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Healthcare Inspection - VA Patterns of Dispensing Take-Home Opioids and Monitoring Patients on Opioid Therapy

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Glossary

CPG	VA/DoD Clinical Practice Guideline for Management of Opioid Therapy for Chronic Pain
DoD	Department of Defense
FDA	Food and Drug Administration
FY	fiscal year
g	grams
mg	milligrams
OEF/OIF	Operation Enduring Freedom and Operation Iraqi Freedom
PTSD	post-traumatic stress disorder
SUD	substance use disorder
UDT	urine drug test
VAMC	VA Medical Center, which includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership
VHA	Veterans Health Administration

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Executive Summary

Introduction

As requested by the United States Senate Committee on Veterans' Affairs, the VA Office of Inspector General conducted a study to assess the provision of VA outpatient (take-home) opioids and monitoring of patients on opioid therapy (hereinafter referred to as opioid patients). Specifically, we described both the prevalence of VA patients who filled any take-home opioid prescriptions at VA in fiscal year (FY) 2012 and their baseline characteristics; evaluated VA dispensing patterns of take-home opioids, including concurrent (filled) benzodiazepines, filled dose of acetaminophen, and early refills of opioids; and assessed the extent to which VA screens and monitors opioid patients in alignment with measures adapted from selected recommendations in the VA/Department of Defense Clinical Practice Guideline for Management of Opioid Therapy for Chronic Pain (hereinafter referred to as the Clinical Practice Guideline). We also defined VA patterns of providing psychosocial treatment for pain, Pain Clinic service, and medication management/pharmacy reconciliation for take-home opioid patients and determined the prevalence of six selected serious clinical adverse effects among VA take-home opioid patients that may be reasonably expected to be related to opioid therapy.

We integrated and analyzed the VA administrative files, as well as the Death Master Files of the Social Security Administration, for the population of nearly half a million VA patients who filled at least 1 oral or transdermal opioid prescription from VA for self-administration at home in FY 2012. We followed retrospectively the 442,544 patients in the population—who did not receive any hospice or palliative care during the FY or within 1 year prior to their first take-home opioid prescription—for their experience with the provision of VA opioid therapy.

Results and Conclusions

We found that 7.7 percent of VA patients were on take-home opioids in FY 2012. The VA Medical Center (VAMC)[1] prevalence ranged from 0.26 percent to 21.8 percent.

A majority (92.5 percent) of the opioid patients were male, which mirrored the gender composition of VA patients. The average and the median patient age at their first opioid prescription in FY 2012 was 59.4 and 61, respectively. Approximately 1 in every 16 patients had served in Operation Enduring Freedom and Operation Iraqi Freedom. Approximately 87 percent of the opioid patients were diagnosed with primary pain site[2] of non-cancer origin that could result in pain serious enough to warrant an opioid medication. Six out of 10 patients had been diagnosed with mental health issues, one third with mood disorders, 1 of 5 with post-traumatic stress disorder, and 1 of 7 with

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

[2] Seal, K. H., Y. Shi, et al. (2012). "Association of mental health disorders with prescription opioids and high-risk opioid use in US veterans of Iraq and Afghanistan." JAMA **307**(9): 940–947.

substance use. Nearly 94 percent of the study population had been diagnosed with either pain or mental health issues and 58.4 percent with both.

About one third of the opioid patients were on take-home opioids for more than 90 days (chronic users) in FY 2012. Approximately half of the study population were new patients in the sense that they were initiated on take-home opioid therapy during FY 2012 after not having been on take-home opioids for at least more than 1 year. Seven out of 10 of the non-chronic users were new patients in contrast to 1 in 5 of the chronic users. Nearly 41 percent of the study population had been dispensed with 1 prescription. This 41 percent was composed entirely of the 61.4 percent of non-chronic users because none of the opioids were allowed to be prescribed for more than 90 days in 1 prescription. Patients with 6 or more prescriptions were mainly chronic users, which amounted to 69.3 percent of that group.

Almost all (98.4 percent) patients received their prescriptions from a single VAMC, and three quarters of the patient population had all their (filled) prescriptions issued from a single prescriber. Most (95.0 percent) of the patients were dispensed with a single type of opioid. More than 6 percent of patients received at least 1 long-acting opioid product, with the percentage of chronic users being 4 times that of non-chronic users. Opioid dosages with a morphine equivalent of at least 200 milligrams (mg)/day were dispensed to 1.2 percent of the study population. We found that refills of opioids at least 7 days early occurred in 23.0 percent of the population, with refills of at least 11 days early in 14.0 percent of the population.

The concurrent use of benzodiazepines and opioids can be dangerous because opioids and benzodiazepines can depress the central nervous system and thereby affect heart rhythm, slow respiration, and even lead to death. We found that take-home benzodiazepines were dispensed to 7.4 percent of the study population, with the percentage of chronic opioid users being 1.6 times that of non-chronic users. We determined that 71 percent of the opioid patients who received take-home benzodiazepines were dispensed benzodiazepines concurrently with opioids. The percentage of chronic opioid users with concurrent benzodiazepines was 92.6, and the percentage of non-chronic users was 53.6.

Acetaminophen poisoning is a leading cause of liver toxicity. The Clinical Practice Guideline specifically recommends not exceeding the maximum recommended daily dose of acetaminophen. We determined that take-home acetaminophens were given to 92.3 percent of the study patients and that 2.0 percent of them were given an average daily dose of 4 g/day or more. We found that 45.5 percent of chronic users were given at least 1 day dosage of 4 grams or more of acetaminophen and that 43.5 percent were given at least 1 day dosage of 4 grams or more concurrently with opioids, which was more than double that (19.4 percent and 13.3 percent, respectively) of non-chronic users.

The Clinical Practice Guideline calls for a urine drug test (UDT) prior to initiating opioid therapy and a follow-up contact at least every 2–4 weeks after any change in medication regimen. We determined that 6.4 percent of the new patients—who were

initiated take-home opioids in FY 2012 after not having been on take-home opioids for at least more than 1 year—received both a UDT prior to and a follow-up within 30 days. We observed broad variation among 140 VAMCs' practice on this measure, ranging from 1.1 percent to 32.2 percent, with the middle 50 percent of the VAMCs from 3.9 percent to 10.2 percent. This very low VA rate of screening and monitoring new patients almost exclusively resulted from the very low rate of a UDT. We found that 7.6 percent of the new patients had a UDT within 30 days prior to initiating therapy. Even for the high-risk group of patients who were diagnosed with substance use disorder (SUD) within 1 year prior to the initiation of opioid therapy, a UDT was performed for 1 out of 5 patients.

The Clinical Practice Guideline requires routine and random UDTs to confirm the appropriate use of opioids by patients and a follow-up contact at least once every 1–6 months for the duration of opioid therapy. We determined that 37.0 percent of the existing opioid patients—who were on take-home opioids at least from FY 2011—received both an annual UDT and a follow-up contact within 6 months of each filled opioid prescription, varying extensively from 4.2 percent to 91.0 percent among VAMCs. The low VA rate of monitoring opioid patients resulted mainly from the low rate of an annual UDT. We found that VA conducted an annual UDT for 37.9 percent of the existing opioid patients. We observed wide variation of VAMCs' practice of conducting an annual UDT, ranging from 4.4 percent to 87.6 percent. Even for the chronic opioid users, the annual UDT rate was 40.9 percent.

We found that 13.1 percent of the study population was diagnosed with active substance use. The Clinical Practice Guideline specifies that chronic (for more than 1 month) opioid therapy is absolutely contraindicated in patients with active (not in remission) SUDs who are not in treatment. It recommends that active substance use patients receive SUD treatment concurrently with urine drug testing as an adjunctive tool at regular intervals. For the active substance use patients who had at least 90 days available for follow-up in FY 2012, we determined that 10.5 percent received both a treatment for substance use and a UDT within 90 days of ***each*** filled opioid prescription. The percentages of VAMCs varied from 0.00 to 44.8. Even for the subpopulation of 19,724 active substance use patients who were on opioids for more than 90 days in FY 2012, we determined that only 18.8 percent of them received both an SUD treatment in the FY and a UDT for each 90 days on opioids, with VAMC percentages ranging from 0.00 to 82.7.

Psychotherapy, including cognitive behavioral therapy, is recommended to reduce pain and improve function in chronic pain patients. We found that 45.2 percent of the opioid patients received at least 1 psychosocial treatment for pain and that 35.1 percent of these patients received this treatment after their first filled opioid prescription in FY 2012. The VAMC percentages for providing psychosocial treatments for pain ranged from 26.9 to 93.7 in FY 2012.

Treatment of chronic pain requires care to recover or maintain physical, social, and occupational function and may include Pain Clinic service. We determined that 8.7 percent of the opioid patients received care from a Pain Clinic. Three quarters of

the VAMCs provided Pain Clinic service to 15.0 percent or less of their opioid patients in the FY, although 1 VAMC provided this rehabilitation service to 73.5 percent of its patients.

Opioid patients frequently have complex co-morbid conditions, making them more likely to be given multiple medications that can interact dangerously with opioid medications. A review of medications by a pharmacist or other health care professional can prevent harmful interactions between these medications. We found that 38.8 percent of the opioid patients received medication management or pharmacy reconciliation during the FY, with the percentages varying from 6.4 to 86.5 across the 140 VAMCs.

Increasing use of opioids has been associated with increasing rates of opioid-related serious adverse effects. We determined percentages of opioid patients with evidence of a serious adverse effect that may be reasonably expected to be related to opioid therapy for the following six serious adverse effects: (1) opioid overdose, (2) sedative overdose, (3) drug delirium, (4) drug detoxification, (5) acetaminophen overdose, and (6) possible and confirmed suicide attempts. We found that less than 1 percent of the population experienced each of these adverse effects during the FY, except for the adverse effect of possible and confirmed suicide attempts that was evident in 2.0 percent of the opioid patients.

Recommendations

1. We recommended that the Under Secretary for Health ensure that the practice of prescribing acetaminophen is in compliance with acceptable standards.

2. We recommended that the Under Secretary for Health ensure that VA's practice of routine and random urine drug tests prior to initiating and during take-home opioid therapy to confirm the appropriate use of opioids is in alignment with acceptable standards.

3. We recommended that the Under Secretary for Health ensure that follow-up evaluations of patients on take-home opioids are performed timely.

4. We recommended that the Under Secretary for Health ensure that opioid patients with active (not in remission) substance use receive treatment for substance use concurrently with urine drug tests.

5. We recommended that the Under Secretary for Health ensure that VA's practice of prescribing and dispensing benzodiazepines concurrently with opioids is in alignment with acceptable standards.

6. We recommended that the Under Secretary for Health ensure that medication reconciliation is performed to prevent adverse drug interactions.

Comments

The Under Secretary for Health agreed with the findings and recommendations and provided acceptable improvement plans. (See Appendix C, pages 50–57, for the full text of the comments.) We will follow up on the planned actions until they are completed.

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Introduction

Purpose

As requested by the United States (U.S.) Senate Committee on Veterans' Affairs, the VA Office of Inspector General (OIG) conducted a study to assess the provision of VA outpatient (take-home) opioids and monitoring of patients on opioid therapy (hereinafter referred to as opioid patients). The study objectives were to:

- Describe both the prevalence of VA patients who filled any take-home opioid prescriptions at VA in fiscal year (FY) 2012 and their baseline characteristics.
- Evaluate VA dispensing patterns of take-home opioids, including concurrent (filled) benzodiazepines, filled dose of acetaminophen, and early refills of opioids.
- Assess the extent to which VA screens and monitors opioid patients in alignment with measures adapted from selected recommendations in the VA/Department of Defense (DoD) Clinical Practice Guideline for Management of Opioid Therapy for Chronic Pain (CPG).
- Define VA patterns of providing psychosocial treatment for pain, Pain Clinic service, and medication management/pharmacy reconciliation for take-home opioid patients.
- Determine the prevalence of six selected serious clinical adverse effects among VA take-home opioid patients that may be reasonably expected to be related to opioid therapy.

Background

Pain and Opioid Use. The Institute of Medicine reported that pain affects 100 million adults in the U.S. at a cost of up to $635 billion each year in medical treatment and lost productivity.[3] The report concluded that to reduce the impact of pain and the resultant suffering required cultural transformation on how pain is perceived and judged by people with pain and health care providers who care for them.

More than 50 percent of all veterans enrolled and receiving care at VHA are affected by chronic pain, which is a much higher rate than in the general adult population.[4] Veterans who suffer from chronic pain also experience much higher rates of other co-morbidities (post-traumatic stress disorder (PTSD), depression, traumatic brain injury) and socioeconomic dynamics (disability, joblessness) that may contribute to the challenges of pain management when treated with opioids.

[3] Committee on Advancing Pain Research, Care, and Education; Institute of Medicine (2011). Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research, The National Academies Press.
[4] Statement of Dr. Robert L. Jesse, M.D., Principal Deputy Under Secretary for Health, Veterans Health Administration, Before the Subcommittee on Health, U.S. House of Representatives, October 10, 2013.

In 1998, the VHA National Pain Management Strategy was initiated, which established pain management as a national priority. The overall objective of the strategy is to develop a comprehensive, integrated system-wide approach to pain management that reduces pain and suffering and improves quality of life for veterans experiencing acute and chronic pain. In 2009, VHA issued a directive[5] for the improvement of pain management consistent with the VHA National Pain Management Strategy.

In 2003, VA and DoD published the first Clinical Practice Guideline for Management of Opioid Therapy for Chronic Pain (CPG) to improve pain management, quality of life, and quality of care for veterans. The CPG was revised in 2010 to update the evidence base of the original CPG.[6] Additionally, the scope was widened to include patients with cancer who have chronic pain because of cancer or the treatment they are receiving.

Opioid therapy is intended for patients who suffer from moderate to severe chronic pain and who have been previously assessed and treated with non-opioid or non-pharmacological therapy with no response or with limited success or response and who may benefit from opioid therapy for pain control. Opioids are powerful medications that can help manage pain when prescribed for the right condition and when used properly. However, if prescribed inappropriately or if used improperly, they can cause serious harm, including overdose and death. Patient adherence with the proper use of opioids is crucial in the delivery of appropriate opioid therapy. Patient assessments, follow-up evaluations, and urine drug tests (UDTs) are recommended monitoring tools for safe and effective use of opioids.

Adverse Effects of Opioid Therapy. While opioids are useful for managing chronic pain, adverse effects are potential limitations to their use.[7] Therefore, providers need to weigh the risks against the benefits of opioid use either alone or in combination with other medications that could cause adverse effects, such as benzodiazepines, and against expected effects such as constipation. For opioid patients taking acetaminophen products, providers must be aware of the maximum recommended daily dose of acetaminophen.

Even a single large dose of opioids can cause severe respiratory depression or death. Long-term use or abuse of opioids can lead to physical dependence, a normal adaptation to chronic exposure, and addiction. In cases of long-term use or abuse, withdrawal symptoms may occur if opioids are too rapidly reduced or stopped without tapering. These symptoms can include restlessness, muscle and bone pain, insomnia, diarrhea, vomiting, and involuntary leg movements.

In general, extreme caution must be used when prescribing opioids with other substances that depress the central nervous system (CNS), such as benzodiazepines,

[5] VHA Directive 2009-053, *Pain Management*, October 28, 2009.
[6] http://vaww1.va.gov/PAINMANAGEMENT/docs/CPG_opioidtherapy_fulltext.pdf. Last accessed December 19, 2013.
[7] Swegle, J. M. and C. Logemann (2006). "Management of common opioid-induced adverse effects." Am Fam Physician **74**(8): 1347–1354.

because in combination, there is an increased risk of life-threatening respiratory depression.[8]

Selected Recommendations from the VA/DoD Clinical Practice Guideline for Management of Opioid Therapy for Chronic Pain (CPG).[9] The CPG provides education and guidance on chronic (more than 1 month) opioid therapy to providers. However, some CPG recommendations are applicable to all patients on opioid therapy, regardless of the length of time. Specifically, the CPG provides the following recommendations for urine drug tests (UDTs), follow-up evaluations, and bowel regimen:

- UDTs. The CPG recommends routine and random UDTs prior to initiation of and during opioid therapy (p. 59). The frequency of UDTs should be increased based on risk level for aberrant drug-related behaviors and following each dose increase (pp. 51 and 60). The risk of opioid misuse in patients on opioid therapy is reported to be as high as 30 percent (p. 59), and patients with a history of substance use disorder (SUD) are at higher risk of developing problematic drug use, addiction, or relapse. UDTs can identify patients using illicit substances and can assist in the diagnosis of SUD. They can also help identify patient adherence to opioid therapy and drug diversion.

- Follow-up evaluations. The CPG recommends scheduled follow-up visits at least every 2–4 weeks after any change in medication regimen and at least once every 1–6 months for the duration of opioid therapy (p. 82). Patients are to be assessed for effectiveness of opioid therapy, adverse effects, and adherence to therapy (p. 82). Pertinent laboratory studies are to be performed as necessary. Patients with certain medical conditions require more frequent follow-up visits. These include patients with significant respiratory depression, asthma, chronic obstructive pulmonary disease, obstructive sleep apnea, paralytic ileus, anxiety disorder, personality disorder, increased risk of suicide, and SUD history.

- Bowel regimen. The CPG recommends routine initiation of a bowel regimen that includes both a stimulant and a stool softener at the commencement of opioid therapy and patient assessment for opioid related adverse effects at every office and follow-up visit (p. 70).

Medication Reconciliation. Medication reconciliation ensures the maintenance of accurate, safe, effective, and above all, patient centered medication information.[10] One of the Joint Commission's national patient safety goals is medication safety by maintaining and communicating accurate patient medication information.[11]

[8] Jones, J. D., S. Mogali, et al. (2012). "Polydrug abuse: a review of opioid and benzodiazepine combination use." Drug Alcohol Depend **125**(1–2): 8–18.
[9] http://vaww1.va.gov/PAINMANAGEMENT/docs/CPG_opioidtherapy_fulltext.pdf. Last accessed December 19, 2013.
[10] VHA Directive 2011-012, *Medication Reconciliation*, March 9, 2011.
[11] The Joint Commission Sentinel Event Alert, Issue 35, January 25, 2006.

VHA requires that medication reconciliation be performed across the continuum of care, including outpatient encounters, to prevent adverse drug interactions. VHA also requires that patients be educated about their medications prior to or at the time of dispensing according to the patient's individualized drug regimen.[12] Clinicians are required to discuss necessary drug information, potential drug interactions, and necessary laboratory tests for monitoring medication therapy outcomes and to evaluate the medication order to ensure appropriate dosing, taking into account the renal and liver function of the patient. Prior to initiating opioid therapy, the CPG recommends that providers carefully evaluate potential drug interactions (such as methadone with benzodiazepines and fentanyl with alcohol and other CNS depressants) (p. 25).

Benzodiazepines. Benzodiazepines are a type of psychoactive (mind-altering) medication known as tranquilizers that are most often prescribed to treat anxiety, acute stress reactions, panic attacks, seizures, and sleep disorders. They are one of the most widely prescribed medications in the U.S., particularly among elderly patients. Familiar names include Valium® and Xanax®. Benzodiazepines act on the CNS to slow its function and promote relaxation, thereby reducing muscle tension and other physical symptoms of anxiety. Benzodiazepines may cause respiratory depression in susceptible patients. Therefore, they generally should not be used with opioids because the combination increases the risk of life-threatening respiratory depression.

Benzodiazepines have the potential for abuse. They can be chronically abused, or intentionally or accidentally taken in overdose. While death and serious illness rarely result from benzodiazepine abuse alone, the concurrent use of benzodiazepines and opioids can be dangerous because both depress the CNS.[13] Benzodiazepines have been strongly associated with death from opioid overdose.[14]

Acetaminophen. Acetaminophen (for example Tylenol®) is a type of medication used to relieve pain and reduce fever. It is among the most commonly used drugs in the U.S. In addition to its availability as an over-the-counter product, acetaminophen is used in many prescription products in combination with other drugs, usually opioids, such as codeine (Tylenol with Codeine®), hydrocodone (Vicodin®), and oxycodone (Percocet®). The labels of acetaminophen-containing drug products may not spell out the whole word or may have an abbreviation such as APAP.

