are two authoritative publications that are relevant to health professionals and government regulators. These are publications of the WHO and the INCB, and are summarized below. A variety of publications are relevant to national, regional, international and topical issues relating to opioid availability.

World Health Organization. *Cancer Pain Relief: With A Guide to Opioid Availability*. Geneva: Author, 1996.

This Guide explains the system that is used to make morphine and other opioids available for the patients who need these medications for pain. The Guide is for the use of regulators and health care professionals, and is intended to promote communication between them. It briefly reviews the problem of cancer and pain, the necessity of having opioid analgesics available to treat pain, and the WHO strategy for cancer pain relief. The Guide explains how the opioid distribution system should work within the legal framework of international treaty and national narcotic control laws. Particular attention is given to the role of the national estimate of medical need for opioids, and the steps which are necessary to obtain a supply of opioids either by domestic manufacture or by import. This publication offers guidelines for appropriate regulation of health care professionals who handle opioids, paying special attention to the need to balance concerns about drug abuse with the needs of patients for pain relief.

World Health Organization publications can be obtained from Distribution and Sales, World Health Organization, 1211 Geneva 27, Switzerland. This document is published in English, French and Spanish.

International Narcotics Control Board. *Availability of Opiates for Medical Needs*. New York: United Nations, 1996.

The International Narcotics Control Board is responsible for monitoring governments' compliance with the Single Convention on Narcotic Drugs, 1961. The Board recognizes that the regulatory control of narcotics should not interfere with the availability of opioids for medical purposes, including pain management, and works with national governments to ensure that opioids are sufficiently available to meet medical needs, as defined by individual governments.

In 1995, the INCB surveyed all governments in the world to find out how they responded to the Board's 1989 recommendations to identify and address barriers to opioid availability for medical and scientific purposes, and to collect data on the status of opioid availability world-wide. This publication reports the results of that survey, concluding that a small but significant number of governments are making efforts to improve the availability of opioids for medical use, but that a number of problems remain which governments must address. The INCB makes a number of recommendations that form a blueprint for national and international actions to improve the situation.

INCB reports are United Nations publications and may be obtained from bookstores and distributors throughout the world. Consult your bookstore or write to: United Nations, Sales Section, New York or Geneva. (If there is difficulty obtaining a publication, contact the INCB at Vienna International Centre, P.O. Box 500, A-1400, Vienna, Austria, Fax 43 1 21345-5867) This document is published in English, French and Spanish.

Section IV-Opioid consumption trends in selected Asian countries.

Interpretation of INCB consumption data

Morphine consumption statistics are used by the WHO as a broad indicator of progress to improve cancer pain relief. Morphine is indispensable for the medical management of moderate to severe pain. WHO considers opioids such as morphine to be “essential drugs” and the WHO three-step Analgesic Ladder includes morphine on the third step of the ladder. Morphine is the most widely available strong opioid in the world. Therefore, many countries’ morphine consumption statistics are good general indicators of progress to improve cancer pain. Although pethidine is not recommended due to toxic metabolites and short duration of action, it is nevertheless used widely mainly for acute post surgical pain, and sometimes also cancer pain.

The following consumption data come from the INCB.¹ Each year the INCB receives reports from national governments on narcotics consumed for medical purposes. For statistical purposes, “consumption” is that amount of a narcotic drug that has been distributed to the retail level in a country, that is, to hospitals and pharmacies in a country for medical use; this amount is not necessarily used by patients in a particular year. On these graphs, no consumption statistics may be provided for a given year because a government did not submit a report to the INCB.

The statistics for morphine consumption reported in this monograph do not include amounts that are used for manufacturing combination products that contain a small amount of morphine but which are subject to less restrictive control than single-entity morphine. All statistics represent the actual amount of Schedule II preparations only.

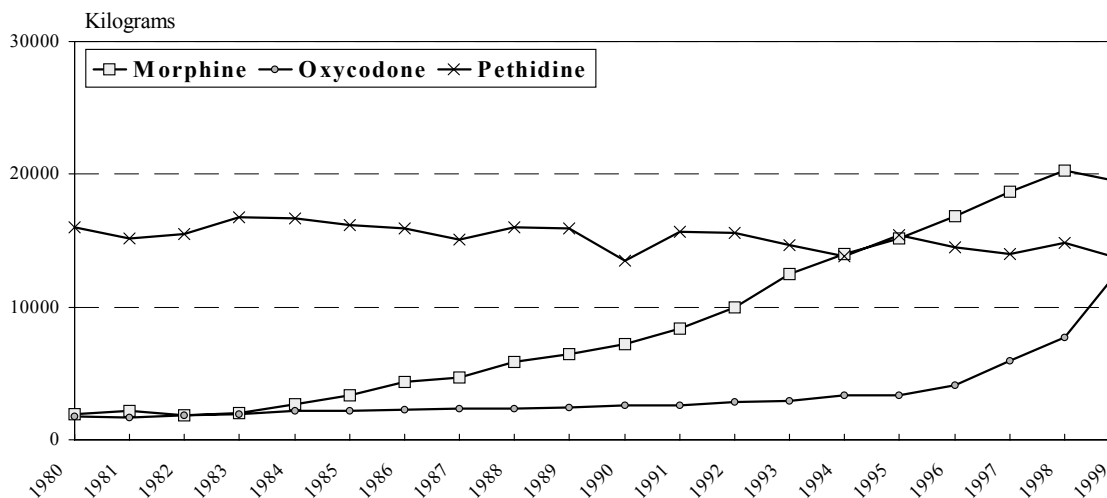
National consumption statistics may vary widely according to medical, economic and social factors. *There is no ideal consumption rate or amount which is officially implied to be ideal.* However, it is generally acknowledged that opioids are underused throughout the world; even in the most economically advanced countries, the use of opioids for relief of pain due to cancer remains inadequate.

