



DEPARTMENT OF TRANSPORTATION

DIVISION OF MOTOR VEHICLES

RALEIGH, NORTH CAROLINA

STUDY TO ELIMINATE NURSES IN MEDICAL REVIEW PROGRAM

S.L. 2017-58 §34.36.(a) and (b)

DECEMBER 2017



EXECUTIVE SUMMARY

PURPOSE

To determine the feasibility of utilizing only the health care provider (HCP) recommendation in determination of a customer's ability to safely operate a motor vehicle, the North Carolina Division of Motor Vehicles (NCDMV) conducted a study to compare the recommendations between the reviewing health care provider and the division's nurse consultants.

BACKGROUND

This study was conducted by the NCDMV to address sections 34.36.(a) and (b) of Session Law 2017-57 passed by the North Carolina General Assembly in July 2017.

FINDINGS

With respect to customers whose driving privilege is evaluated by the medical review program, the NCDMV has identified the following major findings and recommendations in conducting this study:

- The NCDMV is the only entity able to view the whole presentation of the customer's knowledge and road test performance, driving status, crash history, existing restrictions, and health status.
- 31% of health care providers do not offer recommendation with respect to driving privilege, thus introducing inconsistency in provider-based recommendation.
- 39% of the NCDMV nurse reviewers were more favorable to customers by applying restrictions appropriate to their driving ability vs. categorically recommending license cancellation.
- A comprehensive set of driving privilege restrictions permit increased attention to public safety and customer service by addressing the customer's unique situation.
- The existing technology infrastructure cannot be extended to permit health care providers to enter driving restrictions or recommendations without continued utilization of NCDMV resources.
- The complexities with implementing a health care provider only recommendation would need significant risk planning, policy consideration, and third-party participation for a successful outcome.

RECOMMENDATIONS

- As the only comprehensive customer-reviewing entity, the NCDMV should continue the current process of utilizing on-staff nurse reviewers to determine restriction or driving privilege.
- A follow-on study should be performed with appropriate health care industry representatives, such as the North Carolina Medical Board, and state transportation research entities, such as the Highway Safety Research Center and the Institute for Transportation Research and Education, to increase program efficacy towards improved safety and customer service.

This study uses the common term "customer" to represent all forms of interaction with the NCDMV, to include applicant, licensee, driver, or any other type of dealing.

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BACKGROUND

NCDMV MEDICAL REVIEW PROGRAM

Under the authority of G.S. §20-7.(e) and §20-9.(e) and (g), the NCDMV established the Medical Review Program (MRP) with timely review and evaluation of customer driving privileges according to available medical information, driving and crash history, and vehicle operations. Customer referrals may be received from a variety of sources such as, multiple private physicians, family, friends, as a part of a crash report, or from driver license examiners based on their observation of the customer during testing. The program staff are responsible for evaluation and assessment of a customer health condition to determine if it poses a safety risk to oneself or others when operating a motor vehicle. Of the current 11 permanent and eight temporary personnel on staff, there are nurses, administrative support staff, medical hearing officers, and a medical doctor who oversees the unit. A medical doctor provides program oversight and serves as a medical resource to the nurse consultants.

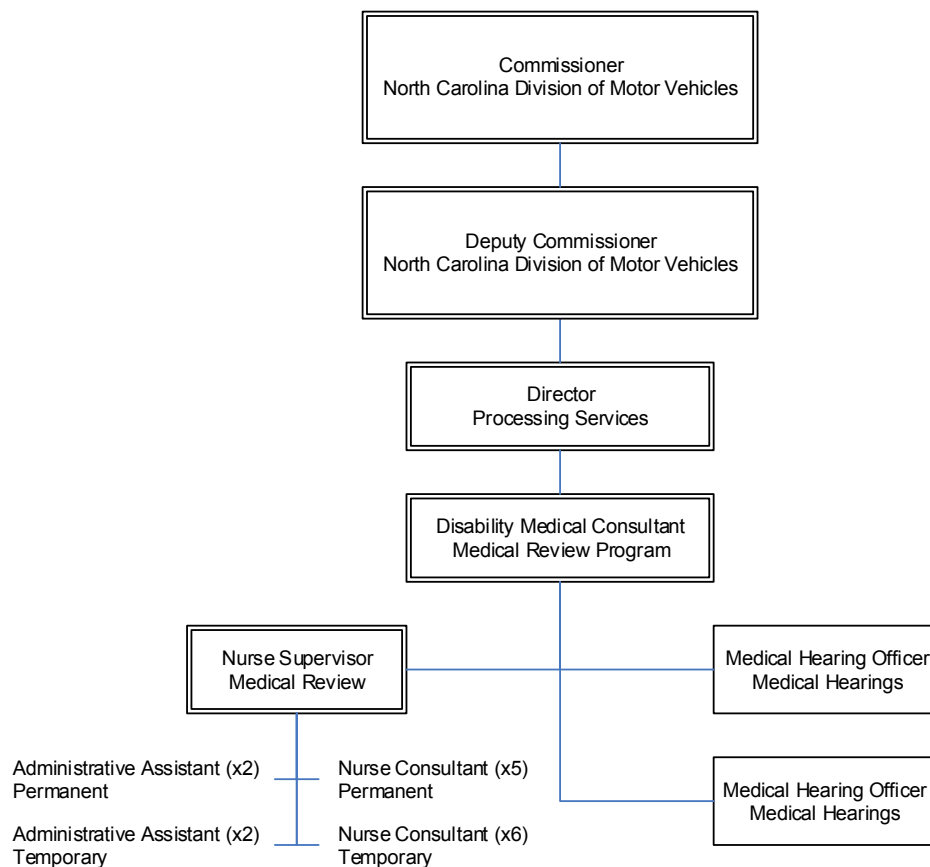


Figure 1: Current Medical Review Program Organization

BACKGROUND

MEDICAL REVIEW PROGRAM COST CONSIDERATIONS

Current program costs consider a blend of recurring and non-recurring costs. Permanent costs include staff positions, equipment, and supplies. The non-recurring costs are associated with temporary staff positions that were funded through expansion budget requests expiring with this current fiscal year.

