

# Introduction to Oral Opioids

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2024-01-30

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## Description

Provides details such as Morphine Equivalent Dose (MED), brand name and opioid content which are calculated of all oral opioids authorized for sale by Health Canada based on their Drug Identification Number (DIN) or FDA based on their Product ID for Opioids authorized for sale in Canadian or US markets. For US Opioids, MEDs are calculated using Von Korff et al. (2008) and information obtained from FDA's daily National Drug Code Directory [/drug/ndc] download MEDs are calculated based on recommendations by Canadian Institute for Health Information (CIHI) and information obtained from Health Canada's Drug Product Database's monthly data dump for Canadian Opioids. Please note in no way should output from this package be a substitute for medical advise.

All medications should only be consumed on prescription from a licensed healthcare provider

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## Functions

### Loading/updating the FDA dataset

```
library(OralOpioids)
US_Opioid_Table <- load_Opioid_Table(country="US")
```

```
Your FDA_Opioid_Table is outdated. Do you want to download the latest data from FDA? (y/n)
```

```
1: Y
2: N
```

```
Selection: Y
```

```
trying URL 'https://download.open.fda.gov/drug/ndc/drug-ndc-0001-of-0001.json.zip'
Content type 'application/zip' length 27647880 bytes (26.4 MB)
downloaded 26.4 MB
```

```
The FDA_Opioid_Table was successfully updated to 2023-12-20.
```

```
DISCLAIMER: Not a substitute for medical advise. Please note that the output generated by the package is
```

```
Source url of the data: https://download.open.fda.gov/drug/ndc/drug-ndc-0001-of-0001.json.zip
```

```
Source url used for dosing: Von Korff M, Saunders K, Thomas Ray G, et al. De facto long-term opioid the
```

```
head(US_Opioid_Table)
```

Drug_ID	name	strength	Base1	Base2	Base3	active_ingredients	marketing_category	F
1 0054-0176	BUPRENORPHINE HYDROCHLORIDE	2 mg/1	2.0	1				
2 0054-0177	BUPRENORPHINE HYDROCHLORIDE	8 mg/1	8.0	1				
3 0054-0188	BUPRENORPHINE HYDROCHLORIDE	2 mg/1	2.0	1		buprenorphine hydrochloride	and	
4 0054-0188	NALOXONE HYDROCHLORIDE DIHYDRATE	.5 mg/1	0.5	1		buprenorphine hydrochloride	and	
5 0054-0189	BUPRENORPHINE HYDROCHLORIDE	8 mg/1	8.0	1		buprenorphine hydrochloride	and	
6 0054-0189	NALOXONE HYDROCHLORIDE DIHYDRATE	2 mg/1	2.0	1		buprenorphine hydrochloride	and	
1	BUPRENORPHINE HYDROCHLORIDE,	2 mg/1						ANDA TAB
2	BUPRENORPHINE HYDROCHLORIDE,	8 mg/1						ANDA TAB
3	BUPRENORPHINE HYDROCHLORIDE, NALOXONE HYDROCHLORIDE DIHYDRATE,	2 mg/1, .5 mg/1						ANDA TAB
4	BUPRENORPHINE HYDROCHLORIDE, NALOXONE HYDROCHLORIDE DIHYDRATE,	2 mg/1, .5 mg/1						ANDA TAB
5	BUPRENORPHINE HYDROCHLORIDE, NALOXONE HYDROCHLORIDE DIHYDRATE,	8 mg/1, 2 mg/1						ANDA TAB
6	BUPRENORPHINE HYDROCHLORIDE, NALOXONE HYDROCHLORIDE DIHYDRATE,	8 mg/1, 2 mg/1						ANDA TAB
						Opioid	Opioid_1	MED_pe
1	BUPRENORPHINE HYDROCHLORIDE	2 mg/1				BUPRENORPHINE		
2	BUPRENORPHINE HYDROCHLORIDE	8 mg/1				BUPRENORPHINE		
3	BUPRENORPHINE HYDROCHLORIDE 2 mg/1 + NALOXONE HYDROCHLORIDE DIHYDRATE .5 mg/1					BUPRENORPHINE		
4	BUPRENORPHINE HYDROCHLORIDE 2 mg/1 + NALOXONE HYDROCHLORIDE DIHYDRATE .5 mg/1					NALOXONE		
5	BUPRENORPHINE HYDROCHLORIDE 8 mg/1 + NALOXONE HYDROCHLORIDE DIHYDRATE 2 mg/1					BUPRENORPHINE		
6	BUPRENORPHINE HYDROCHLORIDE 8 mg/1 + NALOXONE HYDROCHLORIDE DIHYDRATE 2 mg/1					NALOXONE		
	No_tabs/ml assuming 50 MED limit per day	No_tabs/ml assuming 90 MED limit per day				Maximum No_tabs/ml		
1	NA	NA				NA		
2	NA	NA				NA		
3	NA	NA				NA		
4	NA	NA				NA		
5	NA	NA				NA		
6	NA	NA				NA		
	Maximum No_tabs/ml assuming 50 MED limit for 14 days	Maximum No_tabs/ml assuming 50 MED limit for 30						
1	NA	NA						
2	NA	NA						
3	NA	NA						
4	NA	NA						
5	NA	NA						
6	NA	NA						

