

Integrated Management System for Temporary Road Impairment (SIGIVT)

A proposal for reducing accidents linked
to human psychophysical factors

VI International Conference on European Traffic Policies 2014

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Camp de Tarragona Health Area



9 05 2014, 21:22 H
km 3.5 of the provincial road BA-051
BADAJOZ, SPAIN.

PSYCHOPHYSICAL HUMAN FACTOR!!

Is a Management System for Temporary Road Impairment required?



Zazzle.com



Grounds for the SIGIVT proposal

- The human factor accounts for 90% of road accidents
- Disease/ prescription drugs = 12-20%
- Very high social and personal cost in avoidable/preventable accidents.
- It is a matter for Public Health
- Focus-Strategic Plans National/Regional/EU Traffic

Medical condition and accidents

PATIENT DISEASES ARE
THE CAUSE OF 12.7%
OF TRAFFIC ACCIDENTS

Juan Carlos GONZÁLEZ LUQUE
General Traffic Directorate
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**Australia (Austroads Research
Report, APR389-11)**

<http://www.austroads.com.au/>

<http://www.dgt.es/revista/num212/pdf/revista-traffic-y-seguridad-vial-numero-212-completa.pdf>

The SIGIVT: the truth of primary care

- Patient **aged 54/3** children/2 unemployed family members
- Employed as a driver (**minibus**)
- 1st episode of **arrhythmia** not serious: ER/hospital admission
- Follow up visits every **20 days** (**temporary impairment**)
- Has had temporary **recurrences** (drove to ER)
- Next license renewal in **2 years**



Question: When can I go back to work?

Current problems

- Visit to cardiology unit: proposed RF ablation
- Supplementary tests: 3 months
- Takes dangerous drugs and drives
- RF ablation outcome.... (healing)??
- Authorization to drive: 3m post ablation
- Drives own vehicle to come to primary care
- MATEPSS requests reports from MAP
- HR press him to return (dismissal threats)
- The Provincial Traffic Department knows nothing! ...



Optimainfinito.com

“I want to get back to work! I’ll take care of myself, after all, I will likely be dismissed...”

Tabla 2. Enfermedades con influencia en la seguridad vial

Condición sobre la que actúa	Efecto que producen	Enfermedades
Capacidad intelectual y cognitiva	Alteraciones en la conciencia	<ul style="list-style-type: none"> • Trastornos cardiovasculares: arritmias, infartos, embolias • Enfermedades metabólicas no controladas: diabetes mellitus, hipertensión arterial... • Trastornos del sueño: hipersomnias, apnea del sueño...
Aptitud psicológica y mental	Alteraciones en el psiquismo	<ul style="list-style-type: none"> • Esquizofrenia y otros trastornos psicóticos • Trastornos de la personalidad: agresividad... • Depresión mayor, retraso mental, demencia, trastornos disociativos... • Adicción a alcohol y drogas: delirium...
Condiciones físicas y capacidad de coordinación	Capacidad visual	<ul style="list-style-type: none"> • Enfermedades degenerativas progresivas: cataratas, glaucoma • Retinopatía diabética o hipertensiva, degeneración macular, etc. • Defectos severos de AV, campo visual, motilidad palpebral y globo ocular
	Capacidad auditiva	<ul style="list-style-type: none"> • Hipoacusias con pérdida superior al 45% con o sin audífono
	Capacidad motora	<ul style="list-style-type: none"> • Trastornos de la sedestación, trastornos progresivos neuromusculares • Epilepsia, crisis convulsivas... • Trastornos neurológicos: accidentes isquémicos, neuropatías centrales y periféricas
	Aparato respiratorio	<ul style="list-style-type: none"> • Alergias, disneas severas
	Trastornos oncológicos	<ul style="list-style-type: none"> • Neoplasias y tratamiento quimioterápico
	Trastornos hematológicos	<ul style="list-style-type: none"> • Leucemias, anemias, poliotemias, trombopenias, trastornos de la coagulación
	Nefropatías	<ul style="list-style-type: none"> • Insuficiencia y trasplante renal
	Endocrinopatías	<ul style="list-style-type: none"> • Patología tiroidea y paratiroidea • Patología adrenal (Cushing, Addison, feocromocitoma...)
	Alteraciones del equilibrio	<ul style="list-style-type: none"> • Vértigos, mareos

