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16. Abstract

The Utah Driver License Division has implemented a program since 1979 that restricts drivers with medical conditions by functional ability category (medical condition) according to their functional ability level. This study compares the citation, all crash, and at-fault crash rates per eligible licensed days of restricted and unrestricted drivers with medical conditions by category to the rates of comparison drivers matched on age group, gender and county of residence over a five year period. Analyses were performed separately for drivers reporting single medical conditions and those reporting multiple medical conditions. Probabilistic linkage was used to link data from different databases in order to determine the crash, at fault crash and citation rates by functional ability restriction classification at the time of occurrence. Corresponding relative risks and confidence intervals were calculated.

Overall, for most functional ability categories, unrestricted drivers with medical conditions as identified through the existing program had higher crash and at-fault crash rates compared to their corresponding comparison groups. For unrestricted drivers, the highest risk of at-fault crash was found in the learning, memory and communications category where the risk of at-fault crash was 3.63 times higher than their respective comparison group (95% CI 2.00, 6.60). The greatest differences in at-fault crash rates were found in several restricted license categories. Restricted drivers in the musculoskelatal abnormality or chronic medical disability group had a rate 11.29 times higher than their comparison drivers (95% CI 2.39, 53.25). Restricted drivers in the alcohol and other drugs category had an at-fault crash rate that was 5.75 times higher than their respective comparison group (95% CI 2.26, 14.61). Further evaluation of the crash and citation rates at specific functional ability levels, and crash environments by category, may provide indications for changing the levels at which restrictions are applied, or provide indications for new or additional types of restrictions to reduce crashes and citations in these populations.

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Executive Summary

The Utah Driver License Division operates a specialized licensing program for drivers who have medical conditions. The program was developed by the division under the guidance of the Utah Medical Advisory Board. The program's guideline describes the physical, mental and emotional capabilities appropriate for various types of driving and determines license eligibility by medical condition or functional ability category, and functional ability level (1-12). The intent of the board was to create the least restrictive program possible that was consistent with public safety. Drivers who are licensed with medical conditions may receive a full unrestricted or restricted license depending on their functional ability level. Restricted licenses may include speed, area and/or time of day limitations. The functional ability or medical condition categories include:

1. diabetes mellitus and other metabolic conditions,
2. cardiovascular,
3. pulmonary,
4. neurologic,
5. epilepsy and other episodic conditions,
6. learning/memory/communications,
7. psychiatric or emotional conditions,
8. alcohol and other drugs,
9. visual acuity, musculoskelatal abnormalities/chronic medical debilities,
10. functional motor ability, and
11. hearing

Utah CODES was funded to evaluate the effect of the existing medical condition licensing program on public safety. The project was funded in part by NHTSA, with the support of the Utah Driver License Division in the Utah Department of Public Safety, and the Utah Department of Transportation.

In order to determine the effects of this public safety program, we compared the citation, crash and at-fault crash rates of drivers licensed with medical conditions to those of similar drivers matched on age group, gender and county of residence. Comparison drivers were obtained randomly from the general driving population and rates of adverse driving events were examined over a five year period, 1992-1996. A two-to-one matching strategy was used. Sampling was performed with replacement.

Analyses were conducted for each functional ability or medical condition category by restriction status. Analyses for drivers licensed with multiple medical conditions were conducted separately, by restriction status. The previous analyses were also conducted separately for drivers who maintained one restriction status during the study period, and drivers whose restriction status fluctuated during the study period. We used probabilistic linkage to link data elements relating to the same driver from several different databases in order to combine the elements needed for the study (i.e., crash, violation and driver license databases).

The rates of citation, crash and at-fault crash varied between the populations and events of interest. Overall, unrestricted drivers licensed with single medical conditions had higher rates of citation, crash and at-fault crashes than the chosen comparison drivers. The differences were statistically significant, but of small magnitude. Restricted drivers licensed with single medical conditions during the study period had higher rates of crash and at-fault crash than unrestricted program drivers, but similar rates of citation. Analysis by individual functional ability categories (medical conditions), showed great variation. Of interest, the citation risk for unrestricted drivers licensed in the categories "cardiovascular" and "pulmonary" had significantly lower rates of citation than their chosen comparison drivers, but similar rates of crash and at-fault crash. The greatest citation risks were found in the restricted categories "learning, memory and communication disorders" and "alcohol and other drugs" where the rates were 11.63 and 5.83 times higher respectively than of the selected comparison drivers. However, these populations were extremely small (N=6 and N=24 respectively) so their impact on public safety was negligible. Similarly, the greatest risks for all crash and at-fault crash occurred in small, restricted driving populations licensed in the "musculoskelatal abnormalities" and "alcohol and other drugs" categories (N=32 and N=24 respectively).

Drivers who were licensed with more than one medical condition during the study period were analyzed separately. The risks for crash and at-fault crash were higher than those of the chosen comparison drivers for both restricted and unrestricted drivers. The magnitude of risk was highest for at-fault crash for drivers who had restrictions imposed on their driver licenses; the rate was 1.76 times higher than those of the chosen comparison drivers (95% CI 1.40, 2.28). The rates of citation for unrestricted drivers were similar and citation rates for restricted drivers were significantly lower than those of their respective comparison groups.

The results of this study provide contextual information on the effects of the medical conditions licensing program on public safety. Specifically, we found that the overall rates of adverse driving events varied between medical condition or category type, and restriction status. Of interest, in the largest functional ability category, cardiovascular (N=18,990), the rates for all adverse events were similar to those of their comparison groups for both restricted and unrestricted drivers; however, unrestricted drivers in this category had a slight but significantly lower rate of citation. For unrestricted drivers, the highest risk of at-fault crash was found in the learning, memory and communications category where the risk of at-fault crash was 3.63 times higher than their respective comparison group (95% CI 2.00, 6.60). The greatest differences in at-fault crash rates were found in restricted license categories. Restricted drivers in the musculoskelatal abnormality or chronic medical disability group had a rate 11.29 times higher than their comparison drivers (95% CI 2.39, 53.25).

As with any injury control intervention, evaluation is an essential component of the program in order to identify areas of increased risk and to provide feedback to the administering agency. Further research should be performed to evaluate the rates of adverse driving events by individual functional ability levels in order to determine if there are distinct levels for which risk increases or decreases, and to describe the effects of co-existing medical conditions for large categories. This information will help to identify areas where the program could be improved, as well as, help to identify functional ability categories where unnecessary restrictions could be eliminated.

Introduction

State of Utah Functional Ability in Driving: Guidelines and Standards for Health Care Professionals

The Utah Driver License Division implemented a program in 1979 to license drivers with medical conditions. In 1981, the Utah Driver License Division Medical Advisory Board redesigned the written standards of the program that describe the physical, mental and emotional capabilities appropriate for various types of driving. The intent of the board was to create the least restrictive program possible that was consistent with public safety.

The program uses a general questionnaire to screen all license applicants within the state to identify medical conditions related to the applicant's physical, mental and emotional health. Applicants who report a medical condition when completing the questionnaire are placed into at least one of twelve broad functional ability categories by medical history. The categories include:

1. diabetes mellitus and other metabolic conditions,
2. cardiovascular,
3. pulmonary,
4. neurologic,
5. epilepsy and other episodic conditions,
6. learning/memory/communications,
7. psychiatric or emotional conditions,
8. alcohol and other drugs,
9. visual acuity,
10. musculoskelatal abnormalities/chronic medical debilities,
11. functional motor ability, and
12. hearing.

Applicants who identify themselves as having a medical condition are further then classified by functional ability level. The ability level characterizes the driver's physical, mental or emotional condition according to the Utah program's guidelines. Scaling is done by a medical professional according to detailed guidelines provided by the program (Appendix B). The functional ability level corresponds to driver license privileges and license limitations as shown in Table 1. Drivers who place in functional ability levels 3 – 5 are unrestricted and have full license privileges while drivers at functional ability levels 6 – 11 are restricted with limitations on their licenses (e.g., speed, area and/or time of day limitations). Drivers at level 1 and 2 were not included. Level 1 is used for commercial drivers, and level 2 indicates a history of medical condition with recovery and these drivers are not required to participate in the program.

Table 1. Relationship of Functional Ability Profiles to Driving Risk/Responsibility or Limitation

Functional Ability Profile Level	Driving Risk/Responsibility, License Class or Limitations
1 through 5	Driving of commercial vehicles, depending on individual profile category. Driving of private vehicles.
6	Driving with speed limitations
7	Driving with speed and area limitations
8	Driving with speed, area and time of day limitations
9	Driving accompanied by licensed driver with limitations of speed and/or area and/or time of day limitations as recommended by health care professional
10	Special driving limitations recommended by health care professional not covered above
11	Under evaluation – may or may not drive, according to circumstances as Determined by director, with medical advice as appropriate
12	No driving

Based upon the results of the questionnaire, an applicant may have a driver license immediately issued, or the applicant may be required to complete a more extensive health history form An applicant identified as having a medical condition may be required to provide documentation by a health care provider to verify his or her functional ability level before a license will be issued. Depending upon the functional ability category (medical condition) and functional ability level (1 – 12), an applicant who has a medical condition may receive full-unrestricted or restricted driving privileges, or the license application may be denied. Applicants who disagree with the level assigned by their health care provider may contest the level and have it reviewed by the Utah Driver License Medical Advisory Board. A copy of the *State of Utah Functional Ability in Driving: Guidelines and Standards for Health Care Professionals* is located in Appendix A. Copies of the general screening questionnaire, and the corresponding forms that are completed by health care professionals are located in Appendix B.

The Utah Crash Outcome Data Evaluation System

The Utah Crash Outcome Data Evaluation System (CODES) was created in 1992 at the University of Utah School of Medicine through a successful competitive funding application from the National Highway Traffic Safety Administration (NHTSA). Utah was one of the initial seven CODES states that used probabilistic linking techniques to link computerized data from motor vehicle crashes with those from several health care related data sets including emergency medical services and hospital inpatient and emergency department databases. The initial objective of CODES was to measure the effectiveness of safety belts and motorcycle helmets [1]. Since its creation, Utah CODES has linked and analyzed state crash, ambulance, hospital inpatient and outpatient data in part or entirely for the years 1991 - 1997.

Utah CODES has become an integral partner with the Utah Department of Public Safety, the Utah Department of Health and the Utah Department of Transportation in injury control efforts related to traffic safety in the state. Analysis of the linked data sets has identified the medical and resulting financial outcomes for injuries caused by crashes. Utah specific data have been used to analyze the effects of pending legislative issues and to support changes that would be of benefit to public health and safety (e.g., implementation of a primary seatbelt law and graduated licensing program for teens). Because program staff have the capability and experience in probabilistic linkage and analytical techniques, Utah CODES was in a unique position to be able to perform the necessary linkages in order to evaluate the existing program of licensing drivers with medical conditions.

Evaluating the Existing Program of Licensing Drivers with Medical Conditions in Utah

Several agencies had approached Utah CODES about evaluating the medical conditions licensing program in the state. According to the Department of Public Safety, the licensing program is controversial; many drivers feel the program is unwarranted while others feel the standards set forth compromise public safety. Both the Utah Medical Advisory Board and the Utah Driver License Division were interested in evaluating the effects of the program. Additionally, NHTSA is in the process of developing a *Functional Ability Driving Guide* for state driver licensing agencies use to help design programs for drivers with functional disabilities[2]. Research in this area is sparse; thus, the successes or failures of existing state programs related to functional ability are of particular interest. According to NHTSA, Utah's program and the corresponding guidelines have been considered by many states to be one of the most comprehensive functional ability and driving programs in the nation [2]. Because of these agencies and the applicability of the research to public policy, Utah CODES was funded to evaluate the effect of the existing system. The project was funded in part by NHTSA with the support of the Utah Driver License Division in the Utah Department of Public Safety and the Utah Department of Transportation.

OBJECTIVES

The purpose of the study was to compare the crash and citation rates of drivers with medical conditions to drivers without medical conditions, matched on age group, gender and county of residence, obtained from the general driving population. Analyses were performed for each functional ability (medical condition) category by restriction status for the study period 1992 – 1996. Analyses for drivers licensed with multiple medical conditions were performed separately, by restriction status. Additionally, the same analyses were performed separately for drivers who maintained one restriction status during the study period, and drivers whose restriction status fluctuated during the study period.

METHODOLOGY

Probabilistic Linkage

Probabilistic linkage was used to link data elements from several different databases in order to combine the elements needed for such a study [3, 4] . Probabilistic linkage is an iterative

tool which can overcome inaccuracies or differences in the separate databases, (e.g., incorrect, missing or duplicate data, typographical errors, changes in surnames, etc.) which exact matching cannot. Data linkages were performed using Automatch Software® and are described below:

Crash to Utah Master Driver License File

Variables from the Utah Department of Transportation Crash Files were linked to variables from the Utah Master Driver License File for the years 1992-1996. Fields used to link these two files included the license state of the crash driver, name (last, first, middle initial), sex, date of birth, and driver license number. The medical condition database was provided in a relational file to the Utah Master Driver License File.

The crash file identified 397,849 Utah licensed drivers as having a crash during the study period. The Utah Master Driver License File contained 1,750,918 drivers license records. Of the Utah licensed drivers in crashes, 384,311 (97%) drivers were successfully matched to the corresponding driver license records. A copy of the match file is located in Appendix C.

Utah Death Certificate Database to Utah Master Driver License File

Probabilistic linkage was used to identify persons who held valid driver licenses and died either during the study period, or in the five years previous to the study period. This linkage was performed because drivers licensed with medical conditions were thought to have a higher mortality rate than the general population of drivers and deaths would effect the eligible number of driving days. Variables used to link these two files included name (last, first, middle), city, state, residential zip code, sex, date of birth, and social security number.

The death certificate database was subset to include persons ages sixteen years and over (i.e., persons eligible for a driver license). Thus, the resulting data set contained 100,248 death certificates for the years 1986-96 that were linked to 1,750,918 drivers license records from the 1997 Utah Driver License Master File. Of these, 59,709 (59.6%) were successfully matched.[a]

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[a] The following checks confirmed these results:

1. Check of Linkage Strategy and Other State's Experiences
   Linkage strategy was reviewed internally by Utah CODES staff and externally by Mike McGlincy of Matchware, Inc. A similar linkage using Los Angeles County drivers and voters, matched at around 60%.
2. Manual Check of Subset
   Death certificates contain a code for cause of death. One such code is driver in a crash (E-codes 8100, 8110, ... 8190). 628 individuals were so identified, and 593 were found to be successfully linked (94%). The remaining 35 individuals were looked up in the crash files. 17 of these drivers were from out of state and therefore, did not have a Utah license. 12 drivers did not have a license number in the crash file, although the state was identified as Utah. This would leave a linkage rate of 593/599 (99%). 4 drivers had license numbers that did not match to the DMV file (e.g., possible data entry errors). The remaining 2 individuals had a Utah drivers license and were found in the DMV data. For these two drivers, social security numbers did not match on 7 and 9 digits respectively.

This matching procedure allowed a date of death variable to be created for drivers who died during the study period. By creating this variable, drivers who held valid driver licenses when they died could be excluded at the date of death (i.e., deceased persons cannot drive even though their license is still valid) and allowed the replacement of comparison drivers who died prior to the study start date.[b] This procedure was performed in order to minimize misclassification bias of the number of days a driver was eligible to drive in the study. A copy of the match file is located in Appendix C.

Comparison Driver Selection

For an ideal comparison, crash and citation rates should be related to exposure, expressed as events per mile driven and controlled for risk factors that affect the likelihood of the event occurring. For example, if two drivers have the same number of crashes per year but one drives only half as much as the other, the rates are the same per unit time but two-fold higher when comparing driving distances. Additionally, factors such as weather, road surface, traffic conditions and speed limit may affect crash risk. Likewise, local law enforcement patterns in areas where drivers frequently drive affect the risk of citation.

This concept of measure of exposure is important when comparing the crash and citation rates of different populations, particularly in the older persons or persons who have medical conditions that may affect driving. During the study period, drivers who reported medical conditions in Utah were much different than the general population. Figure 1 illustrates the differences in ages between the medical condition drivers by restriction status and the rest of the driving population. Note that the general driving population is much younger overall than the medical conditions driving populations. Additionally, restricted drivers tend to be older than unrestricted drivers licensed with medical conditions. For this study, only drivers without medical conditions were eligible to be chosen as a comparison driver. This category excludes all drivers with medical conditions and drivers with incomplete information in the master driver license file.

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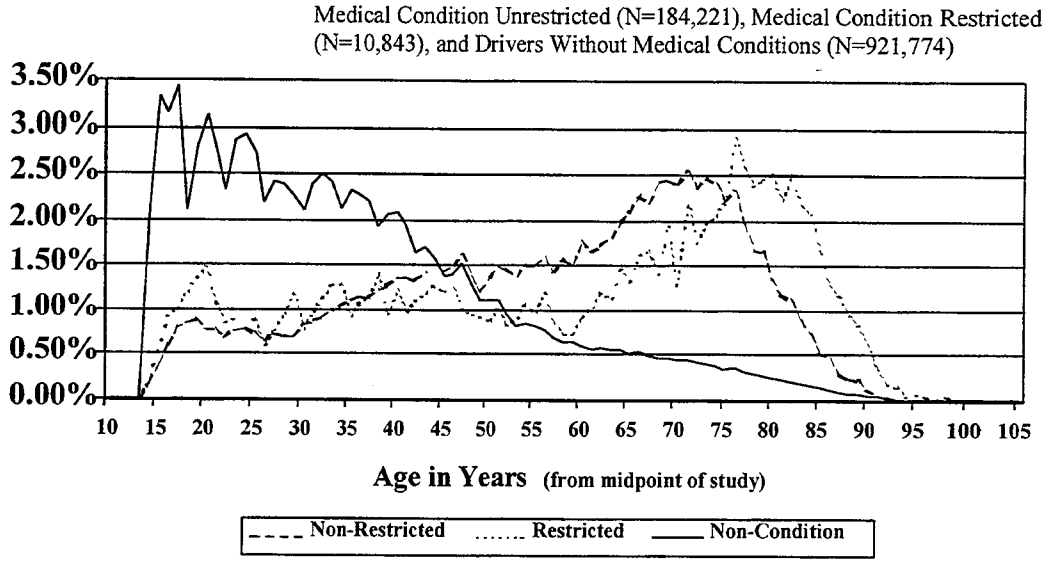
[b]Overall, drivers with medical conditions did not have a higher mortality rate during the study period than those selected comparisons. Of the 68,769 drivers with medical conditions who renewed their licenses after 1/1/92, 3,810 (5.5%) matched to the death certificate file. Two comparison driver records were selected for each medical condition driver. Of those records, 10,372 (7.5%) of the selected comparison records linked to the death certificate file. However, it is important to note that comparison drivers did not have to renew after 1/1/92 to be included in the study. This was because their driver licenses are valid for 4 or 5 years depending upon the date of issue, as opposed to the shorter periods for drivers licensed with medical conditions. When limiting the linkage results to those comparison drivers who renewed their driver licenses after 1/1/92, the percentage of drivers linking to the death certificate file was 3.2% (3,975/122,863).

Figure 1. Percentage of Drivers Reporting Medical Conditions by Restriction Status Compared to Drivers Not Reporting Medical Conditions By Age, Utah 1992 - 1996



Many studies have shown that drivers who do not feel that they can safely drive limit the amount they drive, or limit their driving to times or conditions when they feel comfortable to drive [5, 6]. For example, persons who do not see well at night may schedule trips during daylight hours.

While ideally a study to evaluate the medical conditions program would consider these factors, such data would have to be collected by a survey tailored to each functional ability category by restriction status. Because collecting these data would have been cost prohibitive, we determined that the best method to approximate these factors would be to match drivers with medical conditions to a comparison group. For each driver with a medical condition, two driving records of drivers without medical conditions from the same age group, gender and county of residence were selected for comparison.

Drivers in the medical conditions program were subdivided by functional ability category. The category "hearing" was excluded from analysis since this category was only used for commercial drivers. Drivers in each functional ability category were further subset by restriction status. If a driver with a medical condition fluctuated between restricted and unrestricted categories, he or she was counted in each category for the appropriate time period. The same comparison drivers were used for each medical condition driver who fluctuated for both restriction statuses. Comparison drivers were followed for the duration if they held a valid driver license during the study period. Drivers listed in multiple functional ability categories were analyzed by restriction status separately. These groupings were further separated into categories by age group, county of residence and gender. Age groups included years 10-14, 15-19, 20-24, 25-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80 and older. Driver's

age was calculated at the midpoint of the study period using the date of birth available in the Master Driver License File. We included the age group 10-14 in order to capture new drivers entering the study near the endpoint (1995-1996).

Comparison drivers were selected randomly from all licensed drivers not in a functional ability category from the 1997 master file. Commercial drivers who were licensed at functional ability level 1 (no history of disease/condition) were not included in the population from which a comparison driver could be selected. Similarly, drivers licensed at functional ability 2 (past history of disease/condition but licenses are issued the same as the general driving population) were excluded. For each driver with a medical condition, two comparison drivers fitting the grouping criteria (age group, county of residence and gender) were chosen at random from the Utah Master Driver License File. Sampling for comparison drivers was performed with replacement, meaning that each possible comparison driver was eligible to be selected even if that driver was chosen previously to be a comparison. This method was used because there were not enough drivers in some groupings to select two unique comparison drivers for each medical condition driver from the same age group, sex and county of residence.

The results of probabilistic linkage were used to determine the number of eligible licensed driving days by restriction status; and the number of crashes, at-fault crashes and citations occurring at that restriction status for each driver. Drivers with medical conditions who fluctuated between restriction status had the corresponding number of days at each status level assigned. As mentioned previously, drivers who died during the study period had their corresponding number of eligible driving days adjusted so that the date of death was included but the following days excluded. Similarly, if a chosen driver had his or her driving privileges suspended because of citations or crashes, they were not excluded from the study; the number of eligible license days was adjusted to reflect the suspension.[c]

Comparison drivers were followed for the duration of the study (1992 – 1996) by their eligible number of driving days (the number of days they held a valid driver license) during the study period. The number of days used for these groups was higher than the number of days for drivers with medical conditions because the licensing periods are much shorter for drivers who have medical conditions. For example, if a driver with a medical condition was in the database for 1 year of the study period, he or she would be counted for 365 days. However, his or her corresponding driver would have been followed from 1992 – 1996, or 1,825 days. This was done in order to simplify the matching process and minimize the computer time used to generate the comparison drivers. The eligible number of driving days for both drivers with medical conditions and their comparisons reflects the data of the Utah Driver License Division. The same two comparison drivers were used for drivers whose

[c] The inclusion criteria of selected comparison drivers were chosen similarly to drivers with medical conditions in order to minimize bias. These drivers reflect a random sample of drivers from the general driving population with similar characteristics (age group, gender and county of residence) as those drivers with medical conditions. We did not select comparison drivers who were licensed for the whole study period as this would bias the sample towards those with "good driving records." Similarly, we did not exclude drivers who died during the study period because drivers with medical conditions were not chosen this way. Both condition and comparison drivers who died were counted for the time of the study period they were alive and licensed as drivers.

medical condition fluctuated their restriction statuses. Events and eligible license days for these comparison drivers were counted at each restriction status.

Crashes were considered to be "at fault" if a driver received a citation for the crash or was marked as having contributed to the crash. Only crashes and citations that occurred during the period of time the driver was licensed were considered. Events (citation or crash) were corresponded to the driver's record, and restriction status. Citation, crash and at fault crash rates per eligible licensed driving day were calculated separately for restricted and unrestricted drivers with medical conditions and their corresponding drivers for each functional ability category. These data were then used to estimate the relative risk for each medical condition category, allowing a comparison of the crash or citation risk of drivers licensed with medical conditions to similar drivers licensed without medical conditions from the general driving population. The relative risk approximates a Chi Square distribution with one degree of freedom. Using this distribution we calculated a 95% confidence interval for the estimate of relative risk [7] . Relative risk describes the influence of a particular variable on the likelihood of an outcome. For instance, unrestricted drivers in the visual acuity group have a relative risk for crashes of 1.35; this means that they were 1.35 times as likely to be in a crash as were members of the control group.

RESULTS

During 1992–1996, there were a total of 68,770 drivers in the medical conditions program excluding all commercial drivers and drivers in functional ability level two. The majority of drivers (54,825, 79.7%) were licensed in only one functional ability or medical condition category. A small number of these drivers had relatively unstable medical conditions (2,099, 3.8%) causing them to fluctuate between unrestricted, restricted or ineligible licensing functional ability levels during the study period. Table 2 shows the actual number of drivers reporting a single medical condition by functional ability category, and the corresponding numbers and percentages of drivers who fluctuated between restricted, unrestricted or ineligible license privileges during the study period.

Table 2. Drivers Reporting A Single Medical Condition by Functional Ability Category and Fluctuation Status, Utah Driver License Division, 1992 – 1995

Functional Ability Category	**Total Number of Drivers Reporting Single Functional Ability Categories**	**Number of Drivers Fluctuating Between At Least Two of the Following Categories: 1. Restricted License Privileges 2. Unrestricted Licensing Privileges , or 3. Ineligible for License**	**Percent of Total**
Diabetes & Other Metabolic Conditions	10,101	339	3.4%
Cardiovascular	19,031	125	0.7%
Pulmonary	2,684	178	6.6%
Neurologic	971	119	12.3%
Epilepsy and Other Episodic Conditions	2,709	745	27.5%
Learning, Memory and Communication	111	6	5.4%
Psychiatric or Emotional Conditions	6,805	282	4.1%
Alcohol and Other Drugs	148	19	12.8%
Visual Acuity	11,658	263	2.3%
Musculoskeletal Abnormality or Chronic Medical Debility	385	17	4.4%
Functional Motor Impairment	222	6	2.7%
Total	54,825	2,099	3.8%

The age group and sex distributions for each functional ability category, and each restriction status (unrestricted and restricted) are very different. Generally, restricted drivers tend to be older than unrestricted drivers. Population demographics shown by age group and sex histograms are presented in Appendix D.

The remaining drivers (13,832, 20.1%) were licensed in one or more functional ability categories during the study period. Most of the drivers reporting multiple conditions were licensed in two functional ability categories; however, the number per licensed driver ranged from one to seven categories during the study period . This is shown in Table 3.

Table 3. Number of Functional Ability Categories Reported by Drivers with Medical Conditions in Utah, 1992 – 1995

Number of Categories	Count	Percent
1	54,938	79.9%
2	10,595	15.4%
3	2,403	3.5%
4	653	0.9%
5	146	0.2%
6	28	0.0%
7	7	0.0%
Total	68,770	100.0%

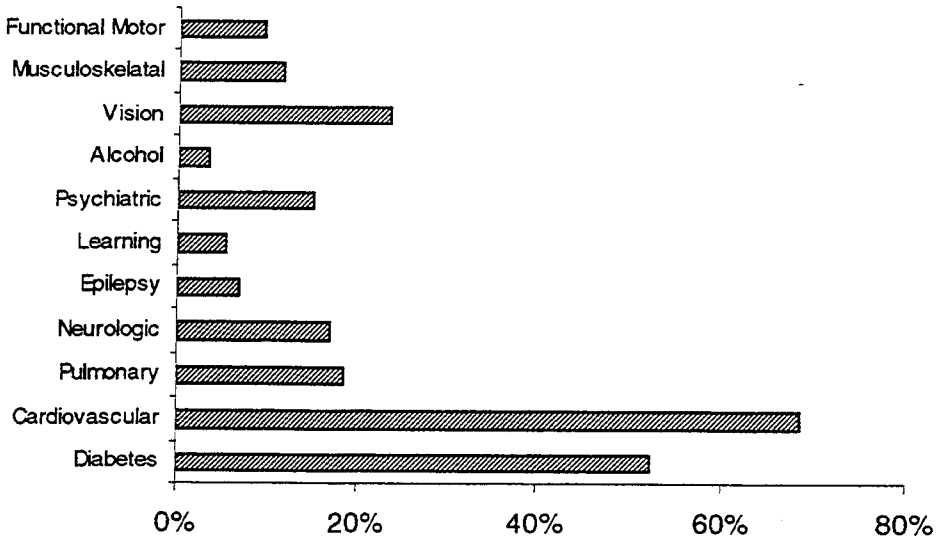
Table 4 shows the two way categorical combinations for drivers who were licensed in multiple functional ability categories. Note that drivers may appear more than one time, depending upon the number of functional ability categories reported. The most common two way combinations of functional ability categories were "cardiovascular and diabetes," "cardiovascular and vision," and "cardiovascular and pulmonary."

Table 4. Two Way Combinations of Drivers Licensed in Multiple Functional Ability Categories, Utah Driver License Division, 1992- 1995

	Diabetes	Cardio	Pulm	Neuro	Epilepsy	Learn	Psych	Alcohol	Vision	Musculo
Cardiovascular	5,436									
Pulmonary	717	1,796								
Neurologic	614	941	223							
Epilepsy	173	280	89	369						
Learning	102	197	48	380	117					
Psychiatric	497	853	299	243	168	228				
Alcohol	81	98	57	61	52	38	269			
Vision	1,359	1,933	372	315	100	92	176	25		
Musculoskelatal	401	574	205	547	80	127	194	53	180	
Functional Motor	241	330	94	637	72	150	118	38	140	780

Figure 2 shows the shows the percentages of drivers who were licensed in multiple functional ability categories, by each functional ability category. Over half of these drivers with multiple conditions were in the respective "cardiovascular" and "diabetes and other metabolic conditions" functional ability categories.

Figure 2. Drivers Licensed in Multiple Functional Ability Categories, Percentage by Category
N = 31,970 categories for 18,832 drivers



Analyses were performed for drivers who reported single medical conditions in the following ways: 1) combining all drivers licensed in one functional ability category who had either a constant restriction status (restricted or unrestricted) or whose status fluctuated during the study period, 2) for drivers who had a constant restriction status during the study period, and 3) for drivers who had a fluctuating restriction status during the study period. Drivers licensed in multiple functional ability categories during the study period were analyzed separately in the same manner.

The overall results for single medical condition drivers by combining restriction statuses for citations, crashes and at-fault crashes are presented in Tables 5 - 7. These tables show the estimates of risk for the event as compared to the risk for the event in the comparison drivers. Table 8 shows the estimates of risk for drivers licensed with multiple medical conditions, restriction statuses combined as compared to comparison drivers for the events of citation, all crash and at-fault crash. Similarly, the table shows the same comparisons for all single functional ability categories combined.

Tables 9 - 14 show in detail the rates and the estimate of risk for single medical condition drivers with combined restriction statuses for citation, crash and at-fault crash. These tables show the details of the information presented in the summary (Tables 5 - 7). Stratified analyses for the single condition drivers who had a constant restriction status for the study period and then those drivers who changed statuses during the study period for citation, crash, and at fault crash are shown in Tables 15 - 20. This analysis was performed to determine whether or not drivers with unstable conditions affected the combined analysis disproportionately. In these tables, drivers whose status changed are listed only once in each restriction status, regardless of the number of times their status fluctuated during the study period.

Table 5. Relative Risk for Driving Citations, Functional Ability Category to Comparison Group, Single Medical Conditions Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Relative Risk	95% Confidence Interval
Diabetes & Other Metabolic Conditions	Not Restricted	1.02	0.98, 1.07
	Restricted	1.39	0.92, 2.09
Cardiovascular	Not Restricted	0.76 **	0.72, 0.88
	Restricted	1.58	0.74, 3.38
Pulmonary	Not Restricted	0.87 **	0.79, 0.97
	Restricted	0.49	0.18, 1.30
Neurologic	Not Restricted	0.92	0.76, 1.10
	Restricted	0.76	0.44, 1.29
Epilepsy and Other Episodic Conditions	Not Restricted	1.02	0.96, 1.10
	Restricted	1.05	0.81, 1.36
Learning, Memory and Communication	Not Restricted	1.26	0.85, 1.86
	*Restricted	11.63 *	3.58, 37.78
Psychiatric or Emotional Conditions	Not Restricted	1.23 *	1.17, 1.30
	Restricted	0.84	0.53, 1.33
Alcohol and Other Drugs	Not Restricted	2.38 *	1.82, 3.12
	Restricted	5.83 *	3.19, 10.66
Visual Acuity	Not Restricted	1.35 *	1.27, 1.43
	Restricted	1.31 *	1.10, 1.56
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	1.22	0.90, 1.65
	Restricted	zero rate	
Functional Motor Impairment	Not Restricted	1.42 *	1.04, 1.94
	Restricted	zero rate	

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant. ** indicates that the medical conditions group has a statistically significant lower rate.

