

LEADing Issues in Epilepsy

Dear Colleagues:

Welcome to the first issue of the *LEADing Issues in Epilepsy* newsletter. This series will help you to stay current on new issues, provide new insights into ongoing issues, and address critical topics that impact the management of your patients with epilepsy. Each newsletter will focus on one topic, beginning with this newsletter's focus on driving and epilepsy.

This issue of *LEADing Issues in Epilepsy* discusses how to help your patients deal with concerns surrounding driving. Driving a car is an important regular activity for most adults in the United States, may be vital to maintaining an independent lifestyle, and is even required for some jobs. This is a significant concern for most adults living with epilepsy, whether they need to obtain, regain, or simply maintain their driving privileges. This issue of our newsletter offers a feature article addressing safety and liability issues related to driving and epilepsy; a review of state statutes impacting driving privileges; an interview with David M. Labiner, MD an expert on the practical aspects of driving and epilepsy; and a case study discussing what to do when a patient's driving privileges are revoked.

At this time, we'd also like to introduce you to LEAD (Leadership in Epilepsy, Advocacy, and Development), an initiative created to support the epilepsy community by broadening awareness and understanding of issues that are critical to optimal patient management. Our vision in creating LEAD was to develop a coalition of nationally recognized healthcare professionals who treat patients with epilepsy and who are committed to advancing the treatment of epilepsy by creating innovative programs that can make a positive difference in the lives of epilepsy patients. Our overall mission is to draw attention to current and emerging issues regarding epilepsy through unique educational strategies and tools to address critical issues in epilepsy management.

LEAD debuted at the 2007 American Epilepsy Society Annual Meeting in Philadelphia, where we presented an overview of the initiative and the LEAD faculty's first educational programs—a consensus statement on minimum standards of care and a practice-based checklist for epilepsy management. We are pleased to report that these consensus recommendations have been published in *Current Medical Research and Opinion* (vol 24, issue number 12, pages 3463-3477).

Thank you for your interest, and we hope that you find *LEADing Issues in Epilepsy* informative and useful in your daily practice.

Sincerely,



Tracy A. Glauser, MD
LEAD Co-Chair
Professor of Pediatrics and Neurology
Director, Comprehensive Epilepsy Program
Co-Director, Genetic Pharmacology Service
Cincinnati Children's Hospital Medical Center
Cincinnati, Ohio



Raman Sankar, MD, PhD
LEAD Co-Chair
Professor and Chief, Rubin Brown
Distinguished Chair
Division of Pediatric Neurology
David Geffen School of Medicine at UCLA
Mattel Children's Hospital
Los Angeles, California

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Co-Executive Editors



David M. Labiner, MD
Interim Head, Department of Neurology
Professor of Neurology and Pharmacy Practice & Science
The University of Arizona
Tucson, Arizona



Georgia Montouris, MD
Assistant Professor of Neurology
Boston University School of Medicine
Director of Epilepsy Services
Boston Medical Center
Boston, Massachusetts

Contributing Authors



Laura Hershkowitz, DO
Northshore Clinical Associates
Erie, Pennsylvania



Barbara Olson, MD
Pediatric Neurology Associates
Nashville, Tennessee



Raman Sankar, MD, PhD
Professor and Chief, Rubin Brown Distinguished Chair
Division of Pediatric Neurology
David Geffen School of Medicine at UCLA
Mattel Children's Hospital
Los Angeles, California

Driving Privileges: Protecting Your Patients and Yourself

by Laura Hershkowitz, DO

Driving a car is part of many routine activities and is a central part of our way of life in the United States, where over 75% of households with 2 or more adults have 2 or more cars.¹ For people living with epilepsy, the ability to drive can significantly impact quality of life and may be critical to maintain a normal lifestyle that includes employment, socializing, and healthcare visits.²⁻⁵ However, safe drivers need to be able to identify changes in the traffic and conditions around them, interpret these changes, and respond quickly and appropriately.⁵ Seizures that occur during driving can adversely affect these abilities and frequently cause serious accidents.^{6,7} It is estimated that between 50% and 60% of seizures that occur while driving result in accidents and approximately 30% of all medical-related crashes have been attributed to seizures.⁷⁻⁹

The needs of people with epilepsy with regard to driving need to be balanced with the potential risks to public safety. Therefore, a variety of state regulations have been designed to allow people with epilepsy to drive only if their seizures are controlled. In these patients, the risks associated with driving are lower and more comparable with those of individuals with other medical conditions.^{4,6} Because seizure control is central to driving privileges, physicians play a pivotal role in determining driving rights for patients with epilepsy.¹⁰ The following sections of this article briefly review this important aspect of clinical practice and provide basic information relevant to counseling patients regarding their driving privileges.

Legal Issues and Driving With Epilepsy

For people with epilepsy, maintaining a driver's license is surrounded by a number of legal issues. Individual state laws restrict drivers' licenses for persons with active uncontrolled seizures as well as provide rules regarding how a license to drive may be acquired in that state.^{8,11,12} The principal

focus of these regulations is to restrict driving for those at greatest risk of having a seizure while driving, most often by requiring a seizure-free interval prior to obtaining driving privileges.

