

# Prescribing Practice in Utah

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**2002-2015**

Utah Department of Health  
Violence and Injury Prevention Program  
Center for Health Data & Informatics  
4/30/2016

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**Utah Division of Occupational &  
Professional Licensing**



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## Executive Summary

The Utah Controlled Substance Database is one of many tools that can be used to understand Utah's prescription drug abuse, misuse, and overdose problem. This report was developed as a result of the following legislative requirement:

*The Legislature intends that the Department of Health shall report to the Office of the Legislative Fiscal Analyst by April 30, 2016, on the total amount of opioid pain medications dispensed per capita, as morphine equivalent dosages, and may include other measures of risky opioid prescribing that the Department determines to be useful for understanding the influence of opioid prescribing on overdose deaths in Utah. Data shall be shared as far as is readily available back through 2000.*

The Prescribing Practice in Utah report contains summary statistics on the rate of prescription opioids dispensed from 2002 to 2015 from the Controlled Substance Database as data prior to 2002 is unreliable. From 2002 to 2015, there has been a significant increase in the rate of opioid prescriptions dispensed relative to the population (from 692.2 to 894.4 per 1,000 population, respectively). In January 2016, there were 210,054 opioid prescriptions written by 9,013 prescribers for a monthly average of 23.3 prescriptions per prescriber. There has been a slight decrease in the number of patients in the Controlled Substance Database from 2002 to 2014 (1,290,517 to 1,196,621, respectively), but there has been a great increase in number of prescriptions in the same time period (3,189,960 to 5,961,441, respectively). Since 2002, the average number of prescriptions per patient has doubled from 2.98 prescriptions per person to 4.98 prescriptions per person in 2014.

This report serves as a foundation to understand the role of opioid prescribing in Utah's prescription opioid abuse epidemic. This report is preliminary and a work in progress. Limited data cleaning was performed to compile this report; more extensive data cleaning, de-duplication, and linkage with other data sources are in progress but not able to be completed within the timeframe of this report. Further data analysis and future reports will afford policymakers the opportunity to understand the overall impact of opioid prescribing.

Prescribing rates were examined by age, sex, and morphine milligram equivalents (MME). From 2002 to 2015, there has been a 76.4% increase in the total MME dispensed. When comparing the total MME dispensed to variations in population size, there was only a 37.3% increase in the rate of total MME dispensed per 1,000 population from 2002 to 2015. Opioid prescriptions were categorized into high- or low-dose based on MME (MME>90 or ≤90, respectively). Overall, females received more opioid prescriptions than males, but males received more high-dose opioids than females. Utahns aged 65 and older received the highest rates of opioid prescriptions, but Utahns aged 25-64 had the highest rates of high-dose opioid prescriptions. From 2002 to 2015, the overall percentage of high-dose (MME>90) opioid prescriptions increased by 24.2% while low-dose (MME≤90) opioid prescriptions decreased by 2.7%. There was a 69.9% increase in high-dose opioids prescribed to those 25-34 from 2002 to 2015, the greatest increase across all age groups. Utahns under 18 years old experienced the greatest decrease in high-dose opioid prescriptions; a 63.3% decrease from 2002 to 2015.

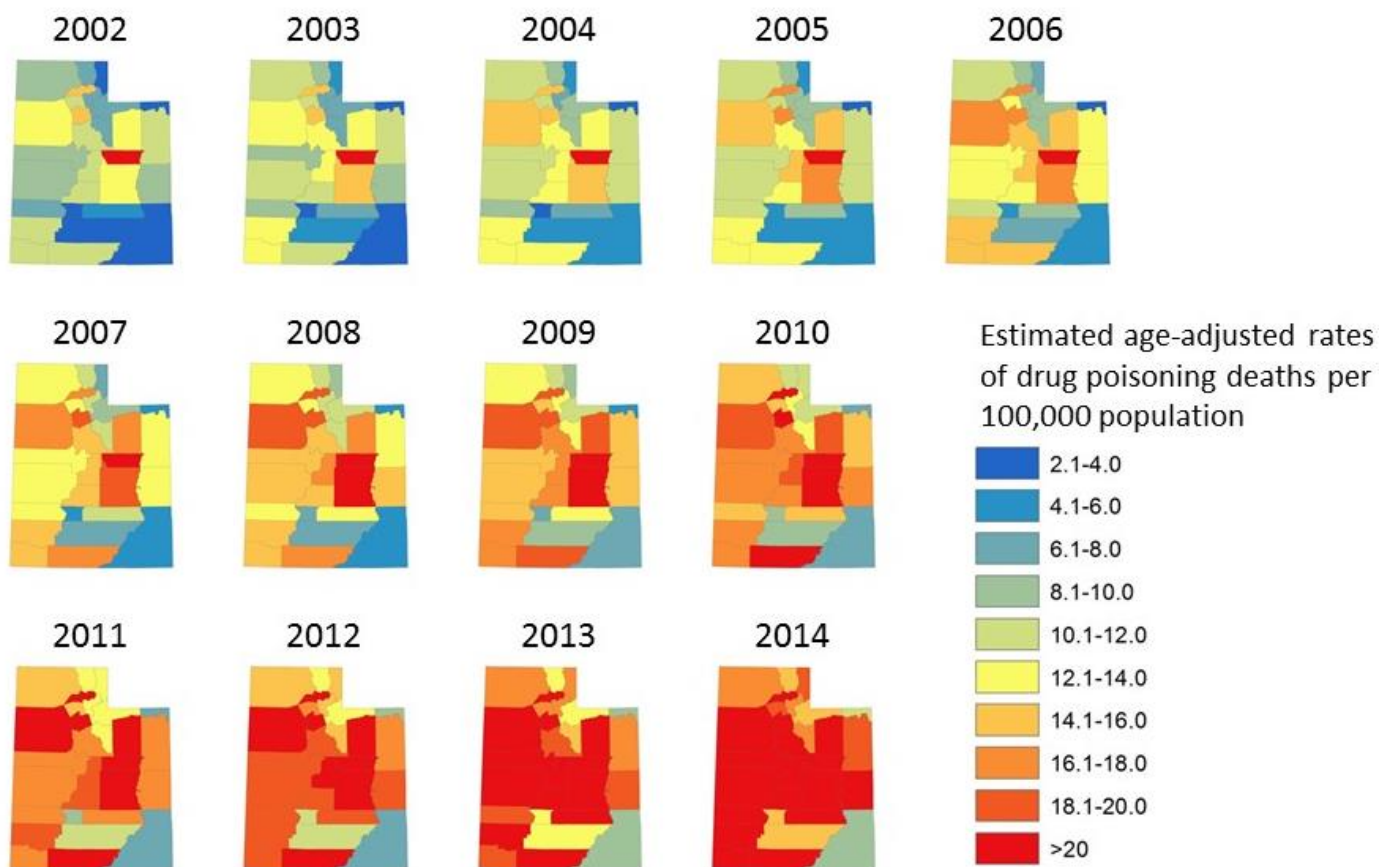
In response to the current drug overdose epidemic in Utah, HCR 4 – Concurrent Resolution Declaring Drug Overdose Deaths to be a Public Health Emergency was passed during the 2016 Legislative Session.

HCR 4 emphasizes the importance of the lives of all people living in Utah; recognizes Utah's high rates of overdose death compared to most states in the country; and strongly urges Utah's Department of Health, Department of Human Services, and Department of Public Safety to recognize this public health crisis and direct resources to reduce the number of overdose deaths in Utah.

## Introduction

Since 2002, the rate of drug poisoning deaths has increased at an alarming rate in Utah (Figure 1). This preventable public health problem has outpaced deaths due to firearms, falls, and motor vehicle crashes in Utah.<sup>1</sup> From 2012 to 2014, Utah ranked 4<sup>th</sup> in the U.S. for drug poisoning deaths with an age-adjusted rate of 22.4 per 100,000 population behind West Virginia (33.3 per 100,000 population), New Mexico (24.8 per 100,000 population), and Kentucky (24.5 per 100,000 population).<sup>2</sup> Every month, 49 Utahns die as a result of a drug poisoning, 82.3% of which are accidental or of undetermined intent, and of these, 74.8% involve opioids.<sup>1</sup>

Figure 1. Rate of Drug Poisoning Deaths per 100,000 Population by County, Utah, 2002-2014 (age-adjusted).



Utah continues to be disproportionately affected by prescription opioids; 65.1% of overdose deaths have substance abuse as a contributing factor, and 60.9% have physical health problem as a contributing factor.<sup>3</sup> In 2014, 32.3% of Utah adults reported using at least one prescribed opioid pain medication during the preceding 12 months, an increase of 55.3% since 2008.<sup>4</sup> Furthermore, the prevalence of Utah adults who reported using prescription opioids that had not been prescribed to them increased 77.8% from 2008 (1.8%) to 2014 (3.2%).<sup>4</sup> In 2012, Utah ranked 15<sup>th</sup> highest in the nation for high-dose opioid prescribing.<sup>5</sup> A number of factors have contributed to the increase and widespread availability of prescription opioids. In the early 1990s, physicians were urged to be more attentive in identifying and aggressively treating pain. In addition, the pharmaceutical industry aggressively marketed the use of

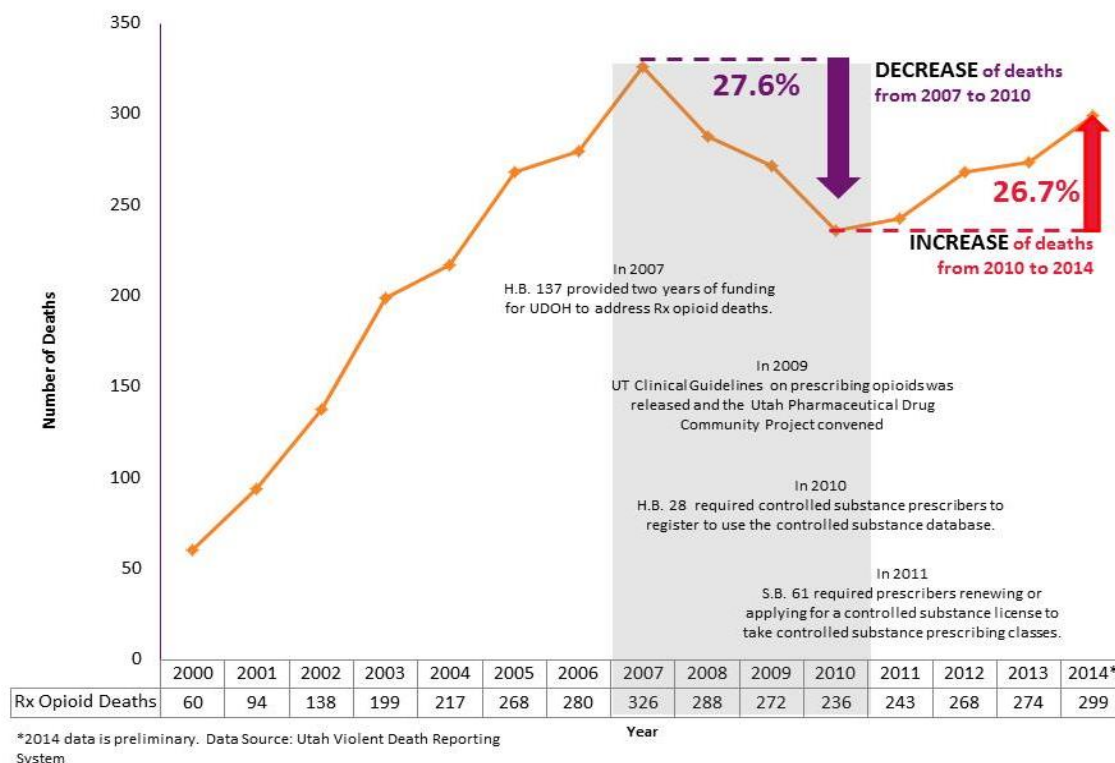


prescription opioids to providers. Consequently, opioid pain relievers, such as oxycodone and hydrocodone, gained widespread acceptance. Health care professionals prescribed opioid pain relievers more frequently as part of patient care. The increase in prescription pain medication prescribing resulted in these medicines being kept in home medicine cabinets, providing in an increased opportunity for theft or misuse.

Prescription drug abuse has resulted in premature deaths, contributed to significant economic burdens through increased health care costs and substance abuse treatment, and fueled the rise in heroin addiction. The mission of the Utah Department of Health (UDOH) is to protect the public's health through preventing avoidable illness, injury, disability and premature death; assuring access to affordable, quality health care; and promoting healthy lifestyles.<sup>6</sup> Drug poisoning death is one of several indicators identified to measure the UDOH's strategic goal of being the healthiest people in the country.

In 2007, the Utah State Legislature authorized the UDOH to establish a Prescription Pain Medication Program (PPMP) to coordinate statewide initiatives and receive access to the Controlled Substance Database (CSD) to reduce deaths and other harm from prescription opiates. During 2007-2010, the PPMP received funding and with several community partners, including the DOPL, UDOH conducted a "Use Only As Directed" media campaign, developed the Utah Clinical Guidelines on Prescribing Opioids, launched a statewide provider education intervention where physicians had the opportunity to receive continuing medical education for participation in small and large group presentations, provided academic detailing, and produced analytic profiles for Utah drug overdose deaths. Drug overdose deaths decreased from 2007-2010 but have since increased (Figure 2).

Figure 2. Number of Occurrent Prescription Opioid Deaths and Prescriber Education Strategy by Year, Utah, 2002-2014.



## Utah Controlled Substance Database

The Utah Controlled Substance Database (CSD) was legislatively created and has been in operation since 1995 (see Appendices A & B). The CSD is managed by the Division of Occupational and Professional Licensing (DOPL) in the Utah Department of Commerce. The Utah Controlled Substance Database Program tracks and collects data on dispensing of Schedule II-V drugs by all retail, institutional, and outpatient hospital pharmacies and in-state/out-of-state mail order pharmacies.<sup>7</sup> The data is disseminated to medical and law enforcement professionals and used to identify potential cases of drug over-utilization, misuse, and over-prescribing of controlled substances throughout the state.<sup>7</sup> Table 1 contains record, report, and user information from State Fiscal Year 2015.

**Table 1. Controlled Substance Database State Fiscal (SFY) Year 2015<sup>7</sup>.**

| <b>Prescription Records</b>                | <b>Count</b> |
|--|--------------|
| Total prescription records as of 6/30/2015 | 63,997,376   |
| Total prescriptions entered in SFY 2015    | 5,987,647    |
| <b>Report Types</b>                        |              |
| Online reports (SFY 2015)                  | 1,001,028    |
| In-house reports (SFY 2015)                | 8,921        |
| Hospital Overdose Reports                  | 905          |
| Court Reports regarding DUI Conviction     | 364          |
| To Practitioners                           |              |
| Overdose Reports                           | 2,846        |
| DUI Reports                                | 679          |
| Doctor Shopper letters                     | 3,216        |
| To Law Enforcement                         |              |
| Doctor Shopper letters                     | 252          |
| <b>Registered User Types</b>               |              |
| Pharmacists                                | 2,280        |
| Practitioners                              | 16,615       |
| Other                                      | 331          |

## Key Legislation Relating to Prescribing Practices

Utah has implemented several legislative measures that impact the implementation of the CSD database and prescribing practices. The key legislative measures related to prescribing practice from the 2016 Legislative Session and descriptions are included below. A complete controlled substance database legislative history can be found in Appendix C; complete bills can be found at <http://le.utah.gov/>.<sup>8</sup>

- 2016 SB 58 (Sponsor: Sen. Hinkins) – Nurse Practitioner Amendments: Allows an advanced practice registered nurse to prescribe a Schedule II controlled substance without a consultation and referral plan if the advanced practice registered nurse: meets certain experience requirements; consults the Controlled Substance Database; and when treating an injured worker, follows prescribing for chronic pain guidelines developed by the Workers' Compensation System; prohibits an advanced practice registered nurse from establishing an independent pain clinic without a consultation and referral plan.
- 2016 HB 114 (Sponsor: Rep. Ward) – Controlled Substance Reporting: Amends the requirement for a general acute hospital to report to the Division of Occupational and Professional Licensing admissions for poisoning or overdose involving a prescribed controlled substance and other amendments.
- 2016 HB 149 (Sponsor: Rep. Daw) – Death Reporting and Investigation Information Regarding Controlled Substances: Requires the medical examiner to provide a report to the Division of Occupational and Professional Licensing (DOPL) when the medical examiner determines that a death resulted from poisoning or overdose involving a prescribed controlled substance; requires that, when DOPL receives a report described in the preceding paragraph, DOPL shall notify each practitioner who may have written a prescription for the controlled substance involved in the poisoning or overdose.
- 2016 HB 239 (Sponsor: Rep. McKell) – Access to Opioid Prescription Information via Practitioner Data Management Systems: Requires the Division of Occupational and Professional Licensing within the Department of Commerce to make opioid prescription data information in its controlled substance database accessible to an opioid prescriber or pharmacist via the prescriber's or pharmacist's electronic data system; limits access to and use of the information by an electronic data system, a prescriber, or a pharmacist in accordance with rules established by the division.
- 2016 HB 375 (Sponsor: Rep. Christensen) – Prescription Drug Abuse Amendments: Amends the Controlled Substances Database Act to promote utilization of the controlled substances database to prevent opioid abuse; requires a dispenser to contact the prescriber if the controlled substance database suggests potential prescription drug abuse; limits liability for prescribers and dispensers who contribute to and use the database.
- 2016 HB 400 (Sponsor: Rep. Redd) – Methadone Treatment Amendments: Requires a prescriber at an opioid treatment program that is certified under federal law, to periodically check the database before administering an opioid replacement drug to a patient; requires coordination between the Division of Substance Abuse and Mental Health and the Division of Occupational and Professional Licensing to establish the interval for checking the database.

## Prescribing Practices

According to the Centers for Disease Control and Prevention (CDC), prescription drug monitoring programs (PDMPs), such as the CSD, are a promising state-level intervention that can be used as a tool to inform and improve prescribing practices.<sup>9</sup> In addition, it can be helpful in identifying individuals who misuse, abuse, or overdose from opioids while, at the same time, making sure patients have access to effective and safe pain management treatments. Patient safety is a key outcome to prescribing opioids, and providers should be equipped with data and tools to make informed decisions regarding a patient's history of controlled substance use.

CDC has indicated that evaluations of state PDMPs have shown changes in prescribing behaviors, use of multiple providers by patients, and decreased substance abuse treatment admissions. Using the CSD to explore prescribing practices in Utah will allow providers the opportunity to understand their role in this epidemic and that responsible prescribing can save lives. Efforts to maximize the utilization of the CSD in Utah, which also align with CDC's designation of promising practices, include:

- Universal Use: The CSD is a promising tool for health care providers to understand patients' prescribing histories to inform their prescribing decisions. During the 2016 General Session, HB 375 – Prescription Drug Abuse Amendments sponsored by Representative Christensen passed promoting the utilization of the controlled substance database to prevent opioid abuse by indicating that a prescriber or dispenser of an opioid for individual outpatient usage shall access and review the database as necessary in the prescriber's or dispenser's professional judgement.
- Real-Time: Timely data maximizes the utility of the prescription history data, with significant implications for patient safety and public health. During the 2015 General Session, HB 395 passed requiring real-time submission of data into the controlled substance database and 24-hour daily or next business day batch submission of data. It also required pharmacists to comply with these amendments by January 1, 2016.
- Actively Managed: As a public health tool, the CSD can be used by state health departments to understand the behavior of the epidemic and inform and evaluate interventions. The Controlled Substance Database Act allows the Utah Department of Health access to CSD "to conduct scientific studies regarding the use or abuse of controlled substances, if the identity of the individuals and pharmacies in the database are confidential and are not disclosed in any manner to any individual who is not directly involved in the scientific studies."<sup>10</sup>
- Easy to Use and Access: Promising practices to increase use and access include integrating CSD into electronic health record (EHR) systems, permitting physicians to delegate PDMP access to other allied health professionals in their office, and streamlining the process for providers to register with the PDMP. During the 2012 Legislative Session, HB 257 passed authorizing delegated users of the CSD and providing emergency room access to the CSD when treating a patient. Most recently, HB 239 passed during the 2016 Legislative Session requiring DOPL to make CSD data available to providers through their electronic data system, and this project is currently underway.