Fuente: Maqro Servet[®]. Elaboración propia

Recommendations on road safety/medication and driving.
 Ramirez Puerta D, Gomez Peligros A, Redondo Margüello E.
 SEMERGEN – AP/FAES FARMA 2013

Tabla I. Enfermedades y conducción

Enfermedad	Conducción	Tiempo de restricción
Arritmias	No	3-6 meses tras la estabilización
Cardiopatía isquémica	En función de la gravedad	3 meses postinfarto agudo de miocardio
Revascularización	No	1 mes
Insuficiencias cardíacas de grado III/IV	No	Permanente
Miocardiopatías, endocarditis, pericarditis	No	Hasta su resolución
Cirugía de prótesis valvulares	No	3 meses
Flebitis superficial, trombosis venosa profunda sintomática y safenectomías	No	2-4 semanas
Hipertensión arterial	Sí, salvo complicaciones agudas	
Diabetes mellitus mal controlada y al inicio del tratamiento	No	Hasta estabilización y control
Obesidad severa	Desaconsejada	

IT'S NO USE IF NOBODY DETECTS PROBLEM/ADVISES/NOTIFIES

Anemias con hemoglobina entre 8-10 g/dl	No	Hasta su recuperación de cifras de hemoglobina
Epilepsia con tratamiento continuado y agresivo	No	Tras un año sin convulsiones o pérdida de conocimiento, se podrá conducir con un informe favorable del neurólogo. En caso de una única crisis epiléptica no filiada o por tóxicos, el tiempo recomendado es un periodo de 6 meses sin crisis
Trastornos de la personalidad, antisociales, ansiosos severos, maníacos y depresivos no controlados	No	
Vértigo	No	Hasta su resolución en fase aguda, o hasta 6 meses después de su resolución en los vértigos crónicos recurrentes
Cirugía de cataratas	Sí	
Cirugía refractiva y tratamientos con láser	No	48 horas después
Visión monocular y diplopía	No	

Fuente: Elaboración propia

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Degree of road health prevention

- Primary prevention: detect/minimize accidents relative to impairment (healthcare)
- Secondary prevention: report event if there is almost an accident/road control (agents-healthcare)
- Tertiary Prevention: in case of accident, avoid new ones! (cause research, healthcare)

THE FIVE PILLARS OF PESV (ROAD HEALTH PREVENTION) 2014-2020 SCT

PILLAR 4. "Interdepartmental cooperation and shared responsibility between all public and private actors

HEALTHCARE/HOME AFFAIRS/JUSTICE/WORK

PILLAR 5 "Improving road safety for vulnerable users and controlling major risk behaviours

- Concerning the **driving-alcohol/prescription drugs** combination, the aim is **to achieve a reduction in the number of positive police checks** on the road network. Whereas with alcohol there has been a generally favourable trend in recent years, the same cannot be said for the cases of **drugs and/or psychotropic drugs**.

PEDESTRIANS INCLUDED!

