Appendix A Definitions of patient characteristics

DRUG GROUPS:

ANTIDEPRESSANTS

Amitriptyline oral

Amoxapine oral

Bupropion oral

Chlordiazepoxide – amitriptyline fixed-dose combinations oral

Citalopram oral

Clomipramine oral

Desipramine oral

Desvenlafaxine oral

Doxepin oral

Duloxetine oral

Escitalopram oral

Fluoxetine oral

Fluvoxamine oral

Imipramine oral

Isocarboxazid oral

Levomilnacipran oral

Maprotiline oral

Mirtazapine oral

Nefazodone oral

Nortriptyline oral

Paroxetine oral

Perphenazine – amitriptyline fixed-dose combinations oral

Phenelzine oral

Protriptyline oral

Selegiline transdermal patch

Sertraline oral

Tranylcypromine oral

Trazodone oral

Trimipramine oral

Venlafaxine oral

Vilazodone oral

Vortioxetine oral

ANTIPSYCHOTICS

Aripiprazole injection

Aripiprazole oral

Asenapine sublingual

Carbamazepine oral (antipsychotic formulation)

Chlorpromazine injection

Chlorpromazine oral

Chlorpromazine rectal suppositories

Clozapine oral

Fluphenazine injection

Fluphenazine oral

Haloperidol injection

Haloperidol oral

Iloperidone oral

Loxapine inhalation

Loxapine oral

Lurasidone oral

Molindone oral

Olanapine injection

Olanzapine oral

Olanzapine – fluoxetine fixed-dose combinations oral

Paliperidone injection

Paliperidone oral

Perphenazine oral

Quetiapine oral

Risperidone injection

Risperidone oral

Thioridazine oral

Thiothixene oral

Trifluoperazine oral

Ziprasidone injection

Ziprasidone oral

ANXIOLYTICS

Alprazolam oral

Buspirone oral

Chlordiazepoxide oral

Clorazepate oral

Diazepam injection

Diazepam oral

Diazepam rectal gel

Hydroxyzine injection

Hydroxyzine oral

Lorazepam injection

Lorazepam oral

Meprobamate oral

Midazolam injection

Midazolam oral

Oxazepam oral

HYPNOTICS

Barbiturate sedatives & hypnotics

Amobarbital injection

Butabarbital oral

Mephobarbital oral

Pentobarbital injection

Phenobarbital injection

Phenobarbital oral

Secobarbital oral

Non-barbiturate sedatives & hypnotics

Chloral hydrate oral

Doxepin oral (sleep formulation)

Estazolam oral

Eszopiclone oral

Flurazepam oral

Quazepam oral

Ramelteon oral

Scopolamine injection

Suvorexant oral

Tasimelteon oral

Temazepam oral

Triazolam oral

Zaleplon oral

Zolpidem oral

Zolpidem sublingual

PSYCHOSTIMULANTS

Amphetamine oral

Amphetamine – dextroamphetamine oral

Armodafinil oral

Benzphetamine oral

Caffeine – sodium benzoate injection

Dexmethylphenidate oral

Dextroamphetamine oral

Diethylpropion oral

Lisdexamfetamine oral

Methamphetamine oral

Methylphenidate oral

Methylphenidate transdermal patch

Modafinil oral

Phendimetrazine oral

Phentermine oral

Phentermine – topiramate fixed-dose combinations oral

PAIN DIAGNOSES

Each group below is coded yes if any diagnosis associated with an outpatient medical encounter in one of the ICD code ranges below has appeared in period from first opioid dispensing in 2012 through the ensuing 548 days. (ICD-9 3-digit code ranges in parentheses)

Arthritis

Arthropathies and related disorders (710-719)

Back pain

Dorsopathies (720-724)

Other congenital musculoskeletal anomalies (756)

Fractures

Other disorders of bone and cartilage (733)

Fractures (800-829)

Late effects of musculoskeletal and connective tissue injuries (905)

Headaches

Other headache syndromes (339)

Migraine (346)

Malignancy

Neoplasms (140-209, 235-239)

Musculoskeletal pain

Rheumatism, excluding the back (725-729)

