CIECA Report Medical Fitness to Drive
Final summarising report

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CIECA Topical Group on Fitness to Drive

Subgroup 2: Setting Standards for the Evaluation of Medical Fitness to Drive

CIECA

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Preface

The European Union has been a uniquely progressive force in international terms in promoting medical fitness to drive since 2006, implementing through a series of directives into European (and thereby national law) an array of legally binding standards related to medical fitness to drive based on the advice of high-level expert working groups.

However, the evidence and research base of traffic medicine continues to evolve rapidly, and there are differences arising in the interpretation and operationalization of these laws within the individual countries of the European Union (EU). This means that these directives need to be reviewed by driver licencing and testing bodies, in conjunction with traffic medicine experts and driver reablement specialists as to whether revision and/or additions need to be made to the directives, as well as considerations of how such review should most effectively take place, and to communicate these back to CIECA (The International Commission for Driver Testing)[1] and the Driver Licence Committee of the European Commission. To this end, CIECA Fit to Drive Topical Group was established in 2017 and consisted of two subgroups which addressed 1) Setting Standards for Disabled Driver Assessment and 2) Setting Standards for the Evaluation of Medical Fitness to Drive. The final reports from each subgroup form the basis of this document.

An increasingly important aspect of traffic medicine and driver reablement has been to ensure that there is clarity and rigour in the methodology of assessing medical fitness to drive, including off-road and on-road assessment. The handbook published in 2009 arising from the PORTARE project [1] was an important development in clarifying elements of on-road assessment but required updating and more advice on operationalization in terms of knowledge and skills of assessors in the light of emerging research over a decade. This was the basis for the formation of Subgroup 1 of the CIECA Fit to Drive Topical Group[2]. Subgroup 1's direction progressed towards the construction of high-level guidelines as core requirements for driver assessment, underpinned by the emergent on-line resource for practitioners (Pracdriva[3]).

Equally important is the increasing attention given to the rigour and applicability of guidelines on medical fitness to drive for healthcare professionals [2], as well as the opportunities for developing a dialogue between experts in traffic medicine and driver licencing and testing bodies [3]. Reviewing the stipulations for medical fitness to drive for the range of medical conditions outlined in the directives against emerging knowledge in traffic medicine was the basis for Subgroup 2 of the CIECA Fit to Drive Topical Group.

Although the two subgroups have clearly defined objectives as described in the introduction to the individual reports, it is important to understand the significance and interdependency between them and why this is important, as we believe this is where the true value of the Topical Group's work is reflected.

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[1] *www.cieca.eu*

[2] *Topical Groups are temporary domain-specific groups to focus on discussion and activity around a given area. Topical Groups provide an opportunity for CIECA Members with similar interests to discuss and explore particular areas of driver training and testing. [https://www.cieca.eu/our-organisation/organisational-structure]. Accessed 3 July 2020.*

[3] *PRACDRIVA: Practical Clinical Driver Assessment (Guidelines and Recommendations for the Clinical Process of Fitness to Drive) website in development 2020*

Subgroup 1: Setting Standards for Disabled Driver Assessment

Subgroup 1 focussed on the importance of, and definition of what is meant by driver assessment. This involved constructing best practice guidelines, sharing experience of practitioners involved in driver assessment, developing knowledge and new insights of all members, and introducing an on-line resource to be available for all practitioners involved in carrying out driver assessment.

Subgroup 2: Setting Standards for the Evaluation of Medical Fitness to Drive

Subgroup 2 set out to understand and discuss the differences and similarities between the Fitness to Drive (FTD) evaluation systems in different EU and European Economic Area (EEA) countries. The objectives of Subgroup 2 were to: describe the procedure used, assess medical fitness to drive in each country, learn from each other's procedures and legal requirements, find best practices, discuss differences and find suggestions for changes in Annex III of the EU Directive on driving licences.

Both subgroups acknowledge that road safety and the legal framework relating to medical fitness to drive is fundamental to the work of the FTD Topical Group. Associated with this is the need to ensure that people with a disability or health condition receive a fair and equitable service to optimise their mobility. Throughout the development of the work of both groups, an acceptance grew among the members of the FTD Topical Group that driver assessment is a complex clinical process, which is fundamentally different to the standard process of driver testing, and this project presented a unique opportunity to raise awareness of the significance of an integrated approach.

The majority of the members of FTD Topical Group participated as members of both subgroups. We think it would be fair to say that both groups faced several challenges, with members being aware of their own country or organisation's medical fitness to drive framework, the varied experience of driver assessment, as well as the potential impact of any recommendations from the groups. At the same time, the commitment and motivation of all members to resolutely and actively work towards a common purpose, by sharing their experiences and knowledge, has been remarkable and vital to the success of the work.

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Acknowledgments go as well to all CIECA member organisations that hosted Fit to Drive Subgroup 2 meetings in various places over Europe:

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Last but not least, the authors would like to thank all of Fit to Drive Subgroup 2 members for their guidance and comments, and to all CIECA members for answering nine comprehensive questionnaires related to medical fitness to drive.

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1. EXECUTIVE SUMMARY

Under the auspices of CIECA (The International Commission for Driver Testing)[4], an international European working group of experts on medical fitness to drive reviewed the need for changes within different relevant medical areas in Annex III of the European Directive on driving licences (EU Directive 2006/126/EC and Amendments 2009/113/EC, 2014/85/EU, 2016/1106). In the light of the findings of the working group the CIECA Permanent Bureau endorsed in its meeting of 18 September 2020 the following working group recommendations in the nine medical categories studied and discussed.

1.1. Vision

The group questions whether there is a need to mention glare, contrast sensitivity and twilight vision in the Annex III of Directive 2006/126/EC when there is no agreement on measurement methods and cut-off values.

For visual field defects, there is a need to have common methods to decide on medical fitness to drive between EU countries: defined methods to measure visual field defects and cut-off values for these methods should be specified in the Annex.

1.2. Diabetes

There is a need for clarification from the European Commission as to whether measuring blood sugar in interstitial fluid measurements can be accepted or not.

1.3. Sleep apnoea and narcolepsy

There is no need for amendments in this part of the Annex. Defining driver fitness with narcolepsy needs specific mention and could be managed under the general overview on neurology.

1.4. Alcohol use disorders

There is a pressing need for a new expert working group under the Driving Licence Committee for alcohol use disorders. Despite being implicated as a major factor in serious crashes, alcohol use disorders are a neglected area for policy and guidelines on assessment and management in the context of medical fitness to drive. The expert working group should include the use of modern technology, from biological monitoring to alcohol interlock systems, in their deliberations on medical fitness to drive procedures.

1.5. Cognitive disturbances

There is no need for changes in the Annex.

1.6. Mental health / psychiatric disorders

There is no need for changes in the Annex.

[4] *www.cieca.eu*

1.7. Neurodevelopmental disorders

There is a compelling need for changes and revised text in the Annex for neurodevelopmental disorders (including autism spectrum disorders and attention deficit/hyperactivity disorders (ADHD)) as there are an increasing number of scientific studies on the risks in traffic with ADHD as well as evidence of increased prevalence for this condition. The group recommends that the European Commission appoints a new expert working group to address fitness to drive with autism spectrum disorders, ADHD and related conditions.

1.8. Comorbidity

There is no need for more specification or amendment in the Annex in relation to comorbidity.