Table 6. Relative Risk for All Crashes, Functional Ability Category to Comparison Group, Single Medical Conditions Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Relative Risk	95% Confidence Interval
Diabetes & Other Metabolic Conditions	Not Restricted	1.30 *	1.23, 1.38
	Restricted	1.38	0.75, 2.54
Cardiovascular	Not Restricted	0.99	0.93, 1.06
	Restricted	1.37	0.43, 4.38
Pulmonary	Not Restricted	1.18 *	1.03. 1.34
	Restricted	0.91	0.40, 2.09
Neurologic	Not Restricted	1.62 *	1.32, 1.99
	Restricted	1.33	0.78, 2.28
Epilepsy and Other Episodic Conditions	Not Restricted	1.73 *	1.58, 1.90
	Restricted	1.47 *	1.06, 2.03
Learning, Memory and Communication	Not Restricted	2.19 *	1.33, 3.61
	Restricted	zero rate	
Psychiatric or Emotional Conditions	Not Restricted	1.57 *	1.46, 1.67
	Restricted	1.87 *	1.11, 3.17
Alcohol and Other Drugs	Not Restricted	1.82 *	1.18, 2.81
	Restricted	4.21 *	1.80, 9.85
Visual Acuity	Not Restricted	1.35 *	1.25, 1.46
	Restricted	1.27 *	1.04, 1.55
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	1.59 *	1.10, 2.29
	Restricted	4.51 *	1.01, 20.12
Functional Motor Impairment	Not Restricted	1.11	0.70, 1.74
	Restricted	zero rate	

Table 7. Relative Risk for At Fault Crashes, Functional Ability Category to Comparison Group, Single Medical Conditions Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Relative Risk	95% Confidence Interval
Diabetes & Other Metabolic Conditions	Not Restricted	1.46*	1.36, 1.58
	Restricted	1.77	0.87, 3.61
Cardiovascular	Not Restricted	1.00	0.92, 1.09
	Restricted	1.54	0.37, 6.40
Pulmonary	Not Restricted	1.26*	1.06, 1.50
	Restricted	1.60	0.69, 3.71
Neurologic	Not Restricted	2.20*	1.71, 2.84
	Restricted	1.40	0.71, 2.76
Epilepsy and Other Episodic Conditions	Not Restricted	2.02*	1.80, 2.27
	Restricted	2.39*	1.70, 3.36
Learning, Memory and Communication	Not Restricted	3.32*	1.84, 5.59
	Restricted	zero rate	
Psychiatric or Emotional Conditions	Not Restricted	1.85*	1.69, 2.01
	Restricted	2.89*	1.64, 5.07
Alcohol and Other Drugs	Not Restricted	2.22*	1.25, 3.94
	Restricted	5.75*	2.26, 14.61
Visual Acuity	Not Restricted	1.52*	1.38, 1.68
	Restricted	1.56*	1.25, 1.94
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	1.84*	1.14, 2.98
	Restricted	11.29*	2.39, 53.25
Functional Motor Impairment	Not Restricted	1.71*	1.00, 2.93
	Restricted	zero rate	

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant. ** indicates that the medical conditions group has a statistically significant lower rate.

Table 8. Adverse Driving Events for Drivers in Multiple Functional Ability Categories and Total Single Functional Ability Categories Compared to Comparison Groups for Combined Restriction Status, Utah 1992 - 1996

Adverse Driving Event	Restriction Status	Relative Risk	95% Confidence Interval
Citations (Multiple)	Not Restricted	0.98	0.93, 1.03
	Restricted	0.80**	0.65, 0.98
Crashes (Multiple)	Not Restricted	1.41*	1.33, 1.48
	Restricted	1.28*	1.04, 1.58
At-Fault Crashes (Multiple)	Not Restricted	1.60*	1.49, 1.71
	Restricted	1.67*	1.31, 2.13
Citations (Combined Single)	Not Restricted	1.09*	1.07, 1.12
	Restricted	0.95	0.84, 1.07
Crashes (Combined Single)	Not Restricted	1.33*	1.30, 1.33
	Restricted	1.26*	1.08, 1.44
At-Fault Crashes (Combined Single)	Not Restricted	1.49*	1.44, 1.55
	Restricted	1.74	1.49, 2.04

Table 9. Relative Risk for Citations, Single Functional Ability Category and Corresponding Comparison Groups by Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Drivers	Medical Conditions			Comparison Group				Relative Risk
			# Citations	# Days	Rate/10,000 days	Comparison	# Citations	# Days	Rate/10,000 days	
Diabetes & Other Metabolic Conditions	Not Restricted	10,069	2,600	9,951,193	2.61	19,661	7,864	30,835,268	2.55	1.02
	Restricted	358	24	54,199	4.43	716	337	1,054,327	3.20	1.39
Cardiovascular	Not Restricted	18,990	1,428	11,619,207	1.23	34,760	9,661	59,460,806	1.62	0.76 **
	Restricted	160	7	22,290	3.14	320	99	499,038	1.98	1.58
Pulmonary	Not Restricted	2,615	438	1,953,578	2.24	5,200	2,009	7,839,653	2.56	0.87 **
	Restricted	244	4	57,764	0.69	488	107	754,771	1.42	0.49
Neurologic	Not Restricted	887	138	653,869	2.11	1,773	626	2,715,370	2.31	0.92
	Restricted	194	15	91,682	1.64	388	127	588,626	2.16	0.76
Epilepsy and Other Episodic Conditions	Not Restricted	2,620	1,068	2,627,369	4.06	5,227	3,064	7,719,599	3.97	1.02
	Restricted	775	62	149,980	4.13	1,548	872	2,221,883	3.92	1.05
Learning, Memory and Communication	Not Restricted	107	32	66,465	4.81	214	114	298,154	3.82	1.26
	Restricted	6	4	1,945	20.57	12	3	16,963	1.77	11.63 *
Psychiatric or Emotional Conditions	Not Restricted	6,763	2,081	5,287,313	3.94	13,402	6,512	20,397,764	3.19	1.23 *
	Restricted	305	19	58,447	3.25	610	361	934,199	3.86	0.84
Alcohol and Other Drugs	Not Restricted	143	74	87,464	8.46	286	155	436,569	3.55	2.38 *
	Restricted	24	12	6,004	19.99	48	26	75,893	3.43	5.83 *
Visual Acuity	Not Restricted	10,363	1,269	4,292,568	2.96	19,778	6,612	30,215,840	2.19	1.35 *
	Restricted	1,535	157	872,499	1.80	2,987	604	4,390,829	1.38	1.31 *
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	370	53	224,975	2.36	739	222	1,149,840	1.93	1.22
	Restricted	32	0	9,014	0.00	64	22	101,731	2.16	zero rate
Functional Motor Impairment	Not Restricted	214	51	147,593	3.46	428	161	659,761	2.44	1.42 *
	Restricted	13	0	5,369	0.00	24	12	41,386	2.90	zero rate

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 10. Confidence Interval for Relative Risk of Citations, Single Functional Ability Category and Corresponding Comparison Groups by Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Rate Ratio	All Citations	All Days	Chi-Square	Std Error	Log(L)	Log(U)	Lower	Upper
Diabetes & Other Metabolic Conditions	Not Restricted	1.02	10,464	40,786,461	1.14	0.02	-0.02	0.07	0.98	1.07
	Restricted	1.39	361	1,108,526	2.40	0.21	-0.09	0.74	0.92	2.09
Cardiovascular	Not Restricted	0.76	11,089	71,080,013	97.59	0.03	-0.33	-0.22	0.72	0.80
	Restricted	1.58	106	521,328	1.40	0.39	-0.30	1.22	0.74	3.38
Pulmonary	Not Restricted	0.87	2,447	9,793,231	6.43	0.05	-0.24	-0.03	0.79	0.97
	Restricted	0.49	111	812,535	2.07	0.50	-1.69	0.26	0.18	1.30
Neurologic	Not Restricted	0.92	764	3,369,239	0.88	0.09	-0.27	0.10	0.76	1.10
	Restricted	0.76	142	680,308	1.03	0.27	-0.81	0.26	0.44	1.29
Epilepsy and Other Episodic Conditions	Not Restricted	1.02	4,132	10,346,968	0.45	0.04	-0.05	0.09	0.96	1.10
	Restricted	1.05	934	2,371,863	0.16	0.13	-0.21	0.31	0.81	1.36
Learning, Memory and Communication	Not Restricted	1.26	146	364,619	1.33	0.20	-0.16	0.62	0.85	1.86
	Restricted	11.63	7	18,908	16.65	0.60	1.28	3.63	3.58	37.78
Psychiatric or Emotional Conditions	Not Restricted	1.23	8,593	25,685,077	69.35	0.03	0.16	0.26	1.17	1.30
	Restricted	0.84	380	992,646	0.54	0.24	-0.63	0.29	0.53	1.33
Alcohol and Other Drugs	Not Restricted	2.38	229	524,033	40.20	0.14	0.60	1.14	1.82	3.12
	Restricted	5.83	38	81,897	32.89	0.31	1.16	2.37	3.19	10.66
Visual Acuity	Not Restricted	1.35	7,881	34,508,408	97.08	0.03	0.24	0.36	1.27	1.43
	Restricted	1.31	761	5,263,328	9.04	0.09	0.09	0.44	1.10	1.56
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	1.22	275	1,374,815	1.70	0.15	-0.10	0.50	0.90	1.65
	Restricted	zero rate	22	110,745	1.95					
Functional Motor Impairment	Not Restricted	1.42	212	807,354	4.73	0.16	0.03	0.66	1.04	1.94
	Restricted	zero rate	12	46,755	1.56					

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 11. Relative Risk for All Crashes, Single Functional Ability Category and Corresponding Comparison Groups by Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Drivers	Medical Conditions			Comparison Group				Relative Risk
			# Crashes	# Days	Rate/10,000 days	Comparison	# Crashes	# Days	Rate	
Diabetes & Other Metabolic Conditions	Not Restricted	10,069	1,693	9,951,193	1.70	19,661	4,023	30,835,268	1.30	1.30*
	Restricted	358	11	54,199	2.03	716	155	1,054,327	1.47	1.38
Cardiovascular	Not Restricted	18,990	1,209	11,619,207	1.04	34,760	6,233	59,460,806	1.05	0.99
	Restricted	160	3	22,290	1.35	320	49	499,038	0.98	1.37
Pulmonary	Not Restricted	2,615	297	1,953,578	1.52	5,200	1,013	7,839,653	1.29	1.18*
	Restricted	244	6	57,764	1.04	488	86	754,771	1.14	0.91
Neurologic	Not Restricted	887	124	653,869	1.90	1,773	318	2,715,370	1.17	1.62*
	Restricted	194	16	91,682	1.75	388	77	588,626	1.31	1.33
Epilepsy and Other Episodic Conditions	Not Restricted	2,620	708	2,627,369	2.69	5,227	1,200	7,719,599	1.55	1.73*
	Restricted	775	40	149,980	2.67	1,548	403	2,221,883	1.81	1.47*
Learning, Memory and Communication	Not Restricted	107	22	66,465	3.31	214	45	298,154	1.51	2.19*
	Restricted	6	1	1,945	5.14	12	0	16,963	0.00	zero rate
Psychiatric or Emotional Conditions	Not Restricted	6,763	1,184	5,287,313	2.24	13,402	2,917	20,397,764	1.43	1.57*
	Restricted	305	15	58,447	2.57	610	128	934,199	1.37	1.87*
Alcohol and Other Drugs	Not Restricted	143	27	87,464	3.09	286	74	436,569	1.70	1.82*
	Restricted	24	6	6,004	9.99	48	18	75,893	2.37	4.21*
Visual Acuity	Not Restricted	10,363	753	4,292,568	1.75	19,778	3,931	30,215,840	1.30	1.35*
	Restricted	1,535	122	872,499	1.40	2,987	484	4,390,829	1.10	1.27*
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	370	37	224,975	1.64	739	119	1,149,840	1.03	1.59*
	Restricted	32	2	9,014	2.22	64	5	101,731	0.49	4.51*
Functional Motor Impairment	Not Restricted	214	23	147,593	1.56	428	93	659,761	1.41	1.11
	Restricted	13	0	5,369	0.00	24	7	41,386	1.69	zero rate

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 12. Confidence Interval for Relative Risk of All Crashes, Single Functional Ability Category and Corresponding Comparison Groups by Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Relative Risk	All Crashes	All Days	Chi-Square	Std Error	Log(L)	Log(U)	Lower	Upper
Diabetes & Other Metabolic Conditions	Not Restricted	1.30	5,716	40,786,461	84.45	0.03	0.21	0.32	1.23	1.38
	Restricted	1.38	166	1,108,526	1.08	0.31	-0.29	0.93	0.75	2.54
Cardiovascular	Not Restricted	0.99	7,442	71,080,013	0.06	0.03	-0.07	0.05	0.93	1.06
	Restricted	1.37	52	521,328	0.28	0.59	-0.85	1.48	0.43	4.38
Pulmonary	Not Restricted	1.18	1,310	9,793,231	6.08	0.07	0.03	0.29	1.03	1.34
	Restricted	0.91	92	812,535	0.05	0.42	-0.92	0.73	0.40	2.09
Neurologic	Not Restricted	1.62	442	3,369,239	21.13	0.10	0.28	0.69	1.32	1.99
	Restricted	1.33	93	680,308	1.11	0.27	-0.25	0.82	0.78	2.28
Epilepsy and Other Episodic Conditions	Not Restricted	1.73	1,908	10,346,968	138.20	0.05	0.46	0.64	1.58	1.90
	Restricted	1.47	443	2,371,863	5.48	0.16	0.06	0.71	1.06	2.03
Learning, Memory and Communication	Not Restricted	2.19	67	364,619	9.59	0.26	0.29	1.28	1.33	3.61
	Restricted	Zero Rate	1	18,908	8.72					
Psychiatric or Emotional Conditions	Not Restricted	1.57	4,101	25,685,077	172.23	0.03	0.38	0.52	1.46	1.67
	Restricted	1.87	143	992,646	5.46	0.27	0.10	1.15	1.11	3.17
Alcohol and Other Drugs	Not Restricted	1.82	101	524,033	7.32	0.22	0.17	1.03	1.18	2.81
	Restricted	4.21	24	81,897	11.03	0.43	0.59	2.29	1.80	9.85
Visual Acuity	Not Restricted	1.35	4,684	34,508,408	56.88	0.04	0.22	0.38	1.25	1.46
	Restricted	1.27	606	5,263,328	5.54	0.10	0.04	0.44	1.04	1.55
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	1.59	156	1,374,815	6.16	0.19	0.10	0.83	1.10	2.29
	Restricted	4.51	7	110,745	3.91	0.76	0.01	3.00	1.01	20.12
Functional Motor Impairment	Not Restricted	1.11	116	807,354	0.19	0.23	-0.36	0.56	0.70	1.74
	Restricted	Zero Rate	7	46,755	0.91					

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 13. Relative Risk for At Fault Crashes, Single Functional Ability Category and Corresponding Comparison Groups by Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Drivers	Medical Conditions			Comparison				Relative Risk
			# Crashes	# Days	Rate/10,000 days	Comparison	# Crashes	# Days	Rate/10,000 days	
Diabetes & Other Metabolic Conditions	Not Restricted	10,069	1,013	9,951,193	1.02	19,661	2,146	30,835,268	0.70	1.46*
	Restricted	358	8	54,199	1.48	716	88	1,054,327	0.83	1.77
Cardiovascular	Not Restricted	18,990	637	11,619,207	0.55	34,760	3,256	59,460,806	0.55	1.00
	Restricted	160	2	22,290	0.90	320	29	499,038	0.58	1.54
Pulmonary	Not Restricted	2,615	167	1,953,578	0.85	5,200	533	7,839,653	0.68	1.26*
	Restricted	244	6	57,764	1.04	488	49	754,771	0.65	1.60
Neurologic	Not Restricted	887	86	653,869	1.32	1,773	162	2,715,370	0.60	2.20*
	Restricted	194	10	91,682	1.09	388	46	588,626	0.78	1.40
Epilepsy and Other Episodic Conditions	Not Restricted	2,620	463	2,627,369	1.76	5,227	673	7,719,599	0.87	2.02*
	Restricted	775	36	149,980	2.40	1,548	223	2,221,883	1.00	2.39*
Learning, Memory and Communication	Not Restricted	107	17	66,465	2.56	214	23	298,154	0.77	3.32*
	Restricted	6	1	1,945	5.14	12	0	16,963	0.00	zero rate
Psychiatric or Emotional Conditions	Not Restricted	6,763	727	5,287,313	1.37	13,402	1,520	20,397,764	0.75	1.85*
	Restricted	305	13	58,447	2.22	610	72	934,199	0.77	2.89*
Alcohol and Other Drugs	Not Restricted	143	16	87,464	1.83	286	36	436,569	0.82	2.22*
	Restricted	24	5	6,004	8.33	48	11	75,893	1.45	5.75*
Visual Acuity	Not Restricted	10,363	493	4,292,568	1.15	19,778	2,280	30,215,840	0.75	1.52*
	Restricted	1,535	102	872,499	1.17	2,987	329	4,390,829	0.75	1.56*
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	370	22	224,975	0.98	739	61	1,149,840	0.53	1.84*
	Restricted	32	2	9,014	2.22	64	2	101,731	0.20	11.29*
Functional Motor Impairment	Not Restricted	214	18	147,593	1.22	428	47	659,761	0.71	1.71*
	Restricted	13	0	5,369	0.00	24	5	41,386	1.21	zero rate

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 14. Confidence Interval for Relative Risk of At Fault Crashes, Single Functional Ability Category and Corresponding Comparison Groups by Combined Restriction Status, Utah 1992 – 1996

Functional Ability Category	Restriction Status	Relative Risk	All Crashes	All Days	Chi-Square	Std Error	Log(L)	Log(U)	Lower	Upper
Diabetes & Other Metabolic Conditions	Not Restricted	1.46*	3,060	40,786,461	100.72	0.04	0.31	0.45	1.36	1.58
	Restricted	1.77	95	1,108,526	2.45	0.36	-0.14	1.28	0.87	3.61
Cardiovascular	Not Restricted	1.00	3,712	71,080,013	0.00	0.04	-0.08	0.09	0.92	1.09
	Restricted	1.54	28	521,328	0.36	0.73	-0.99	1.86	0.37	6.40
Pulmonary	Not Restricted	1.26*	668	9,793,231	6.70	0.09	0.06	0.40	1.06	1.50
	Restricted	1.60	54	812,535	1.20	0.43	-0.37	1.31	0.69	3.71
Neurologic	Not Restricted	2.20*	243	3,369,239	36.97	0.13	0.54	1.05	1.71	2.84
	Restricted	1.40	53	680,308	0.92	0.35	-0.35	1.01	0.71	2.76
Epilepsy and Other Episodic Conditions	Not Restricted	2.02*	1,105	10,346,968	141.55	0.06	0.59	0.82	1.80	2.27
	Restricted	2.39*	249	2,371,863	25.10	0.17	0.53	1.21	1.70	3.36
Learning, Memory and Communication	Not Restricted	3.32*	38	364,619	15.81	0.30	0.61	1.79	1.84	5.99
	Restricted	zero rate	1	18,908	8.72					
Psychiatric or Emotional Conditions	Not Restricted	1.85*	2,159	25,685,077	190.39	0.04	0.53	0.70	1.69	2.01
	Restricted	2.89*	82	992,646	13.57	0.29	0.50	1.62	1.64	5.07
Alcohol and Other Drugs	Not Restricted	2.22*	50	524,033	7.41	0.29	0.22	1.37	1.25	3.94
	Restricted	5.75*	16	81,897	13.47	0.48	0.81	2.68	2.26	14.61
Visual Acuity	Not Restricted	1.52*	2,659	34,508,408	72.58	0.05	0.32	0.52	1.38	1.68
	Restricted	1.56*	418	5,263,328	15.66	0.11	0.22	0.67	1.25	1.94
Musculoskeletal Abnormality or Chronic Medical Debility	Not Restricted	1.84*	80	1,374,815	6.24	0.24	0.13	1.09	1.14	2.98
	Restricted	11.29*	4	110,745	9.37	0.79	0.87	3.97	2.39	53.25
Functional Motor Impairment	Not Restricted	1.71*	61	807,354	3.85	0.27	0.00	1.07	1.00	2.93
	Restricted	zero rate	4	46,755	0.65					

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

The results for drivers licensed with multiple medical conditions during the study period are presented in the following tables. Tables 15 - 16 contain the combined results of drivers with multiple and single restrictions status for citation, crash and at fault crash.

Table 15. Relative Risk for Adverse Driving Events, Drivers with Multiple Medical Conditions and Corresponding Comparison Groups by Combined Restriction Status, Utah 1992 – 1996

	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	# Events	# Days	Rate	Comparison	# Events	# Days	Rate	Ratio	L 95%	U 95%	Significance
Citation	Not Restricted	13,408	2,122	12,430,892	1.71	25,496	7,2247	41,429,463	1.74	0.98	0.93	1.03	
	Restricted	2,414	100	662,027	1.51	4,774	1,380	7,322,259	1.88	0.80	0.65	0.98	**
Crash	Not Restricted	13,408	1,965	12,430,892	1.58	25,496	4,659	41,429,463	1.12	1.41	1.33	1.45	*
	Restricted	2,414	97	662,027	1.47	4,774	840	7,322,259	1.15	1.28	1.04	1.58	*
At Fault Crash	Not Restricted	13,408	1,229	12,430,892	0.99	25,496	2,567	41,429,463	.62	1.60	1.49	1.71	*
	Restricted	2,414	73	662,027	1.10	4,774	483	7,322,259	.66	1.67	1.31	2.13	*

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 16. Relative Risk for Adverse Driving Events, All Drivers with Single Functional Ability Category and Corresponding Comparison Groups by Combined Restriction Status, Utah 1992 – 1996

	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	# Events	# Days	Rate	Comparison	# Events	# Days	Rate	Ratio	L 95%	U 95%	Significance
Citation	Not Restricted	53,141	9,232	36,911,594	2.50	101,468	37,000	161,728,624	2.29	1.09	1.07	1.12	*
	Restricted	3,646	304	1,329,193	2.29	7,205	2,570	10,679,646	2.41	0.95	0.84	1.07	
Crash	Not Restricted	53,141	6,077	36,911,594	1.65	101,468	19,966	161,728,624	1.23	1.33	1.30	1.37	*
	Restricted	3,646	222	1,329,193	1.67	7,205	1,412	10,679,646	1.32	1.26	1.08	1.44	*
At Fault Crash	Not Restricted	53,141	3,659	36,911,594	0.99	101,468	10,737	161,728,624	.66	1.49	1.44	1.55	*
	Restricted	3,646	185	1,329,193	1.39	7,205	854	10,679,646	0.80	1.74	1.49	2.04	*

*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Diabetes mellitus and other metabolic conditions

This category included 10,069 licensed drivers with diabetes mellitus and thyroid, parathyroid, pituitary or other metabolic conditions. These results exclude the 7,245 drivers licensed in this category along with other medical conditions. Overall rates for unrestricted drivers in this category were 2.61, 1.70, and 1.02 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 2.55, 1.30 and 0.70 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 4.43, 2.03 and 1.48 per 10,000 licensed days compared to 3.20, 1.47 and 0.83 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 1.02, 1.30 and 1.46 for unrestricted drivers and 1.39, 1.38 and 1.77 for restricted drivers during the study period. The rates for all crashes and at-fault crashes in unrestricted drivers in this category were higher than those of the comparison group at a statistical significance level of 5%. Citations in unrestricted drivers, and all adverse driving events in the restricted drivers were not significantly different than the rates of the corresponding comparison groups.

Cardiovascular conditions

This category included 18,990 licensed drivers with cardiovascular conditions including heart disease, rhythm disturbances, or history of myocardial infarctions, heart surgery or hypertension. This excludes the 9,504 drivers who were licensed in the cardiovascular conditions category along with other functional ability categories. Rates for unrestricted drivers in this category were 1.23, 1.04, and 0.55 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 1.62, 1.05 and 0.55 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 3.14, 1.35 and 0.90 per 10,000 licensed days compared to 1.98, 0.98 and 0.58 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 0.76, 0.99 and 1.00 for unrestricted drivers and 1.58, 1.37 and 1.54 for restricted drivers during the study period. The rates for crash and at fault crashes for both restricted and unrestricted drivers in this category were not different than those of their comparison groups at a statistical significance level of 5%; however, unrestricted drivers had a statistically significant lower rate for citations.

Pulmonary conditions

This category includes 2,615 drivers licensed with pulmonary conditions including pulmonary disease or symptoms, impaired function or severe respiratory difficulties. This excludes the 2,552 drivers who were licensed in the pulmonary conditions category along with other functional ability categories. Rates for unrestricted drivers in this category were 2.24, 1.52, and 0.85 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 2.56, 1.29 and 0.68 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 0.69, 1.04 and 1.04 per 10,000 licensed days compared to 1.42, 1.14 and 0.65 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 0.87, 1.18 and 1.26 for unrestricted drivers and 0.49, 0.91 and 1.62 for restricted drivers during the study period. For unrestricted drivers, all of the differences between the pulmonary condition drivers and their corresponding comparison group were statistically significant. Unrestricted drivers with pulmonary conditions had a statistically significant lower rates for citation, and higher rates for all crash and at fault crash when compared to their comparison group at a significance level of 5%. The confidence intervals for restricted drivers for all three events included 1.0 meaning that there were no differences identified in the rates when compared to those of the corresponding comparison group.

Neurological conditions

This category includes 887 drivers with neurological conditions including strokes, head injuries, Cerebral Palsy, Multiple Sclerosis, Parkinson's disease, progressive conditions such as muscular atrophies and dystrophy, myasthenia gravis and other spinal cord and brain diseases. This excludes the 2,352 drivers who were licensed with neurological conditions along with other functional ability categories. Approximately 12.3% (119) of the drivers in this category fluctuated between unrestricted, restricted and ineligible driver license statuses. Epilepsy is considered a separate functional ability category. Rates for unrestricted drivers in this category were 2.11, 1.90 and 1.32 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 2.31, 1.17 and 0.60 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 1.64, 1.75 and 1.09 per 10,000 licensed days compared to 2.16, 1.31 and 0.78 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 0.92, 1.62 and 2.20 for unrestricted drivers, and 0.76, 1.33 and 1.46 for restricted drivers during the study period. The rates for crash and at-fault crashes were higher for unrestricted drivers at a statistical significance level of 5%, when compared to the rates of the comparison group. The confidence intervals for citations in the unrestricted drivers and all events for the restricted drivers included 1.0. This means that there was no difference in the rates of citation, crash, and at fault crash when compared to the rates of the comparison group.

Epilepsy and other episodic conditions

This category includes 2,620 drivers with epilepsy or other episodic conditions including syncope, cataplexy, narcolepsy, hypoglycemia, and episodic vertigo that interferes with function. This excludes the 934 drivers who were licensed with epilepsy along with other functional ability categories. Approximately 27.5% (745) of the drivers in this category fluctuated between unrestricted, restricted and ineligible driver license statuses. The rates for unrestricted drivers in this category were 4.06, 2.69 and 1.76 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 3.97, 1.55 and 0.87 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 4.13, 2.67 and 2.40 per 10,000 licensed days compared to 3.92, 1.81 and 1.00 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 1.02, 1.73 and 2.02 for unrestricted drivers and 1.05, 1.47 and 2.39 for restricted drivers during the study period. The relative risks

for citation for unrestricted and restricted drivers included 1.0 meaning that the rates of citation were not different from those of the comparison groups at a statistical significance level of 5%. However, the rates for crash and at-fault crash for both groups were significantly higher than those of the comparison groups at a statistical significance level of 5%.

Learning, memory and communication

This category includes 107 drivers with history of impairment for learning, memory or communication and/or cognitive deficits. Persons with Alzheimer's disease are included in this category. This excludes the 732 drivers who were licensed with learning, memory or communication disorders along with other functional ability categories. Rates for unrestricted drivers in this category were 4.81, 3.31 and 2.56 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 3.82, 1.51 and 0.77 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 20.57, 5.14 and 5.14 per 10,000 licensed days compared to 1.77, 0 and 0 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 1.26, 2.19 and 3.32 for unrestricted drivers and 11.63 for citations for restricted drivers during the study period. Because the restricted comparison group did not have any crashes during the study period, statistical tests to evaluate the differences between the medical condition group and the comparison group could not be performed. Rates of crash and at-fault crash for unrestricted drivers, were higher than those of their corresponding comparison groups at a statistical significance level of 5%. Similarly, the rate of citation in restricted drivers was statistically higher than that of the comparison group at a significance level of 5%.

Psychiatric or emotional conditions

This category includes 6,703 drivers with history of psychiatric or emotional conditions, psychotic illness, including suicidal tendencies, perceptual distortions, psychomotor retardation, schizophrenia, major depressive disorders, bipolar disorders and/or organic brain syndromes. This does not include the 2,065 drivers who were licensed in this category along with other functional ability categories. Rates for unrestricted drivers in this category were 3.94, 2.24 and 1.37 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 3.19, 1.43 and 0.75 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 3.25, 2.57 and 2.22 per 10,000 licensed days compared to 3.86, 1.37, and 0.77 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 1.23, 1.57 and 1.85 for unrestricted drivers and 0.84, 1.81 and 2.89 for restricted drivers during the study period. The confidence levels for both restricted and unrestricted drivers for all events, except the citation risk for restricted drivers were higher when compared to those of the comparison groups at a statistical significance level of 5%.

Alcohol and other drugs

This category includes 143 drivers with history of drug including alcohol abuse. This does not include the 465 drivers who were licensed with alcohol and other drug conditions along with other functional ability categories. Approximately 12.8% (19) of the drivers in this category fluctuated between unrestricted, restricted and ineligible driver license statuses. Rates for unrestricted drivers in this category were 8.46, 3.09 and 1.83 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 3.55, 1.70 and 0.82 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 19.99, 9.99 and 8.33 per 10,000 licensed days compared to 3.43, 2.37 and 1.45 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 2.38, 1.82 and 2.22 for unrestricted drivers and 5.83, 4.21 and 5.75 for restricted drivers during the study period. The rates of all three adverse events were statistically higher in both restricted and unrestricted drivers. However, it is important to note that the number of restricted drivers in this category was extremely small (N=24), and while the differences were significant between these drivers and those chosen as comparisons, the confidence intervals for the risk ratio were large.

Visual acuity

This category includes 11,363 drivers with history of eye conditions that may affect vision function. Rates for unrestricted drivers in this category were 2.96, 1.75 and 1.15 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 2.19, 1.30 and 0.75 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 1.80, 1.40 and 1.17 per 10,000 licensed days compared to 1.38, 1.10 and 0.75 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 1.35, 1.35 and 1.52 for unrestricted drivers and 1.31, 1.42 and 1.56 for restricted drivers during the study period. The rates for citation, crash, and at fault crash were higher than the those of the comparison drivers for both groups at a statistical significance level of 5%.

Musculoskelatal abnormality or chronic medical debility

This category includes 370 drivers with history of a condition or disease that may affect driving safety (e.g., osteoporosis or active infectious disease, including HIV). This does not include the 1,603 drivers who were licensed in this category along with other functional ability categories. Rates for unrestricted drivers in this category were 2.36, 1.64 and 0.98 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 1.93, 1.03 and 0.53 respectively for their corresponding comparison group. Rates for restricted drivers in this category were 0, 2.22 and 2.22 per 10,000 licensed days compared to 2.16, 0.49 and 0.20 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 1.22, 1.59 and 1.84 for unrestricted drivers and 0, 4.51 and 11.29 for restricted drivers during the study period. The rates for all crash

and at-fault crash were higher for both restricted and unrestricted drivers than those of the corresponding comparison groups at a statistical significance level of 5%. The rates of citation for both restricted and unrestricted drivers were similar to those of the corresponding comparison groups. It is important to note that the number of restricted drivers in this category was small (N=32). Additionally, no citation events occurred during the study period for this group.

Functional motor impairment

This category includes 214 drivers with history of impaired functional motor ability including difficulties with muscular strength, coordination, range and motion, spinal movement and stability, amputations or the absence of body parts and/or abnormalities affecting motor comparison. This does not include the 1,280 drivers who were licensed in this category along with other functional ability categories. Rates for unrestricted drivers in this category were 3.46, 1.56 and 1.22 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 2.44, 1.41 and 0.71 respectively for their corresponding comparison group. The rates for the restricted drivers in this category were 0, 0 and 0 per 10,000 licensed days compared to 2.90, 1.69 and 1.21 for their corresponding comparison group. Because the sample size for restricted drivers (N=13) was small, and no events occurred, statistical testing for restricted drivers could not be performed.

The relative risks for citation, crash and at fault crashes were 1.42, 1.18 and 1.87 for unrestricted drivers during the study period. The confidence levels for citation and at fault crash did not include 1.0. This means that the rates of citation and at fault crash were higher than those of the comparison group at a statistical significance level of 5%.

