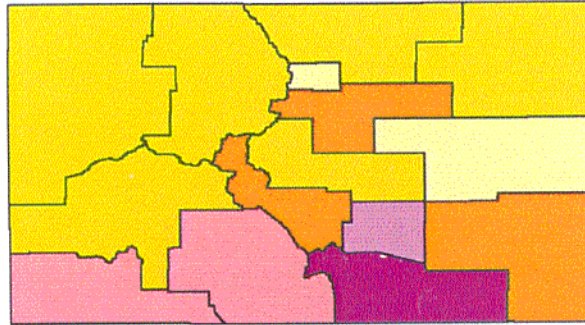


A Drug & Alcohol Abuse Indicator Chart Book for Colorado



**Prepared for the
State of Colorado
Department of Human Services
Alcohol and Drug Abuse Division**

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CSAT
Center for Substance
Abuse Treatment
SAMHSA

A Drug and Alcohol Abuse Indicator Chart Book
for Colorado

CSAT

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ACKNOWLEDGMENTS

The North Charles Research and Planning Group wishes to thank Bruce Mendelson, Marilyn Leff, Pam Shillam, and Bonnie Hathaway for their help with the study.

EXECUTIVE SUMMARY

This chart book describes the results of an analysis of substance abuse indicators to determine how Colorado compares to other states and how Colorado's counties compare to one another. The analysis is important because substance abuse and the substance abuse treatment system are partially statewide in scope and partially unique to each of Colorado's communities. The chart book presents the study's results in a relatively nontechnical format meant to be accessible to citizens, local officials, and other interested parties.

The study employed existing substance abuse indicator data available from state and national sources. The investigators obtained data from 1993 to 1998 whenever possible. The primary data sets included four years of mortality data, five years of arrest data, five years of hospital discharge diagnostic data, and five years of treatment client data. After reviewing each data set for indications of clerical, coding, or programming errors, the study team extracted relevant information, created a series of count and rate variables, and combined them in a data base. Published research and statistical analyses of the reliability and validity of the indicators established their relevance for the study. To summarize these data, the study team created composite indexes of drug and alcohol indicators: The Drug Treatment Need Index (DNI), the Alcohol Treatment Need Index (ANI), and the Substance Abuse Need Index (SNI). The ANI included alcohol mortality, arrest, and hospital discharge diagnostic rates, while the DNI included drug mortality, arrest, and hospital discharge diagnostic rates. The SNI combined rates of alcohol and drug mortality (unduplicated), arrests, and hospital discharge diagnoses. The interstate versions of the need indexes excluded hospital discharge data.

The results consist of a series of charts and maps of the need indexes, their components and other relevant measures. The maps described the distribution of drug and alcohol problems throughout Colorado. The charts focused on state and county differences in the number of cases and rates per 100,000. Appropriate caution should be employed to avoid over-interpretation of the rates, especially with regard to mortality statistics. Many of Colorado's counties are relatively small. In counties with small populations, infrequently occurring events such as alcohol and drug related deaths can produce average rates for four years that are poor estimates of the long-term substance abuse treatment needs in the area. Consequently, the county mortality charts include both the mean rates and the number of deaths during the four years. Readers should view high rates in small areas with appropriate caution and place greater reliance on the composite indexes, the actual number of events (e.g., deaths) that produced the rates, and the consistency of rates among contiguous areas. Also, these findings should be viewed in the context of the results of the other members of Colorado's family of needs assessment studies and other information extant regarding a particular county.

The study found that counties varied substantially with regard to the rates of drug and alcohol abuse problems. Alcohol rates were generally highest in small rural counties, while drug abuse rates were frequently high in larger, urban areas. There were of course exceptions to each of these general trends. The exceptions were often in small areas, and they should be viewed as most probably reflections of random statistical variations rather than alarming new developments. Confirmation from other sources should always be sought for any finding based on a relatively small number of indicators over a relatively brief period of time.

INTRODUCTION

This Chart Book describes the results of a study of how Colorado compares to other states and how Colorado's counties and regions compared to each other regarding major substance abuse indicators. The analyses focus on learning which counties and regions have the greatest relative need for alcohol and drug treatment services.

The Family of Studies

This investigation is part of the Colorado family of treatment needs assessment studies. With funding and technical support from the Center for Substance Abuse Treatment (CSAT), the State has undertaken a family of studies to assess the extent of its substance abuse problems and to plan the State's response to them. The family of studies seeks to assess the State's treatment service needs, identify gaps in service, and make recommendations for the future resource allocations and modifications of the treatment system's design. The studies include a statewide telephone household survey of adults and a series of special population surveys. The family of studies also incorporates a drug and alcohol indicator system that uses existing data to supplement the survey data collected in the family of studies. This Chart Book describes results from interstate, regional and county substance abuse indicator analyses.

Role in the Family of Studies. The indicator analysis plays a special role in the family of studies. The study takes a comparative perspective, whereas the other studies in the family of studies focus on the absolute level of the State's treatment service needs and its response to them. The analysis is important because substance abuse and the substance abuse treatment system are partially statewide in scope and partially unique to each county and region. As this report will show, Colorado had one of the most severe substance abuse problems in the country in the period between 1994 and 1996. The State ranked second in the country with regard to combined alcohol and drug problems. The primary substance of abuse is alcohol. The state ranked fifth in the country according to the Alcohol Need Index (ANI). Colorado ranked 13th in the country with regard to drug problems. These findings were consistent with an earlier study based on 1991-1993 data. In that time period, Colorado's combined alcohol and drug problems ranked fourth most severe in the country. These findings are an important context for judging the variations within the State.

Each county's response to its mix of substance abuse problems depends partly on its own history, population, and policies. The county's response also depends on clinical developments, regulations, and funding available for substance abuse services from a range of sources, including state and federal programs. By examining how a county differs from its counterparts regarding both its substance abuse problems and treatment services, the study will help reveal the county's need for substance abuse services.

Readers should bear in mind that a county's relative status may say surprisingly little about the absolute severity of its substance abuse problems or the county's absolute success in meeting its substance abuse service goals. Previous needs assessment studies have shown that even states such as Colorado which have provided relatively high levels of treatment services compared to other states may nevertheless have a substantial amount of unmet demand for services.

METHODS

Data Sources

This study employs existing substance abuse indicator data that the study team gathered from state and national sources. Before using them, the analysts examined each data set for the presence of outliers. An example of an outlier would be an annual count that is many times higher (lower) than the previous (subsequent) year for the county, especially when the annual change is not consistent with the usual annual variations in the data for that county and other counties. In such cases, the study team alerted State officials who contacted the responsible state or local officials about the outlying values. If corrected values or comparable figures were available, the authors used them. As a general protection against undetected or uncorrected random errors, the study combined multiple years of data to obtain more reliable composite indicators.

Indicators varied with regard to the number of years that were available for analysis. The study used all available data between 1993 and 1998. Drug and alcohol arrest statistics covered the period from 1994-1998, while county-level treatment client data covered 1993 to 1997. The mortality data covered the period 1993 to 1996. The rates are average annual ("mean") rates per 100,000 residents. The denominators for each annual rate were state population projections for the relevant years.

Measurements and Index Construction

To summarize the information from multiple indicators, the authors created composite indexes of controlled drug, alcohol, and substance abuse treatment needs: The Drug Need Index (DNI), the Alcohol Need Index (ANI), and the Substance Abuse Need Index (SNI). The composite indexes include measures of alcohol- and drug-related rates of deaths, arrests, and hospital discharge diagnoses per 100,000. The interstate versions of the need indexes excluded hospital discharges. The DNI is a sum of standardized mean drug death rates, drug-defined arrest rates, and drug hospital discharge diagnoses rates. The drug mortality indicator counted only deaths with codes that explicitly mentioned drugs of abuse as one of the causes listed on the death certificate. The diagnostic codes included accidental drug overdoses, drug dependence, nondependent drug abuse, and drug psychoses (including drug withdrawal syndrome). The drug-related hospital discharge diagnoses measure used a very similar set of explicit-mention diagnoses. The arrest statistics included possession and sale/manufacturing arrests for controlled drugs. The analysts selected these indicators for the index because they were linked theoretically to drug abuse, had been empirically validated in the literature, and were available at the county level.

The Alcohol Need Index (ANI) parallels the Drug Need Index. The ANI includes alcohol mortality, alcohol-defined arrests, and alcohol hospital discharges diagnoses. The alcohol mortality measure employed 12 explicit-mention diagnoses widely employed as a measure of alcoholism. Examples were alcohol dependence, non-dependent alcohol abuse, alcohol psychoses, alcoholic cirrhosis of the liver, and alcohol cardiomyopathy. The hospital discharge measure used a slightly broader set of diagnostic codes that included causes that did not explicitly mention alcohol but which are known to be closely associated with alcohol use disorders. The alcohol-defined arrest measure included arrests for driving under the influence

(DUI) and disorderly-conduct arrests. The SNI combined alcohol and drug deaths, arrests, and hospital discharge diagnostic rates. The primary purpose of the indexes is to assess a state or county's drug and alcohol treatment needs.

The DNI's, ANI's, and SNI's scale scores of 100 equals the combined highest observed mortality, arrest and hospital discharge diagnoses rates during the study period. A scale score of zero on each index indicates that there is no evidence of treatment need, as shown by there being no deaths, arrests or hospital discharge diagnoses in the area during the study period.

Analysis and Presentation

When describing these indicators, the report focuses on the comparative nature of the analysis by reporting the county's average annual rate per 100,000 and in some cases, its rank in the State or the State's rank in the country. In all cases, the county or state with the most severe drug or alcohol abuse problem is ranked 1st, and the area with the least severe problem is ranked 63rd or 50th. The analysis begins with the alcohol indicators, and then turns to the controlled drug indicators, and finishes with the substance abuse indicators. In the presentation of results for each substance, the report begins with the composite index, and then it describes the components of the index and other supplementary indicators. The charts describe the State's ranking in the country and then the counties or regions within the State.

The Chart Book seeks to make the results of the indicator analyses accessible to local officials and citizens, state officials, and other interested individuals. By use of maps and charts, the authors sought to minimize the technical requirements for understanding and utilizing the analyses. The bar charts present the index scores, counts, or rates per 100,000, and in some cases, the county or state rankings. The interstate comparison charts highlight in different colors the states for whom North Carolina has prepared plans.

Readers should exercise substantial caution when interpreting the results for individual indicators, especially the mortality rates, contagious disease rates, and the traffic fatality rates. Many of the counties are relatively small. As a result, even rates based on four or five years of data can be volatile. Some of the very high or very low rates may be poor estimates of long-term rates in the area. For those variables, the charts include the actual number of cases that occurred during the study period. The treatment need indexes are based on several indicators and are therefore more reliable predictors of long-term need. Also, the maps provide a context for interpreting the rates. When there are clusters of small areas with similar rates, it is likely that the rates are more stable estimates. Confirmation from other sources should always be sought for any finding based on a relatively small number of indicators over a relatively brief period of time.

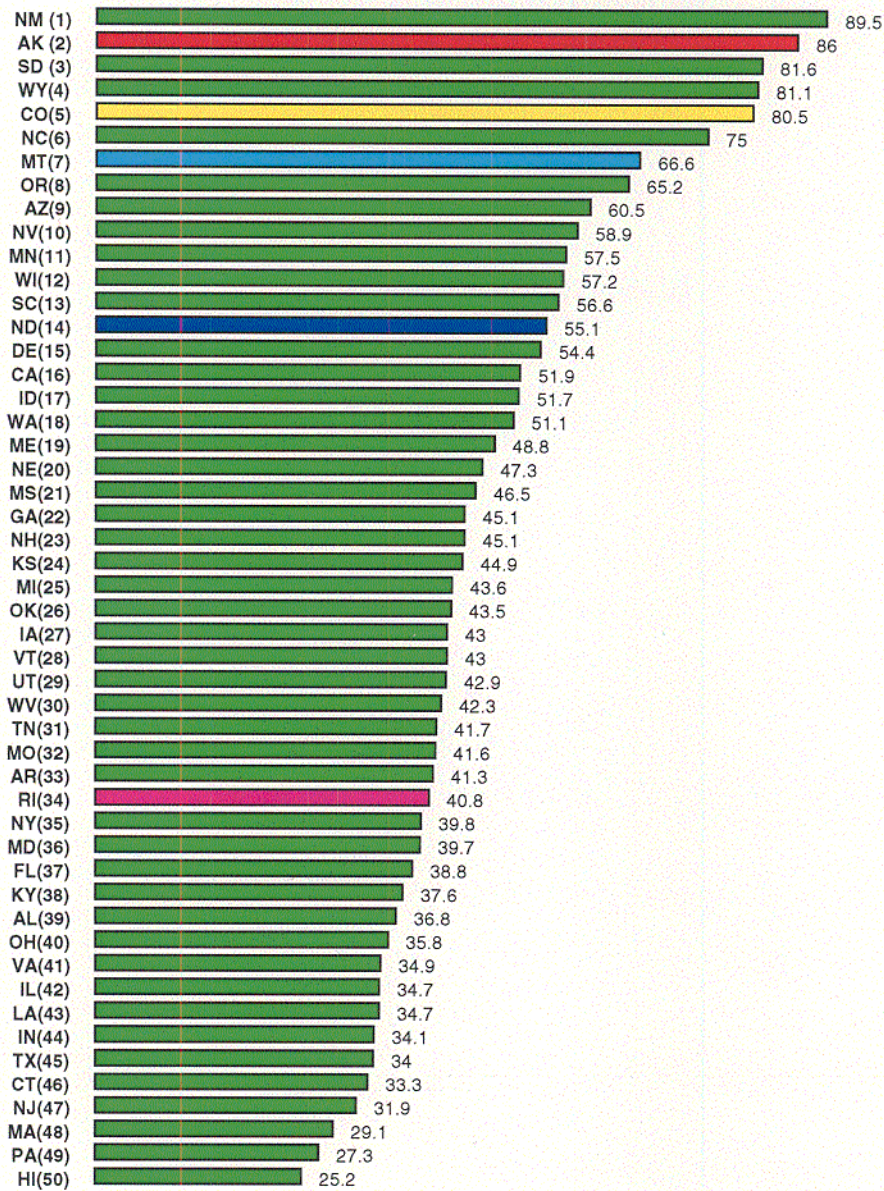
Regions Used in Analysis

Region	Name (Most Populous County)	Other Counties In Region
1.0	Morgan	Washington, Yuma, Logan, Sedgwick, Phillips
1.1	Larimer	Weld
1.2	Elbert	Lincoln, Kit Carson, Cheyenne
2.0	Jefferson	Clear Creek, Arapahoe, Adams, Douglas, Denver, Gilpin
2.1	Boulder	
3.0	El Paso	Park, Teller
3.1	Fremont	Custer, Lake, Chaffee
4.0	Otero	Crowley, Bent, Baca, Prowers, Kiowa
4.1	Pueblo	
4.2	Las Animas	Huerfano
4.3	Alamosa	Saguache, Mineral, Rio Grande, Conejos, Costilla
5.0	Montrose	Delta, Gunnison, Hinsdale, Ouray, San Miguel
5.1	La Plata	San Juan, Montezuma, Dolores, Archuleta
6.0	Mesa	Garfield, Rio Blanco, Moffat
6.1	Eagle	Routt, Jackson, Grand, Summit, Pitkin