Acetaminophen poisoning is a leading cause of liver toxicity.[15] In a consumer update posted to its website, the Food and Drug Administration (FDA)[16] pointed out that

[12] VHA Handbook 1108.05, *Outpatient Pharmacy Services*, May 30, 2006.
[13] Jones, J. D., S. Mogali, et al. (2012). "Polydrug abuse: a review of opioid and benzodiazepine combination use." Drug Alcohol Depend **125**(1–2): 8–18.
[14] Toblin, R. L., L. J. Paulozzi, et al. (2010). "Mental illness and psychotropic drug use among prescription drug overdose deaths: a medical examiner chart review." J Clin Psychiatry **71**(4): 491–496.
[15] Larson, A. M., J. Polson, et al. (2005). "Acetaminophen-induced acute liver failure: results of a United States multicenter, prospective study." Hepatology **42**(6): 1364–1372.
[16] http://www.fda.gov/downloads/ForConsumers/ConsumerUpdates/UCM239891.pdf. Last accessed November 27, 2013.

"Overdoses from prescription products containing acetaminophen account for nearly half of all cases of acetaminophen-related liver failure in the U.S., many of which result in liver transplant or death." Aimed at reducing acetaminophen risks, on January 13, 2011, the FDA announced its requirement for a boxed warning on all prescription acetaminophen products that highlights the potential risk for severe liver injury. Boxed warnings are the FDA's strongest warnings for prescription drug products and are used for calling attention to serious or life-threatening risks.

Most current guidance requires that patients consume no more than 4 grams (g) of acetaminophen per day. However, the FDA recommends less than 4 grams per day[17] because of concerns about acetaminophen's widespread availability and because patients are often not aware of and may not inform their providers about other acetaminophen use.

Scope and Methodology

The study population contains all VA patients who filled at least 1 oral or transdermal opioid prescription from VA for self-administration at home in FY 2012 and who did not receive any hospice or palliative care during the FY or within 1 year prior to their first take-home opioid prescription. In addition to following the patients retrospectively through the end of the FY, we also looked back to evaluate whether they filled any opioid prescriptions for take-home use and whether they experienced certain medical conditions during FY 2011. Our study period minimizes background shifts in opioid provision in VA because the VA/DoD Clinical Practice Guideline for Management of Opioid Therapy for Chronic Pain was updated in May 2010. The study population encompasses some Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) era veterans as well as veterans from other service eras (non-OEF/OIF), such as Operations Desert Shield and Desert Storm. As a result, the outcomes that we observed in this population may be different from those of OEF/OIF veterans only.[18]

To address the study objectives, we reviewed pertinent policies, regulations, and procedures on opioid therapy. We also conducted a literature review on opioid use for pain management. We met and discussed opioid therapy guideline adherence with VA subject matter experts. Additionally, we researched VA administrative databases.

Study Population. We included all VA patients who filled any oral or transdermal take-home opioid prescriptions from a VA outpatient pharmacy or consolidated mail outpatient pharmacy in FY 2012 and who did not receive any hospice or palliative care in the FY or within 1 year prior to their first filled prescription.

We identified the study population using the VA Decision Support System (DSS) National Data Extract (NDE) Pharmacy SAS Datasets, which contain all VA filled inpatient and outpatient prescription records. We first identified opioid products using

[17] http://www.fda.gov/Drugs/DrugSafety/ucm239821.htm. Last accessed January 17, 2014.
[18] Seal, K. H., Y. Shi, et al. (2012). "Association of mental health disorders with prescription opioids and high-risk opioid use in US veterans of Iraq and Afghanistan." JAMA **307**(9): 940–947.

the following 10 types of opioids in VA's National Drug File:[19] (1) codeine, (2) fentanyl, (3) hydrocodone, (4) hydromorphone, (5) meperidine, (6) methadone, (7) morphine, (8) oxycodone, (9) oxymorphone, and (10) tapentadol. We created the opioid list for our study by including the 1,736 opioid products in the 10 selected opioid types that were categorized as U.S. Drug Enforcement Administration (DEA) schedule II or III controlled substances in the National Drug File. All the opioids selected for this study are oral medications only except for fentanyl, which also comes in transdermal form.

We then searched the VA Pharmacy SAS data file to identify VA patients for the study by including all those patients who filled at least 1 prescription of the opioids on our list in FY 2012 for take-home use. We then linked all these patients with VA administrative inpatient and outpatient (including fee basis care) treatment (SAS medical data) files to identify and then exclude those patients who received hospice or palliative care (Appendix B1) anytime in FY 2012 or within 1 year of their first take-home opioid prescription.

Chronic Users and Non-Chronic Users of Opioids. We classified the study population into two subpopulations, *chronic users* and *non-chronic users* of opioids, based on the number of days they were on opioids. We defined patients as *chronic users* of opioids if they were on opioids for more than 90 days in FY 2012 and as *non-chronic users* if they were on opioids 90 days or less. Rather than a simple sum of the number of *supply days* from all filled prescriptions, we counted overlapping supply days from different prescriptions once only for the *number of days on opioids*. For example, if a patient filled 1 prescription that supplied opioids from March 3, 2012, through March 10, 2012, then filled another prescription that supplied opioids from March 8, 2012, through March 14, 2012, we counted the number of days on opioids as 12 instead of 15 after taking into account the overlapping supply days from March 8, 2012, to March 10, 2012. Exhibit X1 in Appendix A shows our calculation of days on opioids for a patient with 5 filled prescriptions.

Data and Study Variables. After we identified the study population, we then linked the population to FY 2011 and FY 2012 VA administrative SAS medical data files to find information on VA clinical visits and associated clinical diagnoses, the VA Laboratory SAS data files to obtain detailed urine drug test records, and the FY 2011 VA Pharmacy SAS data file to check for any filled opioid prescriptions for take-home use during that FY.

To determine patients' vital status as of the end of FY 2012, we also used the Death Master Files of the Social Security Administration, vital status data from the VA Mini Vital Status, the Beneficiary Identification Records Locator Subsystem (BIRLS), the National Cemetery System (NCS), and the Patient Treatment File (PTF). We considered that a patient died in FY 2012 if:

- the death date was within the FY, and

[19] The National Drug File lists drugs approved by the FDA and is created and maintained by VA with specific information, including national drug code, strength, dosage form, unit of measure, and manufacturer.

- after the death date, we did not find any filled take-home prescription records for both opioid and benzodiazepine in FY 2012 and did not find any outpatient encounters in FY 2012 and FY 2013 (as of April 19, 2013) VA SAS outpatient treatment files.

Prevalence of Patients Dispensed Take-Home Opioids in FY 2012. We defined the prevalence as the percent of patients who filled any take-home opioids at VA during FY 2012. For prevalence by VA Medical Center (VAMC), if a patient received opioid prescriptions from different VAMCs, this patient was counted in each of the VAMC's prevalence. However, a patient's multiple prescriptions from one VAMC were counted exactly once for that VAMC's prevalence.

Baseline Characteristics. We defined a medical condition as a *baseline* condition if it was diagnosed within 1 year prior to (or at the time of) the patient's first filled opioid prescription in FY 2012. We considered a patient to have a *mental health diagnosis* if the patient was diagnosed with any specific codes within the category of Mental Disorders (290–319) of the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM). The category of Mental Disorders of ICD-9-CM corresponds to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Revised (DSM-IV-R). Except for the category of *psychological pain*, we used Hoge's definitions[20] to create the following specific categories of mental health diagnosis based on the following ICD-9-CM diagnostic codes:

- Adjustment disorders: 309.0, 309.24, 309.28, 309.3, 309.4, 309.9.
- Post-traumatic stress disorder (PTSD): 309.81.
- Anxiety disorders excluding PTSD: 300.00, 300.01, 300.02, 300.21, 300.22, 300.23, 300.29, 300.3, 308.3.
- Mood disorders: 296.0, 296.2–296.7, 296.80, 296.89, 296.90, 300.4, 301.13, 311.
- Major depression: 296.2, 296.3.
- Personality disorders: 301.0, 301.2, 301.4, 301.50, 301.6, 301.7, 301.81–301.84, 301.89, 301.9.
- Psychotic disorders: 295.1–295.4, 295.6, 295.7, 295.9, 297.1, 297.3, 298.8, 298.9.
- Substance use: 291, 292 (except 292.2), 303–305 (except 305.1 and 305.8).
- Alcohol-related disorders: 291, 303, 305.0.
- Drug-related disorders: 292 (except 292.2), 304, 305.2–305.7, 305.9.

[20] Hoge, C. W., S. E. Lesikar, et al. (2002). "Mental disorders among U.S. military personnel in the 1990s: association with high levels of health care utilization and early military attrition." Am J Psychiatry **159**(9): 1576–1583.

- Psychological pain: 307.80 and 307.89.

We used Seal's definitions[21] to determine whether a patient was diagnosed with any *primary pain*. These *primary pain site* diagnoses included ICD-9-CM non-cancer diagnostic codes that could result in pain serious enough to warrant an opioid medication:

- Arthritis: 710 (except 710.5), 711, 713, 714, 715, 716, 717, 718, 719.70, 719.75–719.79, 720.0, V13.4.
- Back pain: 720–724 (except 720.0, 723.4, 723.8), 756.1.
- Fractures: 733.1, 733.93–733.98, 800–829, 905.0–905.5, V13.51, V13.52, V54.0–V54.2, V66.4, V67.4.
- Generalized pain: 780.96.
- Headaches: 307.81, 339, 346 (except 346.6), 784.0.
- Musculoskeletal pain: 725, 726 (except 726.70, 726.73, 726.79, 726.91), 728.11, 728.12, 728.81, 728.83, 728.86, 728.89, 728.9, 729 (except 729.2, 729.3, 729.6, 729.81, 729.82), 781.99, 830–848, 905.6, 905.7, V43.6, V43.7, V48.3, V49.6, V49.7.
- Neuropathy: 053.13, 072.72, 337.0, 337.1, 353–357, 377.33, 377.34, 377.41.
- Other pain: 730, 733.0, 780.96.
- Reproductive pain: 614, 615, 616.11, 616.2–616.9, 617, 625.1–625.3, 625.5, 625.7, 625.8 626.3, 626.5.
- Visceral pain: 550 (except 550.9), 551.0–551.2, 552.0–552.2, 560.81, 562.01, 562.03, 562.11, 562.13, 567.2, 567.8, 569.5, 574, 575.0, 575.1, 577.0, 577.1, 592, 594, 596, 788.0, 789.0, 789.6.
- Wound injury: 860–887 (except 873.63), 890–897, 900–904, 905.8, 905.9, 906, 907.2, 908.0–908.4, 925–929, 940–949, 952.

We determined that a patient was diagnosed with *pain of the nervous system and sense organs* if we found 1 of the following ICD-9-CM diagnostic codes in the category of *pain of the nervous system and sense organs*:

- Acute pain: 338.1.
- Chronic pain: 338.2.

[21] Seal, K. H., Y. Shi, et al. (2012). "Association of mental health disorders with prescription opioids and high-risk opioid use in US veterans of Iraq and Afghanistan." JAMA **307**(9): 940–947.

- Neoplasm-related pain: 338.3.
- Chronic pain syndrome: 338.4.

We deemed a patient was diagnosed with *pain* if he or she had a diagnosis of *primary pain site* and/or *pain of the nervous system and sense organs*.

Dispensing Patterns. The CPG (p. 18) recommends more careful monitoring of opioid patients treated with benzodiazepines as co-administration of these products may result in adverse drug interactions. Benzodiazepines have been strongly associated with death from opioid overdose[22] and with an increased risk of death due to methadone toxicity.[23] We determined whether the patients were receiving benzodiazepines concurrently with opioids. We defined a patient as having received *concurrent benzodiazepine and opioid prescriptions* in FY 2012 if the patient had at least 1 filled take-home opioid prescription with supply days that overlapped with the supply days of at least 1 filled take-home benzodiazepine prescription. For the study, we included the 2,112 benzodiazepine products from the National Drug File within the following 14 types of benzodiazepines: (1) alprazolam, (2) chlordiazepoxide, (3) clorazepate, (4) diazepam, (5) estazolam, (6) flurazepam, (7) halazepam, (8) lorazepam, (9) midazolam, (10) oxazepam, (11) prazepam, (12) quazepam, (13) temazepam, and (14) triazolam. For each patient in the study population, we searched the FY 2012 VA Pharmacy SAS data file to look for any filled benzodiazepine prescription records based on our list.

The CPG specifically recommends (p. 52) that "When using combination products, do not exceed maximum recommended daily doses of acetaminophen, aspirin, or ibuprofen." We evaluated whether the patients were receiving acetaminophen for use at home within recommended doses. We first generated a list of drug products (including opioids) containing acetaminophen through a string searching the National Drug File for "ACETAMINOPHEN," "APAP," and "ACE." Next, we removed any drugs with the string "ACETONE" or "ACETY." The list included 9,502 drug products containing acetaminophen. Then, from the VA Pharmacy SAS data file, we found all records of take-home acetaminophen prescriptions, if any, filled in FY 2012 for each patient in the study. We calculated daily doses based on days on acetaminophen, which takes into account the overlapping supply days from different acetaminophen prescriptions in a similar way as we did for days on opioids.

We calculated *morphine equivalent* dose for each filled opioid prescription using the formula (Quantity * Strength * Potency factor) to standardize opioid doses across different types of opioids.[24] The *daily morphine equivalent* was calculated as the sum of

[22] Toblin, R. L., L. J. Paulozzi, et al. (2010). "Mental illness and psychotropic drug use among prescription drug overdose deaths: a medical examiner chart review." J Clin Psychiatry **71**(4): 491–496.
[23] Caplehorn, J. R. and O. H. Drummer (2002). "Fatal methadone toxicity: signs and circumstances, and the role of benzodiazepines." Aust N Z J Public Health **26**(4): 358–362; discussion 362–353.
[24] Korff, M. V., K. Saunders, et al. (2008). "De facto long-term opioid therapy for noncancer pain." Clin J Pain **24**(6): 521–527.

the morphine equivalents for each filled opioid prescription in FY 2012 divided by the number of days on opioids during the FY.

We defined e*arly refill* of opioid prescriptions as the same opioid medication (standardized based on generic name, route of administration, and dosage form) that was dispensed before the end of any prior prescriptions. As an example, we would not consider CODEINE 60MG/ACETAMINOPHEN 300MG CAP as an early refill if the previous prescription was CODEINE 60MG/ACETAMINOPHEN 300MG TAB, because of the different dosage forms—the former is a capsule while the latter is a tablet. Researchers have used early refill of more than 7 days as a proxy of high-risk opioid behavior.[25] Exhibit X2 in Appendix A compares concurrent use and early refills.

All opioids cause slowing of intestinal motility; thus, constipation is an anticipated negative outcome of opioid therapy. The CPG strongly recommends initiating a bowel regimen for all patients who are prescribed an opioid to prevent and treat constipation (pp. 37 and 67). We considered that a *bowel regimen* was provided to a patient if we found in the FY 2012 VA Pharmacy SAS data file at least 1 filled laxative prescription for that patient from any of these VA drug classes:[26] GA201, GA202, GA203, GA204, GA205, GA209, and RS300.

Screening and Monitoring Patients on Take-Home Opioids. The CPG specifies screening and monitoring opioid patients by urine drug tests (UDTs) and patient follow-up contacts. It strongly recommends use of UDTs to assess illicit drug use and adherence to prescribed medications. A UDT should be obtained prior to opioid initiation and randomly at follow-up visits to confirm the appropriate use of opioids (CPG, p. 37). We searched UDT records in the VA Laboratory SAS data files for each patient in the study population to determine whether a patient received any UDTs. A urine sample may be used to test for one substance or multiple substances. We categorized a UDT by test substance into one or all of the following three specific types (Appendix B2):

(1) Heroin or morphine

(2) Non-morphine opioid compounds

(3) Non-opioid abusable substances

The CPG specifies (p. 82) that patients should have follow-up contact with their provider at least every 2–4 weeks after any change in medication regimen and at least once every 1–6 months for the duration of opioid therapy. We searched VA administrative files for each patient in the study population to determine whether a patient received any

[25] Seal, K. H., Y. Shi, et al. (2012). "Association of mental health disorders with prescription opioids and high-risk opioid use in US veterans of Iraq and Afghanistan." JAMA **307**(9): 940–947.
[26] VHA National Center for Patient Safety and Office of Mental Health Operations. "Opioid Therapy Guideline Adherence Report."
https://securereports3.vssc.med.va.gov/Reports/Pages/Report.aspx?ItemPath=%2fMentalHealth%2fMHOpioid%2fOpioidMatrixReport. Last accessed December 30, 2013.

clinical encounters. For follow-up contact, we counted either in-person (inpatient care, extended care, or outpatient visits) or telephone encounter. We did not count any in-person visits to the emergency room or any encounters for reasons that were unlikely related to follow-up for opioids, such as for compensation and pension, dental, organ donation, or research.

To take into account specific CPG recommendations for initiation and duration of opioid therapy, we assessed the extent to which VA screened and monitored opioid patients in alignment with CPG recommendations separately by new and existing patients on take-home opioids. We considered a patient as a *new patient* for FY 2012 if he or she was initiated on take-home opioids in FY 2012 and did not fill any take-home opioid prescriptions at VA in FY 2011 (that is, at least 1 year without any take-home opioids prior to initiation in FY 2012). We designated a patient as an *existing patient* if he or she had filled at least 1 take-home opioid prescription at VA in FY 2011.

For new patients who were initiated on take-home opioids in FY 2012, we determined whether they had received both a:

(1) UDT within 30 days prior to opioid initiation in FY 2012 and

(2) follow-up contact within 30 days of initiation.

All new patients were included in the UDT (1) analysis. We excluded new patients from the follow-up contact (2) analysis if they died within 30 days of opioid initiation or if they filled their initial prescriptions after September 1, 2012, as they would not have had at least 30 days of available follow-up in the FY.

For all new opioid patients who had at least 30 days of available follow-up in the FY, we performed the analyses (both (1) and (2)) for all these patients together and also analyzed separately by whether they were diagnosed with baseline substance use.

For existing patients, we determined whether they had received both:

(1) an annual UDT and

(2) a follow-up contact within 6 months of each filled opioid prescription in FY 2012 that had at least 6 months available for follow-up contact.

All existing patients were included in the UDT (1) analysis. We counted patients as having an annual UDT if we found a UDT record in the FY 2012 VA Laboratory SAS data file. For patients who died in FY 2012 and for whom we did not find a UDT in the FY, we also checked for a UDT by looking back in FY 2011 for a period that was sufficient to satisfy the 1-year timeframe from the date of death. For example, for a patient who died on August 31, 2012, and for whom we did not locate a UDT in FY 2012, we looked back to the period of September 1–September 30, 2011, for a UDT to make up for the missing month of September in order to satisfy the 1-year timeframe (that is, September 1, 2011–August 31, 2012, specifically for this patient).

We excluded existing patients from the follow-up contact (2) analysis if they did not have any filled prescriptions that were at least 6 months prior to the end of the follow-up period (September 30, 2012, or the patient's date of death if the patient died in FY 2012).

For all existing opioid patients who had at least 1 filled prescription that was at least 6 months prior to the end of the follow-up period in the FY, we performed the analyses (both (1) and (2)) for all these patients together and also analyzed separately by *chronic users*, as well as by UDT test substance type.

For informational purposes, for existing patients who had received an annual UDT, we further investigated whether any of their UDTs were conducted while they were on opioids. If any UDT was conducted within 7 days of the end of the supply days of any filled opioids, we considered that the UDT was conducted while they were on opioids. We used 7 days to take into account the presence of opioids in the urine for up to 7 days without any opioid in-take.[27]

The CPG specifies that chronic (for more than 1 month, p. 3) opioid therapy is absolutely contraindicated in patients with active (not in remission) substance use disorders (SUDs) who are not in treatment (p. 25) and should be initiated with caution in patients receiving treatment for SUDs (p. 24). Active, regular monitoring of illicit substance use and adherence to the prescribed opioid regimen is strongly recommended for all patients (p. 56) but is crucial in this high-risk subpopulation.

