Insurance for safer roads

November 28th 2017, Zurich

#RoadSafety
# Insurance & Road Safety Workshop

## Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter/Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-9:00</td>
<td>Registration and Welcome Coffee</td>
<td></td>
</tr>
<tr>
<td>9:00-9:10</td>
<td>Welcome Address</td>
<td>Jean-Pierre Krause, Head of Risk Engineering, Commercial Insurance, Zurich</td>
</tr>
<tr>
<td></td>
<td>- Objectives of the workshop</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Zurich’s ambition and strategy in Road safety</td>
<td></td>
</tr>
<tr>
<td>9:10-9:25</td>
<td>Keynote Address 1</td>
<td>Dave Cliff, CEO GRSP</td>
</tr>
<tr>
<td></td>
<td>Latest WHO data and trends in road crash death and injury</td>
<td></td>
</tr>
<tr>
<td>9:25-9:40</td>
<td>Keynote Address 2</td>
<td>Miquel Nadal, Secretary FIA High Level Panel</td>
</tr>
<tr>
<td></td>
<td>Updates from the FIA High Level Panel</td>
<td></td>
</tr>
<tr>
<td>9:40-10:00</td>
<td>Presentation 1 – Crash Investigation</td>
<td>Bettina Zahnd, Head Accident Research, AXA Switzerland</td>
</tr>
<tr>
<td></td>
<td>- Data, trends and challenges</td>
<td></td>
</tr>
<tr>
<td>10:00-10:45</td>
<td>Discussion Panel – The Broader Perspective</td>
<td>Andrew Bradley, Nestle</td>
</tr>
<tr>
<td></td>
<td>An interactive discussion addressing issues including: distracted driving, data, sustainability, the SDGs and the broader perception of road safety and mobility</td>
<td>Miquel Nadal, FIA</td>
</tr>
<tr>
<td></td>
<td>Facilitated by Michael Chippendale, GRSP</td>
<td>Dave Cliff, GRSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bettina Zahnd, AXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Karl Gray, Zurich</td>
</tr>
<tr>
<td>10:45-11:00</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>11:00-11:15</td>
<td>Presentation 2 – Road Safety and Health Enhancement</td>
<td>Prof Massimo Colombo and Dr Jillian Mullen, International Liver Foundation</td>
</tr>
<tr>
<td></td>
<td>- Supporting road safety through a health enhancement approach</td>
<td></td>
</tr>
<tr>
<td>11:15-11:25</td>
<td>Presentation 3 – Case Study</td>
<td>Louise Kerrigan, Casualty and Motor Team Leader, Zurich</td>
</tr>
<tr>
<td></td>
<td>- A review of Zurich Australia initiatives</td>
<td></td>
</tr>
<tr>
<td>11:25-12:00</td>
<td>Presentation 4.1 – Autonomous Vehicles</td>
<td>Dave Baldwin, Head of Insight, Thatcham Research</td>
</tr>
<tr>
<td></td>
<td>- A focus on Level 3 vehicles</td>
<td>Karl Gray, Zurich</td>
</tr>
<tr>
<td></td>
<td>Presentation 4.2 – Autonomous Driving</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Expected impact on crash rates</td>
<td></td>
</tr>
<tr>
<td>12:00-12:45</td>
<td>Discussion Panel – The Insurance Perspective</td>
<td>Karl Gray, Zurich</td>
</tr>
<tr>
<td></td>
<td>An interactive discussion addressing challenges faced by the insurance industry</td>
<td>Andrei Rubeli, UNIQA</td>
</tr>
<tr>
<td></td>
<td>Facilitated by Nick List, Zurich</td>
<td>Dave Baldwin, Thatcham</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Louise Kerrigan, Zurich</td>
</tr>
<tr>
<td>12:45-13:00</td>
<td>Next steps</td>
<td>Jean-Pierre Krause, Zurich</td>
</tr>
<tr>
<td></td>
<td>- Continued information sharing</td>
<td>Dave Cliff, GRSP</td>
</tr>
<tr>
<td></td>
<td>- Call to arms</td>
<td>Andrew Bradley, Nestle</td>
</tr>
<tr>
<td>13:00-14:00</td>
<td>Lunch and networking</td>
<td></td>
</tr>
</tbody>
</table>
Please don’t forget to **switch on** your Mobile Phone after lunch!

ref: https://www.imore.com/do-not-disturb-while-driving-ios-11-can-change-your-habits-if-you-let-it
Insurance & Road Safety Workshop

Objectives for today

• Expand the scope of the working group.

• Promote and update the ‘living’ report document and knowledge base.

• Build the profile of the role of the insurance industry within the road safety community.

• Build the profile of road safety within the insurance industry.

• Develop and disseminate good practice case studies of insurers in road safety.
Food for thought through outsider’s eyes
Learnings from Insurance Market and Others

• Lots of short-term independent activities in single countries, no global programs
• Only AXA has clearly defined road safety mission, but also not coherent in activities across countries
• Many content-generating short-term “show” programs instead of real life impact
• Most activities seem to be CR-related, not connected with a product
• Lack of long-term measurement and success measurement
• Lack of safety “branding” – no visual properties or slogans that bind a brand to road safety
• Many themes repeat themselves:
  o Connection with sponsorship programs (e.g. F1), often a bit forced
  o Educational activities targeted at children or young drivers abound
  o Partnerships with NGOs
    o Communication works with humour, shock and sometimes lecturing

KEY LEARNING: No lack of ideas, innovations, communication
Beyond Zurich
Farmers are leading the way...