ALCOHOL INDICATORS

Alcohol Problems Compared to Other States

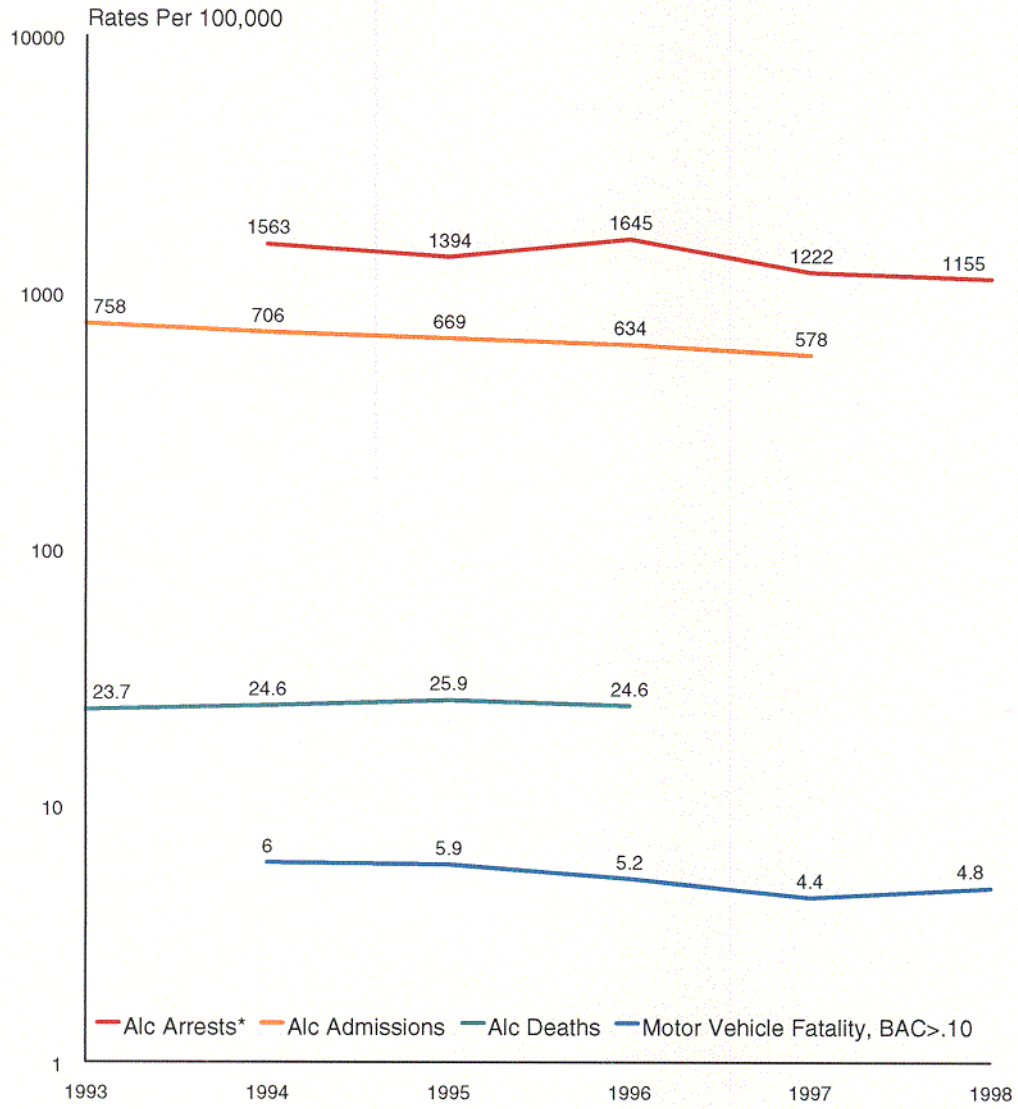
Alcohol Need Index, 1994-1996



Index Scores

Alcohol-Related Indicators in Colorado

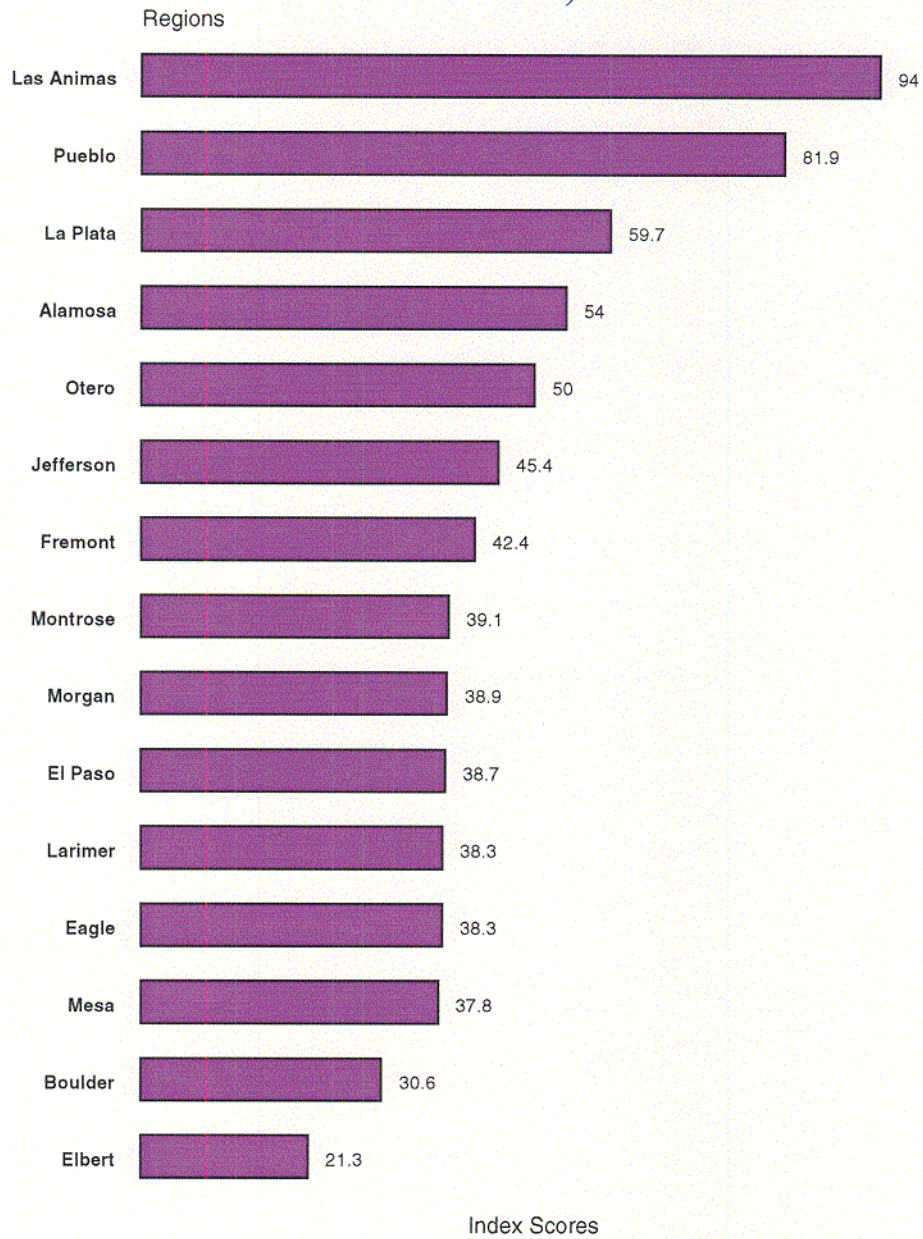
Alcohol Indicators 1993-1998



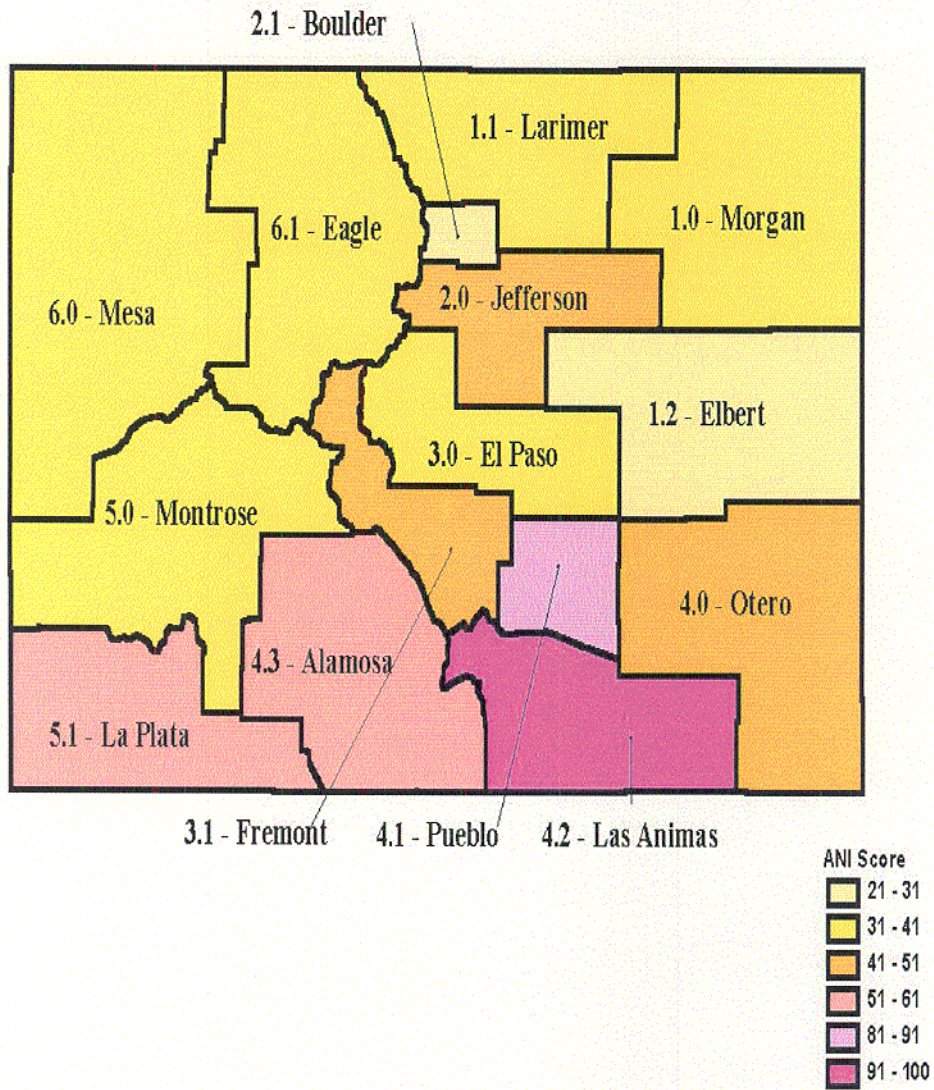
*Includes DUI and disorderly conduct

Alcohol Treatment Need Index

Alcohol Need Index, 1993-1998

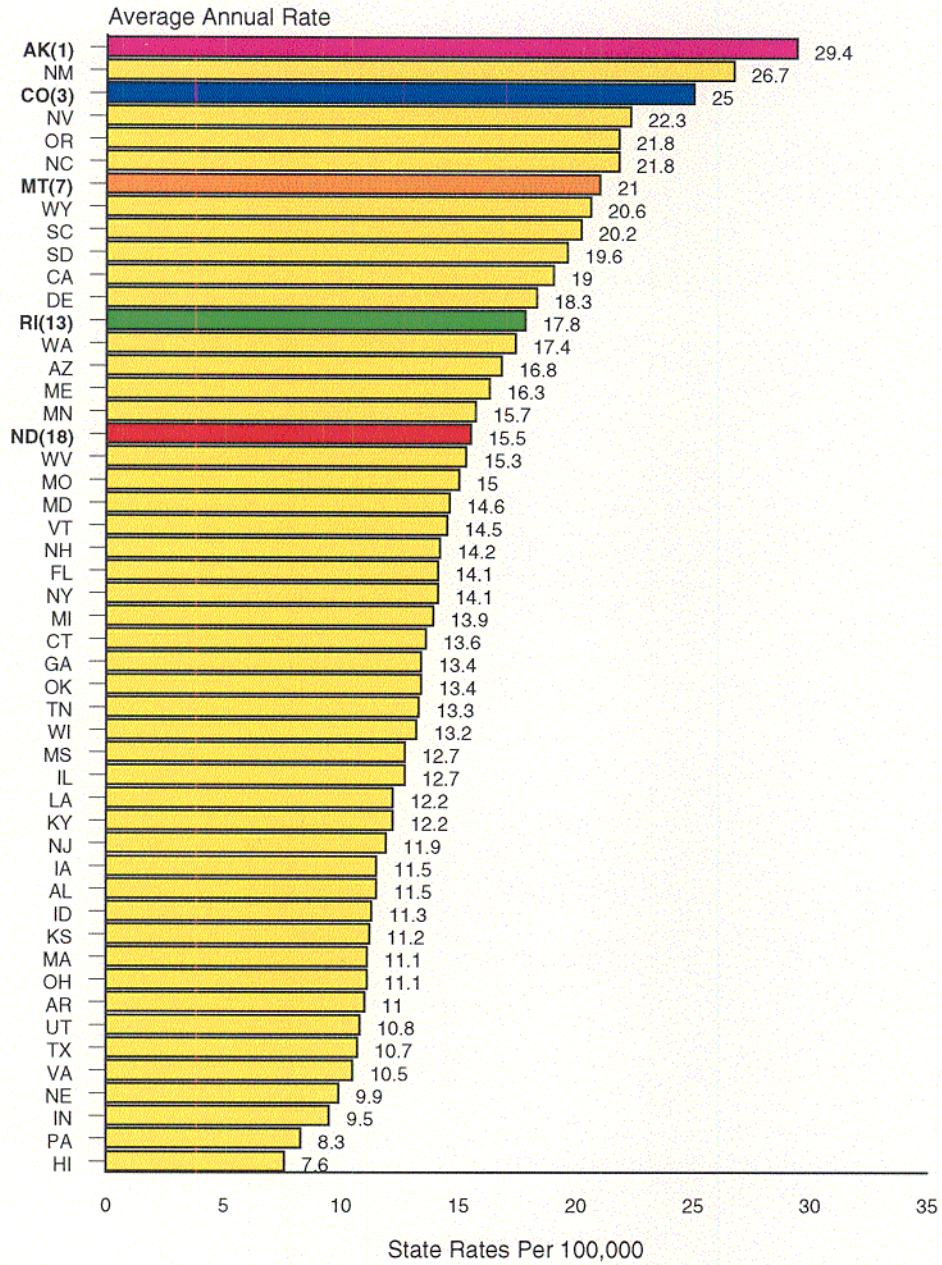


Alcohol Need Index (Region Level)

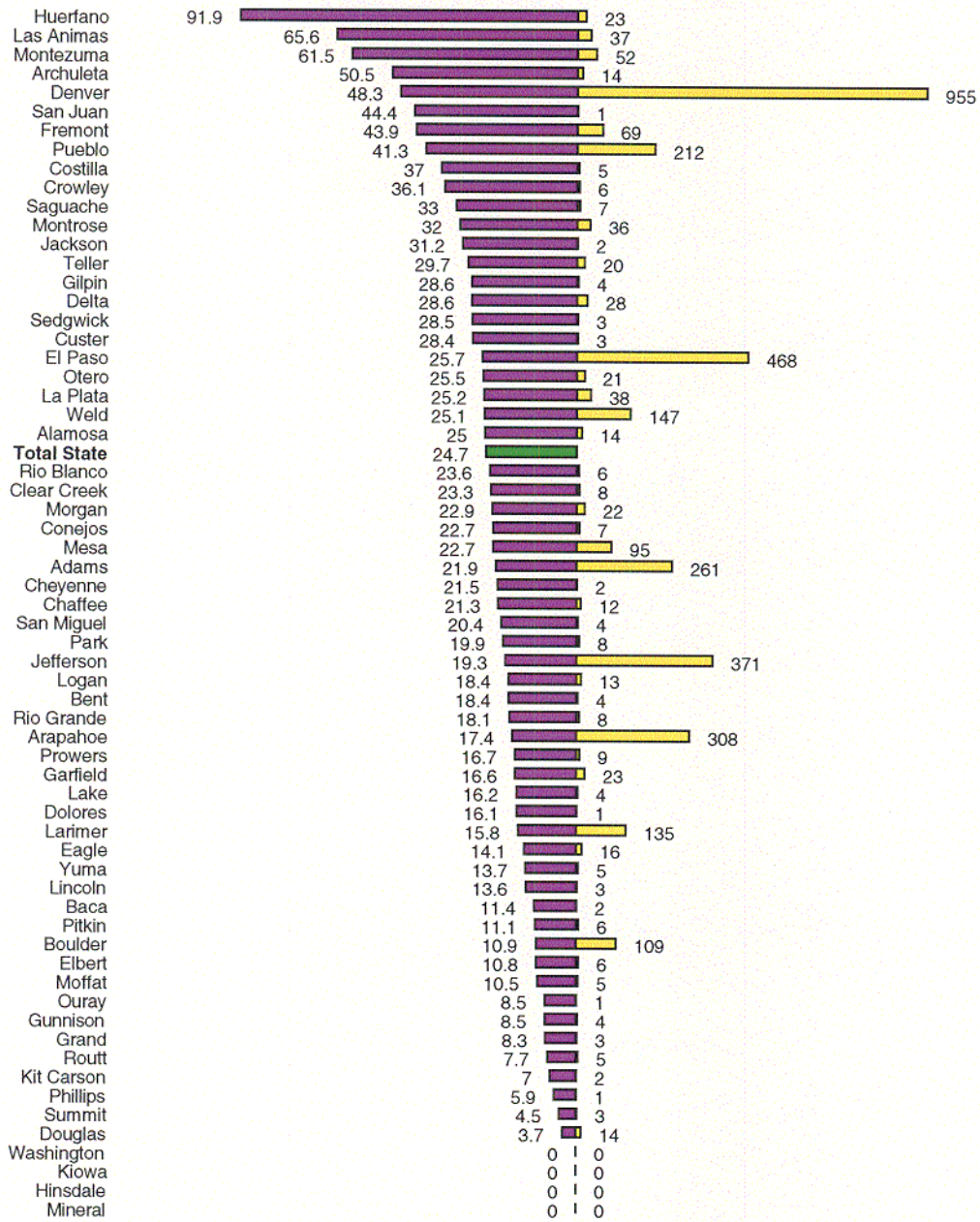


Alcohol Mortality

Alcohol Mortality Rate, 1994-1996



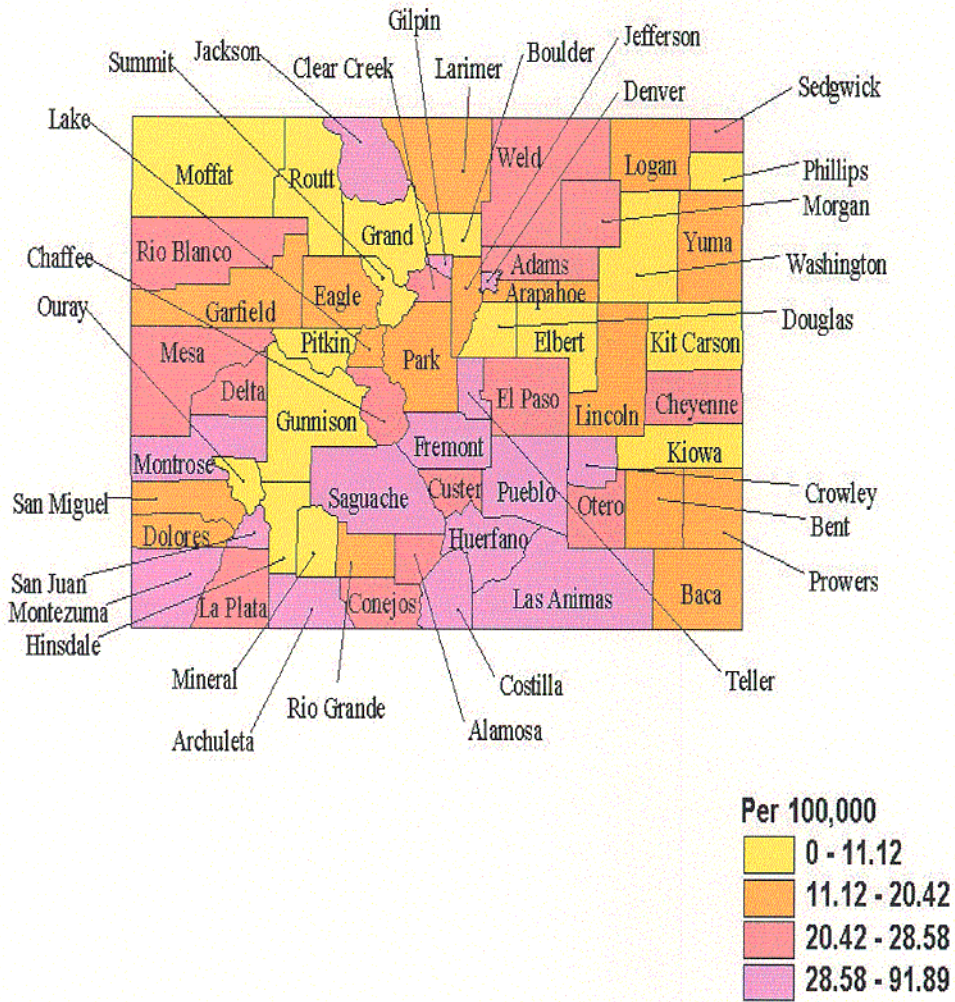
Alcohol Mortality, 1993-1996



Mean Rate Per 100,000

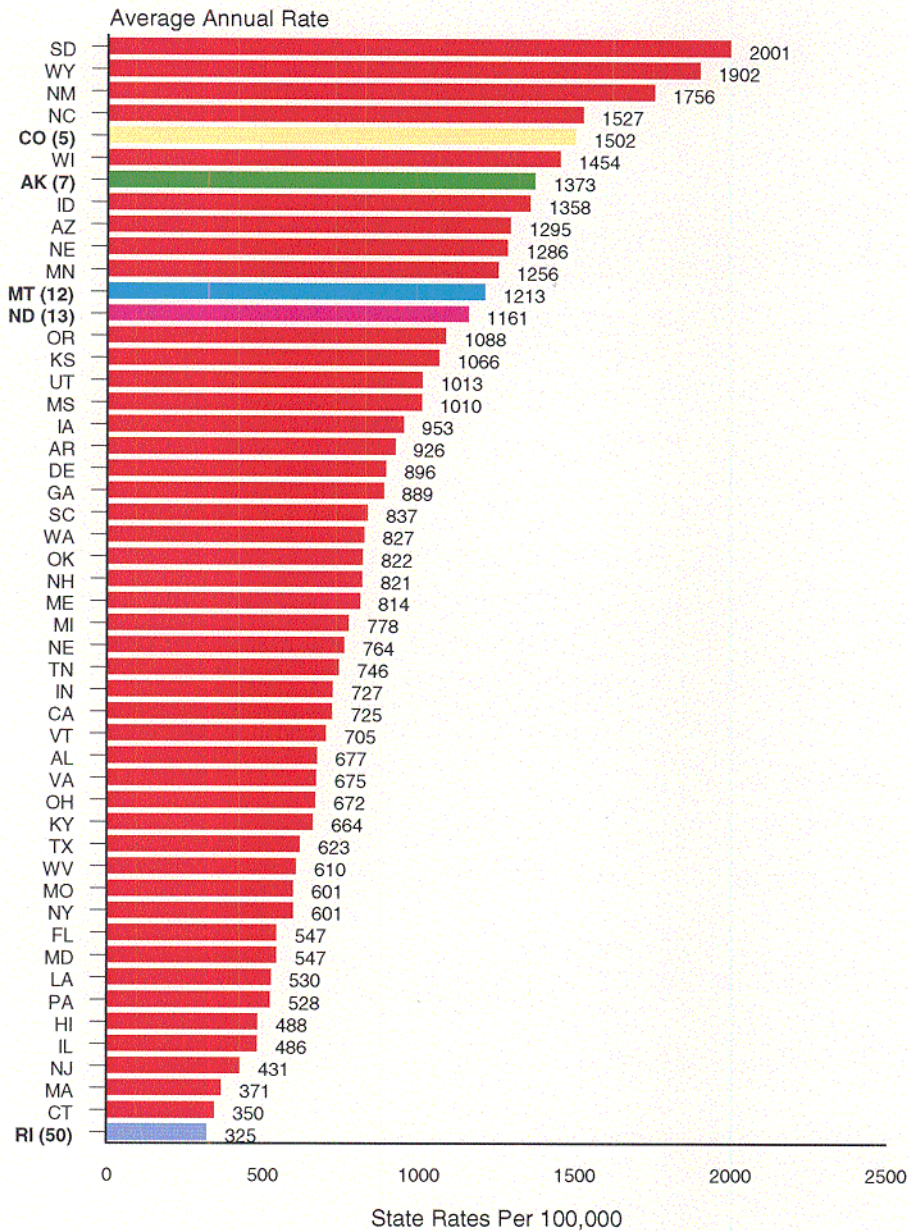
Number

Alcohol Mortality Mean Rate, 1993-1996



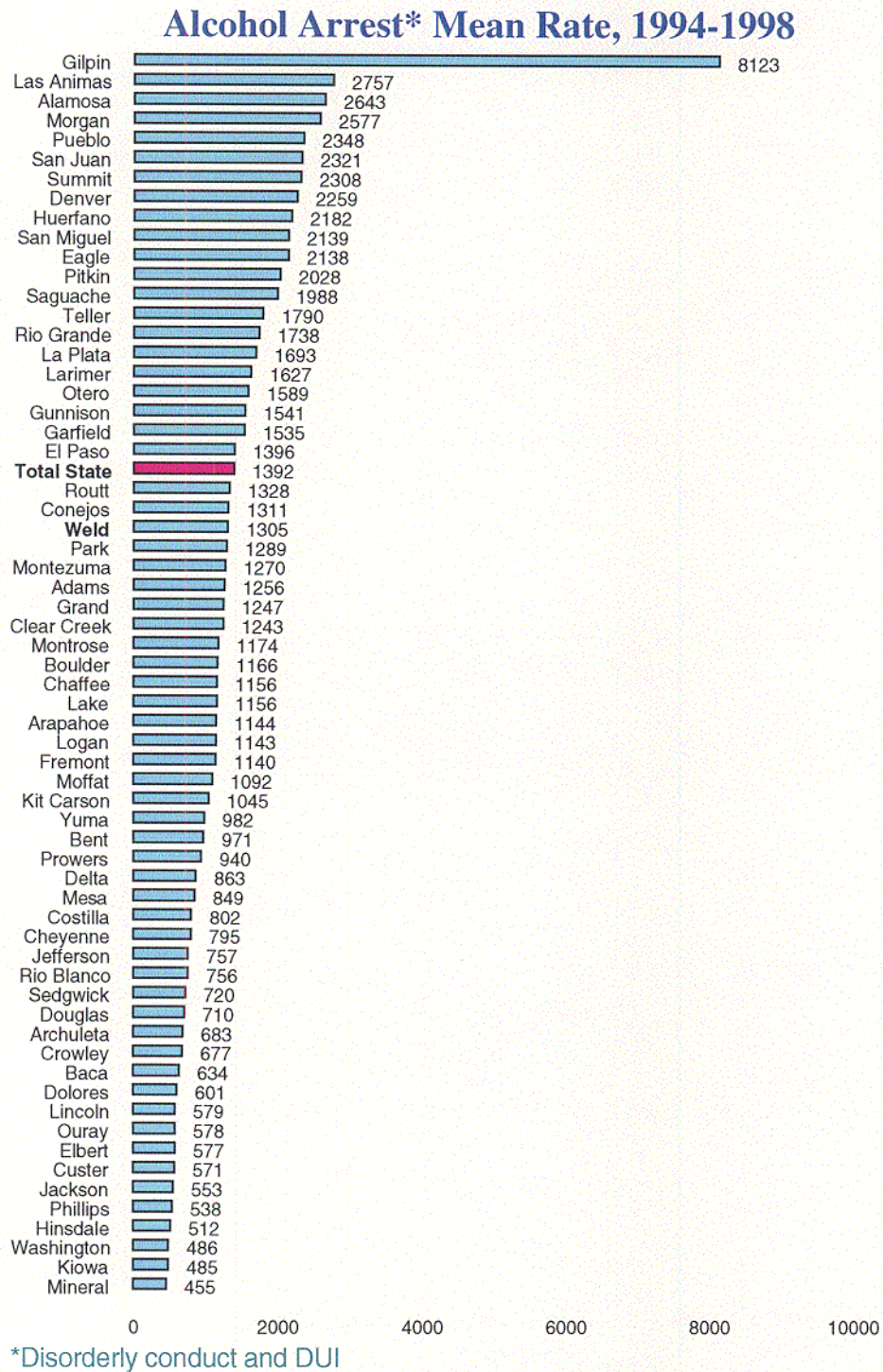
Alcohol Arrests: Driving Under the Influence and Liquor Law Violations

Alcohol Arrest* Rate, 1994-1996

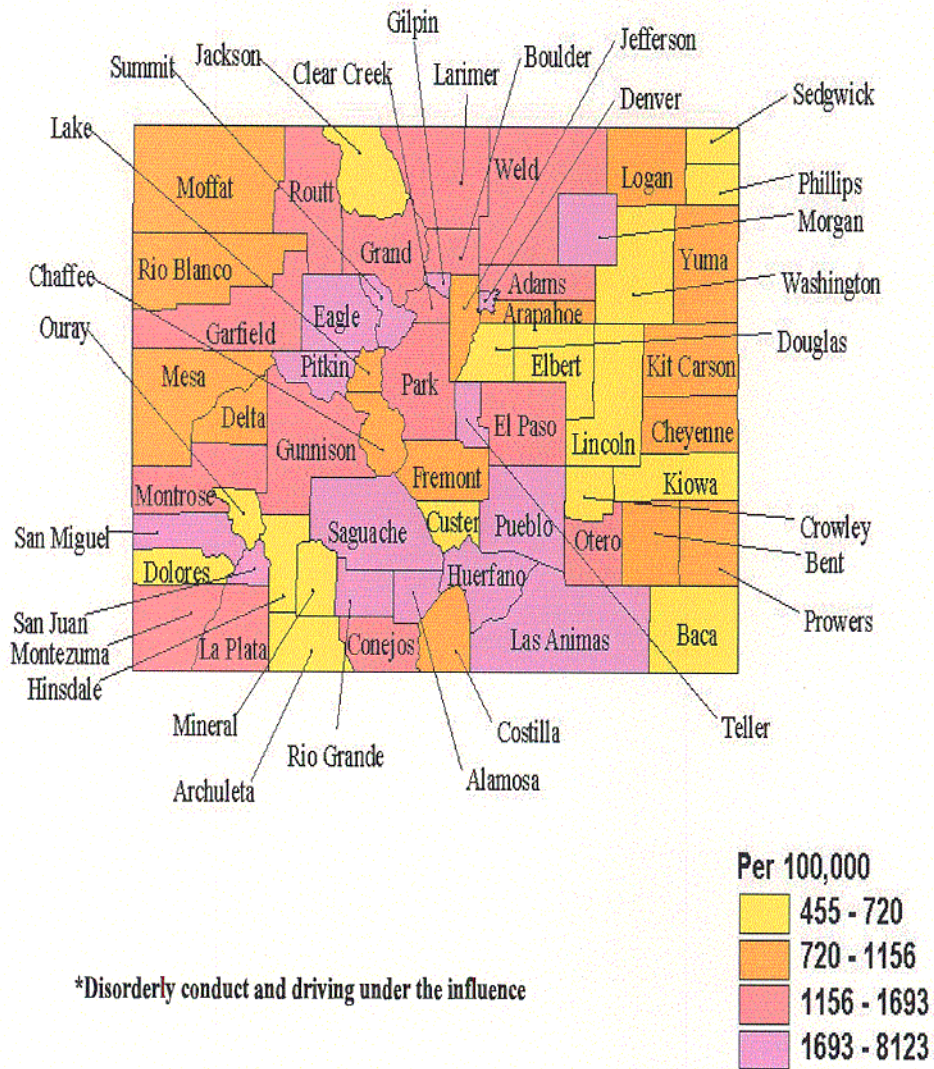


*DUI and liquor law violations

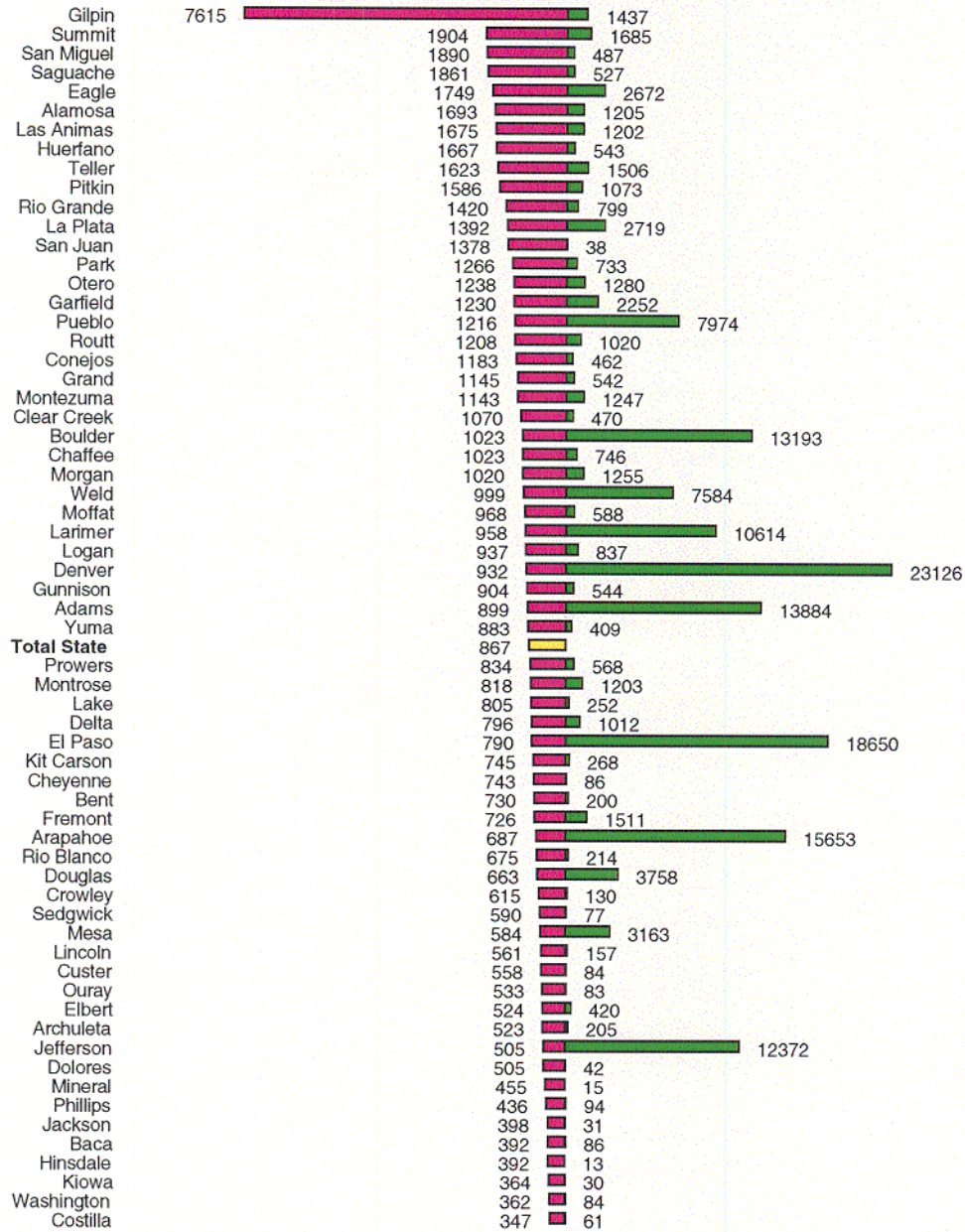
Alcohol Arrests: Driving Under the Influence and Disorderly Conduct



