# Opioid Stewardship

New Frontiers in Pain Medication

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November 4, 2021

*I respectfully acknowledge the land on which I work is the unceded traditional territory of the Coast Salish Peoples, including the traditional territories of Musqueam, Squamish, and Tsleil-Waututh Nations.*

# Disclosure

Presenter's Name: **Tamara Mihic**

1. I have no current or past relationships with commercial entities
2. I have received an honorarium from CSHP BC Branch – Island Chapter for this learning activity

## Commercial Support Disclosure

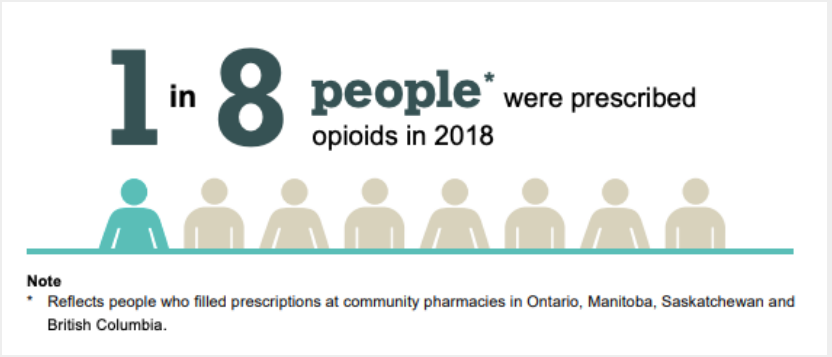
This program has received no financial or in-kind support from any commercial or other organization

# Objectives

By the end of this 45 minute session, the learner will be able to:

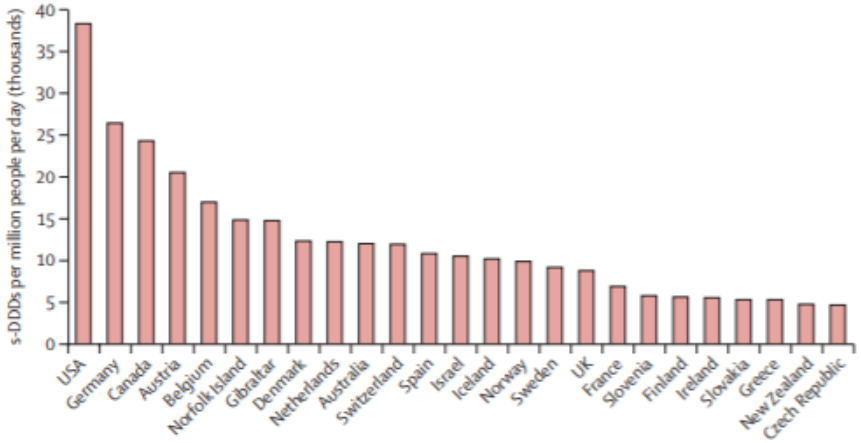
1) Describe the current state of the opioid crisis in BC and the historical events that led to this
2) Define the goal of opioid stewardship and opioid stewardship programs
3) Identify risk factors for short and long-term opioid related adverse events
4) Apply opioid stewardship interventions to a patient case

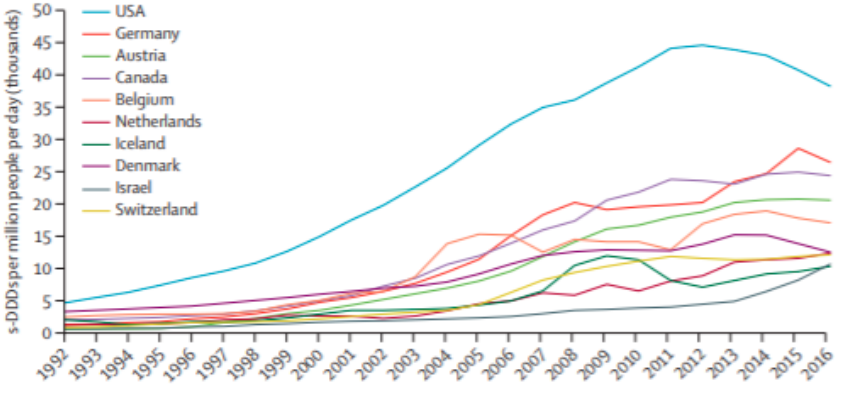
# Pain and Opioid Use in Canada


1. Royal College of Physicians and Surgeons of Canada. Safer Opioids for All. 2021. Available from: https://www.royalcollege.ca/rcsite/health-policy/policy-positions/opioids-e
2. Canadian Institute for Health Practices. Opioid Prescribing in Canada. 2019. Available from: https://www.cihi.ca/sites/default/files/document/opioid-prescribing-canada-trends-en-web.pdf

