

BPD CMS Medicare Prescription Data Analysis

Executive Summary

Data

The Centers for Medicare and Medicaid Services' "Medicare provider utilization and payment data public use" file tracks prescriber practices for drug events incurred by individuals on Medicare Part D drug plans in calendar years 2013 and 2014, the most recent years this data is currently available. Those eligible for Medicare Part D include individuals over the age of 65, individuals under the age of 65 who have certain permanent disabilities, and individuals with end-stage renal disease.

Findings

The analysis of the Medicare data from 2013 and 2014 included the following major findings about opioid prescribing practices in Vermont:

- 1) In 2014, Vermont was an outlier when compared to the other five New England states in terms of unique opioid prescriptions per beneficiary (i.e. patient) and well above average for number of days an opioid was prescribed per beneficiary
 - a. At 3.2 scripts per patient, Vermont prescriber's rates were 17% higher than the average rate for New England outside of Vermont (18% for most abused or diverted opioids)
 - b. At 69 days per beneficiary, Vermont doctors prescribed opioids 10 days longer on average than the rest of New England doctors
- 2) From 2013 to 2014, doctors increased the rate of opioids prescribed and the number of days they were supplied
 - a. Specifically, doctors prescribed 11,000 (9%) more opioid scripts in 2014 than 2013, 82% of which were for opioids identified as being the most abused¹
 - b. Doctors also prescribed opioids for a day and a half longer on average in 2014
- 3) A number of Vermont specialties prescribed opioids at statistically significantly higher rates than their New England peers in 2014. Some of those include:
 - a. Family Practice doctors in Vermont prescribed opioids at a rate per beneficiary that was 5% higher than their New England peers. They supplied the most abused opioids 4 days longer per patient on average than other New England doctors (a 6% higher rate)
 - b. Internal Medicine doctors in Vermont prescribed opioids at a rate per beneficiary that was 16% higher than their New England peers. They supplied opioids 4 days longer per patient on average than other New England doctors (an 11% higher rate)
 - c. Nurse Practitioners in Vermont prescribed opioids at a rate per beneficiary that was 13% higher than their New England peers. They supplied opioids 4 days longer per patient on average than other New England doctors (an 13% higher rate)

For several other specialties, the disparity in opioid prescriptions was much larger in terms of the percent difference between Vermont's rates and the average rate for the rest of New

¹ 77% of the overall opioid sample were drugs identified as most abused opioids

England. However, in these cases, one or a very small number of outlying prescribers skewed the rate within their specialty, therefore those results were not included here.

- 4) There are a number of doctors that fall at least 3 standard deviations above the mean for opioid prescription rate per beneficiary and are, by definition, statistical outliers. It will be important to take a closer look at these prescribers and to track their rates over time to determine if there is a reasonable explanation for why they prescribe opioids at such higher rates than their peers

Limitations & Implications of the Analysis

About 14% of insured individuals in Vermont have Medicare Part D plans. We cannot say for sure that the prescribing trends apparent in the federal Medicare data, which covers Medicare Part D beneficiaries, is representative of the prescribing practices to patients in Vermont overall. Regardless of this limitation, the findings of the analysis are important for two reasons: First, we did find evidence that doctors in Vermont may be over-prescribing opioids to Medicare Part D beneficiaries based on their irregularly high prescription rates compared to doctors in the rest of New England. It is possible that Vermont doctors are also prescribing opioids at rates that far exceed their peers in New England with respect to the larger universe of insured patients receiving pain killers. Second, regardless of the generalizability of the prescribing practices to Medicare Part D beneficiaries, if it is apparent that doctors in Vermont are over-prescribing opioids to people over the age of 65 and to those with permanent disabilities, these could be populations at a heightened risk for opioid addiction. Additionally, these findings highlight the importance of transparency in public health care operations and demand a deeper dive into prescribing practices to include other public insurance programs, such as Medicaid.

An additional limitation of the data is that it is only available through 2014. That we only have data as recent as 2014 when it is now 2017 demonstrates the need for the more timely collection and dissemination of information crucial to tracking trends in prescription practices that should have direct implications for public policy.