Dislocation (830-839)

Sprains and strains of joints and adjacent muscles (840-848)

Neuropathies

Disorders of the peripheral nervous system (350-359)

Wounds/Injury

Intracranial injury, excluding those with skull fracture (850-854)

Internal injury of thorax, abdomen and pelvis (860-869)

Open wounds (890-897)

Crushing injury (925-929)

Burns (940-949)

Injury to nerves and spinal cord (950-957)

Certain traumatic complications and unspecified injuries (958-959)

NON-PAIN DIAGNOSES

Grouped by ICD-9 Chapter, except as included above

Infectious and parasitic diseases (001-139)

Benign neoplasms (210-229)

Endocrine nutritional, metabolic, immune disorders (240-279)

Disease of blood and blood-forming organs (280-289)

Mental disorders (290-319)

Nervous system and sense organs (320-389)

Circulatory system (390-459)

Respiratory system (460-519)

Digestive system (520-579)

Genitourinary system (580-629)

Complications of pregnancy, childbirth and the puerperium (630-679)

Skin and subcutaneous tissue (680-709)

Congenital anomalies (740-759)

Symptoms, signs and ill-defined conditions (780-799)

Injury and poisoning (800-999)

SPECIALIST AND NON-SPECIALIST PRESCRIBERS

Specialists

Anesthesiology

Dentist

Emergency Medicine

Hospice and Palliative Medicine

Neurology

Oncology

Pain

Physical Medicine & Rehabilitation

Rheumatology

Surgery

Nonspecialists

Nurse Practitioners

PCP

Pediatrics

Physician Assistant

All Other

# Appendix B. Detailed tabulations

| Appendix B Table 1. Distribution of possible shopping behavior by state of residence. | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | | | | Proportion at levels a | | |
| State | Category of Possible Shopping Behavior | | | | | |  | Any | Moderate or Extensive | Extensive |
| None | Minimal | | Moderate | Extensive | | Total |
| NH | 669 | 93 | | 48 | 31 | | 841 | 20.5% | 9.4% | 3.7% |
| DE | 518 | 69 | | 39 | 21 | | 647 | 19.9% | 9.3% | 3.2% |
| NJ | 439 | 51 | | 25 | 15 | | 530 | 17.2% | 7.5% | 2.8% |
| VA | 2,355 | 354 | | 124 | 78 | | 2,911 | 19.1% | 6.9% | 2.7% |
| AZ | 541 | 95 | | 40 | 18 | | 694 | 22.0% | 8.4% | 2.6% |
| MD | 389 | 35 | | 27 | 11 | | 462 | 15.8% | 8.2% | 2.4% |
| NY | 10,252 | 1,191 | | 453 | 290 | | 12,186 | 15.9% | 6.1% | 2.4% |
| MA | 10,392 | 1,299 | | 458 | 296 | | 12,445 | 16.5% | 6.1% | 2.4% |
| WA | 358 | 41 | | 13 | 10 | | 422 | 15.2% | 5.5% | 2.4% |
| RI | 456 | 53 | | 20 | 12 | | 541 | 15.7% | 5.9% | 2.2% |
| SC | 685 | 104 | | 38 | 18 | | 845 | 18.9% | 6.6% | 2.1% |
| GA | 1,197 | 152 | | 49 | 30 | | 1,428 | 16.2% | 5.5% | 2.1% |