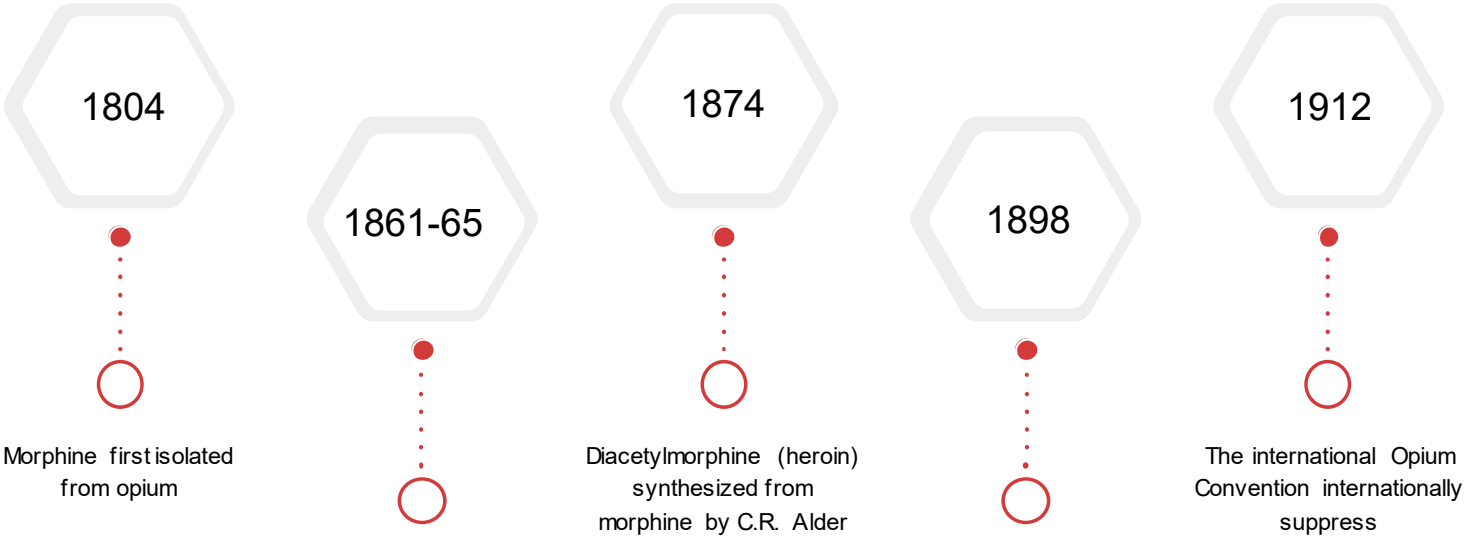
# Worldwide Opioid Prescribing




Lancet. 2019;394:1560-79.

# History of Prescription Opioids




Opium. Encyclopedia Britannica. 2010. Available from: https://www.britannica.com/science/opium

## ADDICTION RARE IN PATIENTS TREATED WITH NARCOTICS

*To the Editor:* Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients[1] who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well documented addiction in patients who had no history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients,[2] Oxycodone one, and hydromorphone in one. We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

JANE PORTER
HERSHEL JICK, M.D.
Boston Collaborative Drug Surveillance Program
Boston University Medical Center
Waltham, MA 02154

1. Jick H, Miettinen OS, Shapiro S, Lewis GP, Siskind Y, Slone D. Comprehensive drug surveillance. JAMA. 1970; 213:1455-60.
2. Miller RR, Jick H. Clinical effects of meperidine in hospitalized medical patients. J Clin Pharmacol. 1978; 18:180-8.

Pain 1986;25:171-86.

# History of Prescription Opioids

**1986**

WHO pain ladder for treatment of cancer pain released

**1988**

Pain defined as a vital sign, expansion of opioid use for chronic non-cancer pain

**1996**

Oxycontin released on the market and heavily promoted by the manufacturer for use in chronic pain

**2004**

Health Canada launches review of opioid prescribing in Atlantic Canada

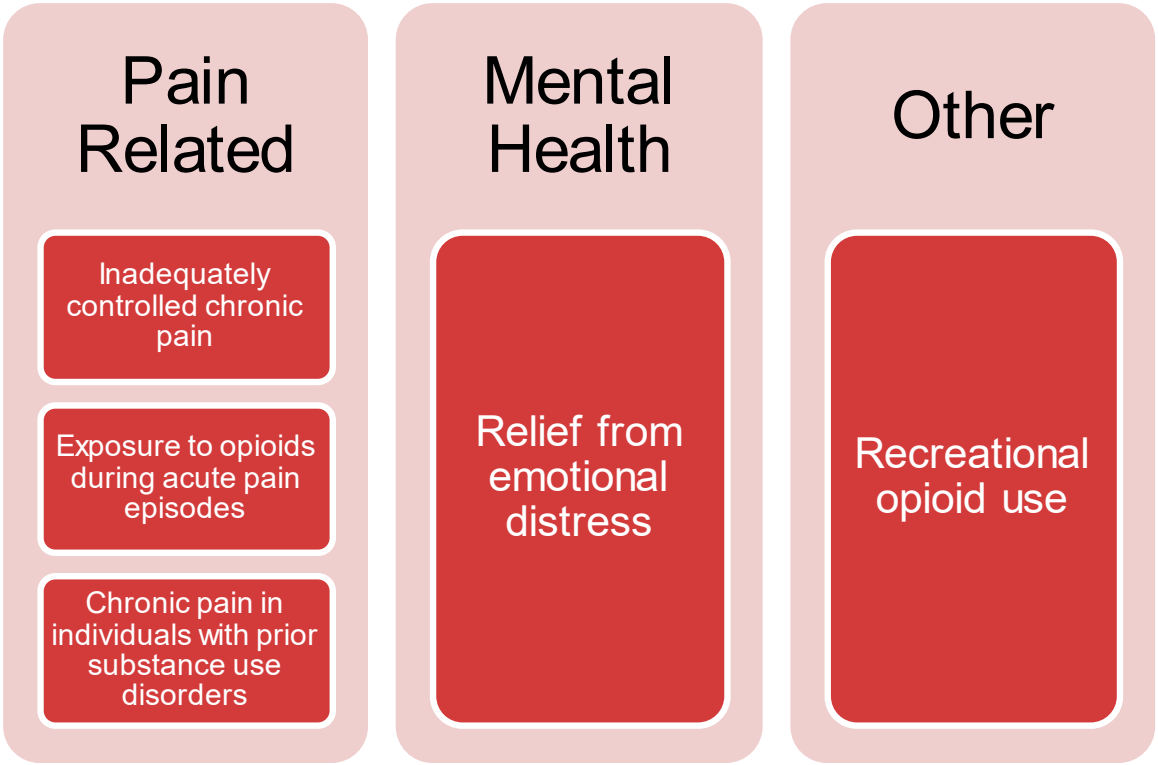
**2012**

Class action law suits filed against Purdue

The manufacturer replaced oxycodone CR formulation Oxycontin with Oxyneo but majority of provinces decide not to fund either version

The Globe and Mail. Prescriptions of Opioid Drugs Skyrocketing in Canada. 2015 Aug 18. Available from: http://www.theglobeandmail.com/news/national/sales-of-opiod-drug-prescriptionsskyrocketing/article26008639/

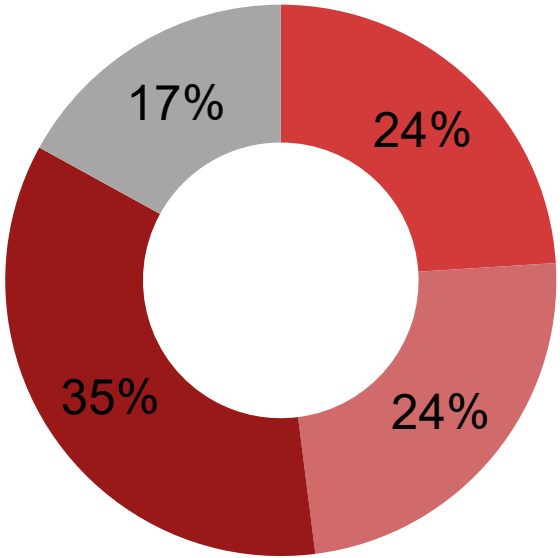
# Pathways to Opioid Use Disorder




J Subst Abuse Treat. 2017 February ; 73: 47–54.