These two limitations underscore the importance of more inclusive and timely public health data releases. Providing more comprehensive public health prescribing practice data and at more frequent iterations while maintaining individual beneficiaries' privacies is crucial. Beyond offering the public the level of transparency they deserve from the public health sector, such an effort would:

- 1) Generate public discourse about opioid prescribing practices in the state of Vermont and how such consequential public services are affecting community health, safety and quality of life
- 2) Give individual doctors and prescribers the opportunity to compare their practices to those of their peers and to make adjustments, if appropriate
- 3) Allow for the monitoring of progresses in prescribing practices over the course of months and years and encourage the examination of areas in need of attention and reform

Summary of Methodology

The dataset used in our analyses, available publicly on the Centers for Medicare & Medicaid Services website¹, provides information on prescription drug events incurred by Medicare beneficiaries with Part D prescription drug plans in calendar years 2013 and 2014. The data is organized by National Provider Identifier, a unique identifier used to distinguish prescribers, and prescribed-drug name, and contains information on drug utilization including claim counts and day supply. Though the data set is detailed and granular in nature, there are important limitations of the data which must be considered when reviewing findings.

The primary data source is the CMS Chronic Conditions Data Warehouse, which contains Medicare Part D prescription drug events. Medicare Part D is a program which provides subsidies for prescription drugs and insurance premiums associated with prescription drugs, and is comprised of approximately 70% of all Medicare beneficiaries. Considering that only individuals over 65 years old who are eligible for Social Security cash payments, individuals under 65 years old with a disability who receive Social Security cash payments, and individuals with end-stage renal disease are eligible for Medicare in general, it's important to understand the scope of this data set account for a minority of prescription drug events overall. In 2015 there were 41.8 million Medicare Part D beneficiaries, compared to 71.6 million Medicaid beneficiaries. It is also important to note that the Medicare Part D program does not cover all medication, and thus certain prescriptions will not be represented in the data.

The prescriber demographic information associated with the data set, including names, specialties, and provider locations, was collated from the National Plan & Provider Enumeration System (NPPES). This information is submitted by providers at the time of their enrollment and is updated periodically. The information is extracted from the NPPES for each year's report at the end of the subsequent year (e.g. 2014 Medicare Part D includes NPPES information as of the end of calendar year 2015). It is important to note that attribution of prescription drug events may occur in a one-to-many relationship to NPIs, as in cases when a claim is made against an individual with an NPI and the individual's organization, which may also have an NPI. This prohibits definitively totaling claims made against an individual, as it is impossible to know how many claims were attributed to an organization instead of an individual, and vice versa.

The drug brand name and generic name information was collated from the First Databank's MedKnowledge drug information database using National Drug Codes (NDC). It should be noted that a small portion of prescription events had NDCs that did not match the MedKnowledge database, and were thus excluded from the dataset. Each data set accounts for Medicare part D submissions through the calendar year, including also prescription events up to the submission cut-off date at the end of June the following year. This means that the 2014 data set also includes events up to June 30th, 2015. Additionally, the data contain 100% of final-action (i.e. all claim adjustments received through the cut-off date have been resolved) prescription event records for beneficiaries.

To protect the privacy of beneficiaries, aggregated records which were derived from 10 or fewer claims are suppressed, as it may be possible to identify specific beneficiaries from sibling reports detailing drug-

brand prescription rates, etc. Among all prescription drug events in Vermont in 2013 and 2014, nearly two thirds had the number of beneficiaries suppressed. To account for this in our analysis, an average claims-to-beneficiary rate was calculated for all non-suppressed records, and was then applied as an inverse to the average claims among records with a suppressed number beneficiaries. For Vermont, in 2013 and 2014, the result was an average of 8 beneficiaries per record, and this estimate was applied in place of all suppressed beneficiary counts.