CATEGORY	COST
Permanent Labor Cost	\$993,000
Temporary Labor Cost ¹	\$722,000
Equipment Cost	\$7,900
Office Supply Cost	\$19,900
Total	\$1,742,800

Table 1: Current SFY2018 MRP Costs

CATEGORY	COST
Permanent Labor Cost	\$993,000
Temporary Labor Cost ²	\$372,000
Equipment Cost	\$7,900
Office Supply Cost	\$19,900
Total	\$1,392,800

Table 2: Estimated SFY2019 MRP Cost

GENERAL PROCESS OVERVIEW

Once a customer is referred to the program, a reviewing nurse in the Medical Review Program requests medical information from the customer's health care provider; the provider is also asked to offer a recommendation regarding the customer's ability to safely operate a motor vehicle. Statute does not currently require a health care provider to offer recommendation; it is optional.

¹ A portion of the temporary labor costs associated with nurse consultants is only funded through the end SFY2018.

² Temporary costs for SFY2019 are appropriated based on "A dedicated source of funding is required for the NC Division of Motor Vehicles' Medical Review Unit, which provides mandated services set by GS 20-9. The funding will be used to contract physicians for the purposes of case reviews and Medical Review Board Hearings for individuals with physical or mental disabilities. The proposed recommendation of \$350,000 is a 1,571% increase over the current budget for this area of \$22,281." This is supported by *The Governor's North Carolina State Budget, Recommended Adjustments*, for 2014-2015, and *The Joint Conference Committee Report on the Continuation, Expansion, and Capital Budgets*, for SB744.

After review of medical information and the recommendation from a customer's health care provider, an NCDMV reviewing nurse drafts a findings-of-fact statement and makes a determination regarding driving privileges. The outcome may be:

1. Permit the customer to keep driving with no program enrollment;
2. Upon enrollment, permit the customer to keep driving with restrictions on the license;
3. Upon periodic review, permit the customer to keep driving with existing restrictions or place additional restrictions on the license; or
4. Cancel the customer's driving privilege and driver license with program retention and reevaluation upon a change in health status.

If a customer disagrees with this initial decision of the Medical Review Program, an appeal to the medical review board (MRB) may be made. The board has final authority to affirm, modify, or repeal the decision. The medical review board is comprised of one NCDMV hearing officer and two physicians contracted by the Division. This board meets one or two times per month to review customer appeals. A customer may also appeal the decision of the medical review board to superior court.

Periodic changes to process or procedure do occur when efficiency improvements are introduced, or when required by statute or a type of legal settlement. Refer to Appendix A for information on the recent North Carolina Disability Rights consent judgement.

BACKGROUND

GENERAL OVERVIEW OF MEDICAL REVIEW PROCESS

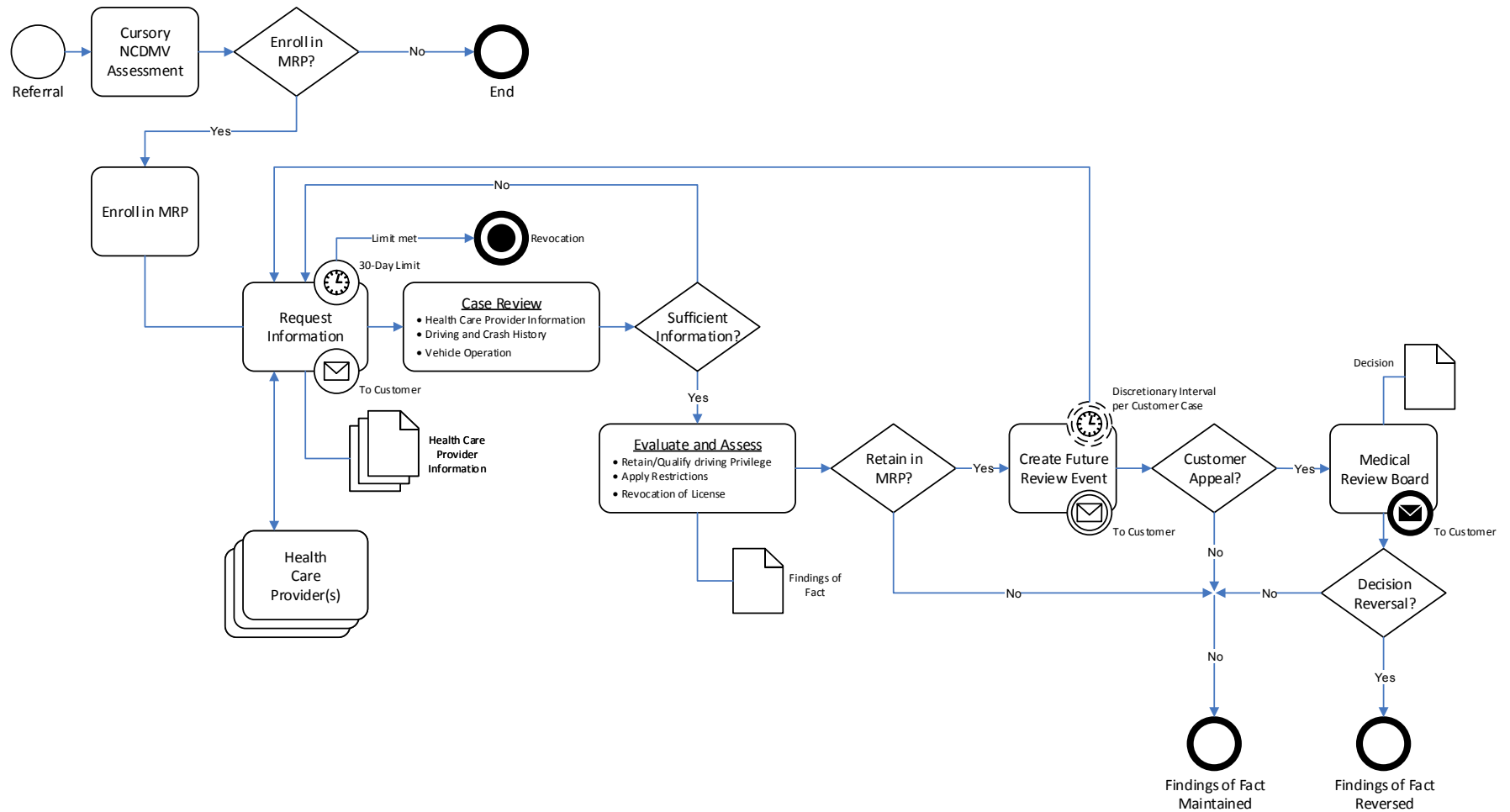


Figure 2: Medical Review Process



NURSE STUDY

METHODOLOGY

Two types of studies were conducted: an internal NCDMV study to compare the findings and recommendations of the NCDMV nurse reviewers against those of the customer's health care provider, and an external survey distributed via the American Association of Motor Vehicle Administrators (AAMVA).³ The first was to understand if a relationship exists in the outcome of NCDMV nurse reviewers and health care provider recommendations; the latter to develop increased awareness of other jurisdictional practices.