1.9. General procedures

Although the systems for assessing medical fitness to drive differed from country to country, no specific changes are recommended in the Annex for general procedures on testing medical fitness to drive.

In addition, the group recommends that the EU Driving Licence Committee reviews the processes for declaring medical conditions relevant to medical fitness to drive at licence application, renewal, and for emergent conditions between licencing, across member states to ensure consistent application of the 2006/126/EC Directive in a manner that is efficient, effective and evidence-based.

The Working Group also found that there is a pressing need for a European clearing house[5] and discussion forum for traffic medicine specialists and national driver licencing agencies. This would support learning and facilitate the development of best practice methodologies for assessing medical fitness to drive so as to better inform the Driving Licence Committee on an ongoing basis as the evidence base continues to develop.

[5] *Clearing house as defined in Collins Dictionary:" If an organization acts as a clearing house, it collects, sorts, and distributes specialized information. [https://www.collinsdictionary.com/dictionary/english/clearing-house]. Accessed 16 January 2020.*

2. INTRODUCTION

Medical fitness to drive is important from a number of perspectives. Personal mobility in the road traffic environment is a personal and societal benefit and relies on maintaining an appropriate balance between mobility and safety. Although medical conditions can affect driving safety and comfort, these can often respond to appropriate treatment and management such that driver fitness is restored. It is important that regulations and guidelines reflect the emerging evidence base to the greatest extent possible to prevent not only unnecessary restriction of mobility but also reduce risks posed to drivers and other traffic users from medical conditions relevant to fitness to drive

Research on the general magnitude of traffic crashes caused by medical conditions is rather scarce and gives rise to differing estimates. In an Australian in-depth study [4] of almost 300 crashes from 2008 it was concluded that almost half of those involved in the crashes had at least one pre-existing medical condition and that around 13% of crashes with serious injuries and 23% of fatal crashes was caused by medical conditions. In the study, cases where alcohol or illegal drugs were found were not included, although some of the crashes could be associated with the medical conditions abuse or dependence. It also did not include all cases with diseases of the eye as this was not investigated thoroughly. Neurodevelopmental conditions like ADHD were not discussed either. The authors stated that the percentages found was likely an underestimation of the problem.

The study of Sjogren et al [5] found lesser numbers when looking at drivers who were killed and the prevalence of medical conditions at autopsy. Drivers with what they termed “intrinsic medical factors” were often at fault and usually crossed over to the wrong side of the road and crashed into an oncoming vehicle or roadside object. In 6 % of these crashes, intrinsic medical factors were probably the underlying cause of the crash; in 1.3 % the probability was strong. In the $\geq$ 60-year-old group, intrinsic medical factors were considered as an underlying cause of the crash in 19 % of the cases, the probability was strong in 4 %.

In some cases, diseases can be optimally treated to make a person fit to drive again, but many of the conditions that constitute a danger in traffic are irreversible or progressive and some are associated with ageing. Some diseases, such as epilepsy, can impair fitness to drive for a long period but after observing for recurrence of events such as seizures or syncope, a driver can have his licence restored. If we want to address the problem with crashes caused by different medical conditions, we need to have guidelines and regulations to not only support remediation but also to revoke driving licences for licence holders whose illness impairs their fitness to drive. These need to be evidence-based and fit for purpose: for example, an Australian study of sudden natural death at the wheel [6] showed that these could not be predicted by changing medical fitness to drive procedures. In the European Union, when applying or renewing a driving licence, drivers must meet the minimum standards of physical and mental fitness as defined in Annex III of the European Directive 2006/126/EC.

All EU countries need to comply with the EU directives which they are required to transpose into national legislation. The requirements for medical fitness are regulated in the Annex III of the EU Directive on driving licences and Amendments (2006/126/EC; 2009/113/EC; 2014/85/EU; 2016/1106). However, as a directive requires member states to achieve a particular result without dictating the means of achieving that result, individual countries have developed national strategies, norms, and guidelines, and sometimes introduced more

specific requirements. However, also at a more general level, the general national procedures are subject to significant variation. Many national systems do not seem to have been devised based on a comprehensive and evidence-based rationale. In most cases the current systems are amended and tailored to political, social, economic, medical and historical context in the respective countries.

The wording in the Directive is very succinct in some medical areas, even when there is convincing evidence that these conditions carry a significantly increased risk of crashes. This is particularly so with alcohol use disorders, a common factor in road crashes, but rarely considered appropriately in terms of diagnosis and management for medical fitness to drive. The most recently implemented Annex III on diseases of the heart and circulation system, on the other hand, is very detailed but also offers the possibility to make exceptions even if a disease is likely to be very dangerous in traffic. Some areas in the Annex III have not been changed for many years and scientific progress in these areas has not been taken into account.

Differences in the national regulations within EU countries are large in some areas: conditions rendering a revocation of a licence on medical grounds are clearly defined in one country but to a lesser extent in other countries. In each country the manner of interpreting problems in the regulations might work within the country but licencing authorities in any one country may not be aware of the comparability or compatibility of corresponding regulations in other jurisdictions.

Other problems appear when there are significant differences in the interpretation of the regulations and practices between various countries. Lorry and bus drivers who are not allowed to possess a driving license in their own country due to a medical condition with stronger regulation will be disadvantaged when drivers from another country with less stringent regulation and practices can be granted a driving license with the same medical condition and then can work across borders and drive in the country with stronger regulations. This poses a significant risk for uneven conditions of competition between drivers from different nations.

Some countries have ambitious programmes in medical fitness to drive and also in some cases relatively strict national regulations. Changes in the Annex might not be requested as this process entails a significant amount of investigational work-up at a central EU level and there is also much work to be done with adapting the national regulations when new amendments in the Annex III are enacted into national legislation.

Aims, objectives and methods employed

In order to investigate these differences a working group was set up within CIECA (The International Commission for Driver Testing), the Topical Group on Fitness to Drive, and within it a Subgroup 2 on “Setting Standards for the Evaluation of Medical Fitness to Drive”. This Subgroup 2 set out to understand and discuss the differences and similarities between the fitness to drive (FTD) evaluation systems in different EU and EEA countries. The group consisted of 18 CIECA member organizations from 11 different countries: Austria, Belgium, Finland, France, Germany, Ireland, The Netherlands, Norway, Spain, Sweden, and the United Kingdom. The objectives of Subgroup 2 were to describe the procedure used to assess medical fitness to drive in each country, to learn from each other’s procedures and legal requirements, to find best practices, to discuss any differences and to suggest changes in Annex III.

The work was undertaken by nine different "small groups" after having identified medical areas where ambiguities were likely to be found or where there might be a need for new regulations and guidelines based on new scientific developments. The work started with the range of headings in the Annex that define the areas that should be assessed to get a driving licence. The small groups consisted of 2 - 3 persons with representatives from different countries. Some groups contained only members from the same country for reasons of convenience.

The medical areas selected for thorough investigation were:

1. Vision;
2. Diabetes (only group 2 licences);
3. Sleep apnoea and narcolepsy;
4. Alcohol dependency;
5. Cognitive disturbances;
6. Mental health / psychiatric disorders;
7. Neurodevelopmental disorders;
8. Comorbidity;
9. General procedures.

A questionnaire for each of these medical areas was designed by the members of each small group. The questionnaires consisted of between 7 to 34 questions. Some questions had yes / no answers, others were open and asked for clarifications or explanations. The questionnaires were discussed intensively at meetings and through e-mail correspondence. The aim of each questionnaire was different in each group since the ambiguities identified were of greater or lesser complexity. The questionnaires were designed to find differences that could point to the need for significant changes in the Directive and its annexes.