There are a number of cautions that should be used in interpreting the data. In some countries, morphine is used for painful conditions other than cancer, such as surgery or chronic non cancer conditions. Increased consumption of morphine may not necessarily reflect improved pain management; rather, more institutions may be using morphine and more patients being treated (with less than effective doses). Increased consumption may also be an indicator of a shift to morphine from pethidine or other less suitable drugs, such as pentazocine. For the first time, the most recent INCB statistical report has included the consumption of other important opioids that should be used for the treatment of moderate severe pain, such as fentanyl and oxycodone. Therefore, this monograph reports global consumption statistics for morphine, pethidine, oxycodone and fentanyl. Only the consumption of morphine and pethidine is reported for individual countries.

¹ See, for example, International Narcotics Control Board. Narcotic Drugs: Estimated World Requirements for 2001-Statistics for 1999. New York, NY: UN; 2001. Sales number E/F/S.01.XI.2 (This publication is in English, French, and Spanish.)

Global Consumption of Opioid Analgesics

1980-1999

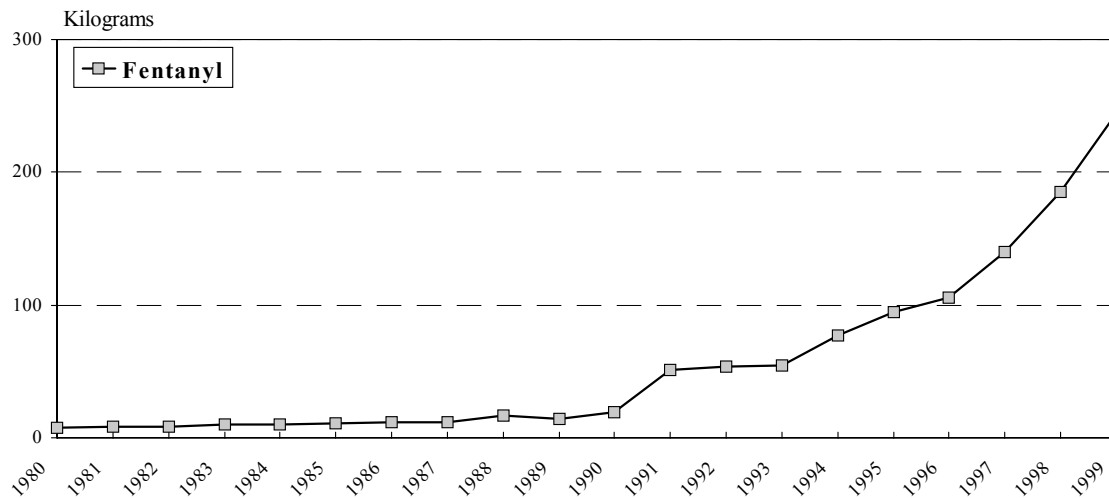


Source: International Narcotics Control Board
By: Pain & Policy Studies Group, University of Wisconsin/WHO Collaborating Center, 2001

Global Consumption of Morphine, Oxycodone, and Pethidine, 1980-1999

Year	Morphine	Oxycodone	Pethidine	Year	Morphine	Oxycodone	Pethidine
1980	1904	1726	15975	1990	7176	2608	13522
1981	2152	1680	15158	1991	8354	2606	15666
1982	1829	1804	15520	1992	9955	2843	15555
1983	2050	1918	16737	1993	12504	2922	14697
1984	2688	2193	16636	1994	13987	3317	13828
1985	3317	2140	16201	1995	15207	3371	15460
1986	4359	2273	15940	1996	16874	4140	14462
1987	4716	2319	15124	1997	18680	5933	14021
1988	5841	2323	15985	1998	20270	7736	14830
1989	6486	2468	15892	1999	19453	12820	13625