INTERNAL – NCDMV

This internal study followed a strict scientific methodology of a randomized double-blind process to ensure no bias in sample selection. One hundred random customers were selected from amongst multiple queues that the Medical Review Program uses to prioritize cases.

QUEUE	QUEUE DESCRIPTION
MEGEN	General cases
MHEAD	Seizure cases
MEYE	Vision cases
MEHARD	Customer currently being monitored with follow-up
MERUSH	High priority, with ≤3-day turnaround

Table 3: Data Queues Sampled

Choosing samples from multiple queues minimizes the possibility of results being skewed by a specific health condition. Also, different NCDMV nurses work from different queues further reducing potential bias due to a specific reviewer's selection. Since this information is already collected and maintained by the division, it naturally lent itself for use in this study as both regular work and sample data.

To ensure a truly random study and improve upon the double-blind method, NCDMV nurses were not informed that their reviews would be utilized by the study; this prevented any potential alteration of findings or decisions. After sample selection, two different nurses tabulated the raw data, with a different person, who neither determined findings nor produced decision, combining it for

³ AAMVA is a tax-exempt, nonprofit organization developing model programs in motor vehicle administration, law enforcement, and highway safety. The association also serves as an information clearinghouse in these areas, and acts as the international spokesperson for these interests. More information may be found at www.aamva.org.

NURSE STUDY

interpretation. Utilizing this method, the study prevented selection and confirmation bias by employing a type of prospective analysis since the cases had not yet been reviewed.

NCDMV Medical Review Program Sample Data

From the 100 sample customers, conclusions were drawn on three areas that compared the health care provider's response to that of an NCDMV reviewing nurse. A description of data may be understood in Appendix B.

1. Regarding the number of health care providers that gave a specific recommendation for a customer's ability to safely operate a motor vehicle:

NUMBER OF HCP REQUESTS	NUMBER OF HCP RESPONSES
100	69

2. Regarding the number of customers whose health care provider recommendation did not match the NCDMV reviewing nurse's recommendation:

NUMBER OF HCP RESPONSES	NUMBER OF HCP RESPONSES NOT MATCHING NCDMV REVIEW
69	28

3. Regarding the 28 non-matching responses, between the health care provider and the NCDMV nurse reviewer, for a customer's ability to safely operate a motor vehicle:

	HEALTH CARE PROVIDER	NCDMV ⁴
Outcome in favor of customer to continue driving	17	11

⁴ The implication of these findings is that only NCDMV has the capability to fully and comprehensively review a customer's health position, as it relates to safely operating a motor vehicle, either with restrictions or through license cancellation.

EXTERNAL – AAMVA SURVEY

Another component of this study was to compare the NCDMV process regarding the recommendations of health care providers with that of other states credentialing authority. For this part, the NCDMV collaborated with AAMVA to produce a survey instrument. The survey was developed by the NCDMV and deployed for response by AAMVA members via their survey tool⁵. AAMVA administered the survey, compiled responses, and forwarded results to NCDMV.

AAMVA Survey Results

The survey was posted to the AAMVA website from July 28 through August 28, 2017. All AAMVA member jurisdictions had opportunity to respond, of which 32 of 50 states provided feedback. Individual state survey responses may be reviewed in Appendix C.

QUESTION	NCDMV	RESPONSES			
		YES	NO	STATES WITH BOTH YES AND NO ⁶	NO RESPONSE TO QUESTION
Q1 - States requesting submission of medical evidence prior to decision	Yes	26	4	2	0
Q2 - States requesting an HCP driving recommendation	Yes	27	2	3	0
Q4 - States always adhering to HCP recommendations for final decision	No	7	17	7	1
Q5 - States experiencing a DMV decision different than the HCP recommendation	Yes	18	10	4	0

Table 4: AAMVA Survey Results, part 1

⁵ <http://www.aamva.org/Survey/User/SurveyDefault.aspx>

⁶ States with a 'Yes' and 'No' count indicate a type of "it depends" response where individual state's statute, policy, or process plays a role in determination. For this study, all response types represent the complete reply provided by a state.

Q3 – PRIMARY ROLE OF REVIEWER	NCDMV	RESPONSES
Some combination of four roles	Yes	12
Trained Non-Medical Personnel, only		17
Doctor, only		2
Nurse, only		0
Mid-Level HCP, only		0
No Response		1

Table 5: AAMVA Survey Results, part 2

States Utilizing Only Health Care Provider Recommendation

Of the 32 responding states to the AAMVA survey, in which seven⁷ adhere to the health care provider's recommendation, only Arkansas shared an in-depth view of their process within the timeline requested. The state of Arkansas does largely defer to outside established entities, and honors those recommendations by established statute, policy, or protocol, without regard to restrictions. Those entities include health care providers and federal-level commercial driver license (CDL) authorities. For that to work within the NCDMV, much of that policy or structure would have to be created.

The general process followed by Arkansas is:

1. If a customer accumulates an excessive number of points, or is of a non-CDL type, or if they are referred by physician, law enforcement, family, or citizen, the "Ability to Drive" process is followed.
2. The customer is sent a letter requiring them to seek a health care provider review, and have that provider complete a recommendation letter. Customers may seek a recommendation from any health care provider they elect to visit.
3. All customers in the "Ability to Drive" process are scheduled for an in-person or telephone hearing with a hearing officer. The hearing officers are not given any medical training, but do have administrative and legal backgrounds.
4. The health care providers only offer a 'drive' or 'no drive' recommendation regarding driving privilege based on the customer's medical presentation; no restrictions are used. If the customer fails to appear for the hearing with the health care provider's recommendation, their license is cancelled.

⁷ The seven states that rely exclusively on the health care provider recommendation include: Alaska, Arkansas, Colorado, Hawaii, Missouri, Ohio, Washington.

5. Only one provider recommendation is required for the hearing to enter into the driver license system. Because the “Ability to Drive” process was followed, the hearing officer recommends a written and road test reexam if they are cleared to drive. Upon achieving a passing state, the customer may continue with driving privilege.
6. If a CDL customer has a valid DOT card, they continue with driving privileges under that granting authority. Arkansas is unaware of the customer’s CDL medical conditions since they ask the DOT examiner to forward a copy of the medical card. No additional information is requested.