We designated a patient as with active SUD if we found any of the following ICD-9-CM diagnostic codes for the patient in FY 2012: 291, 292, 303.00–303.02, 303.90–303.92, 304.00–304.02, 304.10–304.12, 304.20–304.22, 304.30–304.32, 304.40–304.42, 304.50–304.52, 304.60–304.62, 304.70–304.72, 304.80–304.82, 304.90–304.92, 305.00–305.02, 305.20–305.22, 305.30–305.32, 305.40–305.42, 305.50–305.52, 305.60–305.62, 305.70–305.72, 305.80–305.82, 305.90–305.92.

We considered that an active substance use patient had received treatment for substance use if we found any of the following VA codes for the patient in FY 2012:

- Treating specialty codes: 25–27, 37, 39, 85, 88, 1K, 1L, 1M.
- Clinic stop codes: 513, 514, 519, 523, 534, 539, 545, 547, 548, 560.

For all patients with active SUD in FY 2012, we determined whether they had received both:

(1) treatment for SUD and

(2A) a UDT within 90 days of each filled opioid prescription.

[27] http://www.paineducation.vcu.edu/documents/UDTimmunoassay.pdf. Last accessed December 23, 2013.

For UDT analysis (2A) we excluded active substance use patients who did not have any filled opioid prescriptions that were at least 90 days prior to the end of the follow-up period (September 30, 2012, or the patient's date of death if the patient died in FY 2012).

For the subpopulation of active substance use patients who were on opioids for more than 90 days in FY 2012, we further determined whether they had received both:

(1) treatment for SUD and

(2B) a UDT for every 90 days on opioids.

Prevalence of Serious Adverse Effects. Increasing use of opioids has been associated with increasing rates of opioid-related serious adverse effects.[28–35] We determined percentages of opioid patients with evidence of a serious adverse effect that may be reasonably expected to be related to opioid therapy.[36]

We classified a patient with *opioid overdose* if the patient was diagnosed with an opioid or heroin overdose (ICD-9-CM codes: E850.1, E850.2, E935.1, E935.2, E980.0, 965.0, E850.0, and E935.0) or had filled any naloxone prescriptions with the following VA Internal Entry Numbers (IENs): 02802–02805, 03792, 16015, and 16016.[37]

We considered that a patient experienced *sedative overdose* if the patient was diagnosed with any of these ICD-9-CM codes:[37] E851, E852, E853.0–E853.2, E853.8, E853.9, E937.0, E937.8, E938.0, E939.1, E939.2, E939.4, E939.5, E980.1–E980.3, 967.0, 967.8, 968.0, and 969.1–969.5.

We deemed a patient with an *acetaminophen overdose* if the patient was diagnosed with any of these ICD-9-CM codes: E850.4, E935.4, and 965.4 or had filled any acetylcysteine prescriptions with the following IENs: 06109–06112, 14944–14955, 17196, 17544, 17876, 18774, and 19801.

[28] http://www.cdc.gov/about/grand-rounds/archives/2011/pdfs/PHGRRx17feb2011.pdf. Last accessed January 27, 2014.
[29] Kuehn, B. M. (2010). "Alarming nonfatal overdose rates found for opioids, sedatives, and tranquilizers." JAMA **303**(20): 2020–2021.
[30] http://oas.samhsa.gov/2k11/DAWN018/DAWN018_HTML.pdf. Last accessed January 27, 2014.
[31] Clegg, A. and J. B. Young (2011). "Which medications to avoid in people at risk of delirium: a systematic review." Age Ageing **40**(1): 23–29.
[32] http://www.uspharmacist.com/content/d/web_exclusive/c/40386/. Last accessed January 27, 2014.
[33] http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6226a3.htm. Last accessed January 27, 2014.
[34] VHA Handbook 1160.04, *VHA Programs for Veterans With Substance Use Disorders (SUD)*, March 7, 2012.
[35] http://www.healthquality.va.gov/sud/sud_full_601f.pdf. Last accessed January 29, 2014.
[36] http://www.cdc.gov/media/releases/2013/p0220_drug_overdose_deaths.html. Last accessed January 9, 2014.
[37] VHA National Center for Patient Safety and Office of Mental Health Operations. "Opioid Therapy Guideline Adherence Report." https://securereports3.vssc.med.va.gov/Reports/Pages/Report.aspx?ItemPath=%2fMentalHealth%2fMHOpioid%2fOpioidMatrixReport. Last accessed December 30, 2013.

We designated a patient as having been involved with *possible and confirmed suicide attempts* if the patient was diagnosed with any of these ICD-9-CM codes:[37] E950–E959, E980.6, E980.8, E981–E984, E988, and V62.84.

We defined a patient as having experienced *drug delirium* if the patient was diagnosed with any of these ICD-9-CM codes:[37] 292.1, 292.2, 292.8, and 292.9.

We identified a patient as having received *drug detoxification* if we found ICD-9-CM procedure codes 94.65 or 94.66 for the patient.[37]

Psychosocial Treatment for Pain, Pain Clinic Service, and Medication Management/Pharmacy Reconciliation. We determined whether our population of opioid patients received psychosocial treatment for pain or Pain Clinic service or had prescription management encounters anytime in FY 2012 or after the patient's first opioid prescription.

Psychotherapy, including cognitive behavioral therapy, is recommended to reduce pain and improve function in chronic pain patients.[38] We designated a patient as having received *psychosocial treatment for pain* if we found any of the following procedure codes[39] for the patient, which would indicate mental health treatment, behavioral medicine or behavioral health treatment, psychotherapy, and stress management:

- Current Procedural Terminology (CPT)[40] codes: 90801, 90802, 90804–90829, 90845–90857, 96150–96155, 97532, 98960–98962, 99401–99404, 99411, 99412, 99510, 4306F.

- ICD-9-CM procedure codes: 94.31, 94.33, 94.37, 94.38, 94.44, 94.49.

- Healthcare Common Procedure Coding System (HCPCS)[41] codes: H0002, H0004, H0017–H0019, H0023–H0025, H0030, H0031, H0032, H0035, H0046, H2001, H2012, H2014, H2017–H2020, H2027, G0177, S9454, T2048.

Thus, our data did not take into account patients who were offered psychosocial treatment for pain but declined.

Treatment of chronic pain requires care to recover or maintain physical, social, and occupational function and may include Pain Clinic service. We identified a patient as

[38] Roditi, D. and M. E. Robinson (2011). "The role of psychological interventions in the management of patients with chronic pain." Psychol Res Behav Manag **4**: 41–49.
[39] VHA National Center for Patient Safety and Office of Mental Health Operations. "Opioid Therapy Guideline Adherence Report." https://securereports3.vssc.med.va.gov/Reports/Pages/Report.aspx?ItemPath=%2fMentalHealth%2fMHOpioid%2fOpioidMatrixReport. Last accessed December 30, 2013.
[40] CPT is a code set that is used to report medical procedures and services.
[41] HCPCS codes are billing codes used by Medicare and are numbers assigned to every task and service a medical practitioner may provide to a Medicare patient.

receiving care from a Pain Clinic if we found any encounters for the patient with the VA Clinic Stop Code of 420.

Opioid patients frequently have complex co-morbid conditions, making them more likely to be given multiple medications that can interact dangerously with opioid medications. A review of medications by a pharmacist or other health care professional can prevent harmful interactions between these medications. We classified a patient as *receiving medication management/pharmacy reconciliation* if we found any[39] of these CPT codes for the patient: 99605, 99606, 99607, 90862, and 1160F or the Clinic Stop Codes 160 or 176. Our data did not take into account medication reconciliation performed by primary care providers during clinic visits if it was not recorded as a CPT code.

Exhibit X3 in Appendix A summarizes data files used in our analysis.

Statistical Analyses

We performed descriptive data analyses for VA as a whole and separately for each VAMC. We summarized variations among VAMC data results using the 5-number summaries: minimum, 25th percentile, median, 75th percentile, and maximum.

For this study, we used VAMC to refer to medical centers and CBOCs that were under the same VA facility (Director) administrative leadership. Based on the VA Site Tracking (VAST) file, we designated each medical center and each CBOC to 1 of the 141 VAMCs using its station number. As of December 31, 2012, VHA consisted of 141 VAMCs that included 151 medical centers and 827 CBOCs.[42]

Some patients received take-home opioid prescriptions from more than 1 VAMC during FY 2012. For opioid prevalence calculations by VAMC, these patients were counted for each VAMC where they received any filled opioid prescriptions. To perform data analyses other than opioid prevalence by VAMC, we designated a patient to the VAMC that issued the most (filled) take-home opioid prescriptions to the patient in FY 2012. If more than one VAMC met this criterion, we assigned the patient to the VAMC (among those VAMCs tied for most filled prescriptions) that issued the last (filled) opioid prescription in the FY.

We performed data analyses using SAS statistical software (SAS Institute, Inc., Cary, NC), version 9.3 (TS1M2).

The study was performed in accordance with *Quality Standards for Inspection and Evaluation* published by the Council of the Inspectors General on Integrity and Efficiency.

[42] http://www.va.gov/vetdata/docs/Quickfacts/Homepage_slideshow_03_31_13.pdf. Last accessed December 30, 2013.

Results and Conclusions

VA dispensed take-home opioids to 453,616 patients during FY 2012 for a total of close to 1.72 million filled opioid prescriptions (Exhibit 1). We excluded from our analyses a total of 11,072 patients and 38,045 prescriptions (including the 111 duplicate prescription records). This accounted for 2.4 percent of the entire FY 2012 patients dispensed with take-home opioids. We excluded the 330 patients who were classified as DoD patients. Most (97 percent) of the excluded patients were those who had received hospice or palliative care in FY 2012 or within 1 year prior to their first take-home opioid prescription in FY 2012. Thus, our study population consists of 442,544 (non-hospice/palliative care) patients who collectively received approximately 1.68 million take-home opioid prescriptions in FY 2012. These patients received care from at least 1 of the 140 VAMCs since Manila VAMC did not have any eligible patients for the study.

Exhibit 1. Exclusions of VA Patients Dispensed with Take-Home Opioids in FY 2012

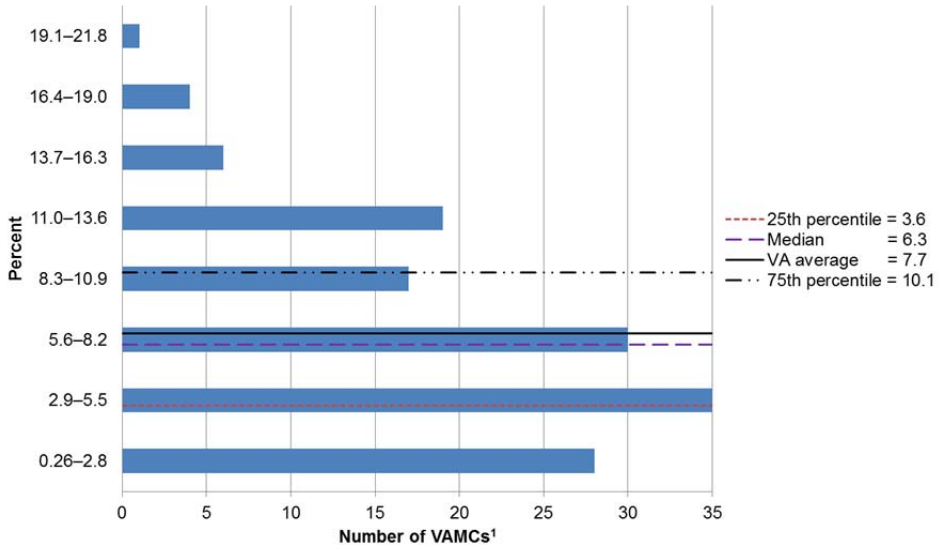
	Patients	Prescriptions
All patients with take-home opioids	453,616	1,718,006
Exclusions (total)	11,072	38,045
Duplicate prescription records	0	111
Patients of Department of Defense	330	752
Patients with hospice or palliative care[1]	10,742	37,182
Study population	442,544	1,679,961

[1] One year prior to first opioid prescription or in FY 2012.

1. Prevalence of VA Patients Dispensed Take-Home Opioids

The 442,544 opioid patients accounted for 7.7 percent of all VA (non-hospice/palliative care) patients who had at least 1 outpatient encounter at VA in FY 2012. Exhibit 2 indicates that the prevalence of patients dispensed with take-home opioids by individual VAMCs ranged from 0.26 percent to 21.8 percent, with the middle 50 percent of the VAMCs dispensing opioids to 3.6–10.1 percent of their outpatients.

Exhibit 2. VA Medical Center (VAMC[1]) Prevalence of Patients Dispensed with Take-Home Opioids in FY 2012



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

2. Baseline Characteristics of VA Take-Home Opioid Patients

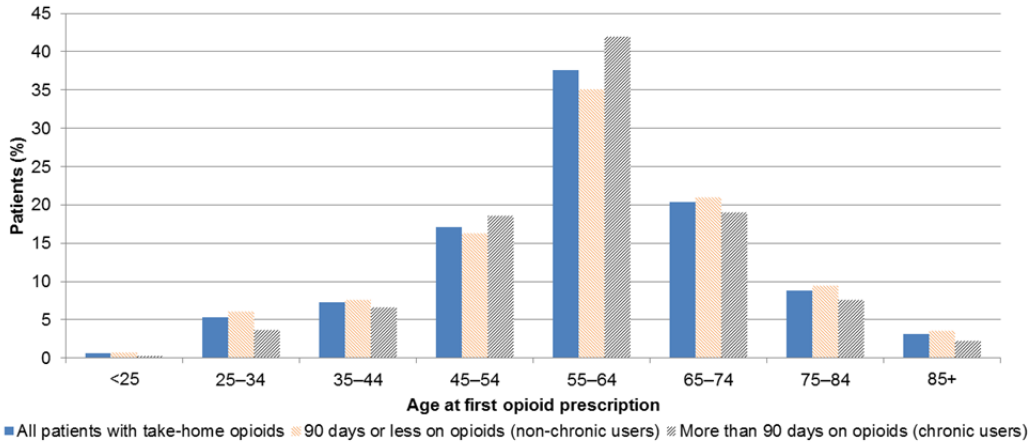
Exhibit 3 shows the baseline (at the first take-home opioid prescription in FY 2012) characteristics of the study population combined and separately by whether days on take-home opioids in FY 2012 were 90 or less (non-chronic users) or more than 90 (chronic users). About one third (33.9 percent) of the patients were chronic users.

A majority (92.5 percent) of the patients were male, which mirrored the gender composition of VA patients. The average and the median patient age at their first opioid prescription in FY 2012 were 59.4 and 61, respectively (see Exhibit 4 for more details on age distributions).

Exhibit 3. Baseline Characteristics of VA Take-Home Opioid Patients in FY 2012

	All patients with take-home opioids 442,544		90 days or less on opioids (non-chronic users) 292,693 66.1%		More than 90 days on opioids (chronic users) 149,851 33.9%	
	#	%	#	%	#	%
Male	409,324	92.5	269,322	92.0	140,002	93.4
Age at first opioid prescription in FY 2012						
Mean (standard deviation)	59.4	(0.02)	59.4	(0.03)	59.4	(0.03)
Median	61.0		61.0		60.0	
OEF/OIF at first opioid prescription in FY 2012	27,752	6.3	21,263	7.3	6,489	4.3
Pain diagnosis within 1 year prior to first opioid prescription	388,745	87.8	253,010	86.4	135,735	90.6
Primary pain site (of non-cancer origin)	386,082	87.2	251,565	85.9	134,517	89.8
Pain of the nervous system and sense organs	46,541	10.5	26,622	9.1	19,919	13.3
Mental health diagnosis within 1 year prior to first opioid prescription	284,161	64.2	181,298	61.9	102,863	68.6
PTSD	88,521	20.0	57,189	19.5	31,332	20.9
Substance use	65,446	14.8	42,852	14.6	22,594	15.1
Pain or mental health diagnoses within 1 year prior to first opioid prescription	414,462	93.7	271,538	92.8	142,924	95.4
Pain and mental health diagnoses within 1 year prior to first opioid prescription	258,444	58.4	162,770	55.6	95,674	63.8
Pain and PTSD	81,888	18.5	52,389	17.9	29,499	19.7
Pain and substance use	60,384	13.6	39,025	13.3	21,359	14.3
Primary pain site and mental health diagnoses within 1 year prior to first opioid prescription	256,692	58.0	161,848	55.3	94,844	63.3
Primary pain site and PTSD	81,384	18.4	52,142	17.8	29,242	19.5
Primary pain site and substance use	60,003	13.6	38,825	13.3	21,178	14.1
Pain of the nervous system and sense organs and mental health diagnoses within 1 year prior to first opioid prescription	36,789	8.3	20,737	7.1	16,052	10.7
Pain of the nervous system and sense organs and PTSD	13,261	3.0	7,633	2.6	5,628	3.8
Pain of the nervous system and sense organs and substance use	11,313	2.6	6,566	2.2	4,747	3.2
Died in FY 2012	7,426	1.7	5,616	1.9	1,810	1.2

Exhibit 4. Age (At First Opioid Prescription) Distribution of VA Take-Home Opioid Patients in FY 2012



Approximately 1 in every 16 patients (6.3 percent) had served in OEF/OIF. Nearly 88 percent of the patients were diagnosed with pain within 1 year prior to or on their first day dispensed with take-home opioids in FY 2012. We observed that 87 percent of the opioid patients were diagnosed with primary pain site of non-cancer origin that could result in pain serious enough to warrant an opioid medication. Nearly all (9.9 out of 10.5 percent) patients diagnosed with pain of the nervous system and sense organs were also diagnosed with primary pain site. As expected, both primary pain site and

pain of the nervous system and sense organs were more prevalent among chronic users.

Exhibit 5 gives detailed information on pain diagnoses for the study population. It shows that a higher percentage of chronic users was diagnosed with *chronic pain* (8.0 percent versus 5.7 percent) and *chronic pain syndrome* (5.8 percent versus 3.2 percent)—a complex syndrome that involves multiple factors.

Exhibit 5. Percent of Patients Diagnosed with Pain within 1 Year Prior to First Take-Home Opioid Prescription in FY 2012

	All patients with take-home opioids 442,544	90 days or less on opioids (non-chronic users) 292,693	More than 90 days on opioids (chronic users) 149,851
Pain	87.8	86.4	90.6
Primary pain site	87.2	85.9	89.8
Back pain	54.6	50.8	62.0
Arthritis	52.9	52.2	54.3
Musculoskeletal pain	27.5	27.8	27.0
Neuropathy	13.8	13.3	14.8
Visceral pain	13.1	13.9	11.4
Headaches	9.9	10.0	9.9
Fractures	5.7	6.1	4.9
Wound injury	4.0	4.0	3.9
Other pain	2.9	2.8	3.0
Reproductive pain	0.39	0.46	0.25
Generalized pain	0.38	0.36	0.40
Pain of the nervous system and sense organs	10.5	9.1	13.3
Chronic pain	6.5	5.7	8.0
Chronic pain syndrome	4.1	3.2	5.8
Acute pain	0.83	0.90	0.68
Neoplasm-related pain	0.13	0.14	0.11

Exhibit 6 gives detailed information on mental health diagnoses. It indicates that more than half (64.2 percent) of the opioid patients had been diagnosed with mental health issues at the first take-home opioid prescription. Approximately one third (35 percent) of the patients had been diagnosed with mood disorders, 1 of 5 with PTSD, and 1 of 7 (14.8 percent) with substance use. We observed that higher percentages of chronic users were consistently diagnosed with each category of the mental health issues except for alcohol-related disorders, which was 10.0 percent for chronic users but 10.7 percent for their counterparts of non-chronic users. While almost 15 percent of the entire study population had been diagnosed with substance use, 4 percent[43] of the population had been diagnosed with both alcohol and drug related disorders.

[43] This was calculated by adding alcohol-related disorders (10.4 percent) plus drug-related disorders (8.4 percent) and subtracting substance use (14.8 percent).

