

# *Fit to Drive*

7<sup>th</sup> International Traffic Expert Congress  
25<sup>th</sup> – 26<sup>th</sup> April 2013  
Berlin



## A pilotstudy into Fitness to Drive following stroke and brain injury

Claudia Georgsdóttir, PhD, neuropsychologist  
Grensás Rehabilitation, Landspítali, Iceland



# Grensás Rehabilitation



- Inpatients (24 beds), outpatients (30 beds) and ambulatory service
- Patients: Stroke, traumatic/ non-traumatic brain injury, spinal cord injury, multitrauma, amputations, complex medical conditions and diverse neurological dysfunctions
- Patient age 18 – 75 yrs
- About 100 – 120 stroke and brain injury patients annually
- About 90 staff - neurology, rehabilitation medicine, nursing, physiotherapy, occupational therapy, psychology/ neuropsychology, speech therapy, social work



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Embætti  
landlæknis  
Directorate of Health

## Fit to Drive

“No uniform guidelines exist in Iceland for patients, the public nor physicians about what it means to be *fit to drive*” (2007).



## Road Accident Investigation Group

“Specific rules need to be established for the evaluation of *fitness to drive* as research indicates that assessment systems currently used to evaluate driving ability are inadequate” (2007).

# The Study

## Objectives

1. Acquisition of the Expert System Traffic - **XPS**
2. Translation into Icelandic
3. A pilot study into its suitability for Icelandic stroke and brain injury patients

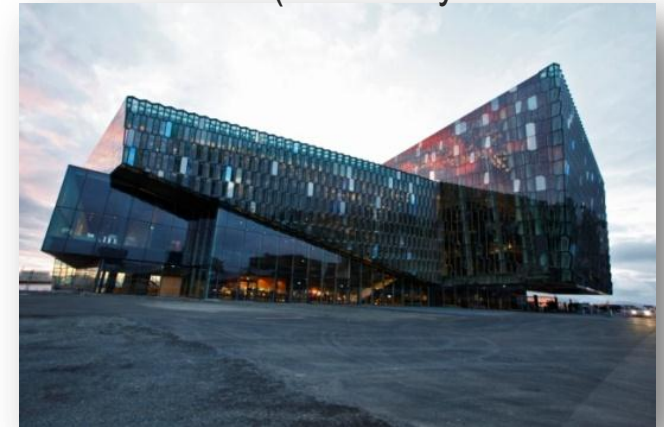


This is a preparatory study for a subsequent, larger interdisciplinary investigation at Grensás, into the predictive validity of the XPS



## What has been happening so far ...

- Summer 2011: Grant applications for intended study
- November-December 2011: Four financial grants
- January 2012: Purchasing the Expert System Traffic – XPS (Schuhfried GmbH)
- February to May 2012: Translation
- June –September 2012: Research assistant / postgrad. student (University of Iceland), collaboration with University, supervision
- August 2012 - current: Testing
- End of March 2013: Analyses
- Education/ lectures – Icelandic Road Administration





## The Expert System Traffic Test XPS (Schuhfried, 2005)

The **XPS** builds on empirically tested models of the correlation between **cognitive, motor** and **personality** dimensions of performance and attainment in a standardized driving test.

Expert System Traffic Test - XPS		Rel.
Peripheral Perception Test	Divided attention in horizontal visual field	.99 .96
Cognitrone	Concentration	.95
Determination Test	Stress tolerance	.99
Reaction Test	Reaction time and motor speed	.94 .98
Adaptive Matrices Test	Logical reasoning	.70
Adaptive Tachistoscopic Traffic Perception Test	Visual overview	.83
Total duration	65-75 min.	

### Validity and reliability

Test reliabilities  $r=.70$  and  $r=.99$

Total validity coefficient  $R=0.77$ ; sensitivity 86%, specificity 80%

### Norms

Independent of age, gender or education

### Interpretation

Percentile ranks

### Economical advantage

Adequate performance saves cost for on-road driving assessment.