FINDINGS

Numerous findings were discovered during the study and are categorized as they relate to the NCDMV, the customer's health care provider, and the customer. ***If a decision to eliminate division nurse reviewers is made***, a survey of associated risk is noted for each finding.

INFORMATIONAL LIMITS

A customer's health care provider may only have information specific to a single instance under review within the scope of their overall health. Also, a customer may be under the care of multiple providers.

	NCDMV	HEALTH CARE PROVIDER
Evaluation and Assessment	Multiple cases across multiple Health Care Providers	Multiple cases for a single Health Care Provider
	Driving history	No driving history
	Crash history	No crash history
	Vehicle road test performance	No vehicle road test performance
Findings of Fact	Reviews body of evidence	Reviews single Instance
Program Retention	Based on customer's overall presentation	Based on customer's history with only that provider

Table 6: Informational Limits

NCDMV RELATED FINDINGS

1. Inconsistent submission of health care provider documented driving restriction or recommendation for cancellation due to current limitations in the following areas.
 - a) Policy: with no existing policy requiring health care provider feedback, study results demonstrate 31% declined to respond in this area.
 - Risk: Increased frequency of non-responsive recommendation forms.
 - b) Process: no fully qualified process for the collection of voluntarily supplied medical information.
 - Risk: Limited or no availability of customer health information.
 - c) Forms, instruction, and documentation: official forms, instructions, and documentation would need to be created to ensure comprehensive awareness and process standardization.
 - Risk: Non-standardized responses.

FINDINGS

- d) Criteria: with no set rubric for determining when a set of restrictions converts to a cancellation of privilege, study results demonstrate only a 41% match between health care provider and the NCDMV nurse reviewers.
 - Risk: Inconsistency in applied restriction or recommended privilege.
- e) Internal workforce contributions would continue to assist with restriction and recommendation interpretation and data entry into DMV systems.
 - Risk: NCDMV would continue to be a crutch for the health care provider, essentially function in the same role, save the actual recommendation.
2. Observed levels of inaccuracy or differing recommendation with the health care provider's response, where they:
 - a) May not adequately consider whether a medical condition has reached control and stability via documented medical evidence, from multiple provider's responses.
 - Risk: Conflicting provider recommendations or unawareness of alternate provider responses.
 - b) May be unfamiliar with motor vehicle or CDL regulations affecting medical review program entry or retention.
 - Risk: Insufficient knowledge to draw conclusion on recommendation.
 - c) No access to a customer's motor vehicle accident history.
 - Risk: Insufficient information to draw conclusion on recommendation.
3. Removal of reviewing nurses may prompt a customer to find a doctor who will sign off on the recommendation portion of the medical forms even though they are not the primary caregiver and does not have a continuity relationship with them. This suggests potential unawareness of the entire customer medical history or issues.
 - Risk: No absolute recommending authority.
4. Non-standardized processes across multiple jurisdictions do not provide for a best-practices implementation. Each state implements policy specific to their need.
 - Risk: No standard operating model.
5. If the NCDMV relied solely on documents submitted by health care providers, and did not have nurses reviewing the medical documents, there would be no checks-and-balances against recommendations from providers that may adversely affect motorist safety, nor would the division have an ability to uncover fraud in medical documents submitted by drivers.

FINDINGS

- Risk: Myriad of health care submission types and sources.
6. Shifting from an NCDMV operating model to a health care provider model may cause discontinuity and interrupt compliance with the Disability Rights North Carolina consent judgment, refer to Appendix A for additional information.
 - Risk: Violation of the Disability Rights North Carolina consent judgment.

HEALTH CARE PROVIDER RELATED FINDINGS

1. The health care provider is an advocate for their patient, which in this case is the NCDMV customer. When there is reservation about their patient's ability to drive safely, the provider may perceive a conflict-of-interest in the relationship of either being a patient advocate or a motoring public safety advocate.
 - Risk: Doctor-Patient conflict of interest.
2. Health care providers make recommendations based on their specialty alone. For example, if the provider is a cardiologist, they would not have knowledge about the customer's mental alertness or visual limitations; thus, the final decision is deferred to NCDMV for consideration of all submitted information.
 - Risk: Recommendation by non-qualified specialist in alternate fields of practice.
3. Approximately 30% of customers had medical conditions that needed treatment by more than one specialist. This demonstrates a lack of cross-provider visibility into the customer's state of health, requiring them to seek multiple recommendations.
 - Risk: Delayed customer response and increased associated personal costs.
4. Approximately 31% of providers in the study declined to offer driving privilege recommendation and chose only to offer medical facts.
 - Risk: No recommendation offered by health care provider.
5. Added responsibility of restricting or cancelling driving privilege, where there had been none prior.
 - Risk: Reluctance of the health care provider to assume non-health care responsibilities.
6. Increased potential to liability and criminal penalties.
 - Risk: Fraudulent pay-for-recommendation-to-drive situations.
7. Third party association and industry influence, e.g., state medical board and HIPAA.

FINDINGS

- Risk: Poor outcome due to decisions made in a vacuum.
8. NC statutes currently provide immunity to healthcare providers (G.S. §20-9.1.(c)) when they elect not to disclose certain information. General statute §8-53 protects physicians from being compelled to disclose confidential information unless ordered by a NC district or superior court judge or the NC Industrial Commission. To rely on health care providers to effectively become the decision-makers and interpose their judgment for the Commissioner's decisions may require significant legislative changes.
 - Risk: Reluctance of the health care provider to engage customer as a provider.

CUSTOMER RELATED FINDINGS

1. A need to "shop" for another health care provider, at added personal expense, to agree to fill out the medical form and provide a driving privilege recommendation.
 - Risk: At customer expense, a 'drive' recommendation is sought where none should be granted.
2. A potential incorrect, or non-standardized decision to extend driving privilege resulting in a compromise of customer and motoring public safety.
 - Risk: Elevated instances of unsafe driving through privilege retention.
3. A potential incorrect decision to cancel driving privilege when a customer is fully capable of driving.
 - Risk: Elevated instances of false-positive scenarios.



CONCLUSION

CONCLUSION

It is the recommendation of the NCDMV that no changes be made to the current process. It is further recommended that medically trained nurses within the division make final recommendation with respect to restriction and driving privilege, and that the Medical Review Program remain operational within the NCDMV to provide detailed evaluation and assessment of a customer's ability to safely operate a motor vehicle.