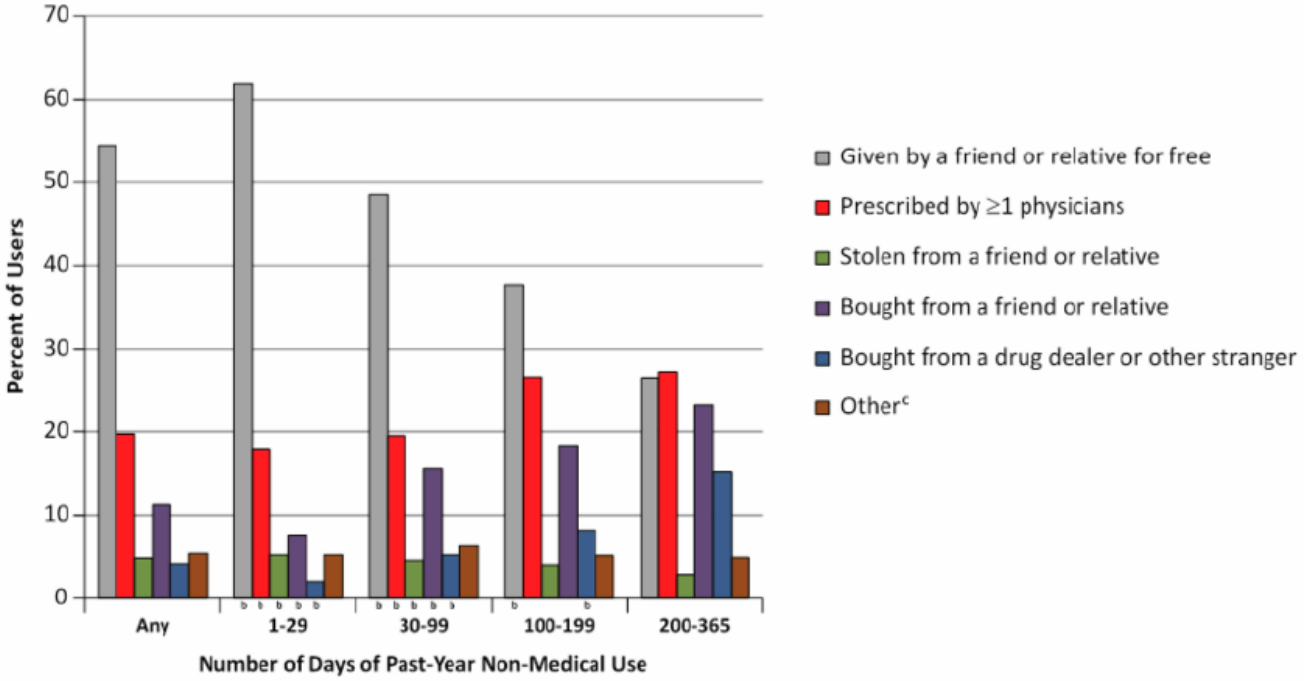
# Use of Prescription Opioids in Opioid Use Disorder

## Prescription Opioid Use in Opioid Use Disorder (OUD)




Drugs and Alcohol Dependence. 2004;73:199-207.

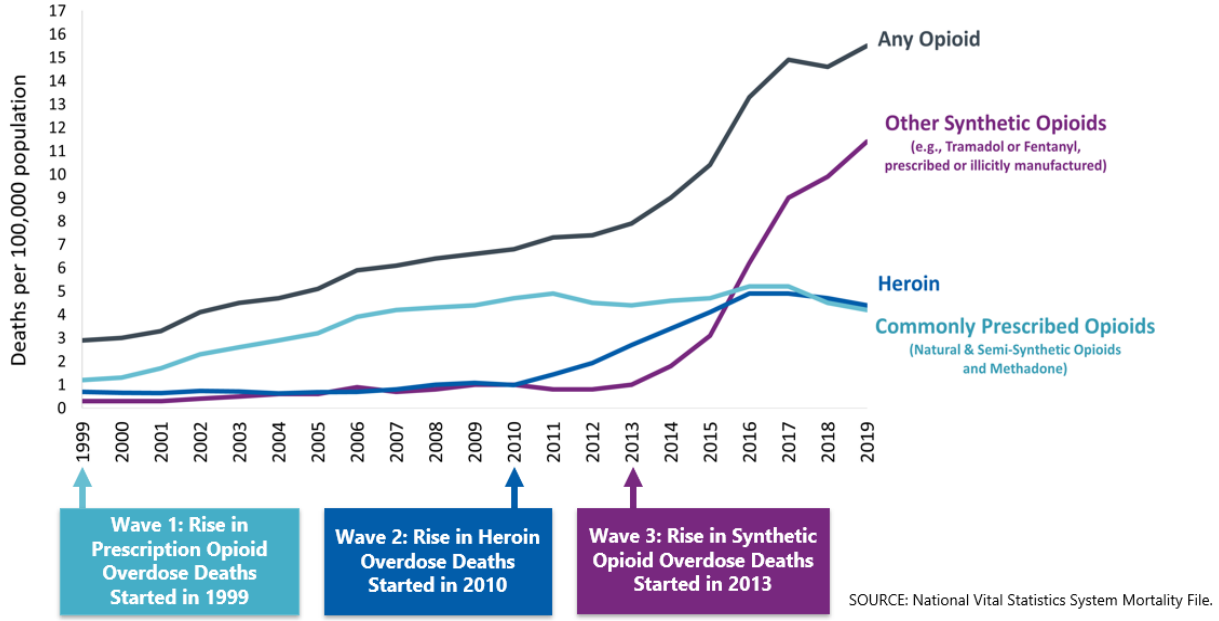
## Sources of Prescription Painkillers Among Past-Year Non-Medical Users[a]




[a] Obtained from the US National Survey on Drug Use and Health, 2008 through 2011.[5]
[b] Estimate is statistically significantly different from that for highest-frequency users (200-365 days) ($P < .05$).
[c] Includes written fake prescriptions and those opioids stolen from a physician's office, clinic, hospital, or pharmacy; purchases on the Internet; and obtained some other way.

