Introduction to Oral Opioids

Ankona Banerjee & Erik Stricker

2025-12-15

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

---

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Your FDA_Opioid_Table is outdated.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 sl

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
```

```r
head(US_Opioid_Table)
```

```
    Drug_ID                              name strength Base1 Base2 Base3
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
                                                            active_ingredients marketing_category   Fo
1                                             BUPRENORPHINE HYDROCHLORIDE, 2 mg/1         ANDA TABI
2                                             BUPRENORPHINE HYDROCHLORIDE, 8 mg/1         ANDA TABI
3 BUPRENORPHINE HYDROCHLORIDE, NALOXONE HYDROCHLORIDE DIHYDRATE, 2 mg/1, .5 mg/1         ANDA TABI
4 BUPRENORPHINE HYDROCHLORIDE, NALOXONE HYDROCHLORIDE DIHYDRATE, 2 mg/1, .5 mg/1         ANDA TABI
5  BUPRENORPHINE HYDROCHLORIDE, NALOXONE HYDROCHLORIDE DIHYDRATE, 8 mg/1, 2 mg/1         ANDA TABI
6  BUPRENORPHINE HYDROCHLORIDE, NALOXONE HYDROCHLORIDE DIHYDRATE, 8 mg/1, 2 mg/1         ANDA TABI
                                                                       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 a
1                                       NA                                       NA
2                                       NA                                       NA
3                                       NA                                       NA
4                                       NA                                       NA
5                                       NA                                       NA
6                                       NA                                       NA
  Maximum No_tabs/ml assuming 50 MED limit for 14 days Maximum No_tabs/ml assuming 50 MED limit for 30 o
1                                                  NA
2                                                  NA
3                                                  NA
4                                                  NA
5                                                  NA
6                                                  NA
```

Loading/updating the Health Canada dataset

```r
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
```

```r
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            J
## 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                                                     70
## 6                                       75                                                    294
##   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

```r
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
```