Drivers licensed in multiple functional ability categories

This category includes 13,408 drivers licensed during the study period. Rates for unrestricted drivers in this category were 1.71, 1.58 and 0.99 per 10,000 license days for citation, all crash and at fault crashes respectively compared to 1.74, 1.12 and 0.62 respectively for their corresponding comparison group. The rates for the restricted drivers in this category were 1.51, 1.47 and 1.10 per 10,000 licensed days for citation, crash and at fault crash compared to 1.88, 1.15 and 0.66 for their corresponding comparison group.

The relative risks for citation, crash and at fault crashes were 0.98, 1.41 and 1.60 for unrestricted drivers, and 0.80, 1.28 and 1.67 for restricted drivers for citation, crash and at fault crash during the study period. The confidence levels for all crash and at-fault crash in both groups were higher than those of their respective comparison groups at a statistical significance level of 5%. However, the rate of citation for restricted drivers was significantly lower than that of their corresponding comparison group, while the rate of citation for unrestricted drivers was similar to the rate of the comparison drivers.

Comparing drivers with a single restriction status to drivers whose restriction status fluctuated during the study period

In order to determine if there were differences in the rates between drivers whose condition remained stable for their duration of eligibility during the study period, and those whose condition was not stable, we stratified the previously presented analyses. The same analyses were performed separately for drivers who remained in one functional ability level (restricted or unrestricted) for the entire study, and drivers who fluctuated between levels (restricted, unrestricted, and ineligible). The results are presented in Tables 17 - 24.

Table 17. Relative Risk for Citations, Single Functional Ability Category and Corresponding Comparison Groups by One Restriction Status, Utah 1992 – 1996

Condition	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	Citations	# Days	Rate	Comparisons	Citation	# Days	Rate	Ratio	L 95%	U 95%	Significance
Diabetes	Not Restricted	9,731	2,478	9,616,680	2.58	18,985	7,537	29,844,852	2.53	1.02	0.98	1.07	
	Restricted	31	3	9,117	3.29	62	25	97,383	2.57	1.28	0.39	4.23	
Cardiovascular	Not Restricted	18,865	1,422	11,538,711	1.23	34,510	9,578	59,072,515	1.62	0.76	0.72	0.80	**
	Restricted	41	6	9,827	6.11	82	21	129,305	1.62	3.76	1.62	8.75	*
Pulmonary	Not Restricted	2,437	425	1,816,080	2.34	4,844	1,930	7,273,732	2.65	0.88	0.79	0.98	**
	Restricted	69	0	23,115	0.00	138	29	197,671	1.47	zero rate			
Neurologic	Not Restricted	773	119	572,607	2.08	1,545	551	2,371,934	2.32	0.89	0.73	1.09	
	Restricted	79	4	45,676	0.88	158	47	241,288	1.95	0.45	0.17	1.21	
Epilepsy	Not Restricted	1,893	768	1,992,785	3.85	3,775	2,212	5,632,320	3.93	0.98	0.90	1.07	
	Restricted	71	15	22,518	6.66	142	48	205,728	2.33	2.86	1.64	4.97	*
Learning	Not Restricted	102	31	62,973	4.92	204	107	281,642	3.80	1.30	0.87	1.93	
	Restricted	3	0	1,182	0.00	6	0	7,285	0.00	zero rate			
Psychiatric	Not Restricted	6,481	1,932	5,027,373	3.84	12,838	6,187	19,527,510	3.17	1.21	1.15	1.28	*
	Restricted	42	3	14,799	2.03	84	52	125,506	4.14	0.49	0.16	1.53	
Alcohol	Not Restricted	124	67	77,740	8.62	248	139	376,058	3.70	2.33	1.76	3.09	*
	Restricted	5	5	2,506	19.95	10	10	15,382	6.50	3.07	1.11	8.50	*
Vision	Not Restricted	10,116	1,247	4,191,935	2.97	19,287	6,518	29,517,765	2.21	1.35	1.27	1.43	*
	Restricted	1,279	142	781,209	1.82	2,479	514	3,672,929	1.40	1.30	1.08	1.56	*
Musculoskeletal	Not Restricted	353	52	214,610	2.42	705	210	1,092,772	1.92	1.26	0.93	1.71	
	Restricted	15	0	4,803	0.00	30	10	44,663	2.24	zero rate			
Functional Motor	Not Restricted	208	44	143,549	3.07	416	143	638,279	2.24	1.37	0.98	1.92	
	Restricted	8	0	4,125	0.00	14	5	23,558	2.12	zero rate			

Rates are expressed as citations per 10,000 license days.

Table 18. Relative Risk for Citations, Single Functional Ability Category and Corresponding Comparison Groups by Fluctuating Restriction Status, Utah 1992 – 1996

Condition	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	Citations	# Days	Rate	Comparison	Citations	# Days	Rate	Ratio	L 95%	U 95%	Significance
Diabetes	Not Restricted	338	122	334,513	3.65	676	327	990,416	3.30	1.10	0.90	1.36	
	Restricted	327	21	45,082	4.66	654	312	956,944	3.26	1.43	0.92	2.22	
Cardiovascular	Not Restricted	125	6	80,496	0.75	250	83	388,291	2.14	0.35	0.16	0.77	**
	Restricted	119	1	12,463	0.80	238	78	369,733	2.11	0.38	0.06	2.54	
Pulmonary	Not Restricted	178	13	137,498	0.95	356	79	565,921	1.40	0.68	0.38	1.21	
	Restricted	175	4	34,649	1.15	350	78	557,100	1.40	0.82	0.30	2.25	
Neurologic	Not Restricted	114	19	81,262	2.34	228	75	343,436	2.18	1.07	0.65	1.77	
	Restricted	115	11	46,006	2.39	230	80	347,338	2.30	1.04	0.55	1.95	
Epilepsy	Not Restricted	727	300	634,584	4.73	1,452	852	2,087,279	4.08	1.16	1.02	1.32	*
	Restricted	704	47	127,462	3.69	1,406	824	2,016,155	4.09	0.90	0.67	1.21	
Learning	Not Restricted	5	1	3,492	2.86	10	7	16,512	4.24	0.68	0.08	5.42	
	Restricted	3	4	763	52.42	6	3	9,678	3.10	16.91	5.66	50.51	*
Psychiatric	Not Restricted	282	149	259,940	5.73	564	325	870,254	3.73	1.53	1.27	1.86	*
	Restricted	263	16	43,648	3.67	526	309	808,693	3.82	0.96	0.58	1.59	
Alcohol	Not Restricted	19	7	9,724	7.20	38	16	60,511	2.64	2.72	1.16	6.38	*
	Restricted	19	7	3,498	20.01	38	16	60,511	2.64	7.57	3.56	16.07	*
Vision	Not Restricted	247	22	100,633	2.19	491	94	698,075	1.35	1.62	1.09	2.42	*
	Restricted	256	15	91,290	1.64	508	90	717,900	1.25	1.31	0.95	1.81	
Musculoskeletal	Not Restricted	17	1	10,365	0.96	34	12	57,068	2.10	0.46	0.06	3.35	
	Restricted	17	0	4,211	0.00	34	12	57,068	2.10	zero rate			
Functional Motor	Not Restricted	6	7	4,044	17.31	12	18	21,482	8.38	2.07	0.61	7.04	
	Restricted	5	0	1,244	0.00	10	7	17,828	3.93	zero rate			

Rates are expressed as citations per 10,000 license days.
*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 19. Relative Risk for Crashes, Single Functional Ability Category and Corresponding Comparison Groups by Single Restriction Status, Utah 1992 – 1996

Condition	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	Crashes	# Days	Rate	Comparison	Crashes	# Days	Rate	Ratio	L 95%	U 95%	Significance
Diabetes	Not Restricted	9,731	1,611	9,616,680	1.68	18,985	3,873	29,844,852	1.30	1.29	1.22	1.37	*
	Restricted	31	1	9,117	1.10	62	11	97,383	1.13	0.97	0.13	7.52	
Cardiovascular	Not Restricted	18,865	1,203	11,538,711	1.04	34,510	6,198	59,072,515	1.05	0.99	0.93	1.06	
	Restricted	41	3	9,827	3.05	82	17	129,305	1.31	2.32	0.71	7.65	
Pulmonary	Not Restricted	2,437	281	1,816,080	1.55	4,844	944	7,273,732	1.30	1.19	1.04	1.36	*
	Restricted	69	1	23,115	0.43	138	17	197,671	0.86	0.50	0.07	3.63	
Neurologic	Not Restricted	773	106	572,607	1.85	1,545	282	2,371,934	1.19	1.56	1.25	1.94	*
	Restricted	79	4	45,676	0.88	158	37	241,288	1.53	0.57	0.21	1.58	
Epilepsy	Not Restricted	1,893	501	1,992,785	2.51	3,775	825	5,632,320	1.46	1.72	1.54	1.92	*
	Restricted	71	5	22,518	2.22	142	33	205,728	1.60	1.38	0.54	3.53	
Learning	Not Restricted	102	19	62,973	3.02	204	44	281,642	1.56	1.93	1.14	3.28	*
	Restricted	3	0	1,182	0.00	6	0	7,285	0.00	zero rate			
Psychiatric	Not Restricted	6,481	1,115	5,027,373	2.22	12,838	2,809	19,527,510	1.44	1.54	1.44	1.65	*
	Restricted	42	5	14,799	3.38	84	25	125,506	1.99	1.70	0.66	4.38	
Alcohol	Not Restricted	124	22	77,740	2.83	248	58	376,058	1.54	1.83	1.13	2.98	*
	Restricted	5	2	2,506	7.98	10	2	15,382	1.30	6.14	1.10	34.10	*
Vision	Not Restricted	10,116	735	4,191,935	1.75	19,287	3,851	29,517,765	1.30	1.34	1.24	1.45	*
	Restricted	1,279	110	781,209	1.41	2,479	399	3,672,929	1.09	1.30	1.05	1.60	*
Musculoskeletal	Not Restricted	353	37	214,610	1.72	705	115	1,092,772	1.05	1.64	1.14	2.36	*
	Restricted	15	0	4,803	0.00	30	1	44,663	0.22	zero rate			
Functional Motor	Not Restricted	208	20	143,549	1.39	416	88	638,279	1.38	1.01	0.62	1.75	
	Restricted	8	0	4,125	0.00	14	5	23,558	2.12	Zero Rate			

Rates are expressed as crashes per 10,000 license days.
*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 20. Relative Risk for Crashes, Single Functional Ability Category and Corresponding Comparison Groups by Fluctuating Restriction Status, Utah 1992 – 1996

Condition	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	Crashes	# Days	Rate	Comparison	Crashes	# Days	Rate	Ratio	L 95%	U 95%	Significance
Diabetes	Not Restricted	338	82	334,513	2.45	676	150	990,416	1.51	1.62	1.24	2.11	*
	Restricted	327	10	45,082	2.22	654	144	956,944	1.50	1.47	0.78	2.79	
Cardiovascular	Not Restricted	125	6	80,496	0.75	250	35	388,291	0.90	0.83	0.35	1.96	
	Restricted	119	0	12,463	0.00	238	32	369,733	0.87	zero rate			
Pulmonary	Not Restricted	178	16	137,498	1.16	356	69	565,921	1.22	0.95	0.55	1.64	
	Restricted	175	5	34,649	1.44	350	69	557,100	1.24	1.17	0.47	2.89	
Neurologic	Not Restricted	114	18	81,262	2.22	228	36	343,436	1.05	2.11	1.22	3.67	*
	Restricted	115	12	46,006	2.61	230	40	347,338	1.15	2.26	1.21	4.24	*
Epilepsy	Not Restricted	727	207	634,584	3.26	1,452	375	2,087,279	1.80	1.82	1.54	2.15	*
	Restricted	704	35	127,462	2.75	1,406	370	2,016,155	1.84	1.50	1.06	2.11	*
Learning	Not Restricted	5	3	3,492	8.59	10	1	16,512	0.61	14.19	2.55	78.79	*
	Restricted	3	1	763	13.11	6	0	9,678	0.00	zero rate			
Psychiatric	Not Restricted	282	69	259,940	2.65	564	108	870,254	1.24	2.14	1.59	2.87	*
	Restricted	263	10	43,648	2.29	526	103	808,693	1.27	1.80	0.95	3.41	
Alcohol	Not Restricted	19	5	9,724	5.14	38	16	60,511	2.64	1.94	0.73	5.21	
	Restricted	19	4	3,498	11.44	38	16	60,511	2.64	4.32	1.59	11.80	*
Vision	Not Restricted	247	18	100,633	1.79	491	80	698,075	1.15	1.56	0.94	2.59	
	Restricted	256	12	91,290	1.31	508	85	717,900	1.18	1.11	0.61	2.03	
Musculoskeletal	Not Restricted	17	0	10,365	0.00	34	4	57,068	0.70	zero rate			
	Restricted	17	2	4,211	4.75	34	4	57,068	0.70	6.78	1.57	29.29	*
Functional Motor	Not Restricted	6	3	4,044	7.42	12	5	21,482	2.33	0.90	0.80	1.02	
	Restricted	5	0	1,244	0.00	10	2	17,828	1.12	zero rate			

Rates are expressed as crashes per 10,000 license days.
*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 21. Relative Risk for At-Fault Crashes, Single Functional Ability Category and Corresponding Comparison Groups by Single Restriction Status, Utah 1992 – 1996

Condition	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Condition	Crashes	# Days	Rate	Comparisons	Crashes	# Days	Rate	Ratio	L 95%	U 95%	Significance
Diabetes	Not Restricted	9,731	957	9,616,680	1.00	18,985	2,058	29,844,852	0.69	1.44	1.34	1.56	*
	Restricted	31	1	9,117	1.10	62	3	97,383	0.31	3.56	0.43	29.60	
Cardiovascular	Not Restricted	18,865	635	11,538,711	0.55	34,510	3,239	59,072,515	0.55	1.00	0.92	1.09	
	Restricted	41	2	9,827	2.04	82	14	129,305	1.08	1.88	0.44	8.07	
Pulmonary	Not Restricted	2,437	155	1,816,080	0.85	4,844	496	7,273,732	0.68	1.25	1.05	1.50	*
	Restricted	69	1	23,115	0.43	138	12	197,671	0.61	0.71	0.09	5.43	
Neurologic	Not Restricted	773	72	572,607	1.26	1,545	142	2,371,934	0.60	2.10	1.59	2.77	*
	Restricted	79	4	45,676	0.88	158	22	241,288	0.91	0.96	0.33	2.79	
Epilepsy	Not Restricted	1,893	305	1,992,785	1.53	3,775	464	5,632,320	0.82	1.86	1.61	2.14	*
	Restricted	71	5	22,518	2.22	142	16	205,728	0.78	2.86	1.09	7.45	*
Learning	Not Restricted	102	14	62,973	2.22	204	23	281,642	0.82	2.72	1.44	5.15	*
	Restricted	3	0	1,182	0.00	6	0	7,285	0.00	zero rate			
Psychiatric	Not Restricted	6,481	678	5,027,373	1.35	12,838	1,464	19,527,510	0.75	1.80	1.64	1.97	*
	Restricted	42	4	14,799	2.70	84	17	125,506	1.35	2.00	0.69	5.80	
Alcohol	Not Restricted	124	13	77,740	1.67	248	27	376,058	0.72	2.33	1.23	4.43	*
	Restricted	5	2	2,506	7.98	10	2	15,382	1.30	6.14	1.10	34.10	*
Vision	Not Restricted	10,116	479	4,191,935	1.14	19,287	2,228	29,517,765	0.75	1.51	1.37	1.67	*
	Restricted	1,279	93	781,209	1.19	2,479	274	3,672,929	0.75	1.60	1.26	2.01	*
Musculoskeletal	Not Restricted	353	22	214,610	1.03	705	59	1,092,772	0.54	1.90	1.17	3.07	*
	Restricted	15	0	4,803	0.00	30	0	44,663	0.00	zero rate			
Functional Motor	Not Restricted	208	17	143,549	1.18	416	42	638,279	0.66	1.80	1.03	3.14	*
	Restricted	8	0	4,125	0.00	14	3	23,558	1.27	zero rate			

Rates are expressed as crashes per 10,000 license days.
*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 22. Relative Risk for At-Fault Crashes, Single Functional Ability Category and Corresponding Comparison Groups by Fluctuating Restriction Status, Utah 1992 – 1996

Condition	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	Crashes	# Days	Rate	Comparison	Crashes	# Days	Rate	Ratio	L 95%	U 95%	Significance
Diabetes	Not Restricted	338	56	334,513	1.67	676	88	990,416	0.88	1.88	1.36	2.62	*
	Restricted	327	7	45,082	1.55	654	85	956,944	0.88	1.75	0.82	3.74	
Cardiovascular	Not Restricted	125	2	80,496	0.25	250	17	388,291	0.44	0.57	0.13	2.41	
	Restricted	119	0	12,463	0.00	238	15	369,733	0.41	zero rate			
Pulmonary	Not Restricted	178	12	137,498	0.87	356	37	565,921	0.64	1.33	0.70	2.55	
	Restricted	175	5	34,649	1.44	350	37	557,100	0.65	2.17	0.87	5.40	
Neurologic	Not Restricted	114	14	81,262	1.72	228	20	343,436	0.52	2.96	1.54	5.67	*
	Restricted	115	6	46,006	1.30	230	24	347,338	0.63	1.89	0.78	4.55	
Epilepsy	Not Restricted	727	158	634,584	2.49	1,452	209	2,087,279	0.96	2.49	2.04	3.04	*
	Restricted	704	31	127,462	2.43	1,406	207	2,016,155	0.98	2.37	1.64	3.42	*
Learning	Not Restricted	5	3	3,492	8.59	10	0	16,512	0.00	zero rate			
	Restricted	3	1	763	13.11	6	0	9,678	0.00	zero rate			
Psychiatric	Not Restricted	282	49	259,940	1.89	564	56	870,254	0.63	2.93	2.03	4.22	*
	Restricted	263	9	43,648	2.06	526	55	808,693	0.67	3.03	1.55	5.92	*
Alcohol	Not Restricted	19	3	9,724	3.09	38	9	60,511	1.49	2.07	0.58	7.45	
	Restricted	19	3	3,498	8.58	38	9	60,511	1.49	5.77	1.82	18.27	*
Vision	Not Restricted	247	14	100,633	1.39	491	52	698,075	0.70	1.87	1.02	3.42	*
	Restricted	256	9	91,290	0.99	508	55	717,900	0.72	1.29	0.54	3.09	
Musculoskeletal	Not Restricted	17	0	10,365	0.00	34	2	57,068	0.35	zero rate			
	Restricted	17	2	4,211	4.75	34	2	57,068	0.35	13.55	0.04	4790.38	
Functional Motor	Not Restricted	6	1	4,044	2.47	12	5	21,482	1.86	1.06	0.95	1.18	
	Restricted	5	0	1,244	0.00	10	2	17,828	0.56	zero rate			

Rates are expressed as crashes per 10,000 license days.
*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 23. Relative Risk for Adverse Driving Events, Drivers with Multiple Medical Conditions and Corresponding Comparison Groups by Single Restriction Status, Utah 1992 – 1996

	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	# Events	# Days	Rate	Comparison	# Events	# Days	Rate	Ratio	L 95%	U 95%	Significance
Citation	Not Restricted	11,270	1,747	10,690,248	1.63	21,277	6,012	34,910,617	1.72	0.95	0.90	1.00	
	Restricted	372	27	179,083	1.51	740	216	1,093,426	1.98	0.76	0.51	1.14	
Crash	Not Restricted	11,270	1,630	10,690,248	1.52	21,277	3,903	34,910,617	1.12	1.36	1.29	1.45	*
	Restricted	372	31	179,083	1.73	740	128	1,093,426	1.17	1.48	1.001	2.18	*
At Fault Crash	Not Restricted	11,270	992	10,690,248	0.93	21,277	2,115	34,910,617	0.61	1.53	1.42	1.65	*
	Restricted	372	27	179,083	1.51	740	62	1,093,426	0.57	2.66	1.72	4.11	*

Rates are expressed as events per 10,000 license days.
*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

Table 24. Relative Risk for Adverse Driving Events, Drivers with Multiple Medical Conditions and Corresponding Comparison Groups by Fluctuating Restriction Status, Utah 1992 – 1996

	Restriction Status	Medical Conditions				Comparison Group				Rate Ratio			
		Drivers	# Events	# Days	Rate	Comparison	# Events	# Days	Rate	Ratio	L 95%	U 95%	Significance
Citation	Not Restricted	2,138	375	1,740,644	2.15	4,219	1,212	6,518,846	1.86	1.15	1.03	1.30	*
	Restricted	2,042	73	482,944	1.51	4,034	1,164	6,228,833	1.87	0.81	0.64	1.02	
Crash	Not Restricted	2,138	335	1,740,644	1.92	4,219	756	6,518,846	1.16	1.66	1.46	1.88	*
	Restricted	2,042	66	482,944	1.37	4,034	712	6,228,833	1.14	1.20	0.93	1.54	
At Fault Crash	Not Restricted	2,138	237	1,740,644	1.36	4,219	452	6,518,846	0.69	1.96	1.68	2.29	*
	Restricted	2,042	46	482,944	0.95	4,034	421	6,228,833	0.68	1.41	1.04	1.91	*

Rates are expressed as events per 10,000 license days.
*The confidence interval does not include 1.0. Therefore, the higher rate of the medical conditions group is statistically significant.
** indicates that the medical conditions group has a statistically significant lower rate.

DISCUSSION

In this study, we have determined the rates of citations, crashes and at fault crashes of drivers licensed in the medical conditions program and compared them to the rates of demographically similar drivers. Our study describes the driving performance of drivers who report their medical conditions to the licensing agency. It does not describe how medical conditions influence driving performance directly. Additionally, this study describes how the licensing program for drivers with medical conditions works in Utah, and provides demographic information about the population that participates in this public safety program.

The effects of medical conditions on drivers' performance has been the subject of many research reports. However, there is little published information on the effects of specialized licensing programs that regulate such drivers [8-10] . Our study is unique in its approach to evaluating the effects of a statewide licensing program for drivers with such medical conditions. Utah CODES was able to evaluate the rates of 68,770 drivers licensed in the state with medical conditions by category and restriction status for a five year period using probabilistically linked data. To date, this is the most comprehensive evaluation of such a statewide medical conditions licensing program. The information gained from these data analyses can be used by regulatory agencies such as the Utah Driver License Division to improve the existing program.

Approximately 80% (54,938) of the study population reported a single medical condition for the study period. Overall, all single medical condition unrestricted drivers had higher rates for all three events (citation, crash and at fault crash) than their corresponding comparison group. Restricted drivers (e.g., time, speed, area) reporting single medical conditions had higher rates for crash and at-fault crash than their comparison groups, but a similar rate of citation. That is, restrictions led to equivalent citation rates but did not have the same effect on crash rates.

There was great variability when analyses were performed for each medical condition by restriction status. Some categories had higher rates of some or all of the adverse driving events. Others had similar or even lower rates of these events when compared to their comparison groups. These differences imply that there is a relationship between the drivers' type(s) of medical conditions and the rates of adverse driving events. Furthermore, these differences quantify the outcome of the existing medical conditions program, and provide indications for changes to improve public safety. It should be noted however, that our measurement for restricted drivers only includes about half of the drivers who were restricted; approximately half of the drivers who were restricted of the total study population had multiple medical conditions. Therefore, they were analyzed separately as multiple condition drivers.

We found that drivers licensed in certain medical condition categories pose a greater hazard when driving as shown by their higher rates of adverse driving events when compared to their comparisons. Categories showing consistently higher rates for all three events (citation, crash and at fault crash) included:

1. unrestricted medical condition drivers in the "psychiatric and emotional conditions" category
2. restricted and unrestricted drivers in the "alcohol and other drugs" category, and
3. restricted and unrestricted "vision" category drivers.

Categories where only crash and at fault crash rates were higher than those of the comparison drivers included:

1. unrestricted drivers in the "diabetes and other metabolic conditions" category
2. unrestricted drivers in the "pulmonary conditions" category
3. unrestricted drivers in the "neurological conditions" category
4. unrestricted and restricted drivers in the "epilepsy and other episodic conditions" category
5. unrestricted drivers in the "learning, memory and communication disorders" category,
6. restricted drivers in the "psychiatric and emotional conditions" category, and the
7. unrestricted and restricted drivers in the "musculoskelatal abnormality or chronic medical debility" category.

We have presented a degree of risk for each category as a relative risk. This is a ratio of the rates of events that compare medical condition drivers to the rates of comparison drivers. While this ratio quantifies adverse driving events for medical condition populations to demographically similar drivers, the *rates of events* themselves are also of interest. Functional ability groups with high relative risks, but low rates, probably do not have a great adverse impact on public safety. Thus, the risk caused by these groups may not warrant changes to this safety program.

The stratified analyses presented in Tables 17-24, show that there was no difference between drivers licensed with single medical conditions who fluctuated between licensing levels, and those whose restriction status remained the same for all functional ability categories. The confidence levels for those who fluctuate and those in a single restriction status overlap. However, this is not the case for those drivers in multiple functional ability categories: Drivers whose restriction status fluctuated and were licensed with multiple conditions during the period had a higher risk for all three adverse driving than those who remained at a single restriction level throughout the study period, when compared to their respective comparison groups.

A logical conjecture may be to compare the results of restricted drivers to the results for unrestricted drivers as ascribed to the effects of the program's restrictions. In essence, it seems reasonable to create a ratio of ratios for restricted vs. unrestricted drivers. We have considered such an analysis, but have elected not to do so. Such a comparison may lead to the incorrect assumption that the differences are because of the program only. Drivers who are restricted may have much different exposure rates because of the program itself, or because of their illness(es) or condition(s). By nature of the licensing program, restricted drivers are more medically fragile and unstable, depending upon their

conditions. Moreover, the question of comparing similar groups arises when evaluating these restricted drivers. The activity and fitness level of elderly persons, most of which comprise restricted drivers, varies greatly; accordingly, so would their driving exposures and performance.

The analyses provided in this report describe the effects of a statewide licensing program for drivers with medical conditions. There are, however, several limitations that must be considered when evaluating these results. Among the first, is that the accurate measurements of exposure and other factors that affect the risk of citation or crash are not available. We assumed that the amount and conditions of driving for persons with medical conditions could be best estimated by selecting comparisons using age group, county of residence, and sex. This may in fact be incorrect, as other factors influence the amount people drive. They include marital and economic status, employment, higher education, being a member of a social or religious organization, and residential demographics [11-13] . Similarly, the rates determined in the study could be influenced by a small number of drivers who had repeat crashes and/or citations during the study period. Thus, a specific analysis to identify drivers with repeat offenses should be performed.

In addition to uncertainty about exposure rates as noted above, other factors, currently impossible to assess, might also confound the program. For instance, we assumed that the drivers complied with the program as designed (although this is not a limitation of our study, rather of the medical conditions program itself). However, drivers initially assigned restrictions might have "doctor-shopped" to acquire a more favorable rating. The Utah Driver License Division has speculated that applicants who are initially assigned a high functional ability level may visit different health care providers until they receive a lower functional ability level. Thus, drivers who should receive a restricted license because of their medical conditions may receive a lower (levels 3-5) functional ability level, and thus an unrestricted driver license. Also, applicants who should be ineligible for a driver license may visit different health care professionals until they receive a functional ability assignment that will allow them a license. It is unknown whether or not health care professionals assign functional ability levels according to the system.[d] Compliance with the program for restricted drivers (e.g., time, area or speed) was also assumed. For example, while some restricted drivers are not supposed to drive after dark because of the restrictions placed upon their driver licenses, we did not verify that these drivers were following their restrictions at the time of the crash or citation.

The proportion of drivers who have medical conditions that report their conditions to the Utah Driver License Division is unknown. The presented results are the results of the program as it has functioned during 1992 - 1995. These results cannot be applied to all

[d] In order to verify the sensitivity of the rating scale and its use by community health care providers, a sample of applicants could receive an independent exam from a provider who is very familiar with the Medical Conditions Program. This would be in addition to an exam and rating from their health care providers. This would determine if health care professionals in the community have assigned functional ability levels according to the existing standards.

drivers who have medical conditions. As described previously, the Utah Driver License Division screens license applicants for medical conditions through a general questionnaire using self report. There is no incentive for applicants to report a medical condition since doing so may require a longer wait for a driver license or a visit to a health care professional. This lack of reporting has been described previously; Medgyesi and Koch showed that for every driver with a cardiovascular disease known to the licensing division through its medical review program, there were 94 drivers who were unknown in Saskatchewan, Canada [14] . We estimate that in Utah, reporting compliance is somewhat better than those aforementioned, but far from complete. Compliance obviously varies by medical category. For example, the Utah Department of Health estimates that the prevalence of diabetes was 2.9% (57,900) of the general population in 1996 [15] . Less than half (26,458, 46%) of these persons, although not all would be licensed drivers, reported their condition to the driver license division. Additionally, Medgyesi and Koch suggest that drivers who report their medical conditions to licensing authorities do so because they are very poor drivers, even worse than drivers with medical conditions who do not report their conditions [14] . If this is the case in Utah, applying these estimates of risk to all drivers with medical conditions would be inaccurate.

RECOMMENDATIONS

The determination of citation, crash and at fault crash rates by functional ability category and the corresponding estimates of relative risk provide useful information for the evaluation of the existing medical conditions program in Utah. The results of this study indicate where the citation and crash risk for the medical condition population exceeds the risk for the general population.

It is important that the information gained by this study regarding this licensing program be interpreted correctly in light of the study's existing limitations. It is difficult to attribute the reasons for the differences in the crash and violation rates of the medical conditions and general driving populations. This does not mean that the existing program is not beneficial to public safety. The results indicate that participation in the program does not completely negate the effects of the medical condition related to driving. Accordingly, the existing program should be changed in order to reduce the excess risk of drivers with medical conditions to approximate the risks of the general driving population. **Further analyses may be necessary to make specific recommendations for reducing risks by specific functional ability categories. However, general recommendations can be made in order to provide a framework for improving the current system. They include:**

Efforts to modify the existing program should be prioritized by the Utah Driver License Division and the Utah Medical Advisory Board. Additionally, these agencies should work together to determine the range, scope and order of future research that is necessary to develop the appropriate modifications specific to each functional ability category. Consideration should also be given to this study's existing limitations described in the previous section.

Factors that should be considered when prioritizing functional ability categories should include the rates for events of concern, the estimates of risk and the size of the functional ability category population. An incremental approach to modifying the system is suggested. Priority should be placed on those functional ability categories where the risk for events of concern approaches or exceeds the risk for the comparison populations by a factor of 2.0 where statistical significance is achieved, and where the rates of the events themselves are high. When the relative risk exceeds 2.0, it may be interpreted that the rate of the event exceeds that of the corresponding comparison group by at least 2.0 times. While this factor has been arbitrarily chosen, it represents an estimate of difference between the licensed populations and their effect on public safety. Moreover, this limit of 2.0 affects only two citation categories (i.e., learning, and alcohol and other drugs) and six crash categories (i.e., neurologic; epilepsy; learning, memory and communication disorders, psychiatric and other emotional conditions, alcohol and other drugs; and musculoskelatal). The functional ability categories of learning, memory and communication and alcohol and other drugs had very high rates; the citation rates for restricted categories were 20.57 and 19.99 per 100,000 license days.

Priorities should be placed on functional ability categories that had smaller estimates of statistically significant risks but larger populations (i.e., vision). By slightly reducing the risk for a larger number of drivers, the benefit to public safety may be even greater than reducing a large risk for a small number of persons. Functional ability categories that fall into this description include diabetes and other metabolic conditions, visual acuity and psychiatric and emotional conditions.

All modifications should be tailored to the individual functional ability category. As mentioned previously, additional research may benefit from being tailored to the specific functional ability category. For example, the "alcohol and other drugs" category has high rates for restricted and unrestricted drivers for most events. There are three functional ability levels that allow for an unrestricted license: 3. history of drug abuse but not in the past five years; 4. history of drug abuse but not within the past two years; or 5. history of drug abuse but not in the past six months. Further analyses should include an evaluation of whether substance abuse was involved in any of these adverse driving events to determine if the licensing program is being followed. If not, a quality loop could be developed such as having all alcohol or drug related citations/crashes being reported to the program administrators. Additionally, specific analyses should be performed by individual functional ability level to determine if the rate differences between these levels provide indications on how to structure changes to the program.

Examples include analyzing the crash environment to determine if there are risk factors that could be negated with more appropriate restrictions, or modeling of drivers by specific functional ability levels to determine whether the restriction boundary should be inserted at a different place.

The Utah Driver License Division would benefit from simplifying the existing program where possible. This recommendation is made particularly in regards to the system where there are twelve functional ability levels available for each functional ability or medical condition category. Although functional ability categories with large numbers of drivers (e.g., diabetes and other metabolic conditions or cardiovascular conditions) may benefit from having twelve different categories,[e] functional ability categories having a small number of drivers (e.g., learning, memory and communications or alcohol and other drugs) do not. Such levels only increase the administrative burden without measurable benefit to the program.