JAMA Intern Med 2014;174(5):802-3.

# Three Waves of the Rise in Opioid Overdose Deaths




CDC. Understanding the Epidemic. 17 Mar 2021 [cited: 29 Oct 2021]. Available from: https://www.cdc.gov/opioids/basics/epidemic.html

# Impact of Hospital Prescribing

**AOR 4.90**

Odds of chronic opioid use 1 year post hospital discharge if receiving opioid Rx on discharge

**AOR 1.44**

Odds of chronic opioid use at 1 year if receiving opioid Rx within 7 days of surgery

**AOR 3.47**

Odds of requiring cardiopulmonary resuscitation if receiving opioids + sedatives in hospital

**1.6 days**
**$8,225**

Mean increased length of stay and hospital costs for patients experiencing an opioid related adverse event in hospital

J Gen Intern Med. 2016;31(5):478-85
Arch Intern Med. 2012;172(5):425-430

PLoS ONE. 2016;11(2):e0150214
JAMA Surg. 2018;153(8):757-783

**Opioid Stewardship**

Coordinated interventions designed to improve, monitor, and evaluate the use of opioids in order to support and protect human health

# Patient Case

- 33 yo male with polysubstance use (alcohol, cocaine, MDMA, ketamine), complex PTSD (multigenerational trauma), and stimulant induced psychosis
- Admitted with R leg compartment syndrome and myositis, and AKI requiring hemodialysis
- Underwent incision and drainage, fasciotomy, further irrigation debridement, myectomy, and closure + VAC application
- Reviewed by Opioid Stewardship Team after transfer from ICU to CTU

# Patient Case

- Patient appeared sedated, rousable to voice. Drifting off to sleep mid conversation
- Reports pain to R leg (throbbing pain in R thigh and electric pain radiating down whole leg) and R foot (burning pain, new)
- Pain is worse with movement and he is not able to walk
- Reports he is sleeping most of the day and then having difficulty sleeping at night

**Analgesics PTA:** none

**Current analgesics:**

- Acetaminophen 650 mg PO q4h
- Celecoxib 200 mg PO daily
- Gabapentin 200 mg PO TID
- Hydromorphone 10 mg PO q4h (increased from 8 mg PO q4h yesterday)
- Hydromorphone 2 mg PO q2h prn pain (none used)
- Hydromorphone 2-4 mg PO q4h prn pain (received one dose last night and none since)
- Hydromorphone 0.2-0.4 mg IV q1h prn pain (7 mg yesterday, none today)
- Hydromorphone 1-2 mg SC q4h prn pain (none used)

**Other Medications:**

Ciprofloxacin 750 mg PO daily

Loxapine 15 mg PO TID and 20 mg PO qHS

Melatonin 9 mg PO qHS

Multivitamin 1 tab PO daily

Propranolol 10 mg PO q6h (for anxiety)

Risperidone 2 mg PO qHS

Thiamine 200 mg PO daily

Valproate 250 mg PO qAM and 500 mg PO qHS

Bowel protocol

Dimenhydrinate 25 mg PO/IV q4h prn nausea or vomiting (none used)

Diphenhydramine 25 mg PO q6h prn itching (none used)

Zopiclone 3.75 mg PO qHS PRN insomnia (none used)

# Opioid Stewardship Review

01

Pain Assessment

02

Risk Factor Assessment

03

Non-opioid and non-pharmacological management

04

Review of Opioids

05

Monitoring

06

Patient Education & Risk Mitigation Strategies


Pain Assessment

# Pain Duration

## Acute Pain

Lasting up to 7 days


## Chronic Pain

Lasting over 3 months

# Type of Pain

## Nociceptive Pain

Activation of nociceptors in the peripheral nerve by noxious stimuli (mechanical, thermal, chemical).

Nociceptors also release neuropeptides (substance P, calcitonin, CGRP) which cause inflammation and peripheral sensitization.

## Neuropathic Pain

Results from injury or disease of neurons in the peripheral or central nervous system.

Burning or electrical character.
Can persist or occur in short episodes.
May be combined with hyperalgesia and allodynia.

## Central Sensitization

Increase of excitability of spinal cord Neurons.

Amplifies the processing of nociceptive input.
Increase in response to regions adjacent to and remote from injured region.

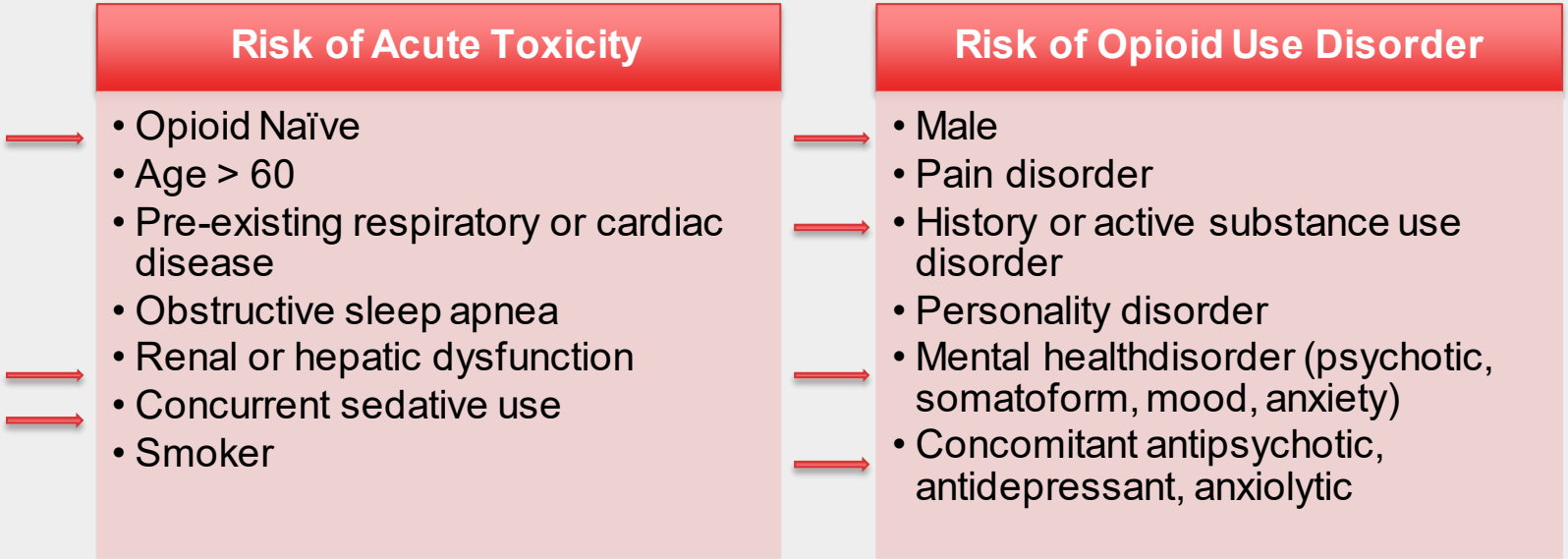
Langenbecks Arch Surg (2004) 389:237–243