## Utah Prescribing Guidelines

The "Utah Clinical Guidelines on Prescribing Opioids for Treatment of Pain" (Guidelines) provide recommendations for the use of opioids for management of pain that are intended to balance the

benefits of use against the risks to the individual and society, and to be useful to practitioners. The target audience for the Guidelines includes all clinicians who prescribe opioids in their practice.

In collaboration with the Utah Attorney General's Office, the Labor Commission, and the Division of Occupational and Professional Licensing, the Utah Department of Health was charged to educate health care providers, patients, insurers, and the general public on the appropriate management of pain and identify medical treatment and quality care guidelines. The Guidelines were published in 2009 and describe the opioid overdose problem, recommendations for prescribers, and in-depth explanation of recommendations with sources.<sup>11</sup> The summary recommendations are divided into treatment for acute and chronic pain and are listed below.

#### Opioid Treatment for Acute Pain

- 1) Opioid medications should only be used for treatment of acute pain when the severity of the pain warrants that choice and after determining that other non-opioid pain medications or therapies will not provide adequate pain relief.
- 2) When opioid medications are prescribed for treatment of acute pain, the number dispensed should be no more than the number of doses needed based on the usual duration of pain severe enough to require opioids for that condition.
- 3) When opioid medications are prescribed for treatment of acute pain, the patient should be counseled to store the medications securely, to not share with others, and to dispose of medications properly when the pain has resolved in order to prevent non-medical use of the medications.
- 4) Long duration-of-action opioids should not be used for treatment of acute pain, including post-operative pain, except in situations where monitoring and assessment for adverse effects can be conducted. Methadone is rarely if ever indicated for treatment of acute pain.
- 5) The use of opioids should be reevaluated carefully, including assessing the potential for abuse, if persistence of pain suggests the need to continue opioids beyond the anticipated time period of acute pain treatment for that condition.

#### Opioid Treatment for Chronic Pain

- 1) A comprehensive evaluation should be performed before initiating opioid treatment for chronic pain.
- 2) Alternatives to opioid treatment should be tried (or adequate trial of such treatment by a previous provider documented), before initiating opioid treatment.
- 3) The provider should screen for risk of abuse or addiction before initiating opioid treatment.
- 4) When opioids are to be used for treatment of chronic pain, a written treatment plan should be established that includes measurable goals for reduction of pain and improvement of function.
- 5) The patient should be informed of the risks and benefits and any conditions for continuation of opioid treatment, ideally using a written and signed treatment agreement.
- 6) Opioid treatment for chronic pain should be initiated as a treatment trial, usually using short-acting opioid medications.
- 7) Regular visits with evaluation of progress against goals should be scheduled during the period when the dose of opioids is being adjusted (titration period).
- 8) Once a stable dose has been established (maintenance period), regular monitoring should be conducted at face-to-face visits during which treatment goals, analgesia, activity, adverse effects, and aberrant behaviors are monitored.

- 9) Continuing opioid treatment after the treatment trial should be a deliberate decision that considers the risks and benefits of chronic opioid treatment for that patient. A second opinion or consult may be useful in making that decision
- 10) An opioid treatment trial should be discontinued if the goals are not met and opioid treatment should be discontinued at any point if adverse effects outweigh benefits or if dangerous or illegal behaviors are demonstrated.
- 11) Clinicians treating patients with opioids for chronic pain should maintain records documenting the evaluation of the patient, treatment plan, discussion of risks and benefits, informed consent, treatments prescribed, results of treatment, and any aberrant behavior observed.
- 12) Clinicians should consider consultation for patients with complex pain conditions, patients with serious co-morbidities including mental illness, patients who have a history or evidence of current drug addiction or abuse, or when the provider is not confident of his or her abilities to manage the treatment.
- 13) Methadone should only be prescribed by clinicians who are familiar with its risks and appropriate use, and who are prepared to conduct the necessary careful monitoring.

### Daily Morphine Milligram Equivalents (MME)

Morphine milligram equivalents are “the amount of morphine an opioid dose is equal to when prescribed, often used as a gauge of the abuse and overdose potential of the amount of opioid that is being given at a particular time.”<sup>12</sup> Using MME allows for comparison across opioid prescriptions of varying doses, durations, and drug type by standardizing the prescription to a daily morphine equivalent. For this analysis, daily MME were calculated for each prescription, and all prescriptions were categorized as high- or low-dose (MME>90 or MME≤90, respectively). 90 MME/day was used as the cutoff based on CDC prescribing guidelines.<sup>13</sup> Prescribers are encouraged to “use the lowest effective dose... and should avoid increasing dosage to ≥90 MME/day or carefully justify a decision to titrate dosage to ≥90 MME/day.”<sup>12</sup> The risk for overdose increases as daily MME increases; Baublatt, et al found that the odds of overdose death was almost 30 times greater for those receiving an average daily MME of 81-100 compared to those receiving an average daily MME<20.<sup>14</sup> For this report, daily MME were calculated for each prescription, not for each patient; this is cause for concern and warrants further investigation as a considerable number of individual opioid prescriptions dispensed have a daily MME>90. The proportion of patients receiving a daily MME>90 is only expected to increase when a patient’s cumulative daily MME can be calculated after de-duplication and linkage are performed. In the future, we intend to look at the percent of patients receiving a total daily MME>90. Figures 13-15 represent variations in MME dispensed by age and sex.

For reference, the following prescription examples each equal a daily MME of 90:

- 90 mg of hydrocodone (9 tablets of hydrocodone/acetaminophen 10/325)
- 60 mg of oxycodone (12 tablets of hydrocodone/acetaminophen 7.5/300)
- ~20 mg of methadone (4 tablets of methadone 5 mg)<sup>15</sup>

### Prescribing Practice by Year

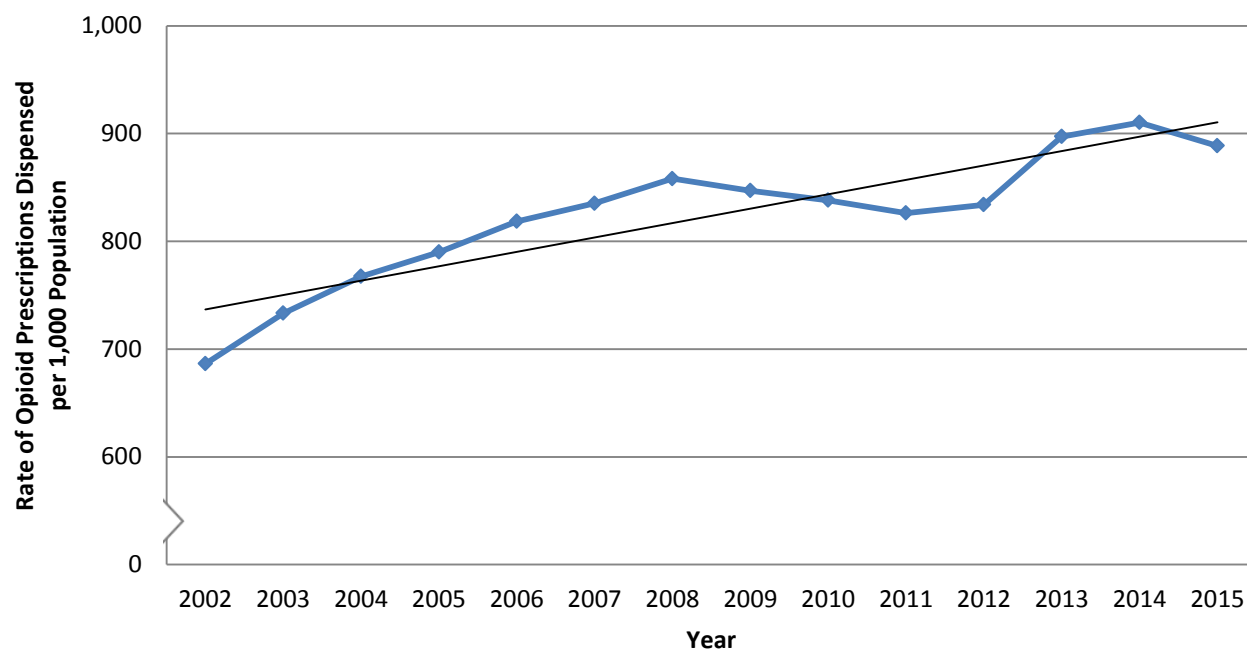
Data was available from 2002 to 2015 for this report. From 2002 to 2015, there was a 29.4% increase in the rate of prescription opioids dispensed (692.2 to 894.4 per 1,000 population, respectively). From 2002 to 2008, there was a 25.0% increase in the rate of dispensed opioid prescriptions with significant

annual increases. 2009 was the first year with a significant decrease (3.7%) in the rate of opioid prescriptions dispensed (859.7 per 1,000 population in 2008 to 828.2 in 2009); the rate of dispensed opioid prescriptions continued to decrease through 2011. The rate of dispensed prescription opioids rose significantly again from 2012-2014 but decreased significantly in 2015. These results are represented in Table 2. Figure 3 graphically represents the annual rates of dispensed opioid prescriptions with a black trend-line showing the average increase in dispensed prescriptions over the 14 year period.

Table 2. Rate of Opioid Prescriptions Dispensed per 1,000 Population by Year, Utah, 2002-2015.

| Year | Number of Opioid Prescriptions Dispensed | Population | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) |
|------|--|------------|--|
| 2002 | 1,595,781                                | 2,324,815  | 686.4 (685.3, 687.4)   |
| 2003 | 1,730,509                                | 2,360,137  | 733.2 (732.1, 732.3)   |
| 2004 | 1,842,931                                | 2,401,580  | 767.3 (766.2, 768.4)   |
| 2005 | 1,941,491                                | 2,457,719  | 789.9 (788.8, 791.0)   |
| 2006 | 2,067,158                                | 2,525,507  | 818.5 (817.3, 819.6)   |
| 2007 | 2,169,816                                | 2,597,746  | 835.2 (834.1, 836.3)   |
| 2008 | 2,285,164                                | 2,663,029  | 858.1 (856.9, 859.2)   |
| 2009 | 2,306,619                                | 2,723,421  | 846.9 (845.8, 839.1)   |
| 2010 | 2,325,157                                | 2,774,346  | 838.0 (837.0, 839.1)   |
| 2011 | 2,325,903                                | 2,815,324  | 826.1 (825.0, 827.2)   |
| 2012 | 2,381,186                                | 2,855,194  | 833.9 (832.9, 835.0)   |
| 2013 | 2,604,144                                | 2,902,787  | 897.1 (896.0, 898.2)   |
| 2014 | 2,678,995                                | 2,942,902  | 910.3 (909.2, 911.4)   |
| 2015 | 2,654,608                                | 2,987,628  | 888.5 (887.4, 889.6)   |

Figure 3. Rate of Opioid Prescriptions Dispensed per 1,000 Population, Utah, 2002-2015.



### Prescribing Practice by Age Group and Sex

From 2002 to 2015, females were prescribed opioids at a significantly higher rate than males across all age groups (Figure 4). Since 2002, the rates of opioid prescriptions dispensed have increased for both sexes. Females experienced a 23.9% increase in opioid prescriptions dispensed from 2002 to 2015 while males experienced a 37.9% increase.

Figure 4. Rate of Opioid Prescriptions Dispensed per 1,000 Population by Sex and Year, Utah, 2002-2015.

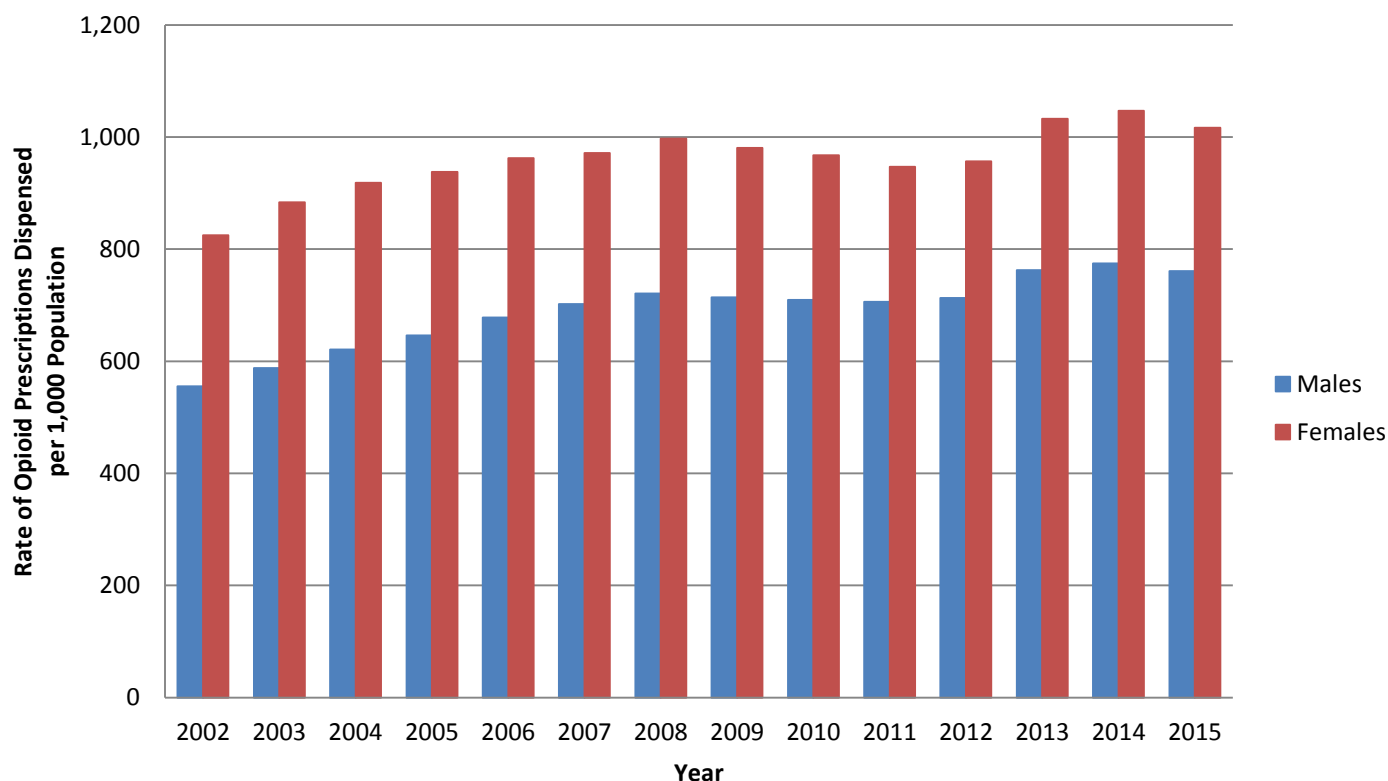


Table 3 represents the percent change in the rate of dispensed prescription opioids from 2002 to 2015 by age and sex. The overall rates of opioid prescriptions dispensed for those under 18, 18-24, and 25-35 years old decreased from 2002 to 2015. For the total population, there were significant increases in dispensed opioid prescription rates for those 35-44, 45-54, 55-64, and 65 years and older from 2002 to 2015. For males 25 and older, there were significant increases in the rates of opioid prescriptions for all age groups from 2002 to 2015. For females, there were significant increases in dispensed prescription opioid rates for all age groups 35 and older from 2002 to 2015. The greatest increases in rates of prescription opioids dispensed were for those 55 and older. Of those 55 and older, males were dispensed opioid prescriptions at an 82.9% increase from 2002 to 2015 while females experienced a 52.1% over the same time period. See Appendix D for data tables.

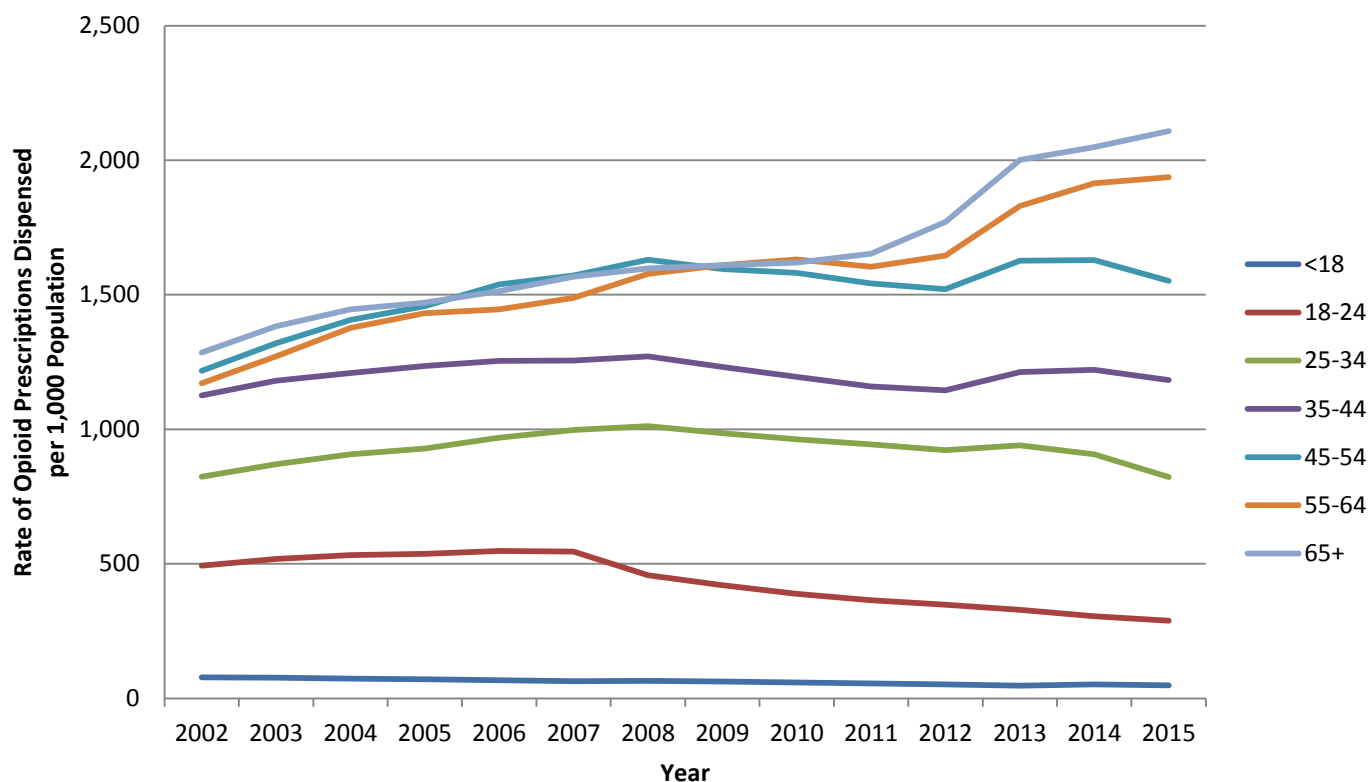


Table 3. Percent Change in the Rate of Opioid Prescriptions Dispensed by Age Group and Sex from 2002 to 2015, Utah.

| Age Group | Overall | Males   | Females |   |
|-----------|---------|---------|---------|---|
| Overall   | 29.4% ↑ | 37.9% ↑ | 23.9% ↑ | ↑ =increase in rate of opioid prescriptions dispensed |
| < 18      | 38.6% ↓ | 45.7% ↓ | 33.2% ↓ | ↓ =decrease in rate of opioid prescriptions dispensed |
| 18-24     | 41.5% ↓ | 30.1% ↓ | 26.1% ↓ |   |
| 25-34     | 0.2% ↓  | 11.8% ↑ | 7.6% ↓  |   |
| 35-44     | 5.1% ↑  | 10.4% ↑ | 1.6% ↑  |   |
| 45-54     | 27.5% ↑ | 28.3% ↑ | 27.0% ↑ |   |
| 55-64     | 65.4% ↑ | 83.7% ↑ | 52.9% ↑ |   |
| 65+       | 64.1% ↑ | 83.5% ↑ | 55.4% ↑ |   |

Figure 5 represents the rate of opioid prescriptions dispensed per 1,000 population by age group. Utahns aged 65 and above have the highest rate of dispensed opioid prescriptions compared to all other age groups. Those under 18 years old are prescribed opioids at a significantly lower rate than those 18 years and older across all age groups.

