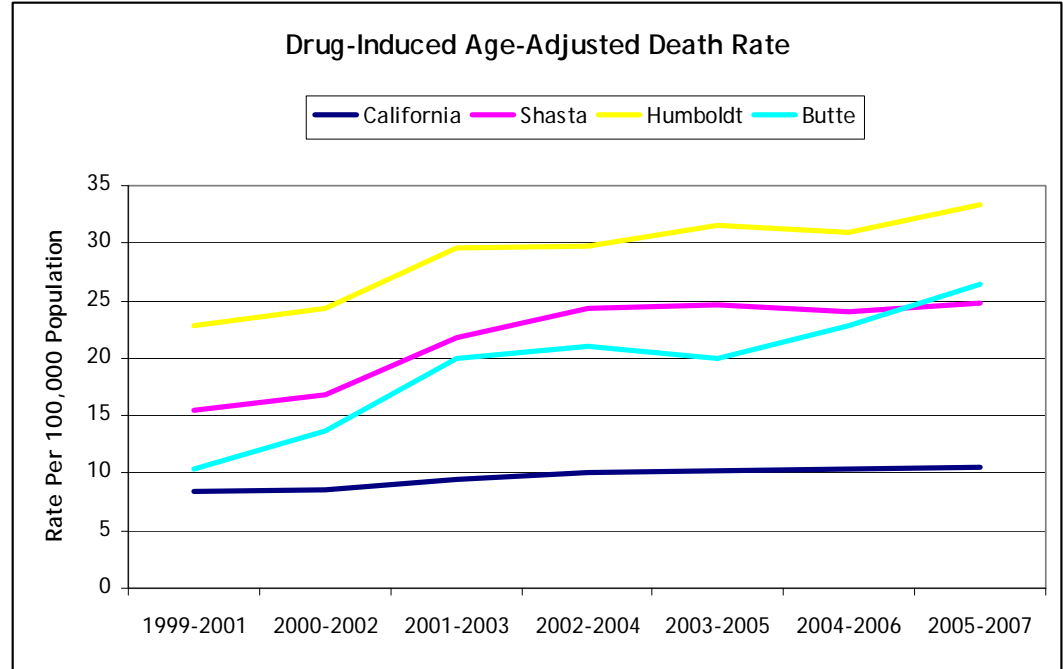




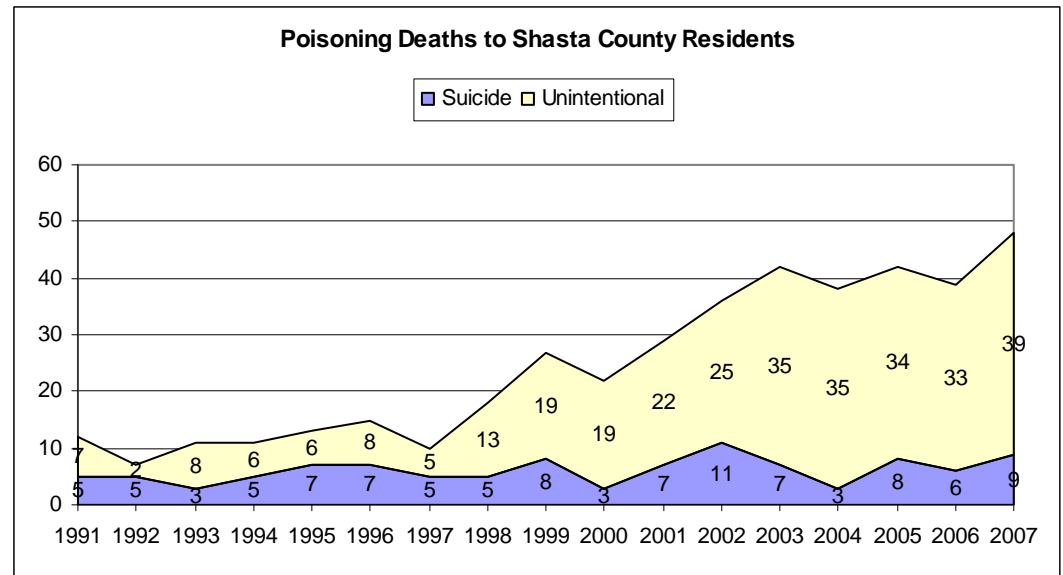
## Drug-Induced Deaths in Shasta County

Drug-Induced or Drug-Related Deaths are defined as any death occurring due to the use of drugs. This could include suicides or accidental deaths. Drug-Induced Deaths could also include licit and/or illicit drugs, but does not include alcohol as a possible cause of a drug-induced death. For the last ten years, Shasta County has been ranked as one of the worst California counties for its rate of Drug-Induced Deaths and has been in the bottom 7 counties since 2001 in the California County Health Status Profiles. The Drug-Induced Death Rate per 100,000 population has risen from approximately 15 in 1999-2001 to approximately 25 in 2005-2007. A similar increase in the Drug-Induced Death Rate can be seen among Humboldt and Butte counties, which are considered comparable to Shasta County (Figure 1). The increasing trend can also be seen in some other California Counties, as well as the state itself, but with a slower, more gradual increase. An analysis done by the CDC determined that poisoning mortality rates in the U.S. increased each year from 1999 to 2004, rising 62.5% during the five year period. During approximately the same time period, Shasta County's rate rose by 55.8%. The increased rate in Shasta County appears to be due to accidental or unintentional poisonings (Figure 2).

**Figure 1**



**Figure 2**



Starting in December of 2005, Shasta County Public Health began gathering data on Drug-Induced Deaths from Coroner Reports. From December of 2005 through December of 2008, a total of 141 Drug-Induced Deaths were identified. Of the 141 deaths, the percentage of male deaths (55%) was slightly higher than females (45%). The age range was from 18 years to 71 years. The majority of the deaths occurred among