What type of Pain is our patient experiencing?

a. Nociceptive
b. Neuropathic
c. Central sensitization
d. A and B
e. All of the above


Risk Factor
Assessment

# Patient-Specific Risk Factors





1. Joint Commission. Sentinel event alert 49: Safe use of opioids in hospitals. 2012.
2. JAMA Network Open. 2019;2(5):e193365. doi:10.1001/jamanetworkopen.2019.3365


Non-Opioid and
Non-Pharmacological
Management

# Guideline Recommendations Non-Opioid Management

1. All guidelines recommend utilizing non-pharmacological modalities for pain management
2. All guidelines recommend optimizing non-opioid analgesics first prior to initiating opioids (for acute or chronic pain), and continued with opioid therapy if initiated

# Non-opioid analgesics – Opioid Sparing

| Comparison | Morphine consumption, unadjusted, mean difference, mg (95% CrI) | Morphine consumption, adjusted,* mean difference, mg (95% CrI) | Nausea and PONV, pairwise OR (95% CrI) | Sedation, pairwise OR (95% CrI) |
|---|---|---|---|---|
| Paracetamol *vs* placebo | −6.34 (−9.02, −3.65) | −8.68 (−11.43, −5.94) | 1.00 (0.60, 1.53) | 1.62 (0.32, 5.02) |
| NSAID *vs* placebo | −10.18 (−11.65, −8.72) | −9.45 (−10.90, −8.01) | 0.70 (0.53, 0.88) | 0.53 (0.20, 1.01) |
| COX-2 *vs* placebo | −10.92 (−12.77, −9.08) | −10.67 (−12.42, −8.94) | 0.88 (0.61, 1.25) | 0.63 (0.18, 1.49) |
| NSAID *vs* paracetamol | −3.85 (−6.80, −0.89) | −0.77 (−3.75, 2.21) | 0.74 (0.44, 1.17) | 0.51 (0.08, 1.63) |
| COX-2 *vs* paracetamol | −4.58 (−7.83, −1.35) | −1.99 (−5.24, 1.24) | 0.93 (0.51, 1.63) | 0.63 (0.07, 2.33) |
| COX-2 *vs* NSAID | −0.74 (−3.03, 1.56) | −1.22 (−3.43, 1.00) | 1.28 (0.81, 1.97) | 1.40 (0.30, 4.31) |
| Number of arms; residual deviance | 116; 186 | 116; 114 | 86; 97 | 31; 41 |

BJA: British Journal of Anaesthesia. 2011;106(3):292–297.

| Smith et al. 2019 | |
|---|---|
| **P** | 569 females undergoing cesarean section |
| **I** | Revised electronic opioid order set:<br>- Remove opioid combination products<br>- **Schedule acetaminophen and NSAIDs**<br>- **Only have opioids PRN** |
| **C** | Previous electronic opioid order set |
| **O** | MME requirements per stay: 30 [5-68] vs 120 [90-176]<br>MME requirements per day: 12 [2-5] vs 51 [41-60]<br>Length of stay: no significant difference<br>Change in pain scores: no significant difference |

Obstets & Gynecol. 2019 Apr 1;133(4):700-6.

# Neuropathic Pain Management

| Medication | NNT | Recommendations |
|---|---|---|
| TCA | 3.57 (3.0 – 4.4) | **First Line** |
| SNRI | 6.40 (5.2 – 8.4) | **First Line** |
| Pregabalin | 7.71 (6.5 – 9.4) | **First Line** |
| Gabapentin | 7.16 (5.9 – 9.1) | **First Line** |
| Tramadol | 4.73 (3.6 – 6.7) | Second Line |
| Capsaicin 8% | 10.64 (7.4 – 19) | Second Line |
| Other Opioids | 4.26 (3.4 – 5.8) | Third Line |
| onabotulinumtoxinA | 1.85 (1.5 – 2.4) | Third Line |

Lancet Neurol. 2015 Feb; 14(2): 162–173.

## QUESTION

Which of these non-opioid strategies could we employ for our patient?

a. Increase gabapentin
b. Add an SNRI
c. Add a TCA
d. Increase celecoxib


Review Opioid
Medications

# Guideline Recommendations for Opioids

- Limit dose to less than 50-90 MME per day
- Avoid long-acting formulations for acute pain
- Avoid co-prescribing with benzodiazepines
- Do not prescribe compound tablets (give each medication separately)
- Limit the number of tablets given at discharge (review use in last 24h before discharge)
- Limit the duration of opioids given at discharge (> 7 days is rarely required for acute pain)
- Refer to a pain service if pain exceeds expected healing time
- Refer to multidisciplinary pain program if challenges tapering opioids for chronic pain
- Only continue opioid therapy if there is a clinically meaningful improvement in pain and function that outweighs safety risks

