UI IPRC Technical Report

Continued Rise in Unintentional Poisoning Deaths in Iowa

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Summary

The number of unintentional poisoning deaths rose in Iowa from 67, 78 and 68 in 2002-2004 respectively to 160 deaths in 2008. In 2002 the incidence rate was 2.3 per 100,000 while in 2008 it had reached 5.3 per 100,000. The primary cause of death was from illicit drugs (48 in 2008) and other medications (n=61) such as cardiovascular, respiratory, skeletal muscle, hormones, vaccines, antibiotics and other systemic drugs. Rises in deaths were observed in these categories but also accidental poisoning by alcohol (n=21 in 2008).

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Methods

The analysis was for Iowa residents from the years 2002 to 2008 only. Rates used the estimated population of the state of Iowa from the US Census Bureau. Data was obtained from death certificates for the state of Iowa from 2002 to 2008. The individual causes of death were determined using the ICD10 classification for unintentional poisonings X41-X49.

X40 Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics

X41 Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified

X42 Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified

X43 Accidental poisoning by and exposure to other drugs acting on the autonomic nervous system

X44 Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances

X45 Accidental poisoning by and exposure to alcohol

X46 Accidental poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours

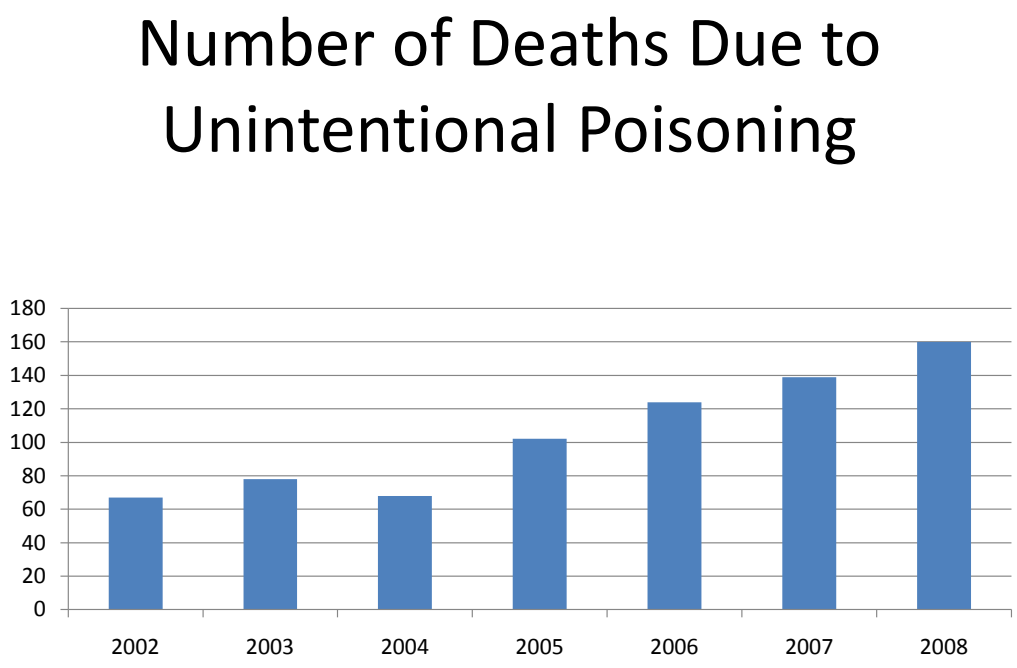
X47 Accidental poisoning by and exposure to other gases and vapours