Alcohol Arrest* Mean Rate, 1994-1998



DUI Arrest Mean Rate, 1994-1998

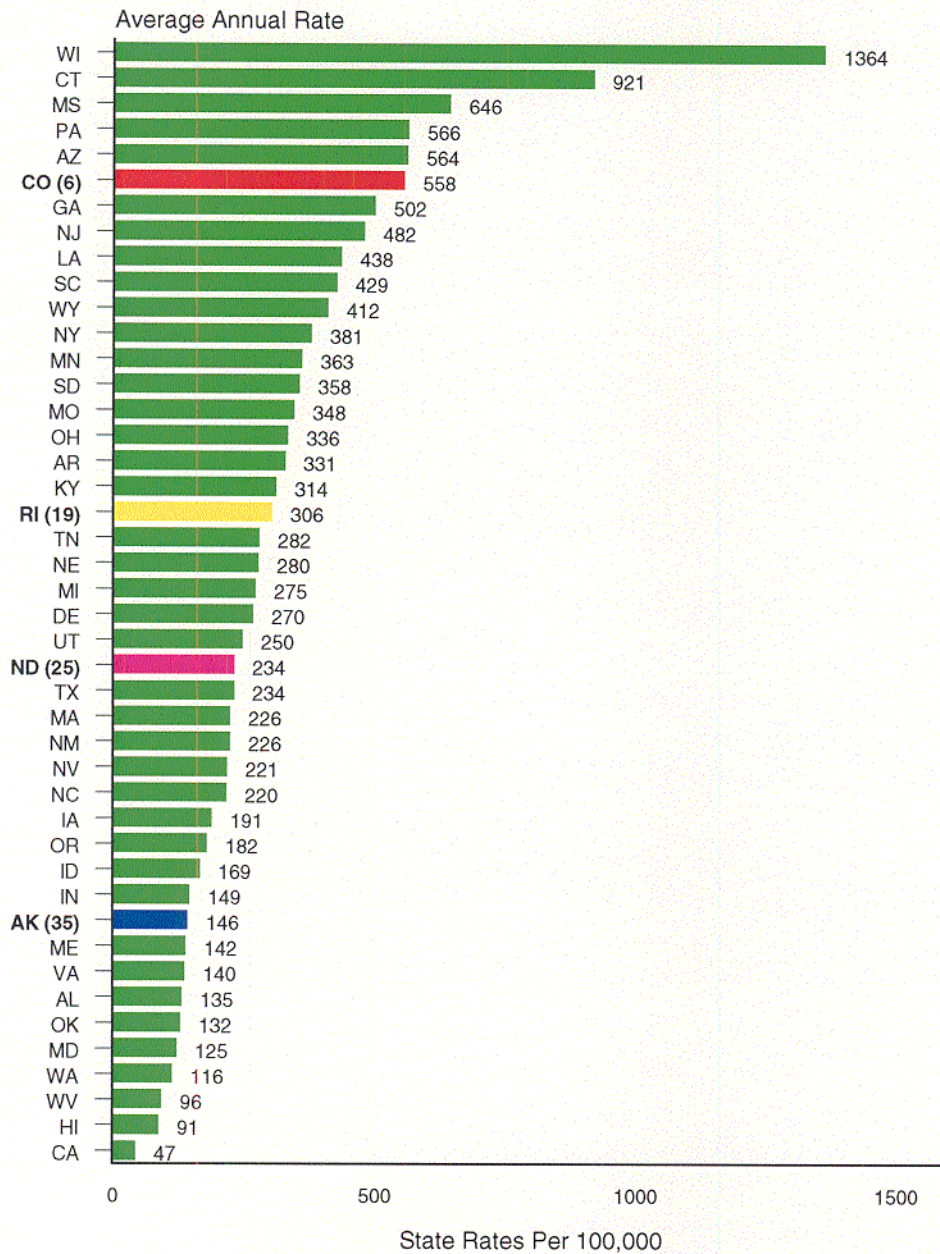


Rates Per 100,000

Number

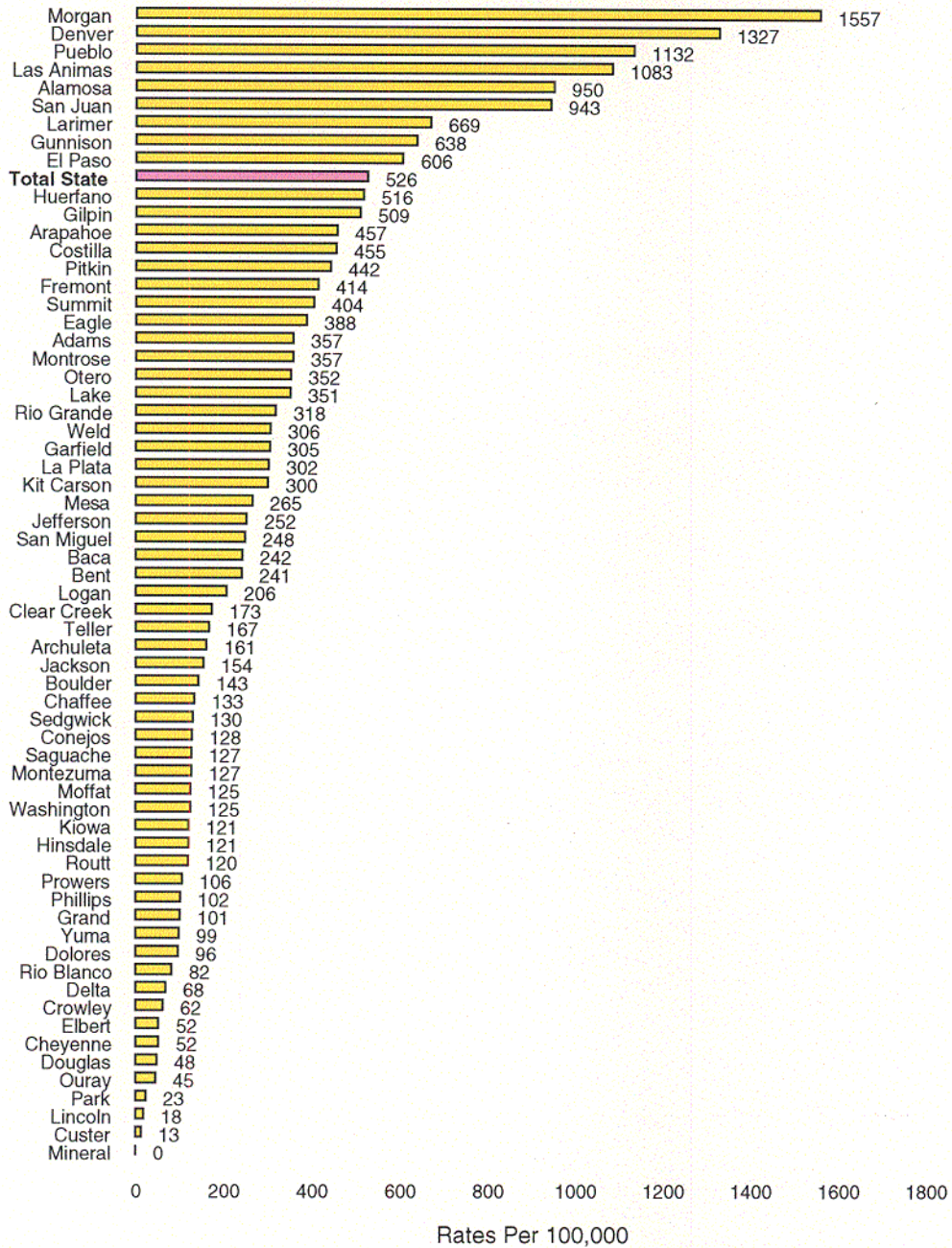
Disorderly Conduct

Disorderly Conduct Arrest Rate, 1994-1996

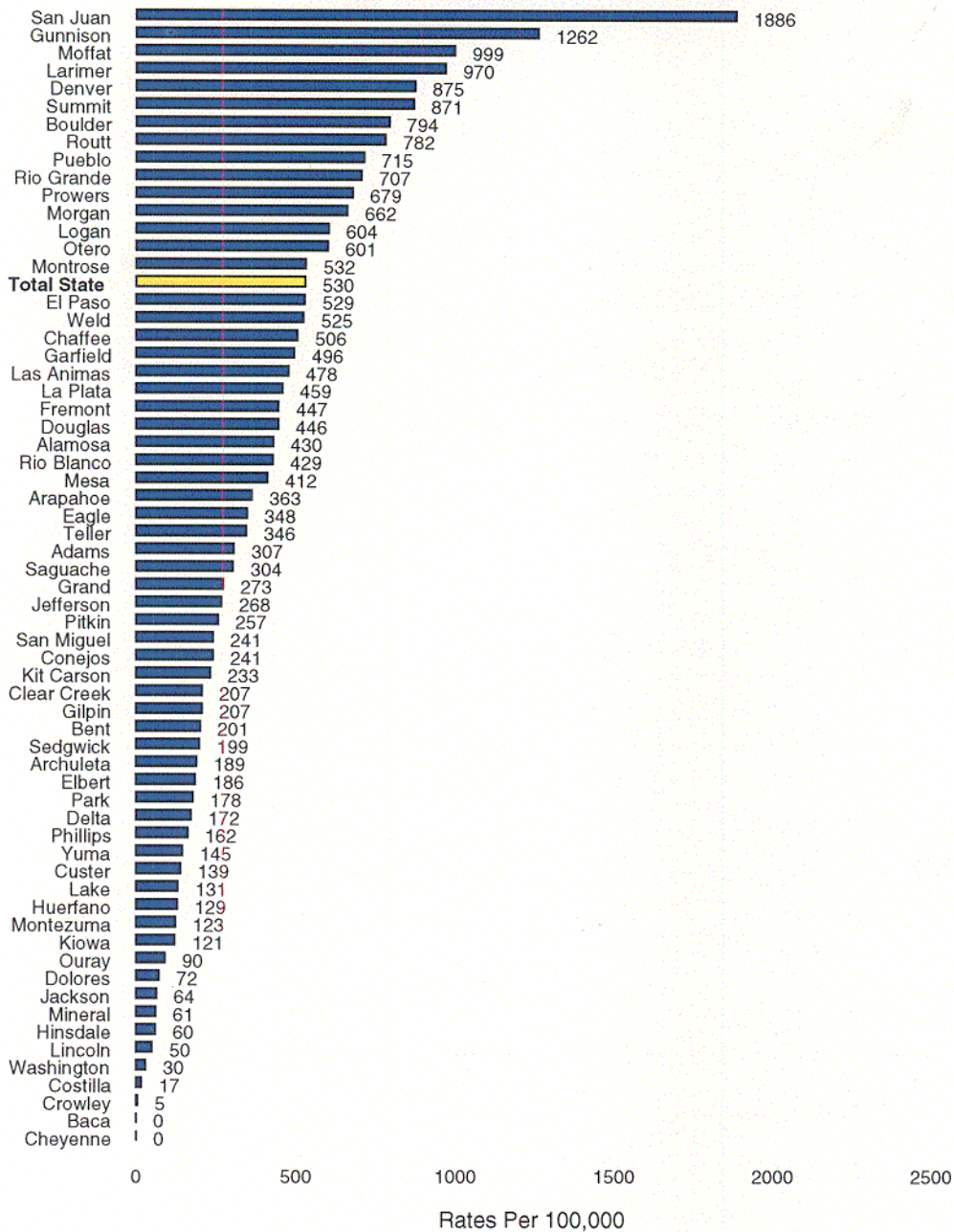


Missing data for MT, KS, NH, VT, FL, IL

Disorderly Conduct Arrest Mean Rate, 1994-1998

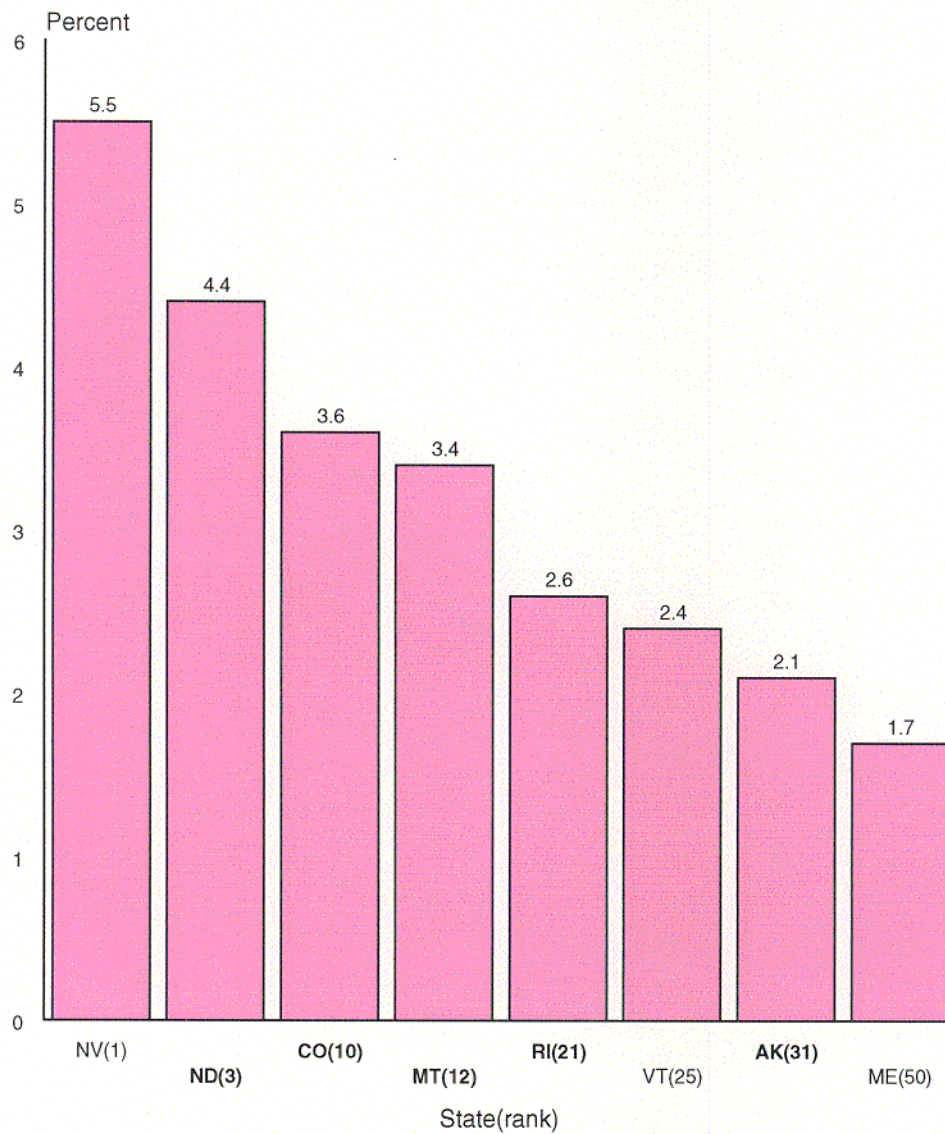


Liquor Law Violation Arrest Mean Rate, 1994-1998



Alcohol Survey Data

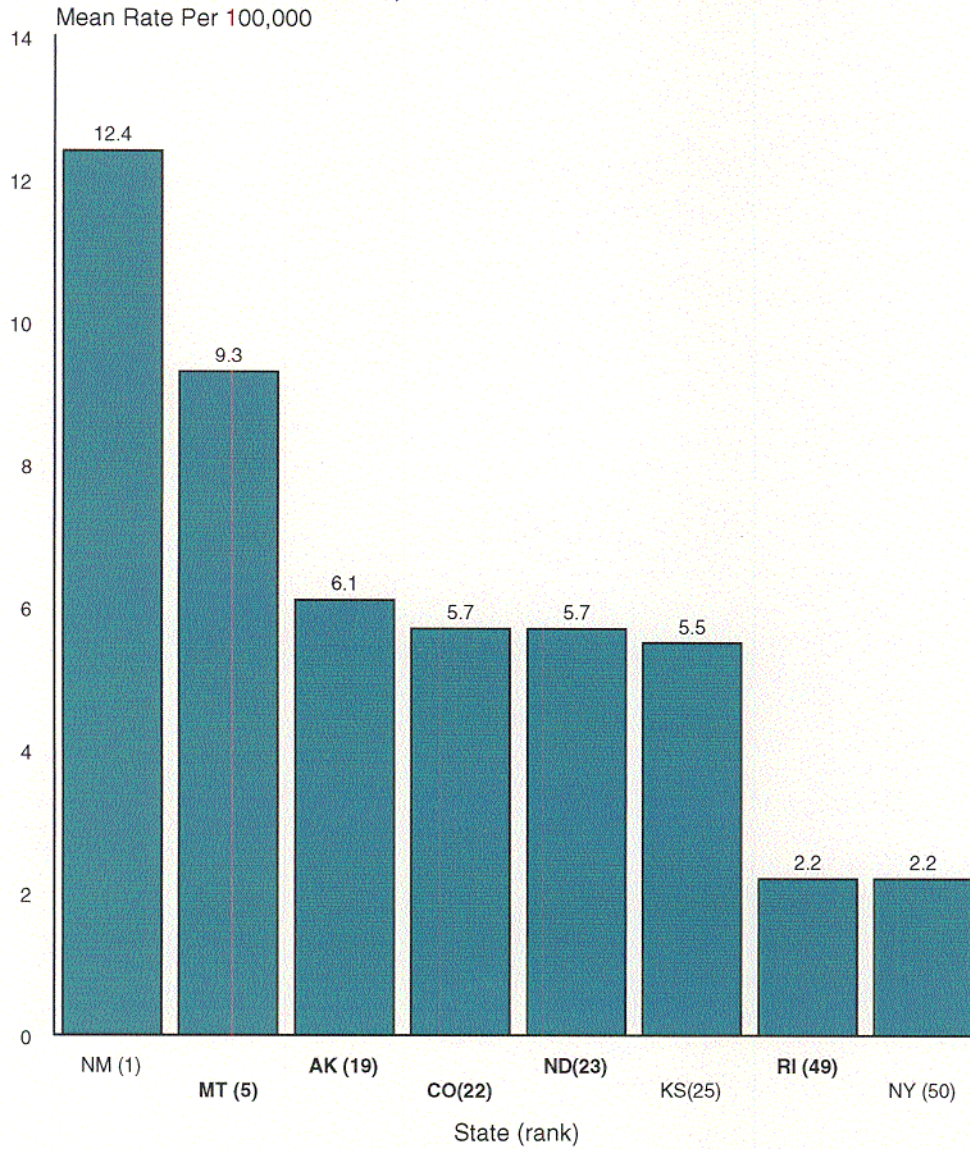
Percent Drove After Drinking Too Much, 1999



Source: Behavioral Risk Factor Surveillance System

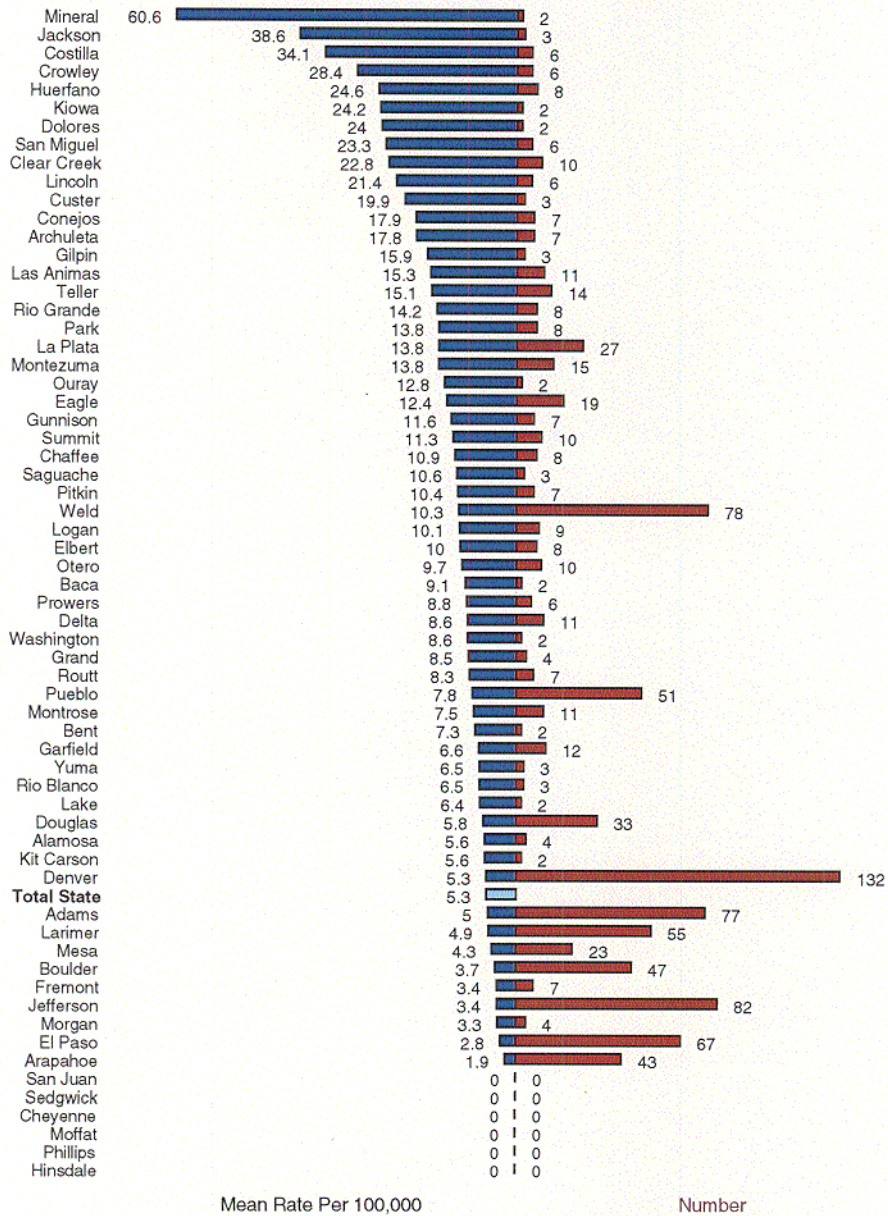
Alcohol-Related Motor Vehicle Fatalities

Alcohol-Related Traffic Fatality Rate*, 1994-1996



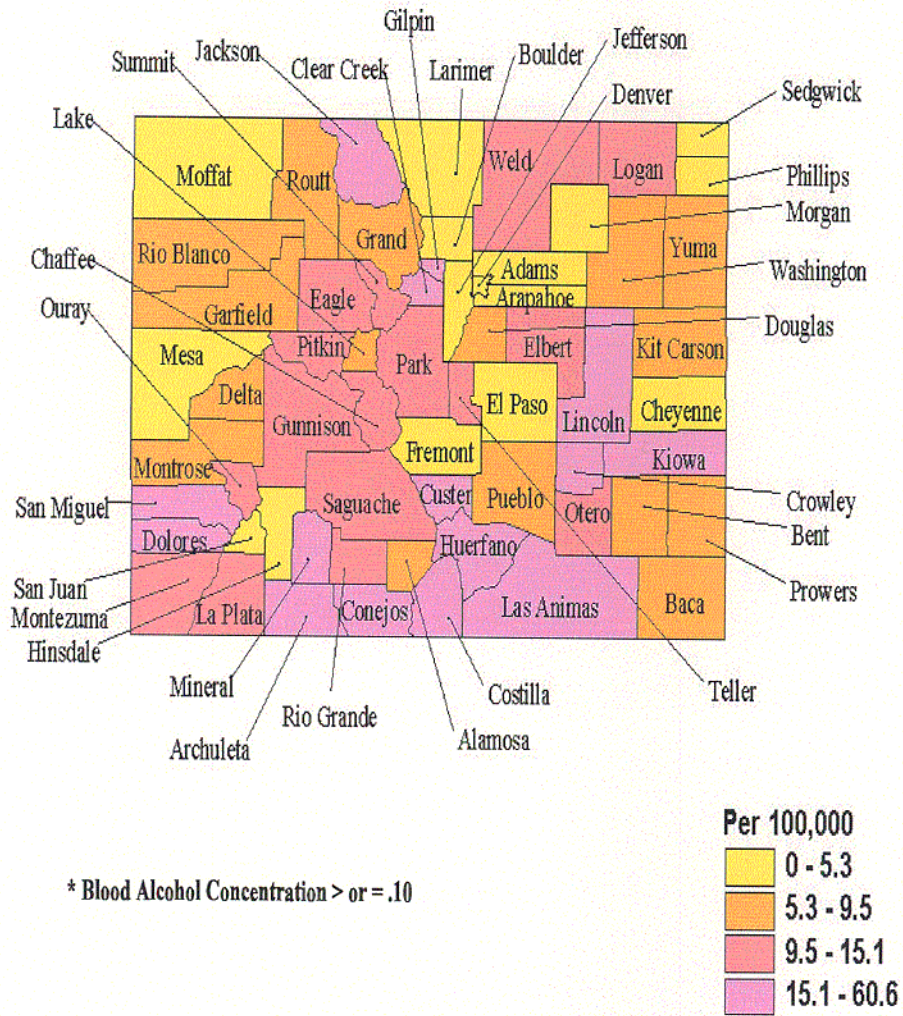
*Blood Alcohol Concentration of Driver or Nonoccupant > or = .10