# Calculating MME

| Opioids* Oral preparations (mg/d) | To convert to oral morphine equivalent, multiply by: | To convert from oral morphine, multiply by: |
|---|---|---|
| Buprenorphine[3] | • 5 µg/h patch = 9–14 mg MED/d<br>• 10 µg/h patch = 18–28 mg MED/d | • 15 µg/h patch = 27–41 mg MED/d<br>• 20 µg/h patch = 36–55 mg MED/d[4,5] |
| Buprenorphine/ naloxone SL[3] | 16 mg SL = 90 mg MED | |
| Codeine | 0.15 (0.1–0.2) | 6.67 |
| Hydromorphone | 5.0 | 0.2 |
| Methadone | Dose equivalents unreliable | |
| Morphine | 1.0 | 1 |
| Oxycodone | 1.5 | 0.667 |
| Tapentadol | 0.3–0.4 | 2.5–3.33 |
| Tramadol** | 0.1–0.2 | 6 |
| Fentanyl[6]*** | 60–134 mg morphine = 25 µg/h patch<br>135–178 mg morphine = 37 µg/h patch<br>180–224 mg morphine = 50 µg/h patch<br>225–269 mg morphine = 62 µg/h patch<br>270–314 mg morphine = 75 µg/h patch<br>315–359 mg morphine = 87 µg/h patch<br>360–404 mg morphine = 100 µg/h patch | |

Remember when converting from one opioid to another to reduce the total daily dose by 25-50% for incomplete cross-tolerance.

Centre for Effective Practice. Opioid Manager. 2017. Available from: https://cep.health/media/uploaded/CEP_Opioid_Manager_2017.pdf

# Parenteral vs Oral Route

## Oral route is preferred whenever possible

Parenteral only if unable to take any PO medications or low dose IV for short-term breakthrough while titrating doses

## Remember to adjust dose for bioavailability when converting IV/SC <-> PO

**Risks:**

- IV associated with increased side effects, adverse events, and medication errors[1-3]
- Increased complications (e.g. line infection, thrombophlebitis)
- Increased addiction potential of medications with more rapid onset of action[4]
- Increased cost of parenteral medications

**Pharmacokinetics and Clinical Effect:**

Oral opioids provide more consistent absorption and duration of effect than parenteral → less variable pain control

- PO onset in 15-30 minutes (peak in 30-60 minutes), duration 3-4 hours
- SC onset in 10-15 minutes, faster time to peak than PO but effect begins to wear off in 45-90 minutes
- IV onset within 5 min, peak in 10-20 min


1. Pain Manag. 2014;4(4):317-25.
2. Pain Manag. 2015;20(1):23-8.
3. Am J Geriatr Psychiatry. 2007 Jan 1;15(1):50-9.
4. Drug Alcohol Depend. 2006;83(1):S4-7.
5. Fraser Health Hospice Palliative Care Program. Principles of Opioid Management. 2006.

# Dose

| Dose | Fatal overdose | Non-fatal overdose |
|---|---|---|
| > 100 mg MED/d | 0.23 %/yr | 1.8 %/yr |
| 50 – 99 mg MED/d | 0.18 %/yr | 0.7 %/yr |
| < 20 mg MED/d | 0.1 %/yr | 0.2 %/yr |

**Legend:** d = day, MED = morphine equivalent dose, yr = year

Higher opioid dosages associated with increased risks for adverse events including overdose/respiratory depression

Overdose risk increases with dose


1. CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016.
2. Weingarten et al. Anesth Analg 2015;121(2):422-429.
3. Oderda. Ann Pharmacother. 2007;41(3):400-406.

# Duration

| Variables[#] | UNADJUSTED OR (95% CI) | ADJUSTED OR (95% CI) |
|---|---|---|
| **Opioid Dose and Days** | | |
| No opioid use (Reference) | 1.00 (--) | 1.00 (--) |
| Low dose, acute | 3.31 (2.54 – 4.31)*** | 3.03 (2.32 – 3.95)*** |
| Low dose, chronic | 17.63 (12.33 – 25.20)*** | 14.92 (10.38 – 21.46)*** |
| Med dose, acute | 3.04 (2.30 – 4.01)*** | 2.80 (2.12 – 3.71)*** |
| Med dose, chronic | 35.19 (24.75 – 50.02)*** | 28.69 (20.02 – 41.13)*** |
| High dose, acute | 2.68 (1.45 –4.98)** | 3.10 (1.67 – 5.77)*** |
| High dose, chronic | 171.95 (105.97 – 279.00)*** | 122.45 (72.79 – 205.99)*** |

Opioid quantity and MME on discharge are associated with risk of prolonged use. Type of opioid is NOT.

Higher opioid dose and duration more than 90 days associated with later diagnosis of opioid use disorder