X48 Accidental poisoning by and exposure to pesticides

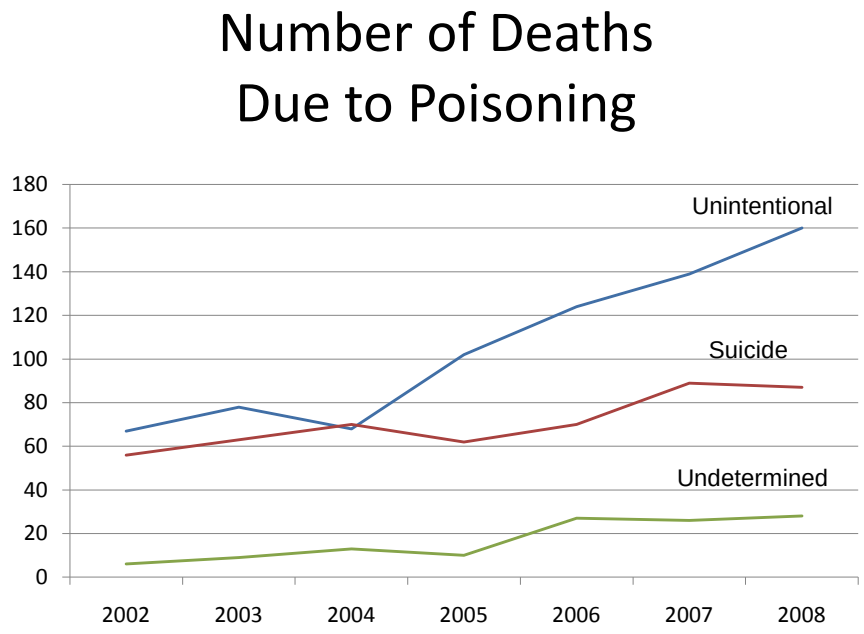
X49 Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances

Results

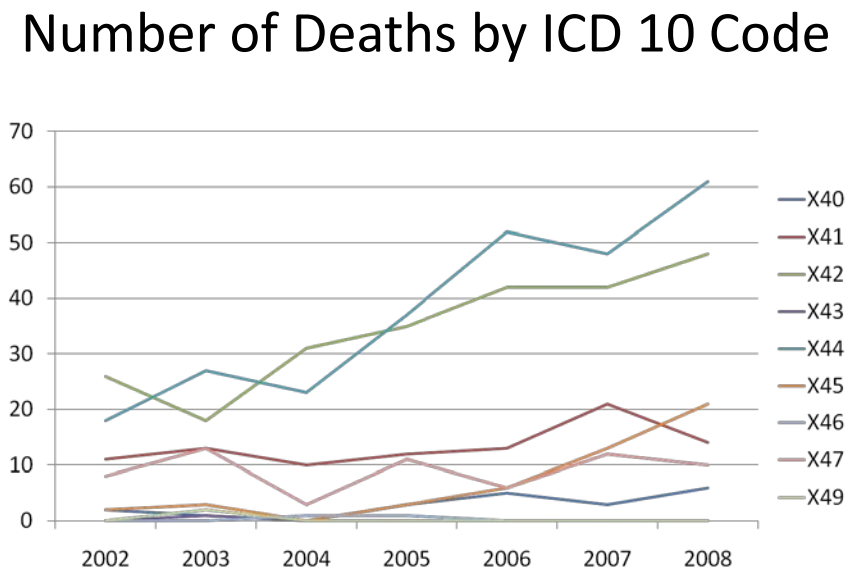
Overall, unintentional poisoning deaths in Iowa increased from 67, 78 and 68 in 2002, 2003, and 2004 respectively to 160 deaths in 2008. In 2002 the incidence rate was 2.3 per 100,000. Beginning in 2005 the rate began to climb to 3.46 per 100,000 to 5.3 per 100,000 in 2008. Compared to the overall mortality in Iowa, which rose 1.58% from 2002 to 2008, deaths from unintentional poisoning rose 139%.



Trends in suicide or undetermined intent poisoning deaths show increases but not as rapid as was the unintentional level in 2007 and 2008.