Figure 5. Rate of Opioid Prescriptions Dispensed per 1,000 Population by Age Group and Year, Utah, 2002-2015.



Figures 6-12 compare the rate of prescription opioids dispensed for males and females by each age group. Caution should be exercised when comparing figures as the y-axes are not scaled equivalently across all figures but were scaled consistently when possible.

From Figure 6, it is evident that for those under 18 years old, females are dispensed prescription opioids at higher rates than males, and this trend has been consistent from 2002 to 2015. From 2002 to 2015, there has been a 45.7% decrease in the rate of dispensed opioid prescriptions in males and a 33.2% decrease in females.

Figure 6. Rate of Opioid Prescriptions Dispensed per 1,000 Population Less than 18 Years of Age by Sex, Utah, 2002-2015.

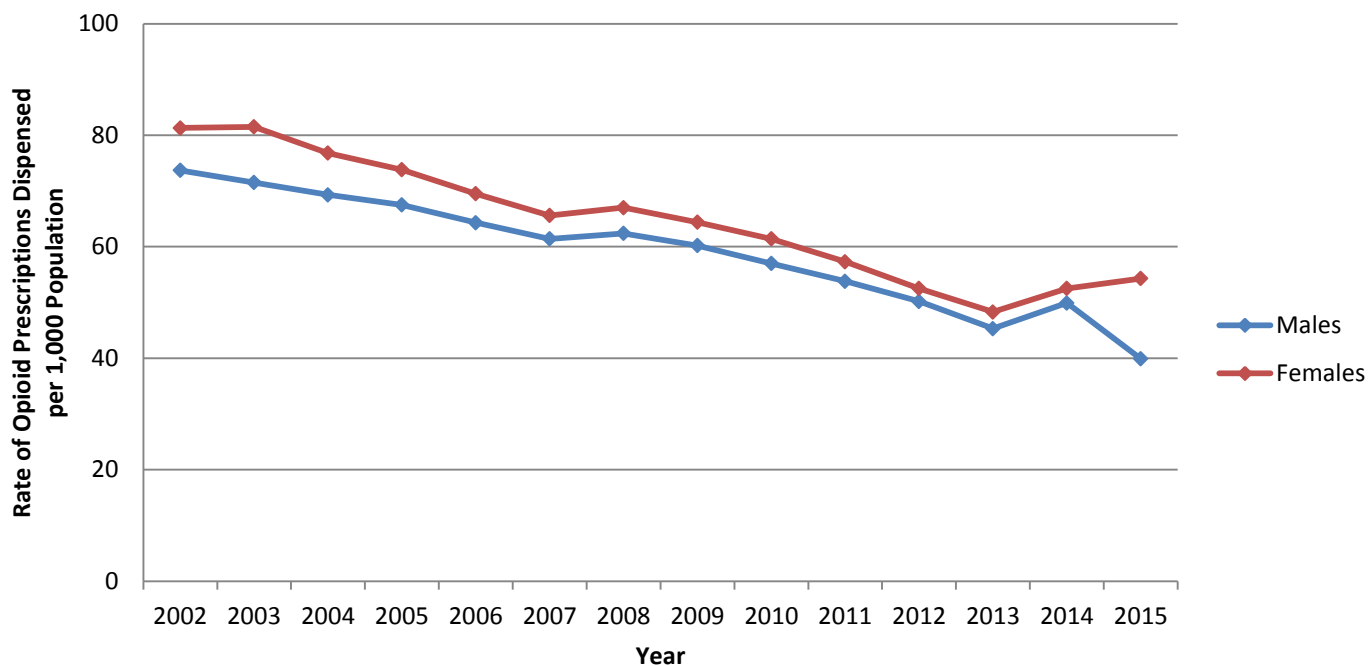
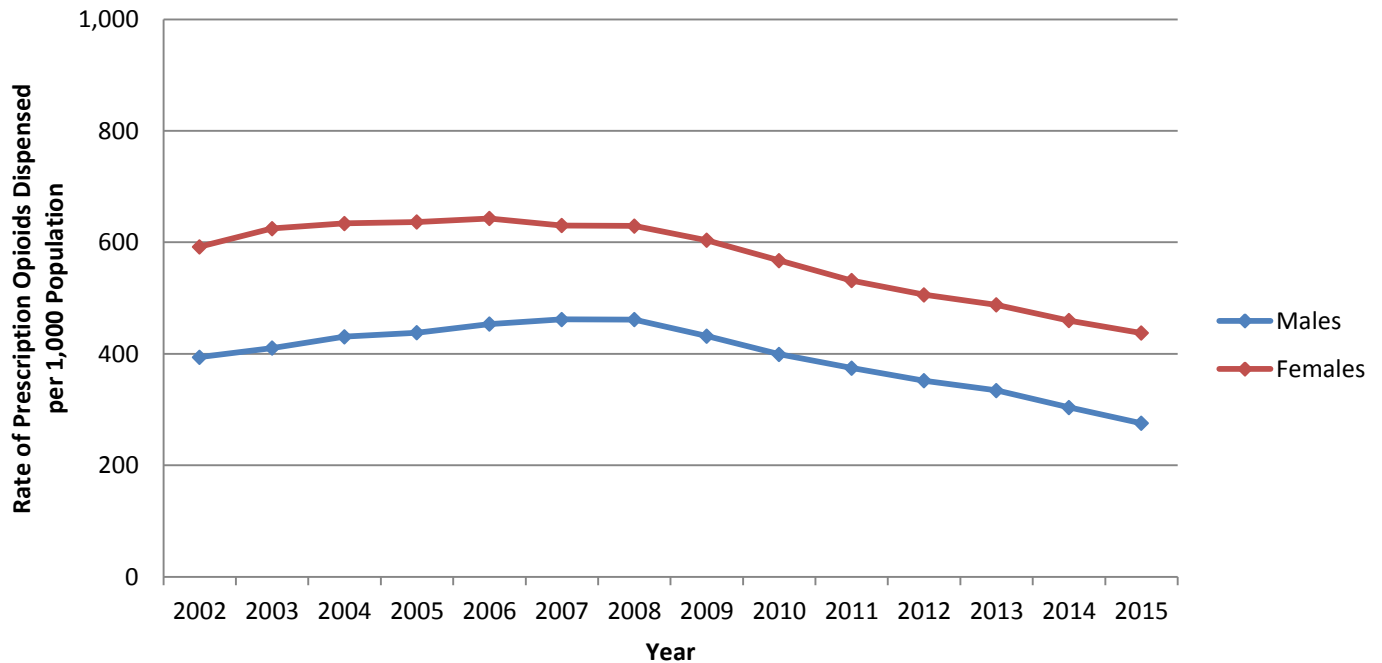


Figure 7 represents the rates of opioid prescriptions dispensed for those aged 18-24. From 2002 to 2015, there has been a 30.1% decrease in opioid prescriptions dispensed to males and a 26.1% decrease in females. Again, females are prescribed opioids at a significantly higher rate than males.

Figure 7. Rate of Opioid Prescriptions Dispensed per 1,000 Population Ages 18-24 by Sex, Utah, 2002-2015.



Those 25-34 are represented in Figure 8. Females received significantly more opioid prescriptions than males. From 2002 to 2015, males experienced an increase of 11.8% in dispensed prescription opioids while females experiences a 7.6% decrease.

Figure 8. Rate of Opioid Prescriptions Dispensed per 1,000 Population Ages 25-34 by Sex, Utah, 2002-2015.

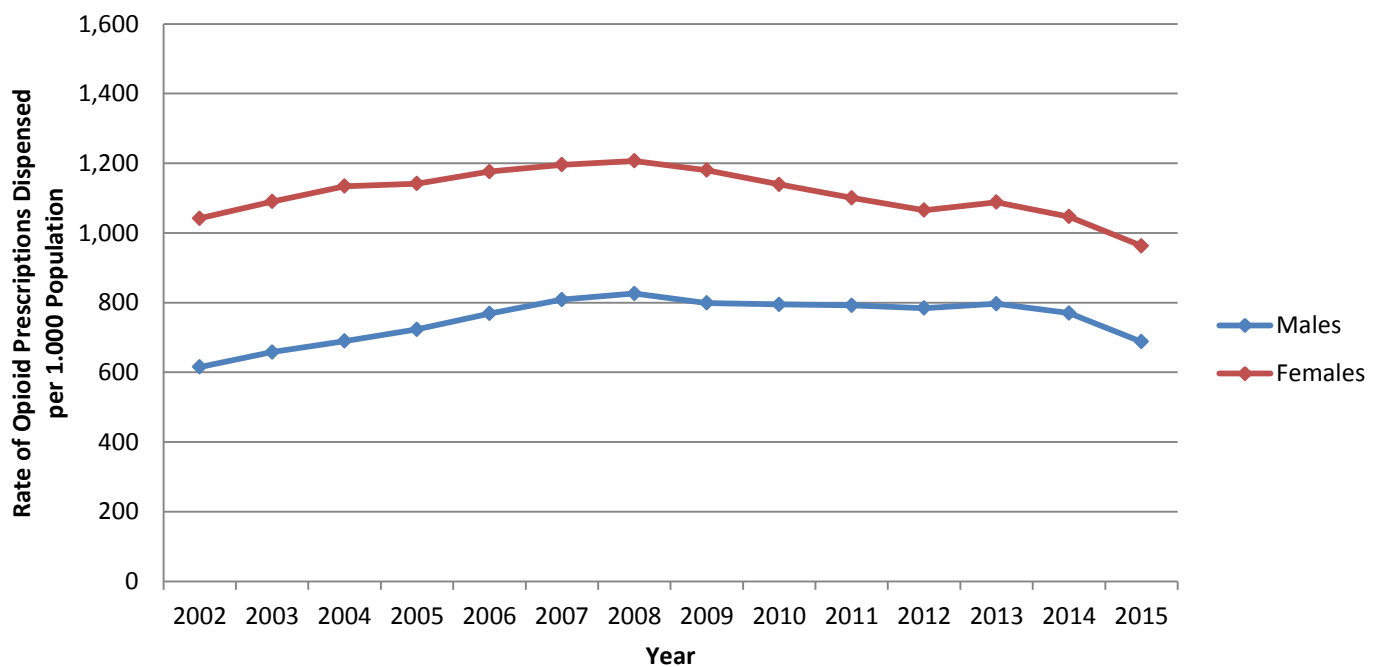
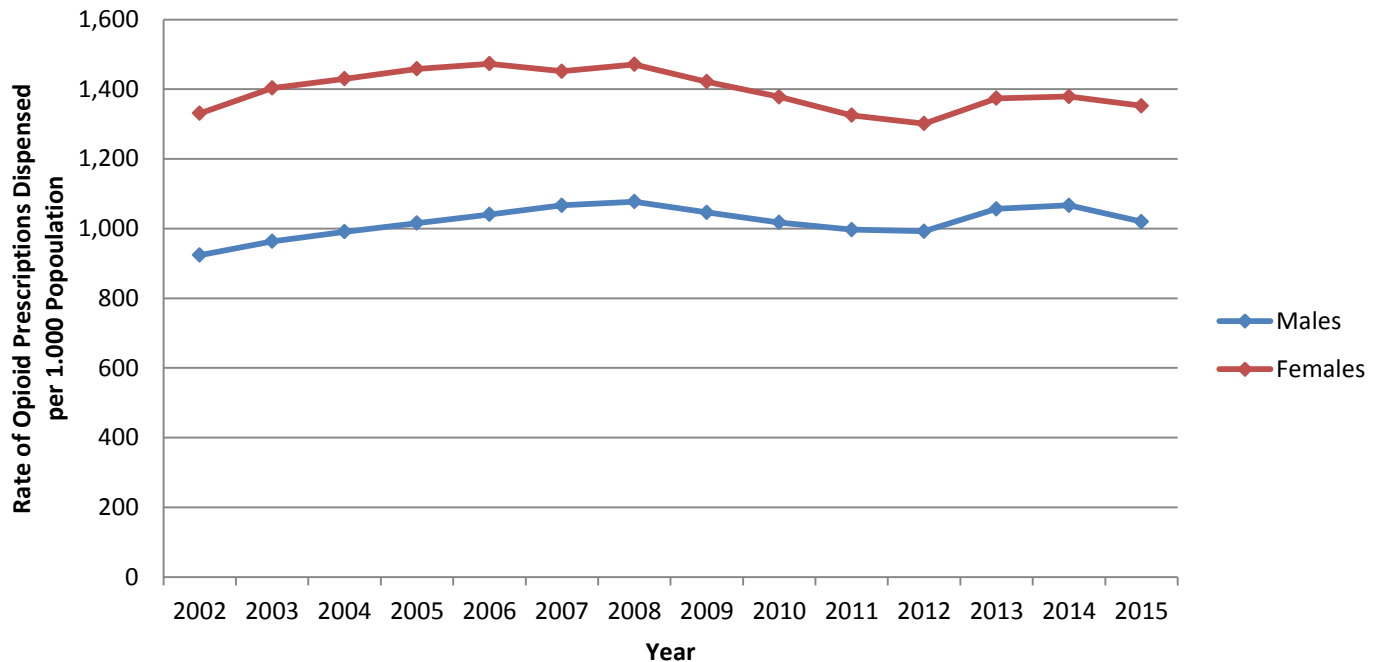


Figure 9 represented those 35-44 years old. Both males and females experienced an increase in prescription opioids dispensed (10.4% and 1.6%, respectively). Again, females received higher rates of prescription opioids than males.

Figure 9. Rate of Opioid Prescriptions Dispensed per 1,000 Population Ages 35-44 by Sex, Utah, 2002-2015.



Those aged 45-54 are represented in Figure 10. Females received significantly higher rates of prescription opioids than males. From 2002 to 2015, males experienced a 28.3% increase in prescription opioids, and females experienced a 27.0% increase.

Figure 10. Rate of Opioid Prescriptions Dispensed per 1,000 Population Ages 45-54 by Sex, Utah, 2002-2015.

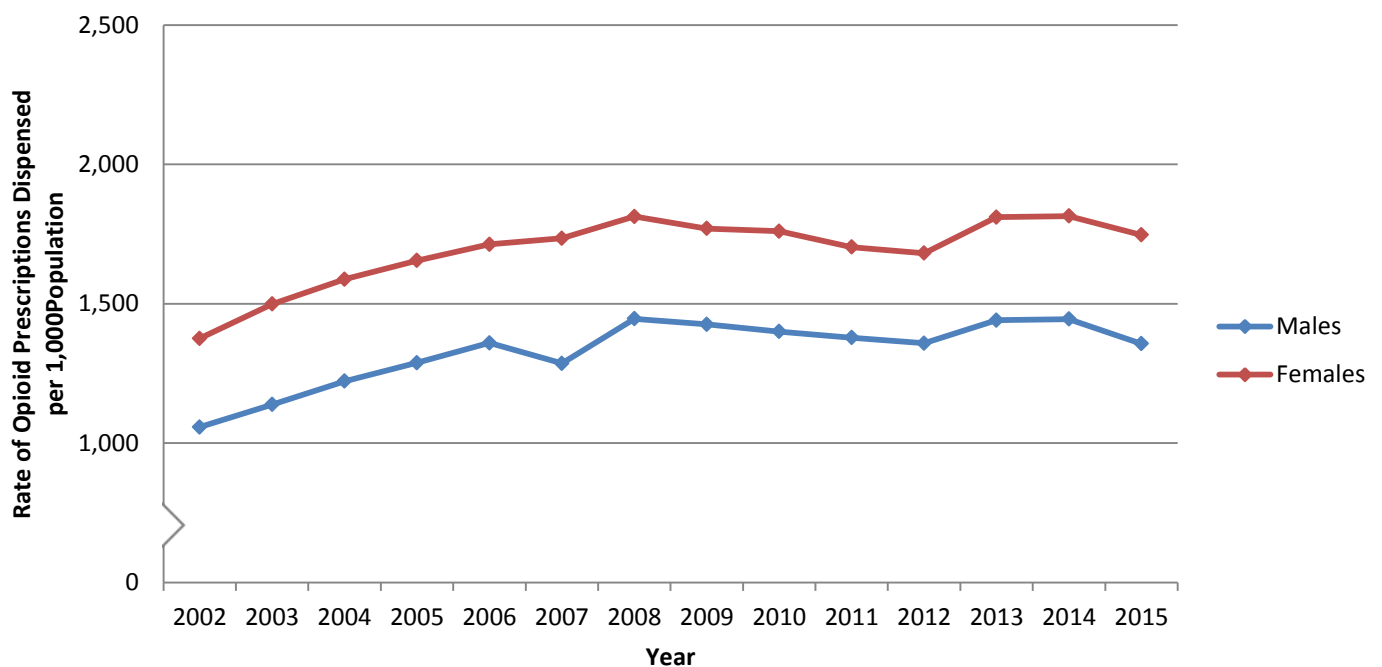
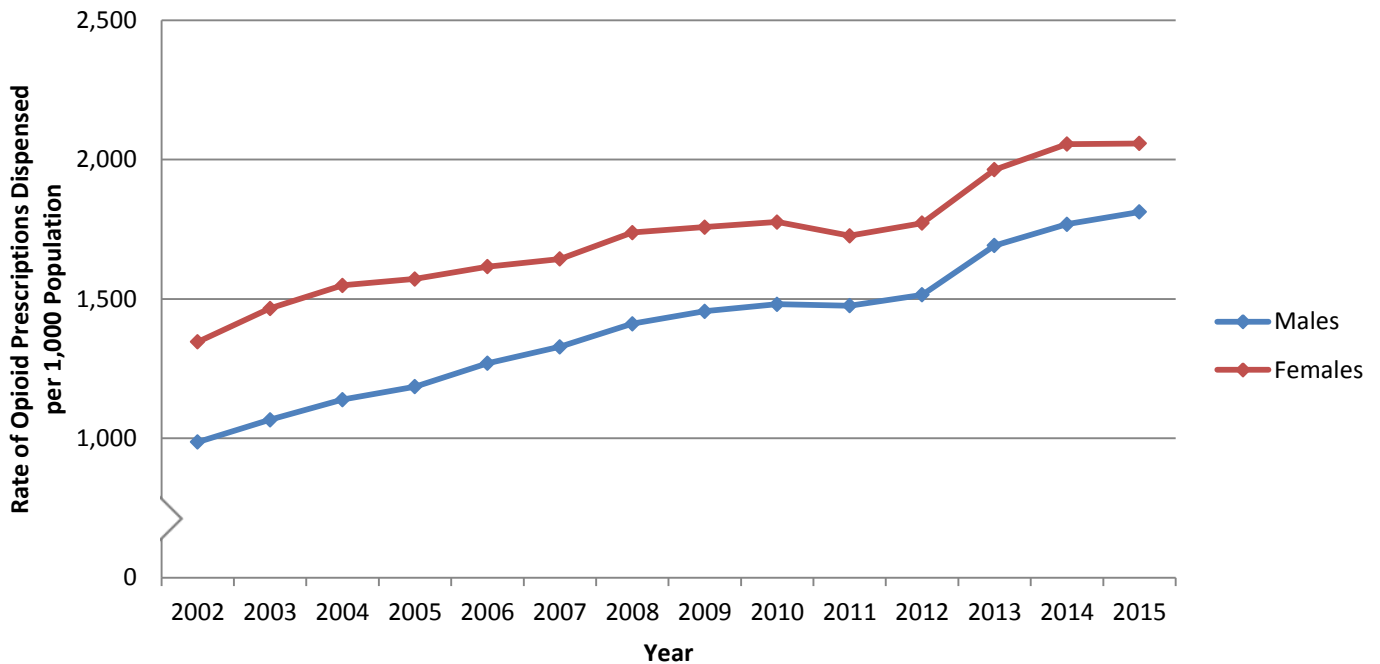


