13th EUGMS
INTERNATIONAL CONGRESS OF THE EUROPEAN UNION GERIATRIC MEDICINE SOCIETY
DEVELOPING PREVENTIVE ACTIONS IN GERIATRICS

Predicting Hospitalisations & ER visits: Comparing 10 risk scores in Care Dependent Elderly from 6 Countries

The IBenC Study

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DISCLOSURE

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interRAI fellow – using specific measurements in studies

Background

- Hospital admissions and ER visits occur frequent
  ~10% any person ~30% frail older. Becker JAMDA 2012
- Hospitals can have considerable iatrogenic impact
- A substantial part of admissions are potentially preventable.
  Nyweide 2013, Costa 2017
- Can we improve community care for high risk groups?
- Several risk scores exist that identify high risk groups.
  Never compared directly, No cross country validations
- **What is the best measure to identify high risk groups?**

OBJECTIVE

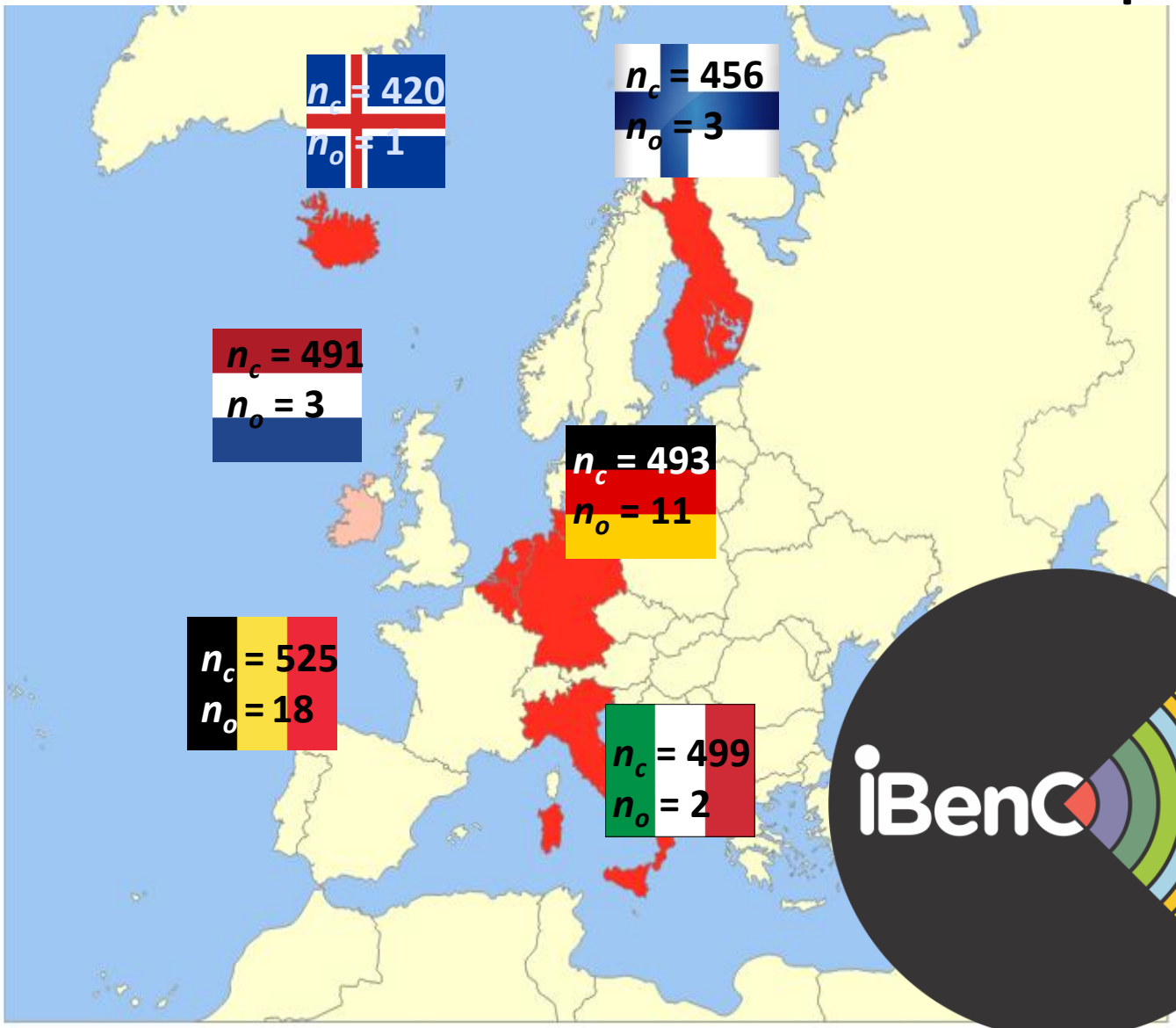
To identify the best performing risk score to predict hospitalisations and emergency department visits among older care dependent home dwelling adults across six countries.