Customer Reviews
Insightful app  ★★★★★
by Avs never

FROM Engineer...Educate....Enforce...
TO...Embed....Entertain...
Food for thought about "future model of mobility insurance"
Let’s take a look at the topic beyond insurance:
• What are new and different angles for an insurer to consider?
• What will the future bring?
• Where are our engagement points during the customers journey in this transition phase we are currently in?

We’ll look at latest data and discuss trends

The insurance perspective:
• What is our role?
• How we can make the world a better place by influencing behavior and a mind set change?

What’s Next for the Insurance for Safer Roads Initiative?
enjoyable workshop!
Latest data and trends

Dave Cliff
CEO, Global Road Safety Partnership
What is going on globally?

• It seems like a simple problem.
• Too many people, like us, are being killed and seriously injured in road crashes.
• We seem to know the rules of the road before we start to drive. When we obtain a driver license, we know all the rules.

• Even our children, who are also our most vulnerable, know what to do to prevent crashes...
“What about if the whole family died and the kids had no one to look after them?”
We have been talking about the problem for decades

• Moscow Declaration – *First Global Ministerial Conference on Road Safety* – 20 November 2009 - Convinced that without appropriate action the problem will worsen

• UN Decade of Action 2011 to 2020 – announced March 2010 by the General Assembly

• Leading cause of death for children and young people aged 5 to 29 years

• Sustainable Development Goals – *United Nations Resolution A/RES/70/1 of 25 September 2015*

• Further UN Resolutions

• Vision Zero – Safe System – National Reduction Targets...
Global road fatalities are not decreasing

Most recent WHO global road fatality estimates

1.34 million road fatalities

Estimated global deaths have increased!
Up from 1.25 million road fatalities reported in
the 2015 WHO Global Status Report

Source: World Health Organisation
Global Examples

United States –
• 35,398 fatalities in 2013
• 40,200 fatalities in 2016

Australia -
• 1,187 fatalities in 2013
• 1290 fatalities in 2016

Europe (Third Year of Poor Results)
• 17 of 32 monitored European countries recorded increases in fatalities in 2016
• Largest increases Denmark (16%), Ireland (16%) and Norway (15%)
• Europe’s progress in reducing fatalities has slowed markedly
What is causing the increases?

• Not confirmed and reasons are complex, however...
  • Increased crash reporting (*India*)
  • Increasing levels of distraction (*mobile phone use*)
  • Reductions in road policing effort in favour of counter terrorism
  • Reductions in health budgets – (*slower post crash emergency response*)
  • Increasing motor cycle use amongst older males (*high income countries*)
  • Falling seat belt wearing rates (*related to lower levels of enforcement*)
Road Trauma is not evenly distributed!

Road traffic fatalities per 100,000 population by WHO Region

- **Africa** - 26.6
- Eastern Mediterranean - 19.9
- **World** - 17.4
- Western Pacific - 17.3
- Southeast Asia - 17
- The Americas - 15.9
- Europe - 9.3

Significant disparity, even in high income countries road fatality rates vary,
United Kingdom - 2.9 deaths per 100,000 population
United States - 10.6 death per 100,000 population
Road Crashes –

single largest cause of death and disability for those aged 15 to 29

- ‘the disease of the young’

Many productive years are lost!
Sobering facts...

• Every four minutes, a child is prematurely lost on the roads of this world, many more are injured, often severely (360 children have died in the last 24 hours)
• Many of the victims are poor
• Roads are often built without due consideration of the communities they pass through
• For children from 15 to 19 years, there is no greater risk to their lives than a road crash

Who were they and why did they die?
Sobering facts...

- The children most likely to die in a road crash live in the world’s low- and middle-income countries where 95% of road traffic fatalities among children occur.
- Even within countries, poor children are at much greater risk.
- Boys account for nearly twice as many road traffic deaths as girls worldwide.

![Image of children]
Vulnerabilities of children:

- Small stature makes seeing surrounding traffic more difficult
- Harder for drivers to see them
- Their softer heads makes them more susceptible to head injury
Vulnerabilities of children:

- Younger children have less ability to interpret signs and sounds which impact their judgement on proximity, traffic speeds and direction of moving vehicles.
- As they grow, adolescents are prone to risk taking.

Younger children are impulsive and have short attention spans.
SPEED – The force of impact

Why do so many people die in crashes?

- Struck at a speed too great to survive *(vulnerable road users – pedestrians and cyclists often children)*
- Hit interior of the vehicle at a speed too great to survive *(vehicle occupants, some not wearing safety belts, in vehicles without air bags or travelling in unsafe Zero-star vehicles)*
- Thrown out of the vehicle *(no safety belt worn)* or off the motorcycle *(particularly those not wearing helmets)* and hit the road, vehicle or roadside object at speed too great to survive

HOW FAST WE TRAVEL DECIDES HOW HARD WE HIT!
The human body

What impact speeds can our bodies withstand?

How have our bodies changed over the last 100,000 years?

NOT MUCH
# PEDESTRIANS vs SPEED

<table>
<thead>
<tr>
<th>Speed of Impact</th>
<th>Chance of survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>60kmh</td>
<td>15%</td>
</tr>
<tr>
<td>50kmh</td>
<td>55%</td>
</tr>
<tr>
<td>30kmh</td>
<td>95%</td>
</tr>
</tbody>
</table>

85% of pedestrians struck at 60kmh will be killed.
LOW LEVEL SPEEDING

Research perspective...

- small drop in speed = large drop in trauma
- 5kmh ↓ = 32% ↓ pedestrian deaths
- 5kmh ↓ = 20% ↓ serious trauma
- 10kmh over limit in 100k zone – risk doubles
Speed and Safety – Real World Example

In 1987-1988, 40 US states raised the speed limit on interstate highways from 55mph to 65mph (89kmh to 105kmh)

Result:

- Increased speeds (3mph or 5km/h average)
- Increased deaths (20-25%)
- And further increases over the years, with similar results.