Alcohol-Related Traffic Fatality Rate*, 1994-1998



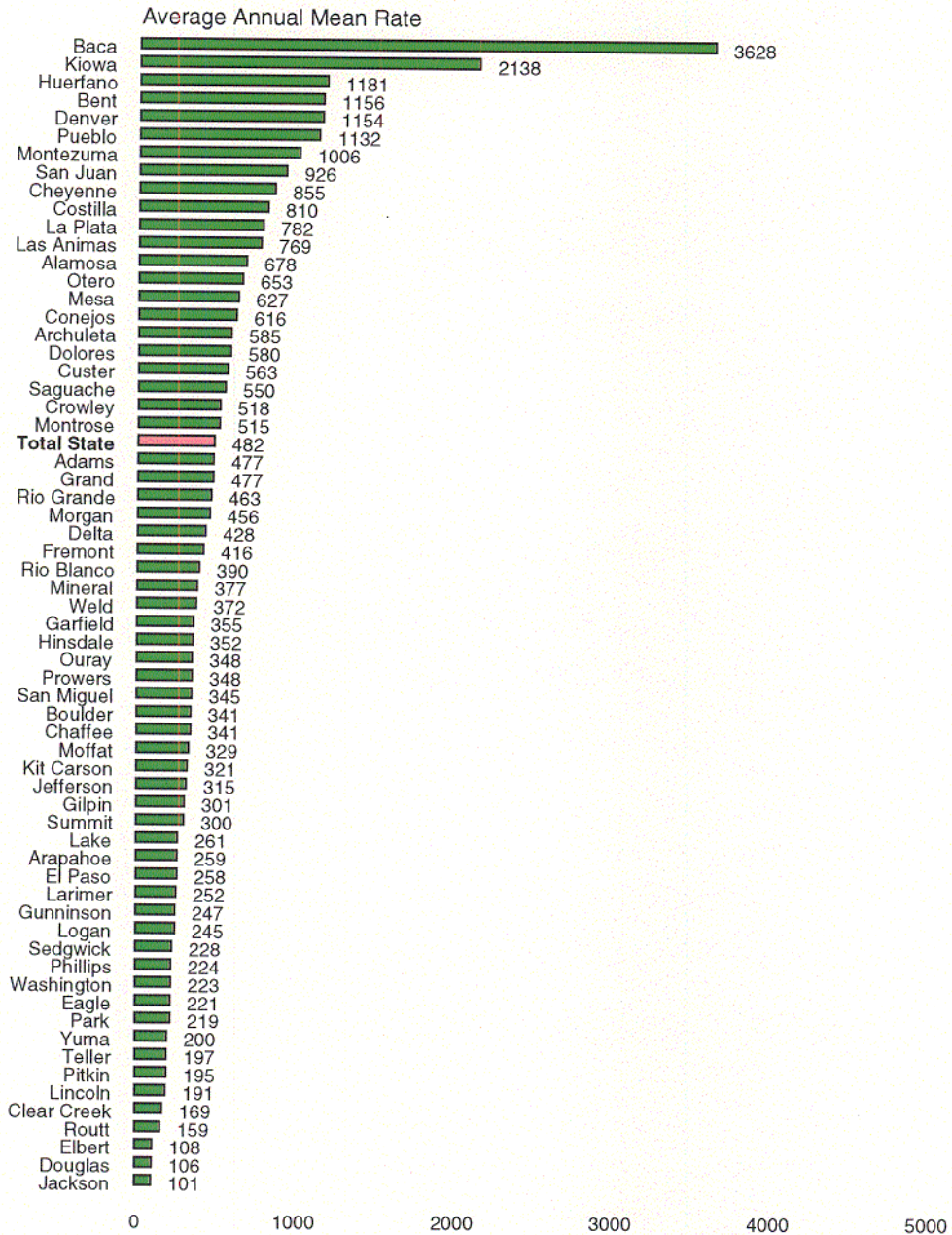
*Blood Alcohol Content of Driver or Nonoccupant > or = .10

Alcohol Related Traffic Fatality* Rate, 1994-1998

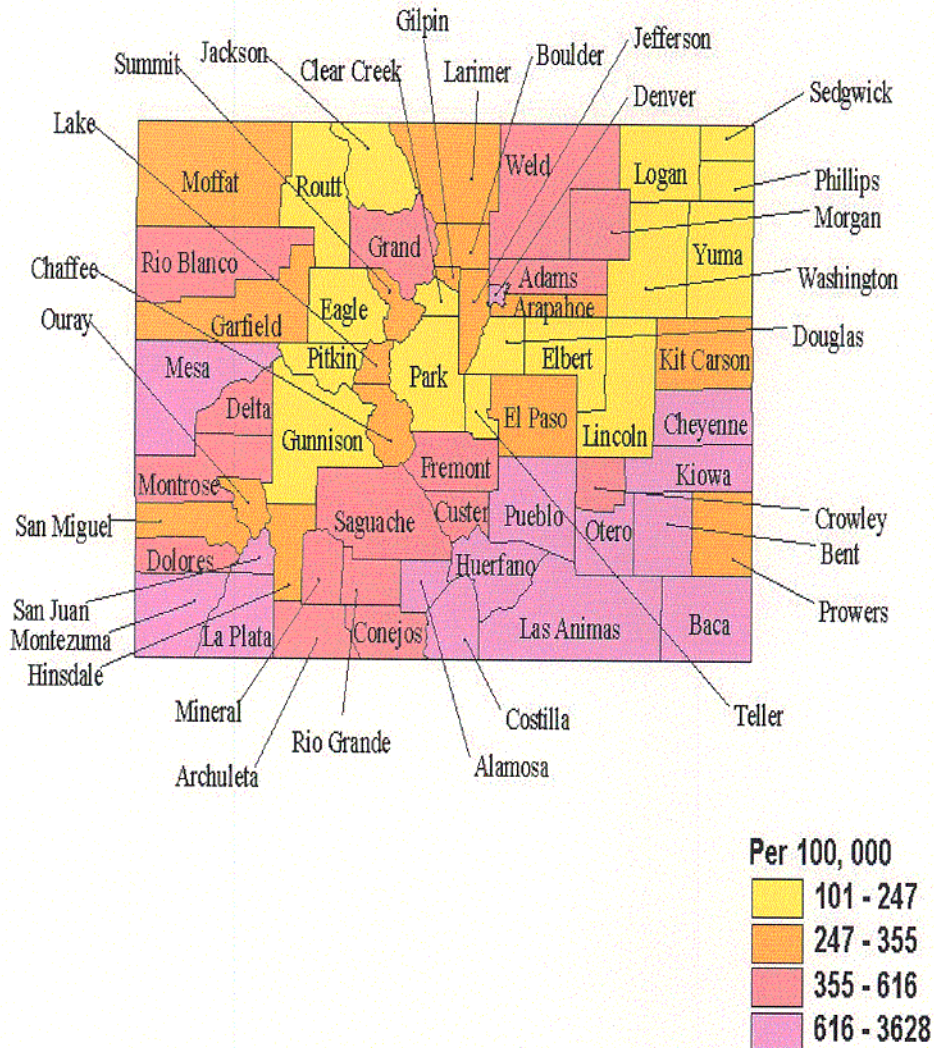


Alcohol-Related Hospital Discharge Diagnoses

Alcohol Hospital Discharge Diagnoses, 1993-1997

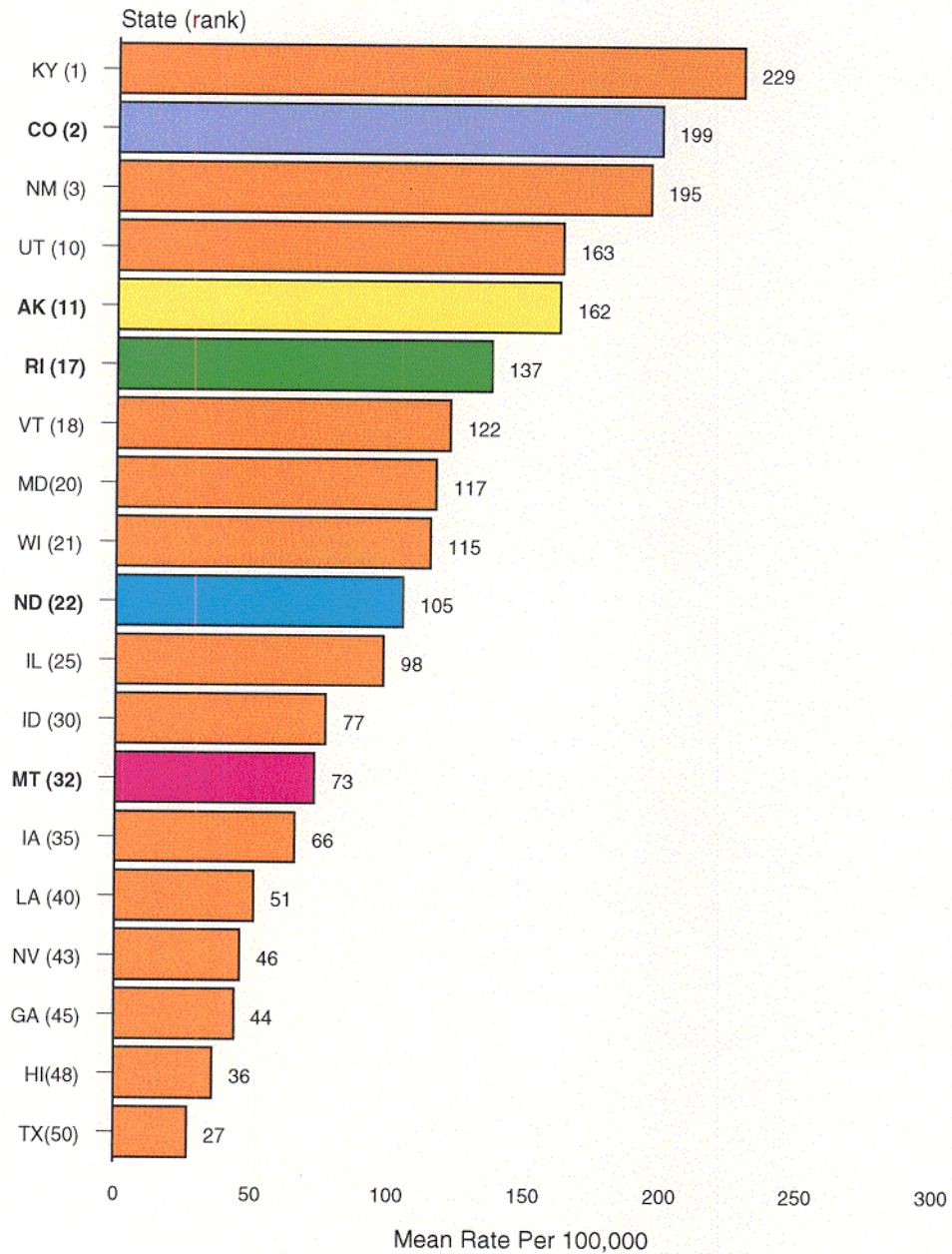


Alcohol Hospital Discharge Diagnoses Mean Rate, 1993-1997



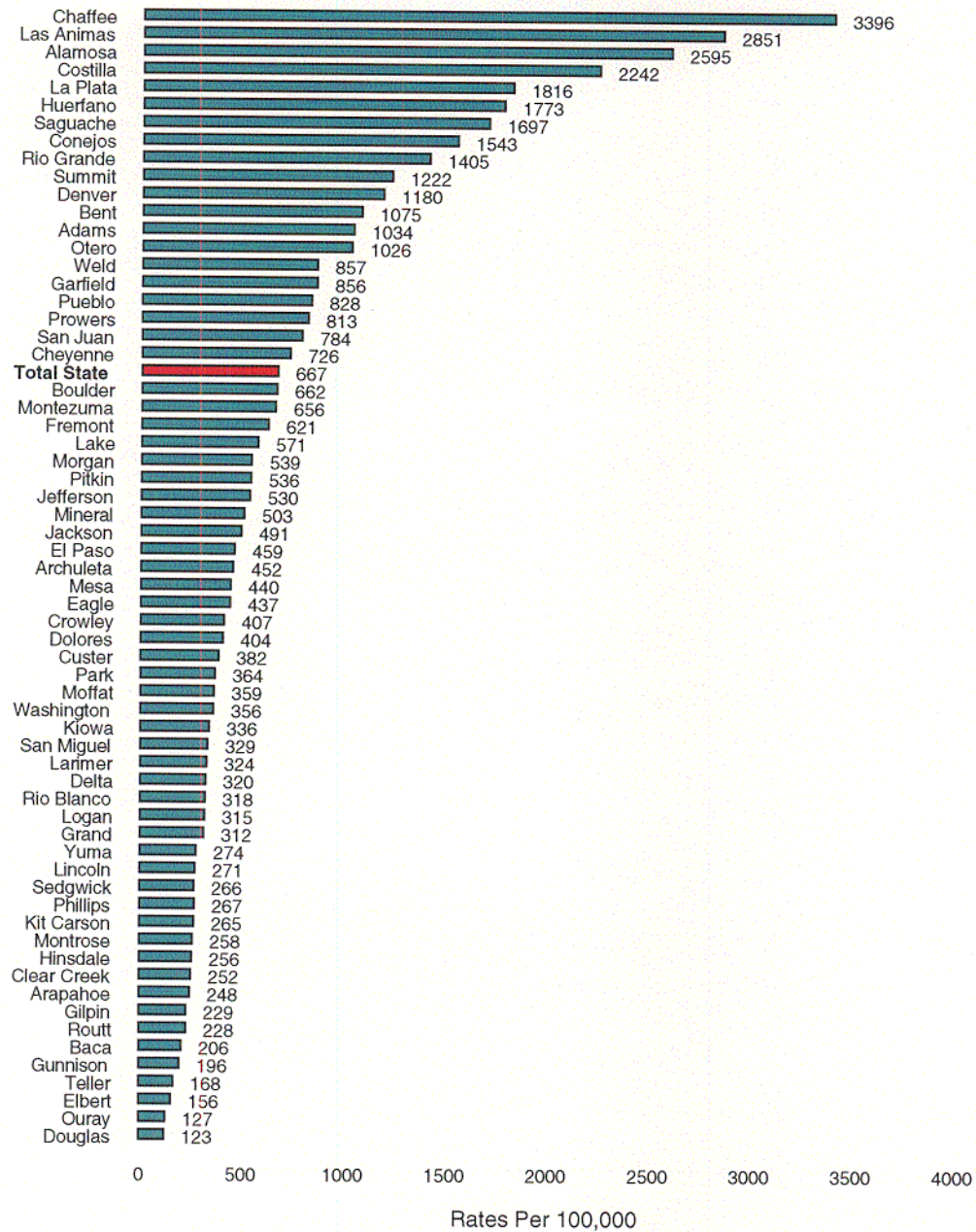
Alcohol Treatment

Alcohol-Only Treatment Clients, 1994-1996

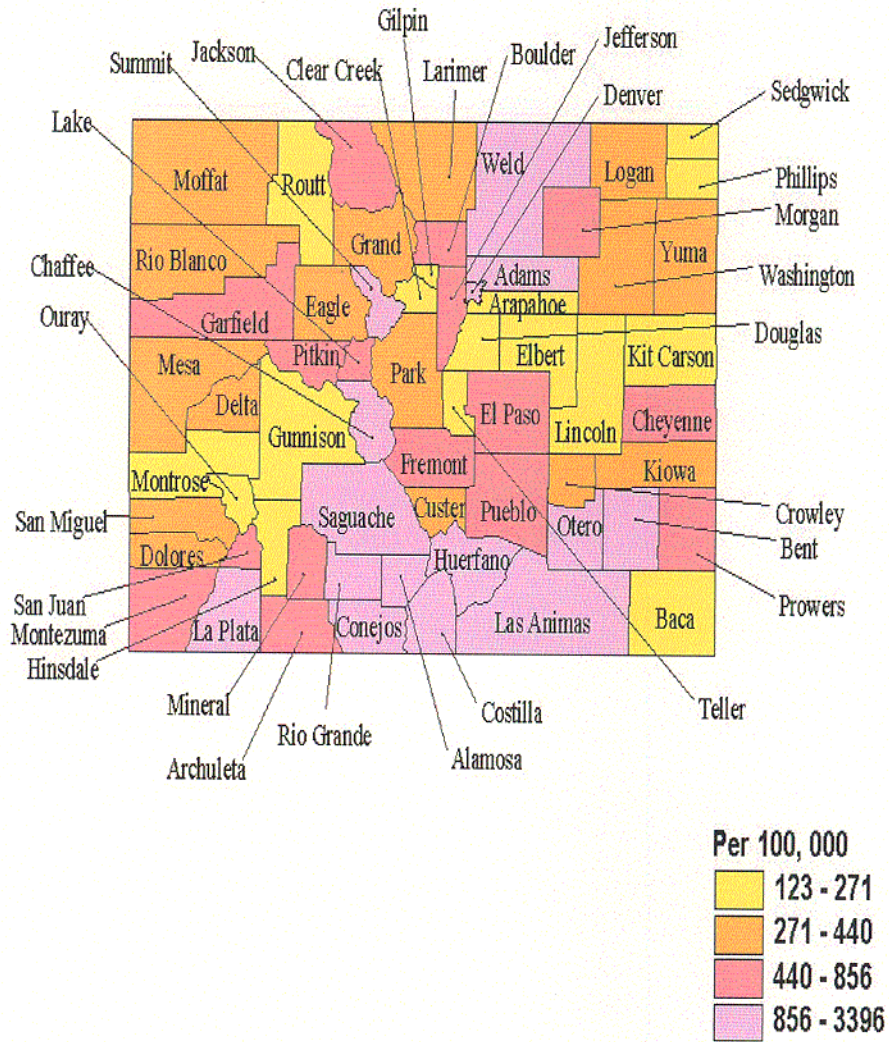


Source: Uniform Facilities Data Set (UFDS)

Alcohol Treatment Client Mean Rate, 1993-1997



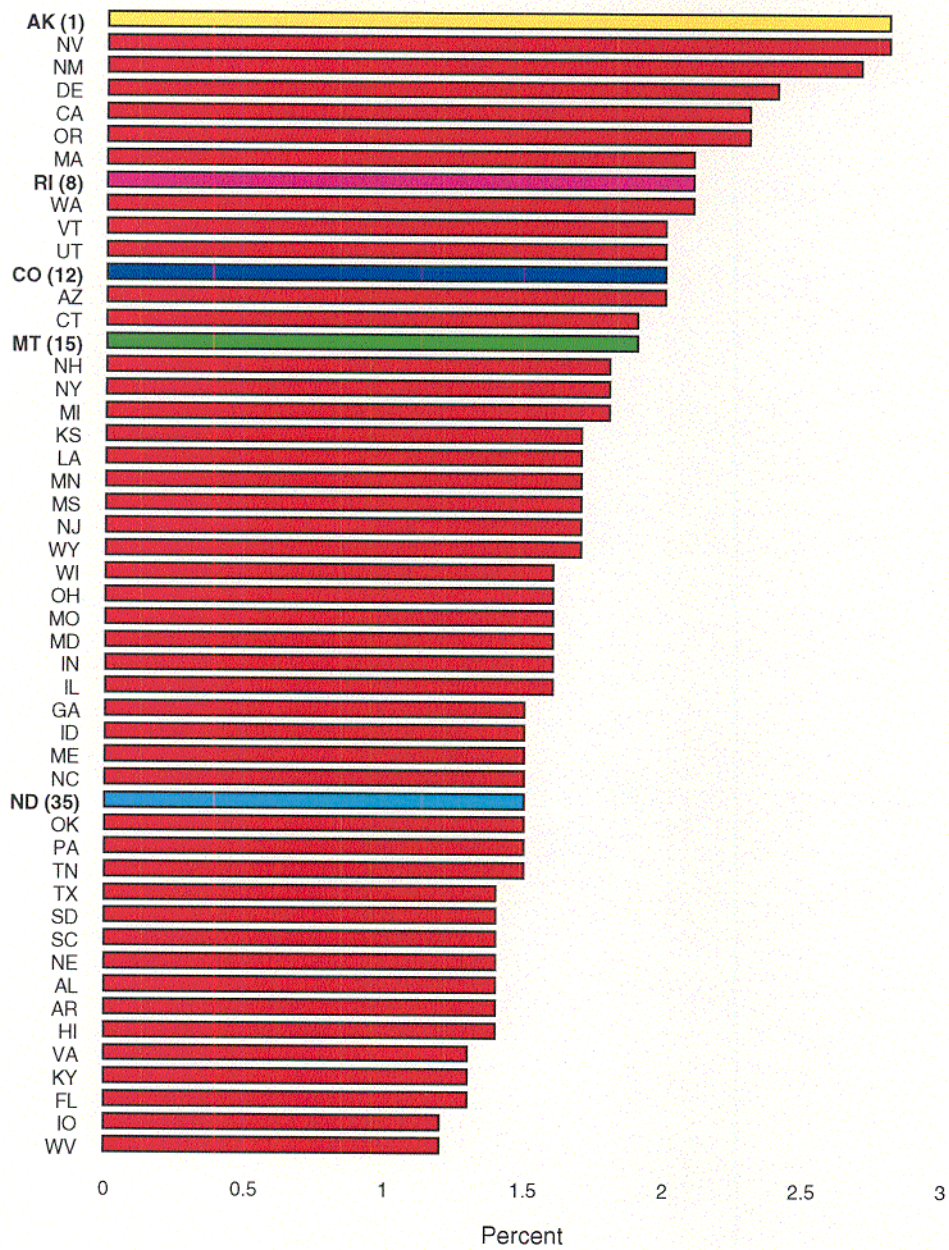
Alcohol Treatment Client Mean Rate, 1993-1997



CONTROLLED DRUG INDICATORS

Drug Problems Compared to Other States

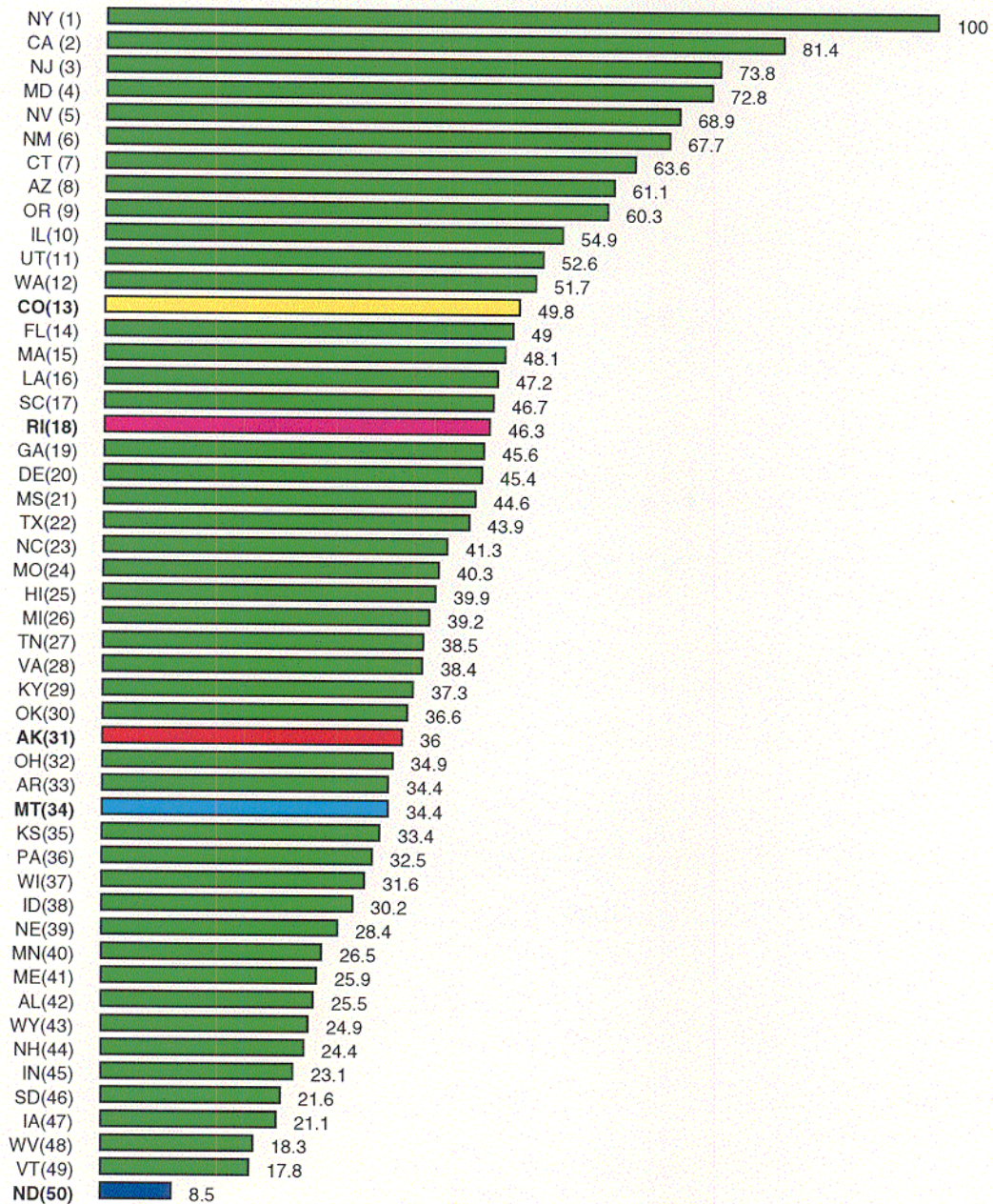
Past-Year Drug Dependence, 1999



Source: National Household Survey on Drug Abuse (2000)