Global Consumption of Fentanyl 1980-1999

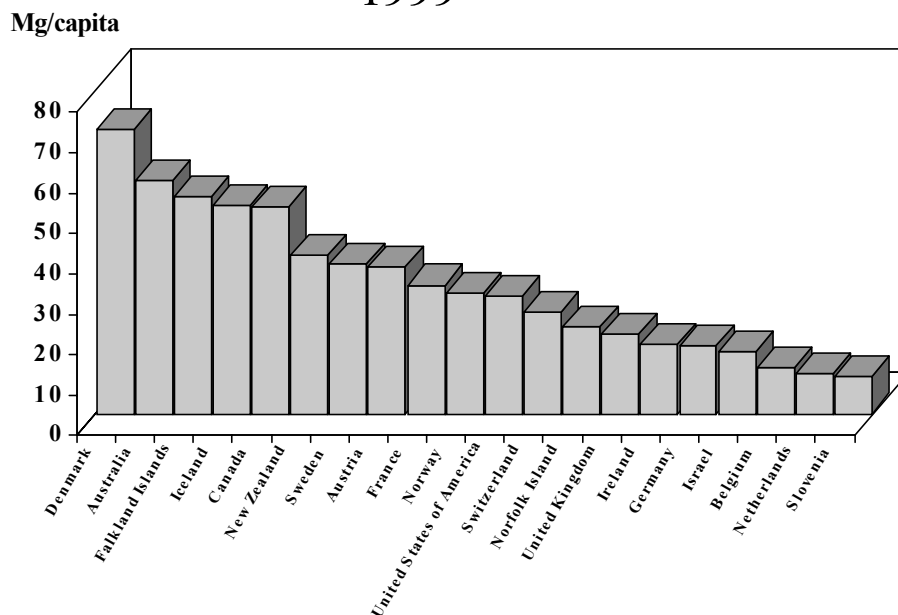


Source: International Narcotics Control Board
By: Pain & Policy Studies Group, University of Wisconsin/WHO Collaborating Center, 2001

Global Consumption of Fentanyl, 1980-1999

Year	Fentanyl	Year	Fentanyl
1980	7.179	1990	19.452
1981	8.551	1991	50.86
1982	8.061	1992	53.968
1983	9.784	1993	54.849
1984	10.228	1994	77.018
1985	10.681	1995	94.396
1986	11.814	1996	105.342
1987	11.559	1997	139.627
1988	16.496	1998	184.779
1989	13.952	1999	244.443

Global Consumption of Morphine, Top 20 Countries 1999

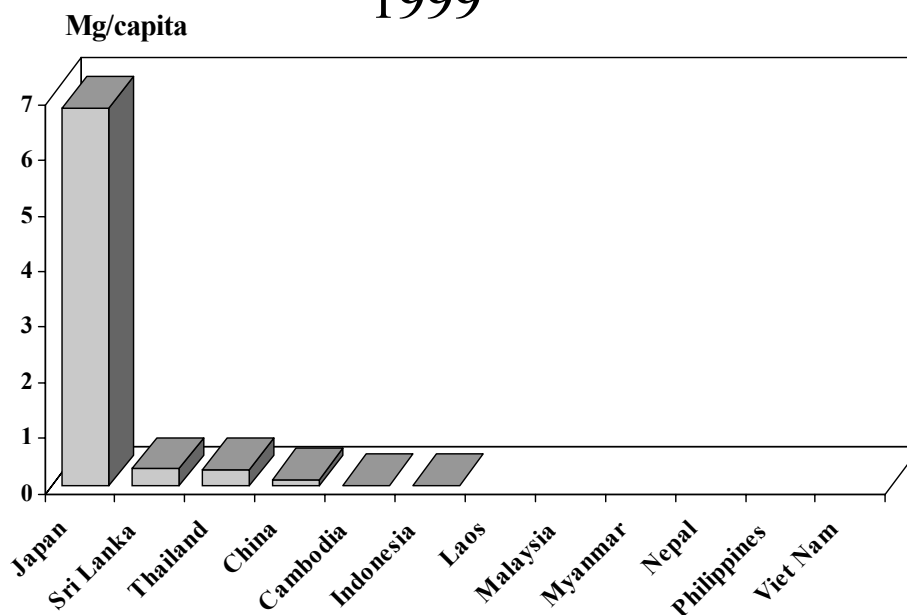


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Global Consumption of Morphine: Top 20 Countries, 1999

Country	Mg/capita	Country	Mg/capita
Denmark	70.3625	United States of America	29.0104
Australia	57.6279	Switzerland	25.2338
Falkland Islands	53.6621	Norfolk Island	21.5223
Iceland	51.4509	United Kingdom	19.8616
Canada	51.1824	Ireland	17.0985
New Zealand	39.1796	Germany	16.8476
Sweden	37.0229	Israel	15.4742
Austria	36.4867	Belgium	11.2857
France	31.8619	Netherlands	9.9096
Norway	29.8821	Slovenia	9.1517

Morphine Consumption in Selected Countries 1999

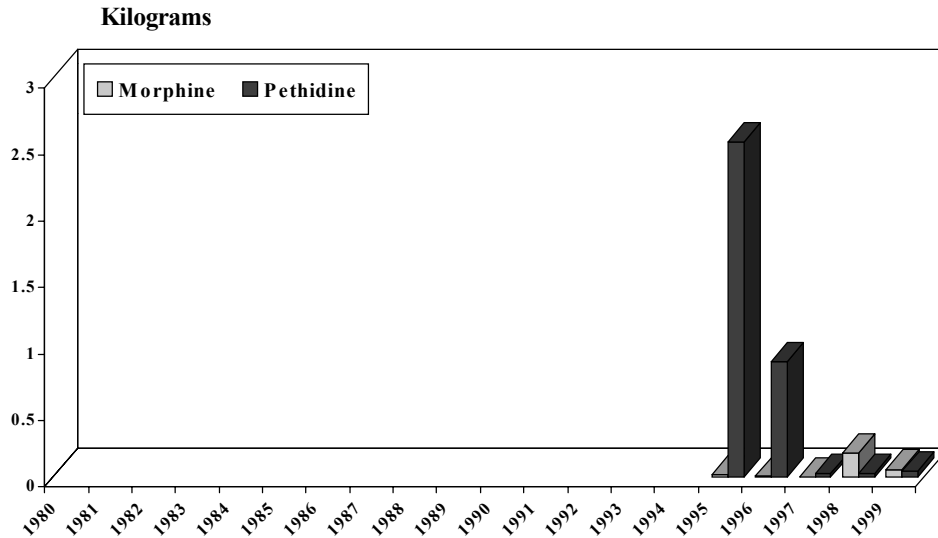


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Morphine Consumption in Selected Countries, 1999

Country	Mg/Capita	Country	Mg/capita
Japan	6.8016	Laos	?
Sri Lanka	0.3047	Malaysia	?
Thailand	0.2924	Myanmar	?
China	0.112	Nepal	?
Cambodia	0.0052	Philippines	?
Indonesia	0.0052	Viet Nam	?