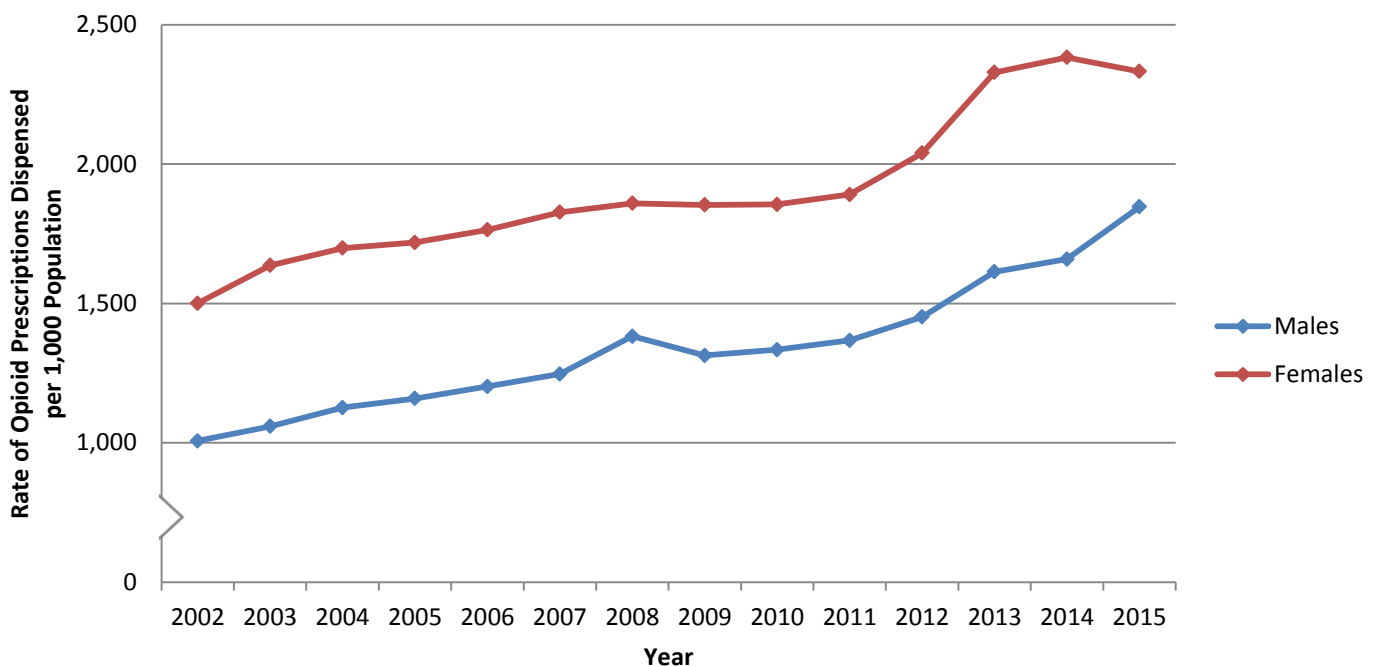
Figure 11 represents those 55-64 years old. Both sexes experienced a significant increase in prescription opioids from 2002 to 2015. Males experienced an 83.7% increase while rates of opioid prescriptions dispensed increased by 52.9% for females.

Figure 11. Rate of Opioid Prescriptions Dispensed per 1,000 Population Ages 55-64 by Sex, Utah, 2002-2015.



Those aged 65 and older are represented in Figure 12. Like those aged 55-64, both sexes experienced significant increases in rates of dispensed prescription opioids. Males experienced an increase of 83.5% from 2002 to 2015 while females experienced a 55.4% increase.

Figure 12. Rate of Opioid Prescriptions Dispensed per 1,000 Population Ages 65 and Older by Sex, Utah, 2002-2015.



### Prescribing Practice by Morphine Milligram Equivalents (MME)

For every year from 2002 to 2015, an annual total morphine milligram equivalents (MME) was calculated and is represented in Figure 13. From 2002 to 2015, there has been a 76.44% increase in total MME dispensed (96,025,233 to 169,423,298).

Figure 13. Total MME of Dispensed Opioid Prescriptions, Utah, 2002-2015.

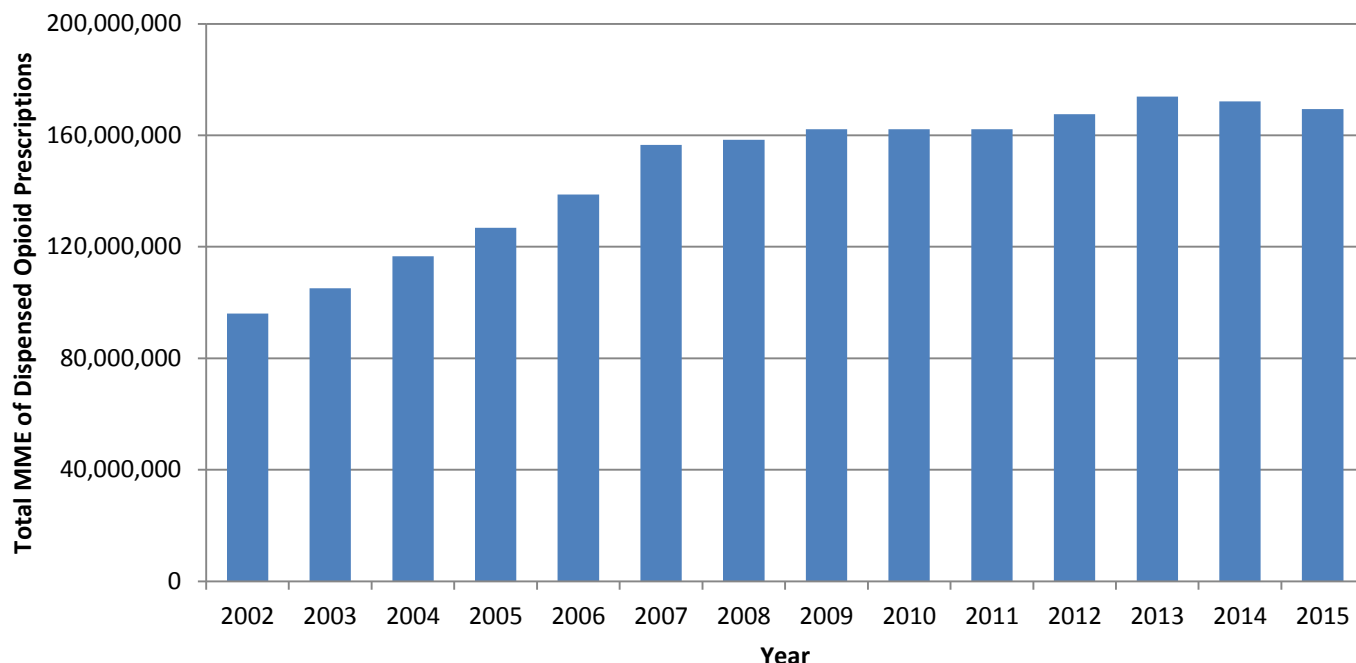
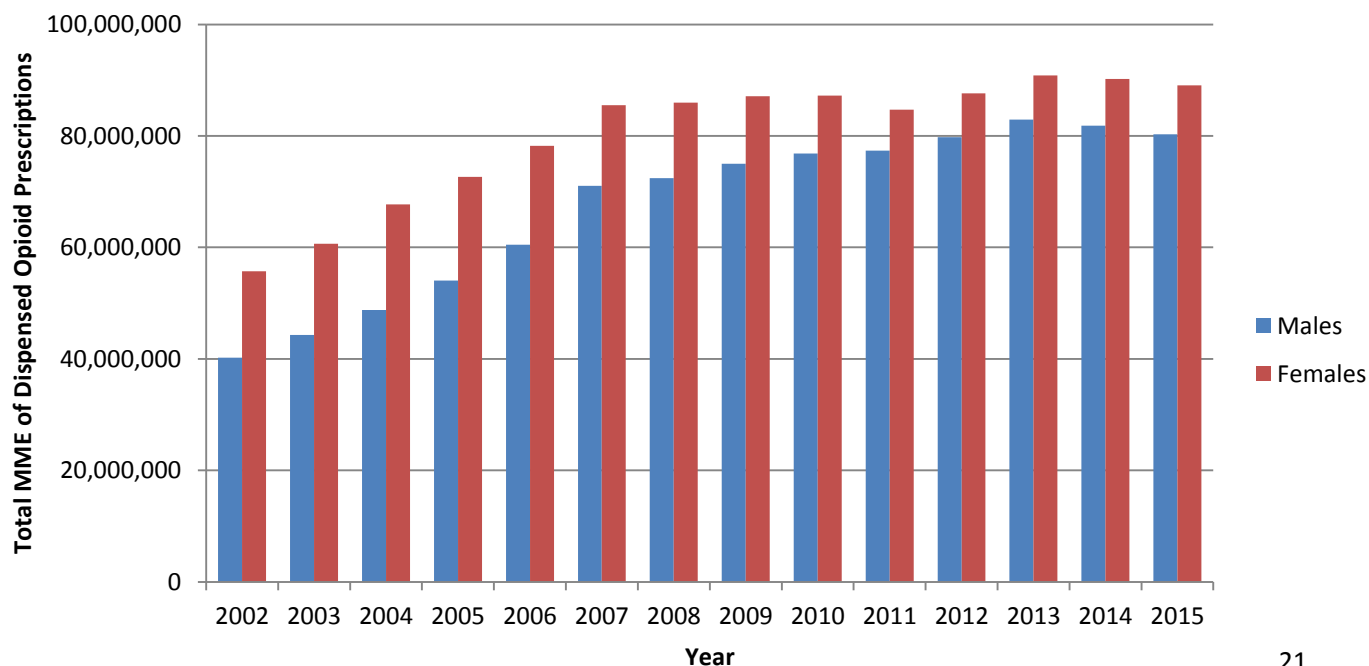


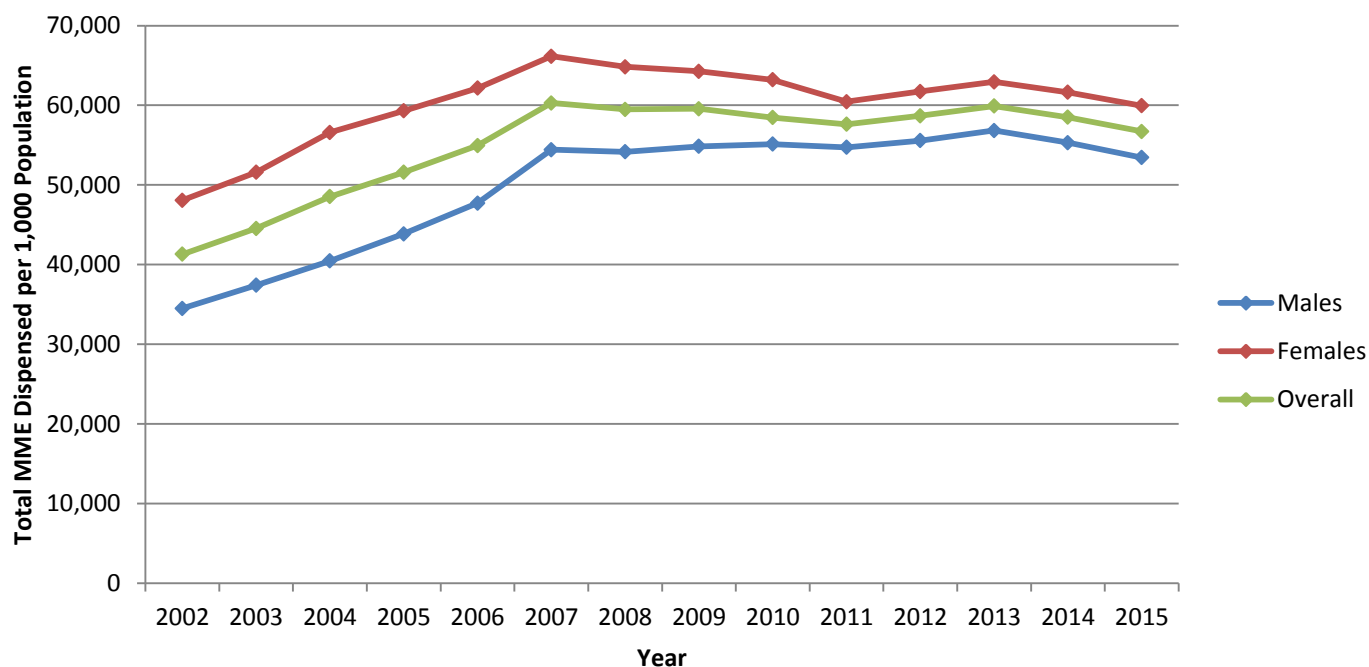
Figure 16 contains total MME of dispensed prescription opioids by sex for 2002 to 2015. Females received more total MME than males from 2002 to 2015. This trend follows that found in Figure 4; females receive higher rates of opioid prescriptions than males, and their total annual MME received are higher as well. Males experienced a 99.69% increase in total MME from 2002 to 2015 while females experienced a 59.85% increase.

Figure 14. Total MME of Dispensed Opioid Prescriptions by Sex, Utah, 2002-2015.



Examination of the results from Figures 13 & 14 relative to the population size changes from 2002 to 2015 is represented in Figure 15. Figure 15 represents the annual rates of MME dispensed per 1,000 population by sex. Females experienced higher rates of MME dispensed per 1,000 population than males from 2002 to 2015. Males experienced a 54.98% increase in dispensed MME per 1,000 population while females experienced a 24.71% increase from 2002 to 2015.

Figure 15. Total MME per 1,000 population by Sex, Utah, 2002-2015.



Opioid prescriptions from the CSD were categorized as high- or low-dose (MME>90 or ≤90, respectively). Figures 16 & 17 represent percent of high-dose opioid prescriptions (opioid prescriptions with a daily MME>90) by age and sex, respectively. Again of note for these figures and daily MME results, the percent of opioid prescriptions dispensed with a daily MME>90 represent individual prescriptions, not individual patients. More information on MME can be found above in the “Daily Morphine Milligram Equivalents (MME)” section.

For the overall population, from 2002 to 2015, the percentage of opioid prescriptions with a daily MME>90 increased 24.2% while the percentage of opioid prescriptions with a daily MME≤90 decreased only 2.7% during the same time period. Those aged 25-34 experienced the greatest increase in prescription opioids with a daily MME>90 with a 69.9% increase from 2002 to 2015. Those under 18 years old experienced the greatest decrease in prescription opioids with a daily MME>90 from 2002 to 2015 with a 63.3% decrease.

The percent of dispensed opioid prescriptions with a daily morphine milligram equivalent (MME) greater than 90 by age group is shown in Figure 16. As represented in Figure 16, Utahns aged 25-64 had the highest percentages of opioid prescriptions with a daily MME>90; although Utahns aged 65 and older had the highest rate of opioid prescriptions dispensed compared to all age groups (Figure 5). Those under 18, 18-24, and 65 and older experienced overall decreases in the percent of high-dose (MME>90) opioid prescriptions dispensed from 2002 to 2015. Those aged 18-24 experienced a steep increase in rates of high-dose opioids dispensed from 2002 to 2008 and then experienced a steady decrease from 2009-2015. Those aged 25-34, 35-44, 45-54, and 55-64 experienced increases in the percent of high-dose opioids from 2002 to 2015.

Figure 16. Percent of Dispensed Opioid Prescriptions with a Daily MME>90 by Age Group, Utah, 2002-2015.