Exhibit 6. Percent of Patients Diagnosed with Mental Health Issues within 1 Year Prior to First Take-Home Opioid Prescription in FY 2012

	All patients with take-home opioids 442,544	90 days or less on opioids (non-chronic users) 292,693	More than 90 days on opioids (chronic users) 149,851
Mental health	64.2	61.9	68.6
Adjustment disorders	5.0	4.9	5.1
Anxiety disorders excluding PTSD	14.0	13.2	15.6
PTSD	20.0	19.5	20.9
Mood disorders	35.0	33.3	38.5
Excluding major depression	29.9	28.4	32.6
Major depression	11.3	10.8	12.2
Personality disorders	1.9	1.9	2.0
Psychotic disorders	3.1	3.1	3.2
Psychological pain	1.1	0.87	1.6
Substance use	14.8	14.6	15.1
Alcohol-related disorders	10.4	10.7	10.0
Drug-related disorders	8.4	8.2	8.8

Nearly 94 percent of the study population had been diagnosed with pain or mental health issues and 58.4 percent of patients with both (Exhibit 3). The percentages of patients being diagnosed with both pain and mental health issues were 8 points higher for chronic users than their counterparts of non-chronic users.

3. VA Dispensing Patterns of Take-Home Opioids

Approximately half (52.2 percent) of the study population were new patients in the sense that they were initiated on take-home opioid therapy in FY 2012 after not being on take-home opioids for at least more than 1 year (Exhibit 7). Seven out of 10 (69.1 percent) non-chronic users were new patients in contrast to 1 in 5 (19.1 percent) of their counterparts of chronic users. Nearly 41 percent of the patients had been dispensed with 1 prescription, which was composed entirely of the 61.4 percent of non-chronic users because none of the opioids were allowed to be prescribed for more than 90 days in 1 prescription. Patients with 6 or more prescriptions were mainly chronic users, which amounted to 69.3 percent of that group. Almost all (98.4 percent) patients received their prescriptions from a single VAMC, and three quarters of the patient population had all their (filled) prescriptions issued from a single prescriber.

Exhibit 7. VA Dispensing Patterns of Take-Home Opioids in FY 2012

	All patients with take-home opioids 442,544		90 days or less on opioids (non-chronic users) 292,693	66.1%	More than 90 days on opioids (chronic users) 149,851	33.9%
	#	%	#	%	#	%
No take-home opioids in FY 2011 (new patients)	230,975	52.2	202,282	69.1	28,693	19.1
Only one opioid prescription per patient	179,677	40.6	179,677	61.4	0	0.00
Six or more opioid prescriptions per patient	105,145	23.8	1,289	0.44	103,856	69.3
Only one type of opioids	420,632	95.0	284,253	97.1	136,379	91.0
All opioid prescriptions from same VAMC[1]	435,327	98.4	290,029	99.1	145,298	97.0
All opioid prescriptions from same prescriber	332,856	75.2	252,050	86.1	80,806	53.9
Morphine equivalent 200 mg/day or more	5,155	1.2	1,278	0.44	3,877	2.6
Long-acting opioid products	27,920	6.3	9,186	3.1	18,734	12.5
Early refills[2] (of opioids at least 7 days early)	101,805	23.0	19,829	6.8	81,976	54.7
7–10 days early	39,742	9.0	8,019	2.7	31,723	21.2
11–14 days early	24,815	5.6	4,725	1.6	20,090	13.4
More than 14 days early	37,248	8.4	7,085	2.4	30,163	20.1
3–5 early refills	16,750	3.8	196	0.07	16,554	11.0
More than 5 early refills	1,488	0.34	8	0.00	1,480	1.0
Early refills[2] (of opioids at least 11 days early)	62,063	14.0	11,810	4.0	50,253	33.5
3–5 early refills	4,255	1.0	73	0.02	4,182	2.8
More than 5 early refills	215	0.05	6	0.00	209	0.14

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.
[2] Prescription of same opioid medication (generic name, route of administration, and dosage form) that was dispensed prior to finishing previous supply of the opioid.

Most (95.0 percent) of the patients were dispensed with a single type of opioid. More than 6 percent of the patients received at least 1 long-acting opioid product, with the percentage of chronic users being 4 times that of non-chronic users. Opioid dosages with a morphine equivalent at least 200 mg/day were dispensed to 1.2 percent of the study population, which accounted for 2.6 percent of chronic users and 0.44 percent of non-chronic users.

Refills of opioids at least 7 days early occurred in 23.0 percent of the population, with refills of at least 11 days early in 14.0 percent of the population. As expected, early refills occurred (at least 8 times) more likely and more frequently among chronic users than non-chronic users.

Exhibit 8 indicates that take-home benzodiazepines were dispensed to 7.4 percent of the study population, with the percentage of chronic opioid users being 1.6 times that of non-chronic users. We determined that 71 percent of the opioid patients who received take-home benzodiazepines were dispensed benzodiazepines concurrently with opioids. The percentage of chronic opioid users with concurrent benzodiazepines was 92.6, and the percentage of non-chronic users was 53.6.

Exhibit 8. VA Pattern of Dispensing Take-Home Opioids with Concurrent Benzodiazepines and Acetaminophen in FY 2012

	All patients with take-home opioids 442,544		90 days or less on opioids (non-chronic users) 292,693 66.1%		More than 90 days on opioids (chronic users) 149,851 33.9%	
	#	%	#	%	#	%
Take-home benzodiazepine prescription	32,833	7.4	18,198	6.2	14,635	9.8
Concurrent benzodiazepine and opioid prescriptions[1]	23,314	71.0	9,763	53.6	13,551	92.6
Take-home acetaminophen prescription	408,347	92.3	278,273	95.1	130,074	86.8
Average daily dose at least 4 grams[2]	8,028	2.0	4,271	1.5	3,757	2.9
At least 1 day dose 4 grams or more[2]	113,275	27.7	54,063	19.4	59,212	45.5
At least 1 day dose 4 grams or more while on opioids[2]	93,598	22.9	37,042	13.3	56,556	43.5
Average daily dose exceeding 4 grams[2]	6,724	1.6	3,116	1.1	3,608	2.8
At least 1 day dose exceeding 4 grams[2]	70,498	17.3	34,076	12.2	36,422	28.0
At least 1 day exceeding 4 grams while on opioids[2]	55,929	13.7	21,809	7.8	34,120	26.2

[1] Percentages based on patients with take-home benzodiazepine prescriptions.
[2] Percentages based on patients with take-home acetaminophen prescriptions.

Acetaminophen was given to 92.3 percent of the study patients. We found that 2.0 percent of them were given an average daily dose of 4 g/day or more. We observed that the percentage points of chronic users given either at least 1 day of 4 grams or more of acetaminophen or at least 1 day of 4 grams or more concurrently with opioids were more than double those of non-chronic users.

In terms of dose exceeding 4 grams (dosages exclude exactly 4 grams) per day, we determined that 1.6 percent of the study patients were given an average daily dose that exceeded 4 grams. Percentages were reduced over 10 points from 27.7 percent and 22.9 percent to 17.3 percent and 13.7 percent for at least 1 day that exceeded 4 grams and at least 1 day that exceeded 4 grams concurrently with opioids, respectively.

The Clinical Practice Guideline recommends a bowel regimen for all opioid patients (pp. 37 and 67) to manage opioid-related constipation. Exhibit 9 reveals that 27.9 percent of the patients were dispensed with a laxative in FY 2012 and that 23.5 percent of the patients were given a laxative on or after the date of their first opioid prescription. The practice of dispensing a laxative to opioid patients varied among 140 VAMCs from 17.6 percent to 61.6 percent for the entire FY 2012 and from 12.7 percent to 56.0 percent at or after patients' first opioid prescription.

Exhibit 9. Variations of VA Medical Center (VAMC[1]) Percentages Dispensing a Laxative to Take-Home Opioid Patients in FY 2012

	Variations in VAMC percentages					VA average
	Minimum	25th percentile	Median	75th percentile	Maximum	
Prescribed a laxative any time in FY 2012	17.6	24.3	30.0	35.5	61.6	27.9
Prescribed a laxative on or after the date of first opioid dispensing in FY 2012	12.7	20.1	25.2	29.0	56.0	23.5

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

4. VA Patterns of Screening and Monitoring Opioid Patients

New Patients on Take-Home Opioids. The Clinical Practice Guideline calls for a urine drug test (UDT) prior to initiating opioid therapy (p. 37) and a follow-up visit at least every 2–4 weeks after any change in medication regimen (p. 82). We determined that only 6.4 percent of the new patients (that is, patients who were not given any take-home opioids in FY 2011, which is at least 1 year before initiating their take-home opioid therapy) received both a UDT prior to and a follow-up within 30 days of initiating opioid therapy in FY 2012 (Exhibit 10).

Exhibit 10. Variations of VA Medical Center (VAMC[1]) Percentages Conducting a Urine Drug Test Prior to and/or a Follow-Up within 30 Days of Initial Opioid Prescription, New Patients on Take-Home Opioids in FY 2012

	Number of VA eligible patients	Variations in VAMC percentages					VA average
		Minimum	25th percentile	Median	75th percentile	Maximum	
Conducted both a urine drug test prior to and a follow-up within 30 days of initiating opioid therapy	209,843	1.1	3.9	6.1	10.2	32.2	6.4
Conducted a urine drug test within 30 days prior to initiating opioid therapy	230,975	1.6	4.6	7.3	11.9	32.2	7.6
Patients with substance use disorder[2]	33,564	4.4	13.7	19.3	26.3	57.1	20.2
Patients without substance use disorder	197,411	0.00	2.9	5.0	8.5	28.6	5.4
Received a follow-up within 30 days of initiating opioid therapy	209,843	60.4	71.1	75.6	80.8	94.9	74.0
Received a follow-up in-person visit within 30 days of initiating opioid therapy	209,843	53.7	68.0	72.7	77.5	94.9	71.2

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.
[2] Diagnosed within 1 year of opioid initiation.

The very low (6.4 percent) rate of screening and monitoring patients at opioid initiation almost exclusively resulted from the very low rate of a UDT. We found that within 30 days of initiating opioid therapy, nearly three quarters of the patients received a follow-up, including 2.8 percent of the patients who received a follow-up call encounter alone (without any in-person visits). However, VA conducted a UDT for only 7.6 percent of new opioid patients within 30 days prior to initiating the therapy. Even for the high-risk group of patients who were diagnosed with baseline substance use disorder (SUD), a UDT was performed for only one out of five of them. A UDT was conducted for 1 out of 20 patients without SUD.

Exhibit 11a shows UDT test rates for new patients prior to initial prescription by days on opioids. The rates increased from 6.8 percent for those who were on non-chronic opioid therapy (30 days or less) to 9.1 percent for those who were on chronic opioid therapy (more than 30 days) to 11.1 percent for chronic users (more than 90 days).

For UDTs conducted within 60 or 90 days of initiating opioid therapy, rates increased to 10.3 percent and 12.5 percent (Exhibit 11b), respectively.

Exhibit 11a. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Urine Drug Test on Patient within 30 Days Prior to Initial Prescription in FY 2012, New Take-Home Opioid Patients, by Days on Opioids

	Variations in VAMC percentages					VA average
	Minimum	25th percentile	Median	75th percentile	Maximum	
30 days or less on opioids	0.88	4.3	6.2	9.5	36.6	6.8
More than 30 days on opioids	1.0	5.4	9.3	15.0	36.8	9.1
More than 90 days on opioids	0.00	6.5	11.6	19.0	100.0	11.1

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

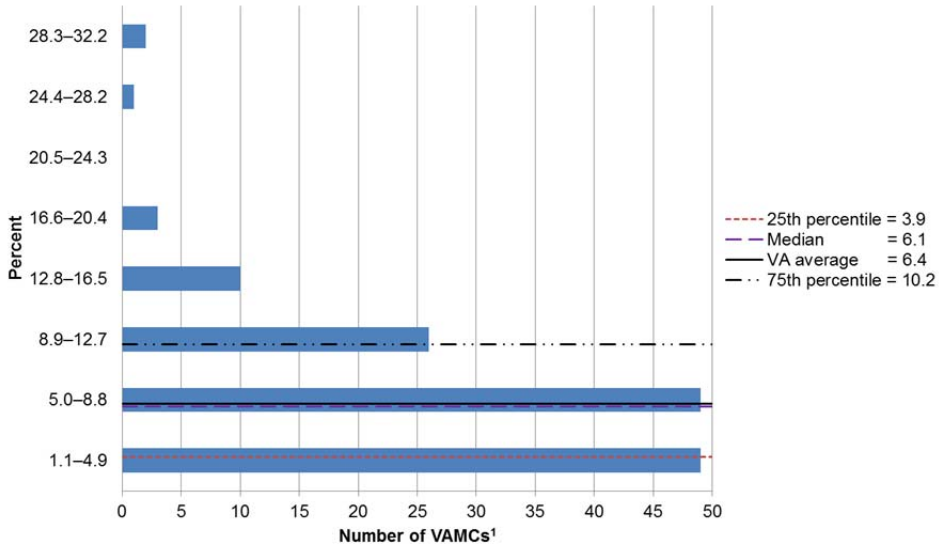
Exhibit 11b. Variations of VA Medical Center (VAMC[1]) Percentages Conducting a Urine Drug Test within 60 or 90 Days Prior to Initial Opioid Prescription, New Patients on Take-Home Opioids in FY 2012

	Number of VA eligible patients	Variations in VAMC percentages					VA average
		Minimum	25th percentile	Median	75th percentile	Maximum	
Conducted a urine drug test within 60 days prior to initiating opioid therapy	230,975	2.1	6.7	9.9	15.8	38.3	10.3
Patients with substance use disorder[2]	33,564	5.8	19.4	25.8	34.0	63.6	26.7
Patients without substance use disorder	197,411	0.00	4.2	6.8	11.2	33.6	7.5
Conducted a urine drug test within 90 days prior to initiating opioid therapy	230,975	2.6	8.3	12.1	18.3	45.5	12.5
Patients with substance use disorder[2]	33,564	9.1	23.7	30.7	40.3	71.4	31.8
Patients without substance use disorder	197,411	0.00	5.5	8.0	13.8	44.7	9.2

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.
[2] Diagnosed within 1 year of opioid initiation.

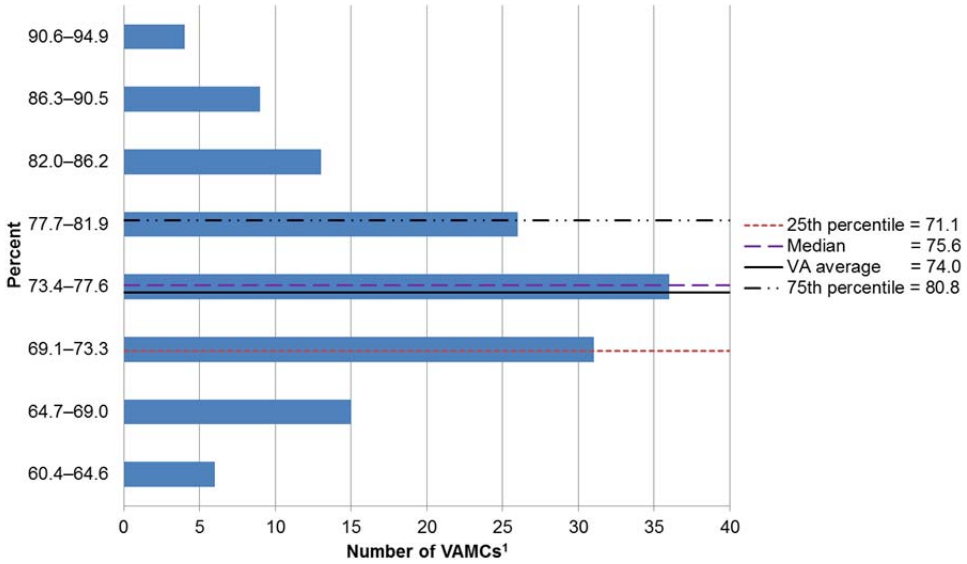
We observed broad variation among 140 VAMCs' practice on this measure, ranging from 1.1 percent to 32.2 percent, with the middle 50 percent of the VAMCs from 3.9 percent to 10.2 percent (Exhibits 10 and 12). See Exhibits 13–16 for more details.

Exhibit 12. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Urine Drug Test Prior to and a Follow-Up within 30 Days of Initial Prescription in FY 2012, New Patients on Take-Home Opioids



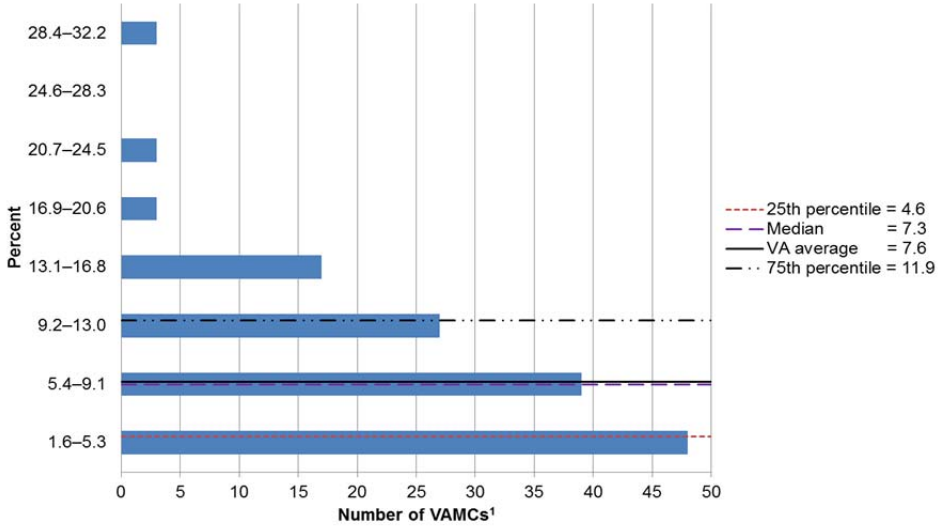
[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 13. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Follow-Up within 30 Days of Initiating Take-Home Opioid Therapy in FY 2012, New Patients on Take-Home Opioids



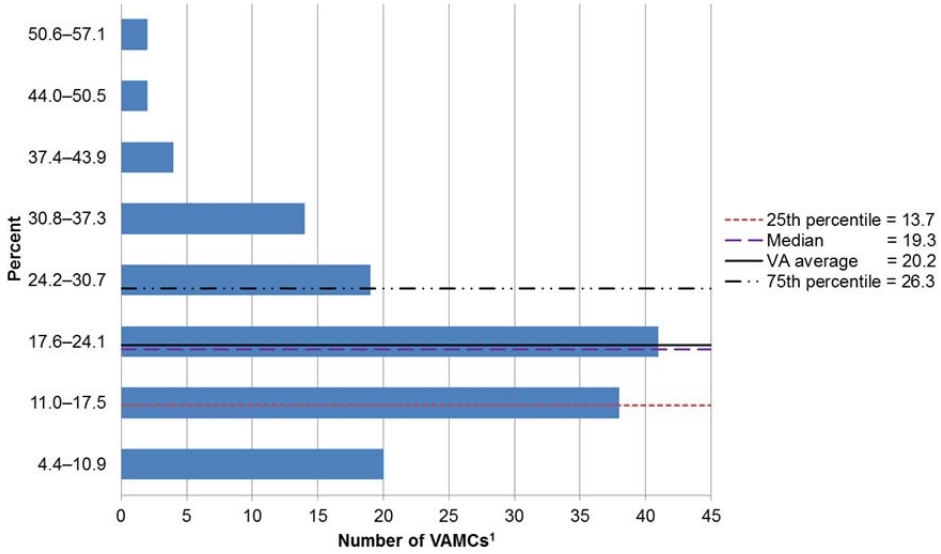
[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 14. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Urine Drug Test within 30 Days Prior to Initiating Take-Home Opioid Therapy in FY 2012, New Patients on Take-Home Opioids