Further analyses should be performed for drivers with multiple conditions, and common combinations of multiple conditions. As described in the results, there were 13,832 drivers who had multiple functional ability categories during the study period. Of those, certain medical condition combinations (i.e., cardiovascular and diabetes, cardiovascular and vision, cardiovascular and pulmonary) are more common than separate categories with small numbers of drivers. Further analyses should be performed to evaluate the effects of these multiple condition combinations. It may be practical to

[e]Stratification by functional ability level may indicate differences between levels, and thus, may provide indications for changing the levels at which restrictions are placed or simplification of the existing program.

develop multiple condition categories for large groups with comorbid conditions, rather than to fit them into two separate categories.

Relational files should be utilized instead of the existing flat system for recordkeeping. The existing files were difficult to analyze because a new record was entered for each medical condition every time the driver renewed his or her license. This database format made it particularly difficult to analyze the rates of drivers with multiple medical conditions.

Finally, any modifications to the existing program should be carefully documented. Because of the nature of the medical condition program, changes would be implemented over time. Thus, careful documentation of the date of implementation on an individual level (i.e., the renewal date for the license holder when he/she is affected by the changes) is required in order to evaluate the effects of such changes. Accordingly, the effects of changes implemented on rates of events and estimates of risk should be measured to assure that they are of benefit to public safety.

Driver license agencies, as regulatory entities, have the responsibility of developing and enforcing policies that protect public safety, while balancing the risks of licensing drivers who have physical or mental impairments. Utah is not unique in the development and implementation of a licensing program for drivers with medical conditions; most states have specific policies related to physical and mental function and driving [13] . The rationale for such programs is that certain diseases or conditions could impair driving ability and, therefore, drivers with medical conditions should be subject to a more rigorous screening process so that they do not jeopardize others on the roads [16] . Any such program, however, must be applied in a careful and reasonable fashion; note that it is unlawful for any State or local government under the Americans with Disabilities Act to discriminate against a qualified person with disabilities on the basis of those disabilities.

Because of the demographic shift in the age of our population [17] , and the higher prevalence of chronic medical conditions in elderly persons, it is increasingly important to evaluate the effects of these existing programs and to assure that they are protective of public safety as is their intent. The number of drivers in these programs will only increase in future years and modifications resulting from such analyses, can prove future benefit.

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Appendix A. State of Utah Functional Ability in Driving: Guidelines and Standards for Health Care Professionals

STATE OF UTAH
DEPARTMENT OF PUBLIC SAFETY
UTAH DRIVER LICENSE DIVISION

FUNCTIONAL ABILITY IN DRIVING:

GUIDELINES AND STANDARDS FOR HEALTH CARE PROFESSIONALS

Issued by the
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Under The Direction Of
Utah Driver License Medical Advisory Board
David A. Beach, Director, Utah Driver License Division

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STATE OF UTAH
DRIVER LICENSE DIVISION
DEPARTMENT OF PUBLIC SAFETY

FUNCTIONAL ABILITY IN DRIVING:
GUIDELINES AND STANDARDS
FOR
HEALTH CARE PROFESSIONALS

FOREWORD

This revision of the *Functional Ability In Driving: Guidelines and Standards For Health Care Professionals* was developed by the Utah Driver License Medical Advisory Board and is based on experience accumulated over the past eleven years. In addition, on a trial basis, profile levels for *Commercial Driver Medical Certification and Licensing* have been incorporated into the Guidelines and Standards as outlined in detail on Page Four. Computer analysis of the profile data as it relates to driver performance will give us a sound basis for further simplification of the profile patterns and hopefully allow less restrictive profiles for drivers without sacrificing highway safety.

We appreciate the great support we have had from the medical profession.

DAVID A. BEACH, DIRECTOR
UTAH DRIVER LICENSE DIVISION
DEPARTMENT OF PUBLIC SAFETY

DANA H. CLARKE, M.D., CHAIR
UTAH DRIVER LICENSE DIVISION
MEDICAL ADVISORY BOARD

THESE GUIDELINES AND STANDARDS WILL ASSIST HEALTH CARE PROFESSIONALS TO:

- Advise their patients about their functional ability to operate motor vehicles; and

- Simplify the reporting of medical information necessary for licensing Utah drivers.

DRIVERS' RESPONSIBILITIES

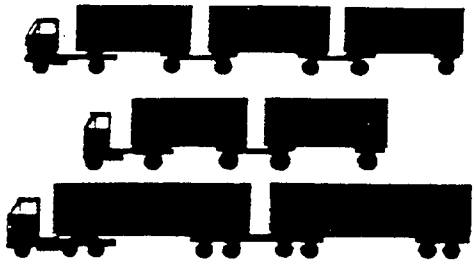
- Drivers who possess a Utah Driver License are personally responsible to refrain from driving if they become aware of health conditions which may adversely affect their ability to operate a motor vehicle.

- In addition, drivers must also report any health disorder which may affect their ability to operate a motor vehicle directly to the Driver License Division.

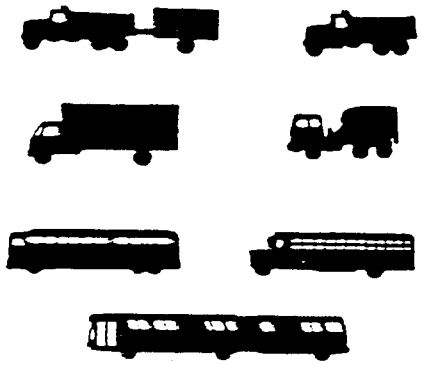
- In case of uncertainty, drivers must seek a health care professional's counsel regarding their functional ability to operate a motor vehicle.

Utah's Classified License System

CLASS A	MIN. AGE
OVER 26,000 LBS. COMB. VEHICLE & OVER 10,000 LBS. TOWED UNIT	21
INTRA STATE ONLY RESTRICTION	18-21



CLASS B	MIN. AGE
OVER 26,000 LBS. SINGLE OR COMB. VEHICLE	21
UNDER 10,001 LBS. TOWED UNIT	21
INTRA STATE ONLY RESTRICTION	18-21



CLASS C	MIN. AGE
UNDER 26,001 LBS. IF USED TO TRANSPORT:	
1. 16- OCCUPANTS	21
2. PLACARDED AMOUNTS HAZ. MAT.	21
UNDER 10,001 LBS. TOWED UNIT "S" ENDORSEMENT AVAILABLE	21

CDL required only if these vehicles are used to haul hazardous materials or when carrying 16 or more occupants.

CLASS D	MIN. AGE
ALL VEHICLES **NOT** DEFINED AS: CLASS A, B, C OR MOTORCYCLE	16

MOTORCYCLE ONLY	16

ENDORSEMENTS*	MIN. AGE
H = HAZARDOUS MATERIALS	21
K = COMMERCIAL INTRASTATE	18
M = MOTORCYCLE	16
N = TANK VEHICLES	18
P = PASSENGERS	21
S = SCHOOL BUS	21
T = DOUBLE/TRIPLE TRAILERS	18
X = TANK AND HAZ. MAT.	21
Z = TAXI CAB	21

*__NOTE:__ If your vehicle is **not** equipped with air brakes, you will be restricted to driving vehicles without air brakes.

All C.D.L. Testing Is Done By Appointment Only
C.D.L. Testing Locations: Wasatch Front
(All Others, Call Your Local Office)

Salt Lake County: 3495 South 300 West, Salt Lake City, UT; Phone: 262-2709.
Box Elder County: 285 West 1100 South, Brigham City, UT; Phone: 723-5870.

Please Allow: 1 hour to complete a written knowledge test;
1/2 hour for each endorsement test;
1 1/2-2 hours for a skills (driving) test.

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STATE OF UTAH
FUNCTIONAL ABILITY IN DRIVING:
GUIDELINES AND STANDARDS FOR HEALTH CARE PROFESSIONALS

Utah residents are individually responsible for their health when driving. All applicants for licenses will complete a health questionnaire to show their functional ability to drive. If there is a significant health problem, they will take their questionnaire, medical and/or vision forms to a health care professional, who will confirm the category as accurate or change it to be consistent with the true medical situation. The health care professional will be expected to discuss the applicant's health as it relates to driving and to make special recommendations in unusual circumstances. Based upon a completed functional ability evaluation, the Director of the Driver License Division may issue a license with or without limitations as outlined in these Guidelines and Standards approved by the Utah Driver License Medical Advisory Board. Health care professionals can increase highway safety by carefully applying these guidelines and standards and counseling with their patients' about driving.

Drivers' Responsibilities

The 1988 Utah State Legislature reaffirmed these responsibilities* related to physical, mental or emotional impairments of drivers:

1. Utah drivers are responsible to refrain from driving if there is uncertainty because of "a physical, mental or emotional impairment which may affect driving safety."

2. Utah drivers in such a situation are expected to seek competent medical evaluation and advice about the significance of the impairment as it relates to driving safety.

3. Utah drivers are responsible for reporting "a physical, mental or emotional impairment which may affect driving safety" to the Department of Public Safety through its Driver License Division or its agents in its various offices.

Health Care Professionals' Responsibilities

The same legislation applies to Utah health care professionals in these ways:*

1. Health care professionals may be requested by their patients to make reports to the Driver License Division about impairments which may affect driving safety, but the final responsibility for issuing a driver license lies with the Director of the Driver License Division.

2. In addition to making accurate reports when authorized by their patients, health care professionals are expected to counsel their patients about how their condition affects safe driving. For example, if patients are put on medication which may cause changes in alertness or coordination, their health care professional should advise them not to drive at least until a dosage is established which will not affect safe driving. Or, if visual acuity drops they should similarly be advised, at least until corrective action has been taken to improve their vision. The following quotation from the 1988 law recognizes this important function:

   "Physicians who care for patients with physical, mental or emotional impairments which may affect their driving safety, whether defined by published guidelines and standards or not, are responsible for making available to their patients, without reservation, their recommendations and appropriate information related to driving safety and responsibilities." The guidelines and standards which follow will be a useful reference in such counseling.

Immunity in Reporting Potential Risks

The Legislature eliminated a major obstacle for health care professionals with its provision that "Any physician or other person who becomes aware of a physical, mental or emotional impairment which appears to present an imminent threat to driving safety and reports this information to the Department of Public Safety, through its agents, in good faith shall have immunity from any damages claimed as a result of so doing."*

*Utah Code Annotated 1953: 41-2-201 and 41-2-202.

Utah Driver License Medical Advisory Board

A Driver License Medical Advisory Board was created to advise the Director of the Driver License Division and to recommend written guidelines and standards for determining the physical, mental and emotional capabilities appropriate to various types of driving. Members of the Board have been appointed by the State Health Director to represent a variety of special areas.

If patients are uncertain about interpretations of these guidelines and standards or have special circumstances they may request a review by a panel of Board members. All of the actions of the Director and Board are subject to judicial review. The Board operates under bylaws approved by the Commissioner of Public Safety.

The Advisory Board has developed the following functional ability profile guidelines and standards in an effort to minimize the conflict between the individual's desire to drive and the community's desire for safety. Through education, medical assistance and cooperative efforts, an ideal balance may be reached. Principles followed by the Advisory Board in developing the guidelines and standards are shown in Appendix I.

Functional Ability Profile Categories

Functional ability to operate a vehicle safely may be affected by a wide range of physical, mental or emotional impairments. To simplify reporting and to make possible a comparison of relative risks and limitations, the Medical Advisory Board has adopted physical, emotional and behavioral functional ability profiles including 12 categories, with multiple levels under each category listed below. Vehicle operation history should be included as a significant part of a complete medical history.

CATEGORY A	DIABETES AND OTHER METABOLIC CONDITIONS
CATEGORY B	CARDIOVASCULAR
CATEGORY C	PULMONARY
CATEGORY D	NEUROLOGIC
CATEGORY E	EPILEPSY AND OTHER EPISODIC CONDITIONS
CATEGORY F	LEARNING, MEMORY AND COMMUNICATION
CATEGORY G	PSYCHIATRIC OR EMOTIONAL CONDITIONS
CATEGORY H	ALCOHOL AND OTHER DRUGS
CATEGORY I	VISUAL ACUITY
CATEGORY J	MUSCULOSKELETAL ABNORMALITY OR CHRONIC MEDICAL DEBILITY
CATEGORY K	FUNCTIONAL MOTOR IMPAIRMENT
CATEGORY L	HEARING

Use of the Functional Ability Profile:

When requested by the staff of the Driver License Division, applicants must report information regarding their physical, mental and emotional health. This may be in the form of a short screening questionnaire or a more extensive profiling outline. On completion of this and other requirements, a license may be issued immediately or the applicant may be requested to take the profile record to his or her own health care professional for confirmation of the profile or change as the health care professional believes is indicated.

These guidelines and standards contain twelve sections, one for each functional ability category. Each begins with a short narrative summary of basic concepts, definitions and working ground rules. Each summary is followed by a chart showing: (1) twelve profile levels based upon history, laboratory findings or other information; (2) profile levels which must be confirmed (or modified) by a health care professional; (3) intervals between health care professional confirmation of the profile; (4) license class and restrictions will generally be used by personnel of the Driver License Division to issue licenses consistent with the functional ability profile.

In almost all cases, a health care professional caring for a patient will have adequate information to confirm or modify the profile. However, if there is a significant problem affecting driving which is outside their area of capability, ordinary medical practices should apply. For example, a condition requiring a specialized diagnosis or opinion would suggest a referral to an appropriate specialist before completing the profile. On the other hand, a specialist who has seen a patient only for a limited or technical service may: (1) decline to complete the full profile (especially if there are multiple problems); (2) suggest patients see their personal health care professional; and (3) provide pertinent information to help in completion of the profile. In some circumstances where the limited condition is the only one affecting driving, a health care professional may confirm the profile based upon history without extensive examinations or tests if they are satisfied with the patient's reliability.

Where non-commercial driver applicants' self-reported profiles contain no indication of a significant impairment other than in the Visual Category, they may be sent for an eye examination without confirmation of the rest of the profile.

Reports should be based upon reasonably current information. In case of doubt, medical common sense should prevail. Since no special tests are required by the guidelines and standards beyond those needed by a health care professional for adequate diagnosis or treatment, no additional expense should result except in unusual circumstances or in cases where individuals may wish to submit additional information, such as a review by a recognized specialist in specific medical conditions, in preparation for review by a medical panel.

Reports of profiles must be signed by a health care professional licensed to practice, although they may rely upon portions of examinations done under their supervision. The Certificate of Visual Examination may be reported by licensed optometrists as well.

Relation of Functional Ability Profiles to Driving Risk/Responsibilities

The table on Page 6 shows, in general, the relationship between functional ability profile levels and the type of risk and responsibility involved in driving. The relationships to profile levels are based upon available data and input from public hearings as interpreted by the Medical Advisory Board.

Operators of commercial vehicles come under different licensing requirements. As far as possible, these have been incorporated into appropriate profiles. All Utah school bus operators and operators of most commercial motor vehicles must meet Federal Department of Transportation Medical Standards. In 1992, the division will be pilot testing the use of these guidelines and standards and report forms as a substitute for federal forms. The Federal Medical Standards have been interpolated without change into these revised guidelines and standards for this purpose.

Setting limitations on driving for persons with impairments of functional ability works to increase public safety and at the same time to permit individuals a maximum degree of freedom of movement in two ways. First, in cases of decreased vision or motor control, avoiding high speeds will reduce the number, as well as the seriousness, of accidents. Second, in situations of some increase in the chance of an accident occurring, cutting down on the extent of exposure on the highway by limiting driving areas or times of day will reduce the total number of accidents and yet allow a person perhaps enough mobility to maintain a job with a single round trip each working day. These factors are difficult to define and measure but an effort has been made to accumulate and develop accurate data in order to refine limitations in the interest of safety.

In some cases, functional ability profiles indicating driving impairment in more than one category may be the basis for a more limited license than if there is only one impairment, but generally any limitation will relate to the single profile showing most impairment. As these functional ability profiles are used in determining driver licenses, data will be gathered as to the driving safety record of various groups as a basis for revision of the levels. Data secured from other sources will also be used. Denial of driving privileges based upon medical reasons does not constitute a "disability" as defined by the Americans With Disabilities Act.

Changes in Functional Ability

After a driver is licensed, they need not report short term illnesses or abnormalities lasting less than three months to the Driver License Division, provided they refrain from all driving until recovery to the previous level of function for which they were licensed. When a condition persists beyond three months or it becomes apparent that it will persist, it should be reported to the Driver License Division. The license may be revalidated as soon as the condition has become stable at a level appropriate for driving.

Suggestions and Questions

Health care professionals who use these guidelines and standards are invited to direct questions or suggestions to the Driver License Division or to any of the current members of the Medical Advisory Board.

Aspects of Licensing and Medical Certification of Commercial Drivers

For the foreseeable future, these guidelines and standards will apply to the licensing of drivers of commercial vehicles, both for interstate and intrastate driving.

The Utah State Driver License Medical Advisory Board has reviewed the Federal Department of Transportation requirements for commercial drivers and worked out an appropriate profile level for each category. The examining health care professional will need only mark the profile in the usual fashion. In general, a profile of 1, 2, 3 and 4, depending on the category, will qualify the applicant for a commercial license.

Because of the greater responsibilities involved, this program will differ from the usual licensing procedures for private vehicle drivers in four ways:

(1) A copy of the Abbreviated Health Profile should be retained by the examining health care professional. The remaining two copies should be given to the driver. One of these must be submitted to the Driver License Division. Drivers may retain the final copy for their use.

(2) For a commercial license or medical certificate, a check on hearing is required (though not for a private vehicle). Thus, an additional profile Category L has been added. For a commercial license, an ability to perceive a forced whisper at five feet in the better ear, with or without use of a hearing aid, is satisfactory. Loss of between 40 - 65 decibels in the better ear <u>may</u> qualify for an intrastate commercial license. Loss of more than an average of 65 decibels in the better ear is disqualifying (ANS 224.5-1951).

(3) Recognition of red, green and amber used in traffic lights may be tested with simple color cards, rather than more complex test devices.

(4) Rather than simply marking the profile for a single category in question, assuming the others to be satisfactory, for commercial licensing the health care professional will be expected to check off all categories after they have satisfied themselves by history or examination of the proper level. In appropriate cases, a report from an ophthalmologist, optometrist, other health care professional, or an audiogram may be attached.

Some experienced drivers have been "grandfathered" with slightly less rigid standards, but future drivers may not be. Some profile levels recommend "intrastate" commercial driving restrictions. Whether such restricted driving privileges may actually be issued is subject to federal and state approval.

Health care professionals may use their own routine forms for recording their examination on which the profile is based. The Licensing Profile Worksheet may be used for their records or disregarded at the health care professional's discretion.

In these guidelines and standards, notes have been placed at the end of the narrative for each profile category to assist in understanding the basis for reporting for commercial drivers. As before, the administrative responsibility for granting licenses rests with the State Driver License Division based upon medical information provided. This relieves the health care professional from vulnerability in having to certify the driver as "qualified to drive" under a complex set of regulations.

It is believed that these relatively minor modifications of our previous *Functional Ability In Driving: Guidelines For Physicians* which have been in use for over eleven years will be simpler than establishing a whole new system to handle licensing of both intrastate and interstate commercial vehicle drivers.

Application of DOT Medical Standards

The 1992 Functional Ability in Driving: Guidelines and Standards for Health Care Professionals has incorporated the DOT Medical Standards as applying to ALL commercial driving, irrespective of the type of vehicle or cargo involved, i.e., Class A, B, C, and D of Utah's Classified License System.

(1) Federal Standards are applicable to all commercial drivers, both interstate and intrastate who are subject to standards contained in Part 391 of the Federal Motor Carrier Safety Regulations.

(2) Use of profiles will provide the only meaningful method of gathering data on health aspects of safety of commercial drivers.

(3) Hence, for the "Utah Medical Pilot Project", present DOT Standards have been integrated into the new Guidelines and Standards, similar to the first edition, when the state issued intrastate chauffeurs' (commercial) licenses. Commercial drivers must be profiled in all twelve categories in order to meet federal standards for examination.

(4) Since present DOT Medical Standards leave a great deal to the discretion of the individual examining health care professional, they have been interpreted by the Board to show the proper profiles appropriate for a commercial license.

(5) Since DOT Standards allow only "one medical standard" to drive all commercial vehicles, no differentiation has been attempted, although use of profile methodology will facilitate a more meaningful equating of profiles with the degree of risk or responsibility for various vehicles, passengers or cargoes. For example, at a future date, it may not be necessary to hold a taxi driver to the same standards as one who drives an interstate bus or multi-axle truck.

(6) Since DOT Standards allow for waivers for absence or impairment of extremities, this feature has been retained by using the members of the Driver License Medical Advisory Board as the approval mechanism, if it is recommended by the examining health care professional and the applicant passes driving skills tests administered by specially trained Driver License Examiners.

(7) There appears to be no medical reason to carry a separate medical examiner's certificate, if a license has been issued based on medical information.

(8) U.S. DOT Regulations permit drivers who were driving in Exempt Intracity Zones during the one year preceding November 18, 1988, to continue such driving as long as the drivers medical condition(s) has not "substantially worsened" since November 18, 1988. Such drivers, even though their medical condition may not have met DOT Standards, are required to have a Medical Certificate issued only for twelve months or less if the examining health care professional so determines. These drivers must furnish the health care professional, the medical data first used by a health care professional to determine the driver could operate in an Exempt Intracity Zone. The current examining health care professional should mark the box at the top right of the Functional Ability Evaluation/Medical Certificate Report indicating "Exempt Intracity Zone" when applicable. Under the Medical Pilot Program some of these drivers may now qualify for intrastate only restrictions for commercial driving, thus broadening their opportunities. This decision is dependent upon the profile level indicated by the examining health care professional.

Relationship of Functional Ability Profiles to Driving Risk/Responsibility or Limitation

Functional Ability Profile Level	Driving Risk/Responsibility, License Class or Limitations
1 through 5	Driving of commercial vehicles, depending on individual profile category. Driving of private vehicles
6	Driving with speed limitations
7	Driving with speed and area limitations
8	Driving with speed, area and time of day limitations
9	Driving accompanied by licensed driver with limitations of speed and/or area and/or time of day limitations as recommended by health care professional
10	Special driving limitations recommended by health care professional not covered above
11	Under evaluation - may or may not drive, according to circumstances as determined by director, with medical advice as appropriate
12	No driving

CATEGORY A
DIABETES MELLITUS AND OTHER METABOLIC CONDITIONS

1. Disturbances in function of the endocrine glands cause many symptoms from generalized asthenia, muscle weakness, and spasm or tetany to sudden episodes of dizziness or unconsciousness. Individuals so afflicted should not drive a motor vehicle until these symptoms have been controlled by appropriate therapy.
2. Problems associated with metabolic diseases such as muscular weakness, muscular pain, visual disturbances, dizziness, intractable headaches, and/or fatigue propensity should also be shown under other appropriate profile categories.
3. Since persons with metabolic disorders may be affected in very different ways, the health care professional should counsel with the patient about any special precautions, limitations or recommendations appropriate to their case. These should be reported by the health care professional.

4. **DIABETES MELLITUS:** In the past, diabetics have been involved in almost twice as many motor vehicle accidents as the medically normal driving population. Careful evaluation and medical management can increase their safety. Even diabetics whose disease is well controlled with insulin or oral hypoglycemic drugs may occasionally suffer a hypoglycemic episode. It is important that the health care professional ascertain the cause of these occasional episodes and change management of the patient. Before deciding the patient's condition is again stable enough for them to drive a motor vehicle, the health care professional should observe the patient under the new program to be sure that it is effective.
5. Certain insulin requiring individuals with diabetes are much more likely than average to have altered consciousness from hypoglycemic episodes. These individuals have "hypoglycemic unawareness"...that is, a lack of the adrenergic warning signs of nervousness and sweating which should alert the person to eat sugar and reverse the insulin reaction.
6. A typical profile of such individuals includes previous episodes of hypoglycemia induced unconsciousness, long duration diabetes and possibly autonomic neuropathy or beta blocker therapy. The health care professional should take these factors into account when profiling. Also, many episodes of altered consciousness (requiring the assistance of another person to reverse) are treated outside of health care facilities and may not come to the health care professional's attention. Inquiry into such events should be made.
7. It is strongly recommended that health care professionals counsel all insulin or oral antidiabetic medication requiring individuals to store in their vehicles, at all times, a source of rapidly absorbed carbohydrate. Further, blood glucose monitoring just prior to driving should be urged for any diabetic driver with a history of limited awareness of hypoglycemia.
8. Visual acuity decreases with marked increase in blood glucose concentrations, due to osmotic swelling of the lens. The patient should not drive until the blood glucose level is brought under control. Diabetic retinopathy may affect visual acuity and should be checked by the primary care health care professional, ophthalmologist or optometrist and be reported under appropriate profile categories.

9. **PARATHYROID DISORDERS:** Hyperparathyroidism with muscular weakness and hypotonia is a contraindication to driving any motor vehicle, unless symptoms are mild or well controlled by therapy. Individuals suffering from acute hypoparathyroidism with increased neuromuscular excitability, cramps, spasm, and generalized tetany should not drive unless symptoms are mild.

10. **THYROID DISORDERS:** Hyperthyroidism or hypothyroidism may be accompanied by severe psychic disturbance, lethargy, muscular weakness, extreme restlessness, and/or tremors, which would preclude any driving. Depending upon the degree of impairment, operation of a private vehicle may be permissible.

11. **HYPOGLYCEMIA:** Individuals suffering from recurring spontaneous attacks of hypoglycemia causing faintness or unconsciousness should be carefully evaluated as to cause before being given a profile comparable to those under diabetes.

12. **COMMERCIAL DRIVERS:** Health care professional should refer to Appendix III in this manual for information regarding special qualifications for Commercial Driver Licensing.

CATEGORY A: DIABETES MELLITUS AND OTHER METABOLIC CONDITIONS

Profile Level	Diabetes Mellitus	Thyroid, Parathyroid, Pituitary and Other Metabolic Conditions	Med Conf Req	Interval for Review	License Class and Restrictions
1	No history of diabetes mellitus or elevated blood sugar	No history of metabolic condition	Yes	2 Years	Commercial Unlimited
			No	N/A	Private Vehicles
2	History of elevated blood sugar. No positive diagnosis of diabetes	Abnormal laboratory findings. No diagnosis made.	Yes	2 Years	Commercial Unlimited
				Upon Renewal	Private Vehicles
3	Any diabetes stable on diet; adult onset of diabetes stable on oral agents	Stabilized under treatment or recovered after surgery without symptoms for one month	Yes	1 Year a.	Commercial Unlimited
				1 Year a.	Private Vehicles
4	Stabilized diabetes with insulin with no episodes of ketosis or altered consciousness for 1 yr c.	Stabilized under treatment with minimal symptoms not affecting driving	Yes	6 Months	Commercial Intrastate (may be issued for diabetes only if special qualifications listed in Appendix III are met. Health care professional approval required).
				1 Year a.	Private Vehicles
5	Stabilized diabetes with no episodes of ketosis or altered consciousness for 6 mths	Stabilized under treatment with minimal or slight persisting or intermittent symptoms. Profile recommendations should be based on anticipated effect on driving.	Yes	1 Year a.	Private Vehicles
6	Stabilized diabetes with no episodes of ketosis or altered consciousness for 3 mths		Yes	6 Months a.	Speed limitation
7	Episodes of ketosis or altered consciousness within 3 months. Profile recommendation should be based on anticipated effect on driving. b.		Yes	3 Months a.	Speed and area limitations
8			Yes	3 Months a.	Speed, area and time of day limits
9		Stabilized condition with unpredictable temporary reoccurrence of more severe symptoms.	Yes	3 Months a.	Any of above, as rec. by health care professional if accompanied by licensed driver.
10	Special circumstances not listed above, without episodes listed above	Special circumstances not covered above	Yes	As Recommended	Special limitations not covered above recommended by health care professional, advise DLD
11	Patient under evaluation	Patient under evaluation	Yes	As Recommended	To be determined, health care professional advise DLD
12	Severe unstable insulin dependent diabetes or persisting ketosis	Severe disorder not responsive to treatment			No driving

a. Or as recommended by health care professional, longer or shorter according to stability.
b. Driving only with specific recommendation by health care professional.
c. If driver is a commercial applicant profiled at level 4 for diabetes, a written health care professional approval must accompany evaluation (see special qualifications in Appendix III).

CATEGORY B
CARDIOVASCULAR

1. Cardiovascular disease may affect a driver's ability in a variety of ways. For this reason, profile guidelines and standards are shown for four of the more common circumstances. Although an individual may have more than one abnormality, the one which causes the most limitation is the one under which they should be profiled for this category. It is essential that all aspects of their condition be evaluated in an appropriate profile.

2. **GENERAL HEART DISEASE:** This profile is made for any patient having had any diagnosis of heart disease. The levels are based on the functional classification of the American Heart Association.
   - Class I. Patients with heart disease but with no limitations of physical activity. Ordinary physical activity causes no undue dyspnea, anginal pain, fatigue or palpitation.
   - Class II. Patients with slight limitations of physical activity. They are comfortable at rest and with mild exertion. They experience symptoms only with the more strenuous grades of ordinary activity.
   - Class III. Patients with marked limitation of physical activity. They are comfortable at rest, but experience symptoms even with the milder forms of ordinary activity.
   - Class IV. Patients with inability to carry on any physical activity without discomfort. Symptoms of cardiac insufficiency or of the anginal syndrome may be present, even at rest, and are intensified by activity.

3. **RHYTHM:** Patients with rhythm disturbances should not be given profile levels 2 or 3, except when the arrhythmia has been so remote and well controlled, or of such a minor nature, that the patient is expected to drive without presenting a risk to the public.

4. **AFTER MYOCARDIAL INFARCTION OR CARDIAC SURGERY:** No patient in these categories should drive until six weeks after the event or until the condition is stable, as determined by a health care professional. Because of the risk of infarction, recurrence or other cardiovascular events, such as arrhythmia, after infarction or surgery if the health care professional believes a patient has an unusually mild condition, a profile 3 may be given on his recommendation. A treadmill stress test should be repeated after six months.

5. **HYPERTENSION:** Apart from its complications, hypertension is largely an asymptomatic condition and in itself does not impair fitness to drive. Medications which may have a sedative side effect or cause unexpected orthostatic hypotension must be assessed by the health care professional as to their effect on the profile (see Appendix IV). Visual, neurological or cardiovascular complications should also be profiled under other categories. Usually, mild and stable hypertension may qualify for a profile 3 even if on medication upon recommendation of the examining health care professional.

6. Other less common cardiovascular conditions such as fistula, coarctation, cardiogenic syncope, severe peripheral arterial or venous vascular disease etc., should be profiled in a fashion comparable to those listed, based upon anticipated functional ability while driving.

7. **COMMERCIAL DRIVERS:** If initial blood pressure is 161-180 systolic and/or 91-104 diastolic, the commercial applicant can be medically certified for a period of three months. The driver is given this 3 month period to reduce their blood pressure to less than or equal to 160/90. If the driver is subsequently found qualified with a blood pressure less than or equal to 160/90, the certificate may be issued for a one year period but the continuing acceptable blood pressure of 160/90 or less must be confirmed during the third month of this one year period. The individual requires annual certification thereafter.

   If the initial blood pressure is 181/105 or greater, the driver cannot be certified for commercial driving even temporarily, until their blood pressure has been reduced to less than 181/105. The examining health care professional may temporarily certify the individual once their blood pressure is below 181/105. The driver would then be given the three month period of time to reduce their blood pressure to below 160/90 as stated above. If the driver is subsequently found qualified with a blood pressure less than or equal to 160/90, they may be certified for a six month period. Documentation of continued control should be made every 6 months (biannually) thereafter.