In most states, people with epilepsy must be free of seizures for a set period of time, ranging from 3 to 12 months before they can legally operate a car.¹ Although some data have indicated that longer seizure-free intervals may have the least risk for seizure-related accidents, states are trending towards requiring shorter seizure-free intervals of 3 or 6 months.^{1,6} One recent study found that seizure-related accidents did not increase significantly when the required seizure-free interval was decreased from 12 to 3 months.⁸

Regulations and the degree of restriction vary for each state and some states have adopted regulations that assess individual clinical factors in determining whether a person with epilepsy may drive.¹²⁻¹⁴ Some state regulations require periodic physician reports filed with the department of transportation or a medical review board. When and how these are filed also varies by state. Further, some states mandate physician reporting of

epilepsy.^{12,15} Another variation in laws is that some

states allow patients with epilepsy to drive when their seizures are limited to certain circumstances, such as for those who have prolonged and/or consistent auras, purely nocturnal seizures, or seizures that are caused by transient events.⁸

This myriad of laws makes physician knowledge and understanding of the state laws that apply specifically to their patients critical, which in some cases may also include knowledge of laws of neighboring states. Physicians need to know the local regulations regarding driving privileges for persons with epilepsy, as well as their own obligations with regard to reporting. Unfortunately, physician knowledge of applicable driving laws may be deficient.¹⁵ In a recent

survey of 209 physicians treating patients with epilepsy, a large number were unable to correctly identify the reporting requirements for their state, suggesting that their understanding of the complexities related to individual state driving requirements for people with epilepsy may be inaccurate. Among respondents in this investigation, only 12% of family practitioners, 14% of internal medicine physicians, and 27% of neurologists considered themselves to be very knowledgeable of their state's driving laws.¹⁰ All physicians caring for patients with epilepsy should review their state laws for the specifics that apply to their practice.

In addition to knowing and adhering to the reporting laws in their state, physicians need to be aware of their own liabilities and the impacts of privacy codes.¹⁵ Immunity from civil and/or criminal prosecution for filing epilepsy or seizure reports also varies between states, as does physician liability if a person with epilepsy drives and causes an accident.^{10,12} If a physician knows that a person with epilepsy is driving contrary to medical advice, the physician has an obligation to the patient and the community to report that patient to the driving authorities.

Physicians need to know the local regulations regarding driving privileges for persons with epilepsy, as well as their own obligations with regard to reporting.

In the event that a physician is found to have failed in his/her responsibilities to the wider community, the physician may be personally liable to litigation by injured third parties.¹⁵⁻¹⁸ In clinical practice, physicians may need to adequately document in patient charts their having advised patients not to drive.⁸

Similarly, patients may be found guilty of dangerous driving if they fail to report their epilepsy as required by local authorities and subsequently have an accident.^{5,15} Patients who mislead authorities or drive after being told not to may experience civil and legal repercussions, and insurance may not cover the patients if they are driving illegally.⁵

All Seizures Impact Driving Safety

Any seizure can impact driving ability and accurately determining if a patient is truly seizure-free can be challenging. Most of the information a physician obtains regarding seizure occurrence or seizure freedom comes directly from the patient's self-report. However, patients may not accurately report or remember seizures.¹ For example, patients with clear complex partial seizures who stop, stare, or have automatisms may report that they "haven't had a big seizure in years." Yet clearly these patients may be unsafe to drive.

Part of the challenge for physicians is to obtain all relevant information from a patient regarding all seizures that the patient may be experiencing, even those of lesser magnitude.

Patients with any alteration in consciousness should not be driving

and absence or complex partial seizures while driving can be as dangerous as tonic-clonic seizures.¹⁹

In addition to discussions with the patients, physicians should also elicit discussions with seizure witnesses and patient caregivers. A witness to the seizures may be able to confirm that the patient is totally responsive during the seizure.¹ In both direct patient evaluations and discussions with caregivers or family, the attending physician should probe the occurrence of any smaller seizures by including questions and topics such as those in the **Table**. This will assist them in determining if the patients are free of all seizures, even those that they may not recognize or remember as seizures. Patients should only consider driving if they are free of any seizures that alter their consciousness or ability to fully respond.

Patients who drive when unsafe have broad societal implications, since driving with seizures can impact not only the person with epilepsy, but everyone on the road, as well as their families.

Logically, the 2 types of clinical patients may differ in actual

Driving Safety and New-Onset vs Breakthrough Seizures

State laws that base driving privileges on seizure-free intervals derive from research on new-onset seizures. However, in clinical practice, 2 broad subgroups of patients with epilepsy actually exist and each has distinct patterns of seizure control: patients with new-onset seizures and more refractory patients with recurring seizures.^{20,21} In general, approximately 64% of patients have a good prognosis and can achieve seizure-free status with monotherapy or by a combination of antiepileptic drugs (AEDs).²⁰ The early response to therapy in this group is a favorable prognostic factor for seizure freedom. The other 36% may represent a group with refractory epilepsy at the outset, often with underlying structural cerebral abnormalities, making successful treatment a challenge.^{20,21}

driving risk. For example, if a patient with new-onset epilepsy begins medication and remains seizure-free, the medication is most likely controlling the seizures. In this type of patient, the state-mandated seizure-free interval may realistically indicate a relatively low risk of a seizure while driving. Conversely, another patient who is on a medication regimen and yet experiences a breakthrough seizure may present a different situation entirely. A patient receiving an appropriate AED dose or multiple medications who experiences additional seizures may be in the latter more intractable group. In the second example, the patient may be at a higher risk of a seizure and caution should be taken in counseling this patient to drive, as waiting time beyond the state-mandated seizure-free interval may be warranted to determine seizure freedom.

Special Driving Allowances and Safety

Caveats in the laws of some states allowing patients driving privileges in certain situations or when patients have specific seizure characteristics represent other potential concerns about driving safety and patient counseling. Some states allow patients to drive if a prolonged aura or warning reliably occurs before seizures, if the seizures occur only at night, or if the seizures present with no loss of consciousness.⁸ These exceptions are broadly based on the patients' ability to stop driving if they were to anticipate a seizure occurring. However, in practice, patients may overestimate their ability to stop or avoid driving prior to a potential seizure.