SMALL INCREASES IN SPEED = LARGE INCREASE IN TRAUMA
• A plane crash, a terrorist incident, the threat of pandemic – these cause widespread public alarm.

• Why don’t the 3,600 road deaths and 36,000 serious injuries each day generate alarm?

• We don’t worry about driving.

• We may be wired to view them differently?
Road crash vs. mass casualty event

- We fear dying suddenly with lots of others.
- In human history, it was a rational response. For most of our evolution we lived in small hunter gatherer bands of 20 to 50 and rarely exceeding 100 people. Sudden loss of many lives would threaten the survival of the whole group.

Gerd Gigerenzer 2014
Updates from the HLP

Miquel Nadal
Secretary, FIA High Level Panel for Road Safety
“Movernos seguros”: improving road safety through the development of car insurance markets in Latinamerica and the Caribbean

Insurance and road safety workshop
Zürich, November 28th, 2017

Miquel Nadal
HLP Secretary
Introduction: the FIA High Level Panel for Road Safety

The High Level Panel is an initiative launched the President of the FIA with other high level institutional and private sector leaders. It was launched at the end of 2015 with the support of the UN Secretary General

- The goal of the Panel is to bring new momentum to actions underway to tackle the global road safety epidemics.

- The initiative focuses on raising new awareness and raising new funding for road safety.

- It aims to work with all relevant stakeholders, especially with the private sector and concentrates its efforts in improving road safety in low and middle income countries.
Overview of the HLP Work Plan for 2017-18
The Big Picture

Projects/Initiatives with HLP Involvement

Global level
- UN Fund and innovative funding mechanisms
- Automotive industry voluntary Commitment on Safety Standards
- FIA -JC Decaux Campaign

Regional level
- Regional Road Safety Observatories
- Movernos seguros Working with the insurance industry in LATAM

National level
- In Country Missions (Myanmar, Azerbaijan)
The HLP-IDB initiative

After some failed contacts (Geneva Association) and after conducting some research, it was concluded that the car insurance industry is very segmented, so global initiatives seem to be difficult. It probably makes more sense to launch initiatives at a regional level.

Before embarking in this initiative, some basic research has been done:

• On the situation of car insurance markets in LATAM. The conclusion is that these markets have an important potential of development and that this could have a significant impact on road safety.

• On the willingness/interest of governments (road safety agencies) and industry to participate in the initiative; with very positive results on both fronts.
The joint initiative between the IDB and the HLP, aims mainly at the three following objectives:

• Bring together relevant stakeholders that can help exploit the synergies between car insurance and improving road safety:
  • governments
  • insurance companies (both domestic and international),
  • local NGOs, especially victims’ associations
  • FIA clubs
  • Other international organization and entities such as the OISEVI (Ibero American Road Safety Observatory).

• Explore potential ways of collaboration to develop the synergies between car insurance and improved road safety, both at a regional and at a national level; and eventually, collaborate in the implementation of these synergies and shared programs.
Movernos Seguros: main objectives

•Raise awareness at the highest level, both within governments and the private sector, about the road safety challenges that the countries of the region face in the coming years, and about the opportunities that the insurance industry could offer for the benefit of all.
The 3 way relationship between road safety and car insurance markets:

1. **Compensation:** So called “third party liability insurance” – often, but not always compulsory - provides health coverage and economic compensation to the victims of road crashes.

2. **Responsible behaviour:** the implementation of “bonus-malus systems” (where drivers with no claims enjoy reduced premiums and viceversa) is a powerful incentive for customers to improve their driving habits.

3. **Miscellaneous:**
   - The data gathered by insurance companies can be extremely useful to design and implement efficient road safety policies.
   - Insurance companies play often a leading role in raising awareness about road safety issues, and in informing and training drivers to improve their skills.
   - In some countries, levies on car insurance premiums are used to –partly- finance lead road safety agencies.
WIN-WIN

Taken together, all these links could generate a virtuous circle, whereby better driving reduces road crashes and road traffic injuries, thus benefitting society as a whole, while improving insurer’s results and revenues at the same time.
The car insurance market in LATAM is at a relatively low level of development. Relevant features of this market are:

• Car insurance is still conceived to a large extent to protect against theft and damages of the own vehicle, while the protection of traffic victims is not yet sufficiently developed.

• Third party liability insurance is not compulsory in all countries and its regulation is still weak (low enforcement where it exists).

• Bonus-malus schemes are increasingly being implemented, but there is large scope for further development

• Mopeds are a significant share of the fleet, with a high rate of crashes and low insurance coverage

• Fraudulent practices are quite widespread, especially when reporting claims.

• The car insurance market is growing relatively fast, with premiums amounting to almost 28 billion euro in 2013. Main markets are Brazil, México, Argentina and Venezuela.
Movernos seguros

Status:

• Online kick off meeting with insurance partners (April 28\textsuperscript{th}). Excellent reception

• Official presentation of the project at the OISEVI Assembly (San José, June 22\textsuperscript{nd}). Victims associations showed big interest in the project

• Workshop with road safety authorities, insurance companies and insurance regulators, with participation of FIA and IDB Presidents (Washington DC, October 12\textsuperscript{th})
Next steps

• A study has been commissioned to have a detailed analysis of the situation and prospects of car insurance markets in the region. Results expected by June-July 2018

• IDB has already allocated resources of its 2018 budget to fund 3 pilot projects (establishment of 3rd party liability insurance). Others could follow. Given the good reception of the project, we will start trying to scale it up to other regions (Southeast Asia with the ADB?)
Many thanks !
Crash investigation