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40 to 49 year olds (36%) and 50 to 59 year olds (28%). In the analysis done by CDC mentioned on the previous page, persons aged 35-54 years had the highest rates of poisoning deaths in 2004 and accounted for 59.6% of all poisoning deaths. Of all the deaths, 131 (93%) were white (Table 1). The majority of the individuals were not married (60%). This includes divorced, never married, single, and widowed. Of the remaining individuals, 28% were married and 12% had an unknown marital status. In Shasta County, approximately 50% of the population age 15 or older is not married. These demographics help identify common characteristics of those individuals dying from drug overdoses. This information only scratches the surface to understanding the real problems.

**Table 1**  
Shasta County (Dec. 2005—Dec. 2008)

Demographics	Number of Drug Induced Deaths	Percent of Drug Induced Deaths	2007 Population Projection Percentages
Total	141	-	-
<b>Gender</b>			
Male	77	55%	49%
Female	64	45%	51%
<b>Race</b>			
White	131	93%	85%
Black	4	3%	1%
American Indian	3	2%	3%
Asian / Pacific Islander	1	1%	3%
Hispanic	1	1%	6%
Other	1	1%	3%
<b>Age</b>			
18-29	21	15%	17%
30-39	23	16%	9%
40-49	50	35%	14%
50-59	40	28%	15%
60-69	6	4%	10%
70 +	1	1%	11%

Data was collected primarily from death certificates and coroner reports of those individuals with a drug-induced death. The death certificate provided the cause of death and demographic information about the deceased. The coroner's reports were used to gather more detailed information about the deceased individual and the circumstances surrounding the death. Data collected from the coroner's report includes where the individual lived and died, how long from time of death until found, types of drugs involved, other medical problems, substance abuse, mental health, relationship problems, legal issues, and recent deaths of family and/or friends. While all of this data may be very useful, it is not consistently recorded by the death investigator and therefore not available for reliable analysis. This limitation on the amount of information reduces the number of risk factors that can be assessed and identify who is more likely to die from the use of drugs.