Consumption of Morphine and Pethidine: Cambodia

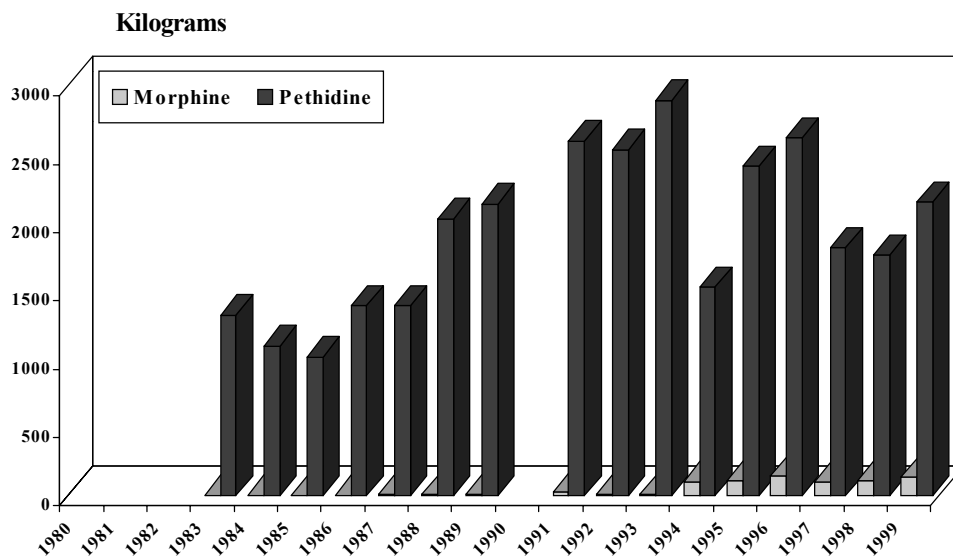


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Cambodia

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	?	?	1987	?	?	1994	?	?
1981	?	?	1988	?	?	1995	0.021	2.523
1982	?	?	1989	?	?	1996	0.008	0.87
1983	?	?	1990	?	?	1997	0.001	0.028
1984	?	?	1991	?	?	1998	0.183	0.028
1985	?	?	1992	?	?	1999	0.061	0.047
1986	?	?	1993	?	?			

Consumption of Morphine and Pethidine: China

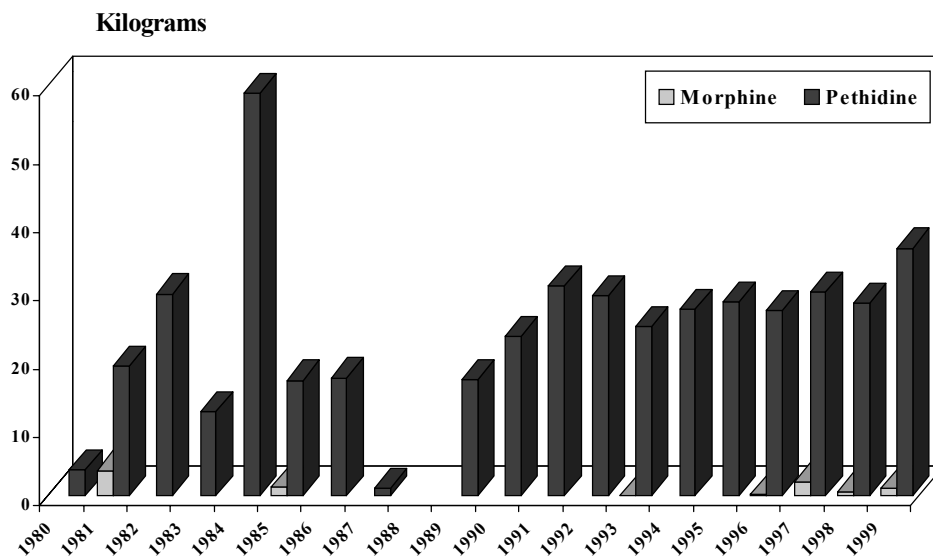


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: China

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	?	?	1987	7.752	1391.13	1994	106.294	1525.785
1981	?	?	1988	8.77	2027.095	1995	112.86	2411.21
1982	?	?	1989	10.708	2135.885	1996	144.324	2621.932
1983	7.143	1324.37	1990	?	?	1997	101.275	1815.66
1984	4.999	1097.466	1991	27.7	2596.08	1998	108.151	1762.535
1985	6.4	1016.334	1992	10.82	2532.91	1999	139.639	2149.171
1986	5.548	1391.13	1993	12.936	2895.465			