Bettina Zahnd
Head Accident Research, AXA Switzerland
CRASH INVESTIGATION AND PREVENTION MEASURES

Bettina Zahnd, Head Accident Research & Prevention
Agenda

- Prevention and Road Safety @ AXA Switzerland

- Future mobility: automated vehicles and crash investigation
Road Safety: Accident Research & Prevention @ AXA

Customers

- Crash Recorder
- Accident Investigation
- Smart Fleet
- Unfallforschung & Prävention

Public

- AXA Crashtests
- Max the badger
- Foundation for Prevention

Customers

- Crash Recorder
- Accident Investigation
- Smart Fleet
- Unfallforschung & Prävention

Public

- AXA Crashtests
- Max the badger
- Foundation for Prevention
Smart Fleet with the new Fleet Box

Fleet Report – To get more transparency
Claims analysis

Fleet Safety – To get more safety
Prevention consulting & prevention measures from the accident research team

Fleet Box – To get more efficiency
Telematics system
Three types of claims analyses
- Report „Claims analysis & prevention“ (Direct mailing to clients in Q1 or Q2)
- Report „detailed analysis“
- List of claims (Excel)
Fleet Safety overview

Prevention measures for our customers

- Guidelines Prevention Measures
- Reports Claims Analysis
- Prevention posters
- Leaflet for fleet managers
- Driver Trainings
- Prevention Presentations
- Prevention Consulting
- Crash Recorder
- SME-Newsletter
- Further education for fleet managers
**FleetBox** – main functionalities

### Efficiency
- Proactive Maintenance
- Electronic logbook
- Mileage
- Fuel consumption

### Safety
- Crash Recorder
- Driver Behaviour

### Monitoring
- Online-Portal
- Driver App
AXA Crashtests 2016

Be smart – don’t phone! - Pedestrians

AXA study shows for pedestrians:
- 73% read short messages,
- 68% do phone
- 60% write short messages

Pedestrians are vulnerable:
- 6 out of 10 pedestrians would die in this collision (collision speed 50kph)
Be smart – don’t phone! - Drivers

AXA Crashtests 2016

AXA study shows for drivers:
- 72% say that manipulating with the smartphone while driving is very dangerous
- 48% say that they use the smartphone while driving anyway.

Prevention:
- Raise awareness
- Police enforcement
Rear-end collisions

One second away – a 360° video inside a crashtest

360° Video
https://www.youtube.com/watch?v=MebdqBikGx4

Highlights:
https://www.youtube.com/watch?v=GnQlGpzOx-Q
Agenda

- Prevention and Road Safety @ AXA Switzerland

- Future mobility: automated vehicles and crash investigation
Advanced Driver Assistant Systems => less road accidents

- **Automated Emergency Braking System (AEBS)**
  - Drivers of Volvo XC60 (first car with AEBS as standard fitment) caused 30% less front-to-rear accidents than other comparable SUVs.
  - Drivers of Mercedes B-Klasse with AEBS caused 69% less front-to-rear accidents than the B-Class without AEBS.

- **Electronic Stability Control (ESC)**
  - Drivers of Dacia Sandero with ESC caused 47% less skidding accidents than drivers of Dacia Sandero without ESC.

Source: AXA Switzerland, Accident Research
Less TPL claims – increasing repair costs

Decreasing frequency for bodily injury claims in general

Increasing cost for own damage claims

Source: AXA Switzerland

Source: AXA Germany

Source: AXA Switzerland
Insurance will pay the claim (TPL) – but what is the accident cause
Crashtest: cyber risks

A passenger car is hacked and the vehicle’s brakes are disabled. Instead of braking, the vehicle is accelerated at full engine power, causing a rear-end collision.

Key Messages:
- There are some risks that could be important in future.
- In case of an accident, independent parties such as the police and the corresponding insurer must have access to the accident-related data in order to be able to determine the cause of the accident unequivocally.
Key Messages:
- People in Dübendorf would have chosen to hit the other car in order to protect the quad-driver.
- **There is no correct answer.**
- Property damage before injuries is a good basis, but what would that mean in this case?
Conclusions

Prevention and Road Safety @ AXA Switzerland

Long history of prevention measures for customers and the society.

- Crashtests, claims database and Crash Recorder data as sources for research.
- Results from crashtests and findings of our research as sources for prevention.
- Crashtests to raise awareness.
- Crash Recorder and Smart Fleet / Fleet Box to support customers in their prevention activities.

Automated vehicles and crash investigation
Demands of the Accident Research & Prevention unit at AXA Winterthur

Transparency on the automatic transfer of vehicle data: The registered users of vehicles must be informed which data is being automatically recorded and transmitted for their vehicle.

Data sovereignty: Vehicle owners themselves must be able to determine the usage of their vehicle data.

Accident analysis: In the event of an accident, independent parties such as the police and the corresponding insurer must have access to the accident-related data in order to be able to determine the cause of the accident unequivocally.
Questions? – Comments?

AXA Switzerland
Accident Research & Prevention
Bettina Zahnd

bettina.zahnd@axa.ch
www.axa.ch
www.accidentresearch.ch
www.smartfleet.ch
Panel 1 – The broader perspective

- Andrew Bradley, Nestle
- Miquel Nadal, FIA
- Dave Cliff, GRSP
- Bettina Zahnd, AXA
- Karl Gray, Zurich

Facilitator: Michael Chippendale, GRSP
We recommence at 1110
Road safety and health enhancement

Massimo Colombo & Jillian Mullen
EASL – International Liver Foundation
Supporting Road Safety Through a Health Enhancement Approach

Insurance for Safer Roads: 2nd Workshop

Date: 09:00 – 14:00, Tuesday, November 28, 2017
Location: Zurich Development Centre, Zurich, Switzerland
• ~20% of fatally injured drivers have excess alcohol in their blood (i.e. above the legal limit)

• Low-income countries have shown alcohol to be present in between 33% and 69% of fatally injured drivers.