Drug Treatment Need Index

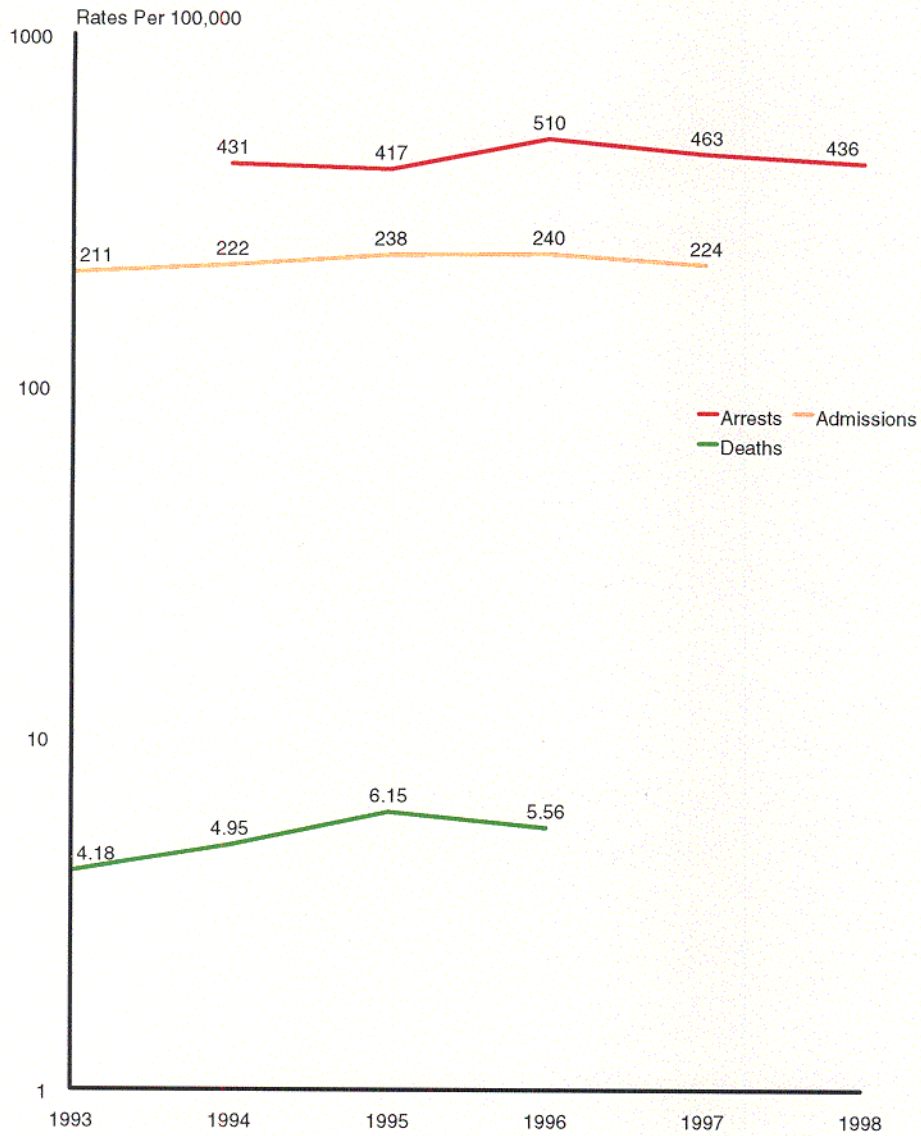
Drug Need Index, 1994-1996



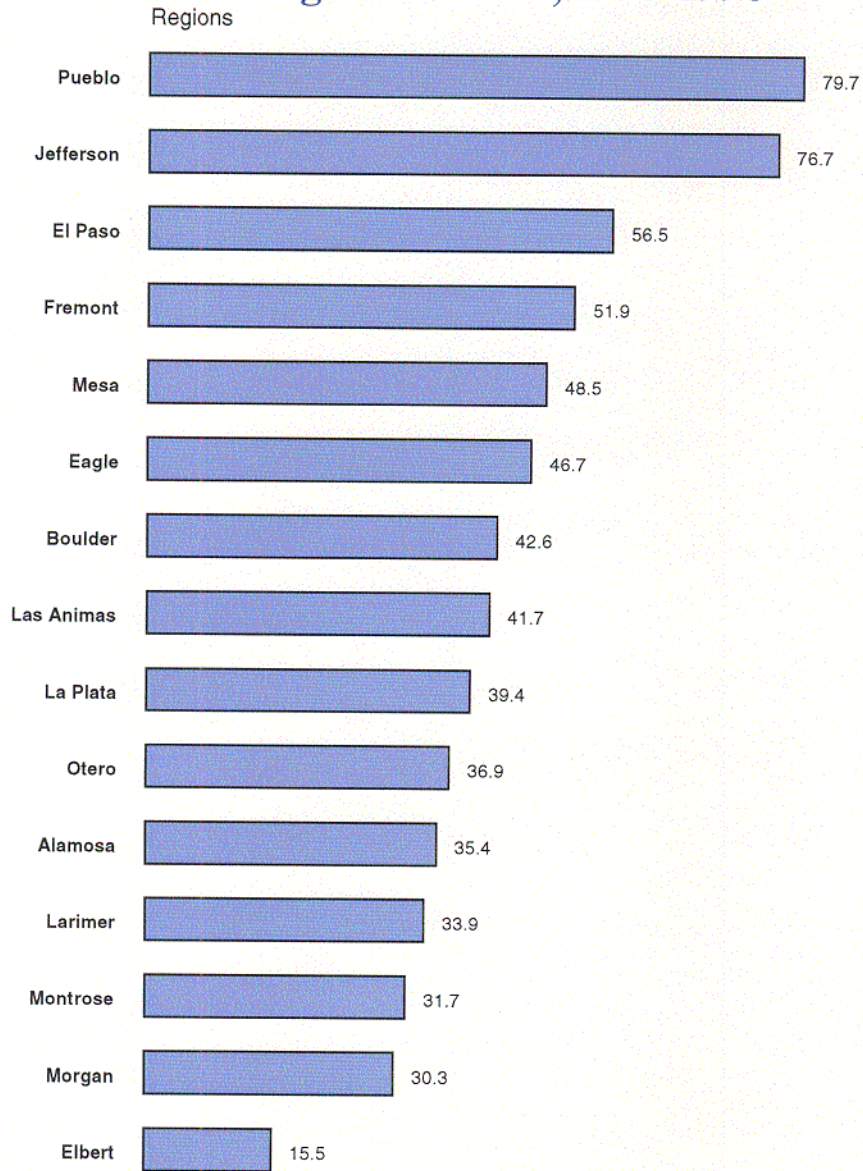
Index Scores

Drug-Related Indicators in Colorado

Drug Indicators 1993-1998

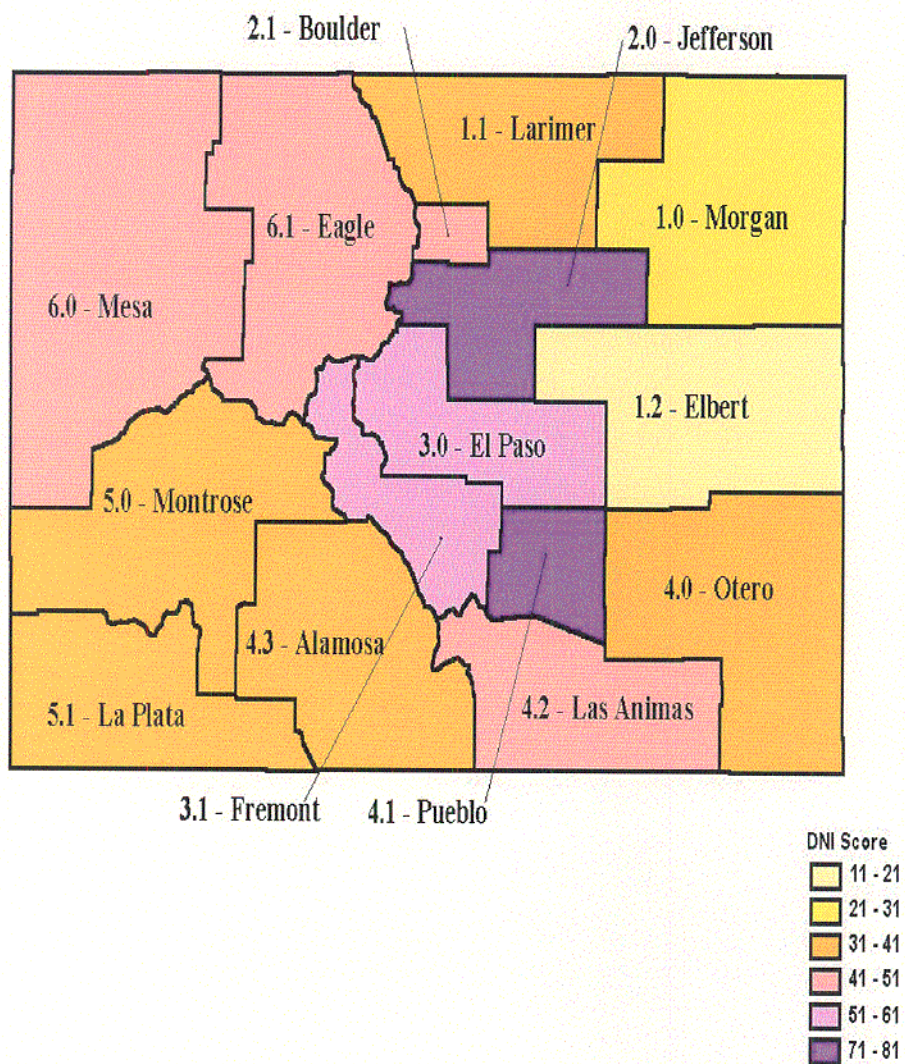


Drug Need Index, 1993-1998



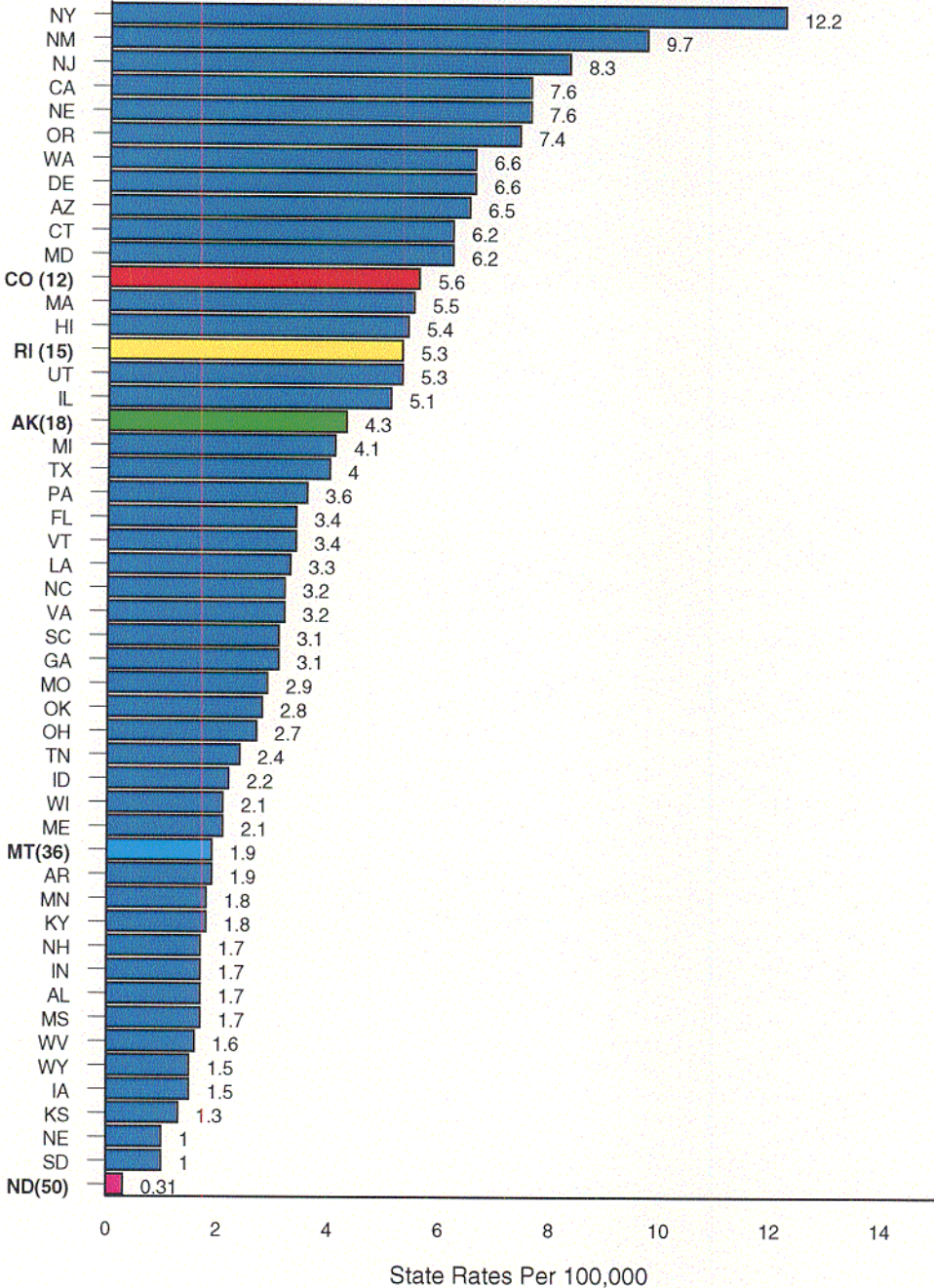
Index Scores

Drug Need Index (Region Level)