During our analysis, drugs were bucketed into the following categories based on the type of drug (as defined by accompanying documentation found on the CMS website²): *Opioid*, *Antipsychotics*, *Antibiotics*, and *High Risk Medications (HRM) in the Elderly*. Any drug which was not listed in these discrete categories was bucketed under a catch-all category, *Not Noted*. When assessing prescription trends specific to opioids, new sub-categories were developed to control for specific kinds of opioids, specifically those which may possibly be used in MAT scenarios and those which are known to be diverted and abused at higher rates. MAT opioids were defined as any of the following generics: *METHADONE*, *BUPRENORPHINE*, *NALTREXONE*, and *BUPRENORPHINE/NALOXON* (aka Suboxone). In total, only 4% of drugs defined as “opioid” by accompanying CMS documentation were also defined as MAT-related. Opioids which were identified as most often diverted and/or abused were defined using a keyword search on the generic name field, as there were several brand-named drugs categorized as identical generics. This sub-category was used mainly to control for opioids which are prescribed broadly (as *Tylenol with Codeine*) and those which are administered most often under specific circumstances at high rates (as *Meperidine* during child birth). The following keywords were used to identify opioids which were most likely to be abused: “*OXYCODONE*”, “*HYDROCODONE*”, “*METHADONE*”, “*MORPHINE*”, “*BUPRENORPHINE*”, “*HYDROMORPHONE*”, “*FENTANYL*”, and “*OPIUM*”. This list was informed by CDC and FDA literature regarding opioids which were commonly abused in 2015³. In total, roughly 63% of drugs defined as “opioid” by accompanying CMS documentation were also defined as likely to be abused.

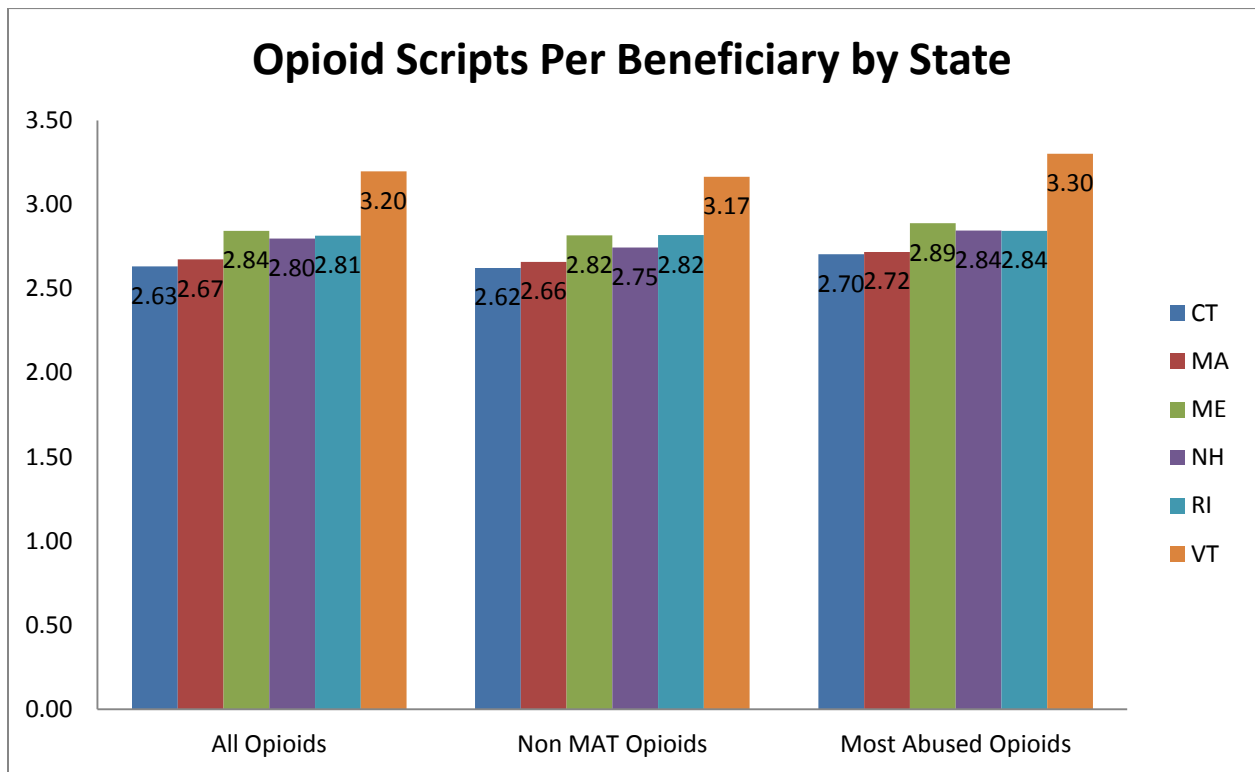
Additional information about the data set can be found in the methodological overview provided on the CMS website⁴.