| PA | 16,685 | 2,023 | | 790 | 411 | | 19,909 | 16.2% | 6.0% | 2.1% |
| NC | 920 | 100 | | 43 | 20 | | 1,083 | 15.1% | 5.8% | 1.8% |
| MI | 4,702 | 582 | | 219 | 102 | | 5,605 | 16.1% | 5.7% | 1.8% |
| MO | 521 | 61 | | 22 | 11 | | 615 | 15.3% | 5.4% | 1.8% |
| IN | 2,257 | 279 | | 112 | 45 | | 2,693 | 16.2% | 5.8% | 1.7% |
| WI | 752 | 81 | | 37 | 14 | | 884 | 14.9% | 5.8% | 1.6% |
| KS | 229 | 26 | | 10 | 4 | | 269 | 14.9% | 5.2% | 1.5% |
| LA | 1,176 | 160 | | 67 | 21 | | 1,424 | 17.4% | 6.2% | 1.5% |
| CT | 2,008 | 246 | | 88 | 35 | | 2,377 | 15.5% | 5.2% | 1.5% |
| FL | 10,199 | 1,233 | | 483 | 176 | | 12,091 | 15.6% | 5.5% | 1.5% |
| NM | 1,053 | 125 | | 43 | 18 | | 1,239 | 15.0% | 4.9% | 1.5% |
| OK | 2,632 | 345 | | 113 | | 44 | 3,134 | 16.0% | 5.0% | 1.4% |
| NV | 181 | 26 | | 9 | 3 | | 219 | 17.4% | 5.5% | 1.4% |
| TN | 6,505 | 780 | | 294 | 100 | | 7,679 | 15.3% | 5.1% | 1.3% |
| IL | 12,865 | 1,454 | | 495 | 180 | | 14,994 | 14.2% | 4.5% | 1.2% |
| TX | 17,351 | 2,188 | | 760 | 241 | | 20,540 | 15.5% | 4.9% | 1.2% |
| MS | 730 | 94 | | 26 | 9 | | 859 | 15.0% | 4.1% | 1.0% |
| AL | 15,011 | 1,698 | | 572 | 174 | | 17,455 | 14.0% | 4.3% | 1.0% |
| CA | 1,427 | 140 | | 63 | 15 | | 1,645 | 13.3% | 4.7% | 0.9% |
| CO | 407 | 37 | | 13 | 4 | | 461 | 11.7% | 3.7% | 0.9% |
| WV | 1,480 | 107 | | 38 | 13 | | 1,638 | 9.6% | 3.1% | 0.8% |
| OH | 1,565 | 174 | | 49 | 14 | | 1,802 | 13.2% | 3.5% | 0.8% |
| MN | 3,139 | 233 | | 73 | 24 | | 3,469 | 9.5% | 2.8% | 0.7% |
| NE | 2,885 | 244 | | 87 | 22 | | 3,238 | 10.9% | 3.4% | 0.7% |
| ID | 1,070 | 87 | | 24 | 7 | | 1,188 | 9.9% | 2.6% | 0.6% |
| KY | 674 | 67 | | 15 | 4 | | 760 | 11.3% | 2.5% | 0.5% |
| OR | 187 | 15 | | 6 | 1 | | 209 | 10.5% | 3.3% | 0.5% |
| AR | 2,172 | 200 | | 50 | 11 | | 2,433 | 10.7% | 2.5% | 0.5% |
| IA | 285 | 28 | | 4 | 1 | | 318 | 10.4% | 1.6% | 0.3% |
| ME | 169 | 18 | | 5 | - | | 192 | 12.0% | 2.6% | 0.0% |
| ND | 113 | 6 | | 1 | - | | 120 | 5.8% | 0.8% | 0.0% |
| SD | 93 | 4 | | 1 | - | | 98 |  |  |  |
| MT | 70 | 12 | | 1 | - | | 83 |  |  |  |
| UT | 74 | 6 | | 2 | - | | 82 |  |  |  |
| VT | 55 | 8 | | 4 | 3 | | 70 |  |  |  |
| WY | 51 | 4 | | 2 | 1 | | 58 |  |  |  |
| AK | 11 | 1 | | 1 | 1 | | 14 |  |  |  |
| DC | 13 | 1 | | - | - | | 14 |  |  |  |
| HI | 9 | 1 | | - | - | | 10 |  |  |  |
| Total | 139,977 | | 16,431 | 5,956 | 2,559 | | 164,923 | 15.1% | 5.2% | 1.6% |
| a Percentages restricted to states with at least 100 study members | | | | | | | | | | |
| Source: “PDMP\_norestrict\_full\_2feb2016” | | | | | | | | | | |