<http://infotransit.gencat.cat/ca/infotransit-14/seccions/a-fons/el-pla-estrategic-de-seguretat-viaria-2014-2020>



Systems in force in Catalonia for **Medical Management at CatSalut - CTTI (TIC):**

1- Electronic prescriptions in Catalonia (Rec@t) S.I.R.E. (2009-2011)



<http://www.gencat.es:8000/salut/depsalut/pdf/eseh2.pdf>

2 – System plan of the Catalan Institute for Medical and Health Assessments (ICAM). S.I.G.I.T. (2007-2012)

SIGIT

(a system already existing)

The screenshot displays a software interface for SIGIT (SIGIT MANAGEMENT SYSTEM). The main window title is "G- Registre IT Num: 84000781 - Episodi ICAM:", which is circled in red. The interface is divided into several sections for data entry:

- Data:** Includes fields for "Data Doble" (1/20/2014), "Marges", "Sit. Laboral" (ACU), "Sit. Adm." (ACU), "Reafitació" (Normal), and "D. Principal".
- Empresa:** Includes "Nom" and "Pàgina" (GENERAL).
- Contingència:** Includes "Comuna", "Laboral", "Data Contingència", "Data Accident", "Data Prevenció", "Mòxim Dies", and "Data Ouplació".
- Alta:** Includes "Data Alta", "Marges", and "Motu".
- Reafitació:** Includes "Reafitació" (No) and "Motu".

The bottom of the window shows the version "GcWinAp Ver 3.4.2 Usuari SERTARLOG - Servei Tarragona Josep" and the "Àrea: ABS ARV".

Presentation of data from a SIGIT event (SIGIT MANAGEMENT SYSTEM)

SIGIVT/SIGIT similarities

The **SIGIVT** model would imitate and capture the **essence** of the **SIGIT** in Occupational Temporary Disability allowing to know in **real time (roadside)** the process in which a specific driver is (**road health status**)

Its **inception, follow up and resolution** are similar to the SIGIT model for communication between **CatSalut, INSS and ICAMS** regarding Temporary Impairments.

Main goals of SIGIVT I:

- Intervention/monitoring in psychophysical **intercurrent** processes between periodic reviews. Primary Prevention.
- **Model** the organization **integrated** with all actors involved in the management of **ROAD IMPAIRMENT**.
- Create **electronic medical records** of **Temporary Road Impairment (e-IVT)**
- **Provide and streamline** the exchange of information
- **Ecological: eliminate the use of paper** in requests for assessment/resolutions regarding driving licenses