• A world free of road crash death and injury cannot be achieved without effective alcohol control measures.
It’s not just when driving

Problematic patterns of alcohol consumption are highly prevalent among individuals who drink and drive:

• Higher frequency of alcohol use
• Heavier alcohol use

Odds of recidivism increases as a function of the pattern of alcohol use. The more problematic the use, the more likely recidivism

81.3% reported alcohol use patterns beyond recommended guidelines

Mathias et al., 2017
The global burden of alcohol

- Worldwide, 3.3 million deaths every year result from harmful use of alcohol, this represents 5.9% of all deaths.
- Overall 5.1% of the global burden of disease and injury is attributable to alcohol, as measured in disability-adjusted life years (DALYs).
- Alcohol consumption causes death and disability relatively early in life. In the age group 20 – 39 years approximately 25% of the total deaths are alcohol-attributable.
- There is a causal relationship between harmful use of alcohol and more than 200 health conditions, including mental and behavioural disorders, other noncommunicable conditions as well as injuries.
- Beyond health consequences, the harmful use of alcohol brings significant social and economic losses to individuals and society at large.
Liver disease is the only major cause of death still increasing year on year.

In the UK, more than 1 million admissions to hospital per year are the result of alcohol-related disorders.
SBRIT programs are evidence-backed. A systematic review showed that a single 15 minute SBIRT session results in 20% of people moving from harmful to low risk alcohol use (Whitlock et al., 2004).

The largest multi-centre SBIRT trial showed that at 6 months post-SBIRT there remained a 35.6% reduction in alcohol use and, 43.4% reduction in heavy drinking specifically (Aldridge et al., 2017).

The program is modifiable to any language, culture, context, and industry. In addition, the program is fully customisable, ensuring that it is specifically designed to meet organisation needs and/or business goals.

SBIRT programs for alcohol use are widely considered to be cost-effective. A meta-analysis of 15 studies found cost-saving benefits that met or exceeded standardized preventive care, such as influenza immunization or colorectal screening (Kraemer, 2007). And, this computerised program will carry even less costs particularly due to limited staff resource and training requirements.

The program is designed to limit burden on participants and encourage participation. The screening, brief intervention, and referral to treatment sections are designed to be implemented consecutively in one session lasting no longer than 1 hour.

The principles guiding the design of this program make it easily scalable. For example:
- Brief web-based program offers widespread implementation both geographically and contextually.
- Program is easily modifiable.
- There is no costly staff training or resource requirements.
**Screening:** A smart screening procedure assessing: health status, health risks, tobacco use, alcohol use, diet, and exercise.

**Brief-intervention:** A personalized intervention based on motivational interviewing techniques incorporating theory-based algorithms and a synthetic speech engine to deliver custom reflections, questions, feedback, and guidance.

**Referral to Treatment:** Resources and direct (voluntary) referrals dependent on participants self-reported behaviours and risk levels.

**Monitoring:** On-going web-based tracking and support for behavioural change regarding the 4 key risk factors and factors relating to chronic health conditions.

**Improved healthcare outcomes:** Prevents and mitigates the harm and consequences associated with the key behavioural risk factors for poor health and improves identification and linkages to healthcare for those in need.

**Strategic insight:** Information will support the development of strategic planning highlighting areas for possible intervention.
Designed for universal implementation (i.e. irrespective of potential risk level or treatment seeking status)

Designed to address the four key risk factors for poor health, associated risky behaviours (i.e. drink driving), and workplace specific factors (when relevant)

Designed to deliver a personalised intervention to each participant appropriate to individual risks and needs, acting as a prevention, intervention, and identification tool

Designed to improve linkages to healthcare by providing direct referrals for further assessment and/or treatment

Designed to assist physicians to improve the health of their patients by providing a summary for the participant to share with their doctor

Designed to aid policy development by collecting detailed data on patterns of, and harms associated with, alcohol use, smoking, physical activity, and diet

EASL INTERNATIONAL LIVER FOUNDATION

XSBI RT
The Foundation enjoys direct access to EASL, the world’s leading international scientific society dedicated to excellence in hepatology and the clinical management of liver disorders.

Established as a global not for profit Foundation, there are no geographic barriers to the Foundation’s programming.

The Foundation believes that success comes with collaboration brought by a diverse and engaged group of partners from government, private sector and civil society.

Massimo Colombo, MD, Professor of Medicine, Head of Translational Liver Research, IRCCS, Humanitas, Milan, Italy

Christian Bréchot, MD Ph.D, is retired President, Institut Pasteur, Paris, France

Tom H. Karlsen, MD, PhD, Full Professor of Internal Medicine, Oslo University Hospital Rikshospitalet, Norway. Secretary General of EASL, Geneva, Switzerland

Jordi Bruix is Professor of Medicine at the University of Barcelona and Director of the Barcelona Clinic Liver Cancer (BCLC) Group within the Liver Unit at the Hospital Clinic of Barcelona, Spain.

Andrea Sironi is Professor of Banking and Finance at Bocconi University in Milan. He is Chairman of Borsa Italiana SpA and, member of the Board of Directors of the London Stock Exchange Group.

Benol Merkt Dr. iur., Attorney at Law, Mjur has been a partner of the Swiss law firm Lenz & Staehelin since 2006. He is head of the Digestive Diseases Division and lead clinician for hepatology at St. Mary’s Hospital, London.

Mark Thursz is Professor of Hepatology at Imperial College where he is head of the Digestive Diseases Division and lead clinician for hepatology at St Mary’s Hospital, London.