CATEGORY B: CARDIOVASCULAR

Profile level	General Heart Disease	Rhythm	After Myocardial Infarct or Surgery	Hypertension	Med Conf Req	Interval for Review	License Class and Restrictions
1	No history	No history	No history	No past or present hypertension	Yes	2 Years	Commercial Unlimited
					No	N/A	Private Vehicles
2	Past heart disease, fully recovered	Transient arrhythmia in childhood.	No history	Past hypertension now normal without medication	Yes	2 Years	Commercial Unlimited
					No	N/A	Private Vehicles
3	Heart disease AHA Class I, no limits. No symptoms on ordinary activity	Transient isolated arrhythmia without recurrence in past 5 yrs	Unusually mild condition b.	Hypertension controlled on medication c.	Yes	Upon Renewal	Private Vehicles
				Same but press.less than 161/91	Yes	2 Years	Commercial Unlimited
4	AHA Class I. No undue symptoms on ordinary activity	Past arrhythmia, normal rhythm. Stable with pace-maker for 6 months	1 yr min. Symptoms only with strenuous activity. a.	Hypertension controlled on medication c.	Yes	1 Year a.	Private Vehicles
				Same but press.less than 161/91	Yes	1 Year a.	Commercial Unlimited
5	AHA Class II. Slight limit on activity. Comfortable on mild exertion. d.	Arrhythmias controlled or stable for 3 months	3 months minimum, no symptoms at rest a.	Hypertension partially controlled by medication. Diastolic less than 120 mm.Hg. c.	Yes	6 Mths a.	Private Vehicles
				Same but press.less than 181/105	Yes	3 Mths f.	Commercial Unlimited
6	Class III, ltd activity with symptoms on mild activity; anticipated aggravation by unlimited driving	Unstable rhythm profile; supraventricular tachycardia which is hemodynamically unstable; recurring ventricular arrhythmias proven by Holter monitor. Driving limitations and health care professional's recommendations should be based upon anticipated degree of instability of rhythm. e.	Recovery timeframe and restrictions to be determined by health care professional and appropriate profile level determined. See narrative paragraph 4.	Hypertension with diastolic persistently above 120 mm.Hg. and/or systolic over 200 mm.Hg. Functional profile to be based upon anticipated effects on driving with appropriate limitations on speed, area, time of day, etc. c.	Yes	3 Mths a.	Private Vehicles Speed limitations
7	Class III ltd activity with symptoms on mild exertion slightly increased by fatigue				Yes	3 Mths a.	Private Vehicles Speed & area limitations
8	Class III ltd activity with symptoms on mild exertion moder. increased by fatigue				Yes	3 Mths a.	Private Vehicles Speed, area and time of day limitations
9	Class III ltd activity and unpredictable fluctuation in symptoms on exertion.				Yes	3 Mths a.	Accompanied by licensed driver, with limitations recommended by HCP g.
10	Special circumstances not covered above.				Yes	As rec.	HCP rec., advise DLD g.
11	Patient under evaluation				Yes	As rec.	HCP rec., advise DLD g.
12	Heart disease. AHA Class IV limitations with any activity. Symptoms at rest	Arrhythmias with history of loss of consciousness in past	Recovery not sufficient to drive	Diastolic over 120 mmHg. w/limiting complication/side effects of medications			No driving

a. Or as recommended by health care professional, longer or shorter according to stability. b. See narrative for consideration of unusually mild or stable cases. c. If medication does not interfere with alertness or coordination (See Appendix IV). d. Or Class III with long term stability. e. Levels 8 and 9: Type II second degree heart block or trivascular block. f. See narrative to establish expiration dates for medical certification. g. HCP = Health Care Professional

CATEGORY C
PULMONARY

1. Although impaired pulmonary function is seldom the cause of sudden death, it may seriously affect operators of vehicles in the following ways:

   - **Sudden severe coughing while driving may result in an accident**
   - **Cough syncope may occur while driving**
   - **Impaired cerebral oxygenation caused by impaired pulmonary function may result in mental confusion and/or impaired judgement.**

2. For these and similar reasons, it is important to obtain an accurate picture of the pulmonary status of all applicants for driver licenses who have a history of problems or are observed to have respiratory difficulties at the time of examination.

3. In assessing the severity of pulmonary impairment, effort is made to limit the tests to those found in most medical offices, although occasionally more sophisticated studies may be needed (e.g. arterial blood gases, maximal voluntary ventilation, etc.).

4. The objective of classification according to pulmonary capacity, as in other functional categories, is to allow as much latitude as is consistent with the safe operation of a motor vehicle.

5. The basic function tests (FVC and FEV) are the principal guidelines and standards currently recommended. These are subjective/objective tests. When they are required, three graphs should be made and every effort should be made to elicit the full cooperation of the examinee. A bronchodilator may be used if the examiner feels it is safe and justifiable. The best reading, with or without bronchodilators, should be used.

6. In more severe cases of pulmonary impairment, measurement of arterial blood gases may be needed. If there is any question about the need for arterial gas measurements, the applicant usually would not qualify for profile levels 1 through 4, but the blood gas determinations may support a higher functional level than might otherwise appear indicated. They may also help in defining profiles appropriate to limited private driving.

7. **COMMERCIAL DRIVERS:** A commercial driver meeting the requirements of profile level 1, 2, 3 or 4 will qualify for a license or medical certificate except that in level 3 and 4 one year re-evaluations are required. If oxygen is required, even intermittently, the driver will be limited to a Class C or D license and may not carry hazardous material. If the driver is carrying passengers a NO SMOKING sign must be prominently displayed in their vehicle.

CATEGORY C: PULMONARY

Profile Level	Circumstances	Med Conf Req	Interval for Review	License Class and Restrictions
1	No past history or current pulmonary disease	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
2	Past history, fully recovered. No current medication use.	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
3	Minimal pulmonary symptoms. Sporadic use of medication (no steroids), FVC and FEV > 70% of predicted normal. PO_2 within normal range	Yes	1 Year	Commercial Unlimited Private Vehicles
4	Pulmonary symptoms only with greater than ordinary activity. May be on steroids intermittently. FVC and FEV_1 > 50% of predicted normal.	Yes	1 Year	Commercial Intrastate Private Vehicles
5	Stable pulmonary disease on or off treatment, including intermittent O_2 or steroids, with dyspnea only on exertion. No cough syncope for 6 months.	Yes	1 Year **a.**	Commercial Intrastate Light Vehicles HAZMAT appeal to Medical Advisory Board Private Vehicles
6	Not Used			
7	PO_2 over 50. Moderate dyspnea or other symptoms with ordinary activity. No cough syncope within 3 months. **b.**	Yes	6 Mos **a.**	Speed and area limitations
8	Not Used			
9	Unpredictable more severe temporary dyspnea or other symptoms. Cough syncope within 3 months.	Yes	6 Mos **a.**	Accompanied by licensed driver, with speed, area and/or time of day limitations recommended by health care professional
10	Special circumstances not covered above	Yes	As recom.	Special limitations not covered above recommended by health care professional, advise DLD
11	Pulmonary symptoms or signs under evaluation	Yes	As recom.	To be determined, health care professional advise DLD
12	Severe dyspnea with any activity and/or cyanosis and/or PCO_2 > 50 or PO_2 < 50. Cough syncope and/or untreated sleep apnea.			No driving

a. Or as recommended by health care professional, longer or shorter according to stability.
b. If supplemental oxygen is required to maintain PO_2 over 50, constant use of oxygen is required while driving.

CATEGORY D
NEUROLOGIC

1. A wide variety of neurological conditions may affect driving safety. A partial list includes: strokes, head injuries, Cerebral Palsy, Multiple Sclerosis, Parkinson's disease, progressive conditions such as muscular atrophies and dystrophies, myasthenia gravis and other spinal cord and brain diseases. Epilepsy is considered as a separate category.

2. The common element in all of these is the disturbance of sensory, motor or coordinating functions sufficient to affect driving. Some of them will be considered as stable conditions for which a driving test showing adequate performance in the type of vehicle to be driven will be sufficient. However, other conditions that have not yet stabilized or have a probability of progression or need for medication may require a medical report initially or at intervals. The usual interval for reconfirmation is as shown or may be increased up to the time interval since the last significant change in status. No medical confirmation will be needed after the condition has been stable for three years if the health care professional so recommends.

3. In general, those impairments shown in the **AMA Guide to Evaluation of Permanent Impairment** for 5 to 15% impairment relate to profile levels 4 and 5, for 20-45% impairment to profiles 6 through 10 calling for limitations on driving and for over 45% to profile 12 for no driving, unless skill with compensating devices is demonstrated, in which case an appropriate suffix will follow the profile number.

4. Persons with neurological disorders with motor impairment will also be given a profile as appropriate under Category K, (Functional Motor Impairment) in relation to driving, regardless of whether function is restored by use of compensatory devices. The health care professional should indicate by checking the appropriate box on the Functional Ability Evaluation form if a driving skills test should be given.

5. In some neurological disorders, there may be other problems which impair driving. For example, a head injury may not only result in paralysis, but in visual field loss and impairment of learning and memory. These should be shown as profiles in the other appropriate categories as well. In evaluating late effects of head injuries, careful inquiry into the duration of coma or amnesia will be found helpful in evaluating the likelihood of persisting effects which may impair reaction time and thus be important in considering limitations on driving speeds. Similar considerations may apply in the use of a variety of medications which affect neuro-motor functions.

6. COMMERCIAL DRIVERS: Drivers given a profile 5 may or may not be successful in passing a road test, but should have an opportunity to do so if their conditions are stable. The health care professional should check the driving skills test box at the bottom of the form.

CATEGORY D: NEUROLOGIC

Profile Level	Circumstances	Med Conf Req	Interval for Review	License Class and Restrictions
1	No history of strength, sensory or coordination impairment	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
2	History of strength, sensory or coordination impairment with full functional recovery	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
3	Impairment but able to control equipment, walk, lift and carry	Yes	1 Year a.	Commercial Unlimited Private Vehicles
4	Minimal neurologic impairment but able to control equipment in conventional manner	Yes	1 Year a.	Commercial Unlimited Private Vehicles
5	Slight neurologic impairment but able to control equipment	Yes	1 Year a.	Commercial Intrastate--Must Pass Road Test Private Vehicles
6	Moderate impairment of dexterity affecting safe driving speeds	Yes	1 Year a.	Speed limitation
7	Moderate impairment of dexterity and decreased stamina	Yes	1 Year a.	Speed and area limitations
8	Not used			
9	Significant neurologic impairment expected to be temporary b.	Yes	6 Mos	Accompanied by licensed driver, with speed, area and/or time of day limitations recommended by health care professional
10	Special circumstances not covered above	Yes	As recom.	Special limitations recommended by health care professional, advise DLD
11	Patient under evaluation	Yes	As recom.	To be determined, health care professional advise DLD
12	Strength, sensory or coordination impairment incompatible with any driving			No Driving

a. Or as recommended by health care professional, longer or shorter according to stability.
b. For example, as in recovery from strokes, head injuries, etc., where skill developed under supervision may be therapeutic.

CATEGORY E
EPILEPSY AND OTHER EPISODIC CONDITIONS

1. Epilepsy includes any recurrent loss of consciousness or conscious control arising from intermittent change in brain function. Because of the similarity of consequences, other disorders affecting consciousness or control such as syncope, cataplexy, narcolepsy, hypoglycemia, episodic vertigo interfering with function, etc., have been included in this section, to be considered in a similar fashion.

2. Since all forms of epilepsy (tonic-clonic or grand mal, partial complex or psychomotor, partial, with or without spread, and absence or petit mal) may interfere with safe driving, they will affect the level of driving recommended and will require initial and follow-up reports.

3. A non-commercial operator's license, with or without limitations, may be issued after a suitable interval in the following circumstances confirmed by a medical report:

   - A single seizure or cluster of seizures (profile 12 until evaluation completed).
   - Seizures occurring only in sleep over a period of three or more years.
   - Seizures so limited as not to interfere with control, if stable for a period of one year.
   - Seizures recurring when medication has been reduced on a health care professional's advice to change or continue medication and a corrective change has been made as recommended by the health care professional.
   - A seizure provoked by a clearly identified cause which is not likely to recur.

4. To qualify for a profile based upon freedom from seizures, a person should be free from side effects of medications which affect driving. Anyone taking medication is responsible to refrain from driving if it affects their alertness and coordination, until the health care professional approves resumption of driving and believes the patient can drive safely. Side effects such as skin or gum changes which do not affect driving may be disregarded. In individual cases where anticonvulsant medication effects cause a slowing of reaction time, consideration should be given to limitations on speed as suggested in Neurologic Category D.

5. Persons experiencing seizures may have associated problems which may affect driving safety and these should be reported under the appropriate profile.

6. Persons with past seizures may qualify for a higher risk responsibility level by making sure they faithfully take their prescribed medication and use other means of control. In time, they may qualify for an unrestricted license. Under these guidelines and standards it is possible for a person to resume driving after a seizure free interval of only three months. Each case should be considered carefully to balance possible risk against the person's need to get to and from work, etc.

7. COMMERCIAL DRIVERS: Federal DOT guidelines require any patient with a history of epileptic seizures (other than childhood febrile seizures or symptomatic seizures) to be disqualified for a commercial interstate license or medical certificate. An intrastate license or medical certificate may be granted under profiles 2, 3 and 4 depending upon the degree of seizure control.

CATEGORY E: EPILEPSY AND OTHER EPISODIC CONDITIONS

Profile Level	Circumstances	Med Conf Req	Interval for Review	License Class and Restrictions
1	No history of epileptic seizures	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
2	History of seizures or episodes but none in past 5 years without medication	Yes	2 Years	Commercial Intrastate
		No	N/A	Private Vehicles
3	Seizure or episode free 5 years and subsequently off medication 3 years with health care professional's recommendation	Yes	2 Years	Commercial Intrastate with health care professional approval
		Yes	Upon Renewal	Private Vehicles
4	Seizure or episode free 1 year off or on medication withou side effects	Yes	1 year **a. b.**	Commercial Intrastate, Light Vehicles Appeal larger vehicles to Medical Advisory Board Private Vehicles
5	Seizure or episode free 6 months, off or on medication without side effects	Yes	6 mos **a. b.**	Private Vehicles
6	Seizure or episode free 5 months, off or on medication without side effects	Yes	6 mos **a. c.**	Speed limitation
7	Seizure or episode free 4 months, off or on medication without side effects	Yes	6 mos **a. c.**	Speed and area limitation
8	Seizure or episode free 3 months, off or on medication without side effects	Yes	6 mos **a. c.**	Speed, area and time of day limitations
9	Not Used			
10	Special circumstances not covered above e.g. single recurrence after long interval (over 2 years) of seizure freedom	Yes	6 mos **a. c.**	Special limitations recommended by health care professional, advise DLD
11	Single seizure or episode, suspected seizure or cluster or seizures in process of evaluation, or other special circumstances	Yes	As recom.	To be determined, health care professional advise DLD
12	Seizure or episodes not controlled, or medication effects interfering with alertness or coordination			No Driving

a. Or shorter if recommended by health care professional, according to stability.
b. Or interval since last seizure or episode, up to renewal interval.
c. Or interval to qualify for higher profile.

CATEGORY F
LEARNING, MEMORY AND COMMUNICATION

1. Driving a motor vehicle is a complex operation which requires the ability to learn from experience, to remember facts related to driving situations, to communicate intentions by appropriate signals and to receive communications by interpretation of signs and in other ways. Greater demands for verbal communication are imposed when passengers are carried.

2. These functional profile levels are intended as guides for health care professionals in advising appropriate driving for their patients. In stable situations, such as retardation, a single medical confirmation will be sufficient, but in other circumstances, reconfirmation of the profile should be based upon medical judgement as to the likelihood of future changes. For example, a person who is improving after a head injury may be reviewed after an appropriate interval and receive increased privileges. Similarly, a person with increasing difficulties should be reviewed and greater limitations advised as may be appropriate. A health care professional should use available information to make the best judgement possible in the interest of their patient's safety. This should include information from their family, driving incidents, habits and other medically pertinent data. In general, AMA impairment percentages from 0 to 15% may be appropriate for driving private vehicles, while higher percentages will usually call for limitations.

3. Intellectual function usually relates to age in younger individuals, but may be estimated for all ages in a common sense fashion. A person's ability to function may be affected by emotional factors or experience. A health care professional can often get a good indication of intelligence by learning how well a person handles school, work or activities of daily living. For example, a person who cannot figure change in making simple purchases may not be able to drive safely.

4. A very important component of any impairment of learning, memory, communication, or other intellectual functions is the element of emotional stability and maturity in social relations. A person with intellectual impairment who is impulsive or aggressive may be a dangerous driver. Hence, these factors must be considered in setting a profile level.

5. Most younger individuals with learning problems will have had testing done which may be used as a basis for recommendations. In other cases, estimates of abilities, including general intelligence, may be made using whatever resources are usually used by the health care professional. Since inappropriate driving may create risks for both the patient and the public, if there is uncertainty, psychometric testing or other referral should be considered. Individuals with I.Q.s below 70 are reported to have more accidents in emergency situations.

6. Ability may fluctuate in relation to effects of medications, alcohol, emotional stress or fatigue, etc. Hence, a person's age, habits, stability and related impairments as in head injuries, should be considered carefully. Recommendations should be conservative to take into account intervals when abilities may be less than usual.

7. Patients with closed head injury may have diffuse cognitive deficits, for example: impaired judgement, impulsiveness, distractibility, impaired attention, neglect, slowed reaction time or impaired cognitive endurance. If the patient has had a severe injury (defined as coma longer than 24 hours and/or post traumatic amnesia longer than 7 days) the patient should be required to be evaluated by a state driver license examiner.

8. Alzheimer's disease results in progressively impaired cognitive function and may require frequent review of driving abilities.

9. In special problems such as aphasia or inadequate language skills, the health care professional may indicate that a drive test should be given to make a careful final appraisal based upon special attention to learning and communication during the drive test. The health care professional should check the driving skills test box at the bottom of the form.

CATEGORY F: LEARNING, MEMORY AND COMMUNICATION

Profile Level	Circumstances	Med Conf Req	Interval for Review	License Class and Restrictions
1	No history of impairment of learning, memory, or communication. Normal intelligence	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
2	Past history of impairment of learning, memory or communication, but fully recovered at least one year. Normal intelligence	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
3	Residual minimal difficulties with complex intellectual functions or communication. Good social and personal adjustment	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
4	Borderline cognitive impairment with good socialization and emotional control	Yes	2 Years a.	Commercial Unlimited Skills test if recommended by health care professional
			b.	Private Vehicles
5	Mild intellectual or communication impairment Good socialization and emotional control	Yes	2 Years a.	Commercial Intrastate, Skills Test Required Health care professional Recommendation
			b.	Private Vehicles
6	Not Used			
7	Not Used			
8	Not Used			
9	Not Used			
10	Impairment of learning, memory, judgement or communication involving special circumstances (see paragraphs 6, 7 and 8 in narrative)	Yes	As recom.	Special limitations as recommended by health care professional, advise DLD
11	Patient under evaluation	Yes	As recom.	To be determined, health care professional advise DLD
12	Moderate, severe and profound mental retardation or impairment of intellectual functions or communication; or lesser impairment but with poor socialization and/or emotional control			No Driving

a. Or shorter interval, as recommended by health care professional.
b. Initial medical confirmation only needed for static conditions. Otherwise intervals from three months up to renewal interval according to the health care professional's judgement regarding probability of change.

CATEGORY G
PSYCHIATRIC OR EMOTIONAL CONDITIONS

1. There is no certain way of predicting which person with psychiatric illness will have accidents, but many high risk drivers are such because of psychiatric conditions. Consistent application of the point system reflecting accident involvement and reckless driving with imposition of appropriate driving restrictions will help to identify and control many of the psychiatric population at risk.

2. The involuntary hospitalization or commitment law presently in effect in the State of Utah requires that the individual to be committed must have a major mental illness, lack insight into their condition, be untreatable in programs involving less restriction of personal freedom, be an imminent danger to themselves or others, or be incapable of self care. The coincidence of these four criteria adjudicated at a court hearing would be strong grounds for the withholding of the driving privilege during the duration of the commitment. Termination of committed status does not mean that the patient is necessarily mentally well but merely improved. Such individuals should be medically screened before resuming driving privileges.

3. There is a large population of individuals with psychotic illness who are being maintained on anti-psychotic medications in an ambulatory status in the community. All of these drugs, as well as the tricyclic anti-depressants, have varying degrees of sedative side effects and potentiate other CNS depressants. Most of these are individuals with a clinical diagnosis of "schizophrenia". The quality of the remission being maintained by medication varies widely. Some of the individuals continue to have significant mental disability. These persons should be screened in terms of severity of side effects incident to medication and the adequacy of the remission in terms of a reasonably stable, reality oriented, socially responsible and impulse controlled adjustive style.

4. Benzodiazepines have been implicated in automobile fatalities to a degree comparable with alcohol. Research shows the major period of risk is the first three weeks, after which tolerance generally develops to the sedation and dysfunctional effects on coordination.

5. There are a variety of behavioral conditions, extremes of mood and impairments in thinking associated with psychiatric disorders which may correlate with accident proneness or driver risk. These include:

   a. Inattentiveness which may accompany even minor mental disturbances;

   b. Impulsivity, explosive anger, and impaired social judgement characteristic of personality disorders, especially antisocial personality;

   c. Suicidality, perceptual distortions, psychomotor retardation or frank irrationality in addition to the previously described symptoms which are common features of major psychiatric illnesses such as schizophrenia, major depressive disorder, bipolar (manic depressive) disorder and organic brain syndromes.

6. The applicant's prior accident and violation records are more valid "predictors" of driver risk than psychiatric status. This record should be a major factor in placing restrictions upon driving. The combination of a bad driving record and mental disability could be a particularly lethal combination. If an applicant reports accidents or moving violations the health care professional should be alert to possible psychiatric problems. The health care professional may call 965-4723 for further information retained on the patient's driving record.

7. If a health care professional believes there may be a problem, but is not sufficiently familiar with the patient's psychiatric status to make a valid judgement, they should refrain from doing so until they gain access to current psychiatric information or records or makes an appropriate referral for evaluation.

CATEGORY G: PSYCHIATRIC OR EMOTIONAL CONDITION

Profile Level	Circumstances	Med Conf Req	Interval for Review	License Class and Restrictions
1	No history of psychiatric or emotional condition	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
2	Past history of psychiatric or emotional condition, asymptomatic for 5 years	Yes	2 Years	Commercial Unlimited
		No	N/A	Private Vehicles
3	Psychiatric or emotional condition stable for 1 year with symptoms controlled without medication or with medications which do not interfere with alertness or coordination	Yes	1 Year	Commercial Unlimited
			1 year **a.**	Private Vehicles
4	Psychiatric or emotional condition stable for 3 months with symptoms controlled without medication or with medications which do not interfere with alertness or coordination	Yes	1 Year	Commercial Intrastate with health care professional recommendation **c.**
			1 year **a.**	Private Vehicles **c.**
5	Psychiatric or emotional condition stable for 1 month with symptoms controlled by medications which do not interfere with alertness or coordination	Yes	6 mos **b.**	Private Vehicles **c.**
6	Psychiatric or emotional condition with medications which minimally interfere with coordination, as in dyskinesia etc	Yes	6 mos **b.**	Speed limitation **c.**
7	Not Used			
8	Not Used			
9	Psychiatric or emotional condition with variable symptoms where driving under direct supervision of a responsible licensed driver may be therapeutic	Yes	6 mos **b.**	Accompanied by licensed driver with speed, area and/or time of day limitations recommended by health care professional
10	Special circumstances not covered above	Yes	6 mos **b.**	Special limitations recommended by health care professional, advise DLD
11	Psychiatric or behavioral symptoms under evaluation	Yes	As recom.	To be determined, health care professional advise DLD
12	Active psychiatric or emotional condition with indications of risk to self or others; or with treatment with medications which interfere with alertness or coordination; and/or with commitment status			No Driving

a. Or as recommended by health care professional, longer or shorter according to stability.
b. Or interval up to 1 year if recommended by health care professional.
c. Drivers with impulsivity, explosive anger, and impaired social judgement characteristic of personality disorders such as antisocial personality must have a recommendation from their health care professional as well as approval of the Medical Advisory Board.

CATEGORY H
ALCOHOL AND OTHER DRUGS

1. It is generally known that one-half or more of the highway accidents, injuries and fatalities are related to the use of alcohol. Chronic users of alcohol cause more fatal accidents than the combination of all other drivers with medical problems. Hence, an awareness of problems caused by alcohol is essential to the proper granting of driving privileges.

2. Use of other problem causing drugs can impair a person's driving ability. The nature of these substances is such that continued use creates problems which are recognizable and require special attention in licensing drivers.

3. Users of alcohol and other drugs are well known for their tendency to under-report amounts used. There is a wide individual variation in the effects of such substances. Hence, about the only valid basis for evaluating an applicant's probable safety as a driver is careful appraisal of the person's history including, but not limited to, the past effect upon driving.

4. Adverse personal consequences of alcohol use include (1) physical dependence or withdrawal symptoms, (2) medical or neurological findings associated with effects of alcohol use upon the nervous system or other organs, (3) a history of alcohol related behavioral change indicated by fighting, physical abuse or vehicle accidents, (4) convictions involving alcohol.

5. Excessive or inappropriate use of drugs includes use for purposes of intoxication or stimulation of any prescription or nonprescription, legal or illegal, drugs which cause adverse personal or social consequences such as those listed above. In addition, untoward drug related experiences, such as flashbacks, or substance withdrawal seizures may be hazards to driving.

6. Users of mood altering and hallucinogenic drugs are next to users of alcohol in traffic violations. Not only "street" drugs but also inappropriately used prescription drugs increase accident rates, especially when used in combination with alcohol. This list of substances include: marijuana, amphetamines, L.S.D., antihistamines, barbiturates, benzodiazepines and anti-psychotics such as phenothiazine, haloperidol, sleeping pills of all sorts, etc.

7. There is increasing evidence that marijuana may affect driving by causing changes in depth perception, unpredictable alteration of reaction time, illusions of distance, impairment of accuracy of sensory perception, impairment of judgement and periodic lapses of attention, acutely as well as after chronic use. Marijuana may impair driving even several days after cessation of use.

8. Health care professionals should be alert to the fact that those with substance problems tend to visit them more often than the average. Patterns that suggest substance abuse include: gastrointestinal symptoms, often atypical; injuries or burns of vague causation; neurologic symptoms; general medical or flu-like symptoms, hypertension or skin problems; psychiatric symptoms, including depression; social maladjustment and interpersonal and work difficulties; and family health problems. Inquiry may lead to a clearer picture of the problem and temporary limiting of driving for the benefit of the public as well as the patient. Persons who have been stabilized by methadone treatment in a recognized clinic may qualify to drive a non-commercial vehicle as long as they remain under supervision.

9. Many young or inexperienced drivers are unaware of the high risks of driving associated with the use of alcohol, especially when mixed with other substances. Making factual information regarding drugs and alcohol and their effects on driving available to young drivers may help them to make safer choices. Health care professionals can effectively help in these educational efforts.

10. Since many persons rely on their automobiles for transportation to and from work, pressure may be brought to bear to make exceptions. Since the guidelines provide for limitations on speed, areas, time of day, etc., these should be used as appropriate to facilitate driving to and from work until the person has demonstrated sustained responsibility for unlimited privileges.

CATEGORY H: ALCOHOL AND OTHER DRUGS

Profile Level	Circumstances ALCOHOL USE	Circumstances DRUG USE	Med Conf Req	Interval for Review	License Class and Restrictions
1	No history of use of alcoholic beverages	No history of inappropriate use of drugs	Yes	2 Years	Commercial Unlimited
			No	N/A	Private Vehicles
2	Alcohol use but no adverse personal or social consequences b.	History of drug abuse, but not within past 5 years c.	Yes	2 Years	Commercial Unlimited
			No	N/A	Private Vehicles
3	Alcohol use with no adverse personal or social consequences within past 5 years b.	History of drug abuse, but not within past 5 years c.	Yes	2 Years	Commercial Unlimited
				Upon Renewal	Private Vehicles
4	Alcohol use with no adverse personal or social consequences within past 2 years b.	History of drug abuse, but not within past 2 years Evidence of compliance with drug treatment program c.	Yes	1 Year	Commercial Intrastate with MAB Review Only
				1 Year a.	Private Vehicles
5	Alcohol use with no adverse personal or social consequences within past 6 months b.	History of drug abuse, but not within past 6 months c.	Yes	6 mos a.	Private Vehicles with demonstration of drug or alcohol abstinence by recognized medical test if use led to legal consequences d.
6	Use of alcohol with demonstrated impairment of driving but not within past 3 months	History of drug abuse, but not within past 3 months c.	Yes	6 mos a.	Private Vehicles with demonstration of drug or alcohol abstinence by recognized medical test if use led to legal consequences d.
7	Use of alcohol with demonstrated impairment of driving but not within past month	History of drug abuse, but not within past month c.	Yes	6 mos a.	Private Vehicles with demonstration of drug or alcohol abstinence by recognized medical test d.
8	Use of alcohol with intermittent impairment of function but not during driving or working hours	Use of drugs as medically prescribed with intermittent impairment of function but not during driving or working hours	Yes	6 mos a.	Speed, area and time of day limitations
9	Use of alcohol with intermittent impairment of function but where driving under supervision of responsible licensed driver may be therapeutic	Use of drugs as medically prescribed with intermittent impairment of function but where driving under supervision of responsible licensed driver may be therapeutic	Yes	6 mos a.	Accompanied by licensed driver with speed, area and/or time of day limitations recommended by health care professional.
10	Special situations not covered above	Special situations not covered above	Yes	As recom.	Special limitations recommended by health care professional, advise DLD
11	Patient's alcohol use under evaluation	Patient's drug use under evaluation	Yes	As recom.	To be determined, health care professional advise DLD
12	Chronic use of alcohol with impairment of motor and/or intellectural functions	Chronic use of drugs with impairment of motor and/or intellectual functions .			No Driving

a. Or as recommended by health care professional, shorter or longer up to 1 year.
b. See narrative for examples of adverse consequences.
c. Drug Abuse means any use of illicit drugs or inappropriate use of prescription or non-prescription drugs.
d. Random blood alcohol, random urine or hair drug analysis, or documented compliance with requirements of an approved treatment program at time of profiling.

CATEGORY I
VISUAL ACUITY

1. Visual acuity and peripheral vision guidelines for functional ability profiles are as shown.

2. Correction of vision may be either with regular glasses or with contact lenses, provided they are used at all times when driving. With spectacles, the correction must be less than 10 diopters to qualify for profile level 1. Profiles based upon use of a visual correction should be identified by the suffix "C".

3. Some of the eye conditions requiring special consideration, but which have no set standards, are listed below. Persons with these conditions may drive if they meet the criteria for acuity and fields.

4. **COLOR VISION:** People who are completely color blind usually suffer from poor visual acuity and possible associated visual field loss. Red-green color discrimination is not important because of traffic light standardization, except in the case of commercial drivers, who must be able to recognize standard colors of red, green and amber.

5. **DARK ADAPTATION:** Dark adaptation and glare tolerance are important for safe twilight and night driving, but methods of measurement and standards are not well established. However, individuals with cataracts, retinal abnormalities, chronic pupillary constriction, or other known causes of glare intolerance or poor dark adaptation should be carefully evaluated before being recommended for unrestricted licensure. Under certain conditions, a profile for daytime driving only may be recommended.

6. **HETEROPHORIA** can occasionally be a cause of driver fatigue. In more severe conditions, it may lead to blurred vision, diplopia or suppression of vision in one eye. A strabismic person, if diplopia (double vision) is not present, may be regarded as a one-eyed driver. A person with persisting diplopia may be licensed only on the basis of specific medical recommendations.

7. **STEREOPSIS** is only important in distances up to 75 feet and therefore relates more to parking, backing and following closely in city traffic. The best method for testing depth perception on the highway is the driver license examiner's road test.

8. **MONOCULAR VISION:** A person with vision with one eye or correctable vision in one eye to 20/40 may drive non-commercial vehicles. Side mirrors are not required because they are not considered adequate compensatory devices. In certain circumstances a driver with monocular vision may be approved by the Medical Advisory Board for a commercial intrastate license or medical certificate.

9. **REFRACTIVE STATES:** Myopia (near-sightedness), hyperopia (far-sightedness) and astigmatism (distorted, but constant for all viewing distances) can usually be compensated and need not be considered as problems. Likewise, presbyopia (inability to focus clearly at near) is natural to aging and is not of licensing concern if compensated.

0. **TELESCOPIC LENS:** When a person puts on a telescopic lens, the visual field is decreased to an extent that the wearer is not qualified to drive.

1. **CHRONIC AND RECURRENT DISEASE**, including nystagmus, glaucoma, cataracts, ptosis, corneal disorders, pupillary action, retinal changes and aphakia, are significant in that they usually produce changes in the visual acuity or visual fields.

2. **VISUAL FIELDS:** Recent research demonstrates that intact peripheral vision is important for safe driving. An adequate visual field for passenger vehicles is defined as 120° on the horizontal meridian and 20° on the vertical meridian both above and below fixation. If the patient has pathology that may affect the visual fields, such as glaucoma, retinitis pigmentosa, post panretinal photocoagulation, or cataracts, formal visual field testing using a Goldmann III-4-e object or its equivalent for automated perimetry may be helpful in determining the extent of visual field impairment. A person with a homonymous hemianopia is at increased risk for accidents and should be reviewed by the Medical Advisory Board.