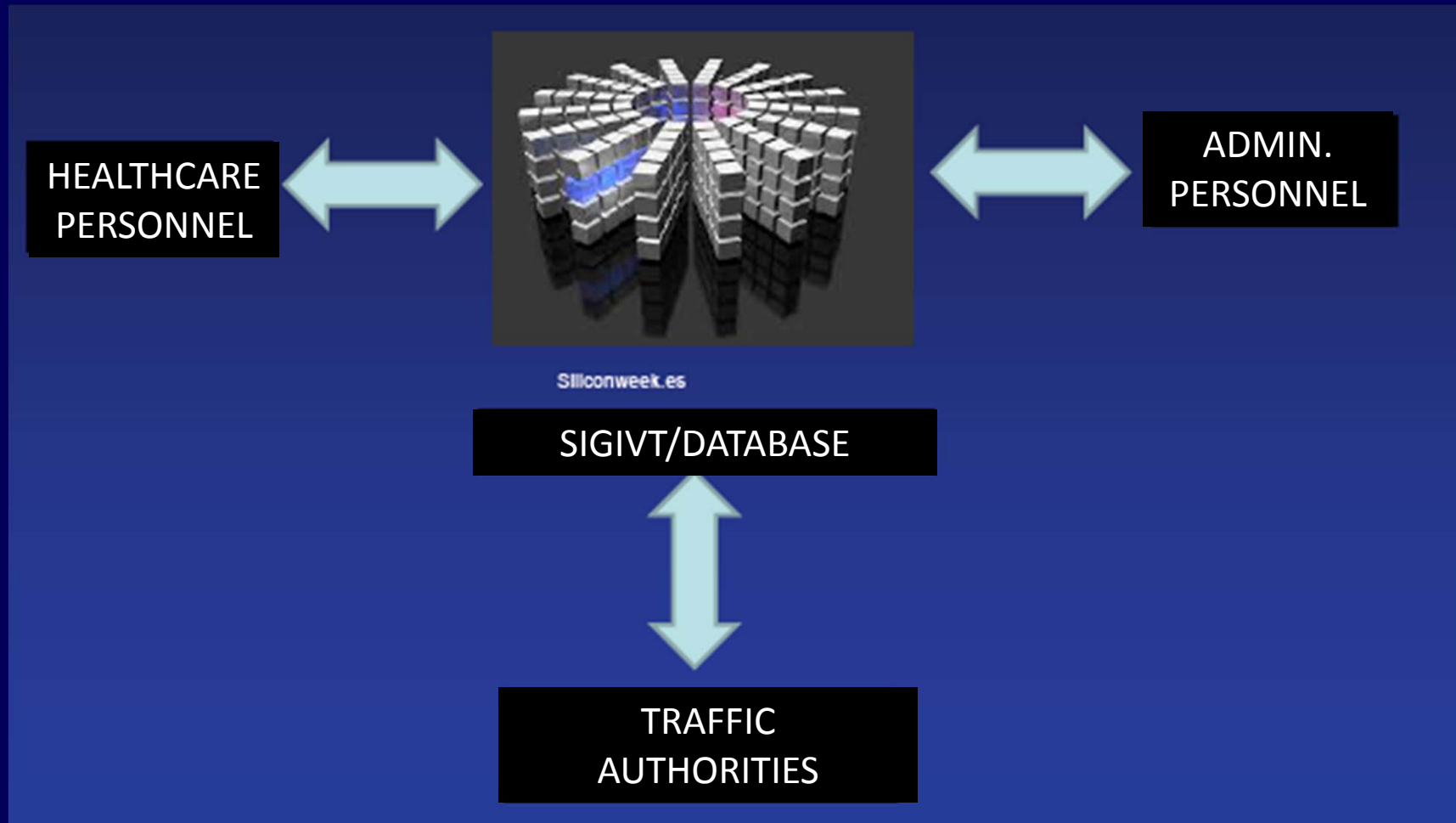
Main goals of SIGIVT II:

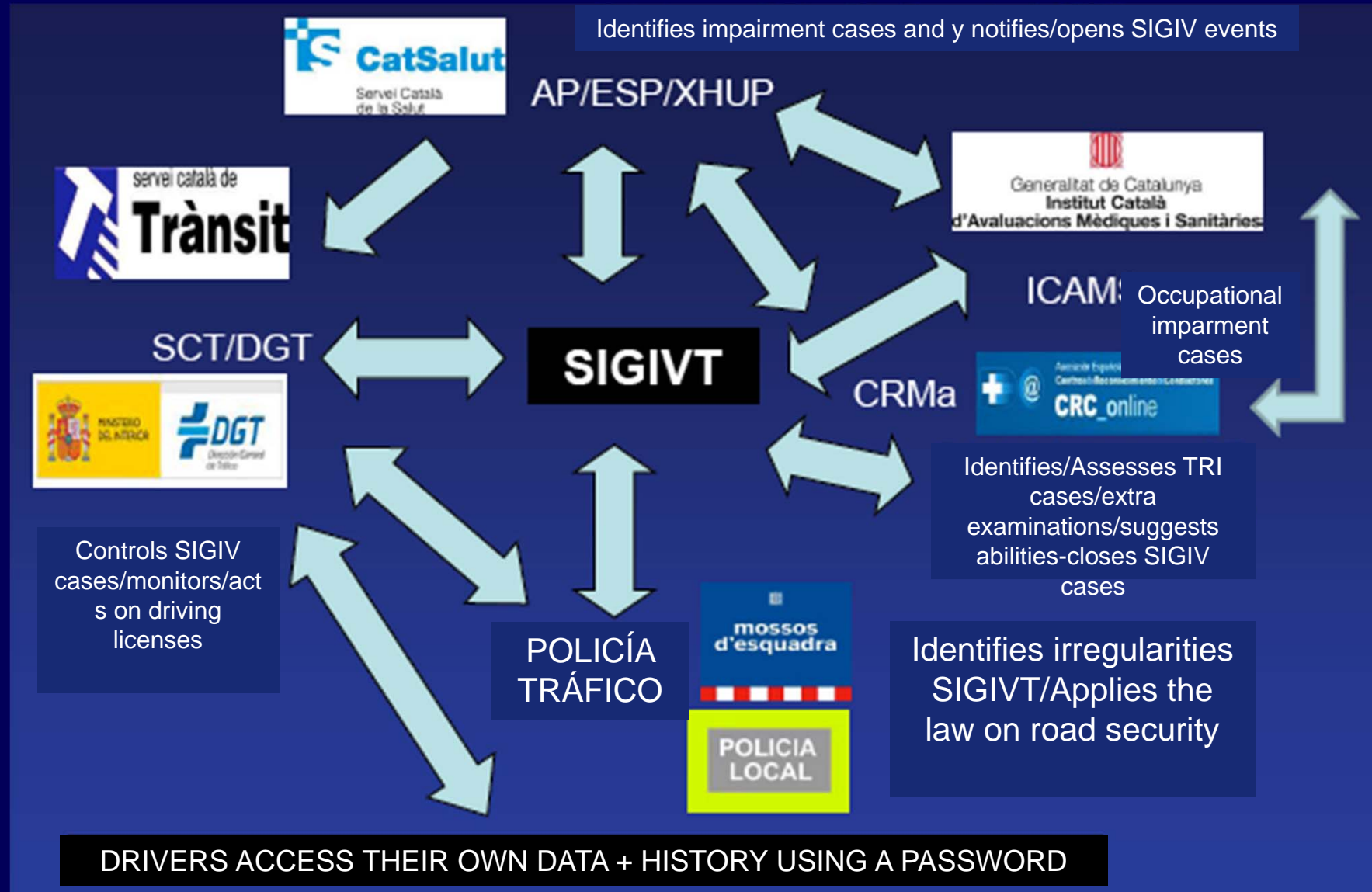
- Information regarding online IVT
- Encourage the use of public transport (sustainability)
- Assist investigators in clearing accidents which prime suspect is the human factor. Secondary/tertiary prevention.
- Balance between: safety/mobility
- Promote the role of the primary care and other specialty physicians in road safety
- Export the model to other regions or even to Europe
- Exploitation by statistical analysis
- Pave the way for future single electronic road medical records (shared) CRM/SNS

Basic principles of the System:

- the primary care/specialty physician or other agents with access to the SIGIVT become **sentinels and triggers – detectors** of the circuit (and approved CRMs)
- CRMs **exploit** their potential as reviewers **TARGETING** the reason for assessment (directed review).
- The **SCT**, with the help of the **Regional/Local Police**, **controls the application of the regulation and acts**
- The SIGIVT **manages** electronically **in real time** the whole procedure until the end of the temporary road impairment(TRI) event.

Basic model of operation NETWORK





FLOWCHART / SIGIVT

Circuit I **SIGIVT**

ACTIVATION: HEALTHCARE PERSONNEL:
HOSP/AP-CSM-CAS-ICAM, MATEPSS

OPPORTUNIST DETECTION VP-VE /
ADMISSION TO HOSP/ER/CHECK UP

PATHOLOGY RISK STANDARD PACK/
CODED TREATMENTS

OPENING OF SIGIVT EVENT/
NOTIFICATION TO AUTHORITIES
REGIONS/DGT/CME/LOCALP

CASE DIRECTED TO CRMA X TERM

ABILITY EVALUATION ADDRESSED TO
CRMA (TEMPORARY ROAD IMPAIRMENT)