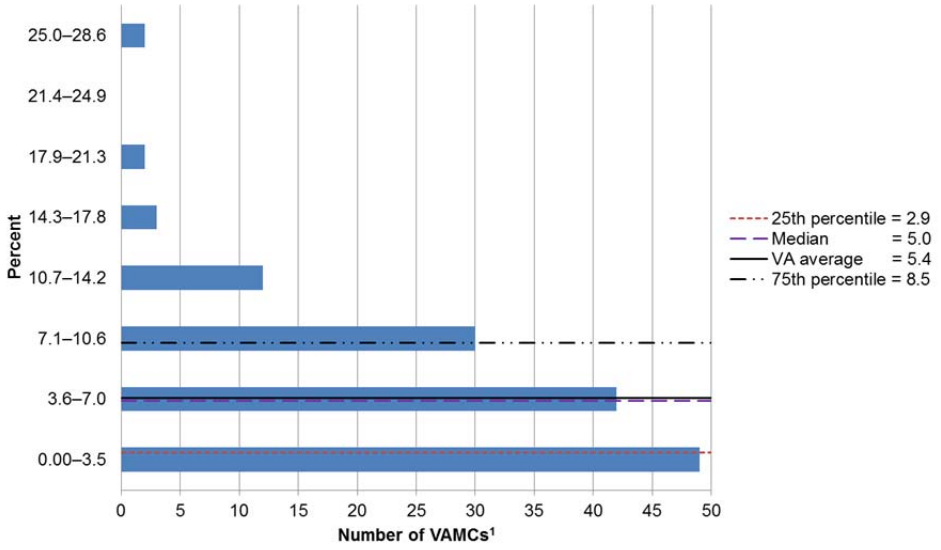
[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 15. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Urine Drug Test on Patient within 30 Days Prior to Initiating Take-Home Opioid Therapy in FY 2012, New Take-Home Opioid Patients with a Substance Use Disorder



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 16. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Urine Drug Test on Patient within 30 Days Prior to Initial Prescription in FY 2012, New Take-Home Opioid Patients without a Substance Use Disorder



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Existing Patients on Take-Home Opioids. The Clinical Practice Guideline recommends a UDT randomly at follow-up visits to confirm the appropriate use of opioids (p. 37) and a follow-up visit at least once every 1–6 months for the duration of therapy (p. 82). We

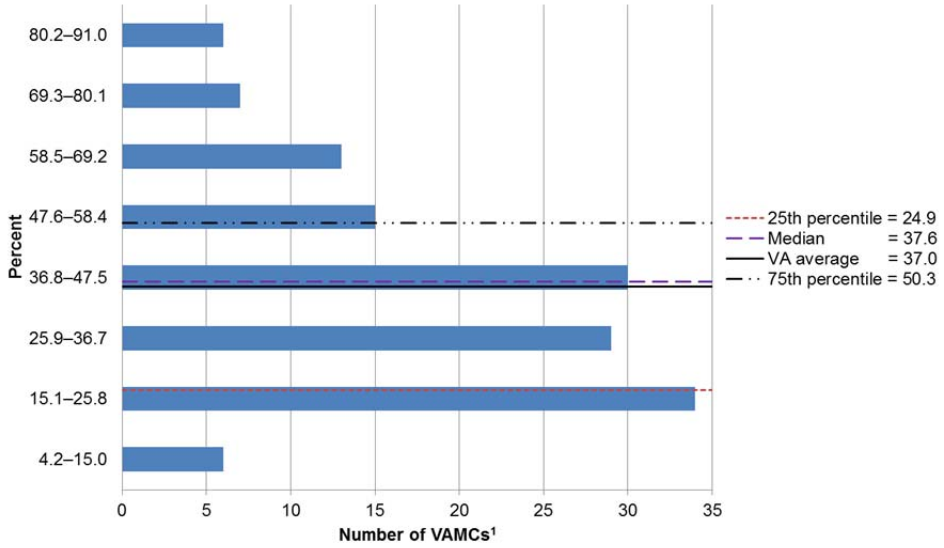
determined that only 37.0 percent of the existing opioid patients received both an annual UDT and a follow-up within 6 months of each filled opioid prescription, varying extensively from 4.2 percent to 91.0 percent among VAMCs (Exhibits 17 and 18).

Exhibit 17. Variations of VA Medical Center (VAMC[1]) Percentages Conducting a Follow-Up within 6 Months of Each Opioid Prescription in FY 2012 and an Annual Urine Drug Test, Existing Patients on Take-Home Opioids (175,403 Patients), by Test Substance Type

	Variations in VAMC percentages					VA average
	Minimum	25th percentile	Median	75th percentile	Maximum	
Follow-up within 6-months and any annual urine drug test	**4.2**	**24.9**	**37.6**	**50.3**	**91.0**	**37.0**
Follow-up within 6-months and test for morphine or heroin	0.85	20.3	32.8	47.8	86.8	33.2
Follow-up within 6-months and test for non-morphine opioid compound	0.51	8.8	21.7	39.4	84.1	20.7
Follow-up within 6-months and test for other non-opioid abusable substance	4.2	24.7	36.6	50.2	90.8	36.8

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

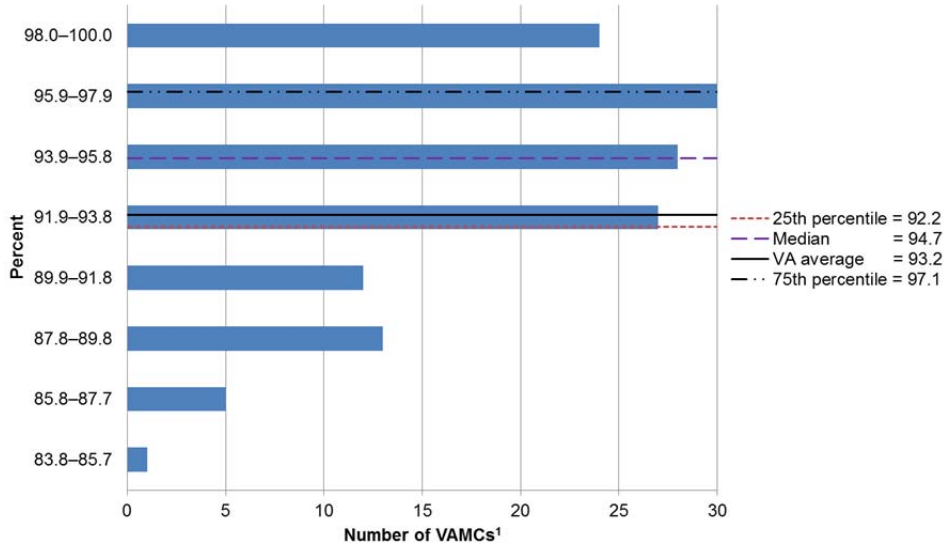
Exhibit 18. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Follow-Up within 6 Months of Each Opioid Prescription in FY 2012 and an Annual Urine Drug Test, Existing Patients on Take-Home Opioids



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

The low rate of monitoring opioid patients using both an annual UDT and 6-month follow-up resulted mainly from the low rate of annual UDT (Exhibit 19). We observed that 93.2 percent (including 1.6 percent of the patients who had only follow-up calls) of existing patients had a follow-up within 6 months of each filled opioid prescription, ranging from 83.8 percent to 100.0 percent among 140 VAMCs. Exhibit 19 gives the distribution of VAMC rates on conducting a follow-up within 6 months of each filled opioid prescription in FY 2012.

Exhibit 19. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Follow-Up within 6 Months of Each Opioid Prescription in FY 2012, Existing Patients on Take-Home Opioids



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

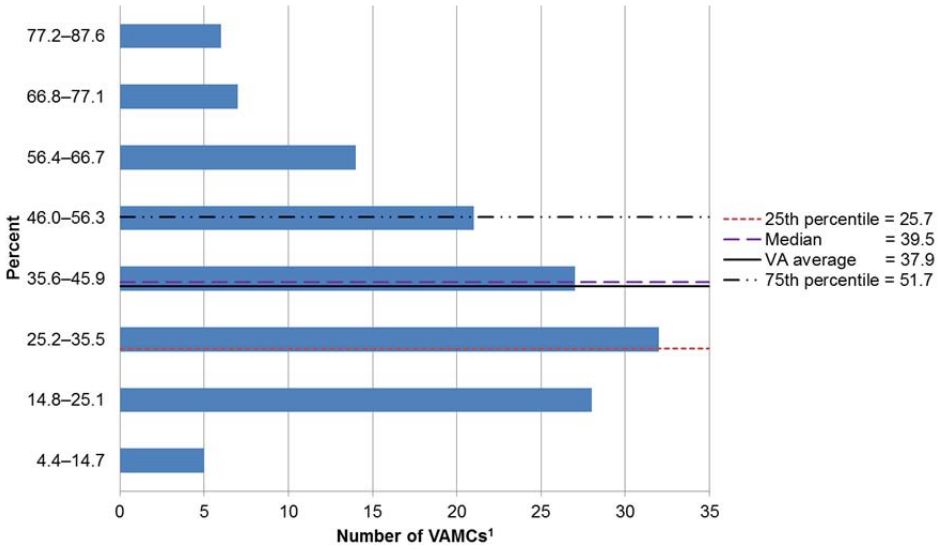
In contrast, we found that VA conducted an annual UDT for only 37.9 percent of existing opioid patients (Exhibits 20 and 21), which accounted for 40.9 percent of the chronic opioid users and 33.7 percent of the non-chronic users. We observed wide variation of VAMCs practice on an annual UDT, ranging from 4.4 percent to 87.6 percent.

Exhibit 20. Variations of VA Medical Center (VAMC[1]) Percentages Conducting an Annual Urine Drug Test, FY 2012 Existing Patients on Take-Home Opioids, by Test Substance Type and Days on Opioids

	Variations in VAMC percentages					VA average
	Minimum	25th percentile	Median	75th percentile	Maximum	
All patients (211,569)						
Any urine drug tests	**4.4**	**25.7**	**39.5**	**51.7**	**87.6**	**37.9**
Test for morphine or heroin	0.95	21.2	33.4	48.0	87.1	33.8
Test for non-morphine opioid compound	0.45	8.2	22.4	40.1	82.8	21.1
Test for other non-opioid abusable substance	4.4	25.3	38.4	51.3	87.6	37.7
Patients on opioids more than 90 days (121,158)						
Any urine drug tests	**3.4**	**27.0**	**41.1**	**57.9**	**93.1**	**40.9**
Test for morphine or heroin	0.80	22.5	36.7	55.7	92.0	37.0
Test for non-morphine opioid compound	0.00	9.2	23.3	43.8	90.3	23.9
Test for other non-opioid abusable substance	2.5	27.0	40.6	57.0	93.1	40.7
Patients on opioids 90 days or less (90,411)						
Any urine drug tests	**3.6**	**23.7**	**34.1**	**44.7**	**81.9**	**33.7**
Test for morphine or heroin	0.75	18.3	30.7	42.6	81.9	29.5
Test for non-morphine opioid compound	0.35	6.5	20.5	35.4	78.6	17.4
Test for other non-opioid abusable substance	3.6	23.6	33.9	44.2	81.9	33.6

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 21. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting an Annual Urine Drug Test, FY 2012 Existing Patients on Take-Home Opioids



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

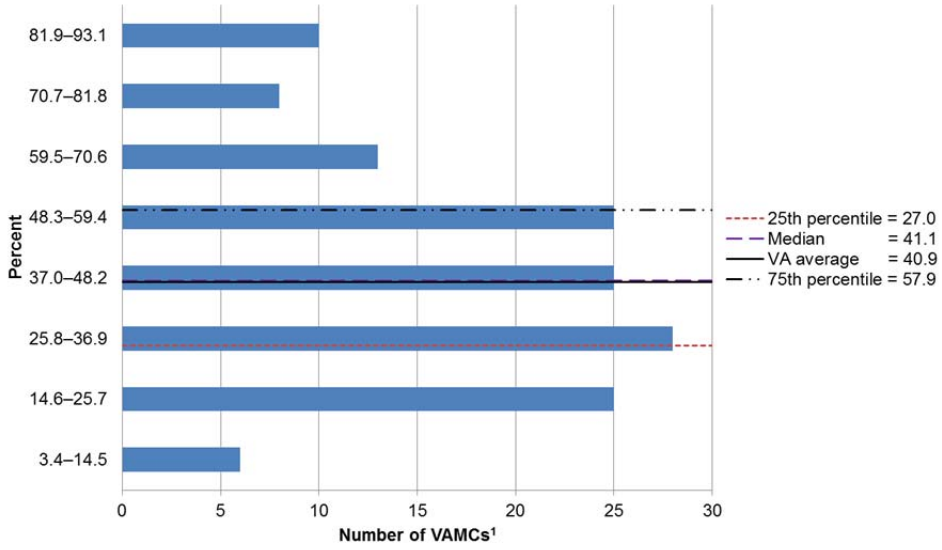
Although most annual UDTs included all three test substance types, the test for non-morphine opioid compound was least performed when compared with the test for morphine or heroin and the test for other non-opioid abusable substance. We found that approximately 60 percent of the UDTs were conducted while patients were on opioids, regardless of test substance type (Exhibit 22). Exhibits 21 and 23–25 give more details on VAMC patterns of conducting an annual UDT.

Exhibit 22. Variations of VA Medical Center (VAMC[1]) Percentages Conducting an Annual Urine Drug Test, FY 2012 Existing Take-Home Opioid Patients Who Received an Annual Urine Drug Test While on Opioids, by Test Substance Type

	Number of VA eligible patients	Variations in VAMC percentages					VA average
		Minimum	25th percentile	Median	75th percentile	Maximum	
Any urine drug tests	80,095	19.2	51.5	59.0	68.4	88.9	59.6
Test for morphine or heroin	71,480	4.5	47.4	58.2	67.6	88.6	60.1
Test for non-morphine opioid compound	44,612	10.0	47.0	57.4	70.2	90.4	61.7
Test for other non-opioid abusable substance	79,739	18.9	51.7	59.0	67.9	88.8	59.5

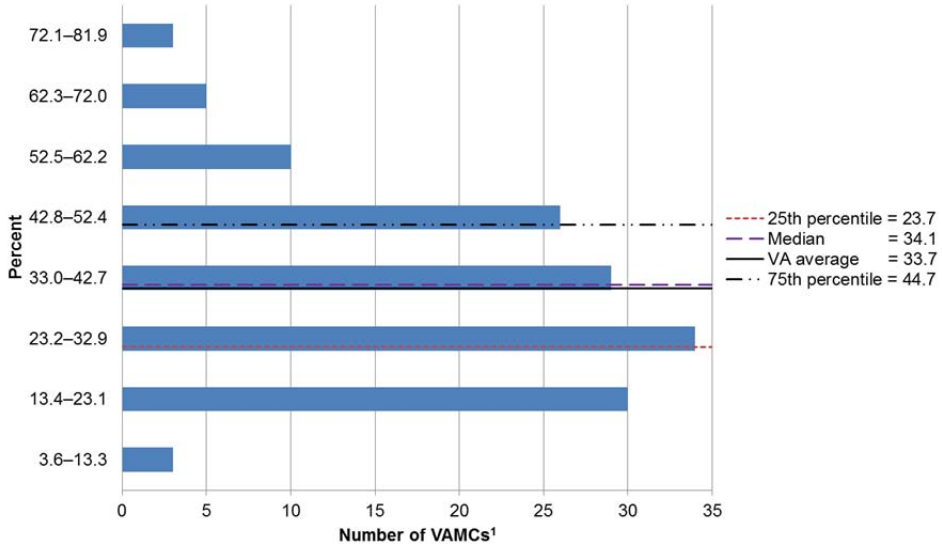
[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 23. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting an Annual Urine Drug Test, FY 2012 Existing Take-Home Opioid Patients Who Were on Opioids More than 90 Days



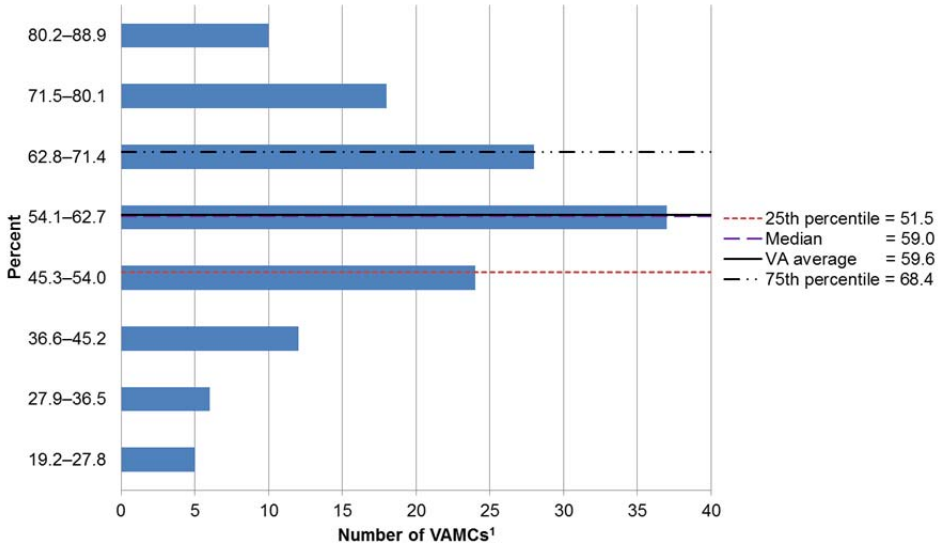
[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 24. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting an Annual Urine Drug Test, FY 2012 Existing Take-Home Opioid Patients Who Were on Opioids 90 Days or Less



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

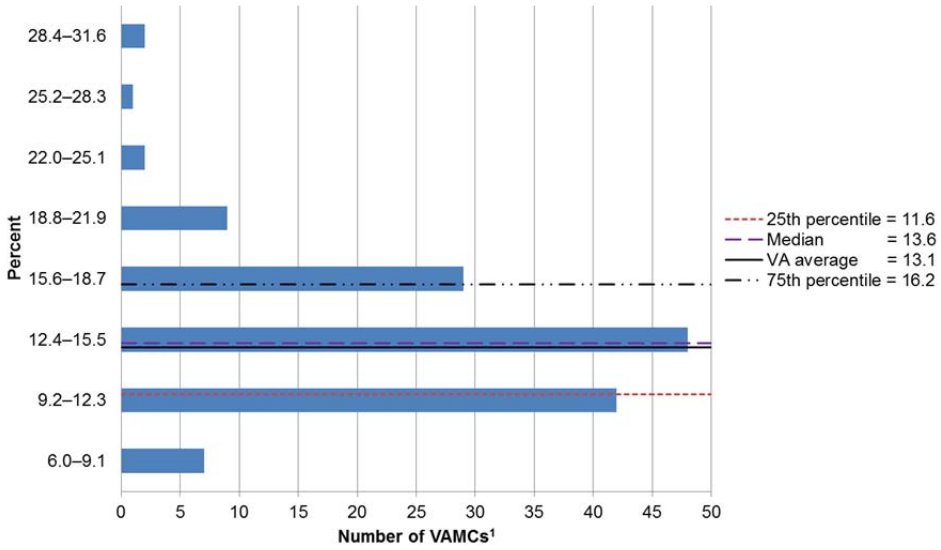
Exhibit 25. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting an Annual Urine Drug Test, FY 2012 Existing Take-Home Opioid Patients Who Received an Annual Urine Drug Test While on Opioids



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Active (Not in Remission) Substance Use Patients. The Clinical Practice Guideline recommends that active (not in remission) substance use patients receive SUD treatment concurrently with urine drug testing as an adjunctive tool at regular intervals (p. 90). Among the study population, 13.1 percent were diagnosed with active substance use (Exhibit 26). For the active substance use patients who filled 1 or more take-home opioid prescriptions at least 90 days prior to the end of follow-up, we determined that only 10.5 percent received both treatment for substance use and a UDT within 90 days of each filled opioid prescription (Exhibit 27). The percentages of VAMCs treating active substance use patients and performing at least 1 UDT within 90 days of each filled opioid prescription varied from 0.00 to 44.8.