Consumption of Morphine and Pethidine: Indonesia

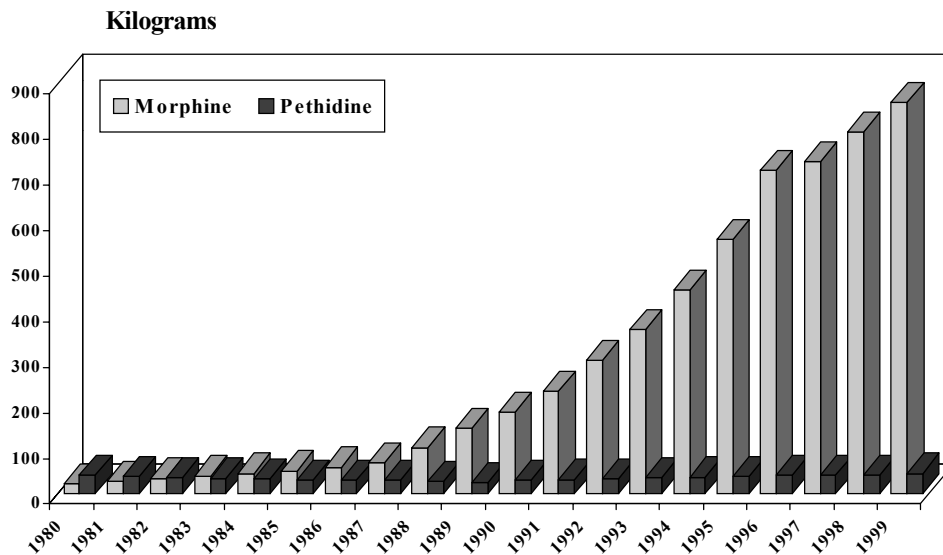


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Indonesia

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	?	3.788	1987	?	1.075	1994	?	27.296
1981	3.72	18.96	1988	?	?	1995	?	28.383
1982	?	29.566	1989	?	16.986	1996	0.167	27.1
1983	?	12.285	1990	?	23.262	1997	1.96	29.833
1984	?	58.93	1991	?	30.677	1998	0.614	28.204
1985	1.289	16.933	1992	?	29.285	1999	1.115	36.21
1986	?	17.268	1993	0	24.813			

Consumption of Morphine and Pethidine: Japan

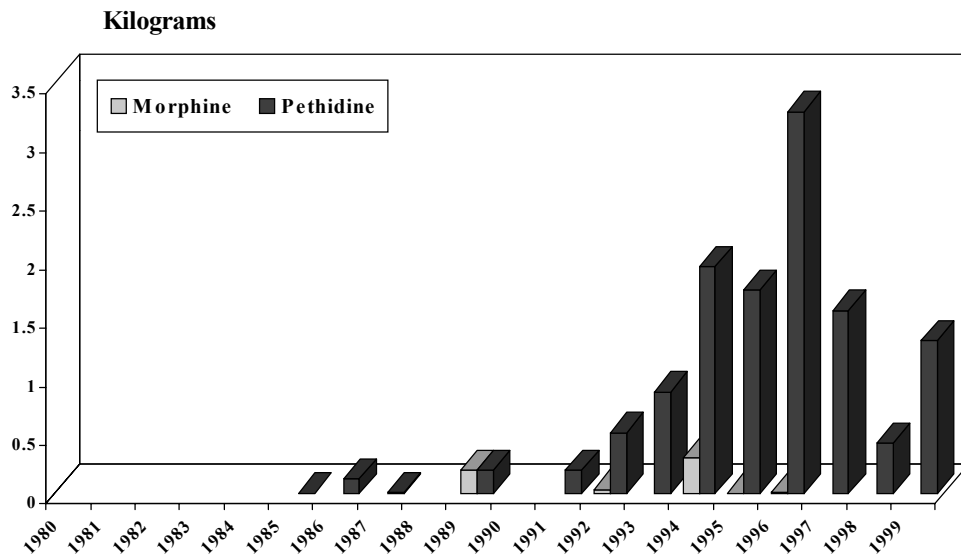


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Japan

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	22.996	41.961	1987	67.563	30.381	1994	447.133	36.899
1981	27.831	38.438	1988	101.772	27.788	1995	557.386	39.061
1982	34.743	36.041	1989	143.587	24.691	1996	709.377	40.645
1983	40.083	34.123	1990	179.29	29.543	1997	728.716	41.277
1984	44.907	32.459	1991	225.824	31.415	1998	793.081	41.847
1985	50.791	30.661	1992	292.96	32.681	1999	858.246	45.586
1986	58.713	30.044	1993	359.953	35.88			