| Appendix B Table 2. Relation of possible shopping behavior to characteristics identifiable in the insurance claims data | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | Category of Possible Shopping Behavior | | | |  |  |
| None | Minimal | Moderate | Extensive | Total | Regression a |
| Total | 139,977 | 16,431 | 5,956 | 2,559 | 164,923 | p, odds ratio, 95% bounds |
| % | 84.87 | 9.96 | 3.61 | 1.55 | 100.00 |
| State of residence (categorical, 50 levels, see Appendix B Table 1) | | | | | | <10-10 |
| Age |  |  |  |  |  | <10-10 |
| 18-24 | 11,292 83.69 | 1,399 10.37 | 609 4.51 | 193 1.43 | 13,493  100.00 | 1.00 |
| 25-34 | 19,397 81.33 | 2,838 11.90 | 1,139 4.78 | 476 2.00 | 23,850  100.00 | 0.77 (0.70-0.85) |
| 35-44 | 30,232 83.45 | 3,911 10.80 | 1,432 3.95 | 651 1.80 | 36,226  100.00 | 0.50  (0.46-0.55) |
| 45-54 | 40,138 85.33 | 4,599 9.78 | 1,602 3.41 | 699 1.49 | 47,038  100.00 | 0.35  (0.32-0.39) |
| 55-64 | 33,029 87.57 | 3,175 8.42 | 1,024 2.71 | 489 1.30 | 37,717  100.00 | 0.27  (0.24-0.30) |
| 65-74 | 4,882 88.80 | 431 7.84 | 137 2.49 | 48 0.87 | 5,498  100.00 | 0.20  (0.17-0.24) |
| 75-84 | 1,007 91.46 | 78 7.08 | 13 1.18 | 3 0.27 | 1,101  100.00 | 0.07  (0.04-0.12) |
| Sex |  |  |  |  |  | .0001 |
| Female | 71,652 84.69 | 8,511 10.06 | 3,077 3.64 | 1,368 1.62 | 84,608  100.00 | 1.00 |
| Male | 68,325 85.07 | 7,920 9.86 | 2,879 3.58 | 1,191 1.48 | 80,315  100.00 | 1.11 (1.05-1.16) |
| Type of Opioid Dispensed | | | | | | <10-10 |
| ER/LA only | 1,132 84.92 | 151 11.33 | 40 3.00 | 10 0.75 | 1,333  100.00 | 1.00 |
| IR and ER/LA | 5,560 59.60 | 1,948 20.88 | 942 10.10 | 879 9.42 | 9,329  100.00 | 5.19 (3.87-6.95) |
| IR only | 133,285 86.40 | 14,332 9.29 | 4,974 3.22 | 1,670 1.08 | 154,261  100.00 | 2.67  (1.99-3.57) |
| Antidepressant fills during the observation period | | | | | | 5 x 10-6 |
| 0 : 0 c | 94,216 87.92 | 9,155 8.54 | 2,983 2.78 | 804 0.75 | 107,158 100.00 |  |
| 1 : 1, 2 | 9,691 80.46 | 1,453 12.06 | 607 5.04 | 294 2.44 | 12.045 100.00 |  |
| 2 : 3 - 7 | 9,681 79.29 | 1,598 13.09 | 619 5.07 | 311 2.55 | 12,209 100.00 | OR per unit increase 1.05  (1.03-1.07) |
| 3 : 8 - 14 | 9,282 80.42 | 1,426 12.35 | 544 4.71 | 290 2.51 | 11,542 100.00 |
| 4 : 15 - 24 | 9,038 80.31 | 1,393 12.38 | 517 4.59 | 306 2.72 | 11,254 100.00 |  |
| 5 : 25+ | 8,069 75.31 | 1,406 13.12 | 686 6.40 | 554 5.17 | 10,715  100.00 |  |
| Antidepressant fills in the 365 days before the observation period | | | | | | 5 x 10-5 |