In some of the medical areas in Annex III, recent changes have been made and our deliberations concluded that these were up to date and useful in the assessment procedure in different countries. A questionnaire describing the general procedures and one on the concept of comorbidity was also included.

The questionnaires were sent out in two waves in the period from August 2018 until February 2019 by e-mail to 31 European members of CIECA (EU / EEA member states and Switzerland). An introductory letter explained its context, purpose, and requirements of the respondents. After the initial request for participation, all countries were reminded twice, the last time 3 weeks after the initial deadline. Because at the time of preliminary analysis additional questions and ambiguities sometimes arose, additional short questionnaires were sent out from some of the small groups. It was stated in the questionnaires that medical doctors within each country should be included in answering these quite detailed questions on medical issues.

The average response rate for all questionnaires was 53.2 %. A map with an overview of countries who answered the questionnaires can be found in annexes 6.2. and 6.3. of this report. The discussions in the Subgroup 2 about the response rate postulated that some of the countries did not have medical experts engaged in their procedures and others might have had problems with fluency in English. It was also noted from other CIECA questionnaires that the countries responding were those prone to answer other CIECA questionnaires as well.

Discussions in the working group about the response rate considered the available data a sufficient basis for developing important conclusions. For instance, the members of Subgroup 2 concluded that the countries who took part in this process were more active, interested and advanced in matters concerning medical fitness to drive issues. The fact that some countries did not respond was regarded as a result in its own right and it was suggested in the discussions that these may not yet have an advanced or developed work processes regarding these issues.

The results of the questionnaires were summarized in nine reports relating to each of the medical areas and intensively discussed by CIECA members at meetings between October 2018 and July 2019. The reports which were drafted by members of the small working groups are available on the CIECA website (www.cieca.eu)[6]. As one of the emerging issues was that of how medical conditions are notified to, and handled by, driver licencing agencies, a useful survey was carried out by a Dutch consultancy firm for the Dutch Ministry of Infrastructure and Water Management on this topic towards the end of our deliberations, which is referenced in section 3.9 by way of helpful context [7].

[6] *[https://www.cieca.eu/node/959]. Accessed 23 June 2020.*

3. RESULTS AND MAIN FINDINGS

3.1. Vision

Impaired function in a range of aspects of vision is obviously important in medical fitness to drive. The regulations in Annex III are quite specific, but the working group was aware from the start that the way the Annex was interpreted in different countries varied to a high degree. This was considered to be especially the case for visual field defects. A condition that would lead to a licence revocation in some countries would not even be examined in others. This was the reason to review this specific medical area.

In the answers to the questionnaires there were some ambiguities from respondents as to whether the questionnaire referred to group 1 or 2 licences.

Twilight vision, glare and contrast sensitivity were dealt with very differently between countries. As there are no agreed or specified methods to investigate these aspects of vision, a wide range of assessment methods were described.

Whereas double vision is a significant impairment to safe driving, with correction or after a period of adaptation to the condition it is often possible to drive safely. Most countries assessed this by using a combination of testing and a declaration by the licence holder of how the condition affected perception of the environment.

Visual field defects were assessed by very different medical methods (Esterman's, Humphrey's, Goldman's or Donder's method). The Annex states that there should be "no defects" in the central area of the visual field. This concept is interpreted very differently in the countries which responded. Depending on how accurate the method used measures a missing test point, this could mean very different degrees of central defects. When it comes to measuring how wide the visual field should be there are also the same large variations between countries according to the measuring method used.

It is not possible for an individual country to allow exemptions from the EU directives, but as some of the wording is not very specific, more than half of the countries have routines for exemptions from the national regulations. Most of these were only for group 1 licences, which the Annex permits. Exemptions were given for both visual field defects and low visual acuity. Six of the countries who indicated that they give exceptions also stated that one of the criteria for this is an on-road assessment.

Examples of when exemptions for visual field defects were given included:

- with isolated defects and a satisfactory driving assessment;
- with a certificate from a specialist in eye diseases who have found that there is no other reduction of the visual function such as glare, contrast sensitivity or twilight vision; the applicant must also complete and pass an on-road assessment;
- if there is a clinical assessment of full satisfactory functional adaptation;
- in case of no defect present within the circle with the radius of 20 degrees from the centre;
- in case of a low enough number of missing points when using a Humphrey or an Esterman test.

One country answered that exceptions can be allowed if all of the following conditions are met:

- defects have been present for at least 12 months;
- defects are caused by an isolated event or a non-progressive condition;
- there is no other condition or pathology regarded as progressive and likely to be affecting the visual fields (panel's advice is that certain medical conditions, for example glaucoma and retinitis pigmentosa, would always be considered as progressive and so could not be considered as exceptional cases);
- binocular vision is present;
- no uncontrolled diplopia exists;
- no other impairment of visual function, including no glare sensitivity, contrast sensitivity or impairment of twilight vision exists;
- clinical confirmation of full functional adaptation exists.
- For exceptional cases considered to be potentially licensable under these criteria, a satisfactory practical driving assessment at an approved centre will be required.

A small proportion of countries gave exemptions in cases of low visual acuity, mostly in group 1 only. Criteria used included:

- acuity above 0.3 and a satisfactory driving assessment;
- according to the results of an evaluation from a specialist in eye diseases;
- after an individually determined period when driving is not allowed and a satisfactory driving assessment;
- when visual acuity is between 0.16 – 0.4 and the driver uses a bioptic device and performs a positive on-road assessment.

For eye diseases that are potentially progressive most countries issue a licence with a limited validity.

As a general response on the chapter on vision in the Annex three countries do not think that it is detailed enough to give equivalent results of medical fitness when it comes to visual functions, but twelve countries believe that there is no need for any general amendments.

Half of the countries that responded see that there are some specific needs for changes in the Directive though. Suggestions include:

- monocular drivers should also be allowed to drive group 2 vehicles;
- the assessment of the colour vision should be strengthened;
- twilight vision should be operationalized;
- better guidance and a measure for the assessment of glare and contrast sensitivity;
- glare and contrast sensitivity aspects should not be a ground for exemptions when visual acuity is not sufficient;
- the requirements of 160 degrees for group 2 seems overly strict;
- the EU Directive should specify which method should be used for examination of each visual function.

The EU Directive has been interpreted differently in certain areas. One area is the visual field where for example many different methods are used to measure the visual fields. The meaning of "no defect" also differs between countries: this can lead to withdrawal of the driving licence in one country while the driving licence may be retained in another country.

Although several countries did not consider it necessary to amend the EU Directive as they are satisfied with the way they handle the criteria, the findings in this report demonstrate that the criteria in the EU Directive in some areas are difficult for countries to follow in an equivalent manner. Overall, many differences emerged in this assessment concerning whether a driving licence holder fulfils the medical requirements for vision. The working group expressed concern that the differences highlighted in this report represent a threat to road safety especially in the context of free movement across European borders. Therefore, we recommend that action be taken to highlight this issue and identify feasible solutions.