- 1) <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Physician-and-Other-Supplier2014.html>
- 2) https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Downloads/PartD_DrugCatList_2014.zip
- 3) <https://www.cdc.gov/drugoverdose/data/overdose.html>,
<http://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm251735.htm>
- 4) <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Downloads/Medicare-Physician-and-Other-Supplier-PUF-Methodology.pdf>

Charts and Figures:

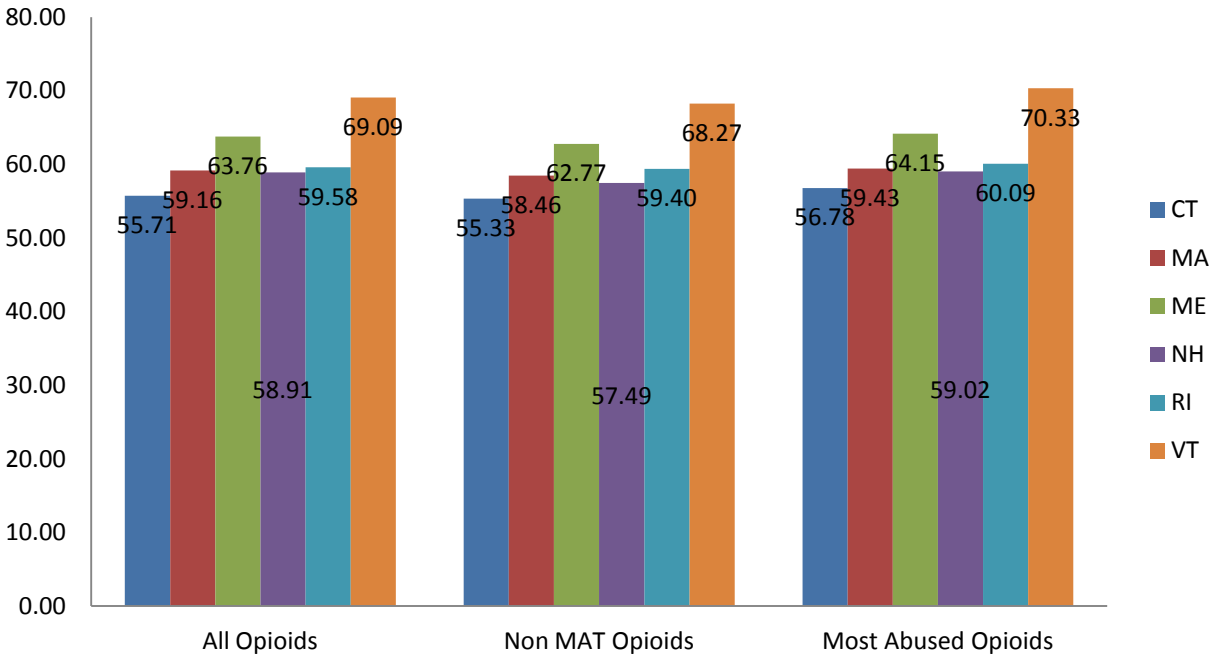
In 2014:

Vermont was an outlier compared to 5 other New England states for opioid scripts prescribed per beneficiary and well above average in terms of average days an opioid was supplied per beneficiary.