| 0 : 0 c | 104,285 86.75 | 11,038 9.18 | 3,694 3.07 | 1,202 1.00 | 120,219 100.00 |  |
| 1 : 1, 2 | 8,573 79.99 | 1,313 12.25 | 548 5.11 | 284 2.65 | 10,718 100.00 |  |
| 2 : 3 - 5 | 6,826 79.64 | 1,105 12.89 | 418 4.88 | 222 2.59 | 8,571 100.00 | OR per unit increase 1.04  (1.02-1.06) |
| 3 : 6 - 9 | 6,405 80.43 | 932 11.70 | 399 5.01 | 227 2.85 | 7,963 100.00 |
| 4 : 10 - 14 | 7,318 81.42 | 1,034 11.50 | 405 4.51 | 231 2.57 | 8,988 100.00 |  |
| 5 : 15+ | 6,570 77.62 | 1,009 11.92 | 492 5.81 | 393 4.64 | 8,464 100.00 |  |
| Antipsychotic fills during the observation period | | | | | | <10-10 |
| 0 : 0 c | 136,189 85.44 | 15,557 9.76 | 5,494 3.45 | 2,156 1.35 | 159,396 100.00 |  |
| 1 : 1 | 806 66.23 | 208 17.09 | 109 8.96 | 94 7.72 | 1,217 100.00 |  |
| 2 : 2, 3 | 717 67.20 | 180 16.87 | 96 9.00 | 74 6.94 | 1,067 100.00 | OR per unit increase  1.10  (1.07-1.13) |
| 3 : 4 - 8 | 805 69.16 | 191 16.41 | 90 7.73 | 78 6.70 | 1,164 100.00 |
| 4 : 9 - 19 | 781 71.26 | 150 13.69 | 68 6.20 | 97 8.85 | 1,096 100.00 |  |
| 5 : 20+ | 679 69.07 | 145 14.75 | 99 10.07 | 60 6.10 | 983 100.00 |  |
| Antipsychotic fills in 365 days before the observation period | | | | | | NR b |
| 0 : 0 c | 137,374 85.20 | 15,901 9.86 | 5,656 3.51 | 2,301 1.43 | 161,232 100.00 |  |
| 1 : 1 | 630 73.86 | 98 11.49 | 63 7.39 | 62 7.27 | 853 100.00 |  |
| 2 : 2, 3 | 481 66.44 | 117 16.16 | 72 9.94 | 54 7.46 | 724 100.00 |  |
| 3 : 3 - 7 | 543 69.26 | 123 15.69 | 60 7.65 | 58 7.40 | 784 100.00 |  |
| 4 : 8 - 12 | 436 69.54 | 96 15.31 | 53 8.45 | 42 6.70 | 627 100.00 |  |
| 5 : 13+ | 513 72.97 | 96 13.66 | 52 7.40 | 42 5.97 | 703 100.00 |  |
| Anxiolytic fills during the observation period | | | | | | <10-10 |
| 0 : 0 c | 98,605 87.93 | 9,526 8.49 | 3,146 2.81 | 861 0.77 | 112,138 100.00 |  |
| 1 : 1 | 14,792 82.60 | 2,090 11.67 | 715 3.99 | 311 1.74 | 17,908 100.00 |  |
| 2 : 2, 3 | 9,273 79.07 | 1,548 13.20 | 610 5.20 | 296 2.52 | 11,727 100.00 | OR per unit increase  1.10  (1.09-1.12) |
| 3 : 4 - 8 | 6,748 75.66 | 1,257 14.09 | 553 6.20 | 361 4.05 | 8,919 100.00 |
| 4 : 9 - 19 | 5,656 74.80 | 1,073 14.19 | 495 6.55 | 338 4.47 | 7,562 100.00 |  |
| 5 : 20+ | 4,903 73.52 | 937 14.05 | 437 6.55 | 392 5.88 | 6,669 100.00 |  |
| Anxiolytic fills in the 365 days before the observation period | | | | | | NR |
| 0 : 0 c | 112,209 86.53 | 12,032 9.28 | 4,086 3.15 | 1,349 1.04 | 129,676 100.00 |  |
| 1 : 1 | 10,525 81.82 | 1,460 11.35 | 552 4.29 | 326 2.53 | 12,863 100.00 |  |
| 2 : 2 | 3,988 79.38 | 651 12.96 | 257 5.12 | 128 2.55 | 5,024 100.00 |  |