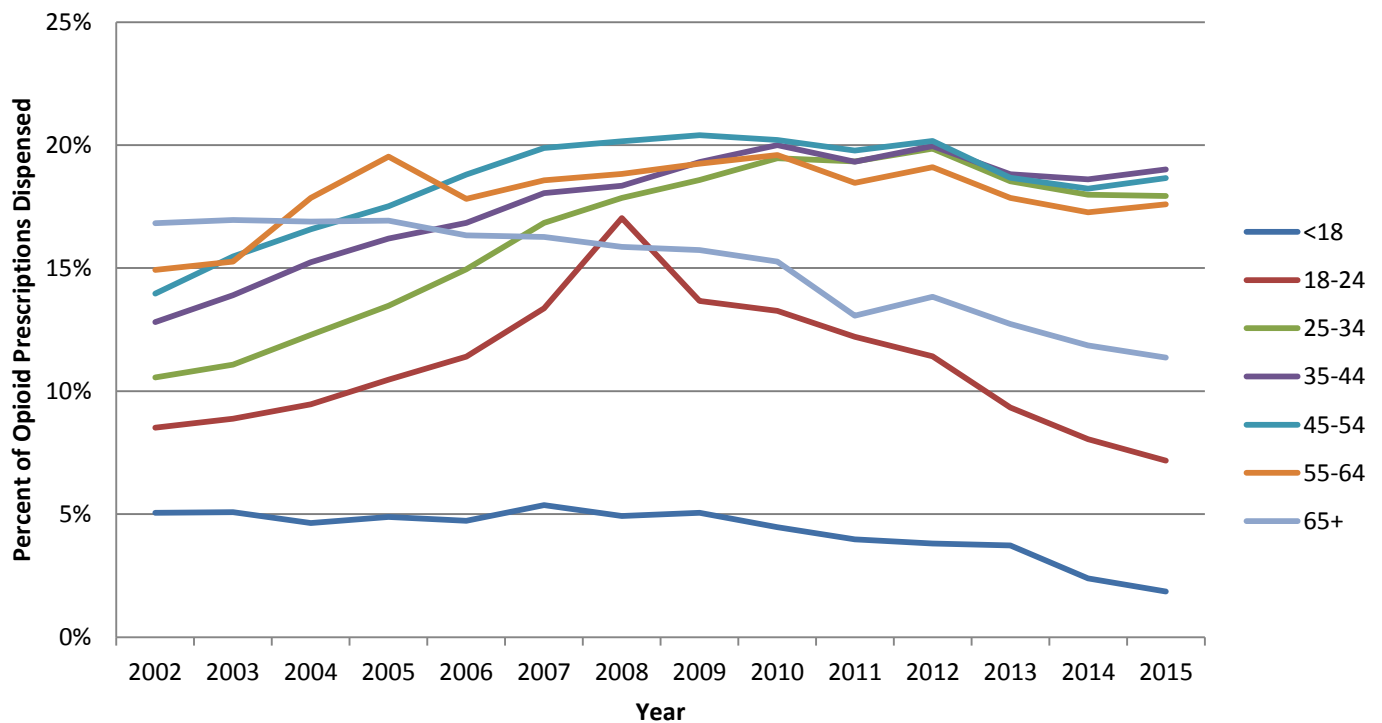
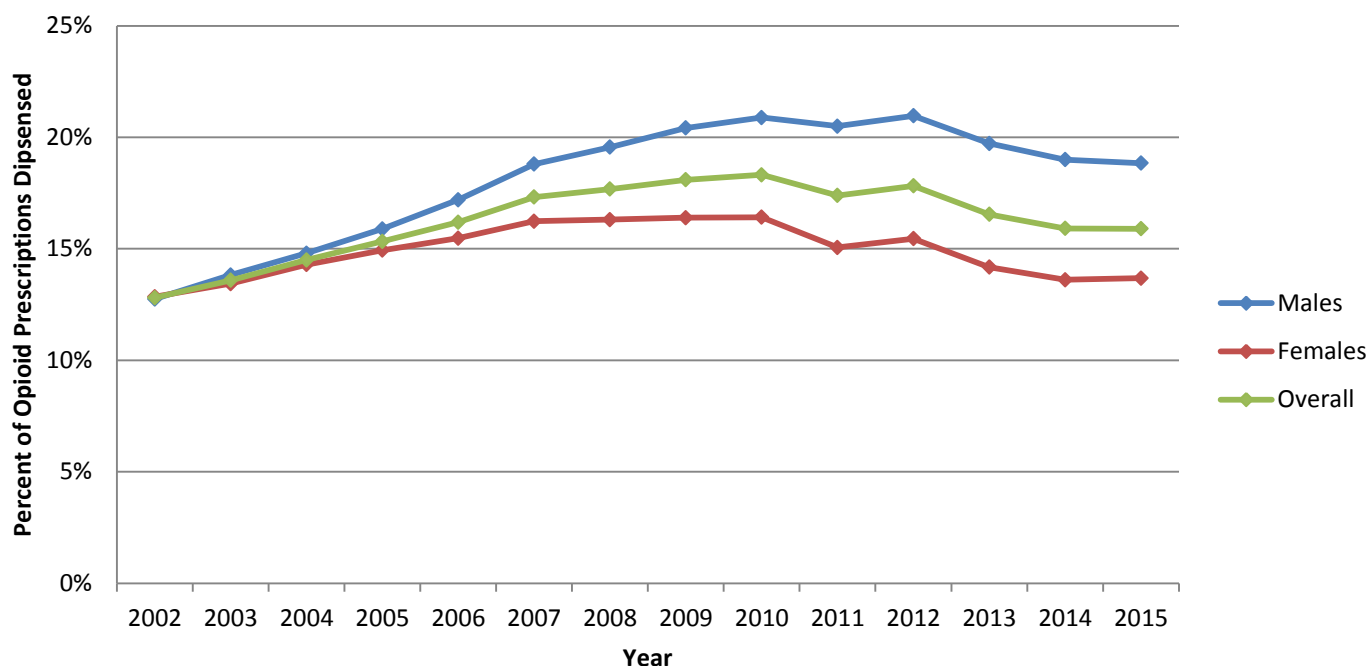




Figure 17 represents the percent of opioid prescriptions dispensed with a daily MME>90 by sex. Males have consistently had a higher rate of high-dose opioid prescriptions compared to females while females received higher rates of opioid prescriptions than males (Figure 4).

Figure 17. Percent of Dispensed Opioid Prescriptions with a Daily MME>90 by Sex, Utah, 2002-2015.



## Recommendations

This analysis allows for limited conclusions but identifies many areas needing further investigation. Areas of note are the significant difference in overall opioid prescription rates between females and males, difference in high-dose (daily MME>90) prescription rates for males compared to females, increase in total MME & MME dispensed per 1,000 population, and overall increase in opioid prescription rates. Efforts aimed at improving prescriber practices should focus on reducing the prescribing of high-dose opioids (daily MME>90) and can be more specifically targeted to prescribers with patients 25-64 years old as those age groups had the highest rates of high-dose opioid prescriptions dispensed.

Future analyses should be stratified by geography (county, local health district, and small area) to determine if these trends are consistent across all of Utah. Identification of opioid prescription “hot-spots” would allow for targeted interventions in those communities. Further analysis is needed to obtain a comprehensive understanding of opioid prescribing practices in Utah.

## Appendix A: Controlled Substances Database Act

The Controlled Substance Database Act (58-37f) authorizes the creation and maintenance of the Controlled Substance Database. For brevity, only of Part 2 of the Act is included below. The complete CSD Act can be found using the references. For the complete CSD Act, see the references.

### **58-37f-203. Submission, collection, and maintenance of data.** Effective 7/1/2015.<sup>16</sup>

- (1) (a) The division shall implement on a statewide basis, including non-resident pharmacies as defined in Section 58-17b-102, the following two options for a pharmacist to submit information:
  - (i) real-time submission of the information required to be submitted under this part to the controlled substance database; and
  - (ii) 24-hour daily or next business day, whichever is later, batch submission of the information required to be submitted under this part to the controlled substance database.
- (b) (i) On and after January 1, 2016, a pharmacist shall comply with either:
  - (A) the submission time requirements established by the division under Subsection (1)(a)(i);
  - or
  - (B) the submission time requirements established by the division under Subsection (1)(a)(ii).
- (ii) Prior to January 1, 2016, a pharmacist may submit information using either option under this Subsection (1).
- (c) The division shall comply with Title 63G, Chapter 6a, Utah Procurement Code.
- (2) (a) The pharmacist in charge of the drug outlet where a controlled substance is dispensed shall submit the data described in this section to the division:
  - (i) in accordance with the requirements of this section;
  - (ii) in accordance with the procedures established by the division; and
  - (iii) in the format established by the division.
- (b) A dispensing medical practitioner licensed under Chapter 17b, Part 8, Dispensing Medical Practitioner and Dispensing Medical Practitioner Clinic Pharmacy, shall comply with the provisions of this section and the dispensing medical practitioner shall assume the duties of the pharmacist under this chapter.
- (3) The pharmacist described in Subsection (2) shall, for each controlled substance dispensed by a pharmacist under the pharmacist's supervision other than those dispensed for an inpatient at a health care facility, submit to the division the following information:
  - (a) the name of the prescribing practitioner;
  - (b) the date of the prescription;
  - (c) the date the prescription was filled;
  - (d) the name of the individual for whom the prescription was written;
  - (e) positive identification of the individual receiving the prescription, including the type of identification and any identifying numbers on the identification;
  - (f) the name of the controlled substance;
  - (g) the quantity of the controlled substance prescribed;
  - (h) the strength of the controlled substance;
  - (i) the quantity of the controlled substance dispensed;
  - (j) the dosage quantity and frequency as prescribed;
  - (k) the name of the drug outlet dispensing the controlled substance; and
  - (l) the name of the pharmacist dispensing the controlled substance.

- (4) An individual whose records are in the database may obtain those records upon submission of a written request to the division.
- (5) (a) A patient whose record is in the database may contact the division in writing to request correction of any of the patient's database information that is incorrect. The patient shall provide a postal address for the division's response.
- (b) The division shall grant or deny the request within 30 days from receipt of the request and shall advise the requesting patient of its decision by mail postmarked within 35 days of receipt of the request.
- (c) If the division denies a request under this Subsection (5) or does not respond within 35 days, the patient may submit an appeal to the Department of Commerce, within 60 days after the postmark date of the patient's letter making a request for a correction under this Subsection (5).
- (6) The division shall make rules, in accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act, to establish submission requirements under this part, including the electronic format in which the information required under this section shall be submitted to the division.
- (7) The division shall ensure that the database system records and maintains for reference:
- (a) the identification of each individual who requests or receives information from the database;
  - (b) the information provided to each individual; and
  - (c) the date and time that the information is requested or provided.

## Appendix B: Legislative Rule R384-203

Legislative Rule R384-203: Prescription Drug Database Access outlines the circumstances by which the Utah Department of Health can access the Prescription Drug Database and, for brevity, subsections R384-203-1 and R384-203-3 are included below.

**R384-203-1. Authority and Purpose.** Effective April 1, 2016.<sup>17</sup>

This rule establishes procedures and application processes pursuant to Title 58-37f-301(2)(d) for Utah Department of Health Executive Director to allow access to the Prescription Drug database by a designated and assigned person to conduct scientific studies regarding the use or abuse of controlled substances, who is not an employee of the Department of Health.

**R384-203-3. Criteria for Application to Access Prescription Drug Database.**

- (1) The study must fit within the responsibilities of the Department for health and welfare.
- (2) De-identified prescriber, patient and pharmacy data will meet the research needs.
- (3) The research facility designee must provide:
  - (a) written assurances that the studies are not conducted for and will not be used for profit or commercial gain;
  - (b) written assurances that the designee shall protect the information as a business associate of the Department of Health; and
  - (c) documentation of an Institutional Review Board approval.

## Appendix C: Controlled Substance Database Legislative History

| Year | Laws of Utah                       | Summary of Legislation  |
|------|------------------------------------|---|
| 1995 | L. 1995, ch. 333 § 3<br>S.B. 42    | Enacted the Controlled Substance Database (CSD) as part of the Controlled Substances Act. The fiscal note for the bill was extensive with three or four FTE's including a Program Manager and CSD Specialists. The funding also included the one-time and ongoing funding necessary to create and maintain the CSD.<br>Available funding of fiscal note was reduced repeatedly on the last day of the Session and only \$50,000 of one time money was ultimately funded, with approval of DOPL, as opposed to the fiscal note amount.<br>DOPL decided to initially pull investigator away from DOPL Investigations and assign him to be the CSD Database Administrator and attempt to get additional funding in future years. |
| 1996 | L. 1996, ch. 247, § 44             | Substituted "58-17a-102" for "58-17-2" in Subsection 58-37-7.5(1)(e); and added "and" at the end of Subsection 58-37-7.5(8)(e). The bracketed word "substance" was inserted in Subsection 58-37-7.5(1)(b) by the compiler for clarity.  |
| 1998 | L. 1998, ch. 13, § 56<br>S.B. 125  | Inserted "substance" in Subsection 58-37-7.5(1)(b).   |
| 1999 | L. 1999, ch. 39 § 1<br>H.B. 43     | Inserted "or receives" in Subsection 58-37-7.5 (6)(b)(i); substituted in Subsection 58-37-7.5 (6)(b)(iii) "the information is requested or provided" for "of each request"; inserted in Subsection 58-37-7.5 (7)(b) "or receiving information without request"; deleted in Subsections 58-37-7.5(8)(c) and (8)(d) "requested" after "information" and made two stylistic changes.   |
| 2002 | L. 2002, ch. 84 § 1<br>S.B. 86     | Substituted "Commerce Service Fund" for "General Fund" in Subsection 58-37-7.5(12)(b); in Subsection 58-37-7.5(14) Substituted in place of Subsection 58-37-7.5(1) Subsection (14)(a) providing that "Funding for this Section shall be appropriated without the use of any resources within the Commerce Service Fund."  |
| 2003 | L. 2003, ch. 33, § 4<br>S.B. 53    | Added the phrase "beginning as a dedicated" in Subsections 58-37-7.5(11)(c) and (12)(b) and substituted "General Fund" for "Commerce Service Fund" in Subsection 58-37-7.5(12)(b).  |
| 2004 | L. 2004, ch. 280, § 54<br>S.B. 114 | Deleted former Subsection 58-37-7.5(1)(e) defining "drug outlet," redesignating existing Subsection 58-37-7.5(1)(f) as (e); added new Subsection 58-37-7.5(1)(f); and substituted "pharmacy" for "drug outlet" in Subsections 58-37-7.5(5)(d) and (15).   |
| 2005 | L. 2005, ch. 248, § 3<br>S.B. 50   | Deleted former Subsections 58-37-7.5(3)(a) and (b), creating the Controlled Substance Database Advisory Committee; redesignated former Subsection 58-37-7.5(3)(c) as Subsection (3), renumbering its subsections accordingly; substituted "Utah State Board of Pharmacy created in Section 58-17b-201" for "committee in Subsection 58-37-7.5(3); and added Subsection 58-37-7.5(8)(c), renumbering subsections accordingly.  |
| 2006 | L. 2006, ch. 46, § 46<br>S.B. 143  | Deleted former Subsection 58-37-7.5(1)(a), which defined "committee," made related redesignations, and in the beginning of Subsection 58-37-7.5(7), deleted "in collaboration with the committee" after "rules."  |

| Year | Laws of Utah  | Summary of Legislation   |
|------|---|--|
| 2007 | L. 2007, ch. 293, § 1<br>H.B. 6<br>Sponsor: Rep Menlove | Added Subsections 58-37-7.5(8)(d)(ii), (8)(d)(iii), and (8)(f)(ii), making related changes.  |
| 2007 | L. 2007, ch. 200, § 1<br>H.B. 137<br>Sponsor: Rep Daw   | <p>Enacted Section 26-1-36 to the Utah Health Code requiring the Department of Health to develop and implement a two-year program in coordination with DOPL, the Utah Labor Commission, and the Utah Attorney General to</p> <ul style="list-style-type: none"> <li>(a) investigate the causes and risk factors for death and nonfatal complications of prescription opiate use in Utah for chronic pain utilizing the CSD created in Section 58-37-7.5</li> <li>(b) study the risks, warning signs, and solutions to the risks associated with prescription opiate medications for chronic pain, including risks and prevention of misuse and diversion of those medications; and</li> <li>(c) provide education to health care providers, patients, insurers, and the general public on the appropriate management of chronic pain, including the effective use of medical treatment and quality care guidelines that are scientifically based and peer reviewed.</li> </ul> <p>The Department of Health was required to report to the Business and Labor Interim Committee no later than the November interim meetings in 2007 and 2008 to report on:</p> <ul style="list-style-type: none"> <li>(a) recommendations on: <ul style="list-style-type: none"> <li>(i) use of the CSD created in Section 58-37-7.5 to identify and prevent: <ul style="list-style-type: none"> <li>(A) misuse of opiates;</li> <li>(B) inappropriate prescribing; and</li> <li>(C) adverse outcomes of prescription opiate medications;</li> </ul> </li> <li>(ii) interventions to prevent the diversion of prescription opiate medications; and</li> <li>(iii) medical treatment and quality care guidelines that are: <ul style="list-style-type: none"> <li>(A) scientifically based; and</li> <li>(B) peer reviewed; and</li> </ul> </li> </ul> </li> <li>(b) <ul style="list-style-type: none"> <li>(i) a measure of results against expectations under the program as of the date of the report; and</li> <li>(ii) an analysis of the application of the program, used of the appropriated funds, and the impact and results of the use of the funds.</li> </ul> </li> </ul> |
| 2008 | L. 2008, ch. 313, § 2<br>H.B. 119<br>Sponsor: Rep. Daw  | Added 58-37-7.5(1)(a), (10)(b), and (16); in the introductory language of 58-37-7.5(3), substituted “board” for “Utah State Board of Pharmacy created in Section 58-17b-2-1”; in the introductory language of 58-37-7.5(8)(f), added “and state and local prosecutors”; and made related redesignations and stylistic changes.   |

| Year | Laws of Utah   | Summary of Legislation  |
|------|--|---|
| 2008 | L. 2008, ch. 313, § 3 & 4<br>H.B. 119<br>Sponsor: Rep. Daw | <u>Enacted pilot program</u> in Section 58-37-7.8 for real-time reporting and later statewide implementation. <u>Pilot program funding included</u> \$650,000 of one-time funding from the General Fund to develop a real time controlled substance database on a statewide basis and \$175,000 of ongoing money to maintain and operate the Controlled Substance Database. It also included the appropriation of the \$300,000 from the General Fund for the Department of Health to assist with tracking and education outreach programs.   |
| 2009 | Appropriations Bill<br>H.B. 3                              | <u>Removed 2008 pilot program funding</u> for real-time reporting and later statewide implementation funding due to significant budget down turn.   |
| 2009 | L. 2009, ch. 41§ 1<br>H.B. 106<br>Sponsor: Rep. Daw        | <p><u>Defined terms.</u><br/>Expanded the purposes for which a practitioner or pharmacist may access information on the controlled substance database:</p> <ul style="list-style-type: none"> <li>• <u>Granted access to the CSD to a mental health therapist</u> under certain circumstances.</li> <li>• <u>Permitted a practitioner to designate up to three employees</u>, subject to approval by the DOPL, who can access the controlled substance database on the practitioner's behalf.</li> <li>• <u>Provided that a practitioner</u>, or an employee of the practitioner, who obtains information from the CSD <u>may include the information from the CSD in a patient's medical chart</u> or file and may provide the information to others in accordance with the requirements of the Health Insurance Portability and Accountability Act of 1996.</li> <li>• <u>Granted rulemaking authority</u> to DOPL.</li> <li>• <u>Permitted DOPL to impose a fee</u> on practitioners who designate an employee to access the controlled substance database, in order to recover the cost of determining whether the employee is a security risk.</li> <li>• <u>Provided</u> that a person who is a licensed practitioner or a mental health therapist shall be denied access to the database when the person is no longer licensed.</li> <li>• <u>Provided</u> that a person who is a relative of a deceased individual is not entitled to access information from the database relating to the deceased individual based on the fact or claim that the person is related to, or subrogated to the rights of, the deceased individual.</li> </ul> <p>Made technical changes.</p> |