Consumption of Morphine and Pethidine: Lao People's Democratic Republic

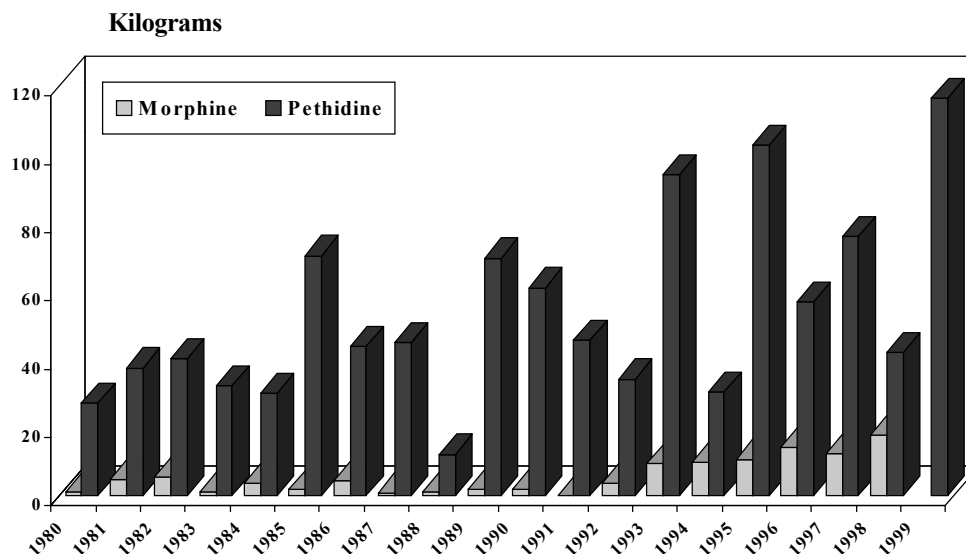


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Laos

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	?	?	1987	?	0.012	1994	0.304	1.937
1981	?	?	1988	?	?	1995	0.008	1.74
1982	?	?	1989	0.2	0.2	1996	0.017	3.262
1983	?	?	1990	?	?	1997	?	1.566
1984	?	?	1991	?	0.199	1998	?	0.435
1985	?	0.006	1992	0.038	0.522	1999	?	1.305
1986	?	0.13	1993	?	0.87			

Consumption of Morphine and Pethidine: Malaysia

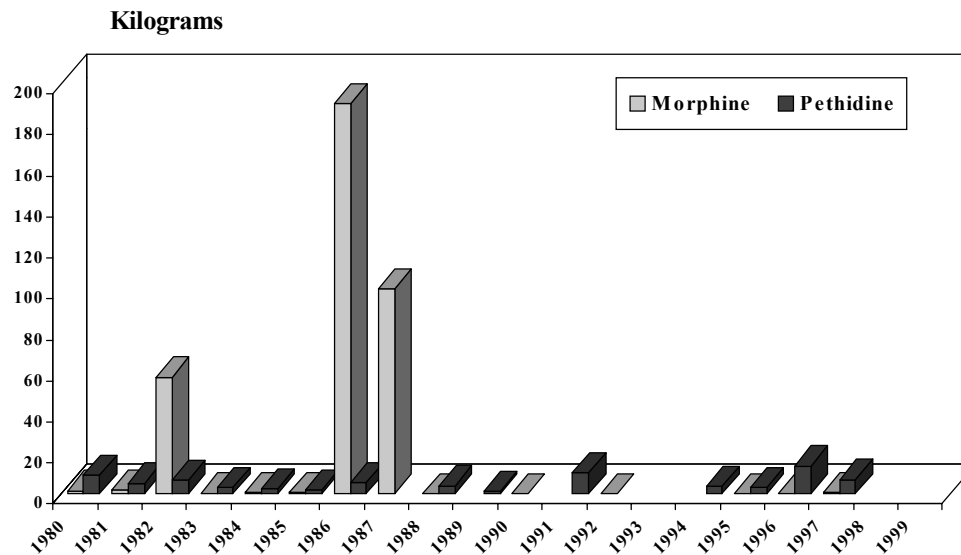


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Malaysia

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	1.216	27.242	1987	0.947	44.817	1994	9.795	30.446
1981	4.762	37.48	1988	1.306	12.211	1995	10.674	102.66
1982	5.694	40.08	1989	1.993	69.6	1996	14.379	56.766
1983	1.144	32.105	1990	1.848	60.933	1997	12.233	75.97
1984	3.558	29.961	1991	0	45.597	1998	17.804	41.984
1985	1.795	70.236	1992	3.686	34.154	1999	?	116.298
1986	4.311	43.64	1993	9.463	93.94			

Consumption of Morphine and Pethidine: Myanmar

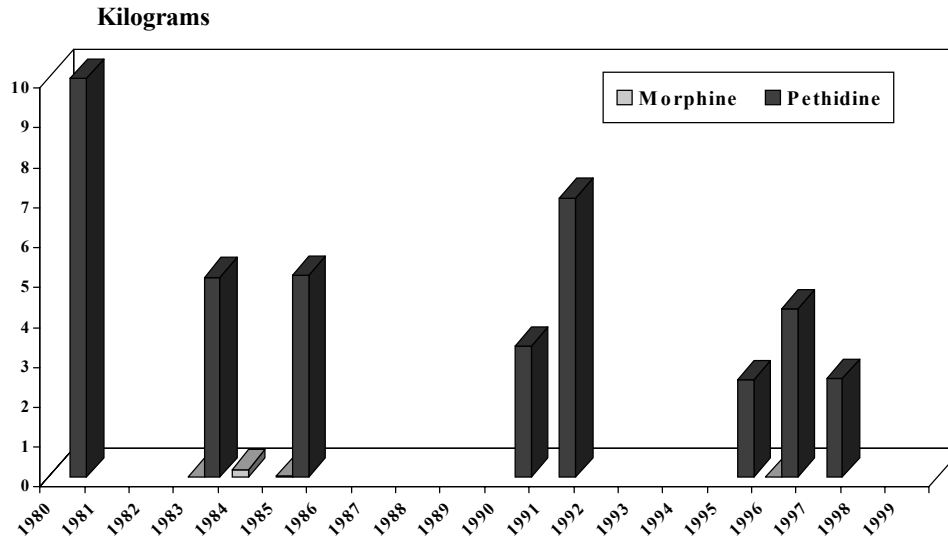


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Myanmar

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	1.687	9.22	1987	99.856	?	1994	?	3.602
1981	1.856	5.22	1988	0	3.967	1995	0.028	3.262
1982	57	6.679	1989	?	1.253	1996	0.377	13.63
1983	0.432	3.104	1990	0	?	1997	0.867	6.965
1984	0.866	2.61	1991	?	10.292	1998	?	?
1985	0.577	1.957	1992	0.016	?	1999	?	?
1986	190.275	5.66	1993	?	?			