CATEGORY I: VISUAL ACUITY

Profile Levels	Vision	Visual Fields c.	Color Vision CDL Only	Med Conf Req	Interval for Review	License Class and Restrictions
1	20/25 vision each eye	Monocular visual fields 120° in each eye, binocular visual fields 70° to the right and to the left in the horizontal meridian.	Normal	Yes	2 Years	Commercial Unlimited
			N/A	No	N/A	Private Vehicles
2	20/40 in each eye		Normal	Yes	2 Years	Commercial Unlimited
			N/A	No	N/A	Private Vehicles
3	20/40 in better eye, stable pathology	At least 120° in each eye	Normal	Yes	1 Year a.	Commercial Intrastate, with approval by MAB d.
			N/A	No	Upon a. renewal	Private Vehicles
4	20/40 in better eye, stable pathology	At least 120° total for both eyes	Normal	Yes	1 Year a.	Commercial Intrastate, renewal only, with approval by the MAB d.
			N/A	No	Upon a. Renewal	Private Vehicles
5	20/40 in better eye, unstable pathology		N/A	Yes	2 years a.	Private Vehicles
6	20/50 to 20/70 in better eye, stable pathology		N/A	Yes	Upon a. Renewal	Speed limitations
7	20/50 to 20/70 in better eye, unstable pathology		N/A	Yes	1 Year a.	Speed limitations and area b.
8	20/80 to 20/100 in better eye, stable pathology	At least 90° total for both eyes e.	N/A	Yes	1 Year a.	Speed, area and time of day restrictions as recommended by health care professional and approved by MAB
9	20/80 to 20/100 in better eye, unstable pathology		N/A	Yes	6 mo a.	Speed, area and time of day restrictions as recommended by health care professional and approved by MAB
10	Special circumstances not covered by any of the above	Special circumstances not covered by any of the above	N/A	Yes	As recom.	Special limitations recommended by health care professional, advise DLD f.
11	Patient under evaluation	Patient under evaluation	N/A	Yes	As recom.	To be determined by health care professional, advise DLD
12	No Driving	Less than 90 degrees total for both eyes	N/A			No Driving

a. Or as recommended by health care professional, shorter or longer according to stability.
b. Speed, area and time of day restrictions as recommended by health care professional.
c. An adequate visual field is defined as 90 degrees on the horizontal meridian and 20 degrees on the vertical meridian both above and below fixation. If there is any question concerning the visual fields on confrontation testing or because of ophthalmic pathology, formal visual field testing by perimetry using a III-4-e Goldmann target (or its equivalent on automated perimetry) should be performed.
d. May be modified subject to Federal Rulemaking.
e. Patients with a homonymous hemianopia must be reviewed by the Medical Advisory Board.
f. Profile should be indicated by health care professional with recommendations and indicate on the Visual Exam Form if a driving skills test is required.

CATEGORY J
MUSCULOSKELETAL ABNORMALITY OR CHRONIC MEDICAL DEBILITY

1. The preceding categories have been developed to cover most of the more common conditions which may affect driving safety. Category J includes a variety of chronic conditions not included elsewhere, which have in common their potential effect upon driving safety. In some of them, medical judgement may be of primary importance in determining limitations on driving, such as, osteoporosis or active infectious disease, including HIV, as they affect the safety of the driver or passengers or other vehicles. In others, the basis for limitation of driving privileges will be the functional motor impairment for the specific acts of operating a vehicle, such as amputations or congenital abnormalities, unless compensatory devices are used as outlined in Category K.

2. In case of obvious paralysis or absence or abnormality of limbs, etc., where an applicant is able to pass the driving test without compensatory aids, no medical confirmation is required. Otherwise, a provisional profile level may be based on the health care professional's recommendations and a final one upon the functional motor profile in Category K. For stable conditions, the interval for revalidation will be normal, but in unstable situations, the health care professional should recommend shorter intervals depending upon the nature of the problem.

3. Many persons with chronic illness require medications for pain and other symptoms which may interfere with alertness or coordination. Use of such medications should be taken into consideration in assigning a profile level. The individual should be cautioned that they are responsible to refrain from driving when their condition or medications seem to affect driving ability.

4. COMMERCIAL DRIVERS: The health care professional may indicate a profile 4 , subject to confirmation by passing a road test to indicate their ability to control and operate a commercial motor vehicle safely. The health care professional should check the skills test box at bottom of form.

CATEGORY J: MUSCULOSKELETAL ABNORMALITY OR CHRONIC DEBILITY

Profile Level	Musculoskeletal Abnormality	General Debility or Impairment	Med Conf Req	Interval for Review	License Class and Restrictions
1	No history	No history	Yes	2 Yrs	Commercial Unlimited
			No	N/A	Private Vehicles
2	Full recovery one year	Full recovery one year	Yes	2 Yrs	Commercial Unlimited
			No	N/A	Private Vehicles
3	Minimal residual loss of function	Minimal residual loss of function	Yes	2 Yrs	Commercial Unlimited
			No	N/A	Private Vehicles
4	Mild residual loss of function with or without compensatory device a.	Mild residual loss of function a.	Yes	2 Yrs	Commercial Unlimited (Waiver Req'd) Must have MAB Approval
			No	N/A	Private Vehicles
5	Congenital absence or deformity of a limb or the spine, traumatic or surgical amputations, or limitations of joint motion by fusion, arthritis, contractures, etc. a. b.	Moderate residual loss of function a.	Yes	1 yr d.	Commercial Unlimited (Waiver Req'd) Must have MAB Approval
			c.	1 yr d.	Private Vehicles
6	Congenital absence or deformity of a limb or the spine, traumatic or surgical amputations, or limitations of joint motion by fusion, arthritis, contractures, etc. b.	General debility or impairment from cancer, aging, chronic infections such as HIV, malnutrition, chemotherapy, drugs or other treatment, chronic pain syndromes, etc. b.	c.	1 yr d.	Speed limitations
7			c.	1 yr d.	Speed and area limitations
8			c.	1 yr d.	Speed, area, time of day limitations
9	Impairment requiring assistance of responsible licensed driver, such as variable weakness, episodes of pain, etc. b.		Yes	1 yr d.	Accompanied by licensed driver, with speed, area, and time limits recommended by health care professional
10	Circumstances not covered by any of the above b.		Yes	1 yr d.	Special limitations recommended by health care professional, advise DLD
11	Patient under evaluation		Yes	1 yr d.	To be determined, health care professional advise DLD
12	Chronic conditions making driving unsafe. Not fully compensated for by restorative functional devices.				No Driving

a. Commercial Unlimited license or medical certificate may be obtained with a waiver.
b. Profile should be indicated by the health care professional according to their best information, and should indicate on the form if a driving test is required. Additional functional motor evaluation will be done under Category K.
c. If compensatory devices used on request of examiner or in case of chronic disease.
d. Longer interval or shorter as recommended by health care professional according to stability.

CATEGORY K
FUNCTIONAL MOTOR ABILITY

1. Evaluation of functional motor ability, consists of an appraisal of an individual's abilities to operate a vehicle with reference to muscular strength; coordination; range of motion of joints; spinal movement and stability; amputations or the absence of body parts; and/or other abnormalities affecting motor control. In addition, there is the intangible element of the individual's ingenuity and skill in offsetting their limitations. Specific vehicles may vary greatly in the degree of strength and skill required.

2. Because of these factors, motor ability to operate a particular vehicle may be difficult to define with certainty in the health care professional's office. Nevertheless, the health care professional confirming an applicant's profile should indicate in their best judgement a provisional profile level without and with compensating devices. This will help the driver examiner who tests the applicant (in the vehicle using compensatory devices) and makes the final determination of the functional motor ability profile level. In the event of differences of opinion or where the applicant may feel their case is not well understood, consultation between the driver examiner and the health care professional is encouraged. If there is a continuing uncertainty, a request may be made for review by the Medical Advisory Board as in other cases.

3. If a person demonstrates ability to perform all motor functions necessary to operate a specific type of vehicle without compensating or assistive devices of any sort their motor ability profile will be without a suffix. If any of these devices are used, a suffix will be added as appropriate:

CPD - Compensating Personal Devices
CSA - Compensating Standard Accessories
CNA - Compensating Non-standard Adaptations

. The suffix CPD (Compensating Personal Devices) will indicate use of personal devices by the person routinely throughout the day for other activities as well as for driving, such as back braces, limb prostheses, limb braces, neck braces, etc.

. The profile suffix CSA (Compensating Standard Accessories) will indicate the ability to operate a vehicle using standard auto accessories, such as power steering, power brakes, automatic transmission, power windows, etc. A license based upon a profile followed by CSA will be limited to use of vehicles equipped as specified on the license.

. The profile suffix CNA (Compensating Non-standard Adaptations) will be used to indicate an ability to operate the vehicle using non-standard shoulder and lap belts, special mirrors, special power equipment other than standard power brakes or steering, and other such devices. Any license based on a CNA profile will be valid only when the specified compensating adaptations(s) is (are) being used and are in good working order. A driving test may be required, by the Driver License Division, of drivers using CNAs.

If more than one compensating mechanism is used, each suffix will be added to the profile. Examining forms and licenses issued will indicate the levels of functional motor ability and compensating devices to be used. For testing of applicants who use more sophisticated or complex compensating devices, a specially trained examiner will be designated to insure the most knowledgeable evaluation possible. Periodic review of the safety status of such devices is recommended and may be required from time to time by designated examiners.

An applicant with a stable motor impairment who is able to pass a standard driving test to the examiner's satisfaction without use of compensating devices (other than standard accessories such as seat belts or power steering or brakes) will not generally need a medical confirmation of their profile. However, if other than standard accessories are used, if the profile has other indications of possible impairment, or if the examiner is not able to pass the applicant on all parts of the standard driving test, medical confirmation of the profile should be secured.

COMMERCIAL DRIVERS: All drivers with profiles 3 and 4 will be given a special driving test with the vehicles to be used and with compensatory devices and accessories used. The health care professional should add the appropriate suffix to the profile level to alert the driving test examiners. If there has been loss or impairment of a hand or finger, arm, foot or leg which may interfere with operating a motor vehicle, approval by the Medical Advisory Board is required.

CATEGORY K: FUNCTIONAL MOTOR ABILITY (WITH OR WITHOUT COMPENSATORY AIDS)

Profiles Without Compensating Aids	Profiles With Compensating Personal Devices	Profiles With Compensating Standard Accessories	Profiles With Compensating Non-Standard Accessories	Circumstances	Med Conf Req	Interval for Review	License Class and Restrictions
1				No history of motor impairment	Yes	2 Years	Commercial Unlimited
					No	N/A	Private Vehicles
2				Past motor impairment, fully recovered	Yes	2 Years	Commercial Unlimited
					No	N/A	Private Vehicles
3	CPD	CSA	CNA	Past motor impairment or incomplete recovery with no driving limitation	Yes	2 Years	Commercial Unlimited (Waiver Req'd)
					Yes a.	Renewal	Private Vehicles
4	CPD	CSA	CNA	Present motor impairment or demonstrates ability to operate vehicle(s) to be driven	Yes	2 Years	Commercial Intrastate (Waiver Req'd)
					Yes a.	Renewal	Private Vehicles
5				Not Used			
6	CPD	CSA	CNA	Demonstrates ability to operate vehicle(s) at reduced speeds	Yes a.	Upon Renewal	Speed limitation
7	CPD	CSA	CNA	Demonstrates ability to operate vehicle(s) at reduced speeds in limited areas	Yes a.	Upon Renewal	Speed and area limitations
8	CPD	CSA	CNA	Demonstrates ability to operate vehicle(s) at reduced speeds, in limited areas and daytime only	Yes a.	Upon Renewal	Speed, area and time of day limitations
9	CPD	CSA	CNA	Demonstrates ability to operate vehicle(s) at reduced speed, area or other limits, accompanied by responsible driver	Yes a.	Upon Renewal b.	Accompanied by licensed driver with speed, area and time of day limits recommended by health care professional or examiner
10	CPD	CSA	CNA	Motor ability to operate vehicle with special limits recommended by health care professional and/or examiner	Yes a.	Upon Renewal b,	Speed limitations recommended by health care professional (advise DLD) or examiner
11	CPD	CSA	CNA	Patient under evaluation	Yes	As recom.	To be determined, health care professional advise DLD
12	CPD	CSA	CNA	Unable to operate vehicle safely with or without compensatory devices			No Driving

a. At discretion of health care professional.
b. As recommended by health care professional if shorter than renewal interval, according to stability.

CATEGORY L
HEARING
(COMMERCIAL DRIVERS ONLY)

1. Drivers of private vehicles: No hearing requirements have been set up.
   For Meniere's Disease, see Category E, Episodic Disorders.

2. Commercial drivers are required to pass a hearing test. They may be tested either without an aid or with a hearing aid if ordinarily used and are acceptable if:

   (1) They perceive a forced whispered voice in the better ear at not less than five feet;

   OR,

   (2) If tested by use of an audiometric device, they do not have an average hearing loss in the better ear greater than 65 decibels at 500 Hz, 1000 Hz and 2000 Hz. If tested by use of an audiometric device, etc., to 2000 Hz and for unlimited commercial driving nor an average hearing loss greater than 65 decibels for the same frequencies for intrastate driving of certain vehicles (American National Standard Z 24.5 - 1951).

It is suggested that, if a driver does not pass the whisper test and there is no correctable abnormality such as wax accumulation, arrangements be made for an audiogram.

CATEGORY L: HEARING (COMMERCIAL DRIVERS ONLY)

Profile Level	Circumstances	Med Conf Req	Interval for Review	License Class and Restrictions
1	No past history or current hearing impairment	Yes*	2 Years	Commercial Unlimited
2	Past history of hearing impairment, fully recovered	Yes*	2 Years	Commercial Unlimited
3	Hearing impairment - hears whisper at 5 feet or 40 decibel audiogram without hearing aid	Yes*	2 Years	Commercial Unlimited
4	Hearing impairment - hears whisper at 5 feet or 40 decibel audiogram with hearing aid	Yes*	2 Years	Commercial Unlimited
5	Hearing impairment - unable to hear whisper at 5 feet or 40 - 65 decibel loss	Yes*	1 Year a. b.	Commercial Intrastate (light vehicles)
6	More than 65 decibel loss	N/A	N/A	Private Vehicles
7	Not Used			
8	Not Used			
9	Not Used			
10	Not Used			
11	Patient's hearing impairment under evaluation			To be determined by health care professional. Advise DLD.
12	Not Used			

*For Commercial Drivers Only

a. Or sooner, if not stable, at discretion of health care professional.
b. Indicate with or without the use of hearing aids.

APPENDIX I

PRINCIPLES USED IN DEVELOPING GUIDELINES AND STANDARDS FOR DEFINING DRIVING CAPABILITY

In cooperation with the Director of the Utah Driver License Division, the Medical Advisory Board has followed these ten principles in developing these guidelines and standards:

1. Guidelines and standards should be the least restrictive possible consistent with public safety.

2. Functional ability to operate a vehicle safely, rather than impairments, should receive emphasis.

3. Some impairments will permit driving safely under appropriate limitations as to speed, area, time of driving and use of compensating devices, etc.

4. Fairness should prevail in these ways: (a) medically impaired drivers should not be required to meet guidelines and standards of expected safety in excess of those expected of unimpaired drivers; and (b) drivers with different kinds of impairments, but with similar estimated increases in driving risk, should have as nearly the same limitations as possible.

5. A system for profiling all aspects of a person's health which may adversely affect driving either intermittently or continuously will be used by applicants for a driver license.

6. Health care professionals should not be expected to function as policemen, prosecutors or judges in the process of driver evaluation, but as individuals skilled in diagnosis and accurate reporting of functional ability, as well as teachers and advisers to their patients.

7. Since the ultimate responsibility for safety lies with all drivers, they should be involved in self-evaluation, with medical evaluations being used to confirm its accuracy or change it.

8. Every opportunity should be used to educate all drivers and applicants about the effects of physical and emotional health problems, use of drugs, etc. on their ability to drive safely.

9. If anything related to licensing can be simplified safely, this should be done.

10. Health care professionals are invited to help put into effect these principles of safety and fairness and of increasing driver awareness of health in relation to driving safety.

Commercial Driver Licensing

Regarding guidelines and standards for operators of commercial motor vehicles, Federal Fitness Standards have been integrated as written in the Federal Motor Carrier Safety Regulations, 49CFR, Part 391.

APPENDIX II

UTAH CRIMINAL AND TRAFFIC CODE
OPERATORS' LICENSE ACT
LICENSES — IMPAIRED PERSONS

41-2-201. Licensing of Impaired Persons - Medical Review - Restricted License - Procedures.

(1) (a) As used in this section and Section 41-2-202, "impaired person" means a person who is afflicted with or suffering from a mental, emotional, or nonstable physical impairment or disease that may impair the person's ability to exercise reasonable and ordinary control at all times over a motor vehicle while operating it upon the highways.

(b) "Impaired person" does not include a person having a nonprogressive or stable physical impairment which is objectively observable and which may be evaluated by a functional driving examination.

(2) When the division has reason to believe that an applicant for a license may be an impaired person, the division may, at its discretion, require the applicant to complete one or both of the following:

(a) a physical examination by a physician or surgeon licensed to practice medicine in this state and the submittal by the examining physician or surgeon of a signed medical report indicating the results of the physical examination; the format of the report shall be devised by the division with the advice of the division's Driver License Medical Advisory Board and shall elicit the necessary medical information to determine whether it would be a public safety hazard to permit the applicant to operate a motor vehicle upon the highways;

(b) a follow-up medical review by a physician or surgeon and completion of the above described report at intervals established by the Division under standards recommended by the Driver License Medical Advisory Board.

(3) The division may issue a restricted license to an impaired person who is otherwise qualified to obtain a license. The license continues in effect until its expiration date so long as the licensee complies with the requirements set forth by the division. The license is subject to renewal under the conditions of this section. Any physical, mental, or emotional impairment of the applicant which in the opinion of the division does not affect the applicants ability to exercise reasonable and ordinary control at all times in operating a motor vehicle upon the highway does not prevent the issuance of a license to the applicant.

(4) (a) When an examination is required under this section, the division is not bound by the recommendation by the examining physician but shall give fair consideration to the recommendation in acting on the application. The criterion is whether upon all the evidence it is safe to permit the applicant to operate a vehicle.

(b) In deciding whether to issue or deny a license, the division may be guided by the opinion of experts in the fields of diagnosing and treating mental, physical, or emotional disabilities and may take into consideration any other factors which bear on the issue of public safety.

(5) Information provided under this section relating to physical, mental, or emotional impairment is confidential.

41-2-202. Driver License Medical Advisory Board - Membership - Guidelines for licensing impaired persons - Recommendations to division.

(1) (a) In this section "board" means the Driver License Medical Advisory Board.

(b) The commissioner may create a Driver License Medical Advisory Board. The board is composed of three regular members appointed by the executive director of the Department of Health and assisted by expert panel members nominated by them as necessary and as approved by the executive director of the Department of Health. The regular members of the board serve as its executive committee and may act for the full board. They shall be assisted by expert panel members in recommending medical standards in the areas of the panel members' special competence for determining the physical, mental, and emotional capabilities of applicants for licenses and holders of licenses.

(c) In reviewing individual cases, a panel acting with the authority of the board consists of at least two members, of which at least one is a regular board member. The director of the division or his designee serves as secretary to the board and its panels. Members of the executive committee and expert panel members nominated by them shall be physicians licensed to practice medicine in all of its branches in this state. They shall receive per diem and expenses as determined by the director of the Division of Finance for each meeting of the board or one of its panels, to be paid as an operating expense by the division. The board shall meet from time to time when called by the director of the division.

(2) The board shall recommend written guidelines for determining the physical, mental and emotional capabilities of applicants for licenses and for holders of the licenses. The guidelines are applicable to all individuals who hold current Utah licenses and for all individuals who hold learner permits and are participating in driving activities in all forms of driver education. The guidelines shall be published by the division, and are subject to the Utah Administrative Rulemaking Act.

(3) When the division has reason to believe that an applicant or licensee is an impaired person, it may:

(a) act upon the matter based upon the published guidelines; or

(b) convene a panel to consider the matter and submit written findings and a recommendation; the division shall consider the recommendation along with other evidence in determining whether a license should be suspended, revoked, denied, or restricted.

(4) When the division has acted under Subsection (3) to suspend, revoke, deny, or restrict the driving privilege, without the convening of a panel, the affected applicant or licensee may within ten days of receiving notice of the action request in writing a review of the division's action by a panel. The panel shall review the matters and make written findings and conclusions. The division shall affirm or modify its previous action.

(5) Actions of the division are subject to judicial review as provided in this part. The guidelines, standards, findings, conclusions, and recommendations of the board or of a panel are admissible as evidence in any judicial review.

(6) Members of the board and its panels incur no liability for recommendations, findings, conclusions, or for other acts performed in good faith and incidental to membership on the board or a panel.

(7) The division shall provide forms for the use of physicians in depicting the medical history of any physical, mental, or emotional impairment affecting the applicant's or licensee's ability to operate a motor vehicle.

(8)(a) Individuals who apply for or hold a license and have, or develop or suspect that they have developed a physical, mental, or emotional impairment which may affect driving safety are responsible for reporting this to the division or its agent. If there is uncertainty, the individual is expected to seek competent medical evaluation and advice as to the significance of the impairment as it relates to driving safety, and to refrain from driving until a clarification is made.

(b) Physicians who care for patients with physical, mental, or emotional impairments which may affect their driving safety, whether defined by published guidelines or not, are responsible for making available to their patients without reservation their recommendations and appropriate information related to driving safety and responsibilities.

(c) A physician or other person who becomes aware of a physical, mental, or emotional impairment which appears to present an imminent threat to driving safety and reports this information to the division in good faith has immunity from any damages claimed as a result of making the report.

APPENDIX III

SPECIAL QUALIFICATIONS FOR PERSONS WITH DIABETES MELLITUS FOR COMMERCIAL DRIVER LICENSES

Current federal commercial driver qualification requirements read:

> *"A person is physically qualified to drive a motor vehicle if that person has no established medical history or clinical diagnosis of Diabetes Mellitus currently requiring insulin for control." "If insulin is necessary to control a diabetic condition, the driver is not qualified to operate a motor vehicle. If mild diabetes is noted at the time of examination and it is stabilized by use of a hypoglycemia drug and a diet that can be obtained while the driver is on duty, it should not be considered disqualifying. However, the driver must remain under adequate medical supervision."*

Some insulin taking diabetic individuals are clearly at minimal risk of severe hypoglycemia. These individuals are characterized by the following:

1) Easy recognition of hypoglycemic spells;

2) Willingness and ability to self blood glucose monitor on a frequent basis;

3) Trained in the management of their diabetes with an understanding of the balance of insulin, food, exercise and stress.

Physical qualifications for drivers: A person is physically qualified to drive a commercial motor vehicle if that person has no established medical history or clinical diagnosis of Diabetes Mellitus likely to interfere with that person's ability to safely operate a commercial motor vehicle and provided a person who requires insulin for control of the disease:

a. Has within the last five years

   (1) An absence of a hypoglycemic reaction that resulted in loss of consciousness or seizure.

   (2) An absence of seizure or coma without antecedent prodromal symptoms of hypoglycemia.

   (3) An absence of recurrent diabetic ketoacidosis or hyperosmolar nonketotic coma.

b. Provides the following information (as a minimum) to the Board Certified Endocrinologist who examines them:

   (1) A complete medical history including all hospitalization, consultation notes, diagnostic examinations, special studies and follow-up reports.

(2) A complete drivers record as reported by the State Licensing Agency which issued the person a drivers license (as may be available).

(3) Complete information regarding any motor vehicle or other accidents resulting in personal injury or property damage.

(4) Written signed authorization to permit the examining endocrinologist to obtain information from employers, work associates, health care professionals, or other health care workers, relevant to the person's medical condition.

c. Undergoes a complete medical evaluation by a Board Certified Endocrinologist who will assess the results of the following procedures prior to determining whether the person is qualified to operate a commercial motor vehicle:

(1) At least two results of glycolysated hemoglobins during the last 6 months, a lipid profile,urinalysis and CBC. Blood pressure readings at rest, sitting and standing. Elevated blood pressure, medication for hypertension or other evidence of any cardiovascular abnormality will require a maximal exercise stress EKG.

(2) Ophthalmologic confirmation of absence of visually significant retinal disease.

(3) Examination and tests to detect peripheral neuropathy and/or circulatory deficiencies of the extremities.

(4) A detailed evaluation of insulin dosages and types, diet utilized for control and any significant lifestyle factors, such as smoking, alcohol use and other medications or drugs taken.

The Board Certified Endocrinologist shall:

a. Certify that drivers have been educated in diabetes and its control and thoroughly informed of and have demonstrated the understanding of the procedures which must be followed to monitor and manage their diabetes and what actions should be followed if complications arise.

b. Ascertain that drivers have the ability, willingness, and equipment to properly monitor and manage their diabetes. A blood glucose monitor with electronic "memory" is required.

c. Determine that drivers with diabetes will not adversely affect their ability to safely operate a commercial motor vehicle. The methods of making that determination shall be established by the examining health care professional.

APPENDIX III (continued)
Special Qualifications For Persons With Diabetes Mellitus For Commercial Driver Licenses

The following monitoring and re-evaluation procedures shall be performed as a minimum by an insulin using diabetic who drives a commercial motor vehicle. These procedures may be supplemented with additional procedures and/or operational conditions by the examining health care professional:

a. One hour prior to driving and approximately every two hours while driving, drivers shall test their blood glucose concentration and record those concentrations electronically.

b. Upon request, make records of self blood glucose concentrations available to Federal or State enforcement personnel.

c. Annually, or more often as indicated by the endocrinologist, submit to complete medical re-evaluation including readings of glycosylated hemoglobin to the examining endocrinologist. This requires the driver to submit any new data on the drivers medical condition, driving record or accident involvement and the glucose records. Use of a new examining endocrinologist will require the insulin using driver to follow the procedures set forth for a new applicant.

d. At each visit the endocrinologist will verify that the insulin using diabetic can demonstrate the accuracy of self blood glucose measurement within 20% of actual concentration.

e. Annually have ophthalmologic confirmation of the absence of visually significant retinal disease.

f. While driving, should circumstances preclude a particular blood glucose test, intake of an appropriate snack or other source of glucose is an acceptable alternative, however no two consecutive tests may be replaced by the ingestion of glucose or food.

g. The driver must carry necessary supplies on board the vehicle including as a minimum, blood sampling lancets, personal blood glucose monitor and strips, a plentiful source of rapidly absorbable glucose. All dated materials must be within their expiration dates.

h. It is suggested that for long distance trips a co-driver or a companion shall be made aware of the signs and symptoms of hypoglycemia and the appropriate treatment thereof.

APPENDIX IV

ADDITIONAL INFORMATION FOR CATEGORY B: HYPERTENSION/CARDIOVASCULAR PROFILE

A. HYPERTENSION/CARDIOVASCULAR PROFILE

Most antihypertensive agents have potential side effects which may affect driving capability. The examining health care professional should be alert to the following potential problems which may be more prominent or likely with certain antihypertensives as listed. Each hypertensive applicant who is receiving antihypertensive medication should be specifically questioned for these side effects.

(1) ORTHOSTATIC HYPOTENSION
Virtually any antihypertensive, especially when used in combinations including diuretics, ACE inhibitors, calcium channel blockers, alpha blockers, clonidine, especially Guanethidine and Guanadrel.

(2) SYNCOPE
Alpha Blockers

(3) DROWSINESS/SEDATION
Methyldopa, Guanabenz, Guanadrel, Resperine, Clonidine

(4) DIZZINESS
Most beta blockers, alpha blockers, calcium channel blockers. Also, Apresoline may aggravate angina symptoms in individuals with pre-existing clinically significant coronary artery disease.

(5) OTHER AGENTS AFFECTING DRIVING SAFETY
Because of their greater tendency to produce side effects, the following agents are even more likely to affect driving safety: Guanethidine, Methyldopa, Reserpine, Guanabenz and Guanadrel.

APPENDIX V
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APPENDIX VI

1992

UTAH DRIVER LICENSE MEDICAL ADVISORY BOARD

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Appendix B. General Screening Questionnaire and Health Care Professional Forms

Utah Driver License Division
Abbreviated Health Questionnaire

Last Name	First Name	Middle or Maiden Name	Date of Birth	Driver License Number

The Utah Driver License Medical Advisory Board has determined the following conditions may be directly related to driving safe These questions must be answered by every applicant applying for any Utah Driver License or Medical Certificate.

(Answer all questions) DO YOU HAVE, OR HAVE YOU HAD, ANY OF THE FOLLOWING IN THE LAST FIVE YEARS?

☐ Yes ☐ No A. DIABETES: Diabetes (high blood sugar, sugar diabetes, you control with diet, medication or insulin) hypoglycemia or other metabolic condition etc., which may interfere with driving safety? Is this a thyroid condit only? ☐ Yes ☐ No

☐ Yes ☐ No B. CARDIOVASCULAR: Heart condition, with or without symptoms, (heart attack, heart surgery, irregular rhyth general heart disease) within the last five years; or hypertension (high blood pressure) currently requiri medication for control?

☐ Yes ☐ No C. PULMONARY: Pulmonary (lung) condition (asthma, emphysema, passing out from coughing, etc.), sleep apn or shortness of breath which has required treatment? Is an inhaler the only medication prescribed for tl condition? ☐ Yes ☐ No

☐ Yes ☐ No D. NEUROLOGIC: Neurological condition (stroke, head injury, narcolepsy, cerebral palsy, multiple scleros muscular dystrophy, Parkinson's Disease, etc.) Which may interfere with driving safety?

☐ Yes ☐ No E. EPILEPSY: Epilepsy, seizures, other episodic conditions which include any recurrent loss of consciousness control? [Commercial: anytime in life? ☐ Yes ☐ No]

☐ Yes ☐ No F. LEARNING AND MEMORY: Learning and memory difficulties observed personally or reported to you by other.

☐ Yes ☐ No G. PSYCHIATRIC: Psychological condition (anxiety, severe depression, behavioral mood conditions, schizophreni etc.), for which a physician has recommended that you take medication? List medications for this conditic _____.

☐ Yes ☐ No H. ALCOHOL AND DRUGS: Excessive use of alcohol and/or prescription drugs, or use of any illegal drugs; treatment or recommendation for treatment of alcohol use or chemical dependency?

☐ Yes ☐ No I. VISUAL ACUITY: Is your vision worse than 20/40 in either eye, even with corrective lenses?
☐ Yes ☐ No Are corrective lenses required for driving?
☐ Yes ☐ No Have you experienced a decrease in peripheral (side) vision?
☐ Yes ☐ No Do you have a degenerative or progressive eye condition?

☐ Yes ☐ No J. MUSCULOSKELETAL/CHRONIC DEBILITIES: Loss or paralysis of all or part of an extremity; or onset of a gener debilitating illness requiring treatment? New or changed in the past 5 years? ☐ Present longer than 5 years? [

☐ Yes ☐ No K. FUNCTIONAL MOTOR IMPAIRMENT: Need for use of a brace, prosthesis or compensating accessories fc driving? New or changed in the past 5 years? ☐ Present longer than 5 years? ☐

☐ Yes ☐ No L. HEARING: Have you experienced a loss of hearing? Please explain: _____
Are you currently wearing hearing aides? ☐ Yes ☐ No

☐ Yes ☐ No OTHER: Other health problems or use of medications which might interfere with driving ability or safety?
Please explain: _____

I hereby certify under penalty of law that information contained in this health questionnaire is true to the best of my knowledge

Date: _____ Signature: _____

GENERAL INFORMATION

The Driver License Division has been authorized to extend the expiration date of licenses for persons who do not have: 1) More than 4 moving violations within five years; or, 2) A conviction for reckless driving within the last five years; or, 3) Any current suspension(s) or revocation(s) or any within the last five years, or, 4) Any medical impairment that could pose a threat to highway safety; or, 5) A Commercial Driver License.
Your driving record indicates that you are eligible; therefore, if you desire this extension, please follow the instructions below.

IMPORTANT: ***IF YOU WISH TO MAKE ANY CHANGES ON YOUR DRIVER LICENSE (Name Change, Address Change, Etc.) YOU MUST APPEAR AT A LOCAL DRIVER LICENSE EXAMINING OFFICE. If you change your name, you must present a marriage certificate or related court documents.***

INSTRUCTIONS

1. Complete the Abbreviated Health Questionnaire. (Answer each question on the reverse side of this form).
2. Complete the application. (Please do not fold or staple).
3. If you will be **65 or older** on your next birthday, have a qualified ophthalmologist, optometrist, or other health care professional complete the vision exam below. The examination date must be within 6 months of the expiration date of your license, or you may appear at the most convenient Driver License Examining Office for a free vision check.
4. Prepare a check or money order, payable to the "Driver License Division", for the correct fee as stated on your application. **PLEASE DO NOT MAIL CASH -- THANK YOU**
5. **Write your permanent Driver License Number on your check or money order.**
6. Mail the application, medical questionnaire, eye statement if applicable, check or money order, **NOT YOUR DRIVER LICENSE**, in the enclosed self-addressed envelope to, Driver License Division, P.O. Box 30570, Salt Lake City, UT 84130-0570. We must receive your application before the expiration date of your driver license. When your application has been approved, a Certificate of Extension will be mailed to you within 8 weeks.