Vermont 17% higher than average for other NE states

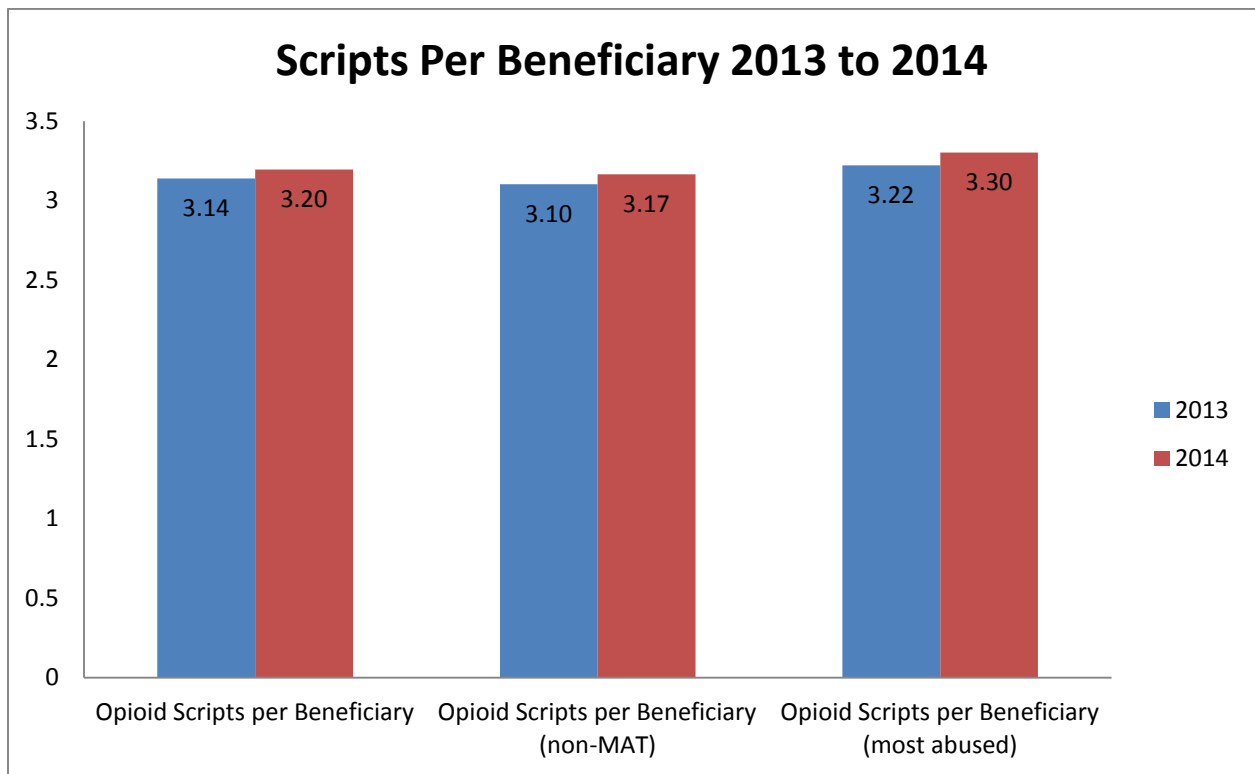
Opioid Days Supplied Per Beneficiary by State