Driving privileges for patients with nocturnal seizures pose unique concerns and should be considered only when the exclusively nocturnal seizure pattern has been firmly established.¹ For example, patients with nocturnal seizures on a multiple AED regimen may be allowed to drive and work during the day. However, if those patients are not truly seizure-free during the daytime, they could experience a daytime seizure that may lead to a car accident.

Auras pose other practical concerns regarding their use as the basis for special driving privileges. As discussed earlier, patients may not actually know whether they are aware during the aura of a temporal lobe seizure.¹ Although some patients with some simple partial seizures may be safe to drive, such as those with a sensory aura or some simple motor manifestations, good practice is to question witnesses regarding awareness during an aura.¹ For example, a few patients may be certain that they only experience auras and not seizures. However, these patients can be put on a monitoring unit, push the button indicating an aura, and then experience a multiple-minute period of confused unresponsiveness. Afterwards, the patients may have no memory of the seizure, and again claim to have only experienced an aura.

Driving privileges based on special exceptions may require additional patient counseling. Patients need to understand what constitutes a seizure and how their seizures can impact driving safety. Even with warning or no loss of consciousness, some patients may not actually have the ability to respond quickly enough and stop driving.

Table. Probing for Occurrence of Any Seizures

Sample Questions
Do you have episodes of feeling far away?
Do you have episodes of feeling stuck?
Do you have episodes of missing time?
Do you catch yourself staring off?
Do you have occasions where you are unable to speak?

Medication or Circumstance Changes and Driving

The state laws on epilepsy and driving currently do not specifically cover stopping antiepileptic medication or changes in AED therapy. A logical general recommendation would be that patients not drive for a period following a medication change of any type, as seizure control may be affected. Although no state specifies a specific waiting period, informed discussion with epileptologists suggest at least three months of no driving after coming off medications. In addition, other situations or circumstances may also impact seizure control. During counseling, physicians should advise patients not to drive if a situation occurs that is likely to precipitate a seizure, such as sleep deprivation, missing their medication, or other precipitating factors.^{22,23}

Potential Lack of Seizure Self-Reporting Reliability

The nature of epilepsy and seizures makes self-reported seizure counts intrinsically prone to inaccuracy.²⁴⁻²⁶ Patients frequently have seizures outside the hospital that are unrecognized and underreporting of seizure frequency occurs in the outpatient setting.²⁴ This impacts optimal diagnosis and treatment for patients with epilepsy, and logically can also impact driving safety.

In addition, maintaining driving privileges provides a disincentive for patient honesty and some patients will drive despite having seizures.^{5,15,27}

The knowledge that driving privileges may be restricted if seizures are reported can compromise full disclosure of seizures.²⁷ Patients may deny seizures during discussions with their physician or rationalize a seizure, attributing it to a missed dose of therapy, timing of medication, or other factors. In light of the limitations of self-reporting, prudent physicians will encourage patients to document or confirm that their statements regarding seizure freedom are true.

Conclusion

People living with epilepsy should ideally have freedom to maintain as normal a lifestyle as possible, including driving when appropriate. However, both physicians and patients have responsibilities regarding driving safety. Any seizure impacts driving ability and all seizures need to be considered in driving decisions, even small or partial seizures. Because self-reports are inadequate to document all seizures, vigilance for any seizures not reported is critical to informed decisions. An amount of uncertainty will always exist, and physician decisions are based primarily on information that they are given or can elicit from their patients.

Each patient has individual characteristics and circumstances that may impact his or her ability to safely drive. For example,

patients who experience breakthrough seizures may be at a higher risk of having a seizure while driving than patients who maintain seizure freedom following an early response to AED therapy. Although some patients may be eligible to drive if seizures are reliably preceded by an aura or warning or if no loss of consciousness occurs during seizures, such special considerations should be approached with care to minimize risks. Further, some, but not all patients may need to avoid driving after a change in medication or in situations that may precipitate a seizure, such as a missed medication or taking a dose at an unusual time.

Physicians should counsel patients with epilepsy about factors that can reduce driving risks, such as maintaining seizure freedom with optimized AED therapy, the reliability of auras, and having good driving practices.⁶ Patients with epilepsy should drive a car only in the true absence of any seizures that alter their consciousness/awareness, and when the patients have the ability to fully respond to the driving environment. Patients who drive when unsafe have broad societal implications, since driving with seizures can impact not only the person with epilepsy, but everyone on the road, as well as their families.

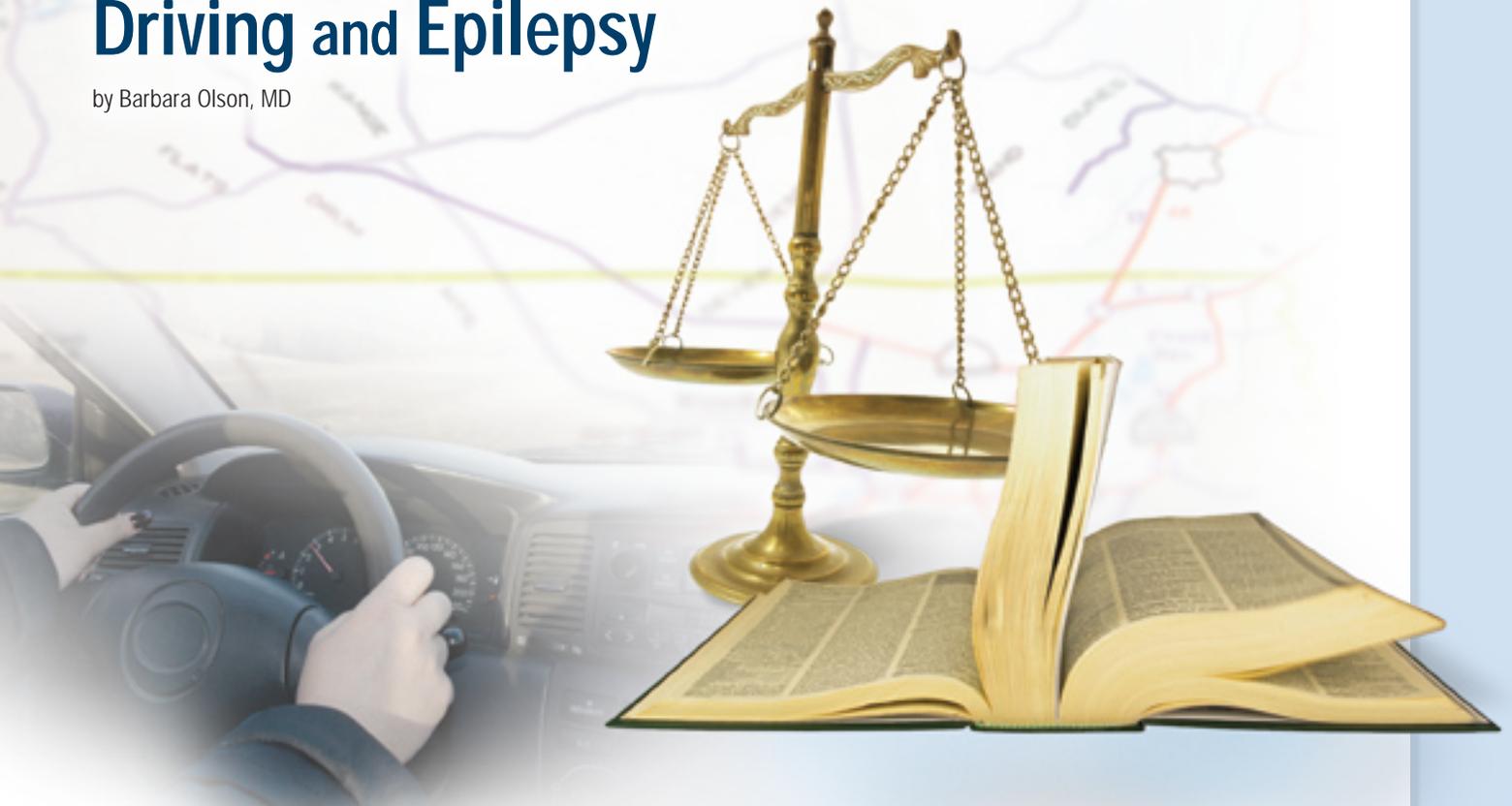


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Oh My, Such a State! (of Regulations): Driving and Epilepsy

by Barbara Olson, MD



Driving is an important part of everyday life in the United States with approximately 200 million Americans being licensed to drive a car.¹ A recent surveillance survey by the Centers for Disease Control estimated that 0.8% of adults in the United States have active epilepsy, as defined by having a history of epilepsy and either taking epilepsy medication at the time of the survey or having a seizure during the past 3 months.² One estimate suggests that about half the people with epilepsy are licensed to drive, meaning that approximately 800,000 people with epilepsy are licensed US drivers.³

Licensing drivers falls under the legal jurisdiction of individual states' Department of Motor Vehicles (DMV) or equivalent depart-

ments. Through this process, each state sets driving regulations for persons with any medical condition that may compromise driving safety.⁴ These regulations vary widely; some contain general references to "lapses of consciousness" or mental disability, while others specifically mention epilepsy or seizures.⁵⁻⁷ Physicians caring for people with epilepsy need to be aware of the specific regulations that affect their patients.⁸ Local geography may dictate that physicians know state laws other than their own when treating patients from multiple states. Specific characteristics such as the driver's age may also affect individual regulations. For example, adolescents may find they are subject to different regulations for obtaining a learner's permit versus an actual driver's license.

State Regulations on Driving for Persons With Epilepsy

No universal mandates or federal regulations exist that cover driving for persons living with epilepsy except for commercial driver licensing. Each state establishes rules regarding when and how a license to

drive may be acquired. These rules differ widely and are specific to each state.^{3,9,10} Since the first statute permitting individuals with epilepsy to drive was enacted in Wisconsin in 1949, state statutes on driving privileges and restrictions have continued to evolve.¹¹ At present, states impose various driving restrictions for persons with either epilepsy or lapses in consciousness.^{3,11}

Illinois, Nebraska, and Ohio are among the states with the least restrictive rules, while California is a state with some of the most restrictive rules.¹²⁻¹⁶ These varied rules and practices challenge physicians to remain up-to-date on regulations that impact their patients with epilepsy.³

State Regulations: Commonalities and Differences

As demonstrated in **Table**, state regulations range from definitive rules to those that allow a more discretionary approach.^{10,17} Many states have statutes with precise definitions of seizure control, although these definitions may differ. Some states, such as Maine and Utah, have a Medical Advisory Board that precisely defines “Functional Ability Profile Categories” that determine driving status.^{18,19} Other states, such as Illinois and Nebraska, leave driving status entirely to the discretion of physicians. In Ohio, driving status is determined by drivers themselves.¹²⁻¹⁴

Seizure-Free Intervals

Most states mandate that a patient be free from seizures for a length of time (the seizure-free interval [SFI]) before driving privileges are granted. The length of this SFI varies among states, but is most commonly an interval of 3 to 12 months.²⁰ The current trend among states requiring SFIs is towards shorter intervals of 3 to 6 months.^{4,10,20,21} Because shorter SFIs are preferred by patients, relaxed restrictions may increase improved self-reporting and compliance with regulations.²⁰ Although logic and some data indicate that a longer SFI may be safer, this may not necessarily be true.^{17,21} A comparison of accident rates in Arizona 3 years before and 3 years after reduction of the SFI from 12 to 3 months did not reveal a significant increase in the rate of seizure-related accidents.¹⁷

