

Table 1. Characteristics of the included studies (N = 126)

Characteristics	n (%)
Study characteristics	
<i>Setting</i>	
North America	
United States	103 (81.7)
Canada	5 (4.0)
Europe	16 (12.7)
Oceania	2 (1.6)
<i>Year of publication</i>	
2000 - 2004	0 (0.0)
2005 - 2009	9 (7.1)
2010 - 2014	31 (24.6)
2015 - 2019	86 (68.3)
<i>Study design</i>	
Cohort	92 (73.0)
Cross-sectional	32 (25.4)
Case-control	2 (1.6)
<i>Opioid use data source</i>	
Prescribing records	18 (14.3)
Pharmacy dispensing data	108 (85.7)
<i>Coverage of data source</i>	
Local, community-wide registers	10 (7.9)
Regional register from a selected geographic area	37 (29.4)
Nationwide register of selected patients	19 (15.1)
Nationwide administrative register	58 (46.0)
Other	2 (1.6)
<i>Other data sources used in the study</i>	
One additional data source	
Medical care claims	35 (27.8)
Medical health record	24 (19.0)
Survey or questionnaires	6 (4.8)
Other	5 (4.0)
Combination of data sources	42 (33.3)
None	14 (11.1)
Study population characteristics	
<i>Age</i>	
All age groups (no age limits)	32 (25.4)
Elderly (65 years and over)	11 (8.7)
Adults (18 years and over)*	81 (64.3)
Adolescents and young adults (13-29 years) **	2 (1.6)
<i>Size of the study population</i>	
100 - 999	11 (8.7)
1,000 - 9,999	15 (11.9)
10,000 - 49,999	23 (18.3)
50,000 - 99,999	15 (11.9)
100,000 - 999,999	41 (32.5)
1,000,000 or more	21 (16.7)
<i>Opioid naïve (Yes)</i>	27 (21.4)
<i>Health condition</i>	
CNCP	42 (33.3)
Musculoskeletal conditions	15 (11.9)
Injury or trauma	13 (10.3)
HIV or Hepatitis C	8 (6.3)
Cancer patients or survivors	5 (4.0)
Chronic pain (cancer and non-cancer)	6 (4.8)
Neuropathy	3 (2.4)
Other	17 (13.5)
Not specified	17 (13.5)

* Three studies included people aged 16 years and older

** Studies included adolescents but were not conducted exclusively among people aged under 18 years

CNCP: Chronic non-cancer pain, HIV: Human Immunodeficiency Virus

Table 2. The 10 most common definitions for long-term opioid therapy (LTOT) and their documented rationales (N = 97)

Definition	Rationales	Number of studies (references)
≥ 90 days of cumulative or continuous use or supply within one year	Relied on clinical judgement and the frequency distribution of days of opioids used	1 [48]
	According to previous studies	17 [22, 37, 45, 53-66]
	Not provided	9 [25, 46, 47, 67-72]
≥ 90 days of use or supply within different follow-up or interval windows, or not reported	According to previous studies	13 [20, 27, 31, 40, 73-81]
	Not reported	3 [20, 33, 82, 83]
Episodes of use lasting ≥ 90 days with either ≥ 120 days-supply of opioids or ≥ 10 opioid fills	Based on life table analyses and the likelihood of an additional prescription with 10 days' supply	1 [49]
	According to Von Korf et al. [49]	13 [34, 84-92]
	Adaptations from Von Korf et al. [49]	8 [29, 93-102]
≥ 180 days of use or supply within one year	Based on clinical judgment	2 [50, 51]
	According to previous studies	3 [103-105]
	Not reported	2 [106, 107]
≥ 180 days of use or supply within different follow-up or interval windows, or not reported	According to previous studies	2 [108, 109]
	Not reported	2 [21, 110]
≥ 1 fill per month for 6 months within one year	Relied on clinical judgement and recommendations from government agencies	3 [111-113]
≥ 3 fills within one year	According to previous studies	2 [114, 115]
	Relied on clinical judgement	1 [116]
≥ 3 fills within different follow-up or interval windows, or not reported	According to previous studies	3 [32, 38, 117]
	Not provided	3 [30, 118, 119]
≥ 6 fills within one year	Relied on clinical judgement and previous studies	1 [120]
	According to previous studies	3 [121-123]
	Not provided	1 [124]
≥ 180 DDD or 4500 mg OME dispensed during 365 days and in at least three of four quarters of the year (Wide definition)	Based on clinical scenarios combining the dimensions of intensity (quantity used), frequency (number of prescriptions), and distribution (number of quarters with dispensations) of opioids within a year and empirical data testing the likelihood of patients to belong to the same group in the following two years [52]	4 [52, 125-127]

Represents 77% of included studies

DDD: Defined daily doses; OME: Oral Morphine Equivalents