AVOID WAITING IN LINE -- RETURN YOUR APPLICATION TODAY!

NOTE: If you desire to apply at a local Driver License Examining Office, you will be required to have your vision checked and a photo taken, however, the written test will be waived if you present the enclosed application notice. **IF THE APPLICATION IS MADE IN AN EXAMINING OFFICE, THERE WILL BE A FEE INCREASE AND A REGULAR APPLICATION FORM TO COMPLETE.** If you act now, you will receive the Certificate of Extension before your current license expires. If you have already renewed your license, disregard this notice. General information telephone 965-4437.

COMPLETE THE ABBREVIATED HEALTH QUESTIONNAIRE ON REVERSE SIDE

IF YOU WILL BE 65 YEARS OR OLDER ON YOUR NEXT BIRTHDAY, YOU MUST HAVE YOUR VISION CHECKED *(Instructions below)*

If you choose not to have a free vision check at a Driver License Office, then you must have a qualified ophthalmologist, optometrist, or other health care professional complete the following information and return this form with your application, and check or money order.

The date of the **examination must be within six (6) months of the expiration date of your license.**

Name _____
Last First Middle Initial

Driver Lic. #_____ Birth Date _____

_____
Applicant's Signature

_____
HCP Signature: Ophthalmology, Optometry, Other

_____
Date of Visual Examination

Comments:

LENSES REQUIRED WHILE DRIVING:		☐ YES	☐ NO
Visual Acuity	Without Correction	With Correction	Visual Field at least 120°
RIGHT EYE			☐ YES ☐ NO
LEFT EYE			☐ YES ☐ NO
BOTH EYES			☐ YES ☐ NO
If visual fields are less than 120°, are they at least 90°? Circle Profile Level: 1 2 3 4 5 6 7 8 9 10 11 12			☐ YES ☐ NO

DLD 292 REV 4-97

FUNCTIONAL ABILITY EVALUATION MEDICAL CERTIFICATE REPORT

UTAH DRIVER LICENSE DIVISION
4501 SOUTH 2700 WEST 3RD FLR SO
P O BOX 30560 SLC UT 84130-0560

DLD 134 10/92

PRIVATE ☐ COMMERCIAL ☐
EXEMPT INTRACITY ZONE ☐ YES ☐
MEDICAL CARD EXPIRES: _____

TOP PORTION MUST BE COMPLETED BY APPLICANT

Last Name First Name Middle or Maiden Name Date of Birth Driver License Number

As part of my application for driving privileges, the following information about my physical, mental and emotional health is submitted. **PAST HISTORY:** Report below anything whi might affect driving, such as seizures, heart attacks, serious illnesses or injuries, use of alcohol or other drugs, psychiatric conditions, accidents, visual loss, etc. Give date(s) of l occurrence(s): _____

PRESENT CONDITION: Give present status of physical, mental or emotional problems, including medications being used, limitation of visual or movement functions: _____

I authorize any health care professional to release information pertaining to my physical, mental and emotional health for private confidential use in my evaluation for driving privileg I expect the health care professional to advise me about my health as it relates to driving and to report accurately regarding my condition, but I understand the Department of Public Safe is responsible for all decisions about issuing driver licenses and medical certificates. I further understand it is my responsibility to refrain from driving if I become aware of changes in n health which may affect driving safety and to report relevant changes in writing to the Driver License Division.

Date: _____ Applicant's Signature: _____

HEALTH CARE PROFESSIONAL REPORT BELOW

The following functional ability profile is for use in determining driving privileges. It is consistent with **Functional Ability in Driving: Guidelines and Standards For Health Car Professionals.** A summary tabulation of the Guidelines and Standards is shown on the back of this form for convenient reference. Details are found in your copy of the Guidelines an Standards. Please mark profile below with a horizontal line or an "X" to show appropriate level for each category. In some categories, final level may depend upon driving test. Please chec the box below to indicate that a driving test should be taken.

Profile Level	A Diabetes & Meta- bolic Condition	B Cardio- vascular	C Pul- monary	D Neuro- logic	E Epilepsy (Episodic Conditions)	F Learning Memory	G Psychiatric or Emotional Condition	H Alcohol & Other Drugs	I Visual Acuity	J Musculo- skeletal/ Chronic Debility	K Functional Motor Impairment	L Hearing
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Commercial drivers (Class A,B,C,D Licenses) must be profiled in ALL categories by the examining health care professional.
If it is not possible to complete all categories, please check one of the following:

☐ Profile categories not marked are not relevant to driving ability in this case (e.g. visual problem only)
☐ Profile categories not marked are relevant and should be completed by another health care professional who has more adequate information.
☐ I have not examined this patient recently or completely enough to have a valid judgment: please refer to: _____
☐ There are special considerations I would like to discuss with a representative of the Department or the Medical Advisory Board
☐ Other Comments: _____

☐ **I recommend that this driver complete a driving skills test in an appropriate vehicle.**

Standard intervals for medical re-evaluation for each category and profile level will apply unless a different interval is shown under the appropriate category below.

Category	A	B	C	D	E	F	G	H	I	J	K	L
Nonstandard Evaluation Interval												

Date Printed Name of Health Care Professional Signature and Degree

Street Address City State Zip Code Telephone

Top Copy (pink): Health Care Professional 2nd Copy (white): Driver License Division 3rd Copy (yellow): Applicant

Level	A Diabetes & Metabolic Conditions	B Cardio-vascular	C Pulmonary	D Neurological	E Epilepsy Episodic Conditions	F Learning, Memory, etc.	G Psychiatric Emotional Condition	H Alcohol & Other Drugs	I Visual Acuity a.	J Musculoskeletal or Chronic Debility	K Functional Motor Impairment a.	L Hearing b.
1	No history of past or present impairment								20/25 in each eye. 120° visual field in each eye. Color ok b.	No history of past or present impairment		
2	Past impairment, full recovery, no medication				Free 5 years off meds 5 years	Past impair-ment; full recovery; no meds.	No symptoms 5 years; off medication	No history of alcohol abuse No drug use in past 5 yrs	20/40 in each eye. 120° visual field in each eye. Color ok b.	Past impairment, full recovery, no medication		
3	Diet & oral agent stable	Class I Rhythm stable 5 yrs b.	Minimal impairment	Very Minimal impairment	Free 5 yrs off meds 3 yrs	Minimal impairment	Stable 1 yr; on or off medication	History of drug use or alcohol abuse but not in past 5 yrs	20/40 in better eye. 120° visual field in each eye. Stable pathology. Color ok. b.	Minimal residual loss of function	No limit in driving	Able to hear forced whisper at 5 feet w/o aid
4	Stable 1 year	AHA Class I b.	Mild impairment	Minimal impairment	1 year free - on or off medication	Borderline Cognitive impairment	Stable 3 months; on or off medication	History of drug use or alcohol abuse but not in past 2 yrs	20/40 in better eye. 120° total visual field. Stable pathology. Color ok b.	Mild residual loss of function	Demonstrated ability to handle vehicles to be driven, with or without compensatory aids	Able to hear forced whisper at 5 feet with aid
5	Stable 6 months	AHA Class II b.	Dyspnea with unusual activity	Mild impairment	6 month free; on or off medication	Mild intellectual impairment	Stable 1 month; on medication	History of drug use or alcohol abuse but not in past 6 mths	20/40 in better eye. 120° total visual field. Unstable pathology	Moderate residual loss of function		Unable to hear forced whisper
6	Stable 3 months	AHA Class III Unstable rhythm, hypertension, etc.	Not Used	Moderate impairment	5 months free; on or off medication	Not Used	Stable, Min. med effects	History of drug use or alcohol abuse but not in past 3 mths	20/50-20/70 in better eye. 120° total visual field. Stable pathology	Moderate impairment		More than 65 dec loss Priv. Only
7	Stable less than 3 months		Moderate dyspnea; PO' over 50	Moderate with impairment & fatigue	4 months free; on or off medication		Not used	History of drug use or alcohol abuse but not in past month	20/50-20/70 in better eye. 120° total visual field. Unstable pathology			
8			Moderate dyspnea	Not used	3 months free; on or off medication			Intermittent patterns	20/80-20/100 in better eye. 90° total visual field. Stable pathology			
9			Unpredict-able symptoms	Temporary impairment	Not used		Variable symptoms	Intermittant use; driving only with licensed driver restrictions apply	20/80-20/100 in better eye. 90° total visual field. Unstable pathology	Requiring assistance	Accompanied by licensed driver	
10	Special circumstances - See Guidelines and Standards for each category											
11	Under evaluation c.											
12	No driving											

a. Level should be followed by suffix if indicated: C = Visual Correction. CPD = Compensating Personal Device used. CSA = Compensating Standard Accessory used. CNA = Compensating Non-standard Accessory used. For example, a person who has a visual acuity of 20/40 in better eye with glasses would have a Category I Profile Level of 4-C. A person needing hand controls might be given a Category K level of 4-P-CNA, which might be changed to 5-CNA by a driving examiner, based upon actual performance in driving.

b. For commercial drivers see appropriate section of **Functional Ability In Driving: Guidelines And Standards For Health Care Professionals.**

c. For other considerations, see appropriate section of **Functional Ability In Driving: Guidelines And Standards For Health Care Professionals.**

FOR USE AS AN OVERVIEW ONLY

Appendix C. Matching Programs: Crash to License and Death Certificate to License

Program to Match Crashes to Driver License

```
PROGRAM GEOMATCH
;
DICTA CRASH
DICTB MAST
;
BLOCK1 CHAR LIC_NO LIC_NO
;
MATCH1 ARRAY UNCERT LNAME LNAME 0.9 0.01 700
MATCH1 ARRAY UNCERT FNAME FNAME 0.9 0.01 700
MATCH1 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH1 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH1 CHAR SEX SEX 0.9 0.5
;
BLOCK2 CHAR LN_SDX LN_SDX1
BLOCK2 CHAR FN_SDX FN_SDX1
BLOCK2 CHAR DOB DOB
;
MATCH2 ARRAY UNCERT LNAME LNAME 0.9 0.01 700
MATCH2 ARRAY UNCERT FNAME FNAME 0.9 0.01 700
MATCH2 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH2 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH2 CHAR SEX SEX 0.9 0.5
MATCH2 CNT_DIFF LIC_NO LIC_NO 0.9 0.01 1
;
BLOCK3 CHAR LN_SDX LN_SDX2
BLOCK3 CHAR FN_SDX FN_SDX2
BLOCK3 CHAR DOB DOB
;
MATCH3 ARRAY UNCERT LNAME LNAME 0.9 0.01 700
MATCH3 ARRAY UNCERT FNAME FNAME 0.9 0.01 700
MATCH3 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH3 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH3 CHAR SEX SEX 0.9 0.5
MATCH3 CNT_DIFF LIC_NO LIC_NO 0.9 0.01 1
;
BLOCK4 CHAR LN_SDX LN_SDX3
BLOCK4 CHAR FN_SDX FN_SDX3
BLOCK4 CHAR DOB DOB
;
MATCH4 ARRAY UNCERT LNAME LNAME 0.9 0.01 700
MATCH4 ARRAY UNCERT FNAME FNAME 0.9 0.01 700
MATCH4 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH4 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH4 CHAR SEX SEX 0.9 0.5
MATCH4 CNT_DIFF LIC_NO LIC_NO 0.9 0.01 1
;
BLOCK5 CHAR LN_SDX LN_SDX1
BLOCK5 CHAR FN_SDX FN_SDX1
BLOCK5 CHAR STATE STATE
;
MATCH5 ARRAY UNCERT LNAME LNAME 0.9 0.01 700
MATCH5 ARRAY UNCERT FNAME FNAME 0.9 0.01 700
MATCH5 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH5 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH5 CHAR SEX SEX 0.9 0.5
MATCH5 CNT_DIFF LIC_NO LIC_NO 0.9 0.01 3
;
BLOCK6 CHAR LN_SDX LN_SDX2
BLOCK6 CHAR FN_SDX FN_SDX2
BLOCK6 CHAR STATE STATE
;
MATCH6 ARRAY UNCERT LNAME LNAME 0.9 0.01 700
MATCH6 ARRAY UNCERT FNAME FNAME 0.9 0.01 700
```

```
MATCH6 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH6 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH6 CHAR SEX SEX 0.9 0.5
MATCH6 CNT_DIFF LIC_NO LIC_NO 0.9 0.01 3
;
BLOCK7 CHAR LN_SDX LN_SDX3
BLOCK7 CHAR FN_SDX FN_SDX3
BLOCK7 CHAR STATE STATE
;
MATCH7 ARRAY UNCERT LNAME LNAME 0.9 0.01 700
MATCH7 ARRAY UNCERT FNAME FNAME 0.9 0.01 700
MATCH7 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH7 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH7 CHAR SEX SEX 0.9 0.5
MATCH7 CNT_DIFF LIC_NO LIC_NO 0.9 0.01 3
;
BLOCK8 CHAR DOB DOB
BLOCK8 CHAR STATE STATE
;
MATCH8 ARRAY UNCERT LNAME LNAME 0.9 0.01 700
MATCH8 ARRAY UNCERT FNAME FNAME 0.9 0.01 700
MATCH8 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH8 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH8 CHAR SEX SEX 0.9 0.5
MATCH8 CNT_DIFF LIC_NO LIC_NO 0.9 0.01 3
;
CUTOFF1 0 -10 0
CUTOFF2 25 13 25
CUTOFF3 30 20 30
CUTOFF4 40 10 40
CUTOFF5 39 34.5 40
CUTOFF6 40 20 40
CUTOFF7 40 20 40
CUTOFF8 30 23 40
;
```

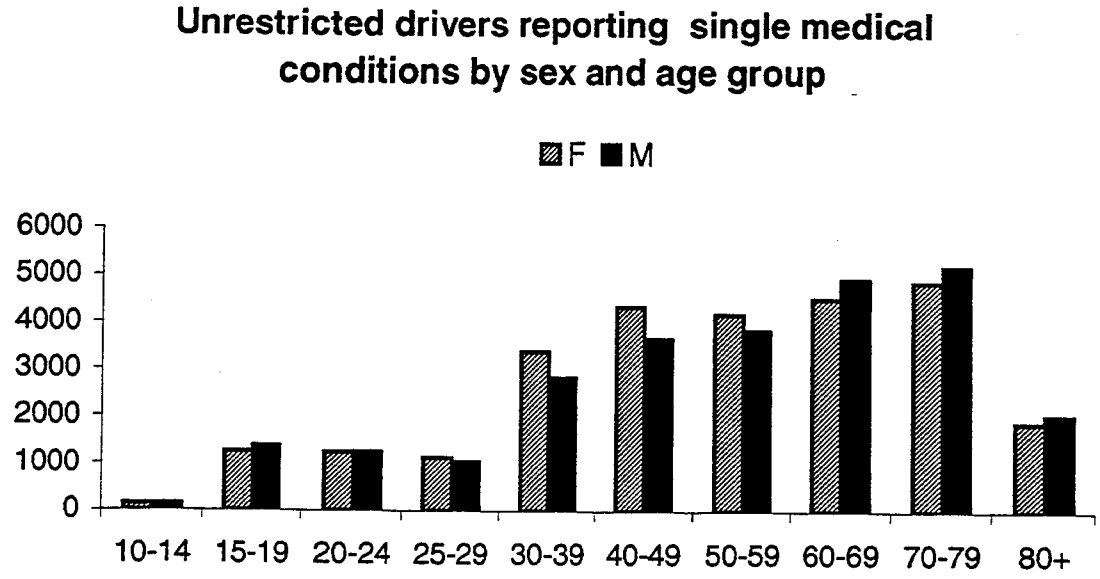
Program to Match Death Certificate to Driver License

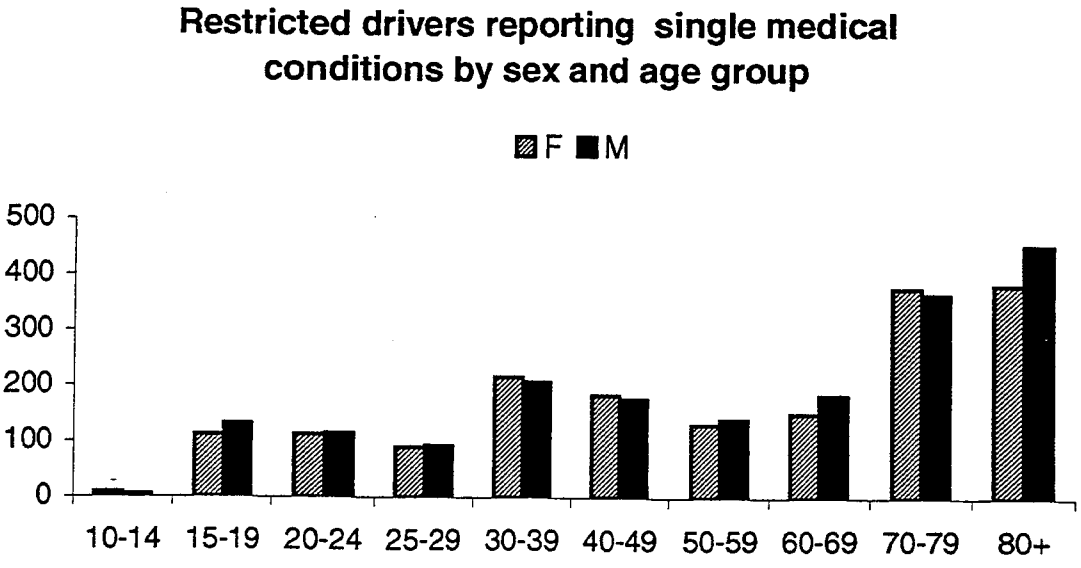
```
PROGRAM MATCH
;
DICTA FT
DICTB MAST
;
BLOCK1 CHAR SSN SSN
BLOCK1 CHAR SEX SEX
;
MATCH1 ARRAY UNCERT LNAME_A LNAME_A 0.9 0.01 700
MATCH1 ARRAY UNCERT FNAME_A FNAME_A 0.9 0.01 700
MATCH1 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH1 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH1 CHAR SEX SEX 0.9 0.5
MATCH1 UNCERT CITY CITY 0.9 0.05 700
MATCH1 CHAR STATE STATE 0.9 0.1
MATCH1 CNT_DIFF ZIP ZIP 0.9 0.1 1
;
BLOCK2 CHAR LN_SDX LN_SDX
BLOCK2 CHAR FN_SDX FN_SDX
BLOCK2 CHAR DOB DOB
;
MATCH2 ARRAY UNCERT LNAME_A LNAME_A 0.9 0.01 700
MATCH2 ARRAY UNCERT FNAME_A FNAME_A 0.9 0.01 700
MATCH2 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH2 CNT_DIFF SSN SSN 0.9 0.01 2
MATCH2 CNT_DIFF SSN2 SSN2 0.9 0.01 2
MATCH2 CHAR SEX SEX 0.9 0.5
MATCH2 UNCERT CITY CITY 0.9 0.05 700
MATCH2 CHAR STATE STATE 0.9 0.1
MATCH2 CNT_DIFF ZIP ZIP 0.9 0.1 1
;
BLOCK3 CHAR DOB DOB
```

```
BLOCK3 CHAR FN_SDX FN_SDX
BLOCK3 CHAR SEX SEX
;
MATCH3 ARRAY UNCERT LNAME_A LNAME_A 0.9 0.01 700
MATCH3 ARRAY UNCERT FNAME_A FNAME_A 0.9 0.01 700
MATCH3 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH3 CNT_DIFF SSN SSN 0.9 0.01 2
MATCH3 CNT_DIFF SSN2 SSN2 0.9 0.01 2
MATCH3 UNCERT CITY CITY 0.9 0.05 700
MATCH3 CHAR STATE STATE 0.9 0.1
MATCH3 CNT_DIFF ZIP ZIP 0.9 0.1 1
;
BLOCK4 CHAR SSN2 SSN2
;
MATCH4 ARRAY UNCERT LNAME_A LNAME_A 0.9 0.01 700
MATCH4 ARRAY UNCERT FNAME_A FNAME_A 0.9 0.01 700
MATCH4 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH4 CNT_DIFF DOB DOB 0.9 0.01 1
MATCH4 CHAR SEX SEX 0.9 0.5
MATCH4 UNCERT CITY CITY 0.9 0.05 700
MATCH4 CHAR STATE STATE 0.9 0.1
MATCH4 CNT_DIFF ZIP ZIP 0.9 0.1 1
;
BLOCK5 CHAR LN_SDX LN_SDX
BLOCK5 CHAR FN_SDX FN_SDX
;
MATCH5 UNCERT LNAME LNAME 0.9 0.01 700
MATCH5 ARRAY UNCERT FNAME_A FNAME_A 0.9 0.01 700
MATCH5 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH5 CNT_DIFF SSN SSN 0.9 0.01 2
MATCH5 CNT_DIFF SSN2 SSN2 0.9 0.01 2
MATCH5 UNCERT CITY CITY 0.9 0.05 700
MATCH5 CHAR STATE STATE 0.9 0.1
MATCH5 CHAR SEX SEX 0.9 0.5
MATCH5 CNT_DIFF ZIP ZIP 0.9 0.1 1
MATCH5 CNT_DIFF DOB DOB 0.9 0.01 2
;
BLOCK6 CHAR LN_SDX LN_SDX2
BLOCK6 CHAR FN_SDX FN_SDX
;
MATCH6 UNCERT LNAME LNAME2 0.9 0.01 700
MATCH6 ARRAY UNCERT FNAME_A FNAME_A 0.9 0.01 700
MATCH6 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH6 CNT_DIFF SSN SSN 0.9 0.01 2
MATCH6 CNT_DIFF SSN2 SSN2 0.9 0.01 2
MATCH6 UNCERT CITY CITY 0.9 0.05 700
MATCH6 CHAR STATE STATE 0.9 0.1
MATCH6 CHAR SEX SEX 0.9 0.5
MATCH6 CNT_DIFF ZIP ZIP 0.9 0.1 1
MATCH6 CNT_DIFF DOB DOB 0.9 0.01 2
;
BLOCK7 CHAR LN_SDX LN_SDX3
BLOCK7 CHAR FN_SDX FN_SDX
;
MATCH7 UNCERT LNAME LNAME3 0.9 0.01 700
MATCH7 ARRAY UNCERT FNAME_A FNAME_A 0.9 0.01 700
MATCH7 ARRAY CHAR MINIT MINIT 0.9 0.1
MATCH7 CNT_DIFF SSN SSN 0.9 0.01 2
MATCH7 CNT_DIFF SSN2 SSN2 0.9 0.01 2
MATCH7 UNCERT CITY CITY 0.9 0.05 700
MATCH7 CHAR STATE STATE 0.9 0.1
MATCH7 CHAR SEX SEX 0.9 0.5
MATCH7 CNT_DIFF ZIP ZIP 0.9 0.1 1
MATCH7 CNT_DIFF DOB DOB 0.9 0.01 2
;
BLOCK8 CHAR LN_SDX LN_SDX
BLOCK8 CHAR FN_SDX FN_SDX
;
MATCH8 ARRAY UNCERT LNAME_A LNAME_A 0.9 0.01 700
MATCH8 ARRAY UNCERT FNAME_A FNAME_A 0.9 0.01 700
MATCH8 ARRAY CHAR MINIT MINIT 0.9 0.1
```

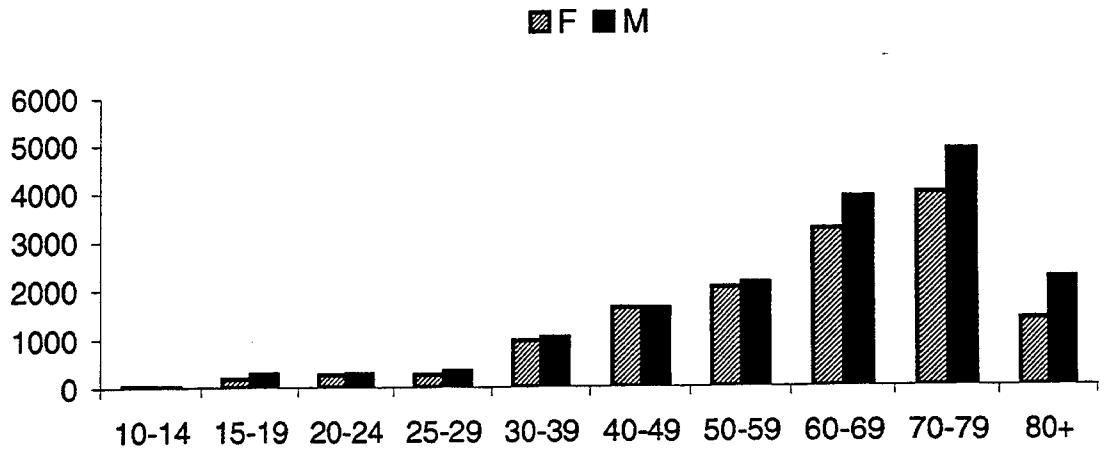
```
MATCH8 CNT_DIFF SSN SSN 0.9 0.01 2
MATCH8 CNT_DIFF SSN2 SSN2 0.9 0.01 2
MATCH8 UNCERT CITY CITY 0.9 0.05 700
MATCH8 CHAR STATE STATE 0.9 0.1
MATCH8 CHAR SEX SEX 0.9 0.5
MATCH8 CNT_DIFF ZIP ZIP 0.9 0.1 1
MATCH8 CNT_DIFF DOB DOB 0.9 0.01 2
;
CUTOFF1 10 0 10
CUTOFF2 10 0 10
CUTOFF3 32 10 32
CUTOFF4 10 0 10
CUTOFF5 40 10 40
CUTOFF6 40 10 40
CUTOFF7 40 10 40
CUTOFF8 40 10 40
;
```
vartype dob critical missingok

Appendix D. Drivers by Functional Ability Category, Age Group, Sex and Restriction Status

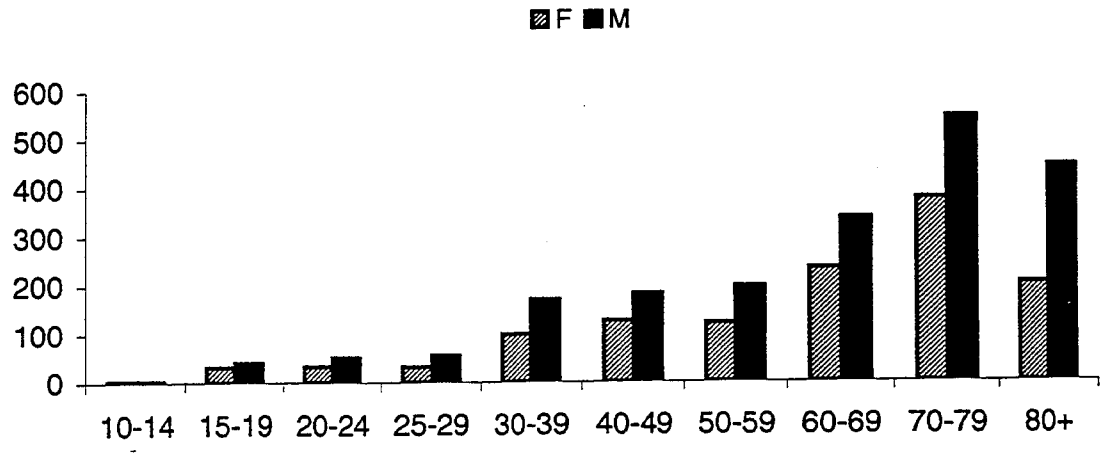




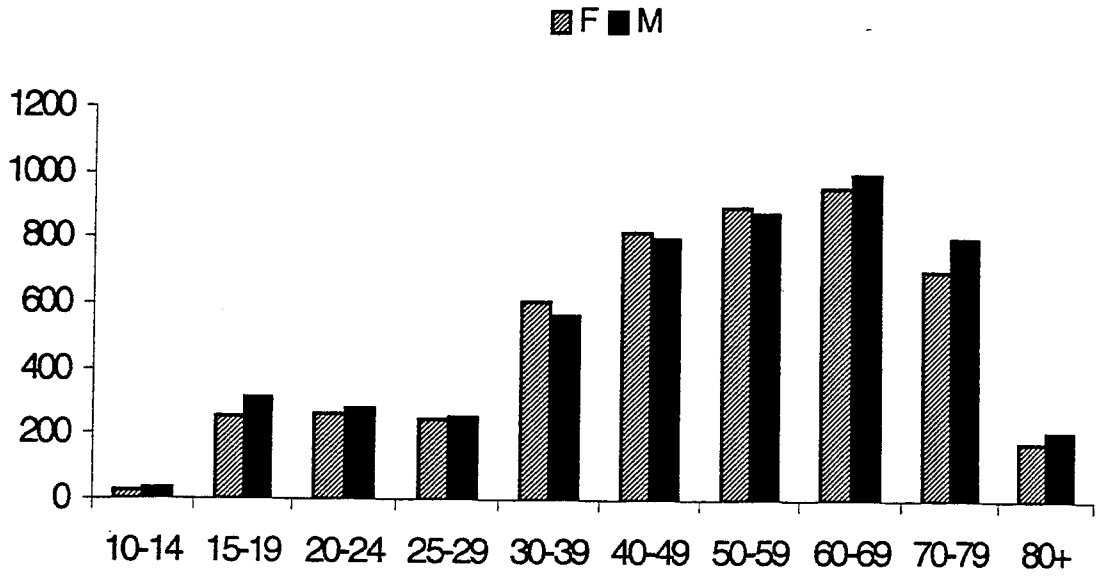
Unrestricted drivers reporting multiple medical conditions by sex and age group



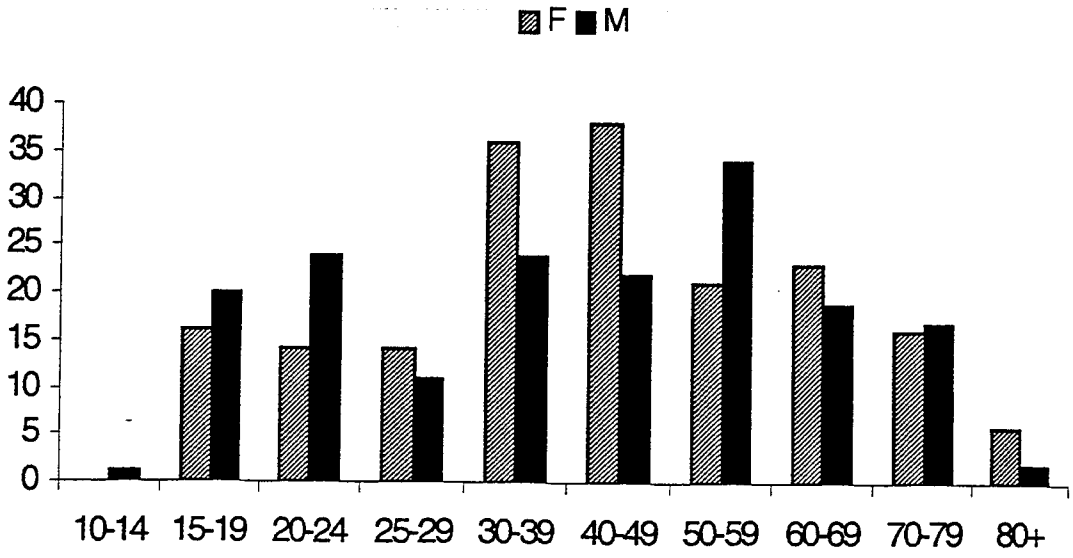
Restricted drivers reporting multiple medical conditions by sex and age group