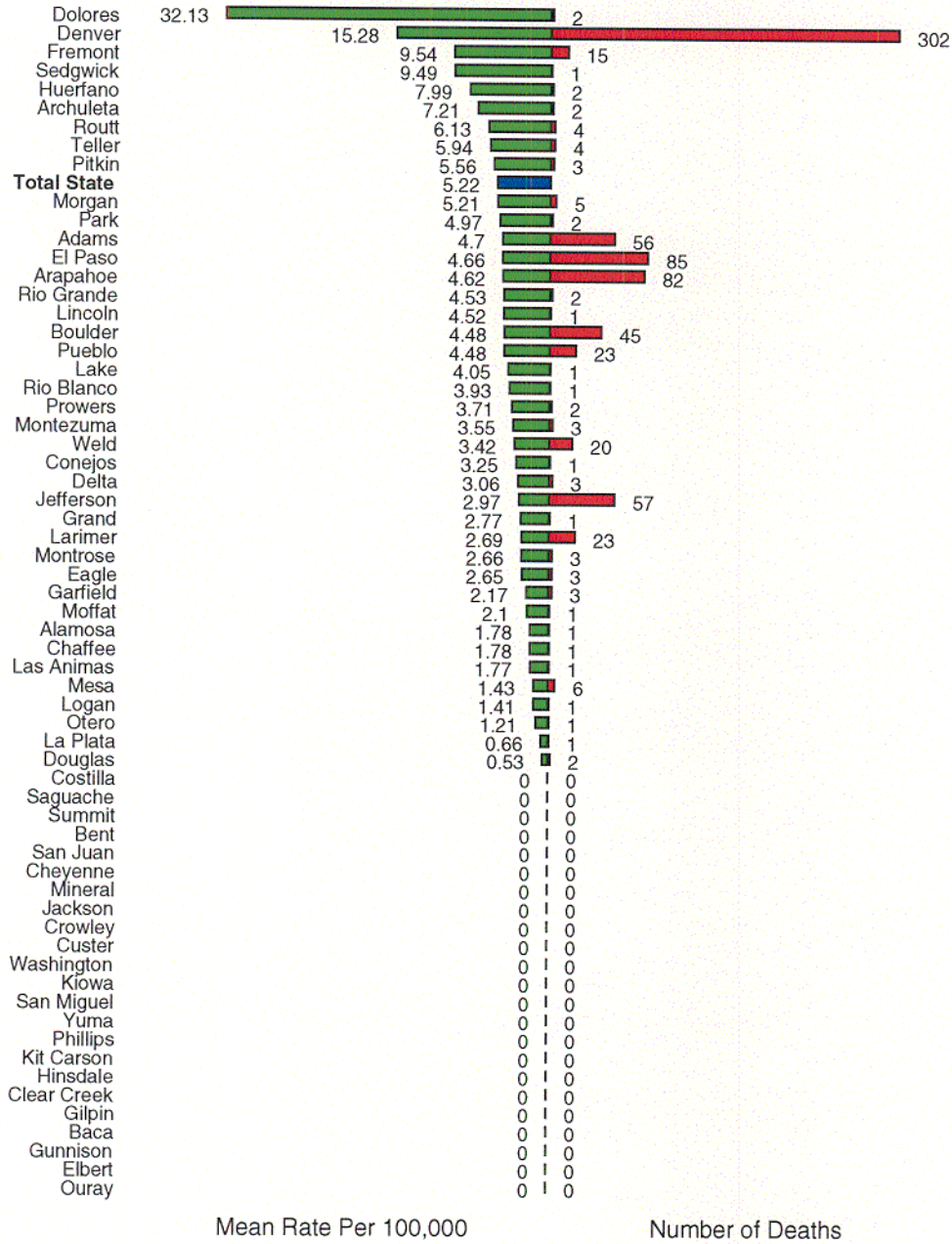


Drug Mortality

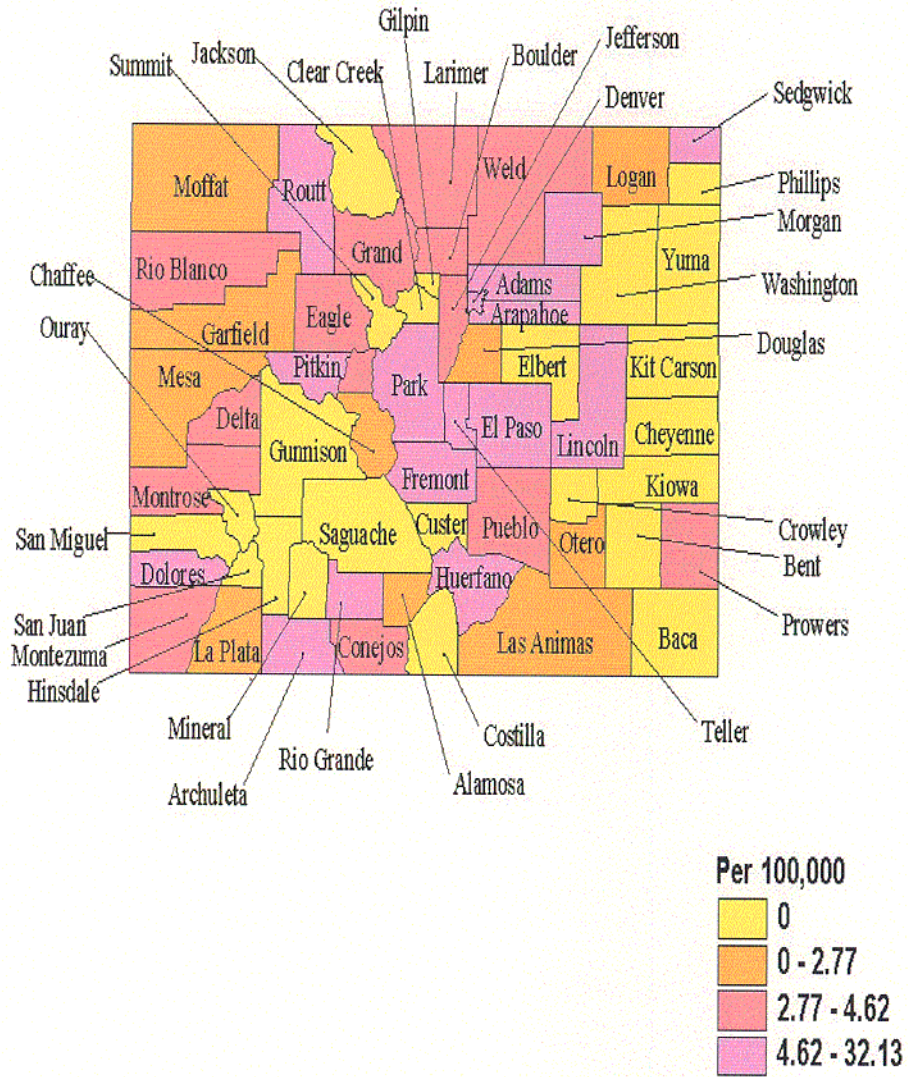
Drug Mortality Mean Rate, 1994-1996



Drug Mortality, 1993-1996

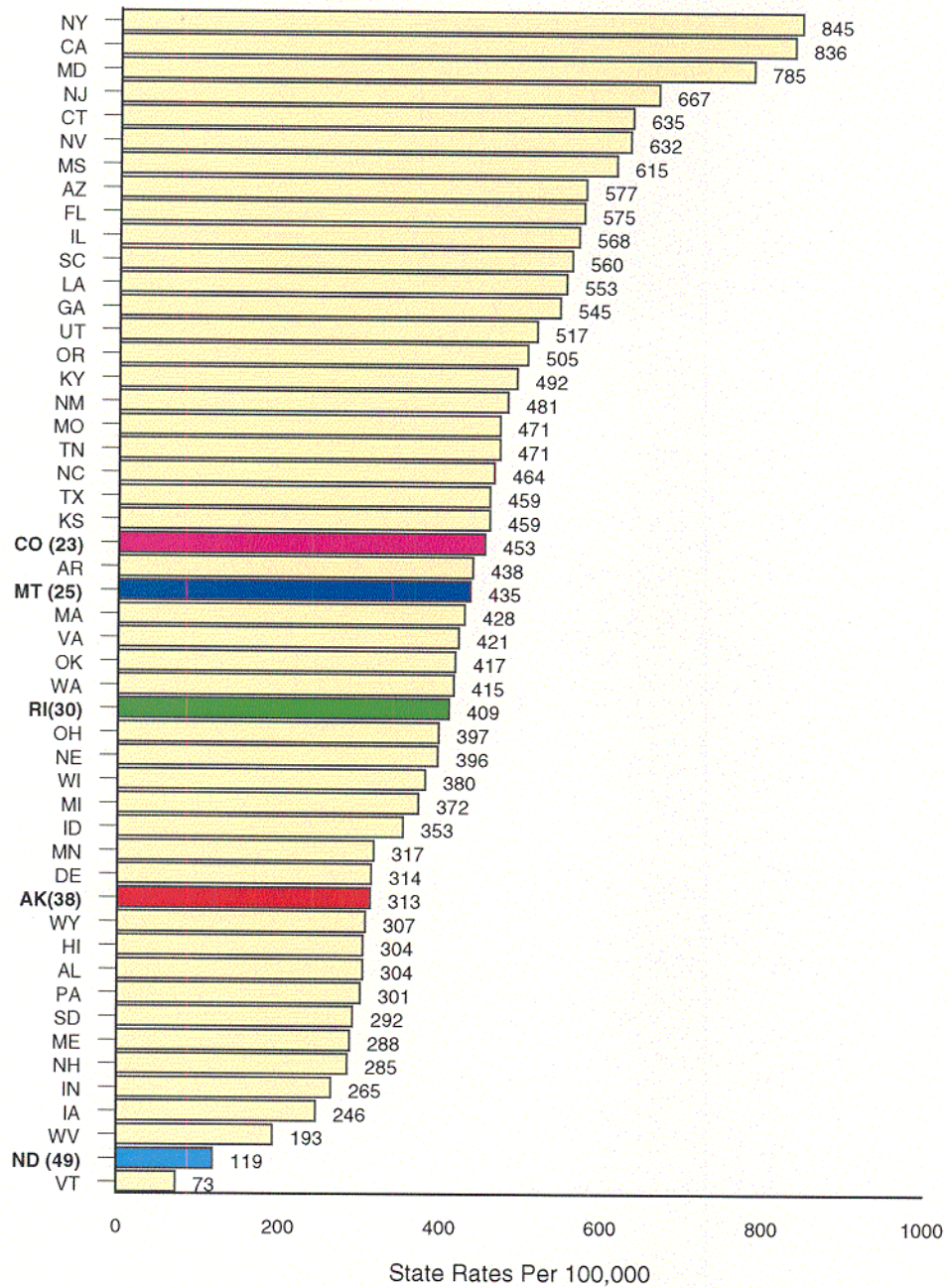


Drug Mortality Mean Rate, 1993-1996



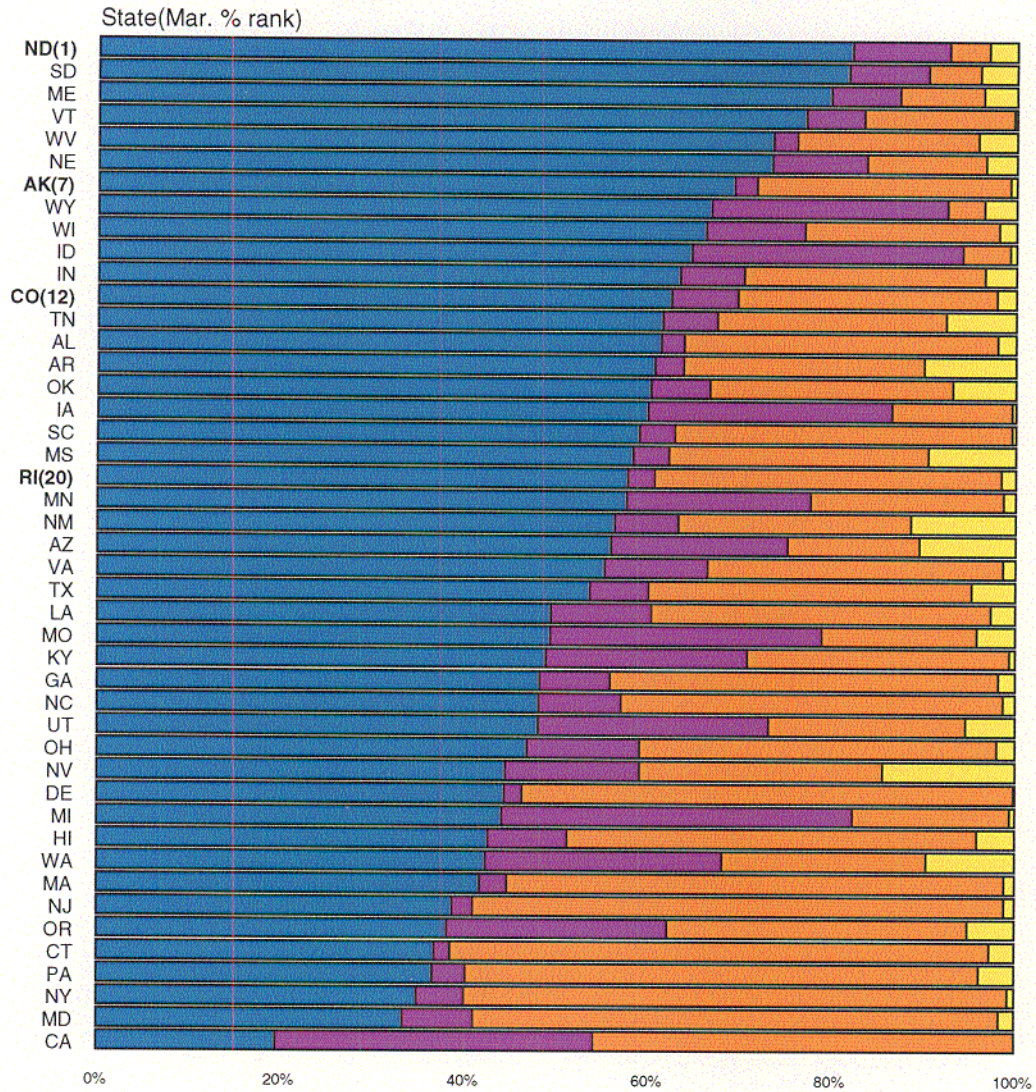
Drug Arrests

Drug Arrest Mean Rate, 1994-1996

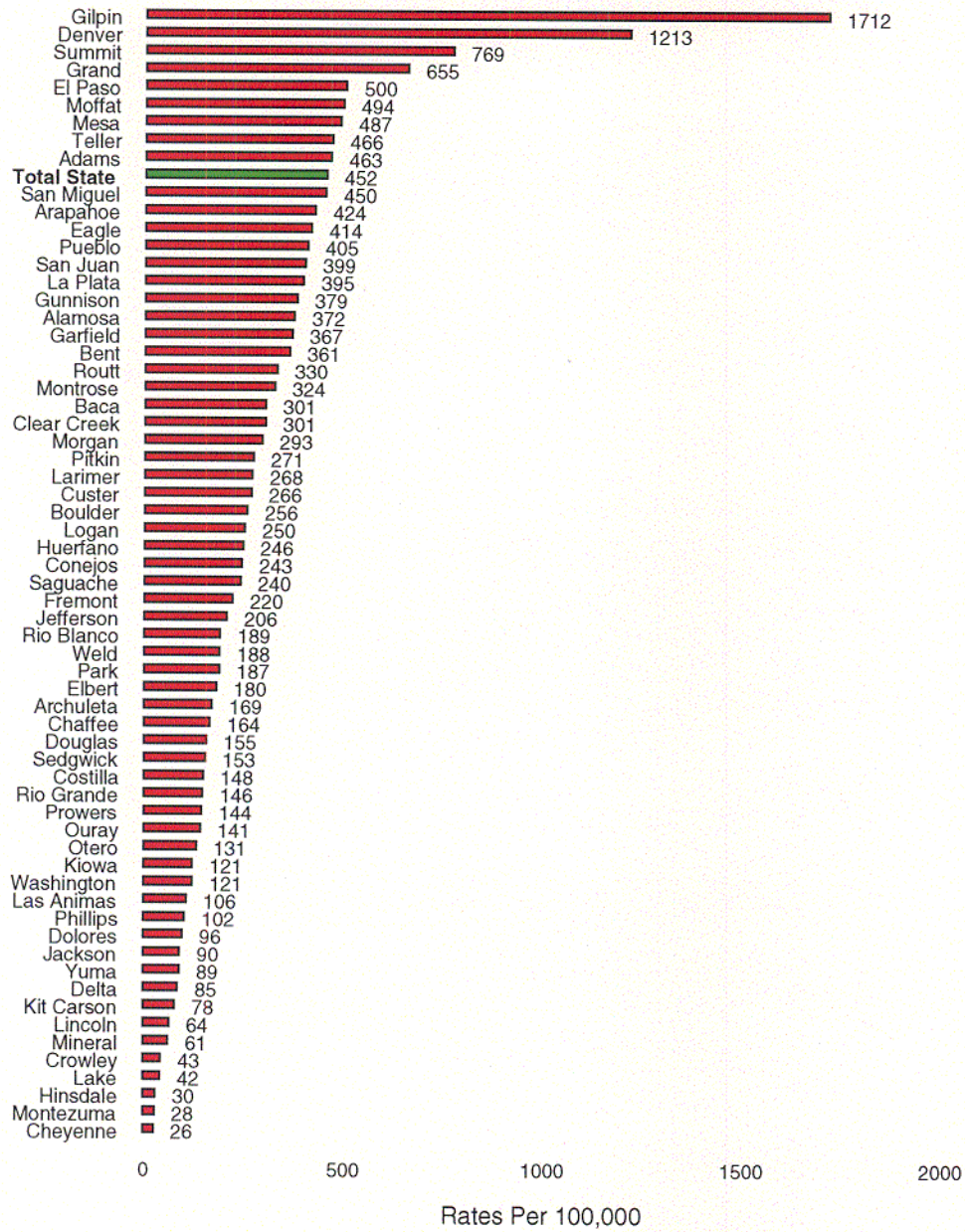


Percent of Drug Arrests Associated with Marijuana, Cocaine-Opiates, Synthetic Narcotics, Other Nonnarcotics, 1994-1996

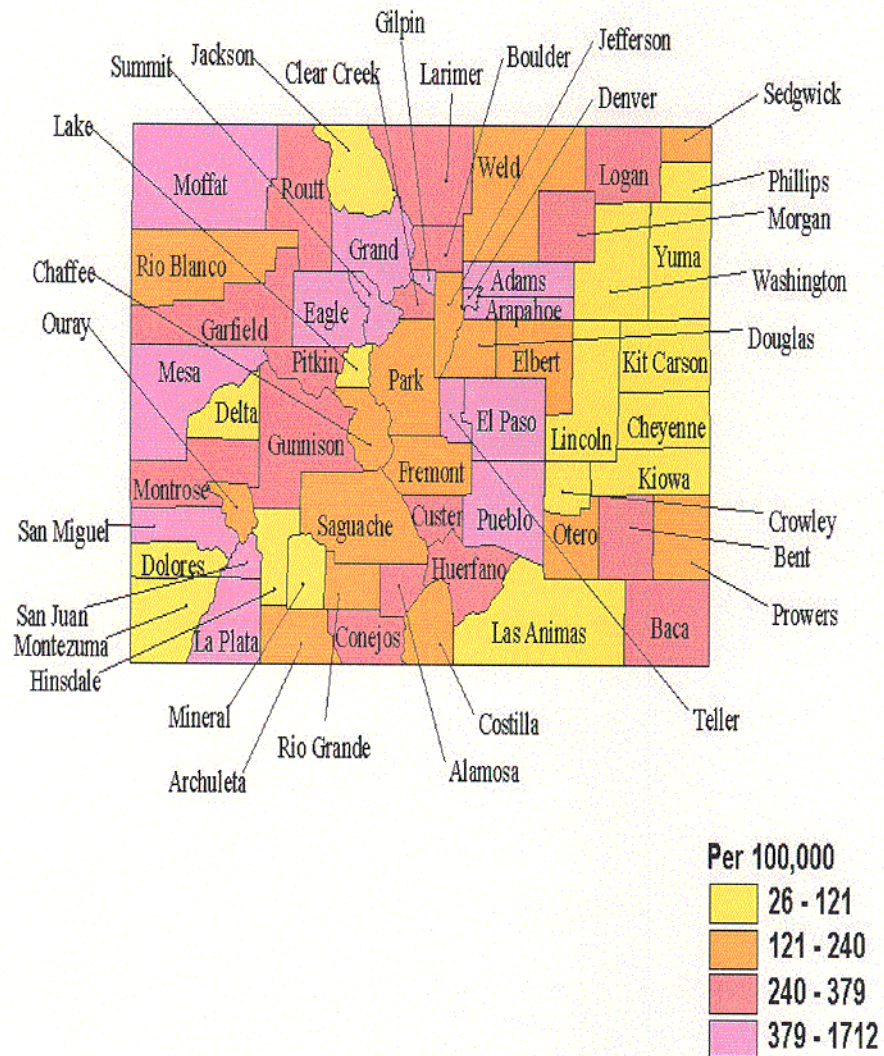
■ Mar
 ■ Non-narcotic
 ■ Coke/Opiates
 ■ Syn Narcotics



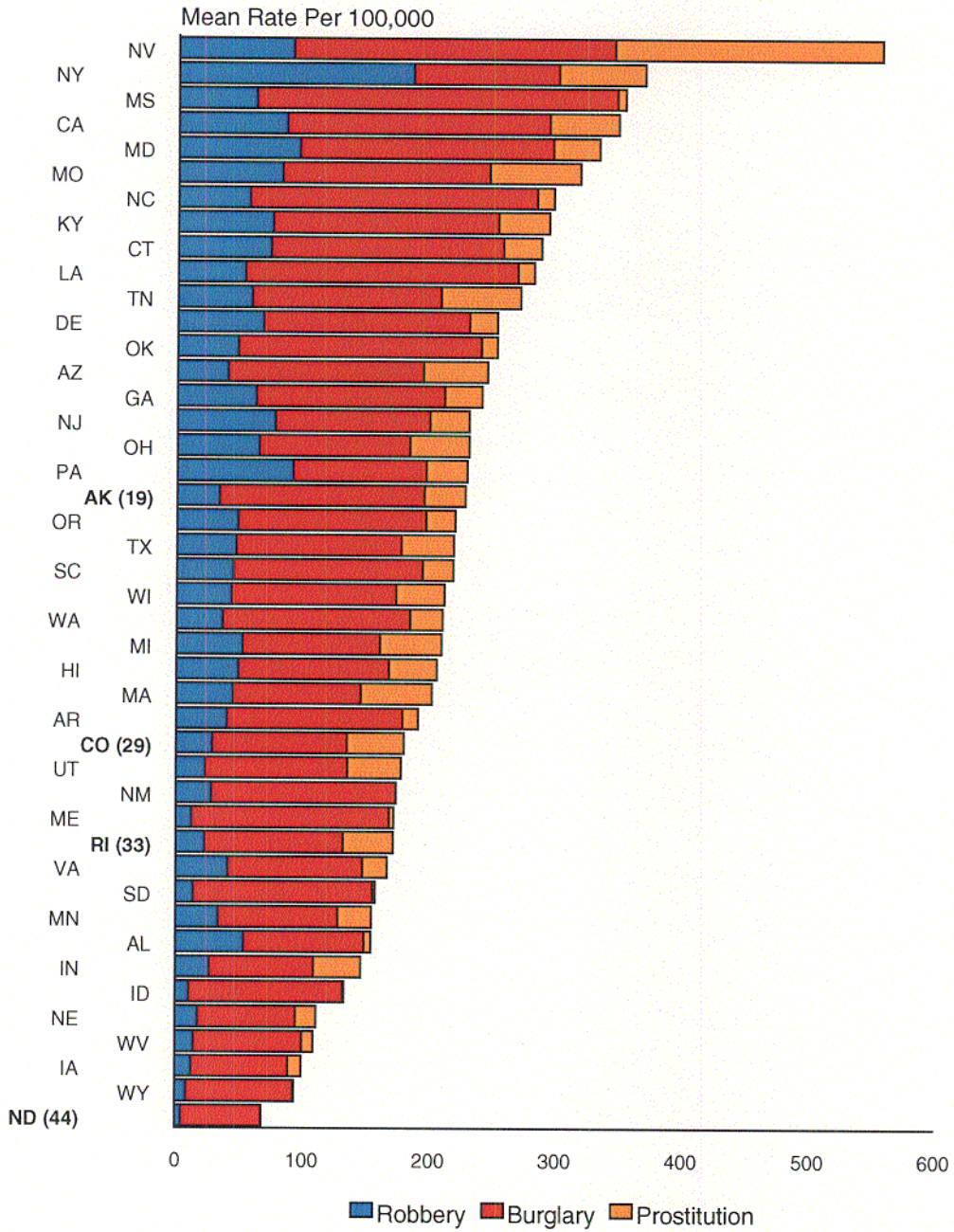
Drug Arrest Mean Rate, 1994-1998



Drug Arrest Mean Rate, 1994-1998



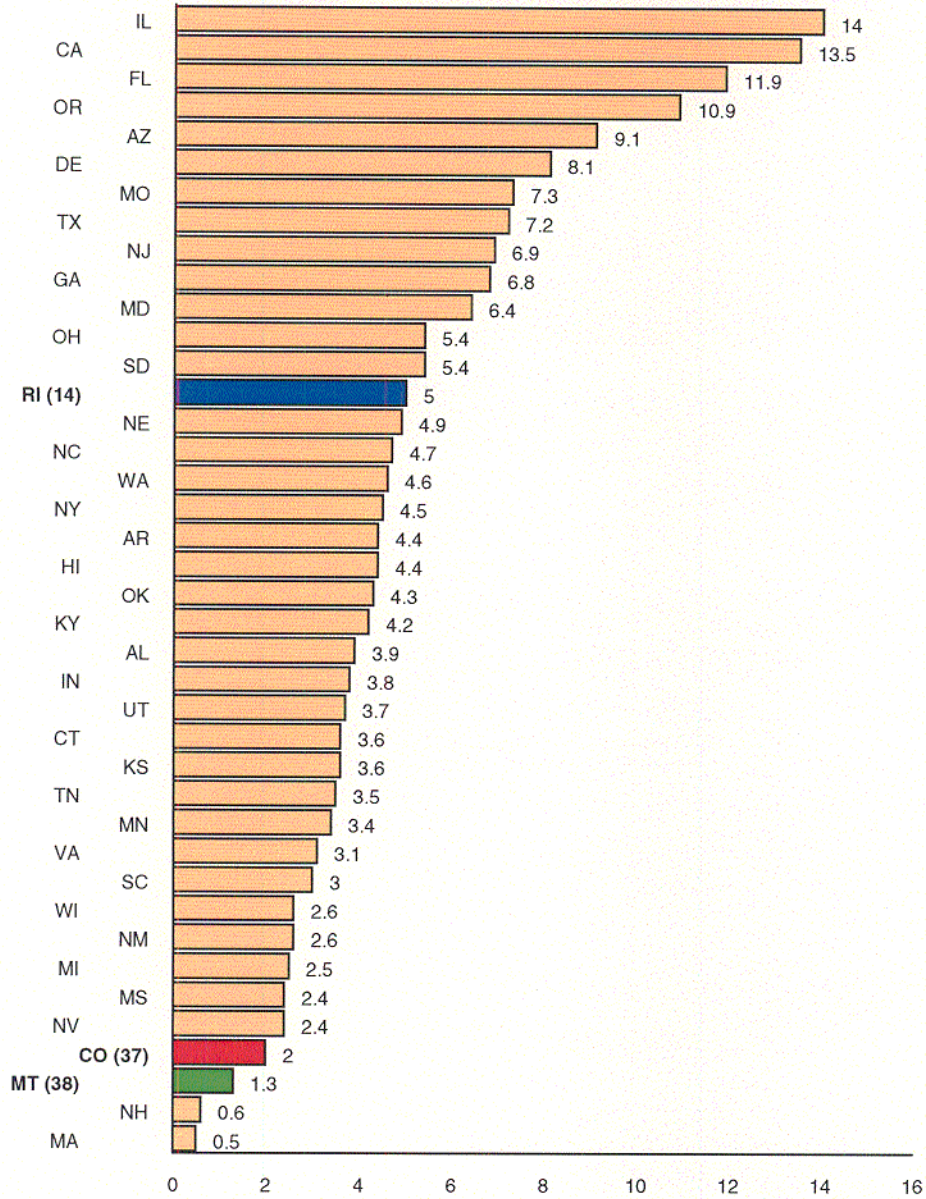
Arrest Rates for Drug-Related Crimes, 1994-1996