Vermont 10 days longer than average for other NE states

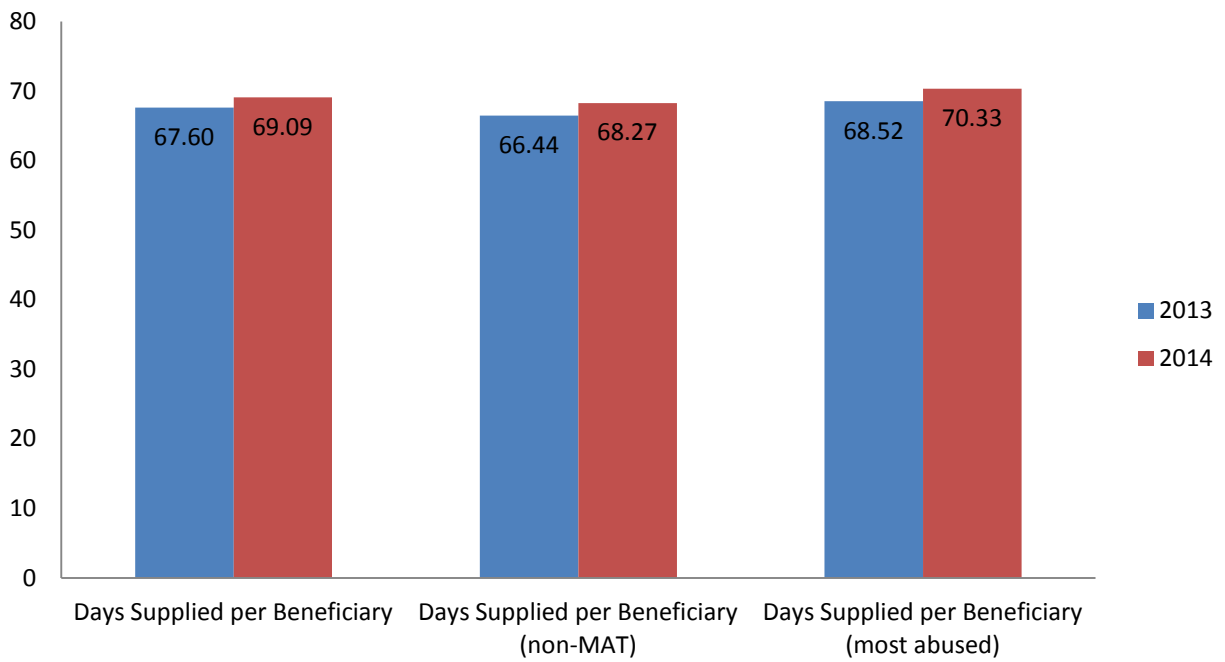
From 2013 to 2014:

Vermont doctors increased the rate of opioids prescribed and the number of days they were supplied.