| Year | Laws of Utah   | Summary of Legislation   |
|------|--|--|
| 2010 | L. 2010, ch. 287<br>H.B. 28<br>Sponsor: Rep. Daw   | <u>Defined terms; recodified provisions relating to the CSD into a new chapter known as the Controlled Substance Database Act at Title 57, Chapter 37f; modified provisions relating to accessing database information for certain legal proceedings; required an individual, other than a veterinarian, who is licensed to prescribe a controlled substance, who is applying for a license, or who is renewing a license to: (1) register to use the CSD; and (2) take a tutorial and pass a test relating to the CSD and the prescribing of controlled substances; required the division to impose an annual database registration fee on and individual who registers to use the database, to pay the startup and ongoing costs of the division for complying with the requirements of the preceding paragraph; described the penalties that may be imposed by the DOPL on an individual who fails to comply with the requirements described in the preceding paragraph; required DOPL to develop an online tutorial and test relating to the use of the database and the prescribing of a controlled substance; required DOPL to impose a fee on an individual who takes the test described in this bill to pay the costs incurred by DOPL to fulfill the requirements described in this bill; granted rulemaking authority to DOPL; and makes technical changes. The bill also extended the beginning and ending date of the pilot program in Section 58-37f-801 by two years</u> and made related changes. |
| 2010 | L. 2010, ch. 290 § 2<br>renumbered as § 702<br>by L. 2010, ch. 290 § 3<br>H.B. 35<br>Sponsor: Rep. Daw | Section 26-21-26 & Section 58-37f-702 requires that beginning July 1, 2012, when a person who is 12 years of age or older is admitted to a general acute hospital for poisoning by, or overdose of, a prescribed controlled substance, the general acute hospital must report he poisoning or overdose, or other information, to DOPL; requires that, when DOPL receives a report described in the preceding paragraph, DOPL must notify each practitioner that may have written a prescription for the controlled substance of the poisoning or overdose and certain information relating to the poisoning or overdose; requires the division to increase the licensing fee for manufacturing, producing, distributing, dispensing, administering, or conducting research, to pay the startup costs of the division for complying with the requirements of the preceding paragraph; and makes technical changes.<br>Note: \$36,500 of one-time money was not funded in H.B. 3, Bill of Bills.<br>Note: \$30,000 of on-going money was funded in H.B. 3, Bill of Bills.  |
| 2010 | L. 2010, ch. 109 § 3<br>renumbered as § 703<br>by L. 2010, ch. 109 § 5<br>H.B. 36<br>Sponsor: Rep. Daw | Section 58-37f-703 requires that beginning July 1, 2012, a court to report certain information to DOPL when a person is convicted of driving under the influence or of impaired driving, if there is evidence that the person's driving was under the influence of, or impaired by, a prescribed controlled substance; requires that, when DOPL receives a report described in the preceding paragraph, DOPL must notify each practitioner that may have written a prescription for the controlled substance of the conviction and certain information relating to the conviction; requires DOPL to increase the licensing fee for manufacturing, producing, distributing, dispensing, administering, or conducting research, to pay the startup costs of DOPL for complying with the requirements of the preceding paragraph; and makes technical changes.<br>Note: \$8,100 of on-going money was funded in H.G. 3, Bill of Bills.  |



| <b>Year</b> | <b>Laws of Utah</b>  | <b>Summary of Legislation</b>   |
|-------------|--|---|
| 2010        | L. 2010, ch. 391 § 21<br>H.B. 353<br>Sponsor: Rep. Bigelow | Deleted former Subsection 58-37f-601(5) which read: “All funding of the controlled substance database as defined under Section 58-37-7.5 is nonlapsing.”  |
| 2011        | L. 2011, ch. 23 § 2<br>H.B. 15<br>Sponsor: Rep. Daw        | Added Subsection 58-37f-401(3)(a) and redesignated former Subsection (3) as (3)(b). The new Subsection (3)(a) provides that an individual who is not a veterinarian, who obtains a new license to prescribe a controlled substance, shall, within 30 days after the day on which the individual obtains a license to prescribe a controlled substance from the DEA, register with the division to use the CSD; reinstates authority of DOPL to take administrative action, under the Pharmacy Practice Act, for a violation of the Controlled Substance Database Act; and makes technical changes. “Beginning on July 1, 2010” is deleted from the beginning of Subsection (3)(b) and “renew a license” is substituted for “obtain or renew a license.” |
| 2011        | L. 2011, ch. 151 § 3<br>H.B. 84<br>Sponsor: Rep. Clark     | Added Subsection 58-37f-301(2)(j) granting CSD access to the inspector general, or a designee of the inspector general, of the Office of Inspector General; of Medicaid Services, for the purpose of fulfilling the duties described in Title 63J, Chapter 43a, Part 2, Office Duties and Powers.   |
| 2011        | L. 2011, ch. 340 § 33<br>H.B. 163<br>Sponsor: Rep. Dee     | Substituted “Section 58-37f-201” for “this section” in Subsection 58-37f-102(2)(b).   |
| 2011        | L. 2011, ch. 38 § 1<br>H.B. 358<br>Sponsor: Rep. Eliason   | Added “or provider” in Subsection 58-37f-301(2)(c)(ii); Added Subsection 58-37f-301(2)(h) granting CSD access to employees of the Office of Internal Audit and Program Integrity within the Department of Health who are engaged in their specified duty of ensuring Medicaid program integrity under Section 26-18-2.3. Redesignated former Subsection 58-37f-301(2)(h) and (2)(i) as (2)(i) and (2)(j) and made related changes.  |
| 2011        | L. 2011, ch. 226 § 1<br>S.B. 248<br>Sponsor: Sen. Bramble  | Added Subsection 58-37f-301(2)(l) granting CSD access to the following licensed physicians for the purpose of reviewing and offering an opinion on an individual’s request for worker’s compensation benefits under Title 34A, Chapter 2, Workers’ Compensation Act, or Title 34A, Chapter 3, Utah Occupational Disease Act:<br>(i) a member of the medical panel described in Section 34A-2-601; or<br>(ii) a physician offering a second opinion regarding treatment.   |
| 2012        | L. 2012, ch. 370 § 2<br>S.B. 127<br>Sponsor: Sen. Jones    | Added Subsection 58-37f-402(8) providing that completing the required online tutorial and passing the online test described in this section shall count as ½ hour of continuing professional education under Subsection 58-37-6.5(1)(a).  |
| 2012        | L. 2012, ch. 239 § 2<br>S.B. 205<br>Sponsor: Sen. Bramble  | Added Subsection 58-37f-301(2)(g)(iii) that permits a prosecutor to provide information about a criminal defendant to defense counsel, upon request during discovery, for the purpose of establishing a defense in a criminal case.   |

| Year | Laws of Utah  | Summary of Legislation  |
|------|---|---|
| 2013 | L. 2013, ch.262 § 25<br>H.B. 51<br>Sponsor: Rep. Dunnigan     | Added “provided to or” in the introductory language of (2)(d)(i)(B) and in (2)(d)(ii)(B) and added “provided or: in the introductory language of (2)(g).  |
| 2013 | L. 2013, ch. 12 § 1<br>H.B. 106<br>Sponsor: Rep. Wilcox       | Substituted “Title 63A, Chapter 13, Part 2, Office and Powers” for “Title 63J, Chapter 4a, Part 2, Office Duties and Powers” in (2)(l) (reconciled to (2)(m) by LRGC).  |
| 2013 | L. 2013, ch. 130 § 1-3<br>H.B. 270<br>Sponsor: Rep. Menlove   | <p>Added Subsections 58-37f-102(2)(b) “business associate” &amp; (d) “de-identified” to definitions; updated an internal reference in Subsection 58-37f-102(2)(h)(ii); and made related changed. Added Subsection 58-37f-301(2)(d), which allows the CSD access to in accordance with a written agreement entered into with the department, a designee of the director of the DOH, who is not an employee of the DOH, whom the director of the DOH assigns to conduct scientific studies regarding the use or abuse of controlled substances pursuant to an application process established in rule by the DOH, if:</p> <ul style="list-style-type: none"> <li>(i) the designee provides explicit information to the DOH regarding the purpose of the scientific studies;</li> <li>(ii) the scientific studies to be conducted by the designee: <ul style="list-style-type: none"> <li>(A) fit within the responsibilities of the DOH for health and welfare;</li> <li>(B) are reviewed and approved by an Institutional Review Board that is approved for human subject research by the United States Department of Health and Human Services; and</li> <li>(C) are not conducted for profit or commercial gain; and</li> <li>(D) are conducted in a research facility, as defined by division rule, that is associated with a university or college in the state accredited by the Northwest Commission on Colleges and Universities;</li> </ul> </li> <li>(iii) the designee protects the information as a business associate of the DOH; and</li> <li>(iv) the identity of the prescribers, patients, and pharmacies in the database are de-identified, confidential, not disclosed in any manner to the designee or to any individual who is not directly involved in the scientific studies.</li> </ul> <p>Substituted “Subsection 58-37f-301(2)(e), (f), (g) or (4)(c)” for “Subsection 58-37f-301(2) (d), (e), (f), or (4)(c)” in introductory language of Subsection 58-37f-601(3)(e).</p> |
| 2013 | L. 2013, ch.167 § 25<br>S.B. 207<br>Sponsor: Sen. Christensen | Deleted former Subsection 58-37f-801(9), which read: “During the Legislature’s 2009 interim, the division shall report to the Health and Human Services Interim Committee regarding: (a) the implementation, operation, and impact of the pilot program established in this section: (b) the progress made by the division in implementing the pilot program on a statewide basis; (c) the advisability of, and projected costs of implementing the pilot program on a state-wide basis; and (d) the use of the database by prescribing practitioners”; updated internal references; and made related changes.  |

| <b>Year</b> | <b>Laws of Utah</b>   | <b>Summary of Legislation</b>   |
|-------------|---|---|
| 2013        | L. 2013, ch. 450 § 2<br>S.B. 214<br>Sponsor: Rep. Last        | Substituted “Subsection 58-37-6.5(2)” for “Subsection 58-37-6.5(1)(a)” in Subsection 58-37f-402(8).   |
| 2014        | L. 2014, ch. 68 § 1-2<br>S.B. 29<br>Sponsor: Sen. Christensen | Added Subsection 58-37f-301(2)(e) and made related changes. This grants access in accordance with a written agreement entered into with the Department of Commerce and the Department of Commerce, to authorized employees of a managed care organization as defined in 42 C.F.R. Sec. 438 under enumerated conditions. Substituted “(2)(f), (g),, (i)” for (2)(e), (f), (g)” in the introductory language of Subsection 58-37f-601(3)(e).  |
| 2014        | L. 2014, ch. 72 § 17<br>S.B. 55<br>Sponsor: Sen Vickers       | Added Subsection 58-37f-203(1)(b) and made related changes. Specifically, it provides as follows: (b) A dispensing medical practitioner licensed under Chapter 17b, Part 8, Dispensing Medical Practitioner and Dispensing Medical Practitioner Clinic Pharmacy, shall comply with the provisions of this section and the dispensing medical practitioner shall assume the duties of the pharmacist under this chapter.   |
| 2014        | L. 2014, ch. 401 § 1<br>S.B. 178<br>Sponsor: Sen Vickers      | Added Subsection 58-37f-301(2)(i) and (3)(a)(ii) which allows the pharmacist-in-charge to designate up to three licensed pharmacy technicians to have access to the database on behalf of the pharmacist in accordance with the stated requirements.  |
| 2015        | L. 2015, ch. 89 § 3-4<br>H.B. 395<br>Sponsor: Rep Redd        | Appropriated \$46,000 to DOPL for the CSD.<br>Added Subsection 58-37f-203(1).<br>Added “submission requirements under this part, including” in Subsection 58-37f-203(4), updated an internal reference, and made related designation changes.<br>Substituted “one or more regional or national accrediting agencies recognized by the United States Department of Education” for “the Northwest Commission on Colleges and Universities” in Subsection 58-37f-301(2)(d)(ii)(D); substituted “58-37f-203(5)” for “58-37f-203(b) throughout 58-37f-301(2); added Subsection 58-37f-203(2)(p)(ii); and made related changes.<br>Repealed Section 58-37f-801, “Pilot program for real-time reporting for controlled substance database – Statewide implementation.” |

| Year | Laws of Utah  | Summary of Legislation  |
|------|---|---|
| 2015 | L. 2015, ch. 326 § 1<br>S.B. 119<br>Sponsor: Sen. Weiler  | <p>Deleted former Subsection 58-37f-203(2)(m), which read: “other relevant information as required by division rule. Added Subsections 58-37f-203(3) and (4); and made related changes. Subsection (3) lists the information required to be submitted to the CSD by pharmacists described in Subsection (2). Subsection 4 provides that an individual whose records are in the database may obtain those records upon submission of a request to DOPL.</p> <p>Substituted “Subsection 58-37f-203(4)(b)” for “Subsection 58-37f-203(3)(b)” in Subsection 58-37f-301(2)(g)(iii)(B), (2)(h)(iii)(B), and (2)(j)(iii)(B).</p> <p>Rewrote Subsection (2)(k), which formerly read: “federal, state, and local law enforcement authorities, and state and local prosecutors, engaged as a specified duty of their employment in enforcing laws: (i) regulating controlled substances; (ii) investigating insurance fraud, Medicaid fraud, or Medicare fraud; or (iii) providing information about a criminal defendant to defense counsel, upon request during the discovery process, for the purpose of establishing a defense in a criminal case”; added Subsection 58-37f-301(2)(o) and (2) (q)(ii); and made related changes.</p> <p>Deleted “knowingly and intentionally releases” before “or any information obtained” in Subsection 58-37f-601(1)(a); added (1)(b); and made a related change</p> |
| 2015 | L. 2015, ch. 336 § 1<br>S.B. 158<br>Sponsor: Sen. Vickers | <p>Added “and pharmacy intern” in the introductory language of Subsection 58-37f-301(2)(j) and substituted “five employees” for “three employees” in Subsection 58-37f-301(3)(a)(ii).</p>   |
| 2016 | L. 2016, ch. 99<br>H.B. 114<br>Sponsor: Rep. Ward         | <p>Amends the requirement for a general acute hospital to report to the Division of Occupational and Professional Licensing admissions for poisoning or overdose involving a prescribed controlled substance.</p> <p>Requires courts to report to the division certain violations of the Utah Controlled Substances Act.</p> <p>Amends the purposes of the division's controlled substance database.</p> <p>Requires the division to enter into the database information it receives in reports by hospitals concerning persons admitted for poisoning involving a prescribed controlled substance.</p> <p>Requires the division to enter into the database information it receives in reports by courts concerning persons convicted for: driving under the influence of a prescribed controlled substance that renders the person incapable of safely operating a vehicle; driving while impaired, in whole or in part, by a prescribed controlled substance; or certain violations of the Utah Controlled Substances Act.</p>  |

| Year | Laws of Utah  | Summary of Legislation  |
|------|---|---|
| 2016 | L. 2016, ch. 197<br>H.B. 150<br>Sponsor: Rep. Daw         | Amends the Controlled Substance Database Act to allow a person for whom a controlled substance is prescribed to designate a third party who is to be notified when a controlled substance prescription is dispensed to the person.<br>Allows the person to direct the division to discontinue providing the information;<br>Requires that the division advise the person that if the person discontinues the notification, the third party will be advised of the discontinuance.<br>Requires that the division comply with the direction and also notify the third party of the discontinuation.<br>Authorizes the division to make administrative rules to facilitate implementation of this provision. |
| 2016 | L. 2016, ch. 112<br>H.B. 239<br>Sponsor: Rep. McKell      | Defines terms.<br>Requires the Division of Occupational and Professional Licensing within the Department of Commerce to make opioid prescription data information in its controlled substance database accessible to an opioid prescriber or pharmacist via the prescriber's or Pharmacist's electronic data system.<br>Limits access to and use of the information by an electronic data system, to a prescriber, or a pharmacist in accordance with rules established by the division.<br>Requires rulemaking by the division.<br>Requires the division to periodically audit use of the information.<br>Amends Controlled Substance Database Act penalty provisions.                                   |
| 2016 | L. 2016, ch. 275<br>H.B. 375<br>Sponsor: Rep. Christensen | Defines terms.<br>Amends the Controlled Substances Database Act to promote utilization of the controlled substances database to prevent opioid abuse.<br>Requires a dispenser to contact the prescriber if the controlled substance database suggests potential prescription drug abuse.<br>Limits liability for prescribers and dispensers who contribute to and use the database.<br>Makes technical changes.   |
| 2016 | L. 2016, ch. 238<br>S.B. 136<br>Sponsor: Sen. Vickers     | Modifies in Subsection 58-37f-601(3)(e) the reference to Subsection 58-37f-301(2)"(f), (g), (i)" to Subsection 58-37f-301(2)"(h), (k), or (4)(c)."  |

## Appendix D: Data Tables

Table 4. Number and Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) by Age and Sex, 2002-2015.

| Overall                  |  |  | Males                                    |  | Females                                  |  |
|--------------------------|--|--|--|--|--|--|
| Year                     | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) |
| 2002                     | 1,595,781                                | 686.4 (685.3, 687.5)   | 643,258                                  | 551.7 (550.3, 553.0)   | 950,858                                  | 820.5 (818.9, 822.2)   |
| 2003                     | 1,730,509                                | 733.2 (732.1, 734.3)   | 693,794                                  | 585.8 (584.5, 587.2)   | 1,035,169                                | 880.3 (878.6, 882.0)   |
| 2004                     | 1,842,931                                | 767.4 (766.1, 768.5)   | 745,641                                  | 618.9 (617.5, 620.3)   | 1,095,953                                | 915.8 (914.1, 917.5)   |
| 2005                     | 1,941,497                                | 790.0 (788.8, 791.1)   | 794,324                                  | 644.2 (642.8, 645.6)   | 1,145,909                                | 935.6 (933.9, 937.3)   |
| 2006                     | 2,067,158                                | 818.5 (817.4, 819.6)   | 856,939                                  | 676.1 (674.6, 677.5)   | 1,208,706                                | 960.8 (959.1, 962.5)   |
| 2007                     | 2,169,816                                | 835.3 (834.2, 836.4)   | 914,467                                  | 700.7 (699.3, 702.1)   | 1,254,581                                | 970.5 (968.8, 972.2)   |
| 2008                     | 2,285,164                                | 858.1 (857.0, 859.2)   | 963,560                                  | 720.5 (719.0, 721.9)   | 1,320,825                                | 996.4 (994.7, 998.1)   |
| 2009                     | 2,306,619                                | 847.0 (845.9, 848.0)   | 976,580                                  | 713.9 (712.5, 715.3)   | 1,328,575                                | 980.1 (978.5, 981.8)   |
| 2010                     | 2,325,157                                | 838.1 (837.0, 839.2)   | 988,295                                  | 709.1 (707.7, 710.5)   | 1,335,246                                | 967.1 (965.5, 968.8)   |
| 2011                     | 2,325,903                                | 826.2 (825.1, 827.2)   | 998,266                                  | 705.8 (704.5, 707.2)   | 1,326,244                                | 946.6 (945.0, 948.2)   |
| 2012                     | 2,381,186                                | 834.0 (832.9, 835.0)   | 1,022,421                                | 712.3 (711.0, 713.7)   | 1,357,547                                | 956.1 (954.5, 957.7)   |
| 2013                     | 2,604,144                                | 897.1 (896.0, 898.2)   | 1,112,176                                | 762.1 (760.7, 763.6)   | 1,490,461                                | 1032.5 (1030.9, 1034.2)  |
| 2014                     | 2,678,995                                | 910.3 (909.2, 911.4)   | 1,145,609                                | 774.2 (772.8, 775.6)   | 1,531,620                                | 1046.8 (1045.1, 1048.5)  |
| 2015                     | 2,654,608                                | 888.5 (887.5, 889.6)   | 1,143,010                                | 760.9 (759.5, 762.3)   | 1,509,886                                | 1016.5 (1014.9, 1018.1)  |
| <b>Ages &lt;18 Years</b> |  |  |  |  |  |  |
| 2002                     | 56,872                                   | 77.5 (76.9, 78.2)  | 27,797                                   | 73.7 (72.9, 74.6)  | 29,001                                   | 81.3 (80.4, 82.3)  |
| 2003                     | 56,622                                   | 76.5 (75.8, 77.1)  | 27,199                                   | 71.5 (70.6, 72.3)  | 29,359                                   | 81.5 (80.6, 82.5)  |
| 2004                     | 54,863                                   | 73.0 (72.4, 73.6)  | 26,743                                   | 69.3 (68.4, 70.1)  | 28,079                                   | 76.8 (75.9, 77.7)  |
| 2005                     | 54,237                                   | 70.6 (70.0, 71.2)  | 26,635                                   | 67.5 (66.7, 68.3)  | 27,551                                   | 73.8 (72.9, 74.6)  |
| 2006                     | 52,992                                   | 67.1 (66.5, 67.7)  | 26,097                                   | 64.3 (63.5, 65.1)  | 26,697                                   | 69.5 (68.7, 70.4)  |
| 2007                     | 51,817                                   | 63.5 (63.0, 64.1)  | 25,742                                   | 61.4 (60.6, 62.1)  | 25,979                                   | 65.6 (64.8, 66.4)  |
| 2008                     | 54,199                                   | 64.7 (64.2, 65.3)  | 26,829                                   | 62.4 (61.6, 63.1)  | 27,278                                   | 67.0 (66.2, 67.8)  |
| 2009                     | 53,515                                   | 62.4 (61.9, 62.9)  | 26,509                                   | 60.2 (59.4, 60.9)  | 26,865                                   | 64.4 (63.6, 65.2)  |
| 2010                     | 51,761                                   | 59.3 (58.8, 59.8)  | 25,558                                   | 57.0 (56.3, 57.7)  | 26,086                                   | 61.4 (60.7, 62.2)  |
| 2011                     | 49,114                                   | 55.7 (55.2, 56.2)  | 24,368                                   | 53.8 (53.2, 54.5)  | 24,593                                   | 57.3 (56.6, 58.1)  |
| 2012                     | 45,666                                   | 51.4 (51.0, 51.9)  | 22,897                                   | 50.2 (49.6, 50.9)  | 22,675                                   | 52.5 (51.8, 53.2)  |
| 2013                     | 42,324                                   | 47.2 (46.7, 47.6)  | 20,871                                   | 45.3 (44.7, 45.9)  | 21,079                                   | 48.3 (47.6, 48.9)  |
| 2014                     | 46,883                                   | 51.9 (51.4, 52.3)  | 23,181                                   | 49.9 (49.3, 50.6)  | 23,091                                   | 52.5 (51.8, 53.2)  |
| 2015                     | 43,728                                   | 47.6 (47.2, 48.1)  | 18,825                                   | 39.9 (39.4, 40.5)  | 24,270                                   | 54.3 (53.7, 55.0)  |