Data missing for FL, IL, KS, MT, NH, VT

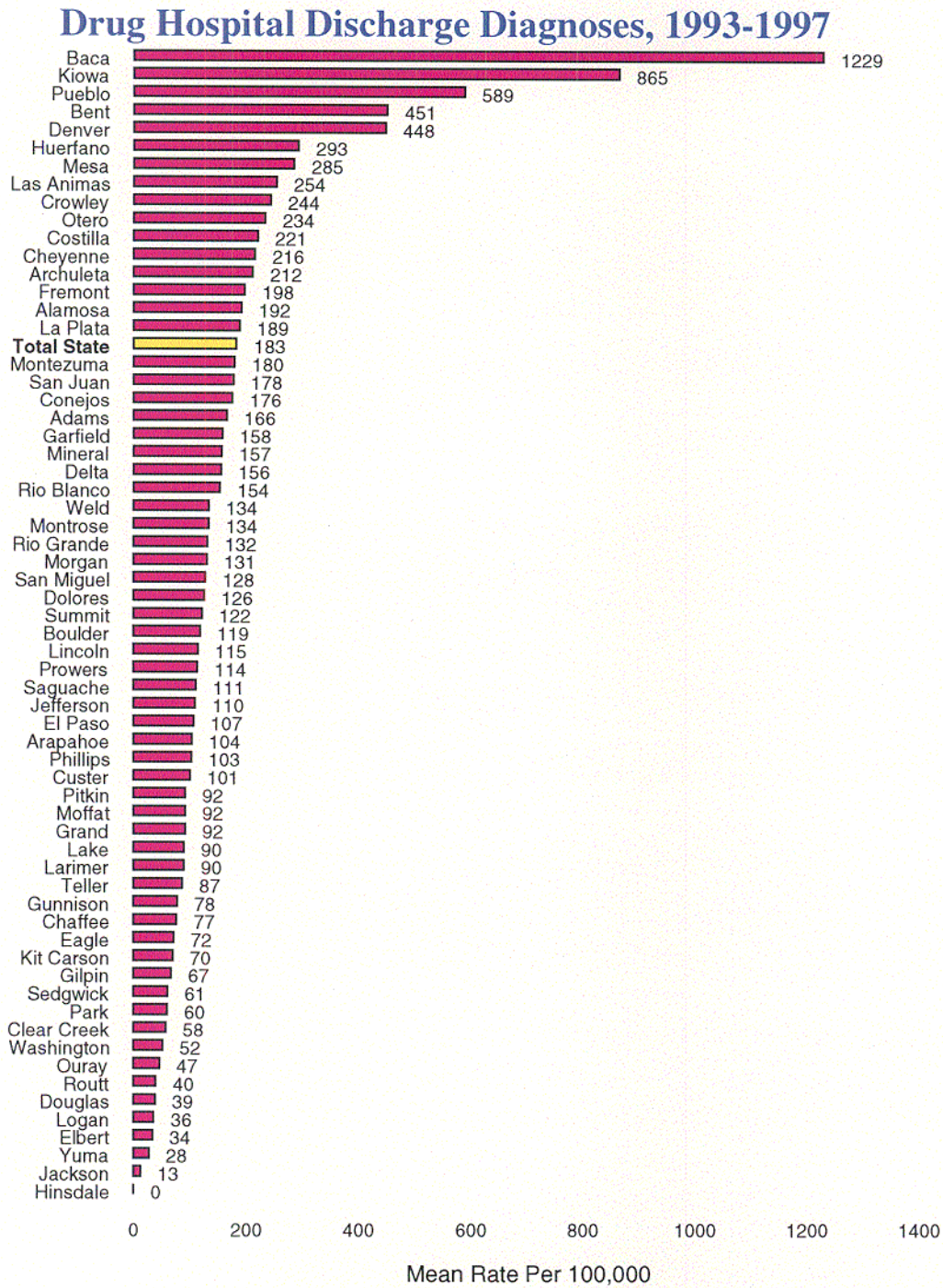
Drug Incarceration Rate, 1994

State Rates Per 100,000

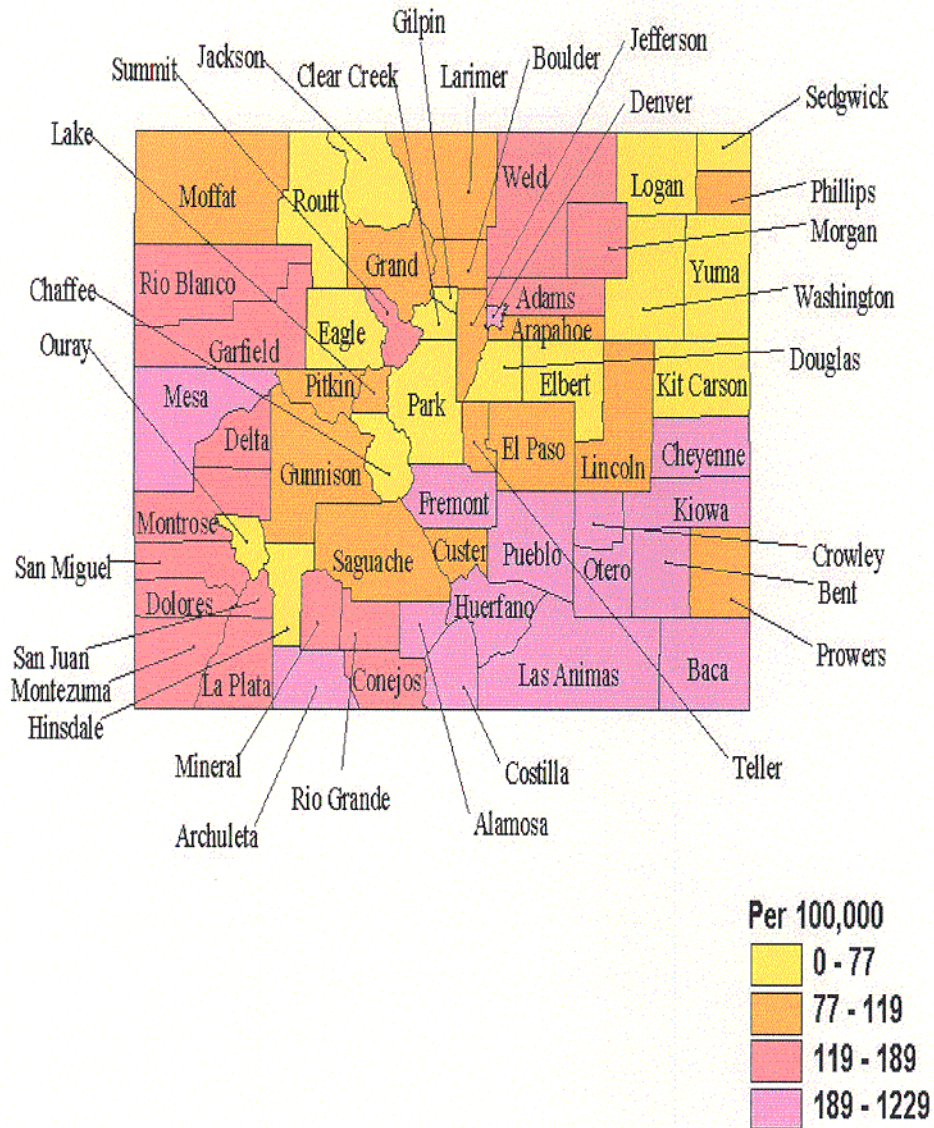


Data missing for LA, PA, ND, ME, VT, WV, AK, WY, ID, IA

Drug-Related Hospital Discharge Diagnoses

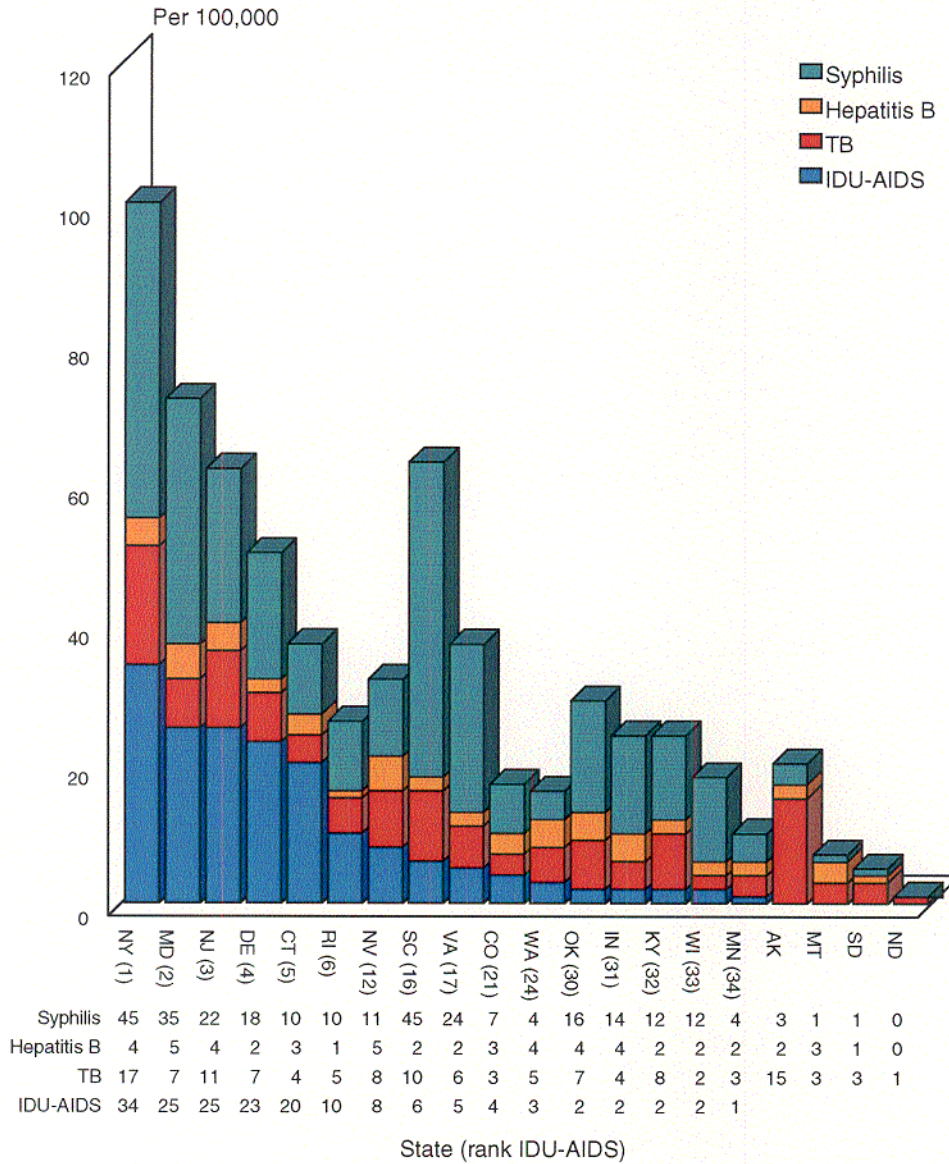


Drug Hospital Discharge Diagnoses Mean Rate, 1993-1997

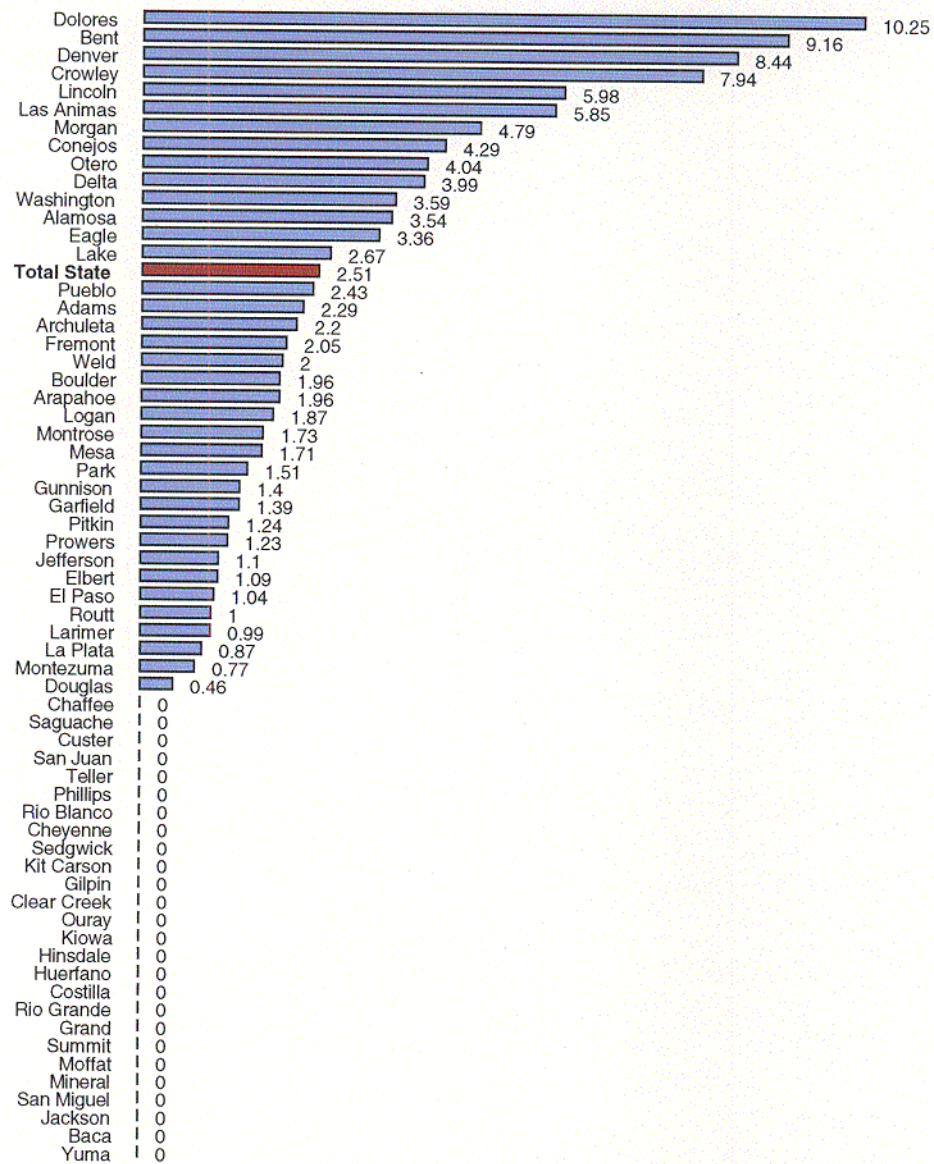


Drug-Related Diseases

Contagious Diseases Associated with Drug Abuse Mean Rates, 1994-1996

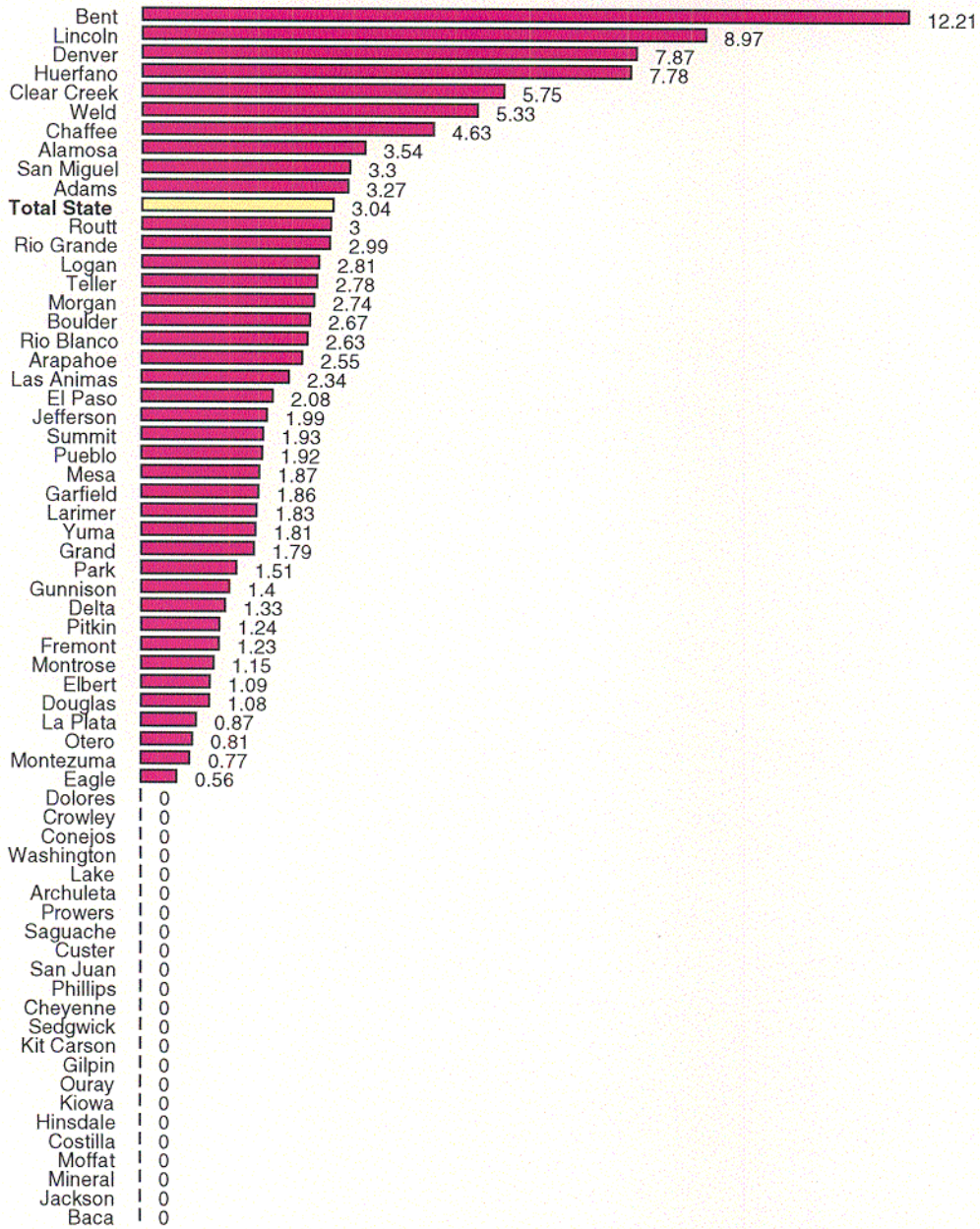


Tuberculosis Mean Rate, 1993-1998



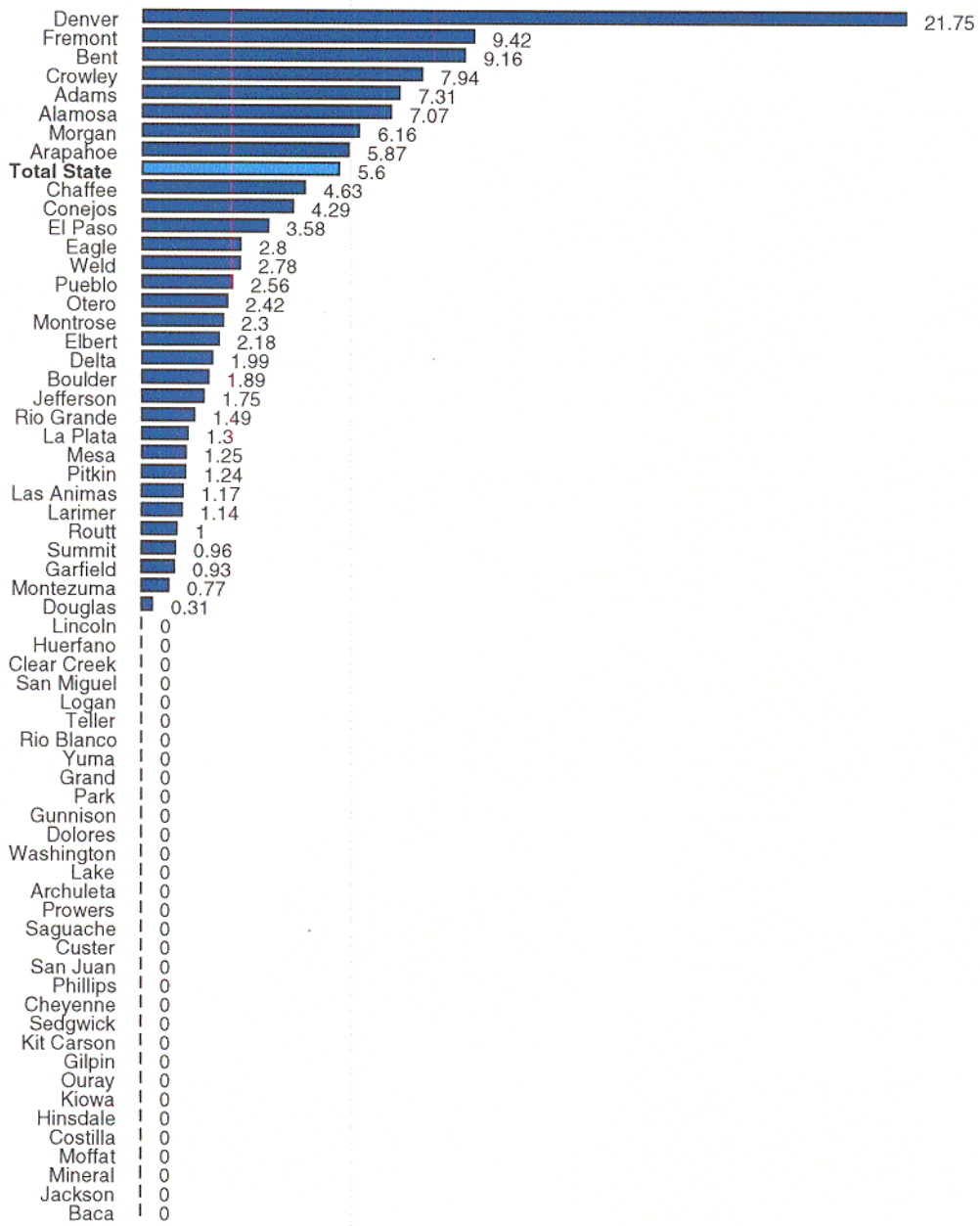
Rates Per 100,000

Hepatitis B Mean Rate, 1993-1998



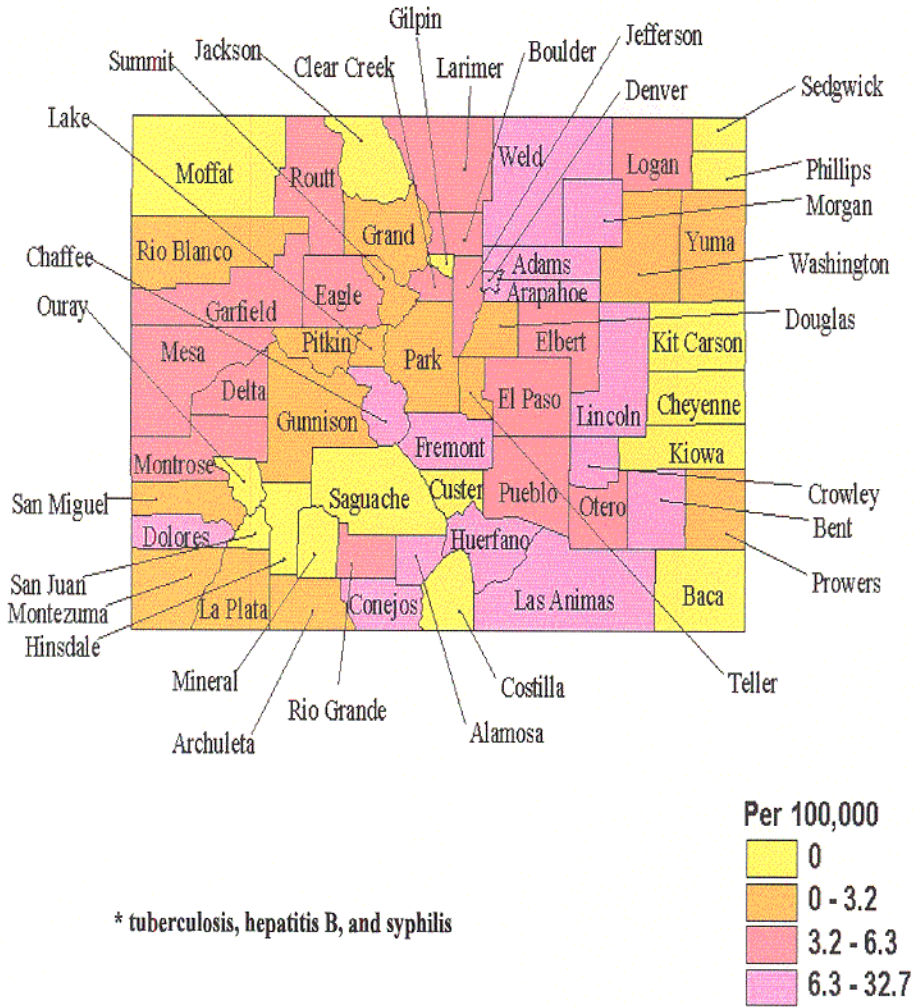
Rates Per 100,000

Syphilis Mean Rate, 1993-1998

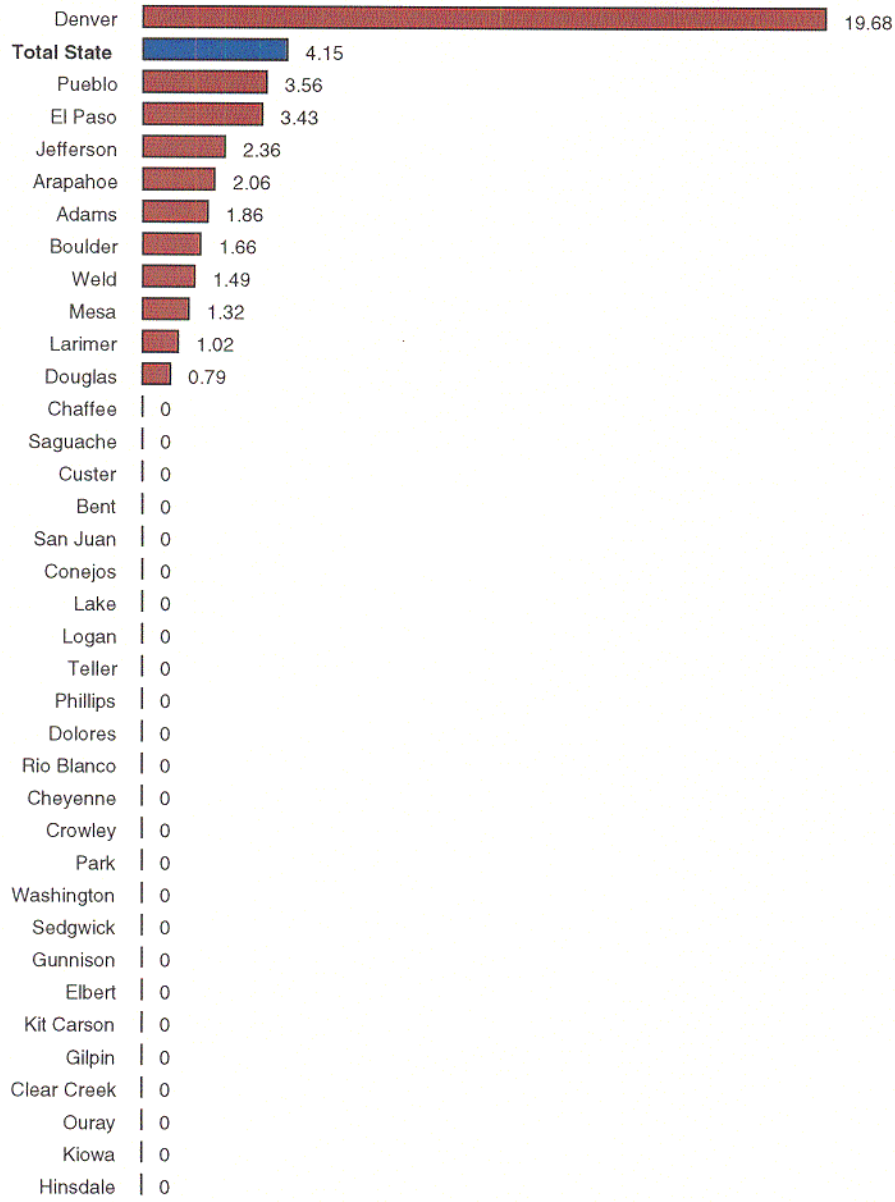


Rates Per 100,000

Contagious Disease Composite* Mean Rate, 1993-1998



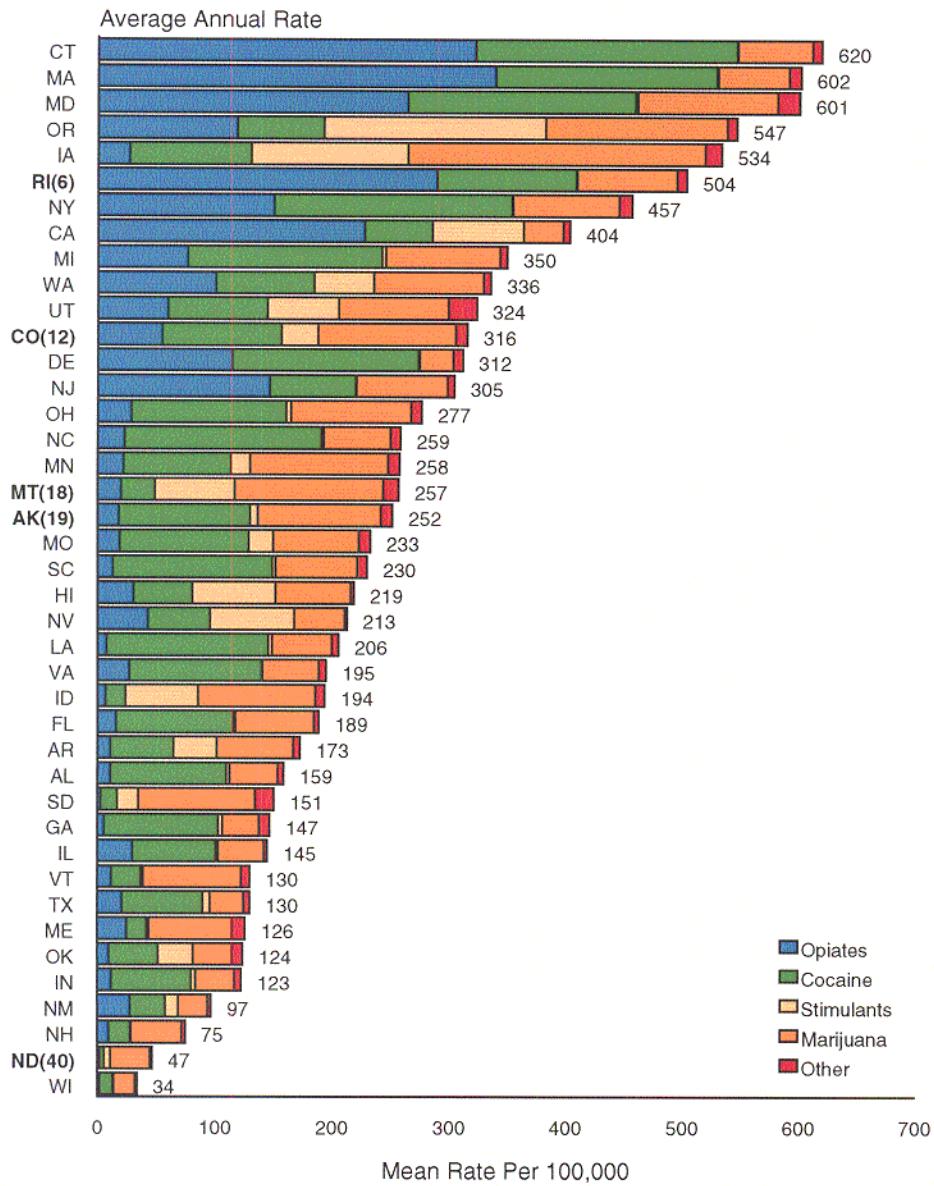
IDU-AIDS Mean Rate, 1993-1997



Rates Per 100,000

* No Data for 27 counties

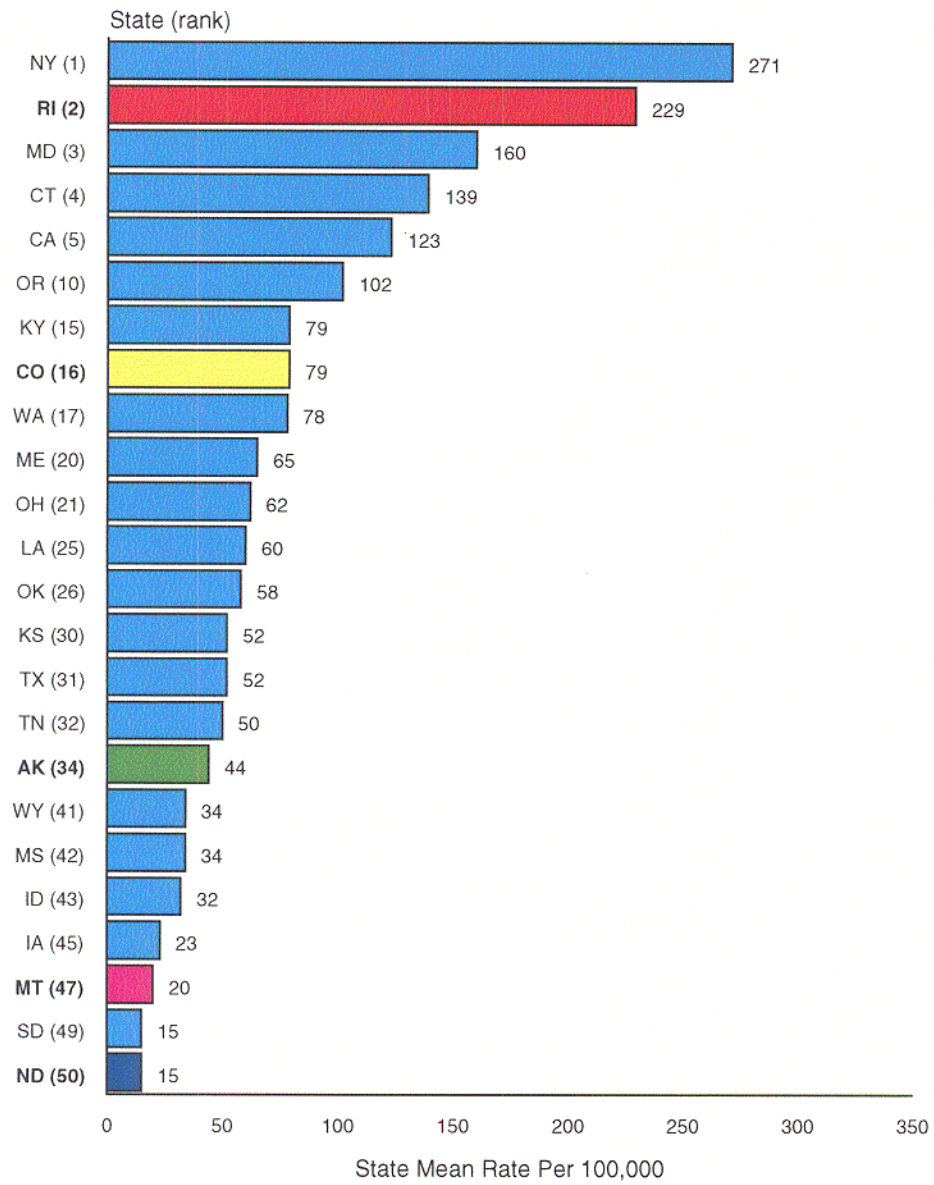
Primary Drug Admission Rate*, 1994-1996



Source: Treatment Episode Data Set (TEDS) *No data AZ, NE, KY, KS, TN, MS, PA, WV, WY.

Drug Treatment

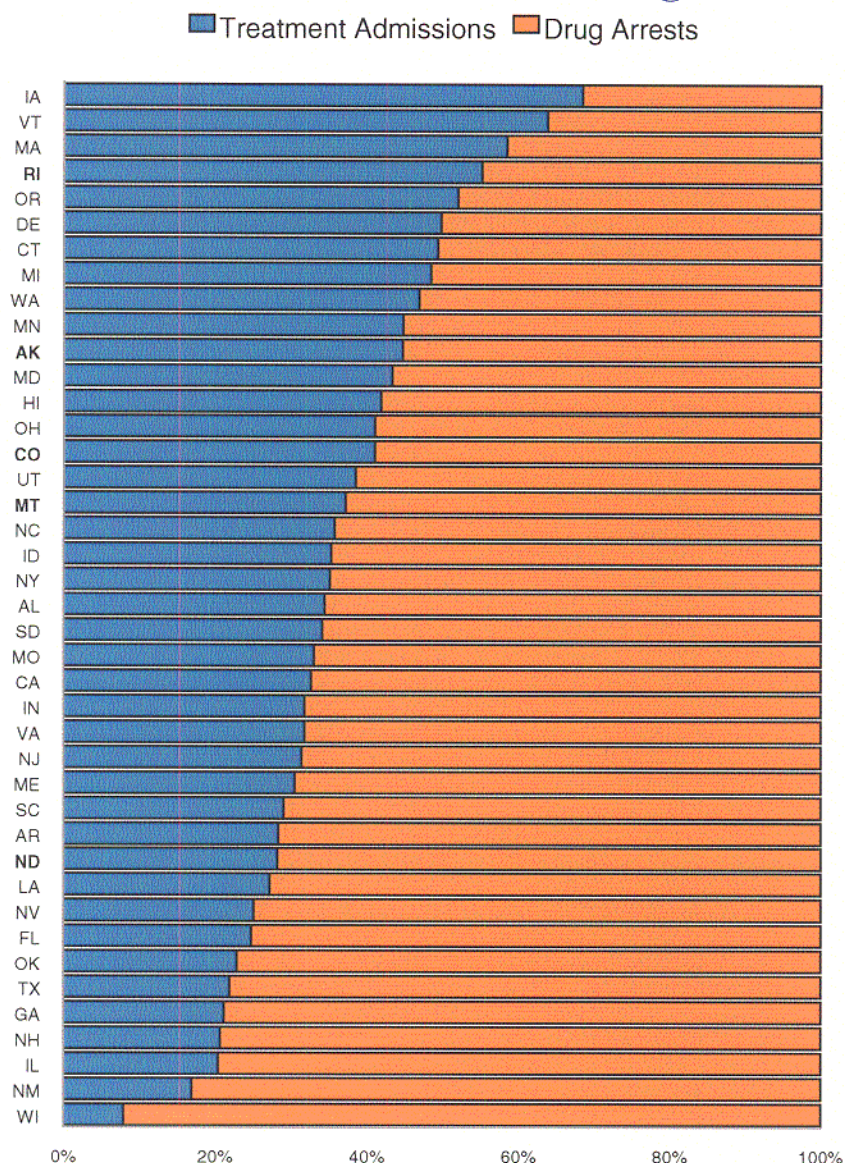
Drug-Only Treatment Clients, 1994-1996



Source: Uniform Facilities Data Set (UFDS)

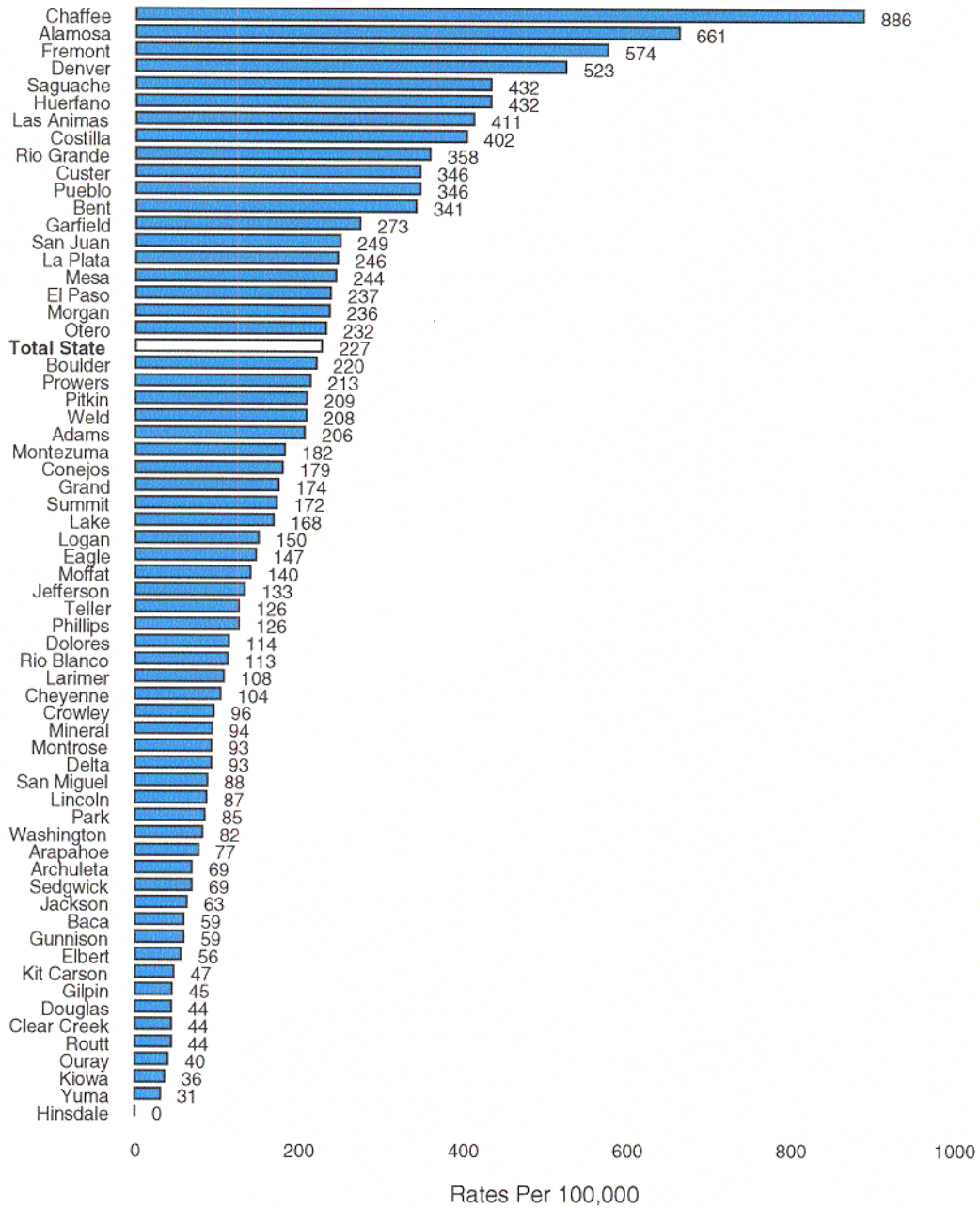
Responses to Drug Abuse

Responses to Drug Abuse: 1994-1996 Treatment Admissions and Drug Arrests



Sources: Uniform Crime Reports, Treatment Episode Data Set (TEDS)
Data missing for MS, AZ, NE, KY, TN, KS, WY, PA, WV

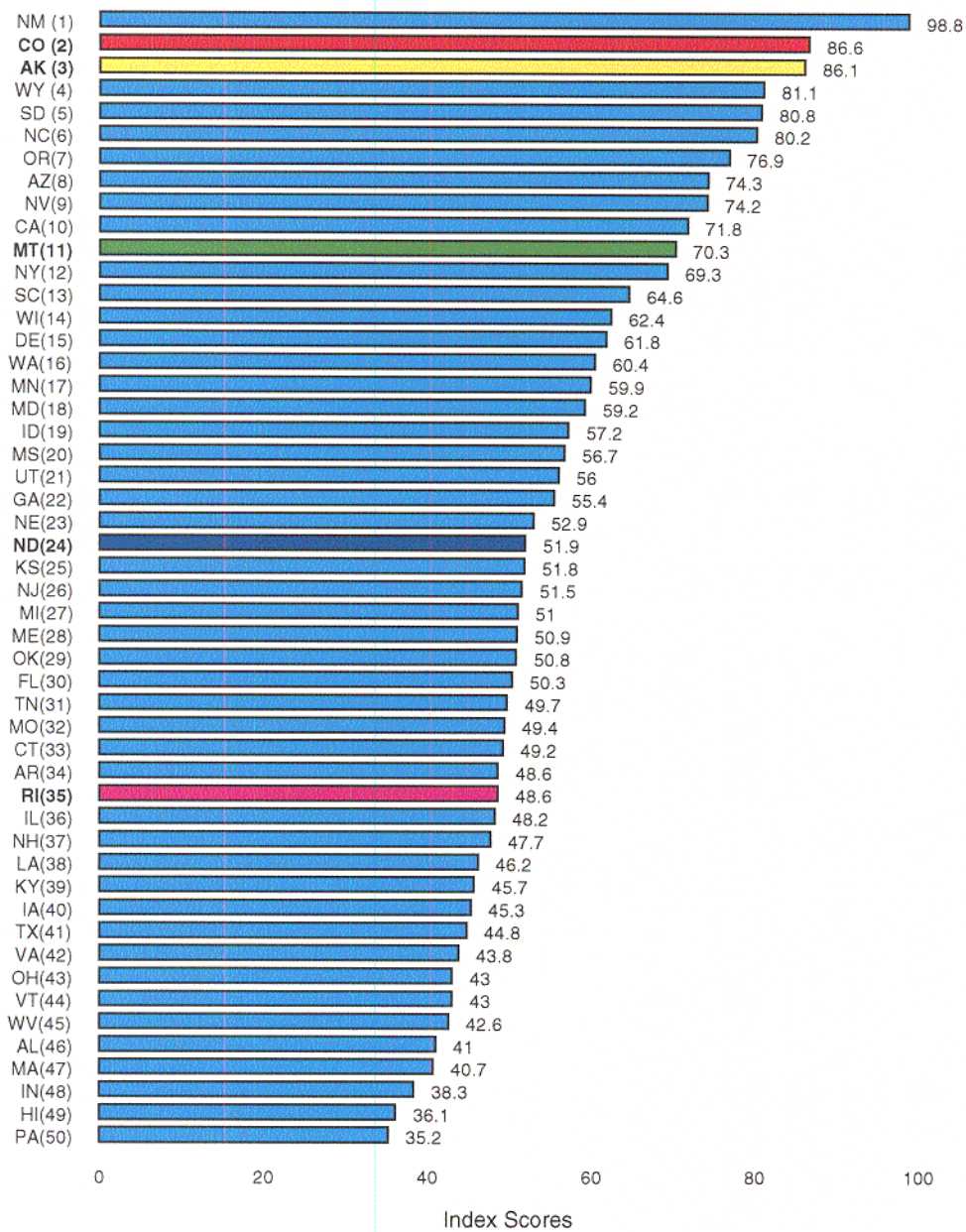
Drug Treatment Client Mean Rate, 1993-1997



SUBSTANCE ABUSE INDICATORS

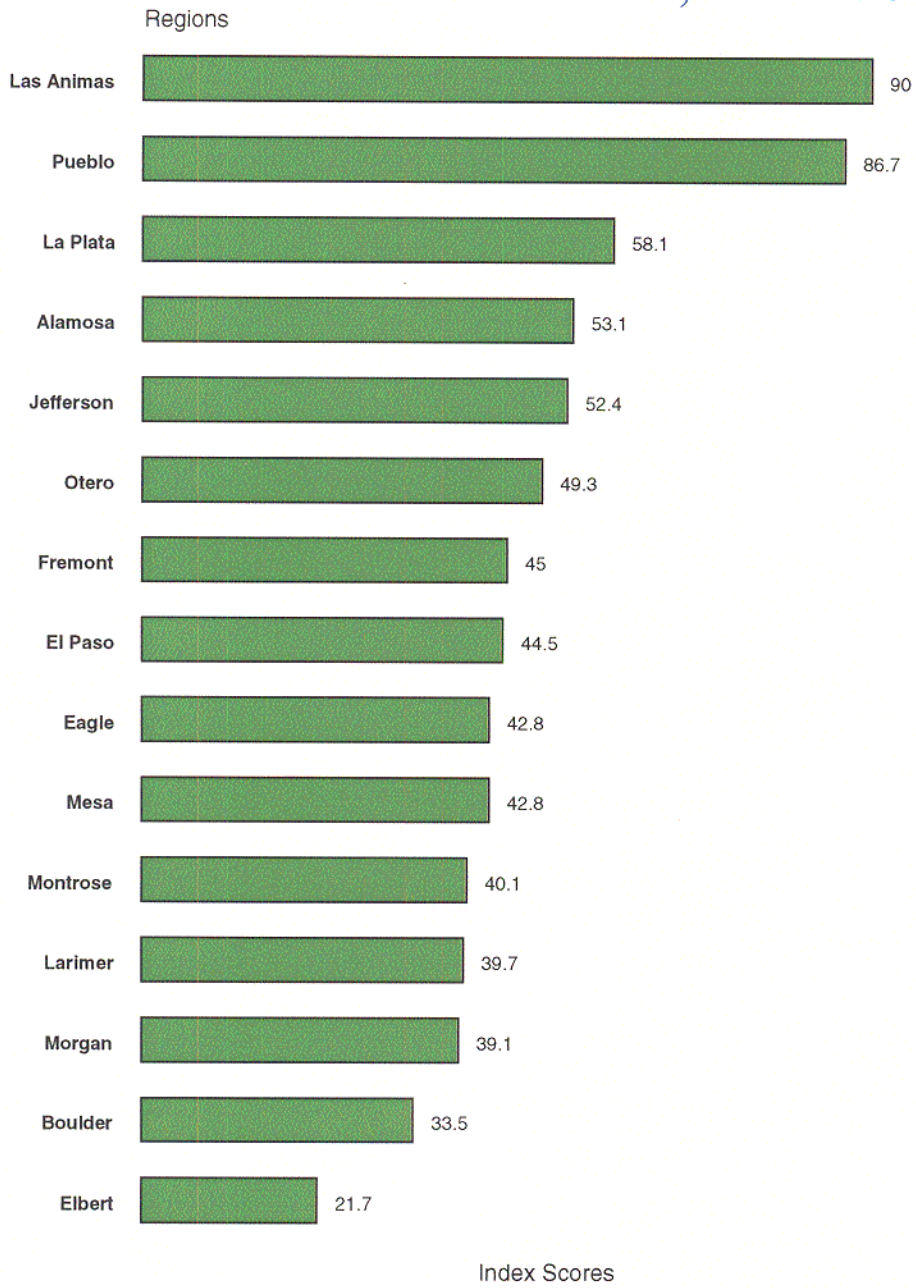
Substance Problems Compared to Other States

Substance Abuse Need Index, 1994-1996

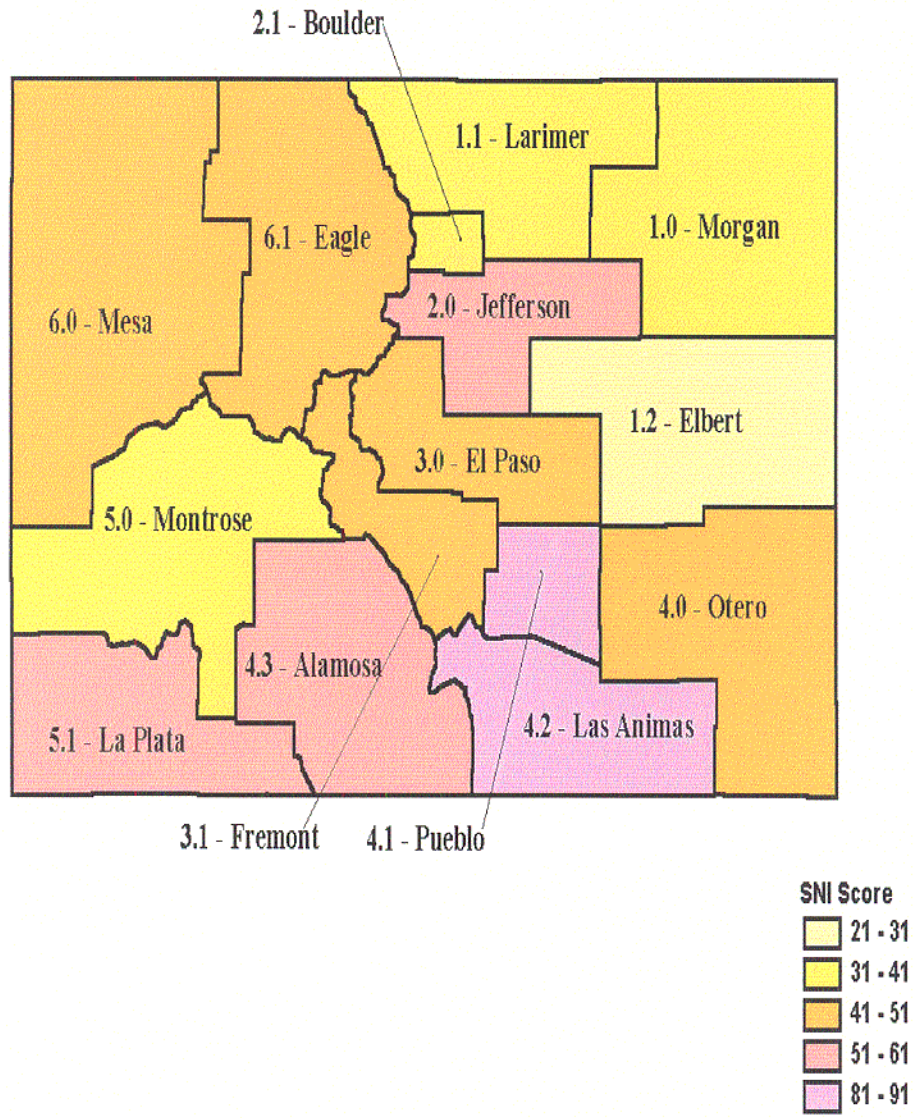


Substance Abuse Need Index

Substance Abuse Need Index, 1993-1998



Substance Need Index (Region Level)