After discussions in Subgroup 2 the unanimous opinion was that there is a need either for clarifications in Annex III on what kind of measurement methods and cut-off values should be used when it comes to glare, contrast sensitivity and twilight vision, or a decision as to whether there really is a need at all to mention these aspects if it is not possible to reach consensus on measurement methods and cut-off values. For visual field defects there is good evidence that they are important in traffic, but it is hard to find robust scientific evidence to clarify specific values to measure and agreement on methods to be used. Despite this there is a need to have a more clearly defined common methodology to decide on medical fitness to drive between EU countries for vision: defined methods to measure visual field defects and cut-off values for these methods should be specified in the Annex.

3.2. Diabetes

The most salient risk for medical fitness to drive with diabetes mellitus is the risk of reduced consciousness because of low blood sugar (hypoglycaemia). This is not a consequence of the disease itself but of its treatment when treated with insulin or certain oral medications.

The working group found that the difficulties when assessing this risk are most prominent when it comes to group 2 drivers and the questionnaire thus focused on this aspect.

The limited time validity of the licence is seen as the main source for notifications to the authorities about diabetes and about problems with hypoglycaemias. Most countries do not have specialised teams for medical fitness evaluations of drivers with diabetes. A few countries saw the need for changes in the Annex. These were of the opinion that limited time validity for group 2 licences should be extended to five years instead of three years.

On-road testing is not a commonly used procedure when assessing licence holders with diabetes.

Almost all countries allow persons with a type 1 insulin dependent diabetes to hold a group 2 licence. Some countries do not for professional driving licences, for categories D1 and D, or for persons who drive emergency vehicles due to the combined risks associated with this type of diabetes and driving such vehicles.

When trying to evaluate the future risk for a hypoglycaemic event in traffic there is no common method to assess this, apart from what is described in the Annex. Regular self-monitoring, insight and knowledge are important factors to consider, as well as previous

episodes of low blood sugar. One country uses the C-peptide as one part of such an assessment, but most other countries do not think this is relevant.

The Annex states that measuring sugar should be based on blood levels. Modern monitoring systems often measure interstitial fluid with sensors instead. Five countries allow such measurements, but seven countries do not.

The small working group concluded that the Directive overall seems to have been interpreted in a similar way among the countries that responded. The majority of the countries think that the Directive is specific enough and that there is no need to amend it. However, there are some areas where clarifications could facilitate the application of the rules by member states. These include whether the use of an insulin pump with a sensor measuring a continuous level of interstitial sugar should be sufficient and which specifications are needed for the qualification of the certifying physician.

In its final discussions Subgroup 2 stressed that there is a need for more research to assess the current evidence for measuring glucose in interstitial fluid compared to in blood in terms of traffic safety. The unanimous opinion was that there is a need for clarifications from the Driving Licence Committee or the European Commission on whether we can accept interstitial fluid measurements or not.

3.3. Sleep apnoea and narcolepsy

In cases where licence holders suffer from diseases giving an increased risk of falling asleep at the wheel there is a clear need for driving fitness regulations. In many European countries the new cases of narcolepsy appearing after some immunization schedules for influenza has created a fresh need for licensing regulations for this hitherto uncommon disease. The regulations on sleep apnoea in the Annex have been changed recently and the focus of this questionnaire was mostly on these new cases but a review of how the recent regulations on sleep apnoea were implemented also featured in the questionnaire.

There was a big variation in regulations and practices on how sleep apnoea is notified to the authorities. In some countries, the doctors do not notify unfit drivers to the authority except in very special cases. Instead they have only a duty to inform the patients themselves who in turn are obliged to notify the authority. In most countries, the authorities acquire knowledge about drivers with obstructive sleep apnoea on the basis of medical certificates that have to be submitted with a regular schedule once the condition has been disclosed to them. Doctors have a (legal) duty to notify unfit drivers to the authority in only 3 countries.

The medical criteria in use include:

- adherence to treatment;
- good treatment response;
- amelioration of daytime sleepiness;
- regular medical review.

In most countries the investigation is performed by medical specialists or specially approved doctors using a sleepiness scale, apnoea-hypopnoea index (AHI) and other special tests.

Most countries include specific regulations for narcolepsy or other central disorders giving hypersomnolence, but many countries do not. Regulations differ for driving licences in group 1 and 2 in most countries and the main difference is the duration of review periods. Two countries declare that narcolepsy is only a barrier to driver licensing for group 2 drivers.

Seven out of ten countries which responded did not have suggestions for what a relevant regulation for narcolepsy and / or other central disorders of hypersomnolence should include or declare that the actual regulations are suitable. Some of those countries are sceptical about more specific regulations, including the consideration of not being able to take personal circumstances into account. Suggestions from three countries include the possibility to confirm satisfactory disease control by a doctor, more functional criteria and more exact criteria to issue the licence, and when the condition is to be regarded as effectively treated.

The majority of countries does not see the need to introduce changes in Annex III of the Directive concerning sleep apnoea and / or narcolepsy. The six countries that suggest a change have proposals relating to the need to define objective tests for measurement of excessive daytime sleepiness. After discussions in Subgroup 2 the unanimous opinion was that there is no need for amendments in Annex III. The consensus was that problems with narcolepsy in traffic could be handled under the general regulation on neurology in the Annex.

3.4. Dependence

The problems of alcohol as a cause for crashes is very significant. The challenge of deciding when a drunk driving offence was a result of an underlying medical diagnosis of dependency or abuse, and what the processes to determine this diagnosis was considered to be of special interest. The section in the Annex related to the misuse of alcohol was considered to be very vague when compared to that relating to the use of illegal drugs.

Sixteen of 18 countries (89 %) reported that they have regulations, medical and/or psychological guidelines about assessing medical fitness to drive for individuals with substance (alcohol and drugs) use disorders formulated in a law or driving licence ordinances. Nine countries reported that they have additional special / specific guidelines for assessments.

The most prominent means of notification about alcohol use disorders are by medical professionals, police or self-report. In most countries the decision that an assessment is necessary is made by a physician or medical expert. Sometimes this decision is made by the police based on recommendations of physicians.

Many different forms of the assessment were described, such as those by physicians, drivers' medical groups, medical commissions or medical boards. Almost half of answering countries rely solely on medical panels. In Germany a psychologist and a medical doctor working together are primarily responsible for the assessment. In Spain a Driver Assessment Centre (CRC) is responsible.

The support from other professions differed across responding countries. The following professions were involved:

- Psychologists / Traffic psychologists;
- Neuropsychologists;

- On-road driving assessors;
- Health care professionals;
- Independent or specialist physicians;
- National Office for Traffic Medicine / Emergency Medicine Physicians;
- Psychiatrists;
- Specialized centres for persons with substance use / misuse problems.

The use of psychologists in the process to assess and modify drivers' attitudes towards drinking and driving were prominent in three countries (Germany, Austria, Spain). In the discussions of the working group this was thought to be of additional value as compared to using biomarkers and/or a medical doctor's decision about the degree of abstinence of misuse in a specified period, but there was also a discussion in Subgroup 2 as to whether there was scientific evidence for the effects of such interventions.

It was considered that an on-road assessment could only be of value in the process to find out about future fitness to drive of persons with a dependency or misuse under very special circumstances, such as with brain damage or serious peripheral nerve damage from long-term use of alcohol/drugs.

In most countries it is possible to restore the driving licence when the treating physician decides that fitness to drive has been restored: in this process the period of proven abstinence is central. Biomarkers in blood or in some cases in hair can be used to confirm this.