Frank Tacke, Professor of Medicine, MD, PhD Dept. of Gastroenterology, Metabolic Diseases and Intensive Care Medicine, University Hospital Aachen, Germany

Stefan Wiktor Professor of Medicine and Public Health at the University of Washington in Seattle, U.S. He was the Team Lead of the World Health Organization’s Global Hepatitis Programme in Geneva, Switzerland.

Jeffrey V. Lazarus is an affiliated professor at the WHO Collaborating Centre on HIV and Viral Hepatitis at Rigshospitalet, the University of Copenhagen, and as an associated researcher at the Barcelona Institute of Global Health (ISGlobal), Hospital Clinic, University of Barcelona.

Heiner Wedemeyer a Professor at the Department of Gastroenterology, Hepatology and Endocrinology, Hannover Medical School, Germany. He leads a research group on cellular immunology and clinical virology of viral hepatitis.
Zurich Australia case study

Louise Kerrigan
Casualty and Motor Team Leader, Zurich
Zurich Fleet Assessment

• Established globally consistent standards for Grading.
• Completed as Truck or Sedan/LCV
• Provides Benchmarking data
• If required, Risk Improvement Advice
• Graded as:
  – Poor
  – Fair
  – Good
  – Excellent
• Global Risk Engineering Technical Centre
There are 7 Risk Categories:

- Driver Selection
- Driver Development
- Driver Supervision
- Journey/Operations
- Incident Management
- Vehicle
- Management

Within each risk category there are risk features

Each risk feature has its own weighting that contributes to the overall score
“Comparison of experience-based and evidence-based safety risk management features for heavy vehicle transport operations”
<table>
<thead>
<tr>
<th>Topic</th>
<th>ZRE grading factors</th>
<th>Evidence-based management practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleet</td>
<td>Safety features in vehicles have been determined through a risk assessment process.</td>
<td>All appropriate safety equipment, including safety features on trucks, is provided</td>
</tr>
<tr>
<td></td>
<td>Maintenance program is proactive. A policy exists that requires all drivers to carry out</td>
<td>Maintenance and pre-trip vehicle checks ensure that trucks are in a safe condition for all trips</td>
</tr>
<tr>
<td></td>
<td>regular (daily) vehicle inspection/check.</td>
<td></td>
</tr>
<tr>
<td>Journey risk assessment</td>
<td>Ensure that medium, long and infrequent trips are suitably planned. Regular route assessment.</td>
<td>Route risk assessments are done for all delivery journeys</td>
</tr>
<tr>
<td>Site risk assessment</td>
<td>Ensure that assigned parking areas are not in proximity to storage or manufacture of dangerous and/or combustible materials.</td>
<td>Site and job risk assessments are regularly carried out</td>
</tr>
<tr>
<td>Fatigue Monitoring</td>
<td>Fatigue monitoring systems are established and applied consistently across all operations of the organisation.</td>
<td>Monitor fatigue management practices</td>
</tr>
<tr>
<td>Response to safety concerns</td>
<td>The Fleet Risk Manager is ‘actively’ responsible for improving the loss performance of the fleet.</td>
<td>All managers respond quickly to safety concerns raised by drivers</td>
</tr>
<tr>
<td>Recruitment/ employment</td>
<td>No more than one (1) on-road crash in the past three years. Pre-employment aptitude/behavioural driver assessment</td>
<td>Recruitment criteria focus on safe driving records</td>
</tr>
<tr>
<td></td>
<td>Frequent proactive measures such as medical checks, eye exams and training is essential to control losses from a maturing workforce.</td>
<td>Driver fitness is assessed to ensure drivers’ abilities to safely carry out all job duties</td>
</tr>
<tr>
<td>Pay/conditions</td>
<td>Pay and benefits package are above regional/national averages to attract top performers.</td>
<td>Drivers are paid for all hours worked regardless of the task or activity</td>
</tr>
<tr>
<td>Training</td>
<td>Ensure all new drivers undergo mentoring / buddy system training, if not formal on-road training, for the first weeks of employment.</td>
<td>Training for drivers is based on individual tuition by experienced safe drivers</td>
</tr>
<tr>
<td>Discipline</td>
<td>Ensure that an incident investigation form is established to facilitate investigations.</td>
<td>Identified unsafe behaviours are formally investigated</td>
</tr>
<tr>
<td>Incentives</td>
<td>Pay and benefits package are above regional/national averages. (No additional safety incentives are included.)</td>
<td>Drivers are given incentives, including monetary incentives, clearly linked to work safety efforts</td>
</tr>
<tr>
<td>Communication</td>
<td>Procedures to incorporate driver in the management process including daily planning.</td>
<td>Managers encourage driver input to WHS decision-making</td>
</tr>
<tr>
<td></td>
<td>Create measureable key performance indicators</td>
<td>Managers take responsibility and show leadership in making safety a clear priority</td>
</tr>
</tbody>
</table>
"Comparison of experience-based and evidence-based safety risk management features for heavy vehicle transport operations"
Zurich Risk Advisor - www.zurich.com/zra
Giving you powerful insights across your risk landscape

- Carry out on-site self-risk assessments, using Zurich’s tried-and-tested risk grading methodology.
- Prioritize risk improvement actions by seeing their impact on your risk grading
- View your assessment results on the My Zurich customer portal

- Share your self risk assessment reports with key risk stakeholders by email
- Access recommended practices and risk insights and industry benchmarks
By signing into the application, the customer can:

- Set up locations
- Assess each location according to the appropriate Grading
- Assess what the Grading could be if lagging Risk Factors are addressed
For Truck, customers can access Risk Features that tell them:

- Background, general information about each Risk Factor.
- By what criteria each Risk Factor should be assessed.
- What improvements are commonly associated with each Risk Factor.
Clarity in defining autonomous vehicles

Dave Baldwin
Head of Insight, Thatcham Research
Clarifying the Definition of Automated Vehicles

The Challenge of Level 3

Dave Baldwin
Head of Insight
Thatcham Research
The Autonomous Car

SAE Definitions and Timeline

International Categorisation of Autonomy – open to interpretation

0: No Automation
   - 0: LDW, ESC

1: Assisted
   - 1: ACC, LKA, BLIS, AEB
   - 2: Lane Guidance, Parking Assistance ……

2: Continuous Assistance
   - 2017

3: Conditional Automation
   - 3: (2018 on) Highway Pilot?