### Loading/updating the Health Canada dataset

```
library(OralOpioids)
Canada_Opioid_Table <- load_Opioid_Table(country="Canada")

## No HealthCanada_Opioid_Tables are currently in the filelocation. Do you want to download the latest
##
## 1: Y
## 2: N
##
## Selection: Y
## trying URL 'https://www.canada.ca/content/dam/hc-sc/documents/services/drug-product-database/allfile
## Content type 'application/zip' length unknown
```

```
## downloaded 1.4 MB
##
## trying URL 'https://www.canada.ca/content/dam/hc-sc/documents/services/drug-product-database/allfile
## Content type 'application/zip' length unknown
## downloaded 407 KB
##
## trying URL 'https://www.canada.ca/content/dam/hc-sc/documents/services/drug-product-database/allfile
## Content type 'application/zip' length unknown
## downloaded 317 KB
##
## trying URL 'https://www.canada.ca/content/dam/hc-sc/documents/services/drug-product-database/allfile
## Content type 'application/zip' length unknown
## downloaded 4.9 MB
##
## The HealthCanada_Opioid_Table was successfully updated to 2023-01-03.
## DISCLAIMER: Not a substitute for medical advise. Please note that the output generated by the packag
##
## Source url of the data: https://www.canada.ca/en/health-canada/services/drugs-health-products/drug-p
## Source url used for dosing: https://www.cihi.ca/sites/default/files/document/opioid-prescribing-cana
```

```
head(Canada_Opioid_Table)
```

```
##      DIN MED_per_dispensing_unit Base1 Base2 Base3      Opioid      Route      Form
## 1 2517175 Couldn't be calculated      1      N      BUPRENORPHINE 2 MG SUBLINGUAL TABLET TARO-BUPREN
## 2 2517175 Couldn't be calculated      1      N      NALOXONE 0.5 MG SUBLINGUAL TABLET TARO-BUPREN
## 3 2517183 Couldn't be calculated      1      N      BUPRENORPHINE 8 MG SUBLINGUAL TABLET TARO-BUPREN
## 4 2517183 Couldn't be calculated      1      N      NALOXONE 2 MG SUBLINGUAL TABLET TARO-BUPREN
## 5 2518759           5           1      N      TRAMADOL 50 MG      ORAL TABLET
## 6 763527           1.2         1      N      CODEINE 8 MG      ORAL TABLET
##      No_tabs/ml assuming 90 MED limit per day Maximum No_tabs/ml assuming 50 MED limit for 7 days Maxim
## 1      Couldn't be calculated      Couldn't be calculated
## 2      Couldn't be calculated      Couldn't be calculated
## 3      Couldn't be calculated      Couldn't be calculated
## 4      Couldn't be calculated      Couldn't be calculated
## 5      18
## 6      75
##      Maximum No_tabs/ml assuming 50 MED limit for 30 days      Status_1 last_updated
## 1      Couldn't be calculated      APPROVED      2023-01-03
## 2      Couldn't be calculated      APPROVED      2023-01-03
## 3      Couldn't be calculated      APPROVED      2023-01-03
## 4      Couldn't be calculated      APPROVED      2023-01-03
## 5      300      APPROVED      2023-01-03
## 6      1260 CANCELLED POST MARKET      2023-01-03
```

Get the Morphine Equivalent Dose (MED) from FDA by using the Product ID

```
MED("0093-0058",US_Opioid_Table)
```

```
[1] 5
```

Get the Morphine Equivalent Dose (MED) from Health Canada by using DIN

```
MED(786535, Canada_Opioid_Table)
```

```
[1] 5
```

Get the Brand name from FDA by using the Product ID

```
Brand("0093-0058", US_Opioid_Table)
```

```
[1] "Tramadol Hydrochloride"
```

Get the Brand name from Health Canada by using DIN

```
Brand(786535, Canada_Opioid_Table)
```

```
[1] "DILAUDID"
```

Get the Opioid content from FDA by using the Product ID

```
Opioid("0093-0058",US_Opioid_Table)
```

```
[1] "TRAMADOL HYDROCHLORIDE 50 mg/1 "
```

Get the Opioid content from Health Canada by using DIN

```
Opioid(786535, Canada_Opioid_Table)
```

```
[1] "HYDROMORPHONE 1 MG"
```

Get the Maximum number of units/millilitres of oral opioids allowed per day assuming a daily limit of 50 MED/day from FDA by using the Product ID

```
MED_50("0093-0058",US_Opioid_Table)
```

```
[1] 10
```

Get the Maximum number of units/millilitres of oral opioids allowed per day assuming a daily limit of 50 MED/day from Health Canada by using DIN

```
MED_50(786535, Canada_Opioid_Table)
```

```
[1] 10
```

Get the Maximum number of units/millilitres of oral opioids allowed per day assuming a daily limit of 90 MED/day from FDA by using the Product ID

```
MED_90("0093-0058",US_Opioid_Table)
```

```
[1] 18
```

Get the Maximum number of units/millilitres of oral opioids allowed per day assuming a daily limit of 90 MED/day from Health Canada by using DIN

```
MED_90(786535, Canada_Opioid_Table)
```

```
[1] 18
```