11,000 (9%) more opioid scripts prescribed in 2014

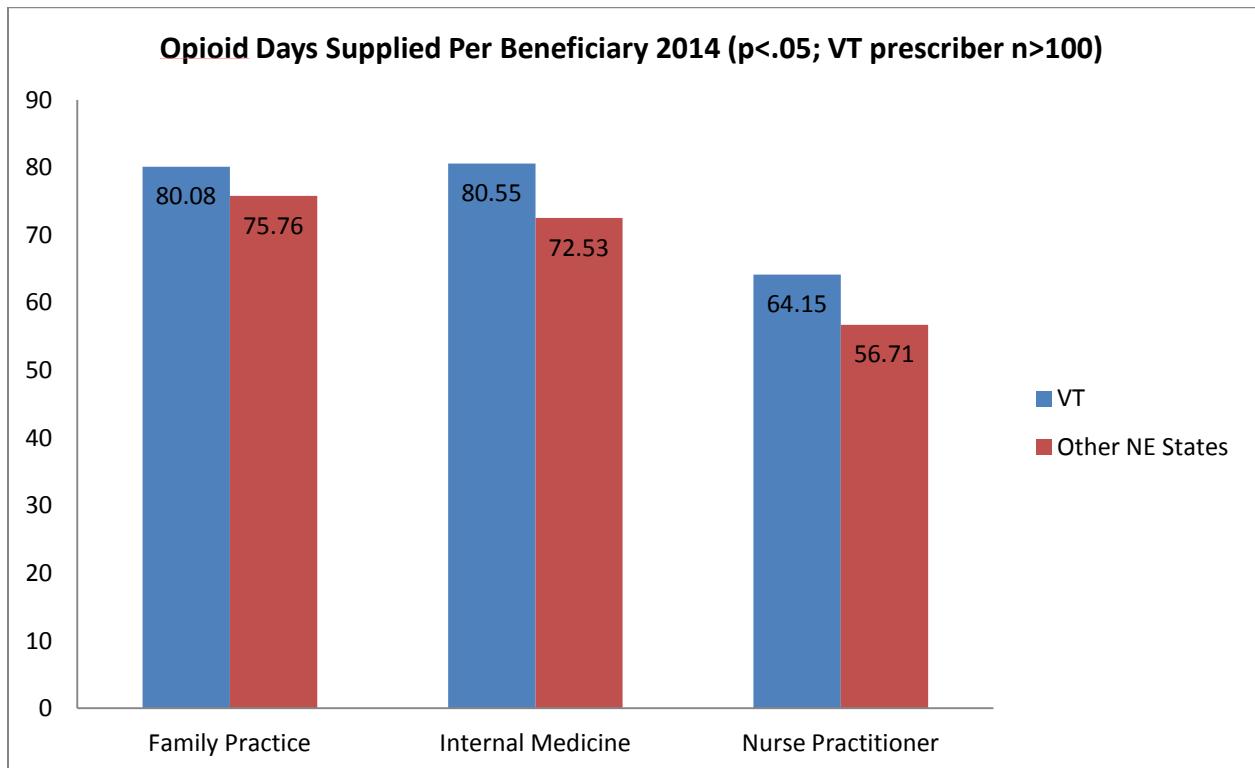
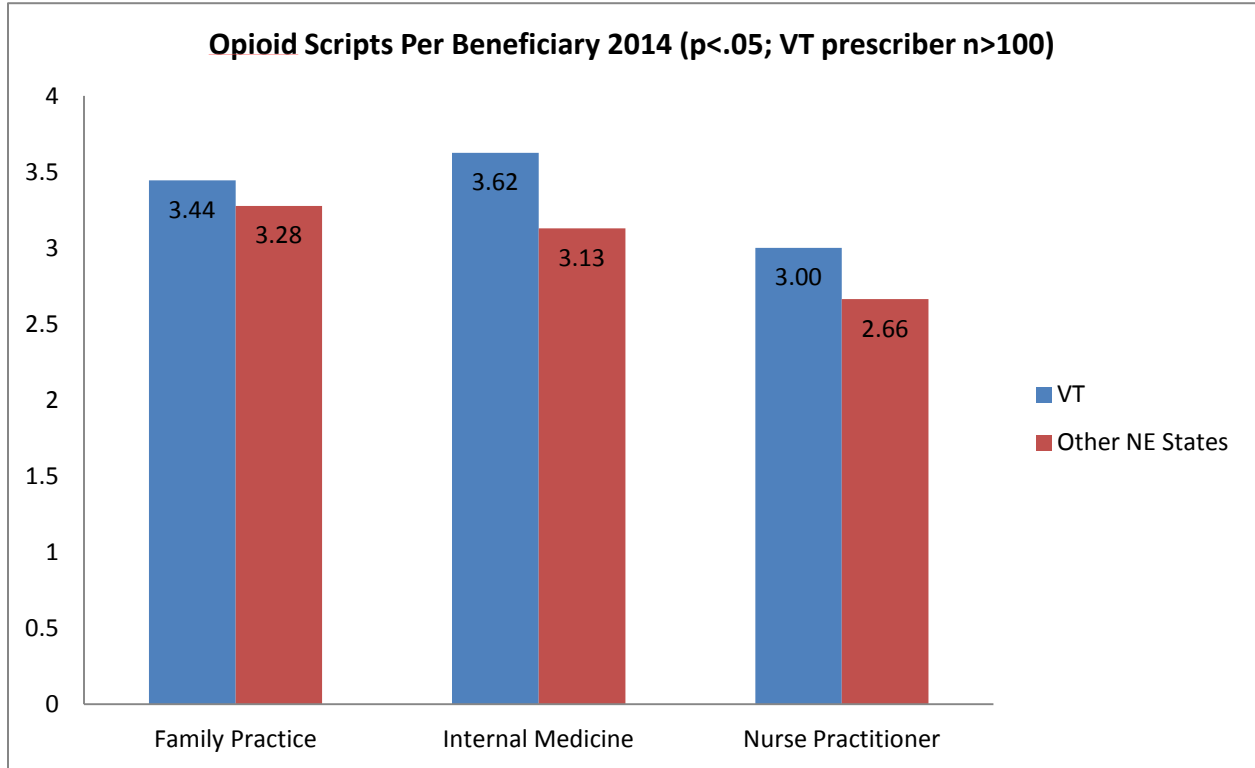
Opioid Days Supplied Per Beneficiary 2013-2014