CLOSING/RESOLUTION OF EVENT

Circuit II SIGIVT

ACTIVATION: AUTHORITIES (INTEGRATED
CONTROLS/ACCIDENTS) SUSPECTED
INVOLVEMENT OF HEALTH/TOXIC SUBSTANCES

ADDRESSING CASE
TO CRMA X TERM

ADDRESSING CASE
TO AP X TERM

OPENING OF SIGIVT
EVENT/NOTIFYING
AUTHORITIES

CONCEPT OF SPECIAL MANAGEMENT DRIVER

- CHARACTERISTICS:
 - HIGH POTENTIAL **RISK** TO OTHERS (ADR-PUBLIC TRANSPORT). **SECURITY**
 - MAIN SOURCE OF **INCOME**: DRIVING. **DAMAGES**
- IMPLICATIONS:
 - CLINICAL IMPAIRMENT MANAGEMENT **FACILITATION**
 - DILIGENCE OF SIGIVT EVENT **PROCEDURE** (TERMS)
 - PRIORITIZE **RETURN** TO ABILITY

Temporary impairment (TI) overlaps TRI

NOT ALL TI IMPLIES TRI OR VICEVERSA
BUT MOST TI IMPLIES TRI

Clinical Data Protection

- **Minimal** clinical information restricted to traffic area
- **Levels** of access restriction according to personnel (medical–non medical)
- **KEY** use of the pass/fail terminology

Levels of access to SIGIVT

- **Catsalut/CRMa/ICAMS** = keywords for SIGIVT access: CIE 10 codes
- **DGT/SCT/CTTI/CME**= competence
- Driver: consultation of **electronic road record**

Level of authorities: SIGIVT e – stations CME/P LOCAL (SRCO)-112



SRCO-112



INTEGRATION IN SIGME

- REGIONAL POLICE (ME)

INTEGRATION IN SIPC

- LOCAL POLICE

Areas: SRCO/112

- Integral **Controls** (prevention)
- **Performance** in road accidents (info)
- **Research** of accidents (court)

SIGIVT / e-ESTACIÓ AGENTS DE TRÀNSIT PATALLA 1 informativa

DATA 00/00/00- ID AGENT (REGISTRE PWD)

NIVELL I - ACCÉS RESTRINGIT no medic

DADES CONDUCTOR

DADES PERMIS CONDUCCIÓ

VIGÈNCIA DESDE 00/00/00 - TIPUS A,B ,C...

PROPERA REV MEDICA 00/00/00

DADES VEHICLE

APTITUD (ESV)-ESTATUTS DE SALUT VIÀRIA

APTE

PENDENT DE REVISIÓ APTITUD (NO ES PERMET CIRCULACIÓ FINS DICTAMEN)

NO APTE (IVT) EPISODI NUM X

NO APTE PERMANENT

APTE AMB RESTRICCIÓ DE TIPUS X

NO PRESENTAT A REV DIA 00/00/00



DATA REV : 00/00/00

Pilot plan

Phase 1: Prioritization in high-risk drivers due to:

- Serious **consequences** in case of accident:



- Pathology/toxic substances more **impact and more unpredictable**



Pilot plan

Phase 2:

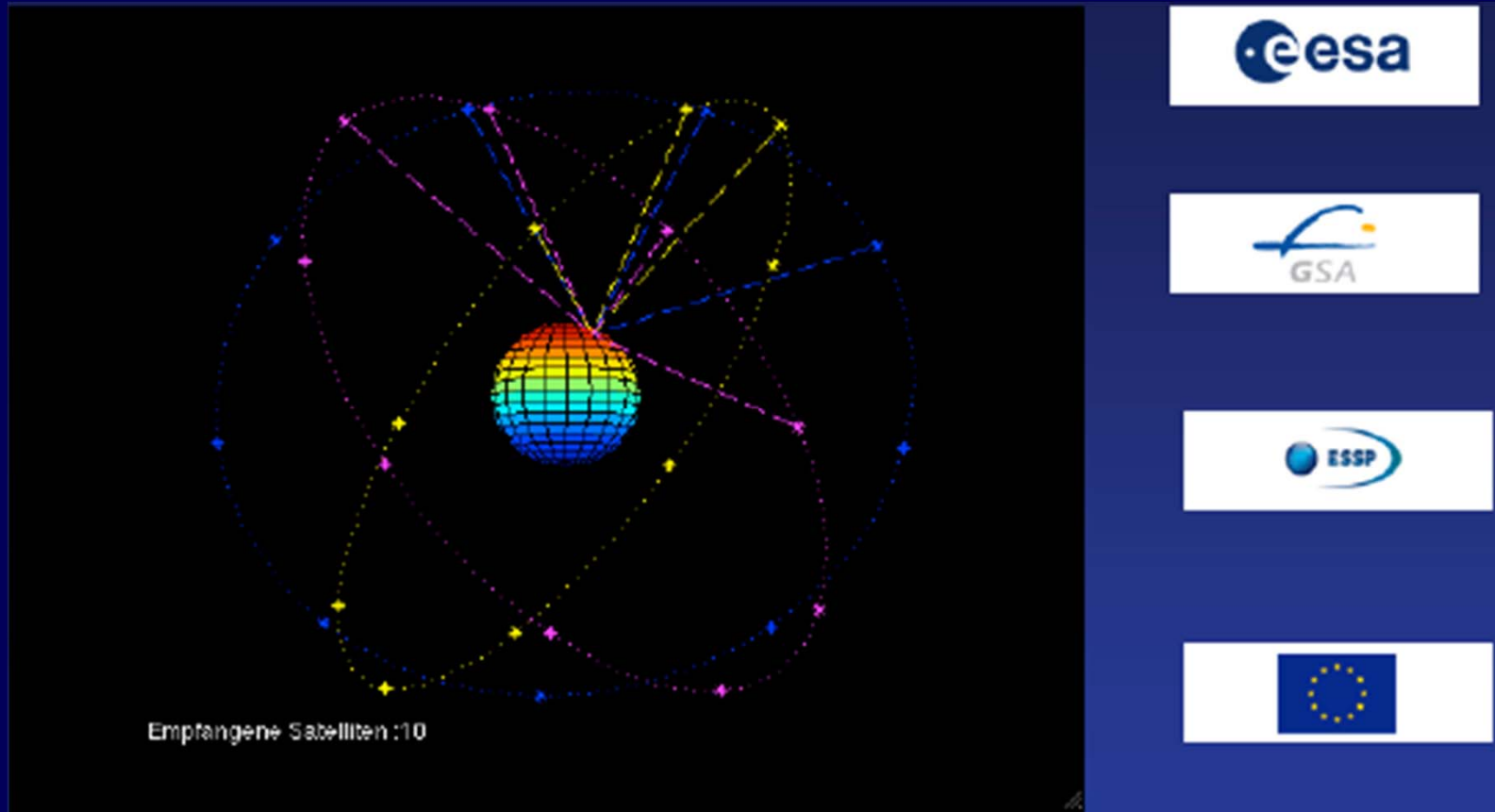
Extension to other moderate-risk groups:

- Drivers with high accumulation of mileage
- Long-term inter-current severe disease
(weeks-months)
- Comorbidity ESV
- Professional drivers