APPENDICES

APPENDIX A: COMPLIANCE WITH DISABILITY RIGHTS NORTH CAROLINA CONSENT JUDGMENT

To comply with a consent judgment ordered by the United States District Court on June 9, 2016, the NCDMV made necessary changes requiring referrals into the Medical Review Program and the maintenance of their records comply with federal and state laws, extending the ability to appeal rights and petition for removal from the program. The NCDMV has modified its processes to ensure employees comply with the terms of the consent judgment, including implementation of monitoring and appeals procedures.

Any change in policy that may grant or extend authority to cancel, or restrict, a driving privilege to the health care provider would need to ensure that the provider is educated on the unilateral impact it has upon that customer's privilege. It will also need to ensure the NCDMV receives provider acknowledgement accepting that responsibility for the state to maintain compliance with the consent judgment. If changed, policy must consider methods:

- To implement the health care provider's recommendation,
- For customers to be removed from the program if they disagree with their health care provider, and
- For customer review of restrictions if they disagree with the health care provider's decision.

A follow-on research effort should be undertaken to consider the breadth of implication behind addressing potential alterations to N.C.G.S §20-9.1 and §8-53. As of this writing, additional consideration or concern has not been granted towards concern or issue that may arise from the state's medical board or the health insurance portability and accountability act (HIPAA), as it relates to the elimination of nurses and using only the health care provider recommendation.

APPENDIX B: SAMPLE DATASET DESCRIPTION

COLUMN	DESCRIPTION
Date Reviewed	The calendar date corresponding the review of the actual case.
Customer Number	A surrogate number to mask the actual customer ID.
Dx	The health care provider's diagnosis.
Recommendation of Customer's Health Care Provider	If offered, the suggestion of the health care provider as to the state of safe motor vehicle operations.
Final Decision by MRU Review Nurse	The decision based on reviewing the entirety of the body of medical evidence, as offered, when factoring the completeness of the customer's presentation.
Nurse Reviewer Comments/Rationale	Descriptive text supporting either the application of a restriction or decision.
Did Health Care Provider give recommendation regarding customer driving ability	A 'Yes' or 'No' indicating a customer's health care provider did, or did not, offer a recommendation on driving ability.
Did recommendation of health care provider and MRU nurse reviewer match?	A 'Yes' or 'No' indicating a match between both NCDMV reviewing nurses and a customer's health care provider regarding the application of restrictions or a decision.
If no match, who was more favorable to customer?	Where recommendations did not match, a subjective assessment by the NCDMV Disability Medical Consultant, after reviewing a body of medical evidence, indicating that an outcome may, or may not, be in support of the customer.
Discrepancy	Descriptive text supporting the NCDMV Disability Medical Consultants match/no-match assessment.

Table 7: Sample Data Descriptions

CUSTOMER SAMPLE DATASET SUMMARY

AMOUNT	MEASURE
100	Total number of Customers in study
31	Number of Customers whose HCP declined to give recommendation
31%	% of Customers whose HCP declined to give recommendation
69	Number of Customers whose HCP gave recommendation
69%	% of Customers whose HCP gave recommendation
41	No. of matches in recommendation between HCP and NR
59%	% of matches between HCP and NR when HCP gave recommendation
41%	% of matches between HCP and NR among ALL Customers
28	Number of non-matches between HCP and NR
41%	% of non-matches between HCP and NR when HCP gave recommendation
28%	% of non-matches between HCP and NR among ALL Customers
17	In non-matches, number where HCP was more favorable to Customer
61%	In non-matches, % where HCP was more favorable to Customer
11	In non-matches, number where NR was more favorable to Customer
39%	In non-matches, % where NR was more favorable to Customer
27	In non-matches, number of times HCP incorrect in the recommendation
96%	In non-matches, % of times HCP incorrect in the recommendation
1	In non-matches, number of times NR incorrect in the recommendation
4%	In non-matches, % of times NR incorrect in the recommendation

Table 8: Summary Statistics

CUSTOMER SAMPLE DATASET

DATE REVIEWED	CUSTOMER NUMBER	Dx	RECOMMENDATION OF CUSTOMER'S HEALTH CARE PROVIDER	FINAL DECISION BY MRU REVIEW NURSE	NURSE REVIEWER COMMENTS/RATIONALE	DID HEALTH CARE PROVIDER GIVE RECOMMENDATION REGARDING CUSTOMER'S DRIVING ABILITY	DID RECOMMENDATION OF HEALTH CARE PROVIDER AND MRU NURSE REVIEWER MATCH?	IF NO MATCH, WHO WAS MORE FAVORABLE TO CUSTOMER? HEALTH CARE PROVIDER (HCP) OR NURSE REVIEWER (NR)
7/20/2017	1	Cognitive impairment	Unsafe to drive	Indefinite Cancellation	Impairment of mentation and judgement	Y	Y	
7/20/2017	2	Cataracts, cognitive impairment	Unsafe to drive	Indefinite Cancellation	Impairment of mentation and judgement, reaction time, depth perception.	Y	Y	
7/20/2017	3	IDDM, Hypertension, CAD Cataracts, Diabetic retinopathy,	No answer	Indefinite Cancellation	Field of vision is less than standard allows.	N	N/A	
7/21/2017	4	Macular degeneration	Unsafe to drive	Indefinite Cancellation	Unsafe to drive due to visual acuity	Y	Y	
7/20/2017	5	Seizures	Unsafe to drive for 6 months post seizure	Cancellation until 8/28/17	Customer needs to be seizure free for 6 months	Y	Y	
7/20/2017	6	Seizures	Unsafe to drive for 6 months post seizure	Cancellation until 8/19/17	Customer needs to be seizure free for 6 months	Y	Y	
7/20/2017	7	Optic Atrophy, Macular degeneration	Unsafe to drive	Indefinite Cancellation	Visual Acuity poses a risk to self and others on highway	Y	Y	
7/20/2017	8	Diabetes, IDDM, hypoglycemic episodes	Unsafe to drive at present	Cancellation until 1/10/18 will re-evaluate	Customer is noncompliant with treatment and had a hypoglycemic episode	Y	Y	
7/21/2017	9	Syncopy	Safe to drive	Cancellation, reconsider	Unsafe to drive due to syncope and bradycardia	Y	N	HCP
7/21/2017	10	IDDM, Hypertension	Safe to drive CMV	Approve to drive, no CMV restriction	A1c above limit for CDL drivers	Y	Y	
7/21/2017	11	Hypothyroidism, SVT	No follow up needed, approved to drive	Approved to drive, Removed from MRP	Stable no MVAs	Y	Y	