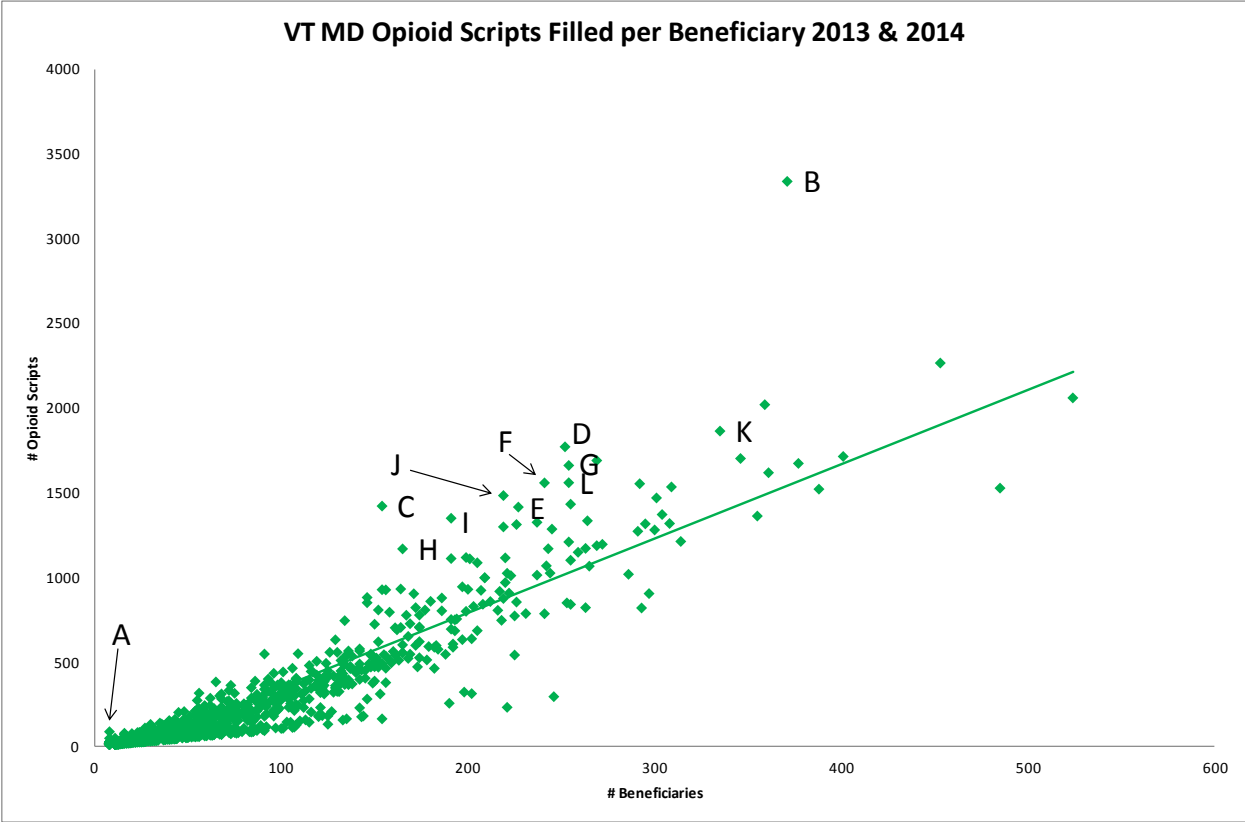
1.5 days longer supply periods in 2014

In 2014:

How did Vermont doctors compare to their peers within specialty across the other New England states?
Here showing only the specialties where the disparity was statistically significant at $p < .05$.



Outlying prescribers 2013 & 2014:



Outlying prescribers 2013 to 2014:

