

Public Awareness-Raising Activities for the Prevention of Health-Related Accidents in Asia

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- Background and Purpose of This Study
- Description of Social Contribution Projects for FY2020
 - Holding an international symposium
 - Creation of the awareness-raising video (short version)
 - Creation of the awareness-raising video (long version)
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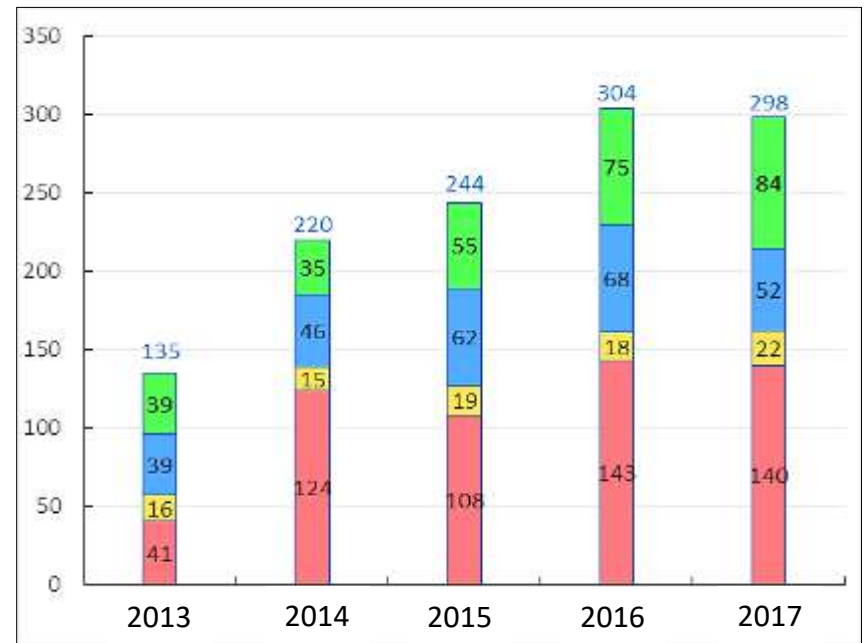
Health-related Accidents

- Definition by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT): The driver is unable to continue driving the business vehicle due to illness.

(Article 2 of the Automobile Accident Reporting Regulations)

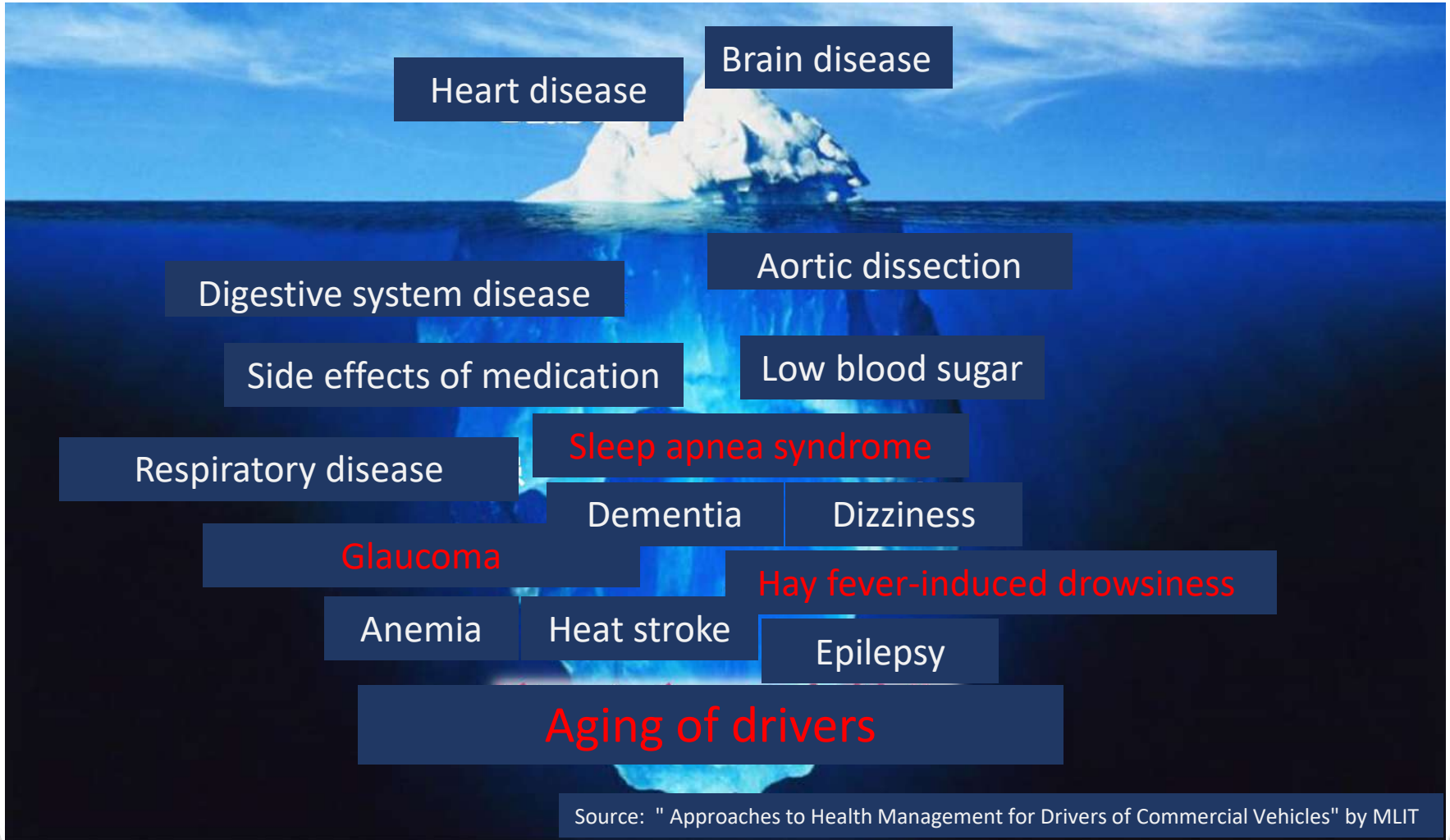
- The prevention of health-related accidents is an important issue in traffic accident prevention.

Number of Reports of Health-related Accidents
(Number of Cases per Business Category)



Source: "Status of Health-Related Accidents and Efforts for the Prevention of Health-Related Accidents" by MLIT

Causes of Health-related Accidents



Heart disease

Brain disease

Digestive system disease

Aortic dissection

Side effects of medication

Low blood sugar

Respiratory disease

Sleep apnea syndrome

Dementia

Dizziness

Glaucoma

Hay fever-induced drowsiness

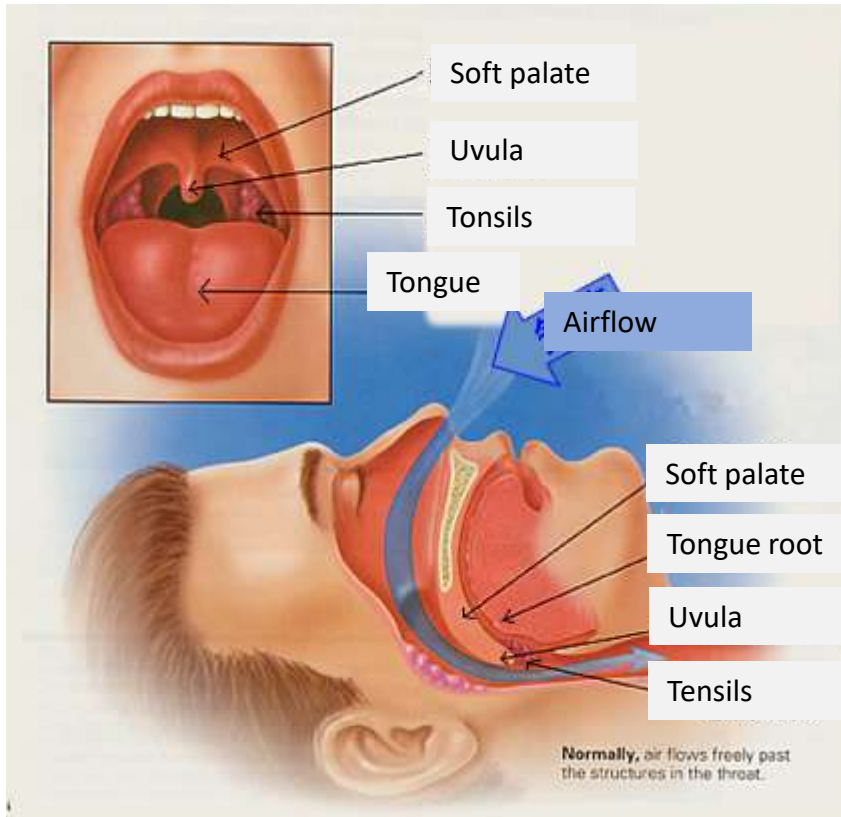
Anemia

Heat stroke

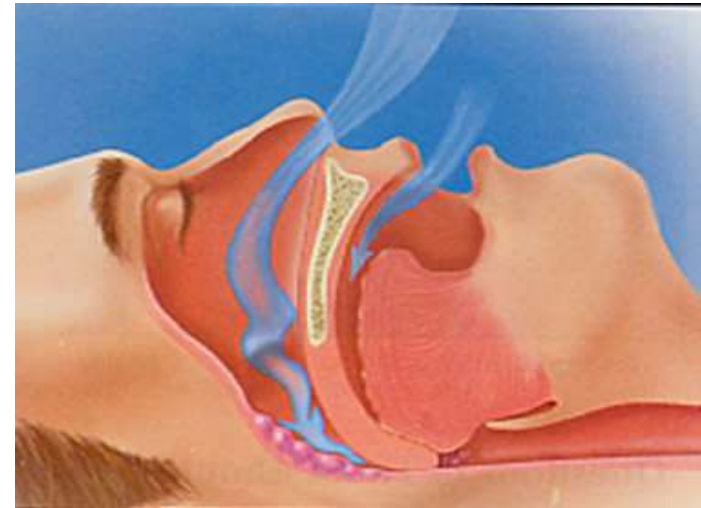
Epilepsy

Aging of drivers

SAS: Sleep Apnea Syndrome



Under normal conditions, the upper airway is not closed, and airflow is maintained even when lying down to sleep.



- Frequent oxygen deficiency
- Causing awakening to open airways and fragmentation of sleep, resulting in poor sleep quality and increased sleepiness on the following day

Relationship between Perceived Sleepiness and Prevalence of Sleep Apnea Syndrome

There is a risk of missing 86% of critically ill patients if the decision is based on ESS scores alone.

		Sleep Apnea				Total
		Normal Range (Less than RDI 5)	Slight Degree (RDI 5 to 19.9)	Medium Degree (RDI 20 to 39.9)	Severe (RDI 40 or more)	
Weak ↑ Perceived Sleepiness ↓ Strong	ESS 0 to 5	1,457 (60%)	1,391 (60%)	201 (53%)	46 (36%)	3,095 (100%)
	ESS 6 to 10	774 (32%)	725 (31%)	138 (37%)	52 (40%)	1,689 (100%)
	ESS 11 to 15	142 (6%)	170 (7%)	34 (9%)	23 (18%)	369 (100%)

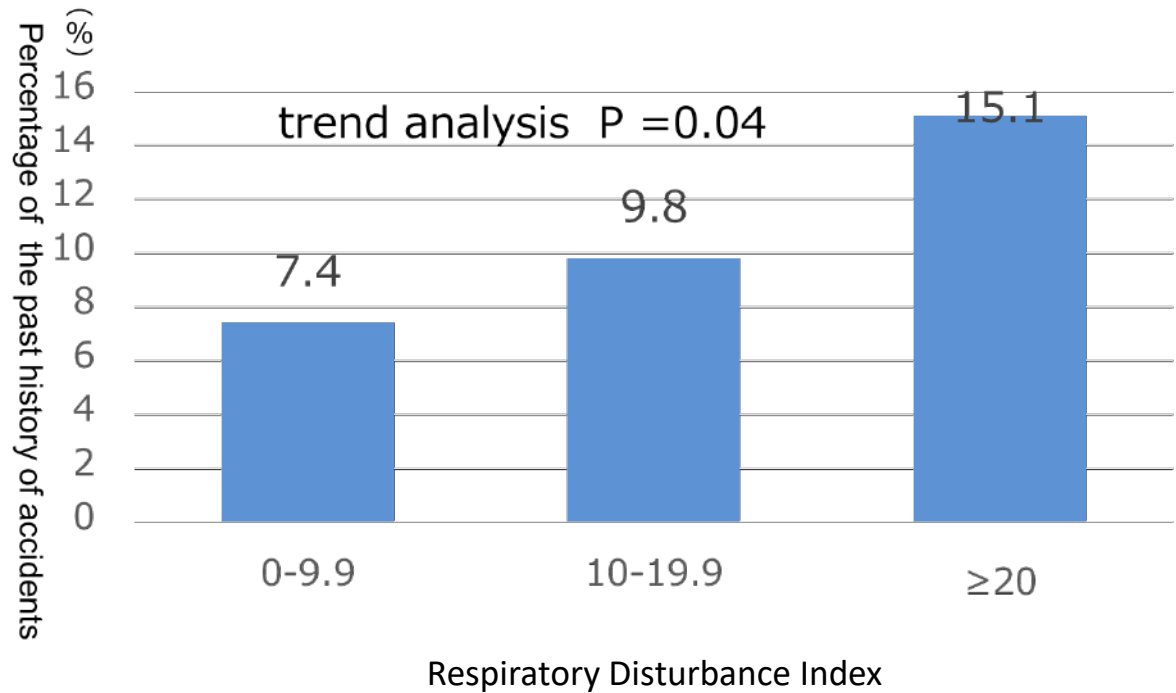
NOSSA: non sleepy sleep apnea
Sleep apnea without perceived sleepiness

Source: Takeshi Tanigawa and Hiroyasu Iso: " Building a Traffic Accident Prevention System by Screening Sleep Apnea of Occupational Drivers"
 Grant-in-Aid for Scientific Research Report 2006 (Ministry of Education, Culture, Sports, Science and Technology)

Sleep Apnea and Traffic Accidents

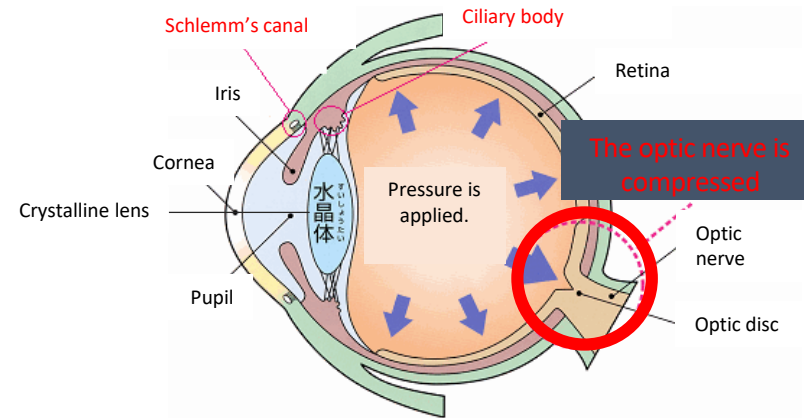


Percentage of Accidents experienced by People with Sleep Apnea by Level of Severity



Glaucoma

- Glaucoma: A disease in which the optic nerve is damaged for some reason, resulting in a narrowing of the visual field (range of vision).
- The prevalence of glaucoma among Japanese aged 40 and over is 5.0% (1 in 20).
- The estimated number of patients in Japan is about 4.6 million people (2015).
- The progression of glaucoma can be slowed down by early detection and appropriate treatment.



90% of glaucoma patients are untreated and unaware.



Progression

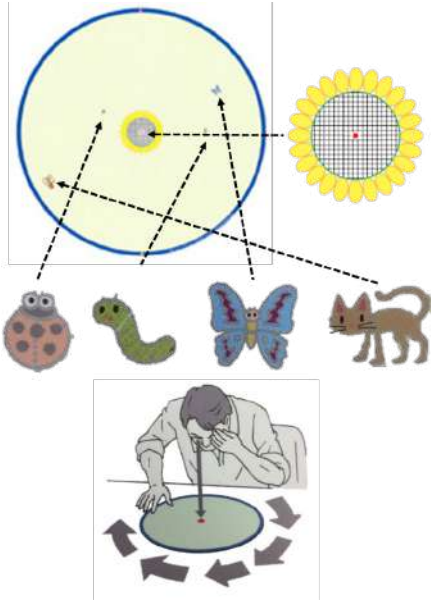


Ratio of Glaucoma Unawareness and Untreated Patients by Stage among 250 Glaucoma Patients Visiting the Department of Ophthalmology, Tajimi City Hospital

	Unaware (Untreated)	Glaucoma diagnosed and under treatment	Glaucoma diagnosed but untreated	Total
Early Stage to -6dB	140/149 (94.0%)	3/149 (2.0%)	6/149 (4.0%)	149
Middle Stage to 12dB-6dB	51/56 (91.1%)	4/56 (7.1%)	1/56 (1.8%)	56
Late Stage to -12dB	41/45 (91.1%)	3/45 (6.7%)	1/45 (2.2%)	45

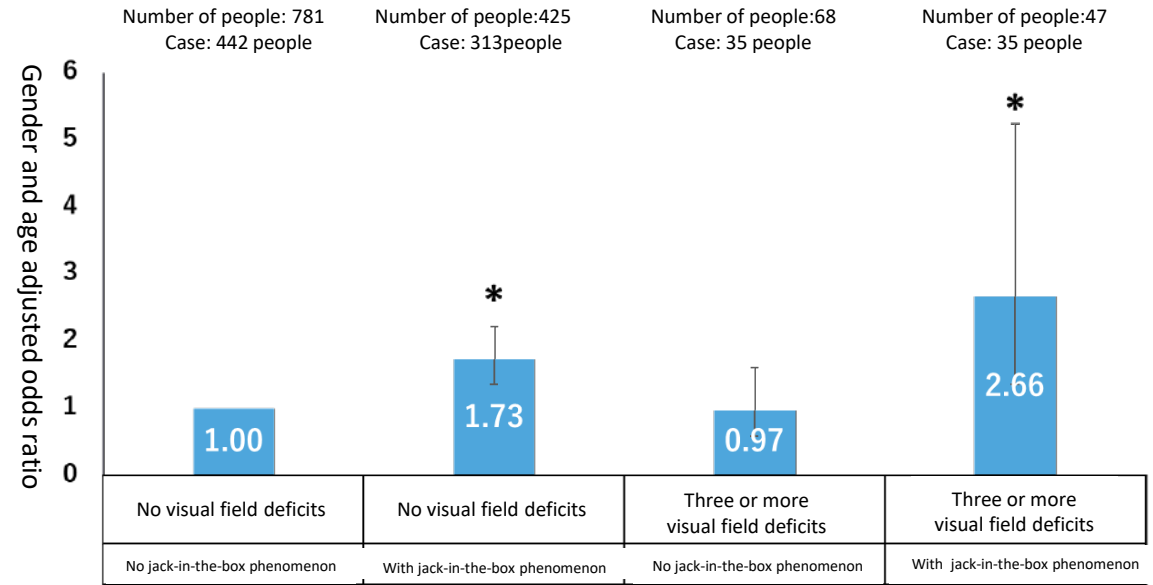
There are no noticeable symptoms of glaucoma in the early, middle, or late stages.

Visual Field Deficits and Traffic Accidents



Clock Chart

Combination of visual field deficits in three or more locations and the jack-in-the-box phenomenon and its association with traffic accidents



* P<0.05

Logistic regression analysis

*Excluding those with one or two visual field deficits

Ophthalmology Visits Survey

- Of the 326 patients with clock chart anomaly observation, 14 out of 71 (19.7%) who visited the ophthalmologist were diagnosed with glaucoma.
- If all 326 patients with clock chart anomaly observation receive a medical examination, it is estimated that about 64 patients will be diagnosed with glaucoma.
- It can be estimated that about 3% of the 1,921 employees in the transportation industry in this study are potential glaucoma patients.

「健康起因事故防止のためのアンケート調査」結果票

氏名	Sample O	判定	様	検査日	2018年7月28日
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● クロックチャートの結果 視界の欠陥が認められた場合、その場所を×で示しています。

● アンケートの結果 視界欠陥が疑われる運転中の経験についての質問

質問項目	回答
交差点にあるはずの信号機が近く見えていたことがある。	—
直進あるはずの一時停止の標識がなくなっていたことがある。	—
突然、車や自転車などが目の前に飛び出してきた、または目の前から消えたことがある。	○
突然、歩行者が目の前に飛び出してきた、または目の前から消えたことがある。	—
周辺車の流れに比べ、1つの車にスピードが落ちている、または速くなっていることがある。	—
視線を合わせて走っているつもりなのに、いつの間にか歩道横又は歩道横断線にはみ出してしまっていることがある。	—
道路標識がよく見えず、標識内容に従った運転をすることが難しいときがある。	—
標識、自らが道路上のどこに位置を走っているのかわからなくなり混乱する時がある。	—
標識などの距離感から、急な急ブレーキが必要と指摘されたことがある。	—

■ 総合判定
今回の検視視界検査の結果、視野欠陥が認められ、また、視野欠陥が疑われる運転中の経験がありました。必ず眼科へ受診してください（既に治療中の方は、今後も治療を継続してください）。

緑内障は早期発見・早期治療が大切です

● 緑内障とは？

視野欠陥の原因は様々な病気がありますが、その中でも最も多いのは緑内障です。緑内障とは、何らかの原因で視神経が障害され、視力が徐々に低下したり部分的に見えなくなったりする病気です。ゆっくりと進行します。緑内障は治療せず放置しておくと失明につながるおそれがあり、日本人の失明の原因の第1位でもあります。

● 視野障害の進行例

(写真：重野守)

● 緑内障患者の9割は無自覚

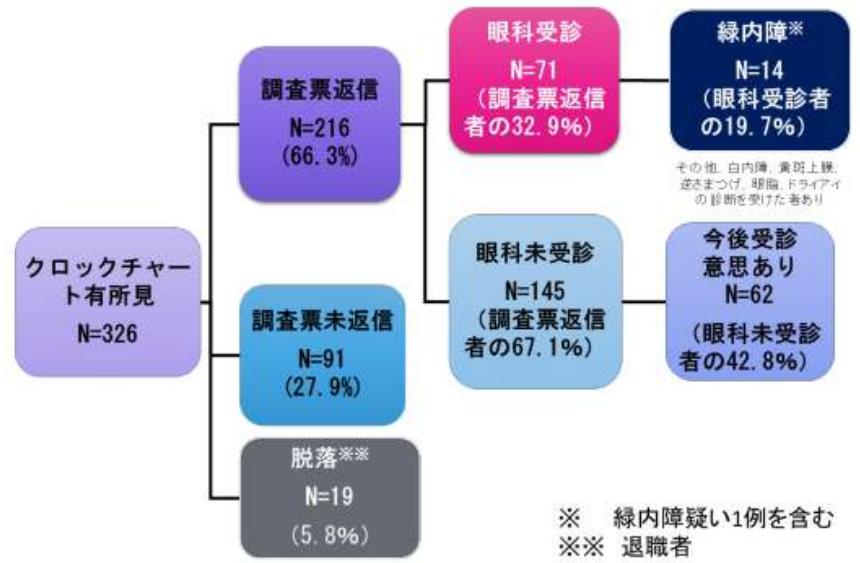
40歳以上の日本人の5%（20人に1人）が緑内障と推定されていますが、自覚症状がほとんどないため、9割の人が無自覚のまま生活していると考えられています。しかし、緑内障による視野障害が高度であったり、また視野障害の自覚のないままに運転を続けた場合、左右の飛び出しの危険としたり、後目の発見などにつながりかねません。

緑内障発見のきっかけ

自覚症状のあった緑内障患者はわずか5%

● 早期発見や自身の症状の自覚は交通事故予防につながります

緑内障は初期の段階では自覚症状がほとんどないため、40歳を過ぎたら定期的に眼科で検査を受けることが重要です。緑内障を早期に発見し適切な治療を開始すれば、多くの場合、進行を緩やかにすることができます。また、視野障害を自覚し注意をすることは、交通事故等の危険回避にもつながります。



※ 緑内障疑い1例を含む
※※ 退職者

Issues Identified as a Result of the Three-year Project Research

- The fact that sleep apnea syndrome and glaucoma can be causes of traffic accidents is not sufficiently well known by the general public. In particular, few people are aware that glaucoma can be a cause of traffic accidents.
- In other countries, especially in Asia, little effort has been made to deal with health-related accidents.

Further awareness-raising on the prevention of health-related accidents is needed in Japan, and efforts to prevent health-related accidents are also needed in the Asian region.

Purpose of this Project

The purpose of this study is to contribute to the reduction of health-related road traffic accidents by applying the knowledge gained from previous studies to the Asian region.

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International Symposium

- Time and Date: Friday, November 20, 2020
From 6:00 p.m. to 8:00 p.m.
- Place: Held online via Zoom
- Number of Participants: 146

公益財団法人国際交通安全学会 社会貢献プロジェクト
国際シンポジウム

その交通事故、 病気が原因かも・・・

～健康起因事故の防止に向けて～

2020年
11月20日(金)
18:00～20:00

- Zoomによる
オンライン開催
- 日英同時通訳
- 参加無料

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<https://www.iatss.or.jp/ja/event>

【お問い合わせ先】
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担当：石原（ｲｽﾞﾓﾘ）、廣谷（ｺﾛｲ）
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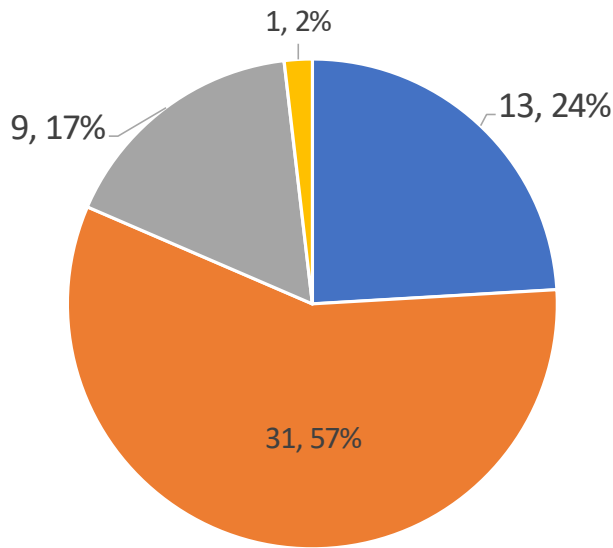
プログラム

- 18:00～18:05 開会の挨拶
- 18:05～18:20
谷川 武 (順天堂大学医学部公衆衛生学講座 教授)
「睡眠時無呼吸と健康起因事故」
- 18:20～18:35
國松 志保 (西婁西・井上眼科病院 副院長)
「視野障害と健康起因事故」
- 18:35～18:50
金 会慶 (安齋三浦学院 学長)
「中国における医学研究及び交通事故の予防」
- 18:50～19:05
Naricha Chirakalwasan
(ASEAN睡眠学会 事務局長、チュラロンコン大学 准教授)
「Obstructive Sleep Apnea: An Overlooked Cause of Traffic Accident?」
- 19:05～19:15 休憩
- 19:15～19:25
福島 史人
(自治医科大学附属さいたま医療センター救急科 医師)
「健康起因事故と救急医療との関連」
- 19:25～19:35
浅野 水辺 (慶應大学大学院医学系研究科法医学講座 教授)
「法医学からみる自動車運転中の病死」
- 19:35～19:50 総合討論
- 19:50～19:55 閉会の挨拶



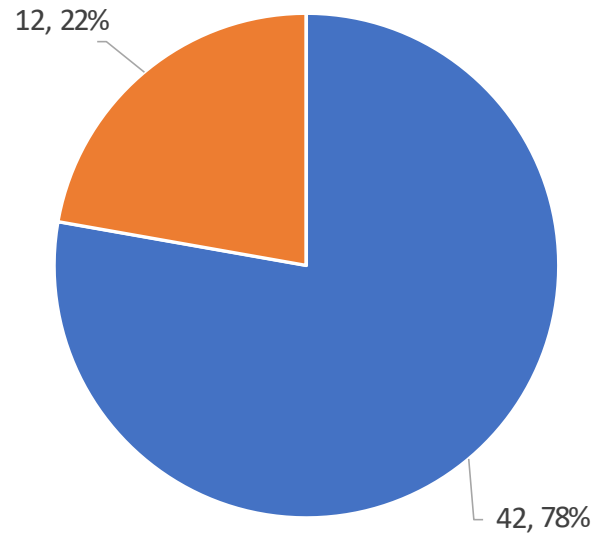
From the Questionnaire of the International Symposium

Before participating in this symposium, did you know about health-related accidents caused by sleep apnea, glaucoma, etc.?



- Knew a lot about it
 - Knew a little about it
 - Did not know much about it
 - Did not know at all
- N=54

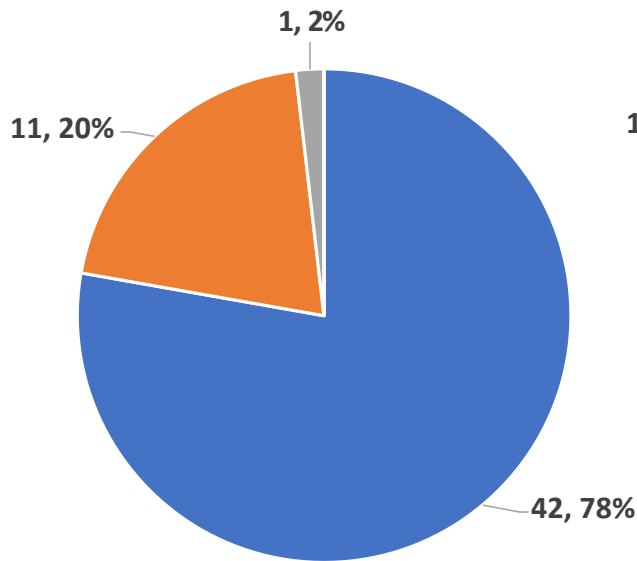
Did you gain a better understanding of health-related accidents by participating in this symposium?



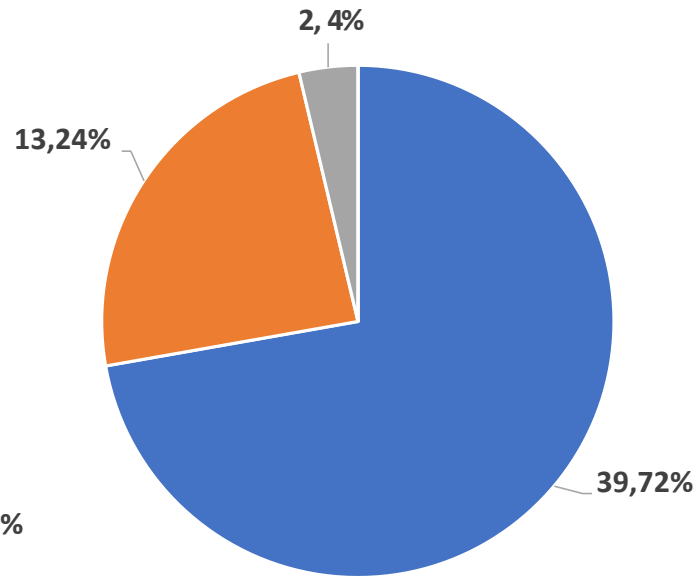
- Strongly agree
- Somewhat agree
- Not so much
- Not at all

From the Questionnaire of the International Symposium

Do you think this symposium is useful as an initiative to prevent health-related accidents?



Did you find this symposium useful?



■ Strongly agree

■ Somewhat agree

■ Very useful

■ Somewhat useful

■ Not so much

■ Not at all

■ Not very useful

■ Not useful at all

N=54

What efforts do you think are necessary to prevent health-related accidents?

- **The necessity of a social prevention system**

- **We need to improve the measures under the surface of the iceberg.** Prevention measures need to be improved.
- **Identifying the true cause of the problem** through close collaboration with related organizations and building technology to detect the problem before it occurs.

- **The necessity of raising public awareness**

- It is important to have not only drivers but also society in general be aware of the dangers (characteristics) of sleep apnea syndrome and glaucoma, which causes the narrowing of the visual field.
- **We need to change the culture of thinking that drowsiness and falling asleep is an individual's negligence and make it known that it is a health and public health issue** that needs to be thoroughly addressed and that there are measures that can be taken.

- **Expansion of inspection system**

- It would be great if there was **a social system to detect diseases such as SAS, glaucoma, and heart disease,** although the most important thing is for each person to take care of his or her health and have a checkup.
- **In addition to screening and early action, the importance of sleep hygiene and restful labor management** was acknowledged.

What would you like to know about health-related accidents in the future?

- **Relationship between various diseases and traffic accidents**

- In particular, the causal relationship between mental disorders such as depression and dementia and traffic accidents
- Correlation between accidents and the prevalence of lifestyle-related diseases among occupational drivers, etc.
- Trends in research on narcolepsy

- **International evidence and data**

- Epidemiological data worldwide
- Differences in the causes of accidents in each country

- **Prevention and solutions**

- **Although I understand the diseases that can cause accidents, how can we prevent them?** In addition, even if one has the disease, there may be many cases where one has no choice but to drive a car in an aging society. In such cases, I would like to know how **far the mechanical technology has evolved in order to** assist people and **prevent accidents.**
- I would like to know more about **the symptoms and signs of the driver** for each disease prior to the occurrence of health-related accidents.
- **What kind of support and advice is actually given to people** diagnosed with an illness regarding driving and accidents?
- **It is hoped that concrete solutions will be implemented** on how to reduce the number of health-related accidents.

Please feel free to write your opinions and requests.

- I learned so much about health-related accidents.
- I felt that collaboration between the public, private, and academic sectors will be an important key to addressing each of the issues discussed today.
- Today, thanks to Zoom, we were able to attend the lecture even from a local area. I appreciate it.
- I am very happy that there are more online symposia like this one, although the Covid-19 crisis is not good. Please continue to do this in post-Covid 19.
- It was a great opportunity to experience the realistic feeling that only online can provide.

In creating the awareness-raising tools...

In the 2019 internal debriefing survey, the following are some of the comments we received.

- It is hoped that **it will be widely spread throughout society.**
- It is necessary to expand overseas, but I think it would be better to **make more extensive efforts to make this a domestic issue.**
- The situation surrounding sleep apnea syndrome has not changed much in Japan, so **I would like to see more improvement in Japan than overseas.**



Creation of Awareness-raising Videos

- Created four videos, short and long, on sleep apnea syndrome and glaucoma, respectively.
- Objective: To make people aware that the sleep-apnea and glaucoma can cause traffic accidents
- To create the video, we conducted interviews with transportation-related organizations, including Sampo Japan Insurance, Sampo Risk Management, JAF, All Japan Rent-A-Car Association, and Tokio Marine & Nichido Fire Insurance.

Short Version

- Target: General public, all ages
- Duration: About 3 minutes
- The content should be animated so that not only the target audience but also their families (children, grandchildren, etc.) can easily view it.
- The contents can be viewed in spare time or during travel time as a way to "pass the time."

Long Version

- Target: Professional drivers, managers, etc.
- Duration: About 15 minutes
- Created mainly for use in training programs for professional drivers at companies.

Sleep Apnea Syndrome Awareness Video (Short Version)

睡眠時無呼吸
症候群運轉絵巻

国際交通安全学会



Glaucoma Awareness Video (Short Version)



緑内障
運転絵巻

国際交通安全学会

Sleep Apnea Syndrome (Long Version)



Glaucoma (Long Version)



Sleep Apnea Syndrome (Long Version)



Glaucoma (Long Version)



Flyer (Sleep Apnea Syndrome)

- Created a flyer to promote the short version of the video on sleep apnea and glaucoma.