Some states grant driving privileges without requiring an SFI. In these states, a medical review board is consulted and a more individualized approach is taken.¹⁰ Detailed patient information, including an SFI, physician recommendations, records of patient compliance, exceptions, and the patient’s special circumstances, is reviewed.⁹⁻¹¹

Reporting Requirements

Because reporting requirements differ among states, physicians need to know and comply with them. A patient may reside in

a state that requires a 6-month SFI, yet be treated in a neighboring state that requires a 3-month SFI. In such circumstances, the treating physician needs to know what laws apply to the patient and provide appropriate counseling. The clinician needs to be aware that to maintain driving privileges in some states, authorities require periodic reports or updates from the patient’s physician. Therefore, the physician must be familiar with the reporting procedures and regulations in other states, especially those nearby.¹⁰

...varied rules and practices challenge physicians to remain up-to-date on regulations that impact their patients with epilepsy

Such updates may occur at set intervals, upon license renewal, and again these specifics vary by state. Physicians also have an ethical obligation to report a patient with uncontrolled seizures who is known to be driving; this is mandated in some states (eg, Delaware).^{8,22}

Mandatory Reporting of Epilepsy

In states that require mandatory reporting, physicians must report to driving authorities any patient with a confirmed diagnosis of epilepsy or a loss-of-consciousness disorder. This is a controversial issue that raises concerns for physicians and epilepsy groups. Recently, the number of states requiring mandatory reporting has decreased and this trend will probably continue.²⁰

In 2007, 6 states required that patients with a confirmed diagnosis of epilepsy be reported.²³ These states are: California, Delaware, Nevada, New Jersey, Oregon, and Pennsylvania.⁴ Increasingly broad language is used in the regulations. For example, in Delaware the reporting obligation is not specific to people with epilepsy. Rather the obligation includes people who suffer from loss of consciousness due to disease of the central nervous system that is not controlled and may impact the operation of a motor vehicle.¹⁰

Mandatory reporting, based on unsubstantiated claims of improved public safety, may negatively affect patient-physician communications.^{10,20,24,25} The consensus of international epilepsy experts suggests that mandatory reporting not be required.^{20,26,27}

Similarly, the Epilepsy Foundation position on driver licensing firmly opposes mandatory reporting, suggesting that epilepsy should not be classified as a reportable disorder.²⁵

One recent retrospective survey compared accident rates among persons with epilepsy in a region with mandatory reporting with those in a region where reporting of epilepsy was not required.²⁴ This review covered 425 cases of people with epilepsy, as well as 375 people without epilepsy for comparison. The survey found twice as many people with epilepsy were known to the authorities in the mandatory reporting region. However, accident rates among persons with epilepsy were the same in the areas with and without mandatory reporting, and the accident rates of those with epilepsy were comparable to those of the individuals without epilepsy.²⁴

Exceptional Cases and Restricted Licenses

States differ in whether they make exceptions to allow driving in certain cases and under what circumstances. In addition to firm regulations, a growing number of states are adding more flexible and informal practices for regulating driving with epilepsy.^{3,28,29} Several states allow persons with epilepsy to drive when their seizures only occur in certain circumstances. Some of these states, such as Arizona, permit people to drive if they have prolonged or consistent auras that reliably predict an oncoming seizure, giving the person enough time to safely stop driving.¹⁷ Unfortunately, patients and doctors don’t always agree on the proper length of aura and it is typically self reported. Iowa, Arizona and Massachusetts allow driving in specific circumstances, such as daytime driving for persons with seizures that have been established to occur only at night.³⁰⁻³²

Finally, states like Oklahoma and Utah may allow driving under a discretionary restriction for those who experience seizures caused by transient events, such as other illnesses or changes in medication.^{5,10,31} Clinicians need to be cognizant of a wide variety of regulations, informal practices, or guidelines applied in special circumstances that can impact driving privileges for their patients with epilepsy.