| Overall                 |  |  | Males                                    |  | Females                                  |  |
|-------------------------|--|--|--|--|--|--|
| Year                    | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) |
| <b>Ages 18-24 Years</b> |  |  |  |  |  |  |
| 2002                    | 164,661                                  | 493.4 (491.0, 495.8)   | 65,702                                   | 393.9 (390.9, 396.9)   | 98,808                                   | 592.0 (588.3, 595.7)   |
| 2003                    | 172,532                                  | 517.5 (515.1, 520.0)   | 68,726                                   | 410.3 (407.2, 413.3)   | 103,636                                  | 624.8 (621.0, 628.6)   |
| 2004                    | 175,155                                  | 532.5 (530.0, 535.0)   | 70,897                                   | 430.6 (427.4, 433.8)   | 104,118                                  | 633.8 (630.0, 637.7)   |
| 2005                    | 175,432                                  | 536.9 (534.4, 539.5)   | 71,921                                   | 437.8 (434.6, 441.0)   | 103,423                                  | 636.6 (632.7, 640.5)   |
| 2006                    | 176,676                                  | 548.0 (545.4, 550.5)   | 73,515                                   | 453.4 (450.1, 456.7)   | 103,038                                  | 642.9 (639.0, 646.8)   |
| 2007                    | 174,632                                  | 545.7 (543.1, 548.3)   | 74,288                                   | 461.8 (458.4, 465.1)   | 100,309                                  | 630.3 (626.4, 634.2)   |
| 2008                    | 146,258                                  | 457.7 (455.3, 460.0)   | 73,789                                   | 461.5 (458.1, 464.8)   | 100,471                                  | 629.2 (625.3, 633.1)   |
| 2009                    | 134,225                                  | 420.3 (418.0, 422.5)   | 68,825                                   | 431.9 (428.7, 435.2)   | 96,649                                   | 603.9 (600.1, 607.7)   |
| 2010                    | 123,477                                  | 387.8 (385.6, 390.0)   | 63,366                                   | 399.0 (395.9, 402.1)   | 90,538                                   | 567.3 (563.6, 571.0)   |
| 2011                    | 117,037                                  | 364.5 (362.5, 366.6)   | 60,195                                   | 374.3 (371.3, 377.3)   | 85,176                                   | 531.5 (528.0, 535.1)   |
| 2012                    | 113,371                                  | 347.4 (345.4, 349.5)   | 57,968                                   | 351.9 (349.1, 354.8)   | 81,741                                   | 505.9 (502.4, 509.4)   |
| 2013                    | 109,126                                  | 328.4 (326.4, 330.3)   | 56,265                                   | 334.4 (331.6, 337.1)   | 80,026                                   | 487.9 (484.5, 491.3)   |
| 2014                    | 101,708                                  | 305.1 (303.2, 306.9)   | 51,257                                   | 303.8 (301.2, 306.5)   | 75,703                                   | 459.7 (456.4, 462.9)   |
| 2015                    | 97,714                                   | 288.7 (286.9, 290.5)   | 47,162                                   | 275.4 (272.9, 277.9)   | 73,092                                   | 437.2 (434.0, 440.3)   |
| <b>Ages 25-34 Years</b> |  |  |  |  |  |  |
| 2002                    | 283,159                                  | 823.9 (820.8, 826.9)   | 108,611                                  | 615.3 (611.6, 619.0)   | 174,211                                  | 1042.0 (1037.2, 1046.9)  |
| 2003                    | 308,250                                  | 869.5 (866.4, 872.6)   | 119,358                                  | 657.7 (654.0, 661.5)   | 188,649                                  | 1090.1 (1085.2, 1095.1)  |
| 2004                    | 333,388                                  | 906.5 (903.4, 909.6)   | 130,222                                  | 689.6 (685.8, 693.3)   | 202,963                                  | 1134.3 (1129.3, 1139.2)  |
| 2005                    | 352,708                                  | 928.3 (925.3, 931.4)   | 140,425                                  | 723.3 (719.6, 727.1)   | 212,101                                  | 1141.5 (1136.7, 1146.4)  |
| 2006                    | 383,250                                  | 968.4 (965.3, 971.5)   | 155,473                                  | 768.7 (764.8, 772.5)   | 227,562                                  | 1176.1 (1171.2, 1180.9)  |
| 2007                    | 413,381                                  | 997.8 (994.8, 1000.8)  | 171,427                                  | 808.6 (804.8, 812.4)   | 241,847                                  | 1195.5 (1190.8, 1200.3)  |
| 2008                    | 434,476                                  | 1011.9 (1008.9, 1014.9)  | 181,523                                  | 825.9 (822.1, 829.7)   | 252,840                                  | 1206.5 (1201.8, 1211.2)  |
| 2009                    | 434,119                                  | 985.2 (982.3, 988.1)   | 180,510                                  | 798.7 (795.0, 802.4)   | 253,284                                  | 1180.0 (1175.4, 1184.6)  |
| 2010                    | 430,080                                  | 963.2 (960.3, 966.1)   | 182,170                                  | 794.7 (791.1, 798.3)   | 247,518                                  | 1139.1 (1134.6, 1143.6)  |
| 2011                    | 421,407                                  | 943.7 (940.8, 946.5)   | 180,746                                  | 792.1 (788.5, 795.8)   | 240,355                                  | 1100.6 (1096.2, 1105.0)  |
| 2012                    | 408,546                                  | 922.9 (920.1, 925.8)   | 176,440                                  | 784.1 (780.4, 787.7)   | 231,842                                  | 1065.3 (1060.9, 1069.6)  |
| 2013                    | 414,937                                  | 940.7 (937.8, 943.6)   | 178,241                                  | 796.7 (793.0, 800.4)   | 236,540                                  | 1088.2 (1083.8, 1092.6)  |
| 2014                    | 399,534                                  | 906.8 (903.9, 909.6)   | 172,101                                  | 770.0 (766.4, 773.6)   | 227,267                                  | 1046.8 (1042.5, 1051.1)  |
| 2015                    | 367,709                                  | 822.0 (819.4, 824.7)   | 156,080                                  | 687.9 (684.4, 691.3)   | 212,243                                  | 962.9 (958.8, 967.0)   |

| Overall                 |  |  | Males                                    |  | Females                                  |  |
|-------------------------|--|--|--|--|--|--|
| Year                    | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) |
| <b>Ages 35-44 Years</b> |  |  |  |  |  |  |
| 2002                    | 334,854                                  | 1125.4 (1121.6, 1129.3)  | 139,331                                  | 923.9 (919.1, 928.8)   | 195,249                                  | 1330.7 (1324.8, 1336.6)  |
| 2003                    | 349,278                                  | 1181.0 (1177.1, 1185.0)  | 144,540                                  | 963.3 (958.3, 968.3)   | 204,452                                  | 1403.4 (1397.3, 1409.4)  |
| 2004                    | 357,742                                  | 1208.5 (1204.5, 1212.5)  | 148,681                                  | 991.0 (985.9, 996.0)   | 208,776                                  | 1430.1 (1424.0, 1436.3)  |
| 2005                    | 369,987                                  | 1234.6 (1230.6, 1238.6)  | 154,427                                  | 1015.7 (1010.6, 1020.8)  | 215,317                                  | 1458.3 (1452.2, 1464.5)  |
| 2006                    | 383,073                                  | 1254.1 (1250.1, 1258.0)  | 161,421                                  | 1040.5 (1035.5, 1045.6)  | 221,450                                  | 1473.1 (1466.9, 1479.2)  |
| 2007                    | 392,196                                  | 1255.9 (1252.0, 1259.8)  | 169,421                                  | 1066.6 (1061.5, 1071.6)  | 222,676                                  | 1451.3 (1445.3, 1457.3)  |
| 2008                    | 403,512                                  | 1271.0 (1267.1, 1274.9)  | 174,046                                  | 1077.0 (1071.9, 1082.1)  | 229,312                                  | 1471.1 (1465.1, 1477.1)  |
| 2009                    | 400,206                                  | 1231.3 (1227.5, 1235.1)  | 173,388                                  | 1046.3 (1041.4, 1051.2)  | 226,504                                  | 1421.8 (1416.0, 1427.7)  |
| 2010                    | 400,646                                  | 1195.2 (1191.5, 1198.9)  | 173,827                                  | 1017.4 (1012.6, 1022.2)  | 226,478                                  | 1377.9 (1372.2, 1383.5)  |
| 2011                    | 401,673                                  | 1158.5 (1154.9, 1162.1)  | 176,294                                  | 997.0 (992.3, 1001.6)  | 225,117                                  | 1325.1 (1319.6, 1330.5)  |
| 2012                    | 411,828                                  | 1144.4 (1140.9, 1147.9)  | 182,105                                  | 992.0 (987.4, 996.5)   | 229,441                                  | 1301.5 (1296.1, 1306.8)  |
| 2013                    | 453,036                                  | 1212.6 (1209.1, 1216.1)  | 201,196                                  | 1056.4 (1051.8, 1061.0)  | 251,603                                  | 1373.7 (1368.3, 1379.1)  |
| 2014                    | 471,475                                  | 1220.3 (1216.8, 1223.8)  | 210,189                                  | 1066.4 (1061.8, 1071.0)  | 260,999                                  | 1379.1 (1373.8, 1384.4)  |
| 2015                    | 464,105                                  | 1183.3 (1179.9, 1186.7)  | 204,010                                  | 1019.6 (1015.2, 1024.0)  | 259,807                                  | 1352.2 (1347.0, 1357.4)  |
| <b>Ages 45-54 Years</b> |  |  |  |  |  |  |
| 2002                    | 315,525                                  | 1216.8 (1212.6, 1221.1)  | 137,061                                  | 1056.9 (1051.3, 1062.5)  | 178,209                                  | 1374.9 (1368.5, 1381.3)  |
| 2003                    | 351,580                                  | 1319.8 (1315.4, 1324.1)  | 151,552                                  | 1138.3 (1132.6, 1144.0)  | 199,717                                  | 1498.8 (1492.2, 1505.3)  |
| 2004                    | 384,761                                  | 1406.1 (1401.6, 1410.5)  | 166,735                                  | 1222.0 (1216.2, 1227.9)  | 217,771                                  | 1587.3 (1580.6, 1593.9)  |
| 2005                    | 415,102                                  | 1472.9 (1468.4, 1477.3)  | 180,882                                  | 1288.1 (1282.2, 1294.0)  | 233,978                                  | 1654.6 (1647.9, 1661.3)  |
| 2006                    | 446,621                                  | 1538.1 (1533.5, 1542.6)  | 196,522                                  | 1359.3 (1353.3, 1365.3)  | 249,742                                  | 1712.8 (1706.1, 1719.6)  |
| 2007                    | 467,674                                  | 1571.8 (1567.3, 1576.3)  | 190,736                                  | 1285.5 (1279.7, 1291.3)  | 258,787                                  | 1734.8 (1728.2, 1741.5)  |
| 2008                    | 494,150                                  | 1630.4 (1625.8, 1634.9)  | 218,437                                  | 1446.0 (1440.0, 1452.1)  | 275,555                                  | 1812.5 (1805.8, 1819.3)  |
| 2009                    | 488,202                                  | 1595.8 (1591.3, 1600.3)  | 217,336                                  | 1425.8 (1419.8, 1431.8)  | 271,611                                  | 1769.4 (1762.8, 1776.1)  |
| 2010                    | 485,491                                  | 1581.3 (1576.8, 1585.7)  | 214,312                                  | 1400.1 (1394.1, 1406.0)  | 270,873                                  | 1759.5 (1752.9, 1766.1)  |
| 2011                    | 472,581                                  | 1542.1 (1537.7, 1546.5)  | 210,840                                  | 1378.3 (1372.4, 1384.2)  | 261,424                                  | 1703.2 (1696.7, 1709.8)  |
| 2012                    | 465,033                                  | 1520.4 (1516.0, 1524.7)  | 207,935                                  | 1358.2 (1352.4, 1364.0)  | 256,803                                  | 1681.0 (1674.5, 1687.5)  |
| 2013                    | 496,892                                  | 1625.9 (1621.4, 1630.4)  | 220,852                                  | 1440.7 (1434.7, 1446.8)  | 275,780                                  | 1810.5 (1803.8, 1817.3)  |
| 2014                    | 499,522                                  | 1629.2 (1624.7, 1633.8)  | 222,398                                  | 1444.6 (1438.6, 1450.6)  | 276,907                                  | 1814.1 (1807.3, 1820.8)  |
| 2015                    | 482,869                                  | 1551.3 (1546.9, 1555.7)  | 212,017                                  | 1356.5 (1350.7, 1362.3)  | 270,665                                  | 1746.6 (1740.0, 1753.2)  |



| Year                    | Overall                                  |  | Males                                    |  | Females                                  |  |
|-------------------------|--|--|--|--|--|--|
|                         | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) | Number of Opioid Prescriptions Dispensed | Rate of Opioid Prescriptions Dispensed per 1,000 Population (95% CI) |
|                         |  |  |  |  |  |  |
| <b>Ages 55-64 Years</b> |  |  |  |  |  |  |
| 2002                    | 186,307                                  | 1171.0 (1165.7, 1176.3)  | 76,839                                   | 986.4 (979.4, 993.3)   | 109,292                                  | 1346.0 (1338.0, 1354.0)  |
| 2003                    | 213,556                                  | 1270.7 (1265.3, 1276.1)  | 87,909                                   | 1066.4 (1059.3, 1073.4)  | 125,505                                  | 1465.7 (1457.6, 1473.8)  |
| 2004                    | 244,561                                  | 1377.2 (1371.7, 1382.7)  | 99,230                                   | 1138.8 (1131.7, 1145.9)  | 140,061                                  | 1548.6 (1540.5, 1556.7)  |
| 2005                    | 270,420                                  | 1431.7 (1426.3, 1437.1)  | 110,012                                  | 1185.4 (1178.4, 1192.4)  | 150,963                                  | 1571.4 (1563.4, 1579.3)  |
| 2006                    | 290,136                                  | 1445.8 (1440.6, 1451.1)  | 125,174                                  | 1268.8 (1261.8, 1275.8)  | 164,834                                  | 1615.7 (1607.9, 1623.5)  |
| 2007                    | 314,478                                  | 1488.8 (1483.6, 1494.0)  | 137,711                                  | 1327.9 (1320.9, 1334.9)  | 176,679                                  | 1643.3 (1635.6, 1650.9)  |
| 2008                    | 348,707                                  | 1577.4 (1572.2, 1582.6)  | 153,169                                  | 1410.5 (1403.4, 1417.5)  | 195,474                                  | 1738.0 (1730.3, 1745.7)  |
| 2009                    | 372,151                                  | 1609.6 (1604.5, 1614.8)  | 165,550                                  | 1455.6 (1448.6, 1462.7)  | 206,457                                  | 1757.5 (1749.9, 1765.1)  |
| 2010                    | 396,240                                  | 1631.0 (1625.9, 1636.1)  | 177,084                                  | 1480.9 (1474.0, 1487.8)  | 219,067                                  | 1775.7 (1768.3, 1783.1)  |
| 2011                    | 407,873                                  | 1603.5 (1598.6, 1608.4)  | 184,776                                  | 1475.9 (1469.2, 1482.7)  | 222,991                                  | 1726.4 (1719.2, 1733.5)  |
| 2012                    | 429,789                                  | 1645.5 (1640.6, 1650.5)  | 194,862                                  | 1514.4 (1507.7, 1521.2)  | 234,833                                  | 1772.1 (1765.0, 1779.3)  |
| 2013                    | 493,112                                  | 1830.0 (1824.9, 1835.1)  | 224,279                                  | 1691.7 (1684.7, 1698.7)  | 268,737                                  | 1963.3 (1955.9, 1970.8)  |
| 2014                    | 529,489                                  | 1914.5 (1909.3, 1919.6)  | 240,342                                  | 1767.6 (1760.5, 1774.6)  | 288,993                                  | 2055.5 (2048.0, 2063.0)  |
| 2015                    | 543,936                                  | 1937.3 (1932.2, 1942.4)  | 250,113                                  | 1811.8 (1804.7, 1818.9)  | 293,680                                  | 2057.6 (2050.2, 2065.1)  |
| <b>Ages 65+ Years</b>   |  |  |  |  |  |  |
| 2002                    | 254,270                                  | 1284.6 (1279.6, 1289.6)  | 87,879                                   | 1006.6 (999.9, 1013.2)   | 165,994                                  | 1500.4 (1493.2, 1507.6)  |
| 2003                    | 278,628                                  | 1382.3 (1377.2, 1387.5)  | 94,490                                   | 1059.1 (1052.3, 1065.8)  | 183,807                                  | 1636.1 (1628.6, 1643.6)  |
| 2004                    | 297,582                                  | 1445.6 (1440.4, 1450.8)  | 103,110                                  | 1126.2 (1119.3, 1133.1)  | 194,150                                  | 1698.6 (1691.0, 1706.2)  |
| 2005                    | 312,858                                  | 1470.4 (1465.2, 1475.5)  | 110,000                                  | 1158.8 (1152.0, 1165.7)  | 202,540                                  | 1718.6 (1711.1, 1726.1)  |
| 2006                    | 334,326                                  | 1513.7 (1508.6, 1518.8)  | 118,710                                  | 1201.7 (1194.9, 1208.6)  | 215,327                                  | 1763.8 (1756.3, 1771.2)  |
| 2007                    | 355,565                                  | 1567.1 (1562.0, 1572.3)  | 127,114                                  | 1246.7 (1239.9, 1253.6)  | 228,259                                  | 1827.1 (1819.6, 1834.5)  |
| 2008                    | 375,753                                  | 1597.7 (1592.5, 1602.8)  | 146,751                                  | 1382.0 (1375.0, 1389.1)  | 239,860                                  | 1859.3 (1851.9, 1866.7)  |
| 2009                    | 391,794                                  | 1609.7 (1604.7, 1614.8)  | 144,437                                  | 1313.0 (1306.2, 1319.8)  | 247,181                                  | 1853.1 (1845.8, 1860.4)  |
| 2010                    | 406,852                                  | 1619.5 (1614.5, 1624.5)  | 151,965                                  | 1333.8 (1327.1, 1340.5)  | 254,657                                  | 1854.9 (1847.7, 1862.1)  |
| 2011                    | 427,769                                  | 1652.9 (1647.9, 1657.8)  | 161,042                                  | 1367.1 (1360.5, 1373.8)  | 266,554                                  | 1890.4 (1883.2, 1897.5)  |
| 2012                    | 480,497                                  | 1770.9 (1765.9, 1775.9)  | 180,204                                  | 1451.8 (1445.1, 1458.5)  | 300,175                                  | 2039.3 (2032.0, 2046.6)  |
| 2013                    | 567,326                                  | 2000.7 (1995.5, 2005.9)  | 210,380                                  | 1613.3 (1606.4, 1620.2)  | 356,647                                  | 2328.5 (2320.9, 2336.1)  |
| 2014                    | 605,015                                  | 2049.1 (2043.9, 2054.3)  | 226,138                                  | 1658.5 (1651.6, 1665.3)  | 378,637                                  | 2382.8 (2375.2, 2390.4)  |
| 2015                    | 631,936                                  | 2108.5 (2103.3, 2113.7)  | 255,607                                  | 1846.7 (1839.6, 1853.9)  | 376,129                                  | 2331.9 (2324.5, 2339.4)  |