早期発見、早期治療により
運転寿命を伸ばしましょう！

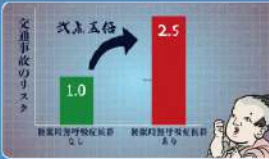
健康起因事故防止の
ための啓発動画はこちら！
<http://www.iatss.or.jp/movie/>



睡眠時無呼吸症候群とは？

成人の4人に1人がこの病気をもっています。
上気道の閉塞などが原因で、いびきをかいたり、睡眠中に何回も呼吸が止まります。
睡眠不足となり、日中の強い眠気や注意力低下の原因になります。

4人に一人



自覚のない眠気に注意！

睡眠時無呼吸症候群の主な症状として、日中の強い眠気があげられますが、実は眠気も自覚しない患者さんも多く存在します。特に、マイクロスリープという突然に数秒から数十秒の居眠りを引き起こす現象は、**交通事故**の原因となり、そのリスクは約**2.5倍**とされています。

やせている人も注意が必要です！

睡眠時無呼吸症候群の主な原因は肥満であることが知られていますが、実は日本人は顎が小さいことから、やせている人でも睡眠時無呼吸症候群に罹りやすいといわれています。



このような症状はありませんか？

これらの症状がいくつか当てはまる場合、専門医療機関の受診を検討してください。



① いびきがうるさいといわれた



② 睡眠中に呼吸が止まっている、またはそうだと書かれた



③ しっかり眠っているのに、日中に眠い



④ 昼間にも眠ってしまったことがある



⑤ 朝起きた時に頭痛がする



⑥ なんとなく集中力がない、又はそうだと書かれた



⑦ 夜間に何度も起きてしまう、トイレの回数が多い

Flyer (Glaucoma)

- Created a flyer to promote the short version of the video on sleep apnea and glaucoma.



早期発見、早期治療、治療の継続により、運転寿命を伸ばしましょう!

健康起因事故防止のための啓発動画はこちら!
<http://www.iatss.or.jp/movie/>



緑内障に気付かないことで、事故の危険を高めることがあります。

緑内障の運転リスクとは 緑内障では下記のように視野（見えている範囲）が狭くなったり部分的に見えなくなるため、気づかず運転を続けていると交通事故の原因になります。

正常な方の視野 → 緑内障の方の視野

緑内障とは?
 視神経が障害されることで視野が狭くなる病気です。緑内障患者は、40歳以上の20人に1人、70歳以上では9人に1ともいわれています。また、緑内障は徐々に進行するため自覚症状がなく、多くの方が治療を受けていないといわれています。

このような出来事はありませんか? このような出来事を1つでも経験したことがある場合、眼科の受診を検討してください。

- 一 運転中、突然横から車が出てきたり、人が飛び込んできたことがある。
- 二 定数などの乗客から危ない運転と指摘されたことがある。
- 三 信号や標識がわかりづらかったことがある。
- 四 周囲の車の流れにのれないことがある。

緑内障の治療法
 点眼薬（目薬）や手術によって眼圧を下げることで、進行をゆっくりにする、あるいは、進行をくい止めることができます。

Booklet

- This booklet contains the lectures given by Dr. Shiho Kunitatsu (Nishikasai Inoue Ophthalmic Hospital) and Dr. David Crabb (City, University of London) at the "1907C Research Project Special Lecture" held in FY2019.

國松 志保

David P. Crabb



視野障害と

交通安全



公益財団法人国際交通安全学会
1907C 研究プロジェクト特別講演会 in 東京

Contents

- Background and Purpose of This Study
- Description of Social Contribution Projects for FY2020
 - Holding an international symposium
 - Creation of the awareness-raising video (short version)
 - Creation of the awareness-raising video (long version)
 - Creation of flyers
 - Creation of booklets
- **For the future**



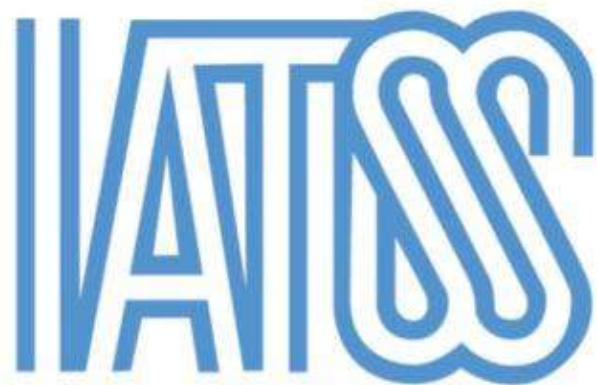
Future Prospects

- **Distribution of awareness-raising tools**

- Provide video streaming of the short version and conduct training using the long version of the videos at transport-related organizations including Sompo Japan Insurance, SOMPO Risk Management, JAF, Japan Rental Car Association, Tokio Marine & Nichido Fire Insurance, etc., as well as at driver's license examination centers nationwide.

- **The necessity of international collaborative research on health-related accident prevention**

- In addition to clarifying the actual situation of health-related accidents in each country through the joint research with China and Thailand established in this project, it is necessary to conduct demonstration experiments on the introduction of screening for sleep apnea syndrome and visual field disorders, which have been conducted in previous project research.



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International Association of Traffic and Safety Sciences