DATE REVIEWED	CUSTOMER NUMBER	Dx	RECOMMENDATION OF CUSTOMER'S HEALTH CARE PROVIDER	FINAL DECISION BY MRU REVIEW NURSE	NURSE REVIEWER COMMENTS/RATIONALE	DID HEALTH CARE PROVIDER GIVE RECOMMENDATION REGARDING CUSTOMER'S DRIVING ABILITY	DID RECOMMENDATION OF HEALTH CARE PROVIDER AND MRU NURSE REVIEWER MATCH?	IF NO MATCH, WHO WAS MORE FAVORABLE TO CUSTOMER? HEALTH CARE PROVIDER (HCP) OR NURSE REVIEWER (NR)
7/21/2017	12	Seizures	Follow up every 5 years, approved to drive	Approved to drive, Removed from MRP	Seizure free for greater than 4 years on meds	Y	N	NR
7/21/2017	13	Anxiety, muscle weakness	No follow up needed, approved to drive	Approved to drive, Removed from MRP	Stable, no MVAs	Y	Y	
7/21/2017	14	Past substance abuse, depressive disorder	No follow up needed, approved to drive	Approved to drive, Removed from MRP	Safe to drive	Y	Y	
7/21/2017	15	IDDM, cystic fibrosis	Follow up every 6 months	Approved to drive, Removed from MRP	Managing chronic conditions, compliant with treatment.	Y	N	NR
7/21/2017	16	COPD, Cardiomyopathy, Hypothyroidism	No follow up needed, approved to drive	Approved to drive, Removed from MRP	stable, no MVAs	Y	Y	
7/21/2017	17	Diabetic Retinopathy, IDDM	No follow up needed, approved to drive	Approved to drive, Removed from MRP	compliant with treatment	Y	Y	
7/21/2017	18	IDDM	No follow up needed, approved to drive	Approved to drive, Removed from MRP	stable	Y	Y	
7/21/2017	19	Diabetes, schizophrenia, neuropathy	Follow up in 2 years	Follow up in 2 years	MD recommendation, no MVAs	Y	Y	
7/21/2017	20	Diabetes, Hypertension, OA	Approved to drive, follow-up in 2 years	Additional information needed (BP)	School bus driver	Y	N	HCP
7/21/2017	21	Diabetes, CVA, Pseudophakia	No follow up needed, approved to drive	Approved to drive, Removed from MRP	stable	Y	Y	
7/21/2017	22	Hypertension, Macular degeneration	Follow up	Approved to drive - follow up in 2 years	stable	Y	Y	
7/21/2017	23	Cataracts, neuropathy	Add restrictions	Additional information needed	page 5 needed	Y	N	NR

DATE REVIEWED	CUSTOMER NUMBER	Dx	RECOMMENDATION OF CUSTOMER'S HEALTH CARE PROVIDER	FINAL DECISION BY MRU REVIEW NURSE	NURSE REVIEWER COMMENTS/RATIONALE	DID HEALTH CARE PROVIDER GIVE RECOMMENDATION REGARDING CUSTOMER'S DRIVING ABILITY	DID RECOMMENDATION OF HEALTH CARE PROVIDER AND MRU NURSE REVIEWER MATCH?	IF NO MATCH, WHO WAS MORE FAVORABLE TO CUSTOMER? HEALTH CARE PROVIDER (HCP) OR NURSE REVIEWER (NR)
7/21/2017	24	Dry ARM, CAD, Hypertension, Depression	HCP - no follow up, Vision specialist - follow-up	Follow up in 3 years	stable	Y	N	NR
7/21/2017	25	CHF, AHA Class II, diabetic retinopathy	Follow up	Road Test		Y	N	HCP
7/21/2017	26	Seizures, CHF	Follow- up	Road Test		Y	N	HCP
7/21/2017	27	ADHD	No answer	follow up every 2 years	CDL- School Bus driver	N	N/A	
7/21/2017	28	IDDM, staphyloma retina	HCP - follow up yearly, Vision specialist - no answer	Approve and remove	Class C, no MVA	Y	N	NR
7/21/2017	29	IDDM, Depression, Bilateral AKA	Follow up in 2 years	Follow up in 2 years	Class C, no MVA	Y	Y	
7/21/2017	30	Parkinson's Disease	No follow up needed, approved to drive	Approved and removed from MRP	Class C, no MVA	Y	Y	
7/21/2017	31	SVT, murmur	No follow up needed, approved to drive	Approved and removed from MRP	Class C, no MVA	Y	Y	
7/21/2017	32	TBI, Low back pain	Follow -up	Follow up in 2 years	Class C, MVA 2015	Y	Y	
7/21/2017	33	IDDM	Follow up in 1 year	Follow up in 1 year	Passed Road Test, hospitalized 2016 - dehydration	Y	Y	
7/21/2017	34	Seizures, ETOH	Follow up in 2 years	Follow up in 2 years	Sustained remission, last seizure 5/1016	Y	Y	
7/21/2017	35	IDDM, COPD, OSA	Follow up	Follow up in 2 years	A1C 10, Class C	Y	Y	
7/21/2017	36	Seizures, ETOH	No follow up needed, approved to drive	Follow up in 1 year	last seizure 1/2017, MVA x 3	Y	N	HCP
7/21/2017	37	Depression	Follow up in 1 year	Follow up in 1 year	Passed Road Test	Y	Y	
7/21/2017	38	NIDDM, Hypertension	Follow up in 2 years	Remove	DOT med card	Y	N	NR