Out of the 141 deaths, 21 were determined to be suicide, 116 accidental, and 4 could not be determined. The majority of the drug-induced deaths did not involve alcohol (66%). The 5 most common drugs found in toxicology reports of the deceased, from most often to less often; include Methadone, Hydrocodone, Acetaminophen, Methamphetamine, and Morphine. The combination of the second and third most common drugs, Hydrocodone and Acetaminophen, make up the drug Vicodin. While each of these drugs were found often in toxicology reports, it is unknown whether that specific drug was being taken. Approximately 31% of drug-induced deaths involved Methadone (Table 2).

In the late 1990s and early 2000s, opioid prescriptions for the treatment of pain were rising rapidly in the United States. Along with the increased number of physicians prescribing these medications came an increase in prescription drug abuse seen across the country. Between 1992 and 2003, there has been an in-



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crease in the self-reported abuse of prescription medications; including a 140.5 percent increase in opioid abuse, a 44.5 percent increase in Central Nervous System (CNS) depressant abuse, and a 41.5 percent increase in CNS stimulant abuse. Between 1997 and 2001 the supply of most opioids increased dramatically: Oxycodone increased by 348%, Fentanyl increased by 151%, Hydro-morphone increased by 80%, and Hydrocodone increased by 66%. By 2002, Hydrocodone and Oxycodone were the most widely prescribed opioid medications. Some opioids, such as Fentanyl and Methadone, demonstrated far greater increases in prescriptions filled from 1992 to 2003, yet the total number of prescriptions filled for these medications is low relative to Hydrocodone and Oxycodone. According to data from the National Center for Health Statistics, from 1999 to 2005 Methadone-related poisoning deaths increased by 468%, while total poisoning deaths increased by only 66%. In addition, Methadone-related poisoning deaths had the greatest percentage increase of deaths compared with other opioids.

In Shasta County, Hydrocodone and Morphine were found to be at potentially toxic levels most often in drug-induced deaths (Table 3). A drug that is found to be at a potentially toxic level in a person may be high enough to cause death. Some individuals have higher levels of tolerance for certain drugs, so the potentially toxic level is a guideline and not always what caused the death in that individual. Chronic pain was also very common among many of the individuals, typically reported as chronic back pain. Of the 21 suicides analyzed, 15 of them were males. Alcohol was also involved in approximately 38% of the suicides.

Of Shasta County resident hospitalizations and emergency room visits in 2007 (most recent data available when this report was written), there were 312 hospital discharges and 447 emergency room visits with a primary diagnosis of poisoning by drugs, medicinal and biological substances. The majority of patients in both the hospital and ER were female, 62% and 59% respectively. The drug-induced death data showed a greater number of males dying from a drug overdose than females. When comparing the hospital data to the death data, one might infer that men are more likely to have a fatal overdose than women.

When looking at the drugs involved, the largest number of poisonings or overdoses resulting in hospitalizations or a visit to the ER was from benzodiazepines. Benzodiazepines, a family of drugs used mainly to treat anxiety, insomnia, and alcohol withdrawal, are considered a schedule IV drug. According to the Drug

**Table 2**  
Top 10 Drugs Present on Toxicology Report at Death (Dec. 2005–Dec. 2008)

DRUG	# OF DEATHS WITH DRUG PRESENT*	PERCENT OF DEATHS	TYPE OF DRUG
Methadone	44	31%	Pain Reliever
Hydrocodone	43	30%	Pain Reliever
Acetaminophen	39	28%	Pain Reliever
Methamphetamine	30	21%	Illicit - Stimulant
Morphine	27	19%	Pain Reliever
Hydromorphone	25	18%	Pain Reliever
Nordiazepam	19	13%	Anxiolytic
Diphenhydramine	17	12%	Antihistamine
Oxycodone	17	12%	Pain Reliever
Quetiapine	16	11%	Antipsychotic