1. J Am Acad Orthop Surg. 2019 May 01; 27(9): e423–e429.
2. Clin J Pain. 2014 July ; 30(7): 557–564.

# Duration

| Reference | Year | Specific Procedure | N | Mean Opioid Prescription (Number of Pills) | Mean Opioid Use (Number of Pills | % Taken |
|---|---|---|---|---|---|---|
| Orthopedic and neurosurgical procedures | | | | | | |
| Rodgers et al[18] | 2012 | Hard tissue: ORIF, arthroplasty, rotator cuff repair | 58 | 30 | 14 (SD 11) | 46.7 |
| | | Soft tissue: carpal tunnel, ganglion excision, trigger finger release, cubital tunnel release, arthroscopy | 191 | 30 | 9 (SD 9) | 30.0 |
| Kim et al[26] | 2016 | Hand | 586 | Overall: | 7.7 | 27.0 |
| | | Wrist | 651 | 24 | 7.5 | 27.0 |
| | | Elbow or forearm | 141 | 20* | 11.1 | 35.0 |
| | | Upper arm or shoulder | 23 | | 22.0 | 56.6 |
| Grant et al[27] | 2016 | Posterior spinal fusion for scoliosis | 61 | 61 (SD 14) | 55 (SD 37) | 90.1% |
| Thoracic and abdominal procedures | | | | | | |
| Bartels et al[22] | 2016 | Post C-section | 30 | 268 (53 SD) MME | 53% took none or very few | — |
| | | Post thoracic surgery | 33 | 795 (710 SD) MME | 45% took none or very few | — |
| Bates et al[17] | 2011 | Major open urologic | 213 | 28.6 | 16.214* | 56.6 |
| | | Major laparoscopic urologic | | 23.2 | 13.312* | 57.3 |
| | | Minor open urologic | | 22.2 | 10.38* | 46.4 |
| | | Endoscopic urologic | | 21.7 | 12.610 * | 58.1 |
| Abou-Karam et al[21] | 2015 | Pediatric day surgery and general surgery patients | 104 prescribed regular basis | Not reported | 56% took regularly as prescribed | — |
| | | | 77 prescribed as needed | 18* | 1* | — |
| Swenson et al[24] | 2016 | Minimally invasive urogynecologic surgery: vaginal hysterectomy, robotic-assisted laparoscopic supracervical hysterectomy, colpoclesis, sacrocolpopexy, sacrocervicopexy, Michigan 4-wall sacrospinous ligament suspension, uterosacral ligament suspension | 50 | 40* (IQR 35–60) | 13* (IQR 1–30) | — |
| Hill et al[25] | 2016 | Partial mastectomy | 20 | 19.8 (SD 10.2)20* | 5 (INTS80%) | 15.0 |
| | | Partial mastectomy with SLNB | 21 | 23.7 (SD 11.3)20* | 10 (INTS80%) | 25.0 |
| | | Laparoscopic cholecystectomy | 48 | 35.2 (SD 16.9)30* | 15 (INTS80%) | 33.0 |
| | | Laparoscopic inguinal hernia repair | 20 | 33.8 (SD 9)30* | 15 (INTS80%) | 15.0 |
| | | Open inguinal hernia repair | 18 | 33.2 (SD 15.7)30* | 15 (INTS80%) | 31.0 |
| Miscellaneous minor procedures | | | | | | |
| Voepel-Lewis et al[20] | 2015 | Tonsillectomy | 223 | 52.2 | 8.4 | 16.1 |
| | | Musculoskeletal | | 33.6 | 4.0 | 11.9 |
| | | Minor abdominal, genitourinary tract, or peripheral procedures | | 31.3 | 3.4 | 10.9 |
| Maughan et al[23] | 2016 | Elective extraction of impacted teeth | 72 total | 140* MME | 40* MME | — |
| | | | 67 without dry socket | 28 (SD 6) | 13 (SD 10) | 46.4 |
| | | | 5 with dry socket | 36 (SD 11) | 18 (SD 9) | 50.0 |
| Harris et al[19] | 2013 | Dermatologic surgery | 72 | 8.9 (SD 2.7) | 3.7 (SD 3.7) | 41.5 |

INTS80% indicates ideal number of pills to satisfy approximately 80% of patients; IQR, interquartile range; MME, morphine milligram equivalents; N, number; SD, standard deviation.
*Median.

ANNALS OF SURGERY

Annals of Surgery. 2018;267(6): 1056-1062

Opioids consumed following discharge for various surgeries ranged from 10.9-58.1%

**> 70% of patients kept excess opioids**

# QUESTION

**Which of the following strategies would you recommend for our patient?**

a. Decrease regularly scheduled hydromorphone dose
b. Discontinue IV/SC hydromorphone
c. Discontinue duplicate PO hydromorphone PRN
d. All of the above
e. None of the above


Monitoring

# Functional Pain Assessment

| Rating | Description |
|---|---|
| 0 | No pain |
| 1 | Tolerable (and does not prevent any activities) |
| 2 | Tolerable (but does prevent some activities) |
| 3 | Intolerable (but can use telephone, watch TV, or read) |
| 4 | Intolerable (but cannot use telephone, watch TV, or read) |
| 5 | Intolerable (and unable to verbally communicate because of pain) |

J Am Med Dir Assoc. 2001;2(3):110-114.

How is this pain affecting the patient's functional capacity?

- Are they able to remain comfortable at rest and participate in activities such as using a phone or reading a book?
- Is it limiting ability to ambulate or work with PT?
- Are they sleeping poorly due to pain?
- How is this affecting the patient's mood or anxiety?
- How does this compare to the patient's baseline?

# Monitoring - Safety

| Pasero Opioid-Induced Sedation Scale (POSS) | | |
|---|---|---|
| **S** | Sleep, easy to arouse | Acceptable, no action necessary, may increase opioid dose if needed |
| **1** | Awake and alert | Acceptable, no action necessary, may increase opioid dose if needed |
| **2** | Slightly drowsy, easily aroused | Acceptable, no action necessary, may increase opioid dose if needed |
| **3** | Frequently drowsy, rousable, **drifts off to sleep during conversation** | Unacceptable, monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory, decrease opioid dose 25-50% or notify prescriber or anesthesiologist for orders, consider administering a non-sedation and opioid-sparing non-opioid such as acetaminophen or an NSAID if not contraindicated |
| **4** | Somnolent, minimal or nor response to verbal and physical stimulation | Unacceptable, stop opioid, consider administering naloxone, or notify prescriber or anesthesiologist, monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory |

Pain Management Nursing. 2009 Sep;10(3): 154-164

# Opioid-Induced Hyperalgesia

- A paradoxical increase in acute pain as a result of opioid use/exposure
- NOT improved by increasing opioid doses (vs. tolerance)
- A form of central sensitization developing as a result of exposure to opioids
- May occur with any opioid, dose or duration

Pain Physician. 2011;14:145-161

# Management

- Dose reduction (i.e. opioid taper)
- Opioid rotation THEN taper
  - Initial ↓25-50% dose to account for incomplete cross tolerance
  - Buprenorphine – partial mu-receptor agonist
  - Methadone – NMDA receptor antagonist
- Medications for central sensitization: gabapentinoids, SNRIs, TCAs, nabilone
- NMDA Receptor Antagonists: ketamine, dextromethorphan, memantine


Patient Education and
Risk Mitigation
Strategies

# Opioid Use

- Opioid dose, duration, how to taper
- Interactions (medications, alcohol)
- Monitoring for short and long-term adverse effects
- Storage and safe disposal
- Naloxone training if applicable
- Handouts: **ISMP Canada** - https://www.ismp-canada.org/opioid_stewardship/

# Pain Monitoring

- Set realistic goals (functional monitoring)
- Pain diary
- Review emergency symptoms and when to return to hospital or see doctor
- Non-pharmacological resources for managing chronic pain: **Pain BC** - https://painbc.ca/health-professionals/brochures