Many countries differ between alcohol misuse and dependency in the regulations in terms of the duration of abstinence needed to establish sobriety. There were big differences between the period needed for this among countries and also depending on whether it was for a group 1 or 2 licence.

Some countries specify what biomarkers in blood should be used but most leave this to the discretion of the doctors. Where specific tests are part of the regulations, there are differences between the countries specifying which tests to use: CDT (Carbohydrate deficient transferrin) and PEth (Phosfatidyletanol), emerging and promising tests are used in a minority of countries. Hair tests are used in two countries.

Countries applying testing for biomarkers of alcohol consumption or testing for drugs stress the importance that the person to be tested does not know the date of testing in advance. Knowing the test date in advance, the person to be tested may be able to modify use of the drug or alcohol with the aim of lowering the value for prediction of future sobriety. The licence applicant/holder does not know in advance when the testing will be done in only a few countries.

In some countries it is possible to retain the driving licence sooner under certain conditions:

Austria, Denmark, Finland, France, Sweden	Alcohol interlock system
Denmark, France	Alcohol interlock with courses
Germany	Alcohol / drugs courses
Portugal	Training action
Spain	Penalty point system

In terms of how to prove sobriety and the length of time required for abstinence/control before resuming driving there is much to gain from an interchange of experience from each jurisdiction and from evaluation of best practice. This also applies to use of alcohol interlocks and choice of biomarkers to be used.

Most countries that responded make it conditional that a driver with alcohol dependency whose licence has been restored to undergo further testing: this period varies from 6 months to 5 years. Licence durations are restricted in some countries, sometimes accompanied by an obligation to produce a medical certificate after specified periods.

The need for changes in the Annex was not included in this questionnaire. The procedures to make the decision to revoke a driving licence are very heterogeneous. There are major differences e.g. in the regulations (no clear definition of abuse/misuse problems), use of clinical manuals, in the responsibilities to revoke a driving licence, and in the professions involved.

It should be possible to find best practices through discussions between representatives from the different European countries and to publish them as a methodological toolbox for Europe. With this toolbox every European country can decide to change their own system or to add some new aspects into their own system.

In the final discussion in Subgroup 2 it was agreed that there are possibilities to learn from each other between countries and to find a best practice toolbox together. It was however also the unanimous opinion that there is a pressing need for a new expert working group under the Driving Licence Committee for alcohol use disorders.

This group should also assess the potential for using alcohol interlock systems as a means of ensuring driver fitness. The present content of the Annex is outdated and too short in relation to the enormous problem the EU has with drunk driving among persons with alcohol use disorders. It also lacks relevant updates from emergent scientific knowledge on assessment, management and prognosis. The need for this urgent updating is supported by the formal review of implementation of Directive 2006/126/EC commissioned by the European Commission, which stated that standards on drugs, alcohol and medicinal products could be more precise [8].

3.5. Cognitive disturbances

Cognitive disturbances, including dementia, represent a medical area of potential and developing concern regarding medical fitness to drive, especially among older drivers. It is also an area where much effort has been put into developing specialised traffic medicine units and mobility centres in some EU countries. Stroke with cognitive sequelae or emergence of a new dementia diagnosis are relatively common clinical situations and most doctors in practice with adults could face the situation of having to decide whether a patient is fit to drive in such cases.

When it comes to notifying the licensing authorities, although one country has no defined system, most countries stated that there were several ways of notifying for the driver, and / or doctor / practitioner. Two countries do not require notification to the licence authority at

all. Most countries reported that a medical examination, combined with a driving assessment if indicated, is required to assess driver fitness. A minority of countries has specialised teams for assessments.

Most countries have specific guidelines relating to cognitive disturbances and because they use these guidelines and stricter national regulations, the majority of countries did not express a need for changes or additions to the relatively unspecific phraseology in the Annex.

The small working group summarized that there are many different practices in place to evaluate the medical fitness to drive of drivers with cognitive disturbances. This creates an inconsistency with standards and procedures and highlights the requirement to find best practices through discussions between representatives from different European countries. Although there was considerable heterogeneity in the responses submitted, this diversity could be seen as an opportunity to learn from one another. The fact that most countries seem to use also an on-road assessment before the final decision is deemed to be encouraging. There is a need to work more with clinical guidelines for medical practitioners and there might also be a need for monitoring the quality of assessment provided by different organizations in the different EU countries.

After discussions in Subgroup 2 the unanimous opinion was that there is no need for changes in Annex in this field.

3.6. Mental disorders

There is a lack of evidence with regards to the risks stemming from psychiatric illness / mental health [9]. Mental health disorders are often accompanied by a lack of insight on the part of the person to their difficulties. Hence it is important to look at how such conditions are reported to the licensing authorities. In this regard self-declaration ranked equally with physician reporting as the most common forms of notification.

For virtually all countries the medical fitness to drive process involves the provision of a certificate by a physician: when the assessing doctor is unable to certify fitness, an on-road assessment is possible in four out of 15 countries.

Only two of 15 countries considered the wording in Annex III to be inadequate or not appropriate, although it is relatively broad and non-specific.

The authors in the small working group have two recommendations:

- The European Commission should consider funding further research linking medical records of drivers with psychiatric illness / mental health issues and crash rates;
- In addition, the group recommends that the EU Driving Licence Committee reviews the processes for declaration of medical conditions relevant to medical fitness to drive at licence application, renewal, and for emergent conditions between licencing, across member states to ensure consistent application of the 2006/126/EC Directive in a manner that is efficient, effective and evidence-based.

After discussions in the working group the unanimous opinion was that there is no need for changes in Annex III in the section dealing with mental disorders.

3.7. Neurodevelopmental conditions

In recent years the concept of neurodevelopmental conditions has been more widely used to categorize young persons, and those transitioning to adulthood, previously described under terms including intellectual disability, but now including autism spectrum disorders and attention deficit/hyperactivity disorder (ADHD). The syndromes included may feature impaired cognition, concentration or learning problems, or problems with hyperactivity. One research study indicated that around one fifth of all crashes caused by young boys and adults could be explained by the presence of a diagnosis of ADHD [10]. A subsequent review disputed this elevated risk [11].

Some countries have implemented regulations for driver fitness regarding such medical conditions, but there is no specific description of them in the Annex and the need for a discussion about such diagnoses was thought to be a relevant theme for one of the questionnaires.

The authors of the small group report started by defining such diseases, including Down's syndrome, autism spectrum disorder, Asperger's syndrome or attention deficit/hyperactivity disorder (ADHD). Their introduction states that it is important to note that the severity of the conditions vary significantly. While the impact may be mild and allow people to live a relatively normal life, including driving a car, some affected individuals require full-time help for everyday aspects and will be unable to master the complex process of operating a vehicle in traffic.

Most of the countries do not have specific regulations / medical and psychological guidelines about assessing medical fitness to drive for individuals with neurodevelopmental conditions (e.g. ADHD, ADD, Asperger's syndrome, autism or learning disabilities) formulated in a law or driving licence ordinance. Only four countries confirmed the existence of such guidelines.

In about one third of the countries the regular application process does not check for any neurodevelopmental conditions. The other countries mostly rely on self-declaration on the topic of neurodevelopmental conditions. If one of these conditions is reported then further investigations are initiated. Short-duration licences are common in these cases.