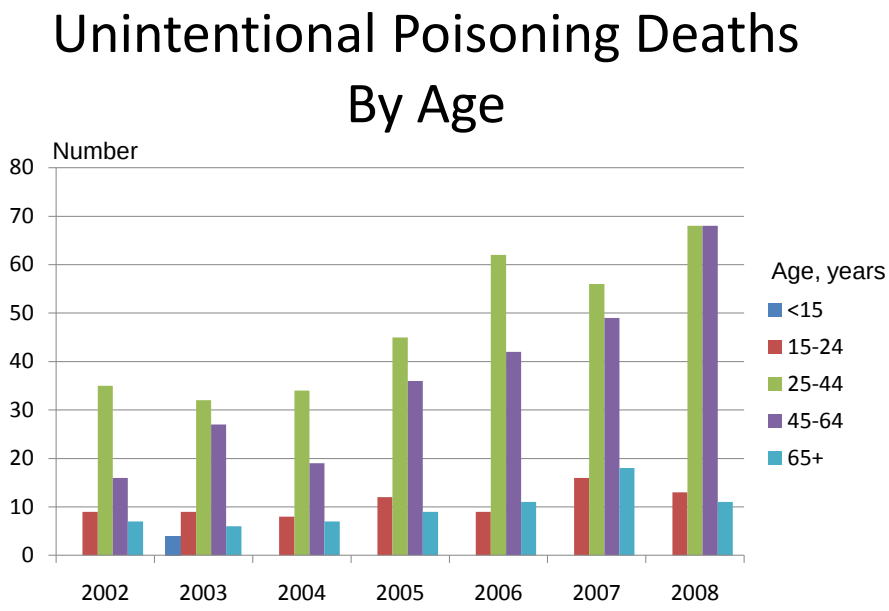


The increase overall was evident in particular categories of illicit drugs, alcohol, and medications other than neurologic and psychiatric medications. The primary cause of death in 2008 was from illicit drugs (48 in 2008) and other medications (n=61) such as cardiovascular, respiratory, skeletal muscle, hormones, vaccines, antibiotics and other systemic drugs. More deaths were observed in these categories as well as accidental poisoning by alcohol (n=21 in 2008).



High-risk populations

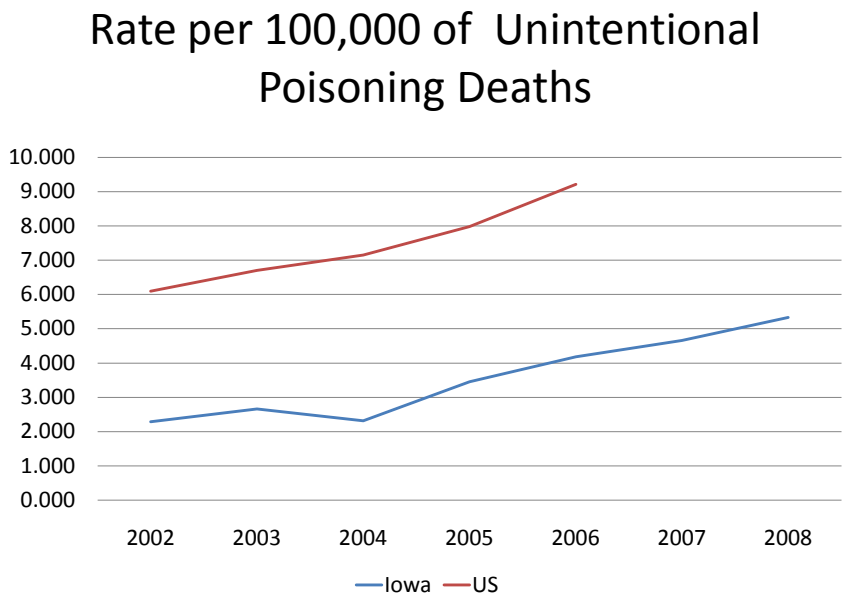
The greatest increase in overall poisoning deaths occurred in the 45-64 age range, from 19 deaths in 2004 to 68 deaths in 2008, although increases were noted across all ages. Men and women were equally affected by the increase. County populations of varying sizes also had increases. Larger counties (50,000+) had more deaths but the rise was greatest in counties of 10,000-20,000 persons.