\*Deaths may have more than one drug present

**Table 3**  
Top 5 Drugs Present at Potentially Toxic Levels on Toxicology Report at Death (Dec. 2005–Dec. 2008)

DRUG	# OF DEATHS WITH TOXIC LEVEL OF DRUG PRESENT*	PERCENT OF DEATHS	TYPE OF DRUG
Hydrocodone	21	15%	Pain Reliever
Morphine	21	15%	Pain Reliever
Methamphetamine	19	13%	Illicit - Stimulant
Hydromorphone	11	8%	Pain Reliever
Oxycodone	10	7%	Pain Reliever

\*Deaths may have more than one drug present



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Enforcement Administration (DEA), schedule IV drugs have a low potential for abuse compared to drugs or other substances in Schedules I, II, and III. The abuse of Schedule IV drugs may lead to limited physical dependence or psychological dependence when compared to the other Schedules of drugs. The five most common drugs from drug-induced deaths that were at potentially toxic levels on the toxicology reports were all Schedule II drugs. Schedule II drugs have a high potential for abuse and may lead to severe psychological or physical dependence. Based on this information, one might infer that those individuals using a Schedule II drug appear to be more likely to die from a drug overdose than those on a Schedule IV drug.

### CONCLUSIONS

In the last 10 to 20 years, prescription drug abuse has become a rising problem in the United States, California, and Shasta County. Increased rates of abuse of prescription drugs has lead to an increase in drug-induced deaths. The problem also does not appear to be slowing down. Interventions are needed to reduce or stop the abuse of prescription drugs. Interventions are needed in all levels of society, from the Federal Government to local health care providers.

### RECOMMENDATIONS

- Use pharmacy databases to identify high-volume prescription drug users and require those individuals to have a single provider and a single pharmacy to reduce the likelihood of doctor shopping.
- Physicians should observe practice guidelines for use of opioids in chronic, non-cancer pain. Practice guidelines should address criteria to be met before initiating opioid treatment, principles for prescribing opioids, and when to consult a pain management specialist.
- Hospital emergency departments should screen patients for a history of substance abuse before dispensing opioid painkillers. The CDC states that roughly 40% of opioids are dispensed in emergency departments.
- Drug testing of individuals who have an ongoing prescription of an opioid to help manage levels of the drug in the system and to make sure the patient is taking the correct dosage. This could also help to identify those individuals who abuse the system by taking too many pills or those who are selling the pills.
- Interdiction of illicit prescription drug sales
- Promote destruction/disposal of unused prescriptions. Work with pharmacies to distribute safe disposal information for narcotics and other prescription drugs.
- Keep narcotics locked up in your home to help keep others from misusing or abusing the medications.
- Promote drug treatment options available in the county including narcotics anonymous.
- Improve treatment for prescription drug abuse and addiction by having treatment programs address co-occurring disorders and making comprehensive medical assessments a standard part of treatment.
- Educate parents about the dangers of prescription drug abuse and take steps to keep prescription drugs out of the hands of their children.
- Educate parents on how to take steps to make sure their children are not using the Internet to acquire prescription drugs.
- Use public awareness campaigns that focus on alcohol, marijuana and other illicit drugs to also include the abuse of prescription drugs and inform parents of the need to safeguard their prescription drugs from children.
- Schools and communities should incorporate prescription drug abuse into evidence-based substance use prevention programs.

### References

1. Centers for Disease Control and Prevention (CDC). (2008, March 12). CDC Congressional Testimony: United States Senate Subcommittee on Crime & Drugs Committee on the Judiciary and the Caucus on International Narcotics Control—Trends in Unintentional Drug Overdose Deaths. Retrieved from CDC Washington website: <http://www.cdc.gov/washington/testimony/2008/t20080312a.htm>
2. CDC. Unintentional Poisoning Deaths—United States, 1999-2004. *MMWR* 2007; 56:93-96
3. The National Center on Addiction and Substance Abuse at Columbia University. (July 2005). Under the Counter: The Diversion and Abuse of Controlled Prescription Drugs in the U.S. Retrieved on December 23, 2009, from [http://www.casacolumbia.org/templates/publications\\_reports.aspx](http://www.casacolumbia.org/templates/publications_reports.aspx)