On-road assessments are in use in 10 of the countries. The methods of conducting the assessments vary between jurisdictions. The most notable aspect is the high level of variance in the institution or person assuming the role of assessor. This can be done by specialized centres or driving examiners, depending on the country. In addition, differences can be observed in length of the on-road assessment, as well as in the definition of the roads on which the assessment should take place.

A small number of participating countries expressed the wish for more specific regulations on neurodevelopmental conditions. This should however serve only as a guideline and not as a new directive.

The group considers that currently it should be still possible to find a common regulation as an orientation for Europe. It would be preferable to avoid making these guides mandatory, because the implementation and acceptance of this guide would be diminished by lack of evidence, and variability in affected drivers and assessment systems. With this toolbox every European country could decide to change their own system or to add some aspects into the own system.

After discussions in the working group and evolving opinion in the small working group on reading scientific studies on the risks with ADHD, the unanimous opinion of the working group was that there is a significant need for changes and a completely new text in Annex III in this field. The group recommends the European Commission to appoint a new expert working group to address the risks with neurodevelopmental disorders but also to look at how procedures on driver training could be adapted for persons with different forms of learning disabilities to undergo the licensing training.

3.8. Comorbidity

The problems of assessing licence holders with more than one disease were recognized as important in the considerations of Subgroup 2. The group agreed that there is no general agreement on the meaning of the term, but related constructs are multimorbidity, morbidity burden, and patient complexity.

Comorbidity was defined pragmatically as the presence of one or more additional mental, neurodevelopmental, medical, or physical condition, disease or disorder co-occurring with (that is, concomitant or concurrent with) a primary condition, disease or disorder relevant to medical fitness to drive.

It is interpreted as the notion of burden of illness or disease, defined by the total burden of dysfunction, and is therefore linked to total impact on patient-reported outcomes, including function. Hence, the comorbidity concept reflects not only the multiplicity of conditions, but also the interactions between them influencing the total burden of dysfunction. This total burden is influenced not only by health-related characteristics, but also by socioeconomic, cultural, environmental, and patient behaviour characteristics.

Comorbidity in the clinical setting is associated with worse health outcomes, more complex clinical management, and increased health care costs but its impact on medical fitness to drive is unknown, and in one study was not associated with reduced driving performance [12].

Annex III includes 13 chapters and the final chapter concerns ‘miscellaneous conditions’. It includes organ transplants and artificial implants, as well as the category ‘not mentioned above’.

As a general rule the ‘miscellaneous provision’ states that, where applicants or drivers suffer from any disorder which is not mentioned in the preceding paragraph but is liable to be, or to result in, a ‘functional incapacity’ affecting safety at the wheel, driving licences shall not be issued or renewed unless the application is supported by authorized medical opinion and, if necessary, subject to regular medical check-ups.

The mentioned concern in the Annex about 'functional incapacity' is a common concern in medical practice. The functional state of a patient is not only determined by the medical diagnoses alone. Total patient functioning is the result of coping mechanisms, interactions between several diagnoses, personality characteristics, behavioural components, etc.

To refer to the 'functional incapacity' mentioned in the Annex III and to the complexity of 'total patient functioning' we used the term 'comorbidity' as discussed and defined above and a questionnaire was designed.

All countries confirmed that comorbidity is taken into consideration in some way, but fewer had specified regulations about it. The possibility to quantify the importance of comorbidity was used in only one country but the significance to medical fitness to drive of the concept is unclear.

In conclusion, comorbidity in the FTD procedure is a recognized element of medical assessment. It is advisable to assist the clinician to apply the concept in a consistent and uniform manner, for example in trying to quantify it, currently not performed in a uniform manner. Since comorbidity is a clinical and interpretative concept, more formalized measures may assist, but will not replace the individual clinical assessment of drivers.

The working group concluded that there is no need for more specifications or amendments in the Annex in this field.

3.9. General procedures

In the discussions within the working group it became clear that it was difficult to answer some questions because the systems in the separate countries were so different. With a questionnaire about medical fitness to drive the group tried to determine at a general level the differences and similarities between the fitness to drive (FTD) evaluation systems in each EU and EEA country. As one of the emerging issues was that of how medical conditions are notified to, and handled by, driver licencing agencies; a useful survey was carried out by a consultancy firm[7] for the Ministry of Infrastructure and Water Management in the Netherlands on this topic towards the end of our deliberations [7].

The enquiry by the CIECA working group about the process of FTD evaluation occurred against a background of the requirement in the 2006 Annex "Proof of fulfilment of compliance with minimum standards of physical and mental fitness for driving by drivers of vehicles used for the transport of persons or goods should be provided when the driving licence is issued and periodically thereafter" and "Member States should be allowed to impose medical examinations as a guarantee of compliance with the minimum standards of physical and mental fitness for driving other motor vehicles. For reasons of transparency, such examinations should coincide with a renewal of driving licences and therefore be determined by the period of validity of the licence".

All countries confirmed that they had implemented all relevant Directives (2006/126/EC, 2009/113/EC, 2014/85/EU, 2016/1106). However, not all countries implemented all aspects

[7] *Andersson Elffers Felix Consultancy*

of the directives to the same extent and in the same way. Some countries merely translated the Annex III into a national legal format; others transposed it into guidelines or a handbook, being more elaborate and extended, and, more importantly, of clinical utility.

It is obvious that these different methods of implementation, namely a literal transposition versus a clinical guideline, cannot have the same status or format. For instance, it was confirmed in that the legal status of the FTD procedure was reported to be a law in 15 countries, a decree in two countries and a regulation in one country.

It was estimated by most of the respondents that changing or adapting the procedure would prove to be difficult and laborious. Evidently, the higher the level of legal status of the instrument implementing Annex III, the more difficult it would be to change. The national FTD procedure was said to be a broadly understood practice for the general public in most countries.

The outcome of the FTD procedure was described as a medical certificate by most respondents, and as a report or an administrative decision by a minority. In a majority of the countries the final decision is taken by the authority (or police). In a third of the countries the assessing physician, the treating physician, or another team of experts decide individually and on their own. The same proportions hold for the question on who owns the outcome of the procedure. Mostly it is the applicant but in one third it is the administrative body.

For the psychological assessment the picture was somewhat different. Contrary to the medical profession, which is always included, three countries do not foresee the involvement of psychologists. All the other countries do or can include them in the FTD process, mostly based on a recommendation in the medical decision.

A similar picture emerged in relation to on-road assessments in the FTD procedure: a majority confirmed to involve these, mostly after a medical decision about it. On-road assessments are not performed at all as a part of the FTD procedure in four countries. The doctor performing the medical assessment requires specific qualifications or accreditation in the minority of countries.

Almost all countries use some restriction codes. The most commonly used codes reflect restrictions to daytime driving only (code 61), limited within restricted radius (code 62), limited to restricted speeds (code 64), and no motorway driving (code 67). Almost half of the countries also use national restriction codes.

In all countries different procedures are reported for group 1 and group 2 licences. Licencing for a smaller vehicle for professional use (like a taxi) in some countries goes under group 1, in others in group 2. Almost half of the countries have different procedures for different categories within each of the two driving licence groups, as for example between motorbikes and personal cars.

Sometimes the result of a FTD assessment could be that car adaptations are required, and the licence will be restricted to driving only a specially equipped car. The restriction is done by means of codes (EU Directive 2015/653). Licence retraining of the driver after such an adaptation is not used in most countries

In one country no formal declaration or other medical action is requested at the first driving licence application at all, and in one country every application is subject to a medical assessment. In two countries the procedure starts with the submission of a medical certificate. In all other countries driving licence application starts with the submission of some sort of itemized self-declaration of relevant medical conditions.