DATE REVIEWED	CUSTOMER NUMBER	Dx	RECOMMENDATION OF CUSTOMER'S HEALTH CARE PROVIDER	FINAL DECISION BY MRU REVIEW NURSE	NURSE REVIEWER COMMENTS/RATIONALE	DID HEALTH CARE PROVIDER GIVE RECOMMENDATION REGARDING CUSTOMER'S DRIVING ABILITY	DID RECOMMENDATION OF HEALTH CARE PROVIDER AND MRU NURSE REVIEWER MATCH?	IF NO MATCH, WHO WAS MORE FAVORABLE TO CUSTOMER? HEALTH CARE PROVIDER (HCP) OR NURSE REVIEWER (NR)
7/21/2017	39	myopia	No answer	Approve and remove	Class C	N	N/A	
7/21/2017	40	Seizures; Brain Tumor resection	No answer	Approved and removed from MRP	Class C, well controlled	N	N/A	
7/21/2017	41	Seizures	5-mile radius, no driving when tired, sick or if missed meds, 45 mph/ no highway driving	Follow up in 6 months, 5-mile radius, no driving when tired, sick or if missed meds, 45 mph/ no highway driving	seizures with loss of consciousness, last 8/2016	Y	N	HCP
7/21/2017	42	Seizures	No follow up needed, approved to drive	Approved and removed from MRP	Nocturnal seizures, last 2015	Y	Y	
7/21/2017	43	CAD	No follow up needed, approved to drive	Approved and removed from MRP	stent placement, CDL dot med card	Y	Y	
7/21/2017	44	Cerebral Palsy, Focal seizures	No follow up needed, approved to drive	Approved and removed from MRP	No seizures in 3 years	Y	Y	
7/21/2017	45	Seizures	Follow up in 2 years	Approved and removed from MRP	No seizures in 6 years	Y	N	NR
7/21/2017	46	Schizophrenia, leukemia, ETOH dependency	No answer	Follow up in 1 year	recent schizophrenia diagnosis	N	N/A	
7/21/2017	47	Seizures	No answer	Follow up in 6 months	last seizures 12/2016	N	N/A	
7/21/2017	48	Wegener's Disease; retinal detachment	No follow up needed, approved to drive	Follow up in 2 years	Progressive Disease	Y	N	HCP
7/21/2017	49	Macular degeneration	No follow up needed, approved to drive	Follow up in 2 years	monocular vision	Y	N	HCP
7/20/2017	50	Headaches, Bursitis	No follow up	Remove from program	none	Y	Y	

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7/20/2017	51	Hypertension, gout	No follow up	Remove from program	none	Y	Y	
7/20/2017	52	Cerebral Palsy	No follow up	Remove from program	none	Y	Y	
7/20/2017	53	Anxiety	Retain on program	Remove from program	none	Y	N	NR
7/20/2017	54	Sleep Apnea	Retain on program	Remove from program	none	Y	N	NR
7/20/2017	55	Hypertension, CAD	Retain on program	Remove from program	none	Y	N	NR
7/20/2017	56	Atrial Fibrillation	No follow up	Remove from program	none	Y	Y	
7/20/2017	57	Atrial Fibrillation, Low back pain, Syncope	No follow up	Retain for 1 yr.	Recent MVA secondary to A-fib	Y	N	HCP
7/20/2017	58	Multiple Sclerosis	No follow up	Retain for 2 years	progressive Neuromuscular cond.	Y	N	HCP
7/20/2017	59	Fibromyalgia	Retain on program	Remove from program	none	Y	N	NR
7/20/2017	60	Cataract, Hypertension	No follow up	Remove from program	none	Y	Y	
7/20/2017	61	Hypertension	Did not answer	Remove from program	none	N	N/A	
7/20/2017	62	Hypertension	Retain on program	Retain for 2 years	none	Y	Y	
7/20/2017	63	Hypertension	Did not answer	Remove from program	Followed by DOT	N	N/A	
7/20/2017	64	Hypertension	Retain on program	Retain for 2 years	none	Y	Y	
7/20/2017	65	no diagnosis	No follow up	Remove from program	none	Y	Y	
7/20/2017	66	NIDDM, Hypertension	Did not answer	Remove from program	Followed by DOT	N	N/A	
7/20/2017	67	NIDDM, Hypertension	No follow up	Retain for 1 yr.	CDL driver	Y	N	HCP
7/20/2017	68	no diagnosis	Did not answer	Remove from program	Followed by DOT	N	N/A	
7/20/2017	69	NIDDM, Hypertension	Did not answer	Remove from program	Followed by DOT	N	N/A	
7/20/2017	70	eye condition	Did not answer	Remove from program	none	N	N/A	
7/20/2017	71	Seizures	Did not answer	Remove from program	none	N	N/A	
7/20/2017	72	Cataract	Did not answer	Remove from program	none	N	N/A	
7/20/2017	73	Hyperopia, Pseudophakia	Did not answer	Remove from program	none	N	N/A	
7/20/2017	74	Presbyopia	Did not answer	Remove from program	none	N	N/A	

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7/20/2017	75	Pseudophakia	Did not answer	Remove from program	none	N	N/A	
7/20/2017	76	eye condition	Did not answer	Remove from program	none	N	N/A	
7/20/2017	77	Pseudophakia	Did not answer	Remove from program	none	N	N/A	
7/20/2017	78	Seizures, Hypertension, Mitral Valve Prolapse, Anxiety	No follow up	Remove from program	none	Y	Y	
7/20/2017	79	AMD, Dystrophy	Retain on program	Retain for 1 yr.	none	Y	Y	
7/20/2017	80	eye condition	Did not answer	Retain 2 years	none	N	N/A	
7/20/2017	81	Macular Degeneration	Did not answer	Retain 3 months	none	N	N/A	
7/20/2017	82	Myopia, Astigmatism, Nystagmus, blurred vision	Did not answer	Retain 2 years	none	N	N/A	
7/20/2017	83	Macular Degeneration, Presbyopia, mixed Astig.	Retain on program	Retain 1 year	none	Y	Y	
7/20/2017	84	eye condition, Retinal impairment	Did not answer	Retain 2 years	none	N	N/A	
7/20/2017	85	Diab. Retinopathy	Did not answer	Retain 2 years	none	N	N/A	
7/20/2017	86	macular Degeneration	Did not answer	Retain 1 year	none	N	N/A	
7/20/2017	87	Cataract, Pseudo, Scotoma	Retain on program	Retain 2 years	none	Y	Y	
7/20/2017	88	Multiple Sclerosis	Did not answer	Retain 2 years	Spasticity of legs	N	N/A	
7/20/2017	89	Seizures	Did not answer	Retain 1 year	1X seizure and encephalopathy	N	N/A	
7/20/2017	90	Stargardts	Did not answer	Retain 1 year	stable vision	N	N/A	
7/20/2017	91	seizures, Cocaine test positive	Retain on program	Retain 1 year	Aed therapy,	Y	Y	