# Tips for Tapering

- Consider duration of time they have been on opioids
- Consider patient factors and tolerability to dose reductions in hospital
- Keep dosing interval the same for as long as possible
- Consider utilizing long-acting formulation if tapering chronic, high-dose opioid
- Taper using regularly scheduled doses whenever possible
- Ensure there is follow-up for re-assessment
- Continue non-opioid analgesics throughout taper
- Educate patient on what to expect during taper

# Risk Mitigation Strategies for Opioid Prescribing on Discharge

- Naloxone Kit
- Assess quantity dispensed
  - Consider frequency of dispensing
  - Consider a part-fill
- Blister pack, daily witnessed ingestion or daily dispense, family or home care support
- Lock Box
- Connect with community prescriber and pharmacy before discharge
- Ensure appointment with community provider soon after discharge
- Patient and family education

# Final Case Review

**Inpatient**

- Initiated hydromorphone taper
- Discontinued SC and duplicate PO PRN hydromorphone orders
- Added duloxetine
- Discontinued celecoxib
- Discontinued zopiclone
- Titrated gabapentin when renal function improved
- Added topical diclofenac
- Frequent follow-up and patient education

**Discharge**

- Referral to transitional pain clinic for ongoing hydromorphone taper
- Medications blister packed, weekly dispense
- Liaised with patient's sister who obtained lock box and will keep medications and give to patient (patient requested this)
- Naloxone kit
- Patient and family education

# Guidelines and Resources


1. **Canadian Guideline for Opioids for Chronic Non-Cancer Pain** - CMAJ May 08, 2017 189 (18) E659-E666; DOI: https://doi.org/10.1503/cmaj.170363)
2. **Opioid Manager** - https://www.opioidmanager.com/images/omcontent/documents/CEP_OpioidManager2017.pdf
3. **ISMP Canada Opioid Stewardship Resources** - https://www.ismp-canada.org/opioid_stewardship/
4. **College of Physicians and Surgeons of BC Practice Standard – Safe Prescribing of Opioids and Sedatives** - https://www.cpsbc.ca/files/pdf/PSG-Safe-Prescribing.pdf
5. **CDC Guidelines for Prescribing Opioids for Chronic Pain**. - JAMA. 2016;315(15):1624-1645. doi:10.1001/jama.2016.1464
6. **CDC clinical tools for opioid prescribing in chronic pain -** https://www.cdc.gov/opioids/providers/prescribing/clinical-tools.html
7. **An International Multidisciplinary Consensus Statement on the Prevention of Opioid-Related Harm in Adult Surgical Patients** - Anaesthesia. 2021 Apr;76(4):520-36.
8. **Health Quality Ontario – Quality Standards for Opioid Precribing for Acute Pain** - https://www.hqontario.ca/portals/0/documents/evidence/quality-standards/qs-opioid-acute-pain-clinician-guide-en.pdf

# THANKS!

Do you have any questions?

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# Central Sensitization Inventory

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | I feel tired and unrefreshed when I wake from sleeping. | Never | Rarely | Sometimes | Often | Always |
| 2 | My muscles feel stiff and achy. | Never | Rarely | Sometimes | Often | Always |
| 3 | I have anxiety attacks. | Never | Rarely | Sometimes | Often | Always |
| 4 | I grind or clench my teeth. | Never | Rarely | Sometimes | Often | Always |
| 5 | I have problems with diarrhea and/or constipation. | Never | Rarely | Sometimes | Often | Always |
| 6 | I need help in performing my daily activities. | Never | Rarely | Sometimes | Often | Always |
| 7 | I am sensitive to bright lights. | Never | Rarely | Sometimes | Often | Always |
| 8 | I get tired very easily when I am physically active. | Never | Rarely | Sometimes | Often | Always |
| 9 | I feel pain all over my body. | Never | Rarely | Sometimes | Often | Always |
| 10 | I have headaches. | Never | Rarely | Sometimes | Often | Always |
| 11 | I feel discomfort in my bladder and/or burning when I urinate. | Never | Rarely | Sometimes | Often | Always |
| 12 | I do not sleep well. | Never | Rarely | Sometimes | Often | Always |
| 13 | I have difficulty concentrating. | Never | Rarely | Sometimes | Often | Always |
| 14 | I have skin problems such as dryness, itchiness, or rashes. | Never | Rarely | Sometimes | Often | Always |
| 15 | Stress makes my physical symptoms get worse. | Never | Rarely | Sometimes | Often | Always |
| 16 | I feel sad or depressed. | Never | Rarely | Sometimes | Often | Always |
| 17 | I have low energy. | Never | Rarely | Sometimes | Often | Always |
| 18 | I have muscle tension in my neck and shoulders. | Never | Rarely | Sometimes | Often | Always |
| 19 | I have pain in my jaw. | Never | Rarely | Sometimes | Often | Always |
| 20 | Certain smells, such as perfumes, make me feel dizzy and nauseated. | Never | Rarely | Sometimes | Often | Always |
| 21 | I have to urinate frequently. | Never | Rarely | Sometimes | Often | Always |
| 22 | My legs feel uncomfortable and restless when I am trying to go to sleep at night. | Never | Rarely | Sometimes | Often | Always |
| 23 | I have difficulty remembering things. | Never | Rarely | Sometimes | Often | Always |
| 24 | I suffered trauma as a child. | Never | Rarely | Sometimes | Often | Always |
| 25 | I have pain in my pelvic area. | Never | Rarely | Sometimes | Often | Always |

| | | NO | YES | Year Diagnosed |
|---|---|---|---|---|
| 1 | Restless Leg Syndrome | | | |
| 2 | Chronic Fatigue Syndrome | | | |
| 3 | Fibromyalgia | | | |
| 4 | Temporomandibular Joint Disorder (TMJ) | | | |
| 5 | Migraine or tension headaches | | | |
| 6 | Irritable Bowel Syndrome | | | |
| 7 | Multiple Chemical Sensitivities | | | |
| 8 | Neck Injury (including whiplash) | | | |
| 9 | Anxiety or Panic Attacks | | | |
| 10 | Depression | | | |

The Journal of Pain. 2013 May 1;14(5):438-45.