The FTD procedure applied at driving licence renewal is similar to the procedure at first application. Seven countries are less demanding at renewal: either they do not longer require any declaration or other medical document or request it only when the validity was limited for medical reasons, or for reasons of advanced age. Half of the countries report that drivers are required to report any medical condition relevant to FTD if it develops between driving licence renewals.

The small working group summarizes that although all countries reported that they are fully compliant with the EU Driving Licence Directive, the national implementation differs substantially. The medical profession is at the heart of the procedure and the end product is often a medical certificate. The process in general has no links with the general health care system or other areas as driver training, driver examination or vehicle inspection after adaptation.

The above-mentioned survey carried out for the Dutch Ministry for Infrastructure and Water Management by Andersson Elffers Felix Consultancy (2020) reflected one of the emerging issues as to how reporting to the relevant driving licence authorities in general is done in the different countries:

- All EU/EEA countries which responded undertake vision assessment at application for first licence for group 1 drivers using a range of assessments, including doctors, optometrists and driving test assessors. Medical assessment is undertaken by one or more modalities of self-declaration, medical examination and/or psychology assessment. The requirements are generally more stringent and detailed for group 2.
- Age-based reassessment takes place in some but not all EU/EEA countries, with the cut-off for differentiation from usual licencing procedures ranging from the age of 40 to 75 years among those that undertake such testing.
- There is variability in the requirements for drivers to report illness affecting fitness to drive. Drivers in some countries are obliged to report such illness (EST, FIN, H, UK, IRL), whereas they are not so obliged in others (BE, DK, P, E, S, CH).
- Mandatory obligation for doctors to report drivers with certain medical conditions that could affect driving to licencing authorities occurs in a minority of countries (BE, D, FIN, H, P, S): consideration exists in most other countries for physicians reporting those considered a danger to others who will neither report themselves nor cease driving.
- For reports of intercurrent illness, a medical certificate is sought by the driver licencing agency in a majority of countries, and some will withdraw the licence pending further enquiry.
- The majority of countries factor in shortened licence review periodicity for progressive conditions.

The group therefore recommends that the EU Driving Licence Committee reviews the processes for the declaration of medical conditions relevant to medical fitness to drive at

licence application, renewal, and for emergent conditions between licencing, across member states to ensure consistent application of the 2006/126/EC Directive in a manner that is efficient, effective and evidence-based.

4. CONCLUSION

Under the auspices of CIECA, an international European working group of experts on medical fitness to drive assessed the need for changes within different relevant medical areas in Annex III of the European Directive on driving licences (EU Directive 2006/126/EC and Amendments 2009/113/EC, 2014/85/EU, 2016/1106).

Differences in the national regulations within EU countries are large in some areas. When individual countries interpret the regulations such that they work for them, they need to be aware that differences between jurisdictions are problematic and can have a negative impact on road safety generally. Although only a few countries asked for changes in the Annex, the expert group found a need for such changes when looking from an overall perspective. One reason for not asking for changes was that the process of implementing changes in the Annex entails a significant amount of investigational work up at a central EU level and also much work with adapting the national regulations when new amendments in the Annex III are enacted into national legislation.

The working group makes the following recommendations within each medical field examined:

4.1. Vision

There is sufficient evidence that visual field defects are important in medical fitness to drive, but it is hard to find robust scientific evidence to define which exact values to measure and what methods to use. Despite this there is a need to have common methods to decide on medical fitness to drive between EU countries: defined methods to measure visual field defects and cut-off values for these methods should be specified in the Annex.

There is also a need for clarification in Annex III on what kind of measurement methods and cut-off values that should be used for glare, contrast sensitivity, twilight vision: in the absence of agreed clarification, the group questions whether there really is a need to mention glare, contrast sensitivity and twilight vision in the Annex.

4.2. Diabetes

There is a need for clarification from the European Commission as to whether measuring blood sugar in interstitial fluid measurements can be accepted or not for the evaluation of risk for hypoglycaemia.

4.3. Sleep apnoea and narcolepsy

There is no need for amendments in this part of Annex III. Defining driver fitness with narcolepsy, which has emerged as a more common problem in some European countries due to some immunisation programs, could be managed under the general overview on neurology.

4.4. Alcohol use disorders

The text in the Annex is out of date, lacking relevant updates from scientific knowledge about diagnosis, management and prognosis of alcohol use disorders, and is generally lacking in detail. Large differences in driving cessation periods until abstinence/control and testing routines for establishing sobriety were found between countries. There is a pressing need for a new expert working group under the Driving Licence Committee for alcohol use disorders. This group should examine the possibility to use alcohol interlock systems as part of medical fitness to drive procedures.

4.5. Cognitive disturbances

There is no need for changes in Annex.

4.6. Mental health / psychiatric disorders

There is no need for changes in Annex.

4.7. Neurodevelopmental disorders

There is strong scientific evidence that this group contains individuals who constitute an increased crash risk, which can be reduced by appropriate medical advice and management. Despite this the respective section in the Annex is very brief and not specific enough. There is a compelling need for changing and revising the text in Annex III related to this field. The group recommends that the European Commission develops a new expert working group to address fitness to drive with autism spectrum disorders, ADHD and related conditions.

4.8. Comorbidity

There is no need for more specification or amendment in the Annex in relation to comorbidity.

4.9. General procedures

Although the systems for assessing medical fitness to drive differ across the countries, no general changes in Annex III in this area are recommended.

Based on their deliberations, the working group commented that there is a pressing need for a European clearinghouse and discussion forum for traffic medicine specialists and national driver licencing agencies to learn from each other and to develop best practice methodologies for assessing medical fitness to drive. The Driving Licence Committee is not such an arena.

In addition, the group recommends that the EU Driving Licence Committee reviews the processes for declaration of medical conditions relevant to medical fitness to drive at licence application, renewal, and for emergent conditions between licensing, across member states to ensure consistent application of the 2006/126/EC Directive in a manner that is efficient, effective and evidence-based.