4: High Automation
   - 4: (2021 on) Automated Driving

5: Full Automation
   - 5: (2025) Robot Taxi

Driver monitors driving environment

Feet Off

Hands Off

Eyes Off

Brain Off?

Driver monitored

System monitors driving environment
Our journey to automation

The UK Insurer View on Automation – Keep it Simple

Today

Assisted Driving

2019

2021

2025+

Automated Driving
Continuous Assistance = Adaptive Cruise Control + Lane Keeping + Lane Change
Automated Driving

Automation = Adaptive Cruise Control + Lane Keeping + Lane Change + Meets Criteria

AEB
Autonomous Emergency Braking

ACC
Adaptive Cruise Control

What defines an automated vehicle?
Features and performance criteria

- Accident Data
- Back-up Systems
- Emergency Intervention
- Safe Stop
- Unanticipated Handover
- Clear Handover
- Safe Driving
- Law Abiding
- Location Specific

✓ ✓ ✓ ✓ ✓ ✓
Automation Today
Vehicles with Continuous Assistance Today

“Drive Pilot” - Mercedes
“Pilot Assist” - Volvo
“ProPilot 1” - Nissan
“Auto Pilot” - Tesla

Up to 30s hands free with automated lane change – driver initiated

• Continuous steering assistance not currently permitted under UN Type Approval – ECE R79
• Vehicle manufacturers currently obtaining local type approval through Article 20 ahead of regulation – (EC Commission)
The Human Factor

Naming

Confusion and Ambiguity

Location Specific

Clear Handover

Better Systems Inspire Trust

Back Up Systems

Who is in Control?

Training Mode

Driver Support

Reinforce through HMI System
Automated Driving

Insurer Requirements

• Automated vehicles introduce new liabilities to insurers
  • liability when car is driving
  • driver is a passenger

• Emphasis on the safety of the automation – from design to operation

• Data imperatives:
  • Clear on what can be/is automated – dynamic list as capabilities change
  • Access to data to identify who was driving at the time of the accident – vehicle or driver
Limited data to determine liability

To be built in to Regulations

• GPS-event time stamp
• GPS-event location
• Automated Status – on or off
• Automated Mode - Parking or Driving
• Automated Transition time stamp
• Record of Driver Intervention of steering or braking, throttle or indicator
• Time since last driver interaction
• Driver Seat Occupancy
• Driver Belt Latch
What Next?
Action to Ensure Safe Automation and Assistance

Regulation

- Active engagement: UK, Geneva and Worldwide
- Regulating Automated Driving – The UK Insurer View – www.abi.org.uk
- Light touch approach internationally
  - Don’t stifle innovation
  - Respond quickly

Consumer Education

- Know what you are driving
- Systems Information and Support
- Relevant to both Automated and Assisted
- Currently with Vehicle Manufacturers and Dealers
  - Needs to be supported by other bodies

Engagement

- Vehicle Manufacturers, Regulators and Insurers need to have common understanding and agreement on:
  - System capabilities and limitations
  - Safe Automation
  - Data
  - Liability
Take Aways

- Vehicle automation will ultimately improve road safety
- Humans interacting with new technology potentially introduces new risks
- Common access to incident data necessary to establish who was driving
- Getting the right regulation in place will be key – but technology moves faster
- There will be a mixed fleet for decades after the first automated car
- Insurers need to be confident that they know the risk they are accepting
- Common agreement on Automated Definition is needed
- Consumer understanding is poor and needs attention
Clarifying the Definition of Automated Vehicles

The Challenge of Level 3

Dave Baldwin
Head of Insight
Thatcham Research
Autonomous vehicles – impact on crash rates

Karl Gray
Global Head of Motor and Personal Lines, Zurich
Understanding the Impact of Autonomous Driving on Insurance

21st September 2017
Karl Gray – Group Head of Motor

Group Underwriting
Insurance and Road Safety 2017

5 Levels of Automation

1. **Level 0** - Driver only
   - Driver task: No system
   - System task: Driver completely in charge

2. **Level 1** - Assisted
   - Driver in charge of longitudinal or lateral control
   - System task: Vertical or lateral control
   - Driver takes charge of other functions

3. **Level 2** - Partly automated
   - Driver in monitoring mode
   - System task: "Hands-off"
   - Vehicle runs both longitudinally and laterally in certain situations

4. **Level 3** - Highly automated
   - Driver needs to be ready to take over as a backup system
   - System task: "Eyes-off"
   - Vehicle will give advanced warning to driver

5. **Level 4** - Autonomous
   - Driverless during defined use case
   - System task: "Brain-off"
   - Full control
   - Vehicle runs both longitudinally and laterally in certain conditions
   - Vehicle capable of establishing a risk minimised state

6. **Level 5** - Driverless
   - No driver
   - System task: Autonomous
   - Vehicle is capable of performing all driving tasks independently with no driver required
   - Vehicle possibly does not have a steering wheel or pedals