| 3 : 3 - 5 | 4,986 78.26 | 840 13.18 | 337 5.29 | 208 3.26 | 6,371 100.00 |  |
| 4 : 6 - 11 | 4,521 76.05 | 749 12.60 | 409 6.88 | 266 4.47 | 5,945 100.00 |  |
| 5 : 12+ | 3,748 74.31 | 699 13.86 | 315 6.25 | 282 5.59 | 5,044 100.00 |  |
| Hypnotic fills during the observation period | | | | | | <10-10 |
| 0 : 0 c | 122,070 86.09 | 13,389 9.44 | 4,628 3.26 | 1,708 1.20 | 141,795 100.00 |  |
| 1 : 1 | 5,091 78.95 | 855 13.26 | 324 5.02 | 178 2.76 | 6,448 100.00 |  |
| 2 : 2 - 4 | 3,946 77.42 | 658 12.91 | 298 5.85 | 195 3.83 | 5,097 100.00 | OR per unit increase  1.06  (1.05-1.08) |
| 3 : 5 – 10 | 2,940 76.72 | 495 12.92 | 239 6.24 | 158 4.12 | 3,832 100.00 |
| 4 : 11 - 21 | 2,928 76.77 | 524 13.74 | 220 5.77 | 142 3.72 | 3,814 100.00 |  |
| 5 : 22+ | 3,002 76.25 | 510 12.95 | 247 6.27 | 178 4.52 | 3,937 100.00 |  |
| Hypnotic fills in the 365 days before the observation period | | | | | | NR |
| 0 : 0 c | 126,478 85.62 | 14,310 9.69 | 4,992 3.38 | 1,932 1.31 | 147,712 100.00 |  |
| 1 : 1 | 3,726 80.28 | 542 11.68 | 239 5.15 | 134 2.89 | 4,641 100.00 |  |
| 2 : 2, 3 | 2,544 78.66 | 395 12.21 | 173 5.35 | 122 3.77 | 3,234 100.00 |
| 3 : 4 - 7 | 2,529 78.76 | 387 12.05 | 174 5.42 | 121 3.77 | 3,211 100.00 |  |
| 4 : 8 - 12 | 2,288 75.86 | 407 13.49 | 198 6.56 | 123 4.08 | 3,016 100.00 |  |
| 5 : 13+ | 2,412 77.58 | 390 12.54 | 180 5.79 | 127 4.08 | 3,109 100.00 |  |
| Psychostimulant fills during the observation period | | | | | | NR |
| 0 : 0 c | 128,440 85.60 | 14,496 9.66 | 5,060 3.37 | 2,057 1.37 | 150,053 100.00 |  |
| 1 : 1 | 2,018 80.53 | 286 11.41 | 132 5.27 | 70 2.79 | 2,506 100.00 |  |
| 2 : 2,3 | 2,321 79.98 | 352 12.13 | 155 5.34 | 74 2.55 | 2,902 100.00 |
| 3 : 4 - 7 | 2,348 78.27 | 382 12.73 | 179 5.97 | 91 3.03 | 3,000 100.00 |  |
| 4 : 8 - 16 | 2,579 77.96 | 422 12.76 | 195 5.89 | 112 3.39 | 3,308 100.00 |  |
| 5 : 17+ | 2,271 72.00 | 493 15.63 | 235 7.45 | 155 4.91 | 3,154 100.00 |  |
| Psychostimulant fills in the 365 days before the observation period | | | | | | <10-10 |
| 0 : 0 c | 131,690 85.36 | 15,068 9.77 | 5,318 3.45 | 2,195 1.42 | 154,271 100.00 |  |
| 1 : 1 | 1,723 78.96 | 276 12.65 | 123 5.64 | 60 2.75 | 2,182 100.00 |  |
| 2 : 2, 3 | 1,939 80.29 | 291 12.05 | 124 5.13 | 61 2.53 | 2,415 100.00 | OR per unit increase  1.10  (1.07-1.12) |
| 3 : 4 - 6 | 1,750 79.80 | 253 11.54 | 124 5.65 | 66 3.01 | 2,193 100.00 |
| 4 : 7 - 11 | 1,526 75.77 | 275 13.65 | 130 6.45 | 83 4.12 | 2,014 100.00 |  |