Exhibit 26. Distribution of VA Medical Center (VAMC[1]) Percentages of Take-Home Opioid Patients Who Were Diagnosed with Active Substance Use in FY 2012



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

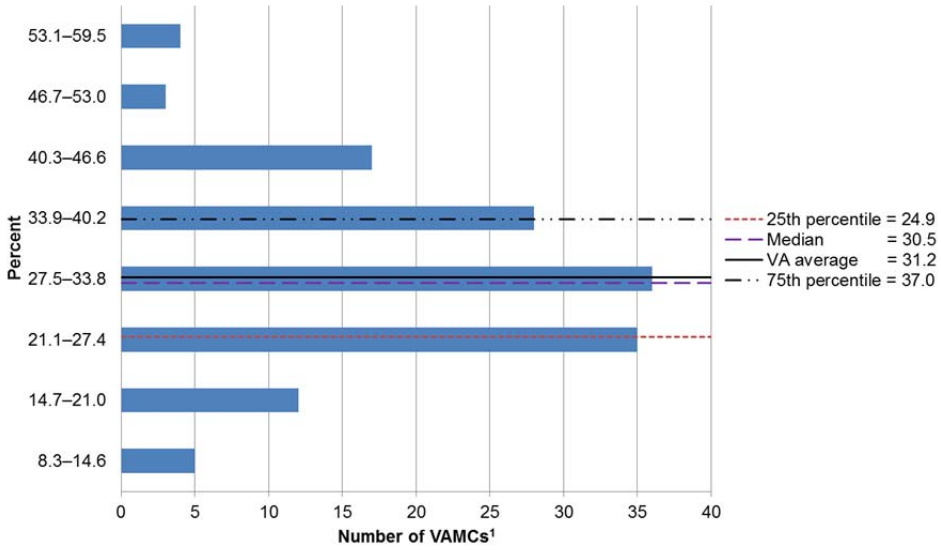
The low rate for treating substance use and conducting UDTs regularly for active substance use patients resulted from both low rates of treatment and UDT. We found that 31.2 percent of the active substance use patients received an SUD treatment in FY 2012, with treatment percentages ranging from 8.3 to 59.5 among 140 VAMCs (Exhibits 27 and 28); 19.2 percent of the patients received at least 1 UDT within 90 days of every (filled) prescription of take-home opioids (Exhibits 27 and 29), with the test percentages varying from 2.2 to 52.3 among VAMCs.

Exhibit 27. Variations of VA Medical Center (VAMC[1]) Percentages Treating Patients for Substance Use and Conducting at Least 1 Urine Drug Test within 90 Days of Each Filled Opioid Prescription in FY 2012, Active Substance Use Patients

	Number of VA eligible patients	Variations in VAMC percentages					VA average
		Minimum	25th percentile	Median	75th percentile	Maximum	
Treating active substance use patients and conducting a urine drug test within 90 days of each filled opioid prescription	47,736	0.00	6.2	9.6	13.7	44.8	10.5
Treating active substance use patients	57,966	8.3	24.9	30.5	37.0	59.5	31.2
Conducting a urine drug test within 90 days of each filled opioid prescription	47,736	2.2	13.2	18.0	24.1	52.3	19.2

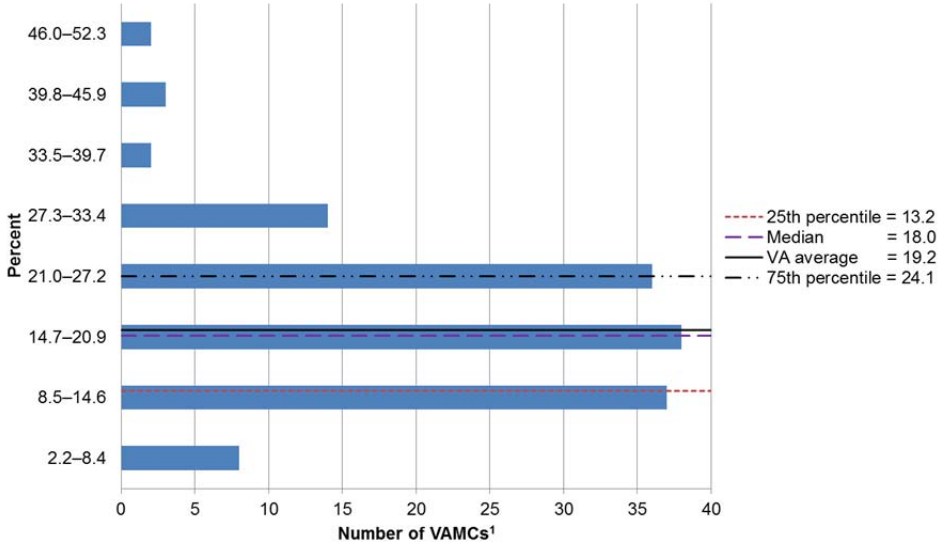
[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 28. Distribution of VA Medical Center (VAMC[1]) Percentages Treating Patients for Substance Use in FY 2012, Active Substance Use Patients



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 29. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting at Least 1 Urine Drug Test within 90 Days of Each Filled Opioid Prescription in FY 2012, Active Substance Use Patients



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Even for the subpopulation of 19,724 active substance use patients who were on opioids for more than 90 days in FY 2012, we determined that only 18.8 percent of them received both substance use treatment and regular 90-day UDTs, and the percentages of VAMCs both treating active substance use and performing at least 1 UDT for every 90 days of opioids varied from 0.00 to 82.7 (Exhibit 30). In particular, 55.2 percent of this subpopulation of active substance use patients received at least 1 UDT per 90 days

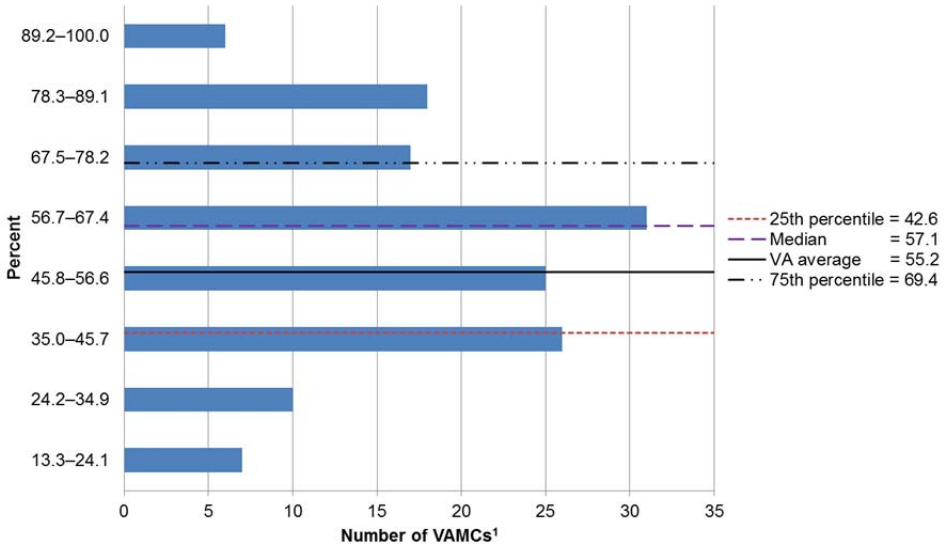
of take-home opioids (Exhibits 30 and 31), with the VAMCs' test percentages varying from 13.3 to 100.0. The percent of this subpopulation receiving an SUD treatment was 26.5, with treatment percentages ranging from 5.4 to 85.3 among 140 VAMCs (Exhibit 30).

Exhibit 30. Variations of VA Medical Center (VAMC[1]) Percentages Treating Patients for Substance Use and Conducting at Least 1 Urine Drug Test for Every 90 Days on Opioids in FY 2012, Active Substance Use Patients Who Were on Take-Home Opioids More than 90 Days in FY 2012 (19,724 Patients)

	Variations in VAMC percentages					VA average
	Minimum	25th percentile	Median	75th percentile	Maximum	
Treating active substance use patients and conducting a urine drug test for every 90 days on opioids	0.00	12.5	17.7	22.8	82.7	18.8
Treating active substance use patients	5.4	18.4	25.5	31.1	85.3	26.5
Conducting a urine drug test for every 90 days on opioids	13.3	42.6	57.1	69.4	100.0	55.2

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 31. Distribution of VA Medical Center (VAMC[1]) Percentages Conducting a Urine Drug Test for Every 90 Days on Opioids, Active Substance Use Patients Who Were on Take-Home Opioids More than 90 Days in FY 2012



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

5. VA Patterns of Providing Psychosocial Treatment for Pain, Pain Clinic Service, and Medication Management/Pharmacy Reconciliation for Take-Home Opioid Patients

Exhibit 32 gives summaries, and Exhibits 33–35 show the distributions of VAMCs providing psychosocial treatment for pain, Pain Clinic service, and medication management/pharmacy reconciliation for the study population. In FY 2012, 45.2 percent of the opioid patients received at least 1 psychosocial treatment for pain,

and 35.1 percent received this treatment after their first opioid prescription. Although up to 93.7 percent of the patients were provided psychosocial treatments for pain by VAMCs, three quarters of the VAMCs gave this treatment to 26.9–52.1 percent of their patients in FY 2012.

Exhibit 32. Variations of VA Medical Center (VAMC[1]) Percentages Providing Psychosocial Treatment for Pain, Pain Clinic Service, and Medication Management/Pharmacy Reconciliation for Take-Home Opioid Patients in FY 2012

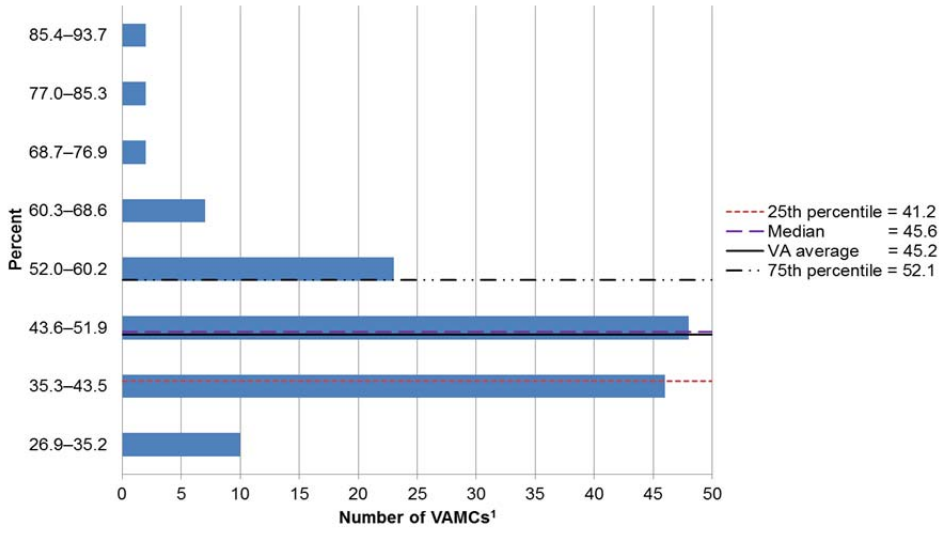
	Variations in VAMC percentages					VA average
	Minimum	25th percentile	Median	75th percentile	Maximum	
Anytime in FY 2012						
Psychosocial treatment for pain	26.9	41.2	45.6	52.1	93.7	45.2
Pain Clinic	0.34	4.7	9.4	15.0	73.5	8.7
Medication management/pharmacy reconciliation	6.4	30.8	40.7	54.7	86.5	38.8
After first opioid prescription in FY 2012						
Psychosocial treatment for pain	12.1	30.7	35.8	41.4	79.8	35.1
Pain Clinic	0.24	3.6	7.3	11.7	62.2	6.8
Medication management/pharmacy reconciliation	5.2	21.6	29.4	40.8	75.0	29.2

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Three quarters of the VAMCs provided Pain Clinic service to 15.0 percent or less of their opioid patients in the FY, although 1 VAMC provided this service to 73.5 percent of its patients. Across the VAMCs, 8.7 percent of the patients received the service.

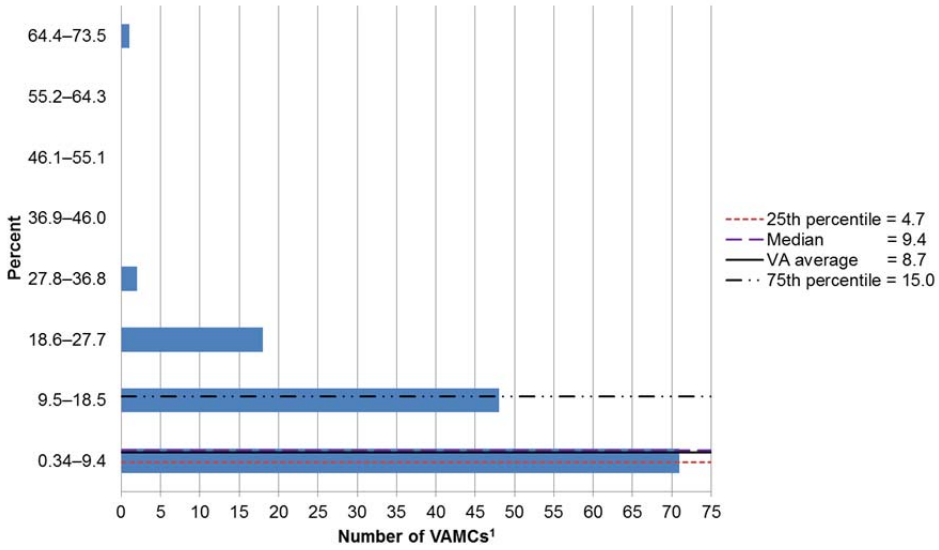
Nearly 40 (38.8) percent of the patients received medication management or pharmacy reconciliation during the FY, with the percentages varying from 6.4 to 86.5 across the VAMCs. The middle half of the VAMCs provided the service to 30.8–54.7 percent of their patients.

Exhibit 33. Distribution of VA Medical Center (VAMC[1]) Percentages Providing Psychosocial Treatment for Pain for Take-Home Opioid Patients in FY 2012



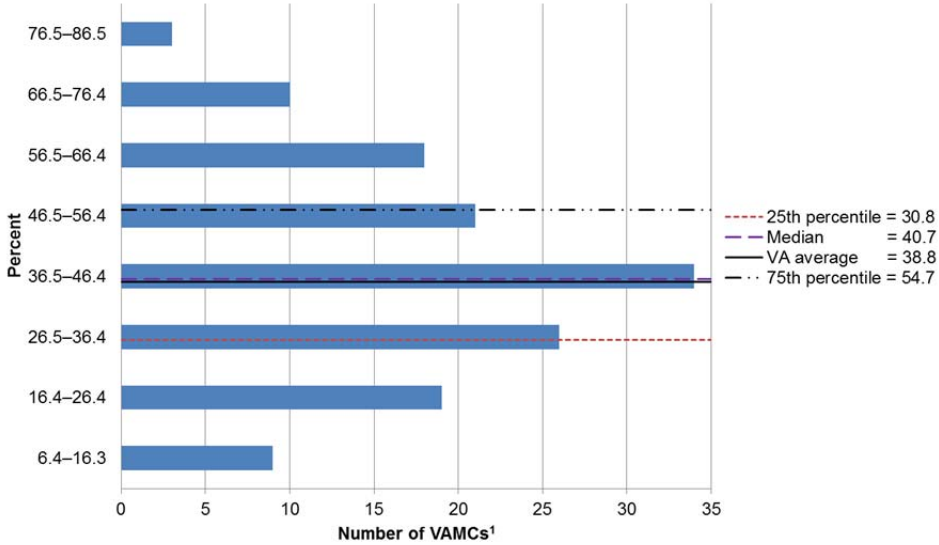
[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 34. Distribution of VA Medical Center (VAMC[1]) Percentages Providing Pain Clinic Service for Take-Home Opioid Patients in FY 2012



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Exhibit 35. Distribution of VA Medical Center (VAMC[1]) Percentages Providing Medication Management/Pharmacy Reconciliation for Take-Home Opioid Patients in FY 2012



[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

6. Prevalence of Serious Adverse Effects Among Take-Home Opioid Patients

Exhibit 36 shows the prevalence of serious adverse effects among the opioid patients that may be reasonably expected as a negative consequence of opioid therapy. Less

than 1 percent of the population experienced each of these adverse effects anytime during the FY except for the adverse effect of possible and confirmed suicide attempts, which was evident for 2.0 percent of the opioid patients.

Exhibit 36. Variations of VA Medical Center (VAMC[1]) Percentages of Serious Adverse Effects in Patients Dispensed with Take-Home Opioids in FY 2012

	Variations in VAMC percentages					VA average
	Minimum	25th percentile	Median	75th percentile	Maximum	
Anytime in FY 2012						
Any of the following adverse effects	1.0	2.5	3.4	4.2	9.6	3.3
Opioid overdose	0.00	0.23	0.40	0.72	4.0	0.49
Sedative overdose	0.00	0.00	0.09	0.16	0.72	0.10
Drug delirium	0.00	0.45	0.70	0.96	3.8	0.85
Drug detoxification	0.00	0.04	0.12	0.26	2.2	0.16
Acetaminophen overdose	0.00	0.10	0.24	0.46	2.6	0.30
Possible and confirmed suicide attempts	0.40	1.5	2.0	2.6	5.9	2.0
After first opioid prescription						
Any of the following adverse effects	0.63	1.5	2.2	2.9	7.4	2.2
Opioid overdose	0.00	0.17	0.29	0.50	2.5	0.33
Sedative overdose	0.00	0.00	0.05	0.11	0.72	0.07
Drug delirium	0.00	0.23	0.43	0.67	2.5	0.55
Drug detoxification	0.00	0.02	0.08	0.18	1.1	0.11
Acetaminophen overdose	0.00	0.04	0.14	0.27	2.2	0.19
Possible and confirmed suicide attempts	0.11	0.85	1.3	1.8	4.4	1.3

[1] Includes all medical centers and Community-Based Outpatient Clinics that are under the same facility (Director) administrative leadership.

Conclusions

We integrated and analyzed the VA administrative files, as well as the Death Master Files of the Social Security Administration, for the population of nearly half a million VA patients who filled at least 1 oral or transdermal opioid prescription from VA for self-administration at home in FY 2012. We followed retrospectively the 442,544 patients in the population—who did not receive any hospice or palliative care during the FY or within 1 year prior to their first take-home opioid prescription—for their experience with the provision of VA opioid therapy. This population encompassed some OEF/OIF era veterans, as well as veterans from other non-OEF/OIF service eras, such as Operations Desert Shield and Desert Storm. As a result, the outcomes that we observed in this population may be different from those of OEF/OIF veterans only.[44]

In this large-scale, population-based study of take-home opioid patients who did not receive any hospice or palliative care during FY 2012 or within 1 year prior to their first filled take-home opioid prescription in the FY, we found that 7.7 percent of VA patients were on take-home opioids in FY 2012. The VAMC prevalence ranged from 0.26 percent to 21.8 percent. Because the decision to prescribe take-home opioids should reflect individual patients' clinical needs, higher VAMC prevalence alone does not necessarily indicate overprescribing by the VAMC.

Approximately 87 percent of the opioid patients were diagnosed with primary pain site of non-cancer origin that could result in pain serious enough to warrant an opioid

[44] Seal, K. H., Y. Shi, et al. (2012). "Association of mental health disorders with prescription opioids and high-risk opioid use in US veterans of Iraq and Afghanistan." JAMA **307**(9): 940–947.

medication. Nearly all (9.9 out of 10.5 percent) patients diagnosed with pain of the nervous system and sense organs were also diagnosed with primary pain site. Six out of 10 patients had been diagnosed with mental health issues, one third with mood disorders, 1 of 5 with post-traumatic stress disorder (PTSD), and 1 of 7 with substance use. Nearly 94 percent of the study population had been diagnosed with either pain or mental health issues and 58.4 percent with both. We defined pain as either primary pain site of non-cancer origin that could result in pain serious enough to warrant an opioid medication or pain of the nervous system and sense organs, which might not contain every pain diagnosis.