Source: Barclays Research
Insurance and Road Safety 2017

The Autonomous Car Time Line

International Categorisation of Autonomy – open to interpretation

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No Automation</td>
<td>0: LDW, ESC</td>
</tr>
<tr>
<td>1</td>
<td>Assisted</td>
<td>1: ACC, LKA, BLIS, AEB</td>
</tr>
<tr>
<td>2</td>
<td>Partial Automation</td>
<td>2: Queue Assist, Parking Assistance</td>
</tr>
<tr>
<td>3</td>
<td>Conditional Automation</td>
<td>(System functionality improvements)</td>
</tr>
<tr>
<td>4</td>
<td>High Automation</td>
<td>3: (2018 on) Highway Pilot?</td>
</tr>
<tr>
<td>5</td>
<td>Full Automation</td>
<td>4: (2021 on) Automated Driving</td>
</tr>
</tbody>
</table>

- Feet Off: Driver monitors driving environment
- Hands Off: Driver monitored
- Eyes Off: System monitors driving environment

Brain Off?
Reduction of Vehicles Per Household

**Traditional Vehicles**
- Limited self-driving capabilities
- Work or personal use
  - Work: pickups, large SUVs, commercial vans
  - Personal: cars/CUVs, performance

**Flow: Family with two vehicles**

**Family Autonomous Vehicles (FAVs)**

- Vehicles/household: 2.1
- Annual miles/vehicle: 10,000
- Flow: one vehicle shared by multiple family members

**Shared Autonomous Vehicles (SAVs)**

- 7:1 traditional vehicles displaced per SAV
- 12% additional VMT due to empty trips
- Annual miles/vehicle: 10,000
- 64,000 miles

**Pooled Shared Autonomous Vehicles (PSAVs)**

- 17:1 traditional vehicles displaced per PSAV
- 50%+ reduced VMT due to shared rides
- Annual miles/vehicle: 10,000
- 64,000 miles

**Costs**

- Sedan: €0.26 per mile ride cost to consumers per SAV
- Two seater: €0.17 per mile ride cost to consumers per SAV

- Sedan: €0.10 per mile ride cost to consumers per PSAV
- Two seater: €0.08 per mile ride cost to consumers per PSAV
Insurance and Road Safety 2017

Automation - Impact on Frequency

Accident frequency per vehicle by year (baseline scenario)

Source: KPMG LLP actuarial analysis

Average incidents per vehicle
Insurance and Road Safety 2017

Automation - Impact on Severity

Severity per accident

Cost per accident

Source: KPMG LLP actuarial analysis

Average severity
Insurance and Road Safety 2017

Automation - Impact on Type of Claim

Thatcham Research
Insurance and Road Safety 2017

Automation - Impact on Motor Premiums

Figure 3
Forecast of motor insurance premium, taking into account impact of technology (not taking into account inflation and assuming 100% ADAS adoption rate)

14 largest motor markets: Brazil, Canada, China, Egypt, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, UK, US

Source: Swiss Re, 2015
Insurance and Road Safety 2017

Impact on Premium – Emerging V Developed

Continuation of current trends

Continuing growth in fleet (+64%) & in premium (+81%)

Market dislocation from autonomous technology

Continuing strong fleet growth (+66%) modestly offset by technology shift - premiums still up +74%

A new normal starts to return

Autonomous technology moves mainstream in EM. Fleet continues to grow (+23%) but premiums fall (-10%)

Flat-lining (fleet +1%, premiums +19%)

Premiums down -30% as technology impacts on a declining fleet (-10%)

Fleet still shrinking (-6%) & premiums drop a further -37%

Source: Autonomous estimates

Developed Markets  Emerging Markets

© Zurich
Insurance and Road Safety 2017

Automation – Chaos Creates Opportunity

- 2024: Market decline begins
- 2025: $15B
- 2026: AV loss will begin
- 2035: $23B
- 2035: Loss of $25B
- 2050: $34B
- 2050: Loss of $41B

**Premiums collected US$ Billion**

- Premium types:
  - Cyber Security Premiums
  - Software/Hardware Failure Premiums
  - Infrastructure Premiums
  - Traditional Premiums Earned

**Opportunity in three new insurance product lines**
The existing legal framework for statutory motor liability has the potential to deal with SDVs and ADAS. It is likely that the legal system and claims process will initially still hold the ‘owner’ of the vehicle responsible, as the law currently indicates.

When the owner of the vehicle is considered liable for damage or injury in the ‘first instance’, the injured party can be compensated promptly while the party ultimately responsible is pursued for the damage via subrogation.

Many national legal frameworks are taking a similar view. The UK government announced such an approach in the Vehicle Technology and Aviation Bill (HC Bill 143)
Understanding the Impact of Autonomous Driving on Insurance

**Summary**

1. **significantly change the way we insure vehicles;** including underwriting, pricing, proposition development, distribution and claims.

2. **claims frequency will fall. Severity will increase. Premiums will eventually fall,** but not for sometime. The impact in developed markets will be more pronounced.

3. **car sharing will become much more prominent.**

4. **semi-autonomous technological impact is imminent.** Full Autonomy is sometime off and will initially be relevant in niche areas.

5. **new risks will** emerge with the development of SDVs and ADAS including cyber hacking, software and technology malfunctions, as well as connectivity and infrastructure failures.

6. **Zurich is embracing autonomous technology** and is involved in a number of pilots and partnerships across the world.
Panel 2 – The insurance perspective

➢ Karl Gray, Zurich
➢ Andrei Rubeli, Uniqa
➢ Dave Baldwin, Thatcham
➢ Louise Kerrigan, Zurich
➢ Bettina Zahnd, AXA

Facilitator: Nick List, Zurich
Insurance for safer roads

November 28th 2017, Zurich

#RoadSafety