Consumption of Morphine and Pethidine: Nepal

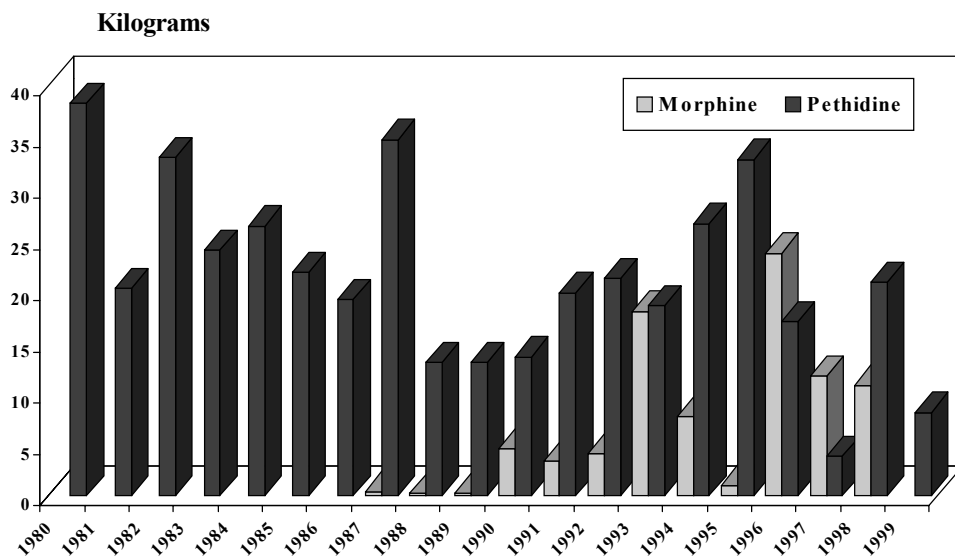


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Nepal

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	?	10	1987	?	?	1994	?	?
1981	?	?	1988	?	?	1995	?	2.448
1982	?	?	1989	?	?	1996	0.008	4.217
1983	0.014	5.018	1990	?	3.286	1997	?	2.472
1984	0.2	?	1991	?	7	1998	?	?
1985	0.046	5.065	1992	?	?	1999	?	?
1986	?	?	1993	?	?			

Consumption of Morphine and Pethidine: Philippines

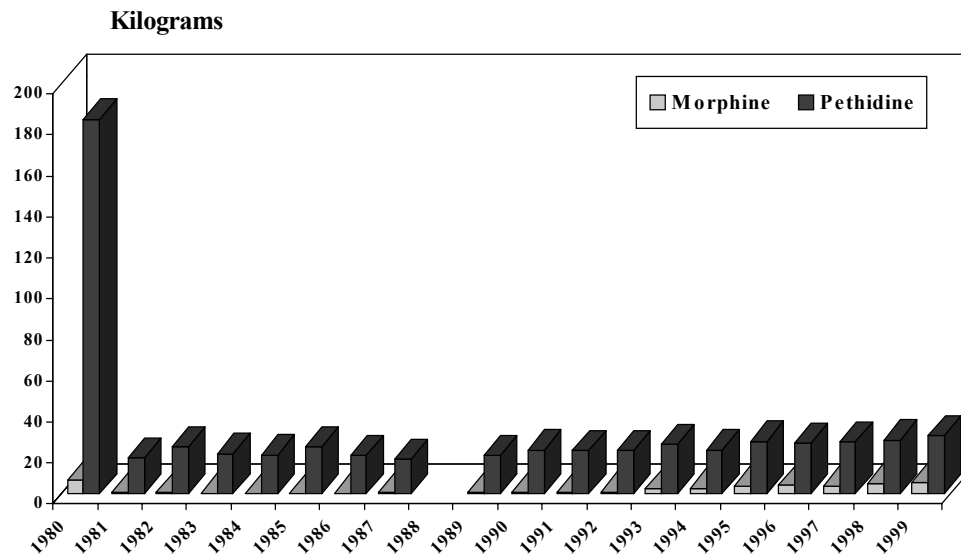


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Philippines

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	?	38.3	1987	0.452	34.746	1994	7.691	26.564
1981	?	20.258	1988	0.255	13.06	1995	1.053	32.835
1982	?	33	1989	0.28	13.05	1996	23.684	16.965
1983	?	24	1990	4.62	13.572	1997	11.656	3.915
1984	?	26.328	1991	3.375	19.825	1998	10.8	20.836
1985	?	21.77	1992	4.125	21.245	1999	?	8.134
1986	?	19.152	1993	18.016	18.523			