Approximately half of the study population were new patients in the sense that they were initiated on take-home opioid therapy during FY 2012 after not having been on take-home opioids for at least more than 1 year. Seven out of 10 of the non-chronic (90 days or less on take-home opioids in FY 2012) users were new patients in contrast to 1 in 5 of the chronic users (more than 90 days on take-home opioids in FY 2012). Nearly 41 percent of the study population had been dispensed with 1 prescription, which was composed entirely of the 61.4 percent of non-chronic users because none of the opioids were allowed to be prescribed for more than 90 days in 1 prescription. Patients with 6 or more prescriptions were mainly chronic users, which amounted to 69.3 percent of that group. Thus, defining long-term opioid therapy as 6 filled prescriptions[45] would include approximately only 70 percent of the chronic users and very few non-chronic users.

Opioid dosages with a morphine equivalent of at least 200 mg/day were dispensed to 1.2 percent of the study population, which accounted for 2.6 percent of chronic users and 0.44 percent of non-chronic users. Because the goal of pain management is to decrease pain to a level that allows the patient to continue routine activities, and there is no maximum dose of opioids, the right dose of opioids is the dose that controls pain so that the patient is functional. An opioid dosage of at least 200 mg/day morphine equivalent alone is not an indicative of inappropriate prescribing.

We defined early refill of opioid prescriptions as the same opioid medication (standardized based on generic name, route of administration, and dosage form) that was dispensed before the end of any prior prescriptions. Researchers have used early refill of more than 7 days as a proxy of high-risk opioid behavior.[46] We found that refills of opioids at least 7 days early occurred in 23.0 percent of the population, with refills of at least 11 days early occurring in 14.0 percent of the population. As expected, early refills were (at least 8 times) more likely and occurred more frequently among chronic users than non-chronic users.

The concurrent use of benzodiazepines and opioids can be dangerous because opioids and benzodiazepines can depress the central nervous system and thereby affect heart rhythm, slow respiration, and even lead to death. Benzodiazepines have been strongly

[45] Krebs, E. E., D. C. Ramsey, et al. (2011). "Primary care monitoring of long-term opioid therapy among veterans with chronic pain." Pain Med **12**(5): 740–746.
[46] Seal, K. H., Y. Shi, et al. (2012). "Association of mental health disorders with prescription opioids and high-risk opioid use in US veterans of Iraq and Afghanistan." JAMA **307**(9): 940–947.

associated with death from opioid overdose[47] and with an increased risk of death due to methadone toxicity.[48] We found that take-home benzodiazepines were dispensed to 7.4 percent of the study population, with the percentage of chronic opioid users being 1.6 times that of the non-chronic users. We determined that 71 percent of the opioid patients who received take-home benzodiazepines were dispensed benzodiazepines concurrently with opioids. The percentage of chronic opioid users with concurrent benzodiazepines was 92.6, and the percentage of non-chronic users was 53.6.

Acetaminophen poisoning is a leading cause of liver toxicity,[49] and "Overdoses from prescription products containing acetaminophen account for nearly half of all cases of acetaminophen-related liver failure in the U.S., many of which result in liver transplant or death."[50] We determined that take-home acetaminophens were given to 92.3 percent of the study patients and that 2.0 percent of them were given an average daily dose of 4 g/day or more. We found that 45.5 percent of chronic users were given at least 1 day dosage of 4 grams or more of acetaminophen and that 43.5 percent were given at least 1 day dosage of 4 grams or more concurrently with opioids, which were more than double those (19.4 percent and 13.3 percent, respectively) of non-chronic users.

The Clinical Practice Guideline recommends a bowel regimen for all opioid patients to manage opioid-related constipation. We found that 27.9 percent of the patients were dispensed with a laxative in FY 2012 and that 23.5 percent of the patients were given a laxative on or after the date of their first opioid prescription. The practice of dispensing a laxative to opioid patients varied among 140 VAMCs, from 17.6 percent to 61.6 percent for the entire FY 2012 and from 12.7 percent to 56.0 percent at or after patients' first opioid prescription.

Patients sometimes do not take opioids as prescribed or use non-prescribed opioids. A urine drug test (UDT) is useful for assessing adherence to therapy and detecting illicit drug use. The Clinical Practice Guideline calls for a UDT prior to initiating opioid therapy and a follow-up contact at least every 2–4 weeks after any change in medication regimen. We measured whether new opioid patients—who were initiated take-home opioids in FY 2012 after not having been on take-home opioids for at least more than 1 year—received both a UDT prior to and a follow-up within 30 days of initiating their opioid therapy in FY 2012. We determined that only 6.4 percent of the new patients received both a UDT prior to and a follow-up within 30 days. We observed broad variation among 140 VAMCs' practice on this measure, ranging from 1.1 percent to 32.2 percent, with the middle 50 percent of the VAMCs from 3.9 percent to 10.2 percent.

[47] Toblin, R. L., L. J. Paulozzi, et al. (2010). "Mental illness and psychotropic drug use among prescription drug overdose deaths: a medical examiner chart review." J Clin Psychiatry **71**(4): 491–496.
[48] Caplehorn, J. R. and O. H. Drummer (2002). "Fatal methadone toxicity: signs and circumstances, and the role of benzodiazepines." Aust N Z J Public Health **26**(4): 358–362; discussion 362–353.
[49] Larson, A. M., J. Polson, et al. (2005). "Acetaminophen-induced acute liver failure: results of a United States multicenter, prospective study." Hepatology **42**(6): 1364–1372.
[50] http://www.fda.gov/downloads/ForConsumers/ConsumerUpdates/UCM239891.pdf. Last accessed November 27, 2013.

This very low (6.4 percent) VA rate of screening and monitoring patients almost exclusively resulted from the very low rate of a UDT. Although nearly three quarters of the patients received a follow-up contact within 30 days of initiating opioid therapy, only 7.6 percent of the patients had a UDT within 30 days prior to initiating therapy. Even for the high-risk group of patients who were diagnosed with substance use disorder (SUD) within 1 year prior to the initiation of opioid therapy, a UDT was performed for only 1 out of 5.

The Clinical Practice Guideline requires routine and random UDTs to confirm the appropriate use of opioids by patients and a follow-up contact at least once every 1–6 months for the duration of opioid therapy. We measured whether existing opioid patients—who were on take-home opioids at least from FY 2011—received both an annual UDT and a follow-up contact within 6 months of ***each*** filled opioid prescription. We determined that only 37.0 percent of the existing opioid patients received both an annual UDT and a follow-up contact within 6 months of each filled opioid prescription, varying extensively from 4.2 percent to 91.0 percent among VAMCs.

The low (37.0 percent) VA rate of monitoring opioid patients using both an annual UDT and a 6-month follow-up contact resulted mainly from the low rate of an annual UDT. We found that 93.2 percent of the existing patients had at least 1 follow-up contact within 6 months of each filled opioid prescription. In contrast, VA conducted an annual UDT for only 37.9 percent of the existing opioid patients. We observed wide variation of VAMCs' practice of conducting an annual UDT, ranging from 4.4 percent to 87.6 percent. Even for the chronic (more than 90 days on take-home opioids in FY 2012) opioid users, the annual UDT rate was only 40.9 percent, which was about 7 percentage points higher than the rate for the non-chronic (90 days or less on take-home opioids in FY 2012) users (33.7 percent).

We found that 13.1 percent of the study population was diagnosed with active substance use. The Clinical Practice Guideline specifies that chronic (for more than 1 month) opioid therapy is absolutely contraindicated in patients with active (not in remission) SUDs who are not in treatment. It recommends that active substance use patients receive SUD treatment concurrently with urine drug testing as an adjunctive tool at regular intervals. For the active substance use patients who had at least 90 days available for follow-up in FY 2012, we measured whether they received both a treatment for substance use and a UDT within 90 days of each filled opioid prescription. We determined that only 10.5 percent received both a treatment for substance use and a UDT within 90 days of each filled opioid prescription. The percentages of VAMCs varied from 0.00 to 44.8.

The low (10.5 percent) VA rate for treating substance use and conducting regular UDTs for active substance use patients resulted from both low rates of treatment and UDTs. We found that 31.2 percent of the active substance use patients received an SUD treatment in FY 2012, ranging from 8.3 percent to 59.5 percent among 140 VAMCs. We determined that 19.2 percent of the patients received at least 1 UDT within 90 days of each filled prescription of take-home opioids, with the UDT percentages varying from 2.2 to 52.3 among VAMCs. Even for the subpopulation of 19,724 active substance use

patients who were on opioids for more than 90 days in FY 2012, we determined that only 18.8 percent of them received both an SUD treatment in the FY and a UDT for each 90 days on opioids, with VAMC percentages ranging from 0.00 to 82.7.

Psychotherapy, including cognitive behavioral therapy, is recommended to reduce pain and improve function in chronic pain patients. We found that 45.2 percent of the opioid patients received at least 1 psychosocial treatment for pain and that 35.1 percent of these patients received this treatment after their first filled opioid prescription in FY 2012. The VAMC percentages for providing psychosocial treatments for pain ranged from 26.9 to 93.7 in FY 2012. If patients were offered psychosocial treatment for pain but declined, our data did not capture this.

Treatment of chronic pain involves a stepped care approach oriented toward recovering or maintaining physical, social, and occupational function. This approach requires increasing levels of expertise dependent upon the complexity of the pain concerns of the individual veteran. In the most complex cases, such care will involve a broad array of specialty rehabilitation, pain medicine, surgical, and complementary and alternative medicine services. Referral to a Pain Clinic may be another approach to care. We determined that 8.7 percent of the VA patients who had been prescribed opioids received care from a VA Pain Clinic in FY 2012. Three quarters of the VAMCs provided Pain Clinic service to 15.0 percent or less of their opioid patients in the FY, although 1 VAMC provided this specialty Pain Clinic service to 73.5 percent of its patients. Our data did not capture all information about the broad array of specialty pain management services, including consultative input from a Pain Clinic, if they were not coded as Pain Clinic service.

Opioid patients frequently have complex co-morbid conditions, making them more likely to be given multiple medications that can interact dangerously with opioid medications. A review of medications by a pharmacist or other health care professional can prevent harmful interactions between these medications. We found that 38.8 percent of the opioid patients received medication management or pharmacy reconciliation during the FY, with the percentages varying from 6.4 to 86.5 across the 140 VAMCs. The middle half of the VAMCs provided the service to 30.8–54.7 percent of their opioid patients.

Increasing use of opioids has been associated with increasing rates of opioid-related serious adverse effects. We determined percentages of opioid patients with evidence of a serious adverse effect that may be reasonably expected to be related to opioid therapy for the following six serious adverse effects: (1) opioid overdose, (2) sedative overdose, (3) drug delirium, (4) drug detoxification, (5) acetaminophen overdose, and (6) possible and confirmed suicide attempts. We found that less than 1 percent of the population experienced each of these adverse effects during the FY, except for the adverse effect of possible and confirmed suicide attempts that was evident in 2.0 percent of the opioid patients.

We defined days on opioids (or acetaminophen or benzodiazepines) by counting overlapping supply days from different prescriptions once only rather than just taking a simple sum of the number of supply days from all filled prescriptions as in the

literature.[51,52] Although the computation is much more complex, our definition of days on opioids better reflects the physical days a patient should be on opioids through taking into account both partially and totally overlapping prescriptions. Totally overlapping prescriptions may result from either intentional combination use of different types of opioids (for example, morphine and hydrocodone) or unintentional combination use of the same type of opioids to attain dosages that are not readily available by manufacturers (for example, to reach a daily dose of 85 mg methadone, a patient may be given both a filled prescription of 3 tablets of METHADONE HCL 5MG TAB and a filled prescription of 7 tablets of METHADONE HCL 10MG TAB simultaneously). Because days on opioids are less than or equal to the simple sum of the supply days, our calculated daily doses using days on opioids (as the denominator) are greater than or equal to those calculated based on just a simple sum of the supply days. Similarly, our numbers of chronic users (more than 90 days on opioids) are less than or equal to those calculated based on just a simple sum of the supply days.

We counted a clinical encounter as a follow-up contact for opioid therapy whether or not patients were assessed for effectiveness of opioid therapy, adverse effects, and adherence to therapy. These encounters were either in-person (inpatient care, extended care, or outpatient visit) or by telephone. They did not include any in-person visits to the emergency room or any encounters for reasons that were unlikely related to follow-up for opioids, such as for compensation and pension, dental, organ donation, or research.

We assessed VA FY 2012 patterns of dispensing take-home opioids and monitoring patients who were treated with take-home opioids. This cross-sectional evaluation provided us with a snapshot of VA FY 2012 practice for the population of all non-hospice/palliative care patients who had at least 1 take-home opioid fill in the FY, regardless of the difference in time when they were initiated on and ended take-home opioid therapy. Because of the nature of cross-sectional data, our definition of chronic users of opioids (more than 90 days) is relevant only to the given time period. For example, the non-chronic (90 days or less) users in FY 2012 would really be chronic users if they were initiated on opioid therapy during the 4th quarter of FY 2012 (that is, new patients in FY 2012) and continued the therapy through FY 2013. This would also apply to the non-chronic users in FY 2012 if they were initiated on and continued with therapy through FY 2011 (that is, existing patients in FY 2012) but ended prior to the 2nd quarter of FY 2012. Similarly, chronic users in FY 2012 would not be chronic users in FY 2013 if they were on take-home opioids for 90 days or less in FY 2013. (See Exhibit X4 in Appendix A for examples.) Our results by chronic and non-chronic users should be viewed within the context of this limitation that is common to cross-sectional studies. For this reason, this study included all patients, whether on chronic (more than 1 month as defined by the CPG, p. 3) or non-chronic take-home opioid therapy.

[51] Seal, K. H., Y. Shi, et al. (2012). "Association of mental health disorders with prescription opioids and high-risk opioid use in US veterans of Iraq and Afghanistan." JAMA **307**(9): 940–947.
[52] Edlund, M. J., B. C. Martin, et al. (2010). "Risks for opioid abuse and dependence among recipients of chronic opioid therapy: results from the TROUP study." Drug Alcohol Depend **112**(1-2): 90–98.

Recommendations

1. We recommended that the Under Secretary for Health ensure that the practice of prescribing acetaminophen is in compliance with acceptable standards.

2. We recommended that the Under Secretary for Health ensure that VA's practice of routine and random urine drug tests prior to initiating and during take-home opioid therapy to confirm the appropriate use of opioids is in alignment with acceptable standards.

3. We recommended that the Under Secretary for Health ensure that follow-up evaluations of patients on take-home opioids are performed timely.

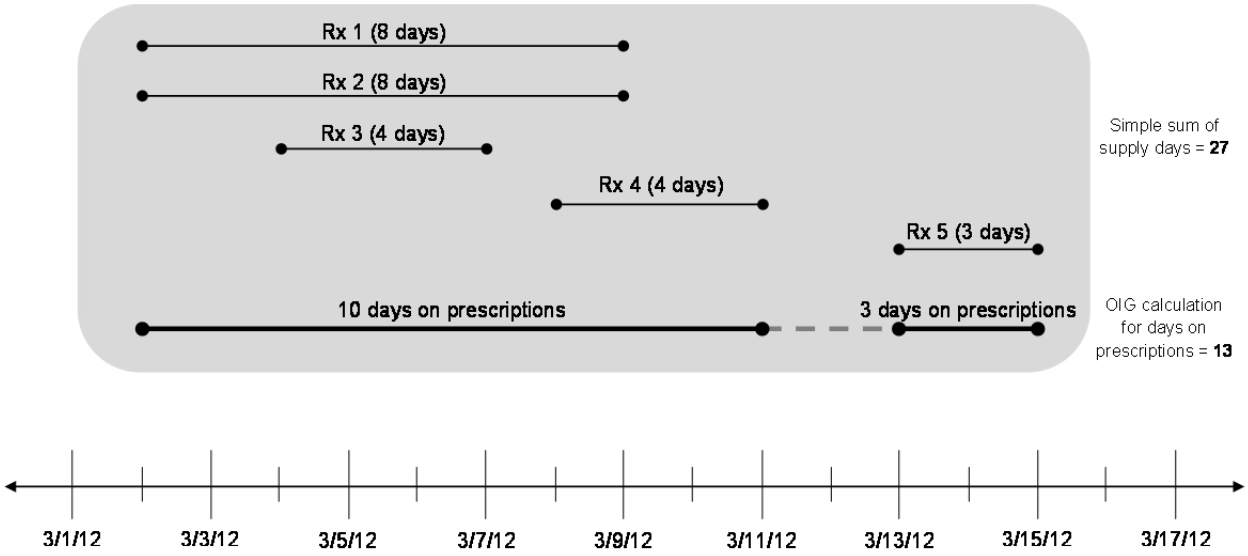
4. We recommended that the Under Secretary for Health ensure that opioid patients with active (not in remission) substance use receive treatment for substance use concurrently with urine drug tests.

5. We recommended that the Under Secretary for Health ensure that VA's practice of prescribing and dispensing benzodiazepines concurrently with opioids is in alignment with acceptable standards.

6. We recommended that the Under Secretary for Health ensure that medication reconciliation is performed to prevent adverse drug interactions.

Appendix A. Additional Exhibits

Exhibit X1. Calculation of Days on (Opioid) Prescriptions



Note: filled black dot indicates starting and ending date of prescription with a given prescription being taken on both of those days and each day in between.