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6. ANNEXES

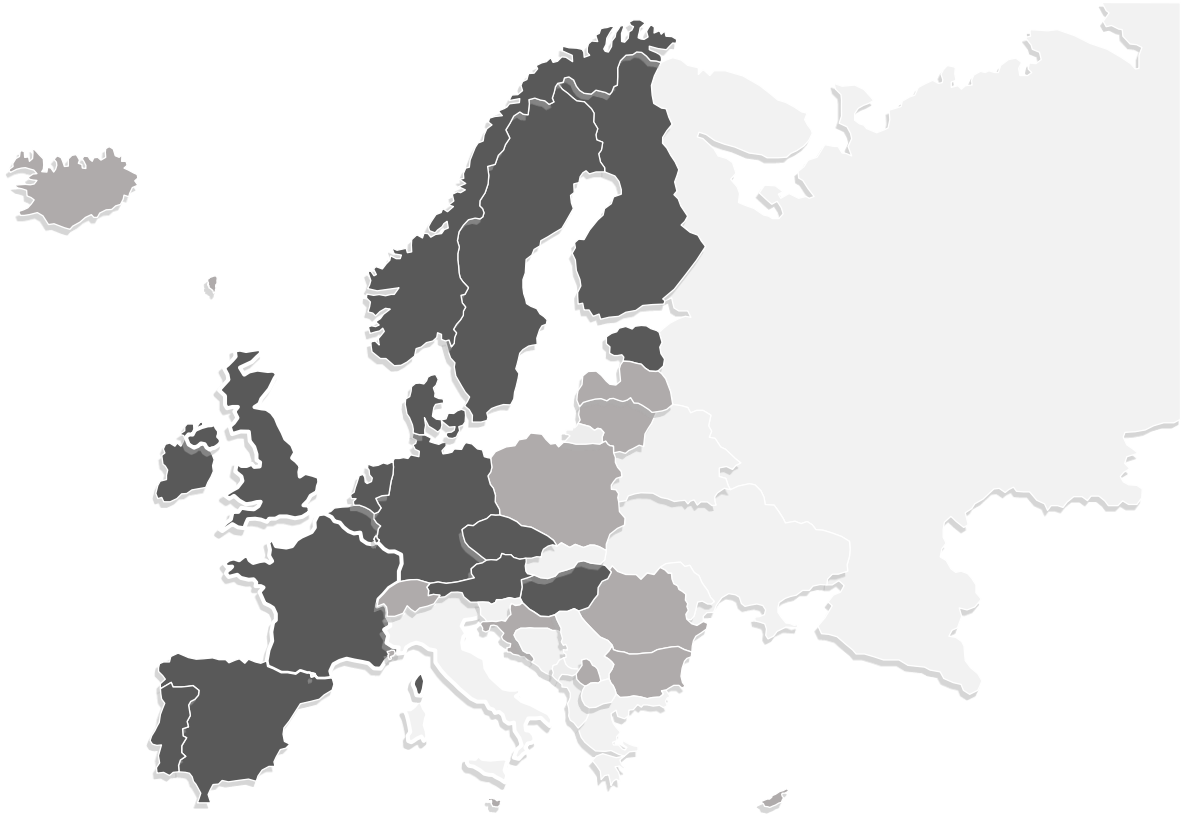
6.1. Original Working Group Reports on Medical Fitness to Drive

1. Vision
2. Diabetes – group 2 licences
3. Sleep apnoea (OSAS) + narcolepsy
4. Dependency – alcohol / drugs / medicines
5. Cognitive disturbances
6. Mental disorders
7. Neurodevelopmental conditions
8. Comorbidity
9. General procedures

The original Medical Fitness to Drive reports drafted by members of the CIECA Fit to Drive Subgroup 2 "Setting Standards for the Evaluation of Medical Fitness to Drive" finalized in October 2019 can be found in https://www.cieca.eu/node/959 (Accessed 23 June 2020).

6.2. Map of countries that answered to 1st batch of questionnaires

This includes questionnaires on General procedures, Dependency – alcohol / drugs / medicines, Vision, Cognitive disturbances, Comorbidity and Diabetes – group 2 licences.



Responded: 18
Austria
Belgium
Czech Republic
Denmark
Estonia
Finland
France
Germany
Great Britain
Hungary
Ireland
Luxembourg
The Netherlands
Northern Ireland
Norway
Portugal
Spain
Sweden

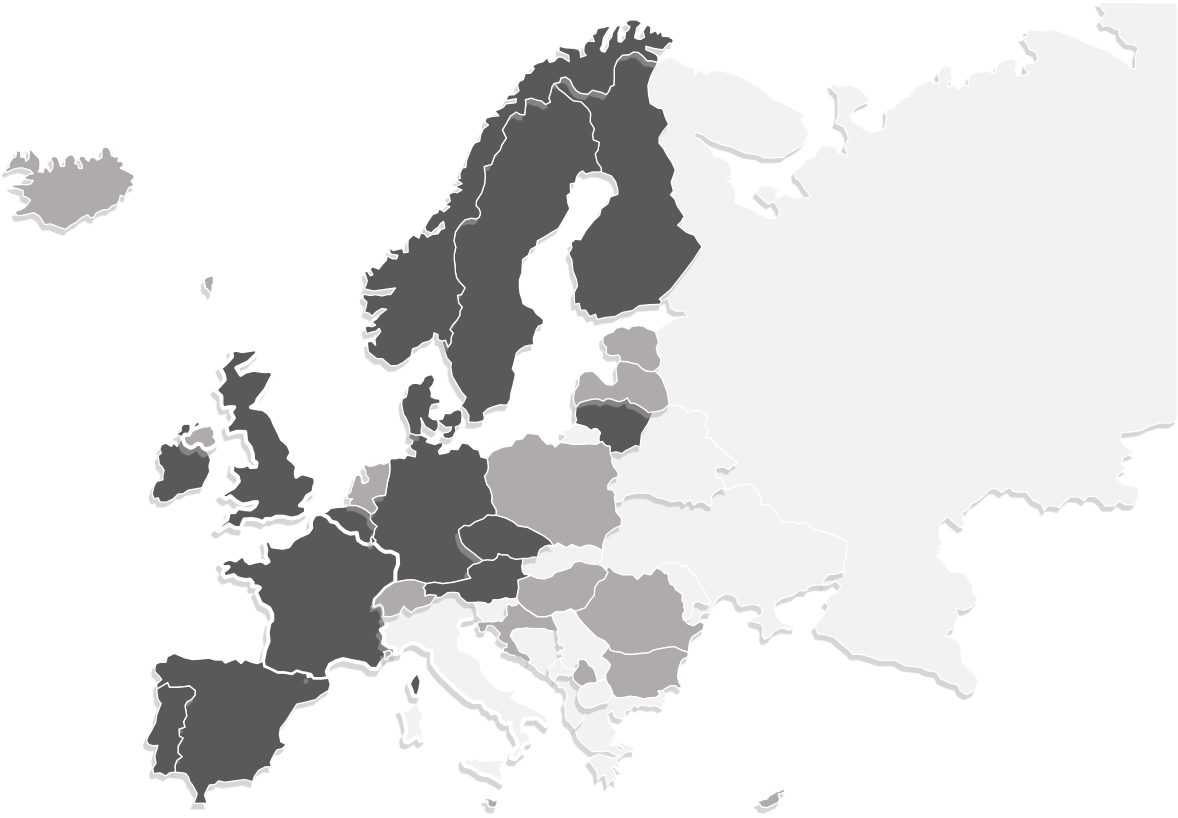
No answer: 13
Bulgaria
Croatia
Cyprus
Faroe Islands
Iceland
Kosovo
Latvia
Lithuania
Malta
Monaco
Poland*
Romania
Switzerland**

Remarks
*Poland: responded to additional questions on General procedures only
**Switzerland: responded to additional questions on General procedures and Dependency only

No questionnaires have been sent to no CIECA effective members / no CIECA members

6.3. Map of countries that answered to 2nd batch of questionnaires

This includes questionnaires on Sleep apnoea (OSAS) + Narcolepsy, Mental disorders, Neurodevelopmental disorders and Comorbidity.



Responded: 15
Austria
Belgium
Czech Republic
Denmark
Finland
France
Germany
Great Britain
Ireland
Lithuania
Luxembourg
Norway
Portugal
Spain
Sweden

No answer: 16
Bulgaria
Croatia
Cyprus
Estonia
Faroe Islands
Hungary
Iceland
Kosovo
Latvia
Malta
Monaco
The Netherlands
Northern Ireland
Poland
Romania
Switzerland

No questionnaires have been sent to no CIECA effective members / no CIECA members