Consumption of Morphine and Pethidine: Sri Lanka

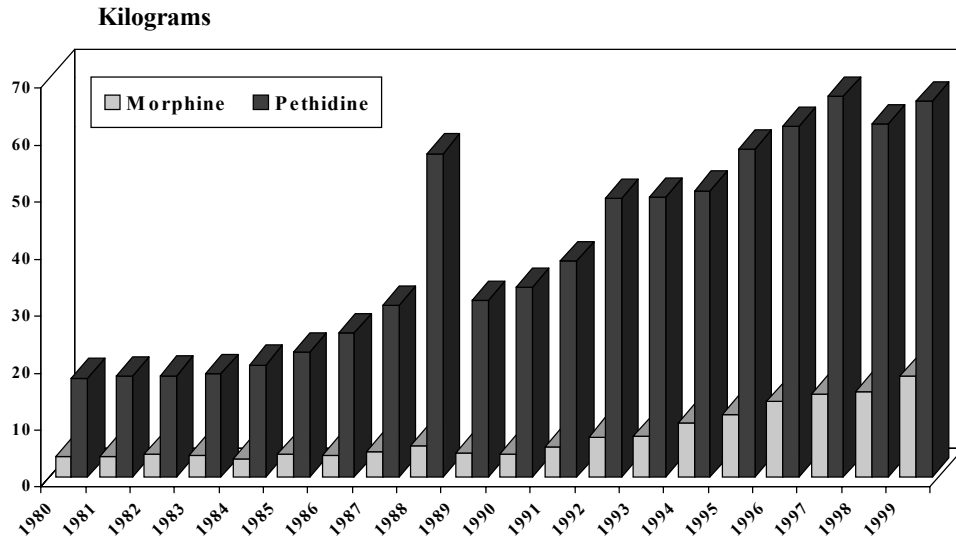


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Sri Lanka

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	6.788	182.672	1987	0.641	16.79	1994	2.912	21.546
1981	0.748	17.606	1988	?	?	1995	4.042	25.781
1982	0.832	22.777	1989	0.52	18.691	1996	4.189	24.809
1983	0.353	19.645	1990	0.542	21.426	1997	4.098	25.539
1984	0.277	19.003	1991	0.562	21.314	1998	5.175	26.219
1985	0.42	23.094	1992	1.085	21.119	1999	5.834	28.389
1986	0.496	18.813	1993	2.347	24.297			

Consumption of Morphine and Pethidine: Thailand

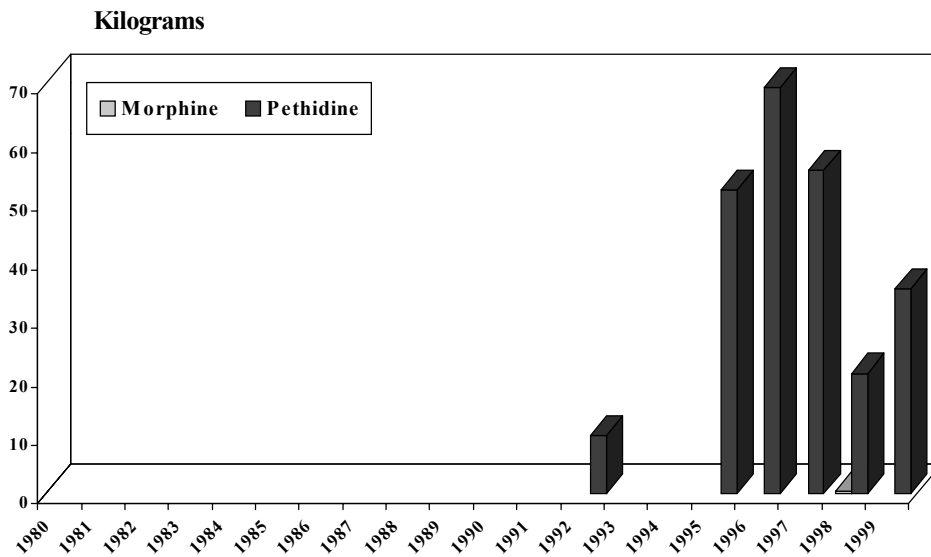


Source: International Narcotics Control Board
By: University of Wisconsin Pain & Policy Studies Group/WHO Collaborating Center, 2001

Consumption of Morphine and Pethidine: Thailand

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	3.593	17.393	1987	4.492	30.205	1994	9.521	50.295
1981	3.62	17.674	1988	5.639	56.808	1995	11	57.518
1982	4.001	17.848	1989	4.243	30.941	1996	13.316	61.471
1983	3.762	18.121	1990	4.034	33.366	1997	14.535	66.741
1984	3.188	19.738	1991	5.309	37.888	1998	14.95	61.919
1985	4.019	21.902	1992	7.124	48.903	1999	17.724	65.98
1986	3.884	25.268	1993	7.241	49.051			

Consumption of Morphine and Pethidine: Viet Nam



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Consumption of Morphine and Pethidine: Viet Nam

Year	Morphine	Pethidine	Year	Morphine	Pethidine	Year	Morphine	Pethidine
1980	?	?	1987	?	?	1994	?	?
1981	?	?	1988	?	?	1995	?	51.8
1982	?	?	1989	?	?	1996	?	69.259
1983	?	?	1990	?	?	1997	?	55.264
1984	?	?	1991	?	?	1998	0.448	20.6
1985	?	?	1992	?	10	1999	?	35
1986	?	?	1993	?	?			