Table 5. Total MME of Dispensed Opioid Prescriptions by Sex, Utah, 2002-2015.

| Year                    | Overall        | Males         | Females       |
|-------------------------|----------------|---------------|---------------|
| 2002                    | 96,025,233.06  | 40,205,273.97 | 55,707,749.40 |
| 2003                    | 105,117,146.73 | 44,304,882.89 | 60,653,525.66 |
| 2004                    | 116,573,914.18 | 48,744,249.52 | 67,717,905.91 |
| 2005                    | 126,789,296.35 | 54,060,728.67 | 72,626,935.36 |
| 2006                    | 138,780,605.13 | 60,472,062.30 | 78,202,961.39 |
| 2007                    | 156,597,632.26 | 71,019,836.33 | 85,511,825.50 |
| 2008                    | 158,430,399.25 | 72,433,517.17 | 85,946,984.70 |
| 2009                    | 162,195,747.46 | 75,007,387.01 | 87,103,251.58 |
| 2010                    | 162,177,015.26 | 76,815,406.98 | 87,252,308.78 |
| 2011                    | 162,177,015.26 | 77,383,340.62 | 84,692,656.20 |
| 2012                    | 167,515,571.76 | 79,765,201.94 | 87,655,304.71 |
| 2013                    | 173,896,450.28 | 82,936,243.47 | 90,856,653.37 |
| 2014                    | 172,136,377.55 | 81,846,851.21 | 90,188,739.13 |
| 2015                    | 169,423,298.14 | 80,284,163.86 | 89,050,680.14 |
| % Change from 2002-2015 | 76.44%         | 99.69%        | 59.85%        |

Table 6. Total MME Dispensed per 1,000 Population by Sex, Utah, 2002-2015.

| Year                    | Overall   | Males     | Females   |
|-------------------------|-----------|-----------|-----------|
| 2002                    | 41,304.46 | 34,482.49 | 48,071.45 |
| 2003                    | 44,538.58 | 37,411.13 | 51,581.96 |
| 2004                    | 48,540.51 | 40,457.33 | 56,584.89 |
| 2005                    | 51,588.20 | 43,845.66 | 59,299.83 |
| 2006                    | 54,951.58 | 47,709.11 | 62,164.96 |
| 2007                    | 60,282.12 | 54,418.24 | 66,151.22 |
| 2008                    | 59,492.56 | 54,160.03 | 64,834.77 |
| 2009                    | 59,555.88 | 54,833.49 | 64,258.70 |
| 2010                    | 58,455.94 | 55,114.71 | 63,198.42 |
| 2011                    | 57,605.10 | 54,715.21 | 60,450.24 |
| 2012                    | 58,670.47 | 55,573.42 | 61,734.22 |
| 2013                    | 59,906.72 | 56,833.60 | 62,941.70 |
| 2014                    | 58,492.05 | 55,311.27 | 61,640.03 |
| 2015                    | 56,708.30 | 53,442.33 | 59,951.85 |
| % Change from 2002-2015 | 37.29%    | 54.98%    | 24.71%    |

Table 7. Number and Percent of Opioid Prescriptions Dispensed with a Daily Morphine Milligram Equivalent (MME) >90 by Age, 2002-2015.

| Year                     | Overall  |  |   |
|--------------------------|--|--|---|
|                          | Number of Opioid Prescriptions Dispensed with a daily MME>90 | Number of Opioid Prescriptions Dispensed | % of Opioid Prescriptions Dispensed with a daily MME>90 |
| <b>Ages &lt;18 Years</b> |  |  |   |
| 2002                     | 2,873  | 56,872                                   | 5.05%   |
| 2003                     | 2,875  | 56,622                                   | 5.08%   |
| 2004                     | 2,546  | 54,863                                   | 4.64%   |
| 2005                     | 2,648  | 54,237                                   | 4.88%   |
| 2006                     | 2,507  | 52,992                                   | 4.73%   |
| 2007                     | 2,780  | 51,817                                   | 5.37%   |
| 2008                     | 2,667  | 54,199                                   | 4.92%   |
| 2009                     | 2,707  | 53,515                                   | 5.06%   |
| 2010                     | 2,316  | 51,761                                   | 4.47%   |
| 2011                     | 1,952  | 49,114                                   | 3.97%   |
| 2012                     | 1,738  | 45,666                                   | 3.81%   |
| 2013                     | 1,577  | 42,324                                   | 3.73%   |
| 2014                     | 1,117  | 46,883                                   | 2.38%   |
| 2015                     | 810  | 43,728                                   | 1.85%   |
| <b>Ages 18-24 Years</b>  |  |  |   |
| 2002                     | 14,009   | 164,661                                  | 8.51%   |
| 2003                     | 15,313   | 172,532                                  | 8.88%   |
| 2004                     | 16,580   | 175,155                                  | 9.47%   |
| 2005                     | 18,356   | 175,432                                  | 10.46%  |
| 2006                     | 20,133   | 176,676                                  | 11.40%  |
| 2007                     | 23,330   | 174,632                                  | 13.36%  |
| 2008                     | 24,920   | 146,258                                  | 17.04%  |
| 2009                     | 18,348   | 134,225                                  | 13.67%  |
| 2010                     | 16,367   | 123,477                                  | 13.26%  |
| 2011                     | 14,286   | 117,037                                  | 12.21%  |
| 2012                     | 12,939   | 113,371                                  | 11.41%  |
| 2013                     | 10,183   | 109,126                                  | 9.33%   |
| 2014                     | 8,184  | 101,708                                  | 8.05%   |
| 2015                     | 7,011  | 97,714                                   | 7.18%   |
| <b>Ages 25-34 Years</b>  |  |  |   |
| 2002                     | 29,876   | 283,159                                  | 10.55%  |
| 2003                     | 34,146   | 308,250                                  | 11.08%  |
| 2004                     | 40,973   | 333,388                                  | 12.29%  |
| 2005                     | 47,496   | 352,708                                  | 13.47%  |
| 2006                     | 57,328   | 383,250                                  | 14.96%  |
| 2007                     | 69,603   | 413,381                                  | 16.84%  |
| 2008                     | 77,555   | 434,476                                  | 17.85%  |
| 2009                     | 80,652   | 434,119                                  | 18.58%  |
| 2010                     | 83,719   | 430,080                                  | 19.47%  |
| 2011                     | 81,464   | 421,407                                  | 19.33%  |
| 2012                     | 81,102   | 408,546                                  | 19.85%  |
| 2013                     | 76,873   | 414,937                                  | 18.53%  |
| 2014                     | 71,864   | 399,534                                  | 17.99%  |
| 2015                     | 65,913   | 367,709                                  | 17.93%  |

| Overall                 |  |  |   |
|-------------------------|--|--|---|
| Year                    | Number of Opioid Prescriptions Dispensed with a daily MME>90 | Number of Opioid Prescriptions Dispensed | % of Opioid Prescriptions Dispensed with a daily MME>90 |
| <b>Ages 35-44 Years</b> |  |  |   |
| 2002                    | 42,884   | 334,854                                  | 12.81%  |
| 2003                    | 48,552   | 349,278                                  | 13.90%  |
| 2004                    | 54,530   | 357,742                                  | 15.24%  |
| 2005                    | 59,961   | 369,987                                  | 16.21%  |
| 2006                    | 64,484   | 383,073                                  | 16.83%  |
| 2007                    | 70,803   | 392,196                                  | 18.05%  |
| 2008                    | 74,031   | 403,512                                  | 18.35%  |
| 2009                    | 77,270   | 400,206                                  | 19.31%  |
| 2010                    | 80,100   | 400,646                                  | 19.99%  |
| 2011                    | 77,600   | 401,673                                  | 19.32%  |
| 2012                    | 82,189   | 411,828                                  | 19.96%  |
| 2013                    | 85,233   | 453,036                                  | 18.81%  |
| 2014                    | 87,723   | 471,475                                  | 18.61%  |
| 2015                    | 88,228   | 464,105                                  | 19.01%  |
| <b>Ages 45-54 Years</b> |  |  |   |
| 2002                    | 44,040   | 315,525                                  | 13.96%  |
| 2003                    | 54,397   | 351,580                                  | 15.47%  |
| 2004                    | 63,787   | 384,761                                  | 16.58%  |
| 2005                    | 72,688   | 415,102                                  | 17.51%  |
| 2006                    | 83,965   | 446,621                                  | 18.80%  |
| 2007                    | 92,996   | 467,674                                  | 19.88%  |
| 2008                    | 99,584   | 494,150                                  | 20.15%  |
| 2009                    | 99,573   | 488,202                                  | 20.40%  |
| 2010                    | 98,114   | 485,491                                  | 20.21%  |
| 2011                    | 93,490   | 472,581                                  | 19.78%  |
| 2012                    | 93,762   | 465,033                                  | 20.16%  |
| 2013                    | 92,768   | 496,892                                  | 18.67%  |
| 2014                    | 91,082   | 499,522                                  | 18.23%  |
| 2015                    | 90,097   | 482,869                                  | 18.66%  |
| <b>Ages 55-64 Years</b> |  |  |   |
| 2002                    | 27,813   | 186,307                                  | 14.93%  |
| 2003                    | 32,585   | 213,556                                  | 15.26%  |
| 2004                    | 43,649   | 244,561                                  | 17.85%  |
| 2005                    | 52,798   | 270,420                                  | 19.52%  |
| 2006                    | 51,694   | 290,136                                  | 17.82%  |
| 2007                    | 58,400   | 314,478                                  | 18.57%  |
| 2008                    | 65,655   | 348,707                                  | 18.83%  |
| 2009                    | 71,609   | 372,151                                  | 19.24%  |
| 2010                    | 77,664   | 396,240                                  | 19.60%  |
| 2011                    | 75,323   | 407,873                                  | 18.47%  |
| 2012                    | 82,078   | 429,789                                  | 19.10%  |
| 2013                    | 88,008   | 493,112                                  | 17.85%  |
| 2014                    | 91,397   | 529,489                                  | 17.26%  |
| 2015                    | 95,709   | 543,936                                  | 17.60%  |

| Overall        |  |  |   |
|----------------|--|--|---|
| Year           | Number of Opioid Prescriptions Dispensed with a daily MME>90 | Number of Opioid Prescriptions Dispensed | % of Opioid Prescriptions Dispensed with a daily MME>90 |
| Ages 65+ Years |  |  |   |
| 2002           | 42,790   | 254,270                                  | 16.83%  |
| 2003           | 47,225   | 278,628                                  | 16.95%  |
| 2004           | 50,274   | 297,582                                  | 16.89%  |
| 2005           | 52,962   | 312,858                                  | 16.93%  |
| 2006           | 54,578   | 334,326                                  | 16.32%  |
| 2007           | 57,817   | 355,565                                  | 16.26%  |
| 2008           | 59,620   | 375,753                                  | 15.87%  |
| 2009           | 61,655   | 391,794                                  | 15.74%  |
| 2010           | 62,093   | 406,852                                  | 15.26%  |
| 2011           | 55,878   | 427,769                                  | 13.06%  |
| 2012           | 66,462   | 480,497                                  | 13.83%  |
| 2013           | 72,234   | 567,326                                  | 12.73%  |
| 2014           | 71,736   | 605,015                                  | 11.86%  |
| 2015           | 71,762   | 631,936                                  | 11.36%  |

Table 8. Number and Percent of Opioid Prescriptions Dispensed with a Daily Morphine Milligram Equivalent (MME) >90 by Sex, 2002-2015.

| Overall |  |  |   |
|---------|--|--|---|
| Year    | Number of Opioid Prescriptions Dispensed with a daily MME>90 | Number of Opioid Prescriptions Dispensed | % of Opioid Prescriptions Dispensed with a daily MME>90 |
| 2002    | 204,313  | 1,595,781                                | 12.80%  |
| 2003    | 235,097  | 1,730,509                                | 13.59%  |
| 2004    | 267,181  | 1,842,931                                | 14.50%  |
| 2005    | 297,613  | 1,941,497                                | 15.33%  |
| 2006    | 334,698  | 2,067,158                                | 16.19%  |
| 2007    | 375,743  | 2,169,816                                | 17.32%  |
| 2008    | 404,042  | 2,285,164                                | 17.68%  |
| 2009    | 417,418  | 2,306,619                                | 18.10%  |
| 2010    | 425,811  | 2,325,157                                | 18.31%  |
| 2011    | 404,504  | 2,325,903                                | 17.39%  |
| 2012    | 424,396  | 2,381,186                                | 17.39%  |
| 2013    | 430,868  | 2,604,144                                | 17.82%  |
| 2014    | 426,314  | 2,678,995                                | 15.91%  |
| 2015    | 422,054  | 2,654,608                                | 15.90%  |
| Males   |  |  |   |
| 2002    | 82,012   | 643,258                                  | 12.75%  |
| 2003    | 95,892   | 693,794                                  | 13.82%  |
| 2004    | 110,370  | 745,641                                  | 14.80%  |
| 2005    | 126,229  | 794,324                                  | 15.89%  |
| 2006    | 147,386  | 856,939                                  | 17.20%  |
| 2007    | 171,905  | 914,467                                  | 18.80%  |
| 2008    | 188,473  | 963,560                                  | 19.56%  |
| 2009    | 199,393  | 976,580                                  | 20.42%  |
| 2010    | 206,379  | 988,295                                  | 20.88%  |
| 2011    | 204,600  | 998,266                                  | 20.50%  |
| 2012    | 214,320  | 1,022,421                                | 20.50%  |
| 2013    | 219,349  | 1,112,176                                | 20.96%  |
| 2014    | 217,662  | 1,145,609                                | 19.00%  |
| 2015    | 215,315  | 1,143,010                                | 18.84%  |
| Females |  |  |   |
| 2002    | 122,158  | 950,858                                  | 12.85%  |
| 2003    | 139,063  | 1,035,169                                | 13.43%  |
| 2004    | 156,645  | 1,095,953                                | 14.29%  |
| 2005    | 171,165  | 1,145,909                                | 14.94%  |
| 2006    | 187,044  | 1,208,706                                | 15.47%  |
| 2007    | 203,692  | 1,254,581                                | 16.24%  |
| 2008    | 215,423  | 1,320,825                                | 16.31%  |
| 2009    | 217,838  | 1,328,575                                | 16.40%  |
| 2010    | 219,182  | 1,335,246                                | 16.42%  |
| 2011    | 199,675  | 1,326,244                                | 15.06%  |
| 2012    | 209,831  | 1,357,547                                | 15.06%  |
| 2013    | 211,276  | 1,490,461                                | 15.46%  |
| 2014    | 208,403  | 1,531,620                                | 13.61%  |
| 2015    | 206,549  | 1,509,886                                | 13.68%  |

## Appendix E: Technical Notes

### Inclusion Criteria for Patients

Patients in the CSD were only included in the analyses for this report if they were a Utah resident. This determination was made using patient zip code. No other exclusion criteria were applied to patients. Palliative care, cancer, and veterinarian prescriptions were included for this report to provide a comprehensive picture of the amount of prescription opioids dispensed in Utah. In the future, analyses will exclude cancer, veterinarian, and palliative care prescriptions. Prescriptions were de-duplicated using a very limited method for this analysis; if there were exact duplicates in the data, the duplicates were excluded. Future reports will be created using much cleaner datasets after linkage and comprehensive data cleaning and de-duplication has been performed; these cleaning steps could not be completed within the timeframe for this report.

### Inclusion of Criteria for Prescription Opioids

The CDC published a file titled “CDC Morphine Milligram Equivalent Table June 2015.xlsx” that was used to determine what prescriptions were opioids. This table is updated annually, and the most recent update was June 2015. The CDC table contains tabs titled “Opioids,” “Benzodiazepines,” “Muscle Relaxants,” “Stimulants,” “Miscellaneous Zolpidem,” and “Documentation.” The “Opioids” tab contains NDC codes, Trade & Generic names, form (capsule, tablet, liquid, etc.), drug class, drug type, DEA classification, strength per unit, unit of measure, and MME conversion factor. From this file, there are 13,433 NDC codes for opioids, and all codes were used to identify a prescription opioid for this report.

### Calculation of Daily MME

The “Documentation” tab explains the calculation of daily morphine milligram equivalents (MME). The following formula was used to calculate the daily MME for each opioid prescription. Strength per unit and MME conversion factor were found in the CDC table. The CSD contains the number of units and days supply. After daily MME/prescription was calculated, prescriptions were then categorized as low-dose or high-dose ( $\leq 90$ MME/day or  $>90$ MME/day, respectively). 90MME/day was used as the high-dose threshold from the most recent CDC guidelines.<sup>13</sup>

$$MME/day = Strength\ per\ Unit * \left( \frac{Number\ of\ Units}{Days\ Supply} \right) * MME\ conversion\ factor$$

### Calculation of Rates and Percentages

Population counts were found using Public Health Indicator Based Information System (IBIS-PH).<sup>18</sup> The rates were calculated using the formula below.

$$Rate_i = \frac{Number\ of\ Opioid\ Prescriptions_i}{Population_i} * 1,000\ population$$

$i$  = Subgroup (year, sex, age group, etc.)

The percentages of opioid prescriptions that had a daily MME>90 were calculated using the formula below.

$$Percent > 90MME_i = \frac{Number\ of\ Opioid\ Prescriptions\ with\ MME > 90_i}{Total\ Number\ of\ Opioid\ Prescriptions_i} * 100\%$$

*i* = Subgroup (year, sex, age group, etc. )



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