| 5 : 12+ | 1,349 73.00 | 268 14.50 | 137 7.41 | 94 5.09 | 1,848 100.00 |  |
| Diagnoses during the observation period | | | | | |  |
| Arthritis | 57,157 82.52 | 7,899 11.40 | 2,837 4.10 | 1,375 1.99 | 69,268 100.00 | NR |
| Back pain | 60,798 81.33 | 9,032 12.08 | 3,323 4.45 | 1,604 2.15 | 74,757 100.00 | NR |
| Fracture | 16,853 80.02 | 2,736 12.99 | 1,001 4.75 | 471 2.24 | 21,061 100.00 | 2 x 10-8  1.20 (1.13-1.28) |
| Headache | 8,954 79.69 | 1,453 12.93 | 523 4.65 | 306 2.72 | 11,236 100.00 | NR |
| Malignancy | 17,068 84.54 | 2,115 10.48 | 661 3.27 | 346 1.71 | 20,190 100.00 | NR |
| Musculo-skeletal | 70,622 82.20 | 9,915 11.54 | 3,661 4.26 | 1,721 2.00 | 85,919 100.00 | <10-10  1.19 (1.13-1.25) |
| Neuropathic pain | 11,976 81.25 | 1,797 12.19 | 626 4.25 | 341 2.31 | 14,740 100.00 | .009  0.90 (0.84-0.97) |
| Wounds & Injuries | 11,398 77.05 | 2,108 14.25 | 830 5.61 | 457 3.09 | 14,793 100.00 | <10-10  1.38 (1.28-1.48) |
| Infection | 25,968 82.49 | 3,578 11.37 | 1,335 4.24 | 598 1.90 | 31,479 100.00 | NR |
| Benign neoplasm | 22,708 85.08 | 2,662 9.97 | 931 3.49 | 390 1.46 | 26,691 100.00 | NR |
| Endocrine | 64,006 84.46 | 7,823 10.32 | 2,697 3.56 | 1,255 1.66 | 75,781 100.00 | 1 x 10-6  0.88 (0.84-0.93) |
| Blood disorders | 11,636 80.70 | 1,822 12.64 | 606 4.20 | 355 2.46 | 14,419 100.00 | NR |
| Mental disorders | 49,306 80.27 | 7,758 12.63 | 2,849 4.64 | 1,514 2.46 | 61,427 100.00 | NR |
| Nervous disorders | 59,132 82.83 | 7,909 11.08 | 2,896 4.06 | 1,454 2.04 | 71,391 100.00 | NR |
| Circulatory disorders | 55,745 84.40 | 6,831 10.34 | 2,336 3.54 | 1,133 1.72 | 66,045 100.00 | .005  0.93 (0.88-0.98) |
| Respiratory disorders | 71,900 83.81 | 9,129 10.64 | 3,275 3.82 | 1,482 1.73 | 85,786 100.00 | NR |
| Digestive disorders | 48,608 82.46 | 6,801 11.54 | 2,409 4.09 | 1,128 1.91 | 58,946 100.00 | 9 x 10-9  1.16 (1.10-1.22) |
| Genitourinary disorders | 50,502 83.11 | 6,813 11.21 | 2,407 3.96 | 1,040 1.71 | 60,762 100.00 | 9 x 10-8  1.15 (1.09-1.21) |
| Pregnancy & complications | 3,406 81.52 | 518 12.40 | 179 4.28 | 75 1.80 | 4,178 100.00 | NR |
| Skin disorders | 45,712 83.79 | 5,814 10.66 | 2,097 3.84 | 932 1.71 | 54,555 100.00 | .002 1.08 (1.03-1.14) |
| Congenital disorders | 4,000 83.66 | 535 11.19 | 160 3.35 | 86 1.80 | 4,781 100.00 | .004  0.81 (0.71-0.94) |
| Signs and symptoms | 96,297 83.28 | 12,759 11.03 | 4,527 3.91 | 2,051 1.77 | 115,634 100.00 | .002 1.10 (1.03-1.16) |
| Injury and poisoning | 26,711 79.52 | 4,397 13.09 | 1,674 4.98 | 807 2.40 | 33,589 100.00 | <10-10  1.29 (1.22-1.36) |