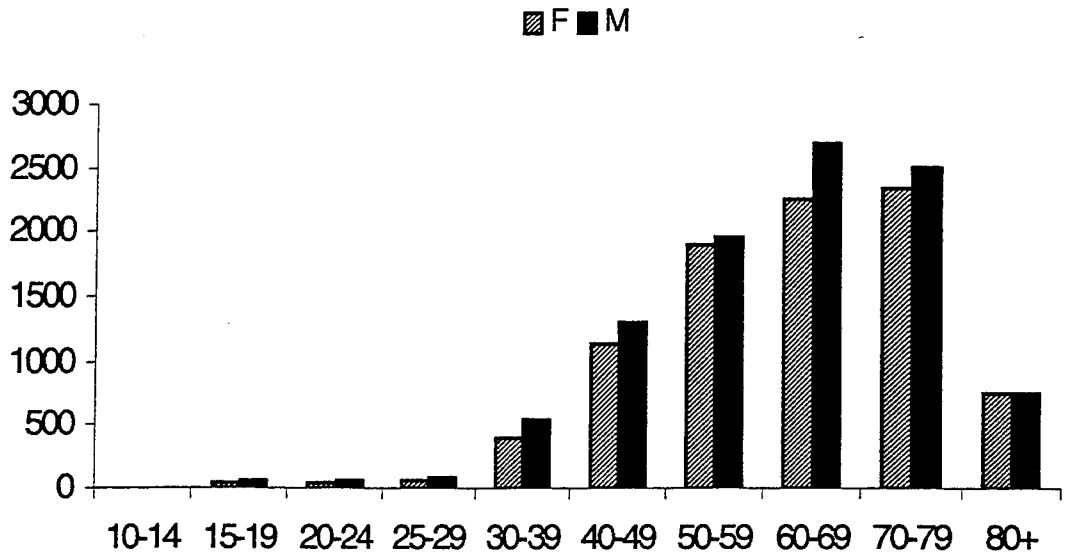
Unrestricted drivers with diabetic and other metabolic conditions by sex and age group



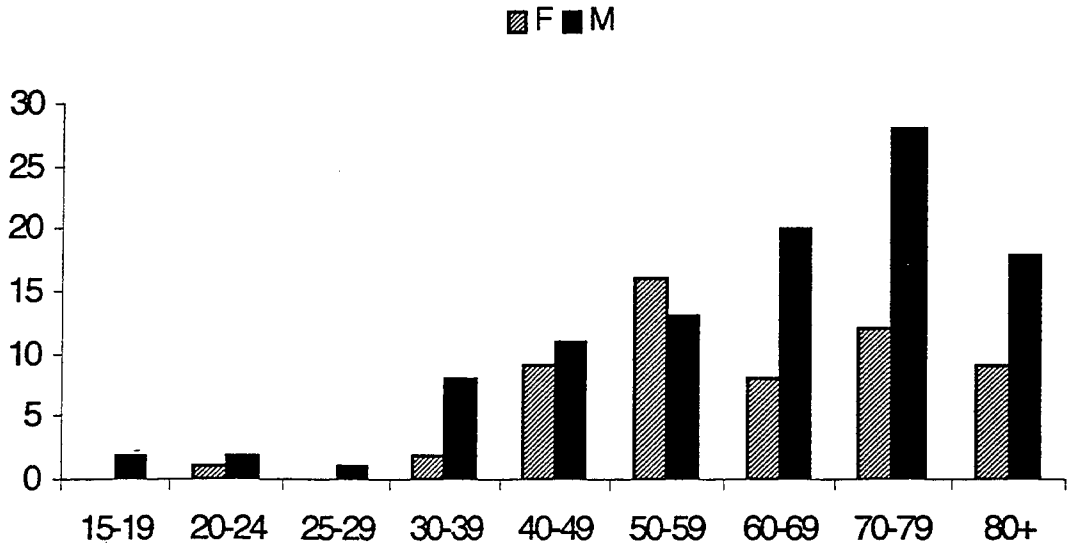
Resticted drivers with diabetic and other metabolic conditions by sex and age group



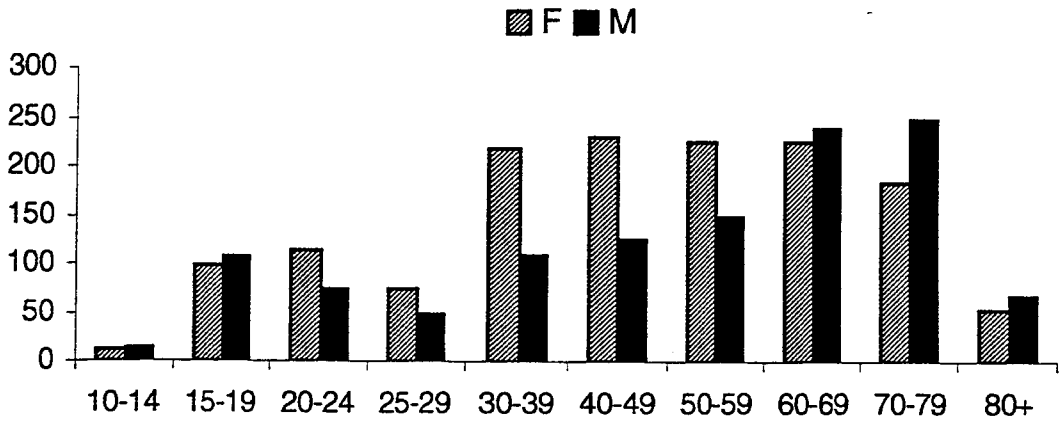
Unrestricted drivers with cardiovascular conditions by sex and age group



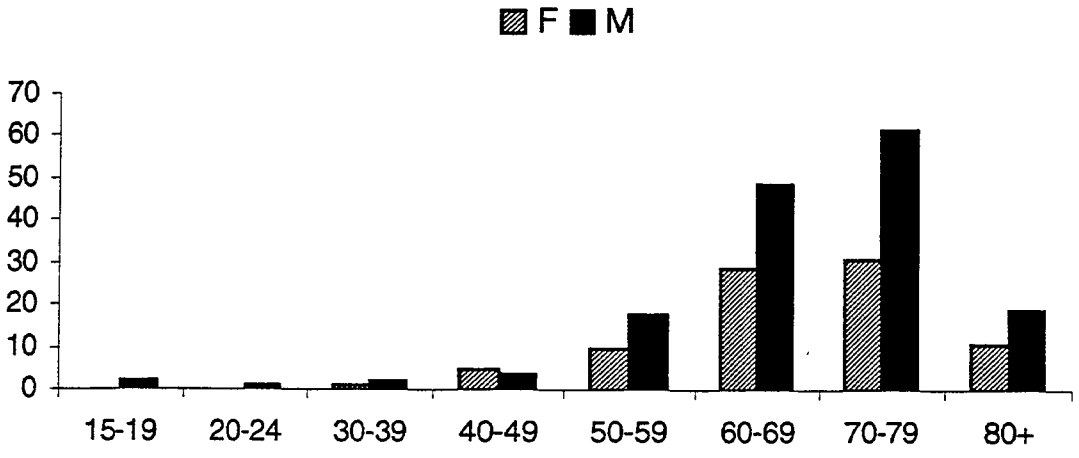
Restricted drivers with cardiovascular conditions by sex and age group



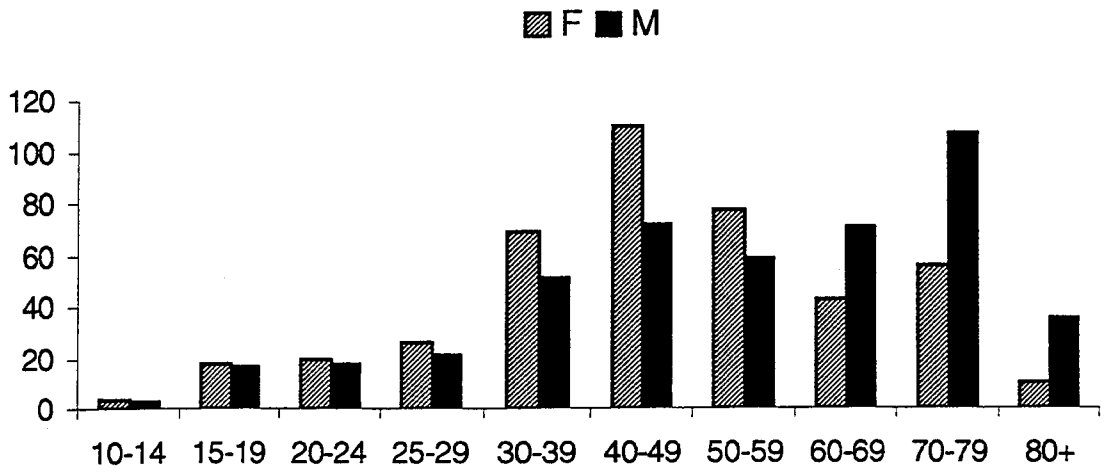
Unrestricted drivers reporting pulmonary conditions by sex and age group



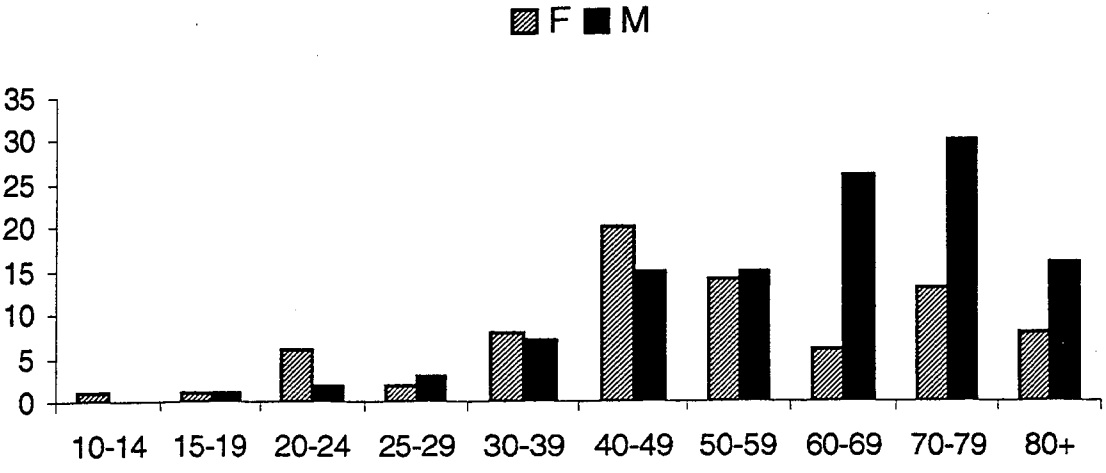
Restricted drivers reporting pulmonary conditions by sex and age group



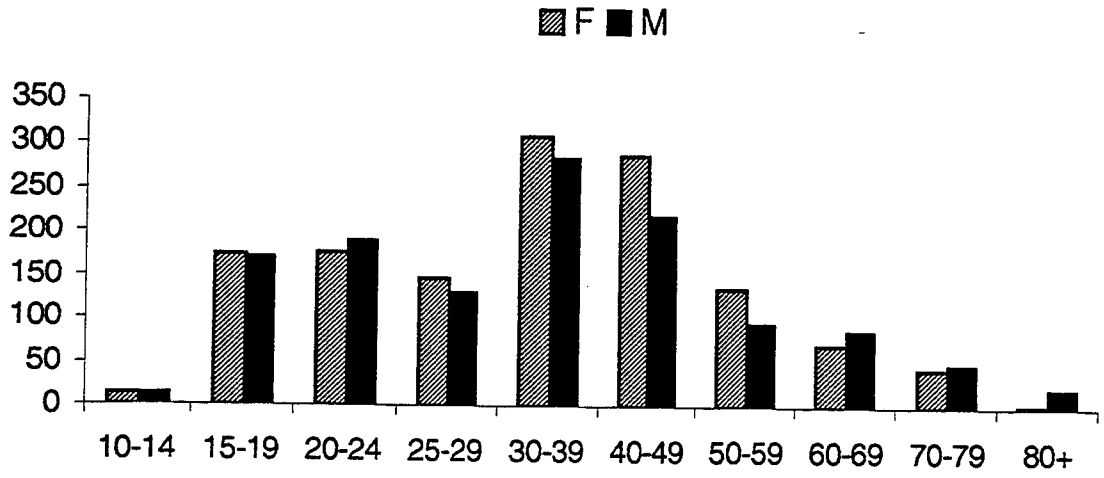
Unrestricted drivers reporting neurological conditions by sex and age group



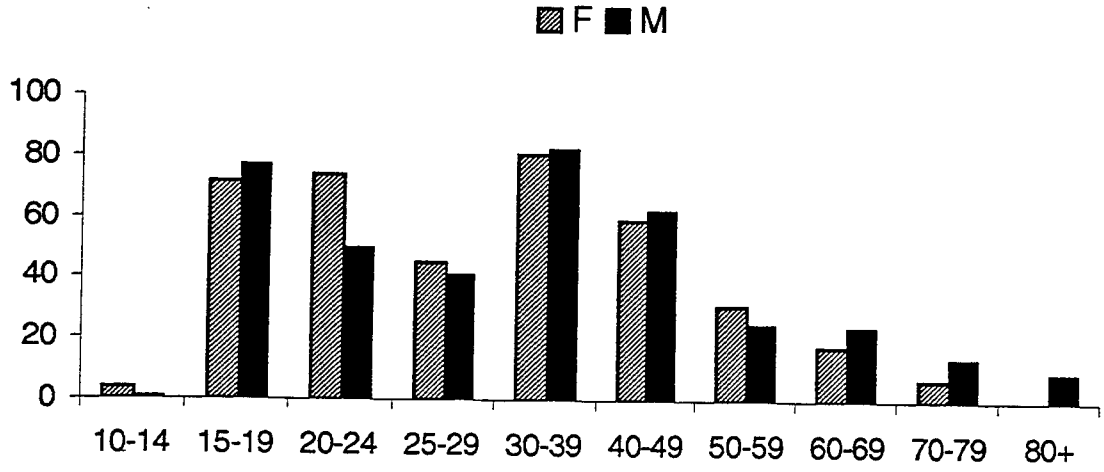
Restricted drivers reporting neurological conditions by sex and age group



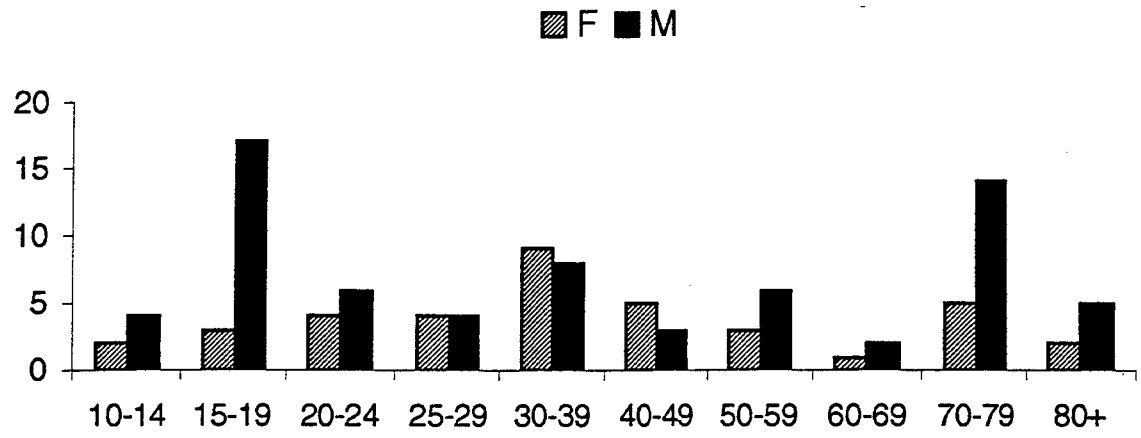
Unrestricted drivers reporting epilepsy or other episodic conditions by sex and age group



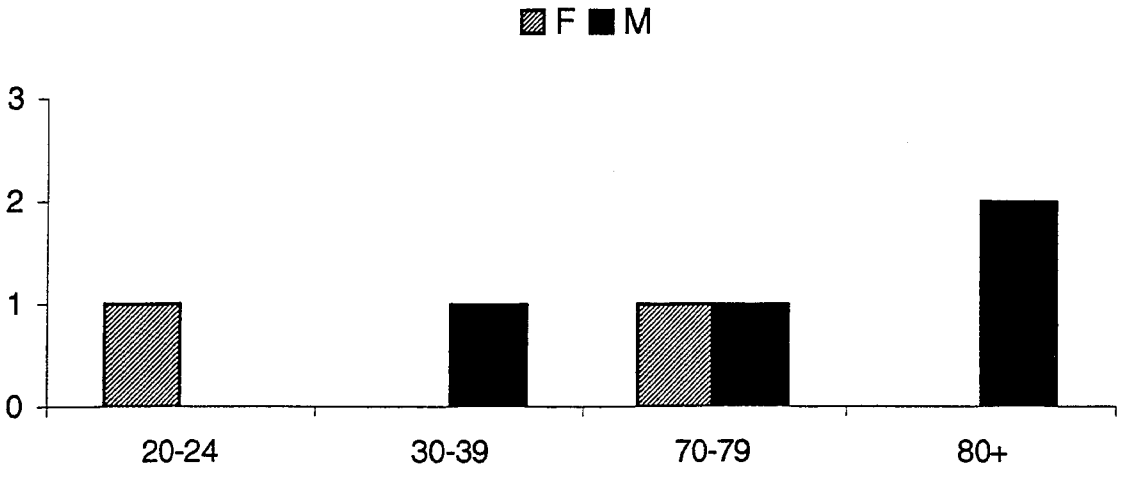
Restricted drivers reporting epilepsy or other episodic conditions by sex and age group



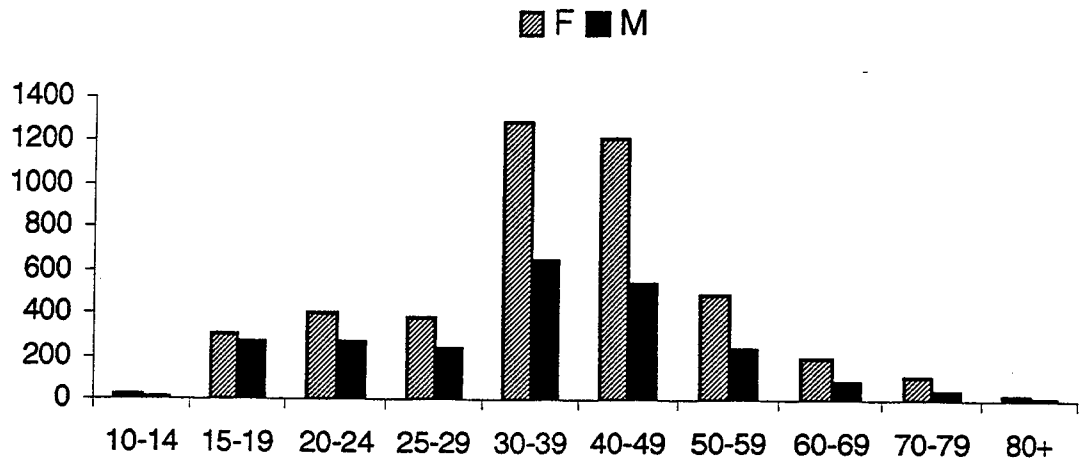
Unrestricted drivers reporting learning, memory, or communication disorders by sex and age group



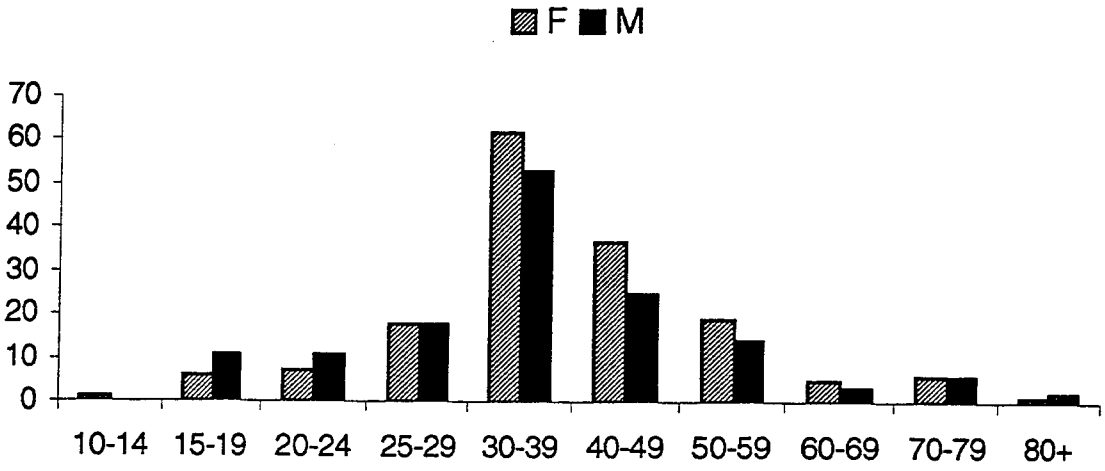
Restricted drivers reporting learning, memory or communciaton disorders by sex and age group



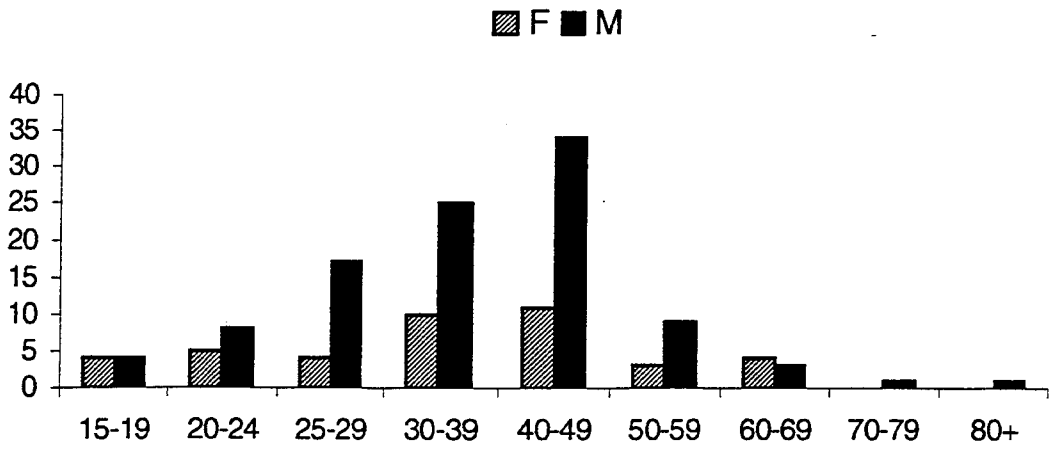
Unrestricted drivers reporting psychiatric and emotional conditions by sex and age group



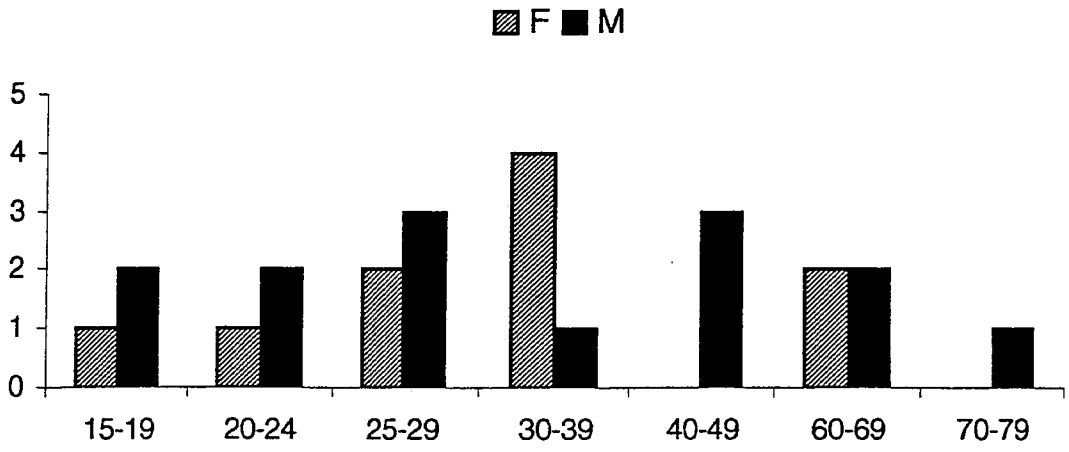
Restricted drivers reporting psychiatric and emotional conditions by sex and age group



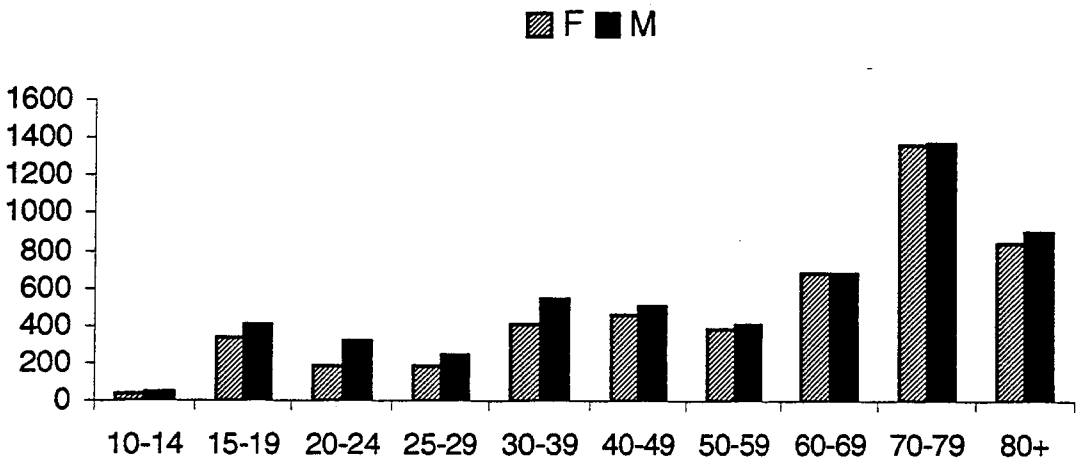
Unrestricted drivers reporting alcohol and other drug conditions by sex and age group



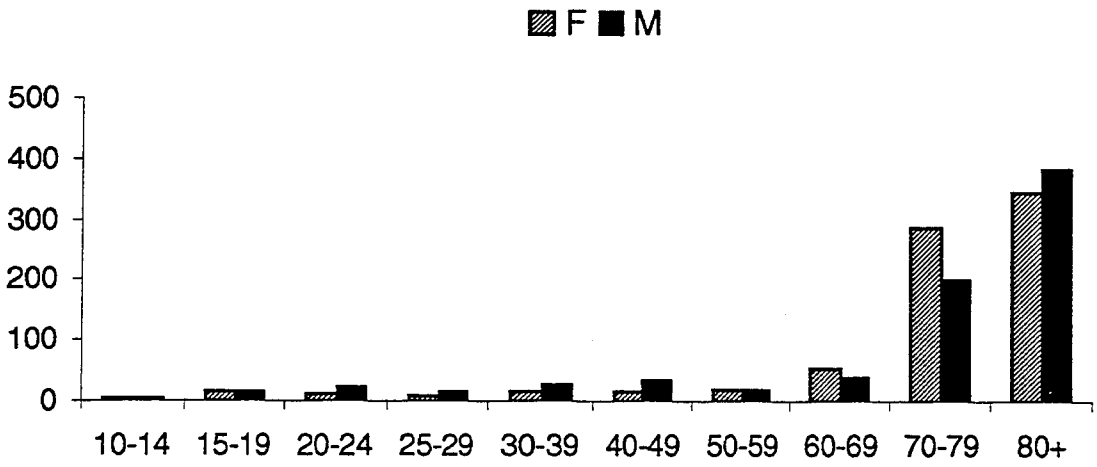
Restricted drivers reporting alcohol and other drug conditions by sex and age group



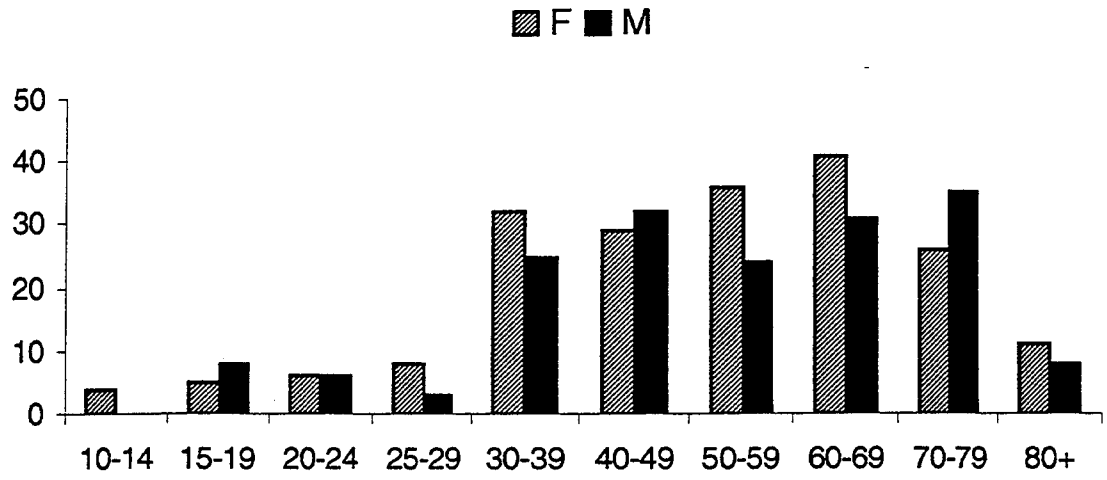
Unrestricted drivers reporting vision conditions by sex and age group



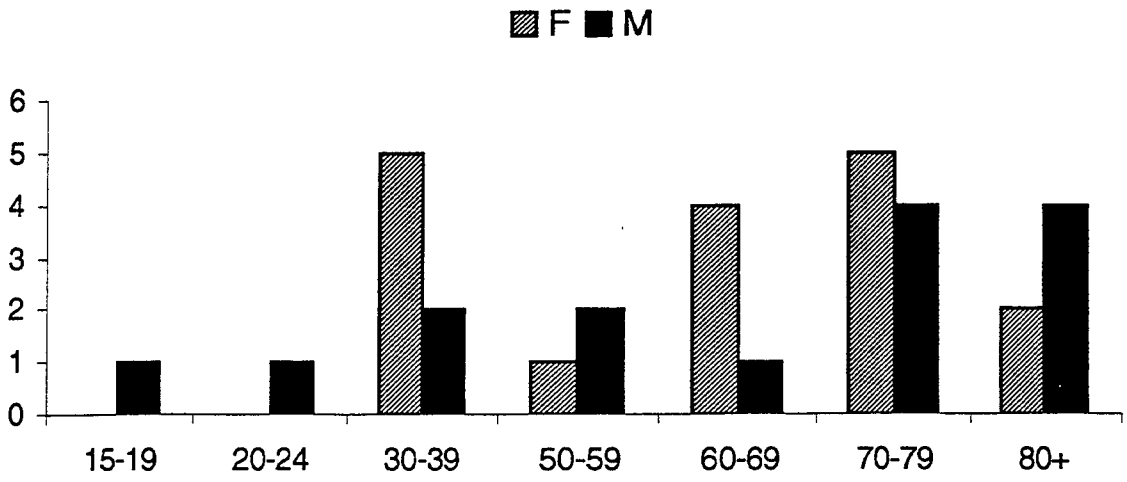
Restricted drivers reporting vision conditions by sex and age group



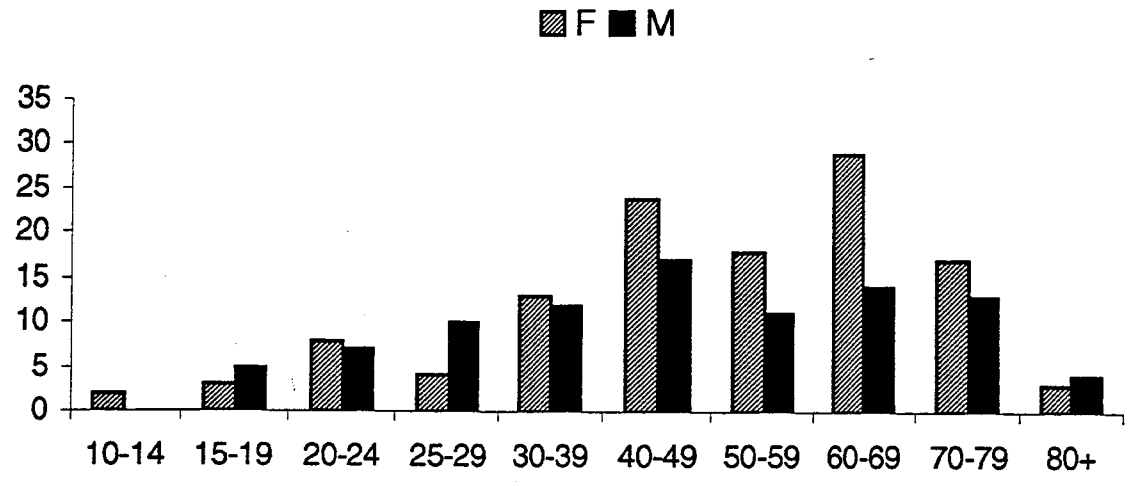
Unrestricted drivers reporting musculoskelatal or other chronic medical debilities by sex and age group



Restricted drivers reporting musculoskelatal or other chronic medical debilities by sex and age group



Unrestricted drivers reporting functional motor impairment by sex and age group



Restricted drivers reporting functional motor impairment by sex and age group