The XPS  
is not intended  
to replace on-road  
driving assessment

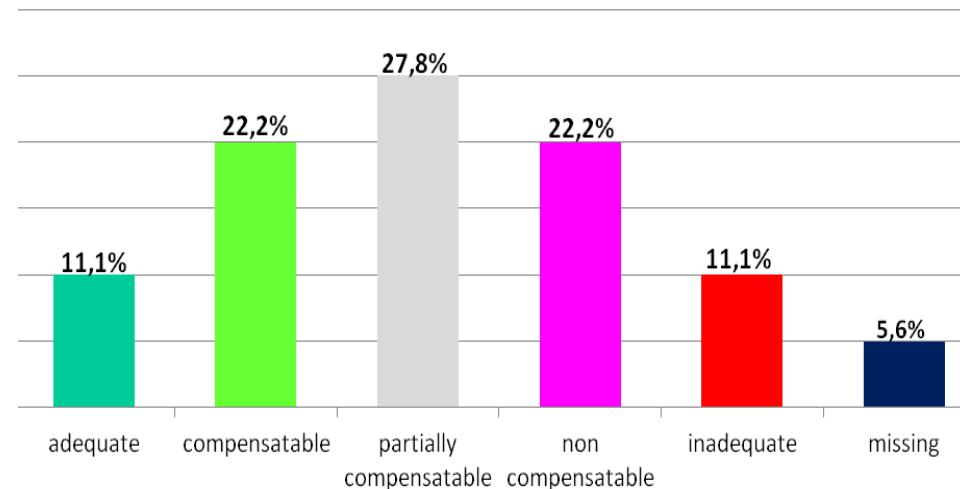




## Preliminary XPS Results

### To date N=18

- age 26.1 – 78.9 yrs
- male n=8 female n=10
- stroke n=14 brain injury n=4

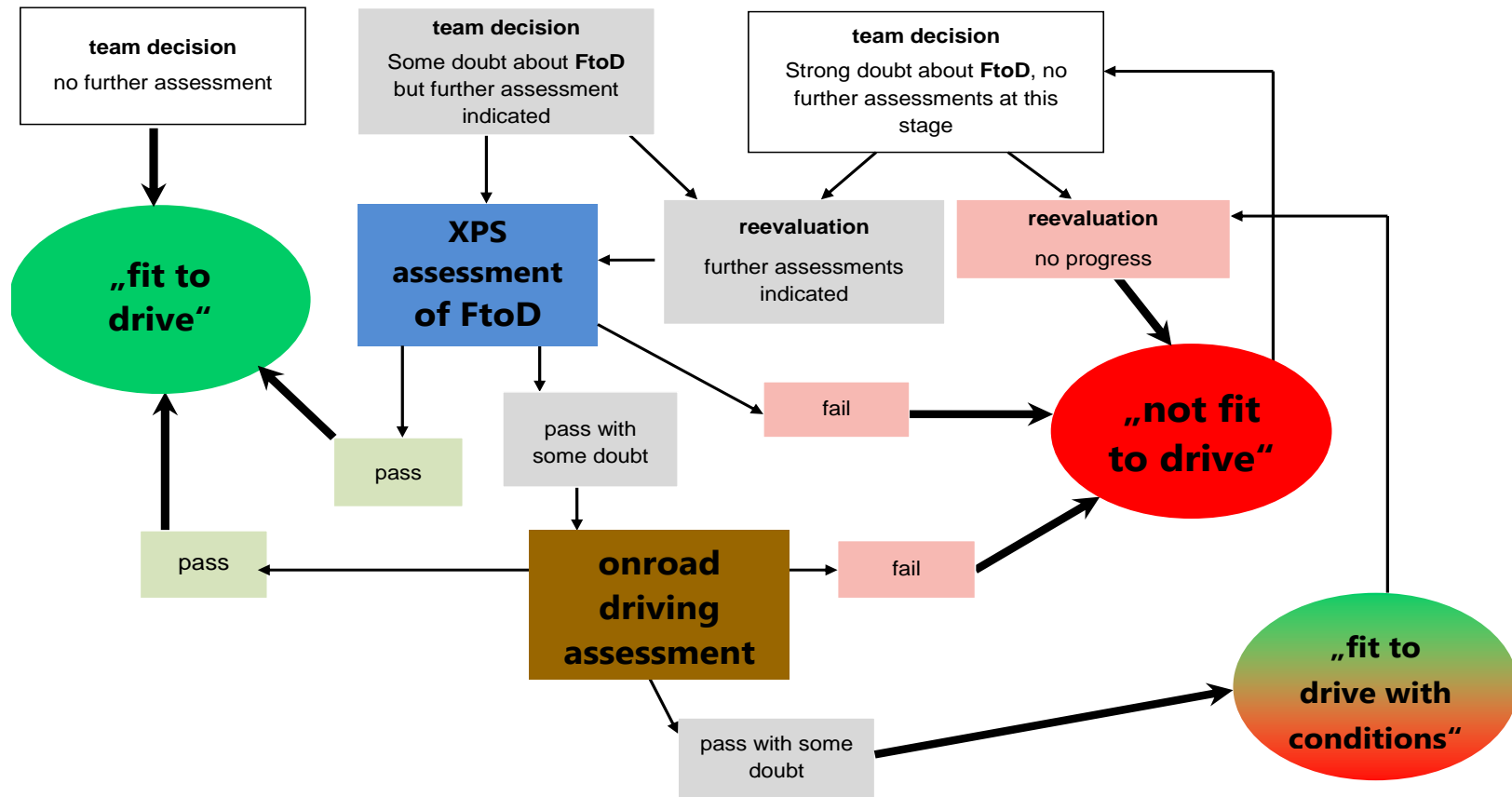


- 33,3%: “adequate driving ability”: no on-road driving test necessary
- 61,1%: on-road driving test necessary





## Fit to Drive FtoD following stroke/brain injury Clinical guidelines at Grensás – draft





## Interdisciplinary research study 2013-2015

*XPS – on-road driving assessment*

- to contribute to the development of cost-effective guidelines of Fit to Drive in Iceland



## Establishment of a Traffic Examination Centre in late 2013

- to offer assessment of Fitness to Drive and quality professional advice to the public



## Traffic behaviour deficits *driving under the influence, speeding...*

- ongoing liaison with German psychologist experts (**MPU AVUS**)

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Grensás Rehabilitation, University Hospital

[claudiaosk@gmail.com](mailto:claudiaosk@gmail.com)

[claudiag@reykjalundur.is](mailto:claudiag@reykjalundur.is)

Reykjavík 108

ICELAND