Exhibit X2. Concurrent Use and Early Refills

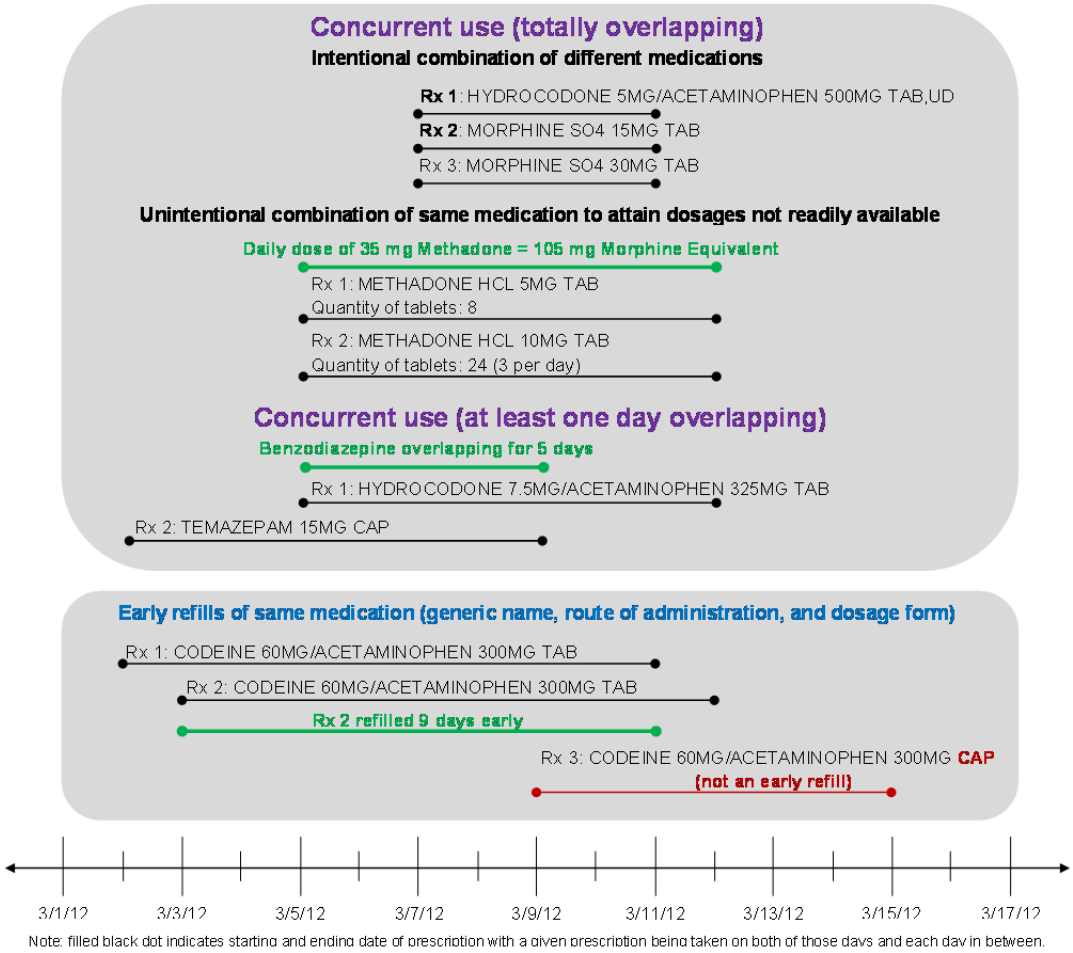


Exhibit X3. Data Files Used in OIG Statistical Analysis

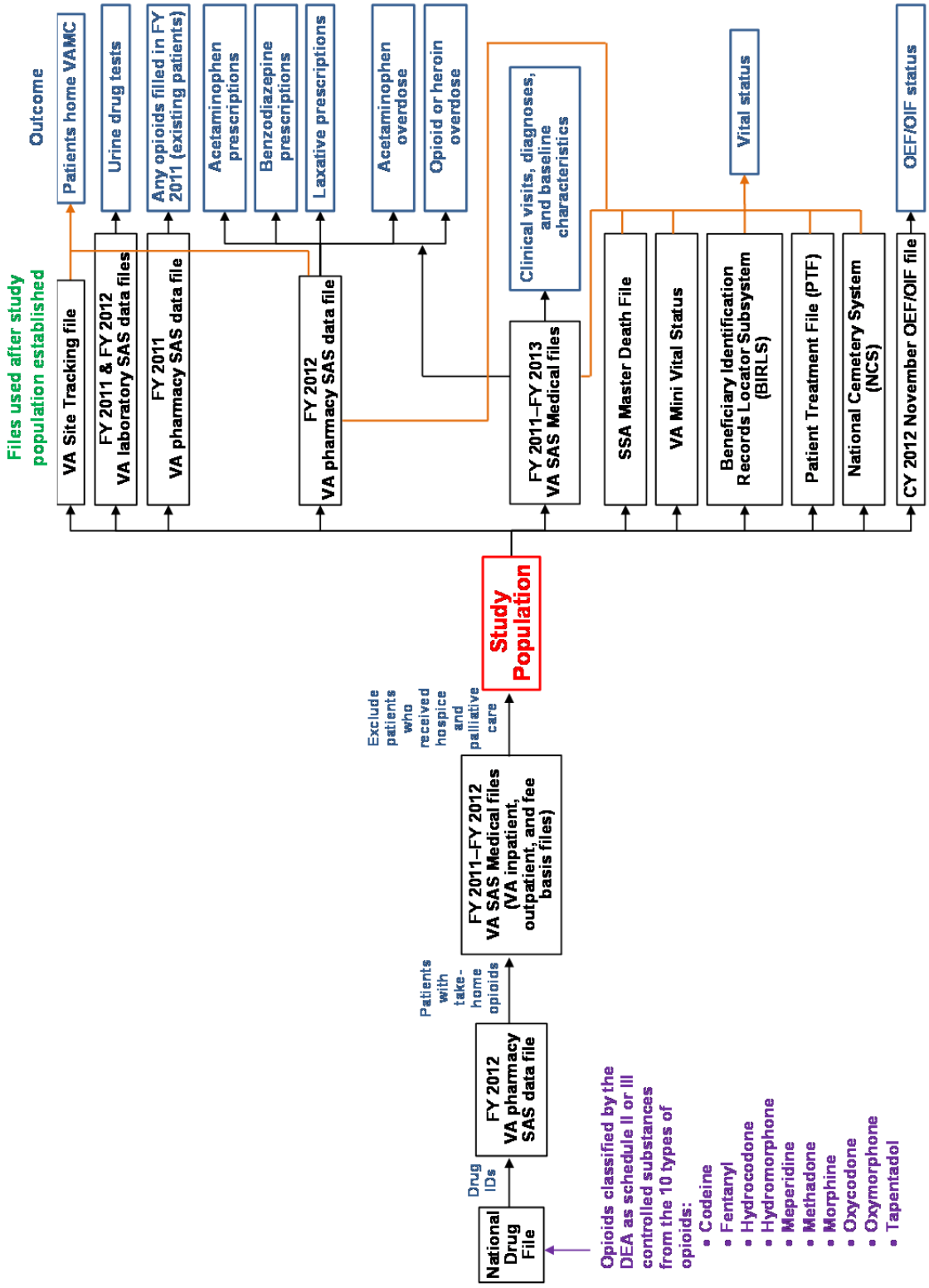
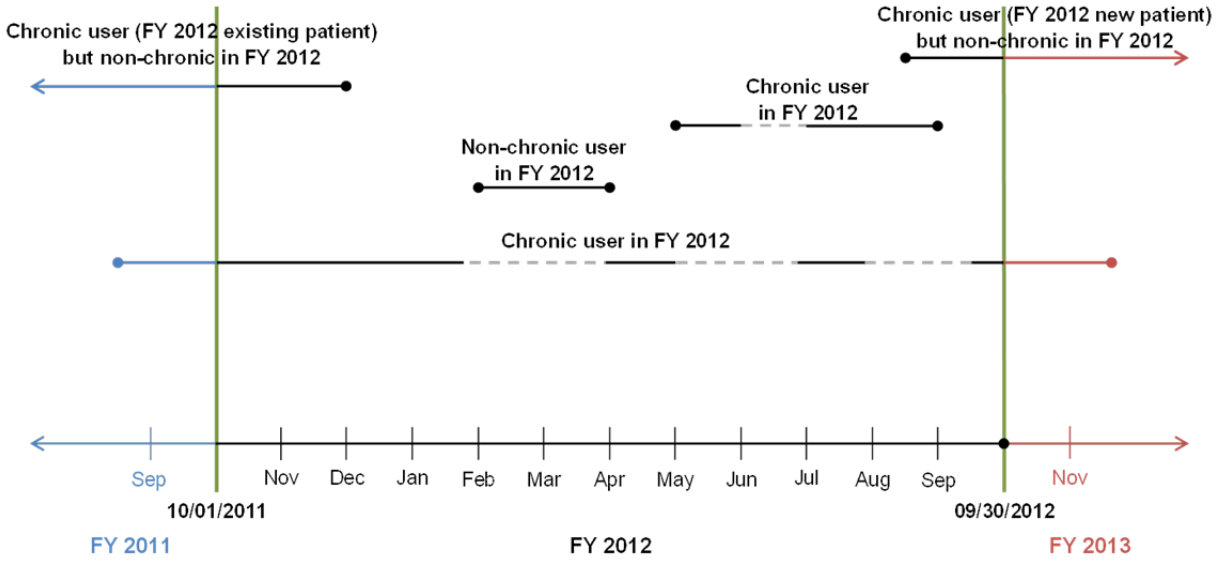


Exhibit X4. Chronic (> 90 days) Users in Cross-Sectional Study



Codes for Identifying Hospice and Palliative Care

ICD-9-CM diagnostic code: V66.7.

Treating specialty codes: 96, 1F.

CPT/HCPS codes: G9054, G0182, G0337, Q5001–Q5010, S0255, S0271, S9126, T2042, T2043, T2045, T2046.

Clinic stop codes: 351, 353.

VA Intermediate Product Numbers for Identifying Urine Drug Tests by Test Substance Type

Tests for heroin or morphine: 00467, 00537, 00753, 00754, 00755, 49338, 49339, 82227–82229, 82231, 83304, 83455, and 83510.

Tests for non-morphine opioid compounds: 00608, 00664, 00710, 00711, 00721, 00727, 00734, 00759, 00780, 00784, 00786, 00788, 00808, 00864, 49340, 49355, 57854, 73744, 81952, 81996, 82166, 82230, 82232–82236, 82448, 82449, 82458, 82972, 83005, 83162, 83261, 83402, 83439, 83462, 83506, 83508, 83509, 83511, 83727, 83859, 83862, 84383, 84398, 91141, 91210, and 91211.

Tests for non-opioid abusable substances: 00466, 00470, 00499, 00523, 00525, 00562, 00575, 00580, 00584, 00596–00601, 00606, 00607, 00611–00614, 00660, 00661, 00663, 00675, 00684–00688, 00700, 00724, 00729, 00730, 00732, 00735, 00737, 00738, 00742, 00745, 00769, 00779, 00785, 00790, 00803, 00811, 00821, 00832, 00846, 00856–00863, 45095, 45110, 49337, 49350, 49353, 53008, 54720, 56922, 62505, 63308, 65398, 66031, 69135, 81882, 81997, 82019, 82031, 82092–82094, 82225, 82441, 82451–82456, 82997, 83000–83003, 83009–83011, 83022, 83027, 83028, 83160, 83246, 83252, 83262, 83281, 83588, 83638, 83704, 83713, 83730, 83773, 83796, 83798, 83889, 83927, 83931, 83945, 83967, 84064, 84075, 84098, 84099, 84100, 84101, 84112, 84172, 84173, 84175, 84336, 84388, 85161, 91156, and 91157.

Appendix C

Under Secretary for Health Comments

Department of Veterans Affairs **Memorandum**

Date: April 22, 2014

From: Under Secretary for Health (10)

Subject: **OIG Draft Report, VA Patterns of Dispensing Take-Home Opioids and Monitoring Patients on Opioid Therapy (Project No. 2014-00895-HI-0378) (VAIQ 7462279)**

To: Assistant Inspector General for Healthcare Inspections (54)

1. I have reviewed the draft report and concur with the report's recommendations. Attached is the Veterans Health Administration's corrective action plan for recommendations 1–6.

2. OIG's report provides important baseline data for understanding how VHA practitioners were prescribing opioids 2 years ago. Since that time, VHA has initiated several new modalities for improving pain care, including: pain schools, tele-pain schools, smartphone type applications and web based modules for patient and family education, case based audio conferences, Nation-wide community of practice calls, self-management strategies, and complementary and integrative medicine modalities.

3. Compared to October 2012, as of November 2013:
   - 39,088 fewer Veterans received an opioid prescription from VA;
   - 80,294 more Veterans who had been prescribed opioids underwent urine drug screens; and
   - 9,609 fewer Veterans were receiving prescriptions for both benzodiazepines and opioids.

   VA expects these trends to continue as it promotes the safe and effective pharmacologic and non-pharmacologic stepped care model of pain management.

4. This year VHA issued the Opioid Safety Initiative (OSI) requirements to all Veterans Integrated Service Networks (VISN). The purpose of the initiative is to ensure pain management is addressed thoughtfully, compassionately, and safely. The nine goals of OSI are:

   Goal 1 Educate prescribers of opioid medication regarding effective use of urine drug screening;
   Goal 2 Increase the use of urine drug screening;
   Goal 3 Facilitate the use of state prescription databases;
   Goal 4 Establish safe and effective tapering programs for the combination of benzodiazepines and opioids;
   Goal 5 Develop tools to identify higher risk patients;
   Goal 6 Improve prescribing practices around long-acting opioid formulations;
   Goal 7 Review treatment plans for patients on high doses of opioids;
   Goal 8 Offer Complementary and Alternative Medicine (CAM) modalities for chronic pain at all facilities; and
   Goal 9 Develop new models of mental health and primary care collaboration to manage prescribing of opioids and benzodiazepines in patients with chronic pain.

5. Through promulgation of new regulations, VHA providers can now access the state Prescription Drug Monitoring Programs (PDMP). These programs, with appropriate health privacy protections, provide VHA prescribers with access to information on prescribing and dispensing of controlled substances that Veterans obtain from outside the VA health care system. Participation in PDMPs helps VHA providers identify potentially vulnerable at-risk individuals and offers them greater opportunities to talk with patients about whether opioids are effective in managing their pain.

6. As of January 2014, VHA has 10 sites with Commission on Accreditation of Rehabilitation Facilities (CARF); 11 more sites are actively preparing or applying for CARF status. These Centers have the capacity for providing advanced pain medicine diagnostics, surgical and interventional procedures, and intensive, integrated chronic pain rehabilitation for Veterans with complex, co-morbid, or treatment refractory conditions. In 2009, there were only two CARF sites in VHA.

7. I am confident that the work VHA is doing coupled with the important information in OIG's report will result in more accessible, safe, and effective pain care that will be responsive to the needs of Veterans and will enhance the quality of their lives.

8. Thank you for the opportunity to review the draft report. If you have any questions, please contact Karen Rasmussen, M.D., Director, Management Review Service (10AR) at (202) 461-6643 or by email at VHA10ARMRS2@va.gov.

Robert A. Petzel, M.D.

Attachment

Under Secretary for Health's Comments to Office of Inspector General's Report

OIG Draft Report, Healthcare Inspection: VA Patterns of Dispensing Take-Home Opioids and Monitoring Patients on Opioid Therapy

Date of Draft Report: April 6, 2014

Recommendations/ Actions	Status	Completion Date

OIG Recommendations

1. We recommended that the Under Secretary for Health ensure that the practice of prescribing acetaminophen is in compliance with acceptable standards.

VHA Comments

Concur

The Office of Inspector General (OIG) review found that some patients who were prescribed acetaminophen could have exceeded the maximum recommended dosage of 4 grams per day. The Veterans Health Administration (VHA) agrees that safe prescribing of all medications, including acetaminophen, is an essential aspect of patient safety.

The Department of Veterans Affairs (VA) has taken steps to enhance prescribing and prescription fulfillment processes to prevent the types of situations described by OIG and to meet OIG's intent to ensure safe prescribing of acetaminophen. VA developed a software system called Medication Order Check Healthcare Application (MOCHA) that notifies a prescriber when the single maximum dose ordered of any drug, including acetaminophen, exceeds the Food and Drug Administration recommended standards. MOCHA alerts prescribers when more than one medication containing acetaminophen is ordered to prevent cumulative excessive doses. VA's Office of Information and Technology (OI&T) started deploying MOCHA maximum dosage checks to VA medical centers in March 2014, and expects the system to be fully deployed by end of fiscal year (FY) 2014.

VHA is concerned that OIG didn't consider the instructions for use on the prescription label, which is one of the critical elements of safe prescribing. Additionally, the report may have overestimated the number of patients whose prescriptions could have exceeded the maximum recommended dose because the study methodology of tracking dispensing does not take into account the delivery lag time required to mail prescriptions to patients. Prescription dispensing is purposely overlapped so the patient does not run out of medications while waiting for the next refill in the mail. Once VA's consolidated mail outpatient pharmacy (CMOP) fills a prescription, it enters the mail stream for delivery, which on average takes 2.5 days to reach the patient; CMOP dispenses approximately 80 percent of all VA prescriptions.

To address this recommendation, VHA will:

- Work with VA's OI&T to complete full implementation of MOCHA maximum dosing checks to all medical centers by the end of FY 2014.

- Pharmacy Benefits Management (PBM) Services office will educate providers about the vulnerabilities associated with patients exceeding the maximum recommended acetaminophen dosage using newsletters or other communications.

To complete this action, VHA will provide documentation of:

1) Certification that VA's OIT has deployed MOCHA across the entire VHA health care system; and
2) PBM communications to providers about exceeding maximum recommended dose of acetaminophen.

In process September 30, 2014

2. We recommended that the Under Secretary for Health ensure that VA's practice of routine and random urine drug tests prior to initiating and during take-home opioid therapy to confirm the appropriate use of opioids is in alignment with acceptable standards.

VHA Comments

Concur

Although VHA's current acceptable standard of practice does not initiate Urine Drug Tests (UDTs) for the short term use of opioid analgesics for acute pain when there is no intent for long-term (greater than 90 days) opioid prescribing, VHA concurs with the recommendation to initiate UDTs in chronic opioid therapy for chronic pain.

The National Program Director for Pain (Specialty Care Services) will work with other offices to advise the lead office, the Assistant Deputy Under Secretary for Health (ADUSH) for Clinical Operations, to develop and disseminate interim guidance to the field. Veterans Integrated Service Networks (VISN) and facilities will monitor adherence to the guidance through the routine review of data from the Opioid Safety Initiative (OSI) Dashboard, and will provide feedback on outliers where needed.

To complete this action, VHA will provide documentation of:

1) The Deputy Under Secretary for Health for Operations and Management issuance of interim guidance to the field on the practice of routine and random UDTs prior to initiating and during take-home long-term opioid therapy;
2) One quarter of data demonstrating monitoring of interim guidance on UDTs from the OSI dashboard and feedback on adherence to outliers through the Opioid Safety Initiative; and
3) Two examples of corrective action plans.

In process February 28, 2015

3. We recommended that the Under Secretary for Health ensure that follow-up evaluations of patients on take-home opioids are performed timely.

VHA Comments

Concur

The Pain Management Program Office will coordinate with Primary Care Services to develop clinical guidance recommendations for dissemination to field. The clinical guidance recommendations for facilities will help to ensure timely follow-up evaluations of patients prescribed take-home opioid analgesics, depending on the Veteran's specific clinical status such as pain severity, clinical complexity (e.g., medical and psychiatric co-morbidities), and risk.

The Pain Management Program Office will coordinate with Primary Care Services to disseminate the clinical recommendations through VHA Primary Care Services and Patient Aligned Care Team (PACT) educational programs, the VHA Pain Management Program's VISN and facility points of contact, and the VHA's pain web site.

To complete this action, VHA will provide documentation of:

1) Clinical guidance recommendations regarding timely follow-up of patients on take-home opioids, and

2) Dissemination of the recommendations through VHA Primary Care Services, PACT Education Programs, VHA Pain Management Programs, VISN and facility points of contacts, and VHA's pain web site.

In process December 31, 2014

4. We recommended that the Under Secretary for Health ensure that opioid patients with active (not in remission) substance use receive treatment for substance use concurrently with urine drug tests.

VHA Comments

Concur

The Pain Management Program Office, Pharmacy Benefits Management Office, and Mental Health Office will work with the Office of the ADUSH for Clinical Operations to develop the capability to monitor whether patients using opioid analgesics for chronic pain, who also are diagnosed with substance use disorder (not in remission), are provided appropriate UDTs and also provided access to appropriate addiction/mental health specialty care.

To complete this action, VHA will provide documentation of guidance to the field on UDTs for patients prescribed opioids for chronic pain also with substance abuse disorder not in remission, by December 2014.

In process February 28, 2015

5. We recommended that the Under Secretary for Health ensure that VA's practice of prescribing and dispensing benzodiazepines concurrently with opioids is in alignment with acceptable standards.

VHA Comments

Concur

VHA will use the OSI Project Dashboard to identify patient's co-prescribed benzodiazepines and opioids, and will provide clinically appropriate and safe tapering programs when clinically indicated. In coordination with OSI, VHA will develop a plan to provide guidance that supports safe and effective tapering when clinically indicated.

To complete this action, VHA will provide documentation of:

1) Regular monitoring of co-prescribing;
2) Use of specialty support to providers;
3) Reduced new starts on co-prescribed opioids and benzodiazepines; and

4) Over-all reduction of co-prescribed opioids and benzodiazepines.

In process December 31, 2014

6. We recommended that the Under Secretary for Health ensure that medication reconciliation is performed to prevent adverse drug interactions.

VHA Comments

Concur

Medication reconciliation has been an evolving aspect of VA clinical care that is now standardized in accordance with the Medication Reconciliation Directive (VHA Directive 2011-012). The Essential Medication Information Standards Directive (VHA Directive 1164, currently in concurrence) will provide further direction by outlining essential patient medication information for management, communication, and review. The process of medication reconciliation is being monitored via a Medication Reconciliation External Peer Review Program as a quality indicator for VA care. Internally, Medication Reconciliation is measured by facilities often with tracer methodologies. A VA Medication Reconciliation/Patient Medication Information Overarching Strategy is under development for submission to VHA leadership.

To complete this action, VHA will provide documentation of:

1) Publication of the Essential Medication Information Directive (VHA 1164, currently in concurrence); and
2) Leadership's briefing regarding the VA Medication Reconciliation/Patient Medication Information Overarching Strategy recommendations.

In process February 28, 2015

Veterans Health Administration
April 2014

OIG Contact and Staff Acknowledgments

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