APPENDIX

Table 1. Sources of Substance Abuse Indicators

Substance	Indicators	Source
Alcohol	DUI, Disorderly Conduct, Liquor Law Violations Burglary, Robbery and Prostitution Arrests	Uniform Crime Reports; Colorado Bureau of Investigation (CBI); Interuniversity Consortium for Political and Social Research (ICPSR)
Alcohol	Motor Vehicle Fatalities, with BAC>.10	Fatal Accident Reporting System, National Highway Traffic Safety Administration; Colorado Department of Transportation
Alcohol	Alcohol-related Deaths	National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention
Drug	Drug-related Deaths	National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention
Drug, Alcohol	Population 1990-2000	Bureau of the Census
Drug, Alcohol	Clients in Treatment	Colorado Department of Human Services Alcohol and Drug Abuse Division; Uniform Facilities Data Set (UFDS), Office of Applied Studies (OAS), Center for Substance Abuse Treatment (CSAT)
Drug, Alcohol	Treatment Admissions	Treatment Episode Data Set (TEDS), Office of Applied Studies (OAS), Center for Substance Abuse Treatment (CSAT)
Alcohol	Drunk Driving Survey Estimates	Behavioral Risk Factor Surveillance System (BRFSS), Centers for Disease Control and Prevention
Drug	Contagious Diseases	Division of Health Statistics, Colorado Department of Public Health and Environment
Drug	Drug Dependence Survey Estimates	National Household Survey on Drug Abuse, Office of Applied Studies (OAS), Center for Substance Abuse Treatment (CSAT)
Drug	Drug Incarceration	National Judicial Reporting Program
Drug, Alcohol	Hospital Discharge Diagnoses	Division of Health Statistics, Colorado Department of Public Health and Environment



U.S. DEPARTMENT HEALTH AND HUMAN SERVICES
Substance Abuse and Mental Health Services Administration
Center for Substance Abuse Treatment

*Substance Abuse and Mental
Health Services Administration*
SAMHSA

CSAT
Center for Substance
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