Table. Driving and Epilepsy: State by State Driver's Licensing Eligibility

State	Seizure-Free Period*	Periodic Medical Updates Required After Licensing	Doctor Required to Report Epilepsy	DMV Appeal of License Denial ¹
Alabama	6 months with exceptions	At discretion of DMV	No	Within 14 days
Alaska	6 months	At discretion of DMV	No	Within 30 days
Arizona	3 months with exceptions	At discretion of DMV	No	Within 15 days
Arkansas	1 year	At discretion of DMV	No	Yes
California	3 or 6 months with exceptions	At discretion of DMV	Yes	Yes
Colorado	No set seizure-free period	At discretion of DMV	No	Yes
Connecticut	No set seizure-free period	At discretion of DMV	No	Yes
Delaware	No set seizure-free period	Annually	Yes—if loss of consciousness	Yes
District of Columbia	1 year	Annually until seizure-free for 5 years	No	Within 5 days
Florida	6 months, with doctor's recommendation	At discretion of MAB	No	Yes
Georgia	6 months	At discretion of MAB	No	Within 15 days
Hawaii	6 months	At discretion of DMV	No	Within 30 days
Idaho	No set seizure-free period	At discretion of DMV	No	Within 20 days
Illinois	No set seizure-free period	At discretion of MAB	No	Within 30 days
Indiana	No set seizure-free period	At discretion of MAB	No	Yes
Iowa	6 months with exceptions	After first 6 months, then at renewal	No	Within 30 days
Kansas	6 months with exceptions	Annually until 3 years seizure-free	No	Yes
Kentucky	3 months	On renewal	No	Within 15 days
Louisiana	6 months with doctor's statement	At discretion of DMV	No	Yes
Maine	3 months, possibly longer	At discretion of DMV	No	Within 10 days
Maryland	3 months with exceptions	At discretion of DMV	No	Yes
Massachusetts	6 months	At discretion of DMV	No	Within 14 days
Michigan	6 months with exceptions	At discretion of DMV	No	Within 14 days
Minnesota	6 months with exceptions	As frequently as once every 6 months, depending on the circumstances	No	Yes
Mississippi	1 year	At discretion of MAB	No	Within 10 days
Missouri	6 months, with doctor's recommendation	At discretion of DMV	No	No
Montana	No set seizure-free period; doctor's recommendation	No	No	Yes
Nebraska	No set seizure-free period	No	No	Yes
Nevada	3 months with exceptions	Annually for 3 years	Yes	Within 30 days
New Hampshire	1 year, less at discretion of DMV	No	No	Yes
New Jersey	1 year, less with recommendation of Neurological Disorder Committee	Every 6 months for 2 years, then annually thereafter	Yes	Within 10 days
New Mexico	1 year, less with recommendation of MAB	At discretion of MAB	No	Within 20 days
New York	1 year with exceptions	At discretion of DMV	No	Within 30 days
North Carolina	6-12 months with exceptions	Annually, less at discretion of DMV	No	Within 10 days
North Dakota	6 months; restricted license available after 3 months	Annually for at least 3 years	No	Yes
Ohio	No set seizure-free period	Every 6 months, or 1 year until seizure-free 5 years	No	Within 30 days
Oklahoma	6 months with exceptions	At discretion of Department of Public Safety	No	Within 30 days
Oregon	3 months with exceptions	At discretion of DMV	Yes	Within 20 days
Pennsylvania	6 months with exceptions	At discretion of MAB	Yes	Yes
Puerto Rico	No set seizure-free period	At discretion of MAB	No	Within 20 days
Rhode Island	18 months, less at discretion of DMV	At discretion of DMV	No	Within 10 days
South Carolina	6 months	At 6 months, then annually for 3 years	No	Within 10 days
South Dakota	6-12 months, less with doctor's recommendation	Every 6 months, until seizure-free 1 year	No	Within 30 days
Tennessee	6 months with doctor's recommendation	At discretion of MAB	No	Within 20 days
Texas	6 months with exceptions	At discretion of MAB	No	Within 30 days
Utah	3 months with exceptions	At discretion of MAB	No	Within 10 days
Vermont	No set seizure-free period	At discretion of MAB	No	Within 10 days
Virginia	6 months with exceptions	At discretion of MAB	No	Yes
Washington	6 months with exceptions	At discretion of MAB	No	Anytime
West Virginia	1 year with exceptions	At discretion of MAB	No	Within 10 days
Wisconsin	3 months with doctor's recommendation	At discretion of MAB	No	Within 10 days
Wyoming	3 months with exceptions	At discretion of MAB	No	Within 20 days

*Many states that require one to be seizure-free for a specific period permit exceptions (a shorter period or none at all) under certain circumstances (for instance, where one experiences only nocturnal seizures or seizures due to a doctor-directed medication change). States with such exceptions are noted.

¹Time frames within which one must request an administrative review or hearing are given when known. Every state allows for appeal of license denial through the courts.

DMV=Department of Motor Vehicles; MAB=Medical Advisory Board.

Note: Nondriver identification cards are available in every state.

This chart was developed for information purposes by the Epilepsy Foundation's Legal and Government Affairs Department and reflects data available as of November 2008. Information is subject to change.

This chart is not a substitute for legal advice.

For more detailed information on driving laws, see www.epilepsyfoundation.org or call 1-800-332-1000. It is also recommended that you consult your state Department of Motor Vehicles. Legal help to fight

discrimination based on epilepsy is available from the Epilepsy Foundation's Jeanne A. Carpenter Epilepsy Legal Defense Fund—go to www.epilepsylegal.org or call 1-800-332-1000.

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(Permission requested; awaiting wording)

Legislative and Regulatory Weaknesses and Gaps

The current state regulations governing driving for persons with epilepsy have intrinsic weaknesses and some situations do not necessarily fit into these regulations. As discussed, many states provide driving privileges for patients who have been seizure-free for a given period. However, seizures can be underreported by patients who may not accurately remember them or even know that they have occurred.^{20,33-35} People with epilepsy may also misrepresent their seizure experiences to maintain their driving privileges.³⁶

Additionally, state laws do not specifically cover some of the less straightforward and controversial situations that may influence driving ability.^{11,20} Driving safety may need to be considered specifically for a person with juvenile myoclonic epilepsy. In some cases, driving may not be contraindicated in people with no residual manifestations. However, driving would be contraindicated for patients having brief spike and wave bursts who experience myoclonic jerks and 1- to 2-second periods of no awareness.²⁰ Another controversy stems from driving by people with generalized epilepsy who experience only occasional absences. Although absence or partial seizures while driving can be as dangerous as tonic-clonic seizures, the clinical management of people with absence or partial seizures may not always include medication and these events may still occur.^{4,20}

Conclusions

A myriad of laws and issues affect driving for people living with epilepsy. These regulations vary widely among states and are continuing to evolve. As driving privileges for people with epilepsy are based on seizure control, physicians play a vital role in decisions about driving and thus need to know the laws that apply to their patients. Although the variation in rules and practices may pose some difficulties, clinicians must comply with the applicable laws and appropriately counsel their patients with epilepsy about the driving regulations that apply to them.