For illicit drugs, the largest group was men, with the greatest number of deaths in the 25-44 age range. For medications, the age range with the highest number of deaths was also 25-44, with the risk slightly higher in men except in 2008 where 54% of these deaths were in women.

Comparison with national data

The statewide trend is consistent with the national increase in non-fatal and fatal poisonings. An increase of nearly 10,000 deaths was observed between 2002 and 2006 nationally, which represents a 57% increase while Iowa increased in the same period 85%. Nationally 680,000 nonfatal poisonings were observed in 2007.



Conclusion

Unintentional poisoning is a growing public health problem. The use and abuse of illicit drugs and alcohol can have severe consequences; the number of deaths resulting from prescription drugs, illicit drugs and alcohol are increasing at a faster rate than other causes. An increase in medication deaths may indicate problems in drug safety particularly related to combinations of drugs, use of drugs for un-prescribed purposes or in combination with alcohol or illicit drugs.

Poison control centers play a crucial role in determining the evaluation and prompt treatment of persons with overdoses and potential poisoning. The physician and pharmacist are essential in preventing medication overdose, interaction of drugs and alcohol and abuse of medications. The control of illegal substances and excessive alcohol use is important in reducing deaths.

Because of the limits of death certificate information, further investigation is warranted to determine the reasons behind the increase and resulting prevention strategies.

Appendix

ICD10 Classification of Unintentional Poisoning Deaths

Unintentional poisoning ICD10 codes (X40-X49) **7/21/2009**

X40 Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics

Includes: 4-aminophenol derivatives
nonsteroidal anti-inflammatory drugs [NSAID]
pyrazolone derivatives
salicylates

X41 Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified

Includes: antidepressants
barbiturates
hydantoin derivatives
iminostilbenes
methaqualone compounds
neuroleptics
psychostimulants
succinimides and oxazolidinediones
tranquillizers

X42 Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified

Includes: cannabis (derivatives)
cocaine
codeine
heroin
lysergide [LSD]
mescaline
methadone
morphine
opium (alkaloids)

X43 Accidental poisoning by and exposure to other drugs acting on the autonomic nervous system

Includes: parasympatholytics [anticholinergics and antimuscarinics] and spasmolytics
parasympathomimetics [cholinergics]
sympatholytics [antiadrenergics]
sympathomimetics [adrenergics]

X44 Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances

Includes: agents primarily acting on smooth and skeletal muscles and the respiratory system
anaesthetics (general)(local)
drugs affecting the:
. cardiovascular system
. gastrointestinal system
hormones and synthetic substitutes
systemic and haematological agents
systemic antibiotics and other anti-infectives
therapeutic gases
topical preparations
vaccines
water-balance agents and drugs affecting mineral and uric acid metabolism

X45 Accidental poisoning by and exposure to alcohol

Includes: alcohol:
. NOS
. butyl [1-butanol]
. ethyl [ethanol]
. isopropyl [2-propanol]
. methyl [methanol]
. propyl [1-propanol]
fusel oil

X46 Accidental poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours

Includes: benzene and homologues

carbon tetrachloride [tetrachloromethane]
chlorofluorocarbons
petroleum (derivatives)

X47 Accidental poisoning by and exposure to other gases and vapours

Includes: carbon monoxide
lacrimogenic gas [tear gas]
motor (vehicle) exhaust gas
nitrogen oxides
sulfur dioxide
utility gas

Excludes: metal fumes and vapours (X49.-)

X48 Accidental poisoning by and exposure to pesticides

Includes: fumigants
fungicides
herbicides
insecticides
rodenticides
wood preservatives

Excludes: plant foods and fertilizers (X49.-)

X49 Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances

Includes: corrosive aromatics, acids and caustic alkalis
glues and adhesives
metals including fumes and vapours
paints and dyes
plant foods and fertilizers
poisoning NOS
poisonous foodstuffs and poisonous plants
soaps and detergents

Excludes: contact with venomous animals and plants (X20-X29)