Discussion/conflict points

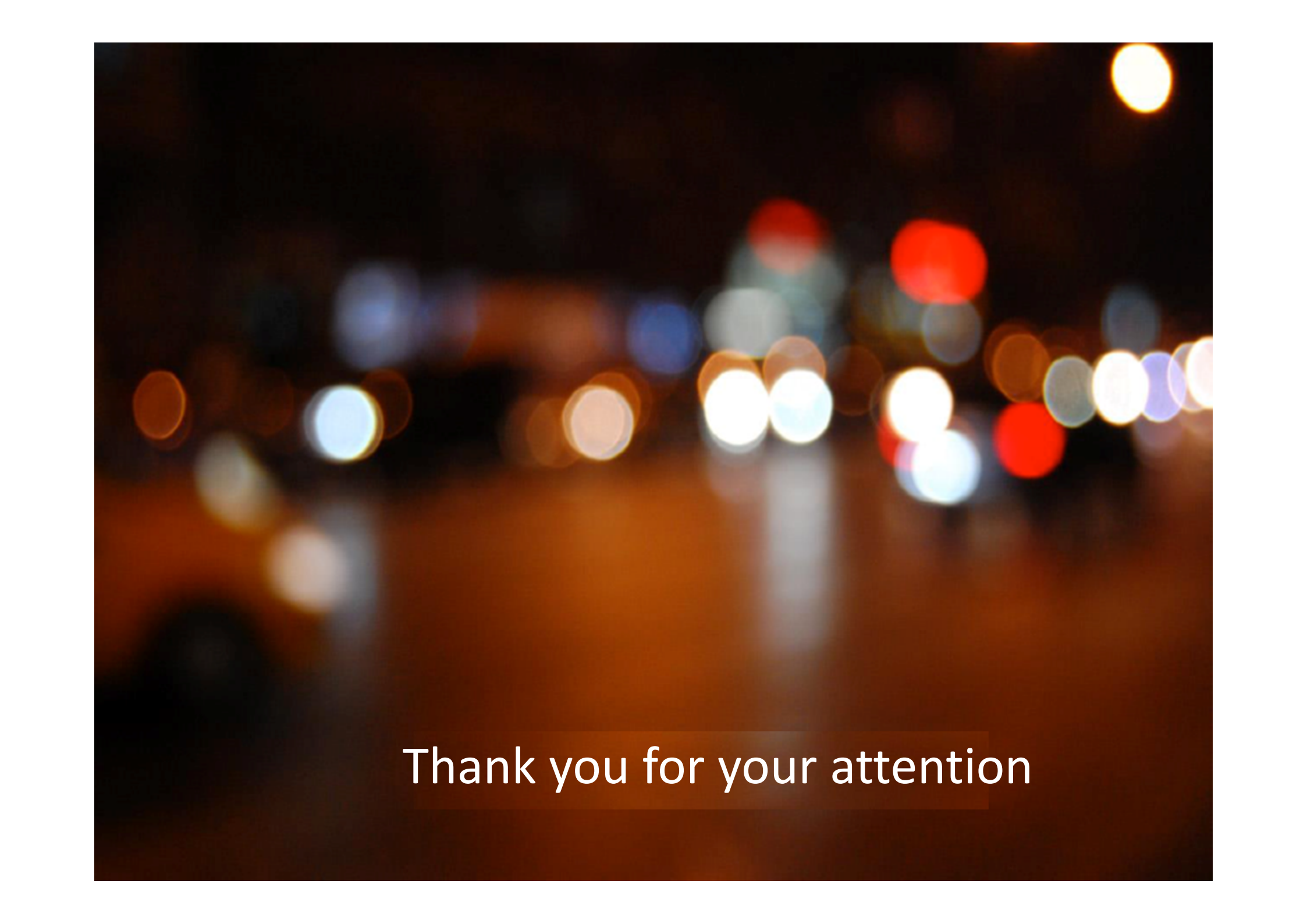
- Handling of clinical data to **non-physicians**
- **NO** impairment of physician-patient **relationship** (road education first)
- **Regulated** by law: medical qualification required to open **precautionary** files.
- Economic or social **impact** of stricter TRI control measure. **Risk/benefit** of disabling cost vs damages resulting from accidents.
- **Feasible Applicability:**
 - Highly dangerous disease
 - Serious consequences

THE FUTURE... GALILEO



<http://www.satellite-navigation.eu/>

**SIGIVT: INSERTION IN CONTROL SYSTEM APPLICATIONS
WITH BLOCKING SMART CARDS**



Thank you for your attention