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Suggested reading and further information

- Teenagers. Driving with epilepsy.<http://www.epilepsyfoundation.org/answerplace/Life/adolescents/Driving.cfm>
- Driving and transportation. Driving and you.<http://www.epilepsyfoundation.org/answerplace/Social/driving/drivingu.cfm>
- Transportation. Driver information by state.<http://www.epilepsyfoundation.org/living/wellness/transportation/drivinglaws.cfm>
- Driving laws.<http://www.epilepsyfoundation.org/answerplace/Legal/transit/drivelaw/>

Driving Privilege Issues

by Raman Sankar, MD, PhD



CASE STUDY

History

The patient is an 18-year-old young man who has been followed in our clinic for nearly a decade. He is distraught about experiencing his first seizure in nearly 5 years on the night of his high school graduation that resulted in a minor traffic accident. This seizure ensued after a combination of sleep deprivation from partying late with friends after graduation, moderate alcohol consumption, and missing 2 consecutive doses of his seizure medication.

He was first seen several years before for a second opinion for medically refractory epilepsy involving generalized tonic-clonic seizures. His neurological examination was normal and neuroimaging (CT and MRI) was unremarkable. EEG revealed intermittent bilateral slowing and rare generalized spike-wave discharges. He had been tried on a first-generation anti-epileptic drug (AED), with subsequent addition of a second first-generation AED. Poor seizure control and significant behavioral outbursts contributed to school problems. Brief trials with the addition of yet another first-generation AED worsened cognition and behavior, although freedom from seizures was achieved. A second-generation AED was then tried, to which he responded favorably. Over the next year he was successfully converted to monotherapy with this drug, and experienced seizures rarely and only when he missed a dose. His performance at school improved and his aggressiveness towards other students decreased. He has been helpful to his father in running the family business. He has been driving since the age of 16.

He feels remorse about his negligence in missing doses of his seizure medication and is now concerned about being allowed to retain driving privileges as he is starting college in a few weeks.

Highlights From the Case

- The patient's imminent departure for college, coupled with no easy way to get to his college from where he lives without driving, emphasizes the potential impact of losing driving privileges on his quality of life
- California state law mandated that the treating physician report the patient's seizure to the Department of Motor Vehicles (DMV)
- Adherence to a medication treatment plan is crucial in maintaining driving privileges for a previously brittle patient who has achieved seizure freedom
- Sleep deprivation, partying, and moderate alcohol consumption probably contributed to this patient's breakthrough seizure. This patient must manage his lifestyle appropriately and without exceptions to maintain seizure-free status and retain his driving privileges

Epilogue

The treating physician communicated the patient's history of excellent seizure control and the relationship of missed doses to the breakthrough seizures in a detailed report to the DMV. This report accompanied the patient's request for consideration by the DMV and is distinct from the short standard short form required by the DMV. By providing this additional communication to the DMV, the treating physician was able to use his knowledge of the special conditions of this case to influence the DMV's decision. The patient was counseled extensively. His appeal for restoration of driving was supported by documented monthly blood levels of the AED to demonstrate his adherence to the medication treatment plan and his seriousness about managing his illness. His driving privileges were restored by the DMV 4 months after the episode.

Expert Interview:

Practical Insights on Driving and Epilepsy From David M. Labiner, MD



In a special interview, David M. Labiner, MD, shared his thoughts on some issues surrounding driving and epilepsy. Dr Labiner provided information on the practical aspects of driving restrictions for people with epilepsy and common concerns that should be addressed during patient discussions about driving.

Question: What are the common legal restrictions on driving for people with epilepsy?

Dr Labiner: "In the United States, essentially 50 different sets of legal restrictions on driving for people with epilepsy exist because these are governed by the individual states.^{1,2} Each state sets regulations regarding how long a patient must be free of seizures to obtain a regular driver's license. Mandated seizure-free intervals range from no designated waiting period, where driving is left to the discretion of the physician and the state motor vehicle department, to periods of 3, 6, or 12 months with no seizures."¹

Question: How does risk of accident compare between people with epilepsy and people with other chronic medical conditions?

Dr Labiner: "The whole reason for restricting individuals with a perceived increased risk of accidents is to make the roads safer. The goal is to make driving not only safer for the person with epilepsy, but also for all others who share the road. The real issue is how safety can be assessed, and, ultimately, determining the seizure recurrence risk for individuals who have had a seizure. Whether safety can be assessed easily is controversial."

"Comparing patients with epilepsy to other populations with or without chronic conditions can be challenging. For example, women of all ages are statistically a safer group of drivers than men under 25. To the extent that this statistic also applies to women with epilepsy, a group of healthy individuals, men under 25, would also have a higher rate of accidents than women with epilepsy.^{3,4} Things are further complicated when relative risks for people with epilepsy are compared with those of individuals who have diabetes, heart disease, or other chronic medical conditions – or, even more dramatically, to individuals taking substances, such as alcohol or illicit drugs. Nowhere is it legal to drive under the influence of alcohol or mind-altering drugs in any circumstances. But the rules are not as strictly enforced in some ways as for those who might have had a seizure. So a fundamental unfairness arises in absolute comparisons, especially when you simply look at accident rates."

Question: What are important facts that you convey to your patients to help ensure they are able to continue to keep their license?

Dr Labiner: "The most important thing is to remain seizure-free. A driver's license can be a tremendous motivation, particularly to young people who can find it a terrible embarrassment to lose their license because of a medical problem. At the very least, losing driving privileges is certainly a major inconvenience. Therefore, this is one of the prime motivators we have regarding compliance to prescribed epilepsy therapy and for open discussions with patients."