| Number of non-specialist fills | | | | | | <10-10 |
| 1 : 1 c | 73,287 91.58 | 4,951 6.19 | 1,596 1.99 | 195 0.24 | 80,029 100.00 | 1.00 |
| 2 : 2 | 28,357 87.08 | 3,009 9.24 | 996 3.06 | 202 0.62 | 32.564 100.00 | 1.73  (1.60-1.87) |
| 3 : 3 | 10,488 77.71 | 2,049 15.18 | 783 5.80 | 177 1.31 | 13,497 100.00 | 2.28 (2.09-2.48) |
| 4 : 4-6 | 10,486 71.61 | 2,620 17.89 | 961 6.56 | 576 3.93 | 14,643 100.00 | 2.48  (2.29-2.68) |
| 5 : 7-14 | 8,374 70.98 | 1,930 16.36 | 781 6.62 | 712 6.04 | 11,797 100.00 | 2.12  (1.95-2.30) |
| 6 : 15+ | 8,985 72.50 | 1,872 15.11 | 839 6.77 | 697 5.62 | 12,393 100.00 | 1.41  (1.28-1.54) |
| Number of self-paid fills | | | | | | <10-10 |
| 0 : 0 c | 131,454 86.41 | 14,173 9.32 | 4,796 3.15 | 1,704 1.12 | 152,127 100.00 | 1.00 |
| 1 : 1 | 6,413 69.78 | 1,578 17.17 | 756 8.23 | 443 4.82 | 9,190 100.00 | 2.14 (1.99-2.30) |
| 2 : 2 | 1,214 61.04 | 388 19.51 | 202 10.16 | 185 9.30 | 1,989 100.00 | 2.75 (2.43-3.12) |
| 3 : 3 | 361 54.45 | 131 19.76 | 81 12.22 | 90 13.57 | 663 100.00 | 3.43 (2.83-4.16) |
| 4 : 4+ | 535 56.08 | 161 16.88 | 121 12.68 | 137 14.36 | 954 100.00 | 3.23 (2.75-3.79) |
| Total MEQ dispensed | | | | | | <10-10 |
| 1 : <250 c | 28,318 98.39 | 366 1.27 | 96 0.33 | 0 0.00 | 28,780 100.00 | 1.00 |
| 2 : 250-499 | 42,958 91.48 | 3,105 6.61 | 869 1.85 | 28 0.06 | 46,960 100.00 | 5.28 (4.27-6.52) |
| 3 : 500-999 | 26,230 82.71 | 3,973 12.53 | 1,307 4.12 | 202 0.64 | 31,712 100.00 | 11.36 (9.22-14.01) |
| 4 : 1000-2499 | 17,393 77.82 | 3,275 14.65 | 1,171 5.24 | 510 2.28 | 22,349 100.00 | 15.63 (12.65-19.32) |
| 5 : 2500-4999 | 7,758 74.73 | 1,656 15.95 | 598 5.76 | 369 3.55 | 10,381 100.00 | 18.26 (14.67-22.73) |
| 6 : 5000-9999 | 6,219 74.50 | 1,262 15.12 | 520 6.23 | 347 4.16 | 8,348  100.00 | 21.46  (17.18-26.80) |
| 7 : 10,000+ | 11,101 67.72 | 2,794 17.04 | 1,395 8.51 | 1,103 6.73 | 16,393 100.00 | 29.59 (23.75-36.86) |
| c-statistic | | | | | | 0.82 |
| a Stepwise multivariable logistic regression using all the predictors listed, backwards elimination with p-value to retain set at <0.01. There were high positive correlations between many of the predictors, for example between use of a drug class during the observation period and use of the same drug class during the year preceding the observation period. An effect of this is that the multivariable-adjusted coefficients are often smaller than would seem appropriate from the crude tables.  b NR – not retained in the stepwise regression. | | | | | | |