DATE REVIEWED	CUSTOMER NUMBER	Dx	RECOMMENDATION OF CUSTOMER'S HEALTH CARE PROVIDER	FINAL DECISION BY MRU REVIEW NURSE	NURSE REVIEWER COMMENTS/RATIONALE	DID HEALTH CARE PROVIDER GIVE RECOMMENDATION REGARDING CUSTOMER'S DRIVING ABILITY	DID RECOMMENDATION OF HEALTH CARE PROVIDER AND MRU NURSE REVIEWER MATCH?	IF NO MATCH, WHO WAS MORE FAVORABLE TO CUSTOMER? HEALTH CARE PROVIDER (HCP) OR NURSE REVIEWER (NR)
7/20/2017	92	hypertension, Hyperopia	No follow up	Retain 3 months	SB driver with HTN and elevated systolicBP	Y	N	HCP
7/20/2017	93	Cataracts, Nystagmus, Hypertension, COPD	No follow up	Retain 2 years	D/t Cataract affects that may affect driving /sensitivity to contrasts and glare	Y	N	HCP
7/20/2017	94	Hyperopia, Astig, Presbyopia, Retinal Detachment, IDDM, A-Fib	No follow up	Retain 2 years	Retaining due to decreasing Visual Field	Y	N	HCP
7/20/2017	95	Macular Degeneration	Did not answer	Retain 1 year	none	N	N/A	
7/20/2017	96	Pseudophakia	No follow up	Retain 1 year	none	Y	N	HCP
7/20/2017	97	CHF/SSS/ AICD	Retain on program	road test	d/t motor vehicle accident	y	N	HCP
7/20/2017	98	hypertension, Myopia	No follow up	need additional medical info	none	Y	N	HCP
7/21/2017	99	myopia	No answer	Approved and removed from MRP	Class B	N	N/A	
7/21/2017	100	Hyperopia	No answer	Approved and removed from MRP	Class C, no MVA	N	N/A	

Table 9: Sample Set Data

APPENDIX D: AAMVA SURVEY RESPONSES

Question 3 Key:

- TNP – Trained non-medical personnel
- D – Doctor, e.g. medical, optometric, chiropractic
- N – Nurse
- M – Mid-level health professional, e.g. nurse practitioner, physician assistant

	AK	AR	CA	CO	FL	GA	HI	ID	IL	IN
Question 1 Before the Medical unit of in your state or jurisdiction makes a decision on whether to allow a driver to continue driving unrestricted driving, drive with restrictions, or cancel the license: Do you ask the driver's treating physicians to send you medical evidence (medical records, blood tests, eye exams, etc.)?	Y/N	N	Y	N	Y	Y	N	Y	Y	Y
Question 2 Do you ask the driver's treating physician to give recommendations regarding the driver's ability to drive without restrictions, drive with restrictions, or cancelling the license?	Y/N	N	Y	Y	Y	Y	Y	Y	Y	Y
Question 3 Who reviews the treating physician's medical evidence and recommendations (check all that apply)	TNP	TNP	TNP	TNP	TNP, D	TNP, D	TNP	TNP	TNP, N, D	D
Question 4 Do you ALWAYS follow the treating physician's recommendations in the final disposition on the driver's ability to drive without/with restrictions or cancellations?	Y	Y	N	Y	N	N	Y	N	N	N
Question 5 Are their times when the final DMV decision regarding the driver's driving privileges is different from the recommendations of the treating physician?	N	N	Y	N	Y	Y	Y	N	Y	Y

	LA	MD	ME	MI	MO	MS	MT	ND	NE	NH
Question 1 Before the Medical unit of in your state or jurisdiction makes a decision on whether to allow a driver to continue driving unrestricted driving, drive with restrictions, or cancel the license: Do you ask the driver's treating physicians to send you medical evidence (medical records, blood tests, eye exams, etc.)?	Y	Y/N	Y	Y	Y	Y	Y	Y	Y	Y
Question 2 Do you ask the driver's treating physician to give recommendations regarding the driver's ability to drive without restrictions, drive with restrictions, or cancelling the license?	Y	Y	Y/N	Y	Y	Y	Y	Y	Y	Y
Question 3 Who reviews the treating physician's medical evidence and recommendations (check all that apply)	TNP, D	TNP, N, D	TNP, M	TNP	TNP	TNP	TNP	TNP	No Ans	TNP
Question 4 Do you ALWAYS follow the treating physician's recommendations in the final disposition on the driver's ability to drive without/with restrictions or cancellations?	N	N	N	N	Y	Y/N	N	Y/N	Y/N	Y/N
Question 5 Are their times when the final DMV decision regarding the driver's driving privileges is different from the recommendations of the treating physician?	Y	Y	Y	Y	N	N	Y	Y	Y/N	Y/N

	NJ	NM	NY	OH	OR	RI	SC	SD	TX	VA
Question 1 Before the Medical unit of in your state or jurisdiction makes a decision on whether to allow a driver to continue driving unrestricted driving, drive with restrictions, or cancel the license: Do you ask the driver's treating physicians to send you medical evidence (medical records, blood tests, eye exams, etc.)?	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
Question 2 Do you ask the driver's treating physician to give recommendations regarding the driver's ability to drive without restrictions, drive with restrictions, or cancelling the license?	Y	Y	Y	Y	Y/N	Y	Y	Y	N	Y
Question 3 Who reviews the treating physician's medical evidence and recommendations (check all that apply)	TNP	TNP, D	TNP, D	TNP	TNP, D	TNP, D	TNP	TNP	D	N/D
Question 4 Do you ALWAYS follow the treating physician's recommendations in the final disposition on the driver's ability to drive without/with restrictions or cancellations?	N	Y/N	Y/N	Y	N	No Ans	N	Y/N	N	N
Question 5 Are their times when the final DMV decision regarding the driver's driving privileges is different from the recommendations of the treating physician?	Y	Y/N	Y	N	Y	N	Y	Y/N	Y	Y

	WA	WI
Question 1 Before the Medical unit of in your state or jurisdiction makes a decision on whether to allow a driver to continue driving unrestricted driving, drive with restrictions, or cancel the license: Do you ask the driver's treating physicians to send you medical evidence (medical records, blood tests, eye exams, etc.)?	Y	Y
Question 2 Do you ask the driver's treating physician to give recommendations regarding the driver's ability to drive without restrictions, drive with restrictions, or cancelling the license?	Y	Y
Question 3 Who reviews the treating physician's medical evidence and recommendations (check all that apply)	TNP	TNP, D
Question 4 Do you ALWAYS follow the treating physician's recommendations in the final disposition on the driver's ability to drive without/with restrictions or cancellations?	Y	N
Question 5 Are their times when the final DMV decision regarding the driver's driving privileges is different from the recommendations of the treating physician?	N	Y

Table 10: AAMVA Survey Responses