"The rules regarding driving are not ones that physicians make or enforce, but most people with epilepsy will comply with regulations about which they are informed. If a patient is having problems, he or she most likely will come forward and be honest so that together we can get their seizures under control. Although some patients may be motivated to hide a seizure occurrence, as physicians we can encourage them to be honest in the face of severe consequences. One of the arguments we used for shortening the seizure-free period requirements in Arizona was that shorter periods could encourage more honest interaction between physicians and patients.^{5,6} Patients are motivated to keep their seizures under control to maintain their long-term driving privileges, even if it means not driving for 90 days."

Question: What index is commonly used to estimate driving risk?

Dr Labiner: "Other than seizure-free interval, no other markers determine the risk of seizure for a given individual. Critics of the rules point out that the seizure-free interval is based on voluntary information, which is inherently weak because of the possibility that patients may be deceptive. Additionally, the accuracy of patients' reports of seizures is an ongoing dilemma. Some patients may not realize that they are having seizures.⁵ As we know, approximately two-thirds of patients with epilepsy are controlled fairly easily, while the others have recurrent seizures.⁷ Among the more difficult group, someone who has seizures of which he or she is unaware may be unlikely to relinquish driving unless confronted with proof of his or her seizures. Some studies have suggested that a 6- to 12-month seizure-free interval may be safer as it excludes the more refractory patients.⁶ However, seizure-free intervals should not be applied blindly without taking into account individual patient characteristics. For example, a patient who routinely has seizures every 4 months will have a 3-month seizure-free interval, and yet this individual may not be able to drive safely."

Question: How does seizure-free interval relate to driving risk?

Dr Labiner: “Part of the problem is that good scientific evidence is limited. Some data have suggested that a person who is seizure-free at 3 months has approximately an 80% likelihood of being seizure-free for a year, and no significant incremental increase appears to be gained by waiting 6 or 9 months because a 100% predictive value is never reached.⁵ A case review analysis in Maryland indicated that longer intervals may be safer, as patients with a seizure-free interval of 12 months or more had a 93% reduced odds for an accident compared with those with shorter seizure-free intervals.⁶ Overall, the longer a person goes without a seizure, the more likely it is that the person won’t have more seizures – but the certainty never reaches 100%; the predictability levels off at approximately 85% to 90%.”

Question: What other legal requirements impact driving privileges for people with epilepsy?

Dr Labiner: “A few states also mandate physicians to report every seizure.² Overall, the medical and epilepsy community feel that mandatory reporting may negatively influence the honest interactions that patients with epilepsy need to have with their physician.¹ Patients may not be candid if they fear that doing so will suspend their driving privileges.”⁸

Question: What data exist to guide the number of months of seizure-free interval required for driving?

Dr Labiner: “It is somewhat arbitrary; 3 may be adequate for some patients, although valid arguments for a longer waiting period exist. It really depends on the individual patient. That’s actually the most important point; the system needs flexibility to allow for individual patient variability.¹ The laws should also accommodate subsets of patients who may safely drive because they only have seizures while sleeping or who have a prolonged aura that reliably predicts a seizure.^{6,9} For example, individuals who experience long auras before seizures may be able to drive safely because they could stop driving before seizure onset. The issue then becomes how to define an adequately long aura. Necessary braking distance may not be accommodated by auras that last only 10 or 15 seconds, but a documented longer aura may be adequate for safe driving.”

“Regarding the number of months of seizure-free interval, available data indicate that the risk of seizure recurrence after 3 months of seizure freedom is not significantly different from the risk of seizure recurrence after 6 or 12 months of seizure freedom. In Arizona, when we changed the waiting period from 12 months to 3 months in 1994, a group studied accident rates before and after the law was changed. This analysis revealed no meaningful increase in accidents when the shortened waiting period was instituted.⁴ The practical problem is that there are always going to be individuals whose seizures do recur or who don’t follow the rules.”

Question: Should you be concerned about a patient driving after an AED switch?

Dr Labiner: “There are general concerns regarding a change in AED therapy. Similar to other medications that can have sedating or other performance-impacting effects, a patient should generally

be told not to drive until he or she sees how the medication affects him or her. As long as the patient remains seizure-free, he or she will be legally allowed to drive. However, changes in AED regimen to reduce side effects may also impact seizure control. Therefore, monitoring that the regimen remains effective after any changes are made is important. Perhaps a more difficult situation exists when a patient who has been free of seizures elects to discontinue all his or her medication. Currently, no legal guidelines regarding driving when medication is discontinued exist, although we know some of these patients will have recurrent seizures. Physicians are then left to counsel patients as best they can. Recently, at an informal gathering of epileptologists in Arizona, we realized that all of us were essentially telling patients the same thing: not to drive for 3 months if they were discontinuing their medication entirely.”

Question: What can people with epilepsy do to protect their driving privileges?

Dr Labiner: “The number one impact the patients can make on driving privileges is to do their best not to have seizures. Obviously this is easier said than done, but truly that is the most important factor. At the end of the day, patients need to adhere as much as possible to the treatment regimen to keep their seizures under optimal control. I also emphasize to patients that they need to be honest with their physician. All physicians typically document that patients understand the rules that apply to them regarding driving. When we see patients from another state we make sure that we review their state laws with them, not just our local state laws. This issue may be particularly important where the geography is such that patients may come for treatment from multiple states.”

Question: When should patients with epilepsy voluntarily abstain from driving?

Dr Labiner: “Actually when patients with epilepsy abstain from driving, they are doing it voluntarily in most cases. By law, where reporting is not mandatory, patients are voluntarily complying by not driving when they do not meet the regulations. A good analogy is speed limit laws: the limits are posted and, if a person ignores them, he or she does so at his or her own risk. If a person with epilepsy drives, despite the fact that he or she is not supposed to, he or she faces not only legal, but also potential safety consequences.”

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