IBenC study : Home care clients in 6 countries with 12 months follow up

2884

38

CGA=
interRAI HC



POTENTIAL EXISTING RISK INDICTORS FROM REVIEW

SPECIFIC HOSPITALISATIONS RISK SCORES :

1. ***CARS*** *(0-9): Community Assessment Risk Screen*
2. ***DIVERT*** *(1-5): Detection of Indicators and Vulnerabilities for Emergency Room Trips Scale*
3. ***ERA*** *(-1-26):Elders Risk Assessment Index*
4. ***EARLI*** *(0-22): Emergency Admission Risk Likelihood Index*

GENERIC FRAILTY RISK SCORES :

1. ***Fried's Frailty Criteria*** *(0-4): weight loss, exhaustion*, slow *walking speed*, reduced *physical activity, and* time being physically active (Bandeen-Roche specifications)
2. ***Frailty Indicator*** *(0-1)*: Accumulation of deficits index (Rockwood)
3. ***ISAR-PC*** *(0-7.5): Identification of Seniors at Risk – Primary Care*
4. ***CHESS*** *(0-5): Changes in Health, End-stage disease and Symptoms and Signs*
5. ***Edmonton Frail Scale*** *(0-3)*

CARS risk score - Community Assessment Risk Screen (0-9)

1. Do you have any of the following health conditions?
(if 2 or more conditions 'YES' score =2)

	YES	NO
Heart disease	…	…
Diabetes	…	…
Myocardial infarction	…	…
Stroke	…	…
Chronic obstructive pulmonary disease	…	…
Cancer	…	…

SCORE:……..

2. How many prescriptions of medications do you take? …
(if 5 or more , medications score =3)

SCORE:……..

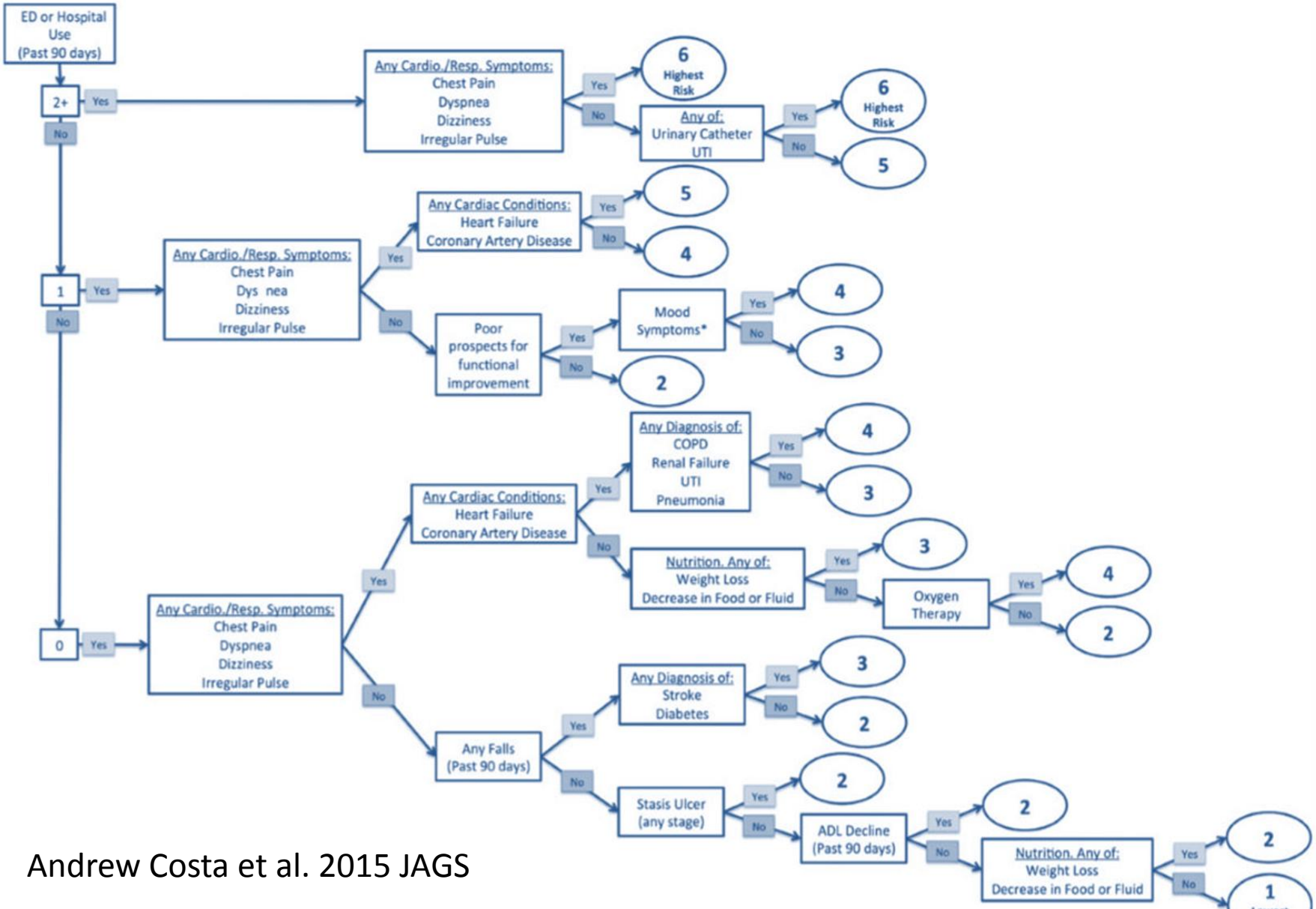
3. Have you been hospitalised or had to go to an emergency department or urgent care center in the past 6 months? …
(if answer is 'YES' score = 4)

SCORE:……..

TOTAL:……

Paul Shelton et al. 2000 Am J Man Care

DIVERT- Detection of Indicators and Vulnerabilities for Emergency Room Trips Scale (1-5)



Andrew Costa et al. 2015 JAGS

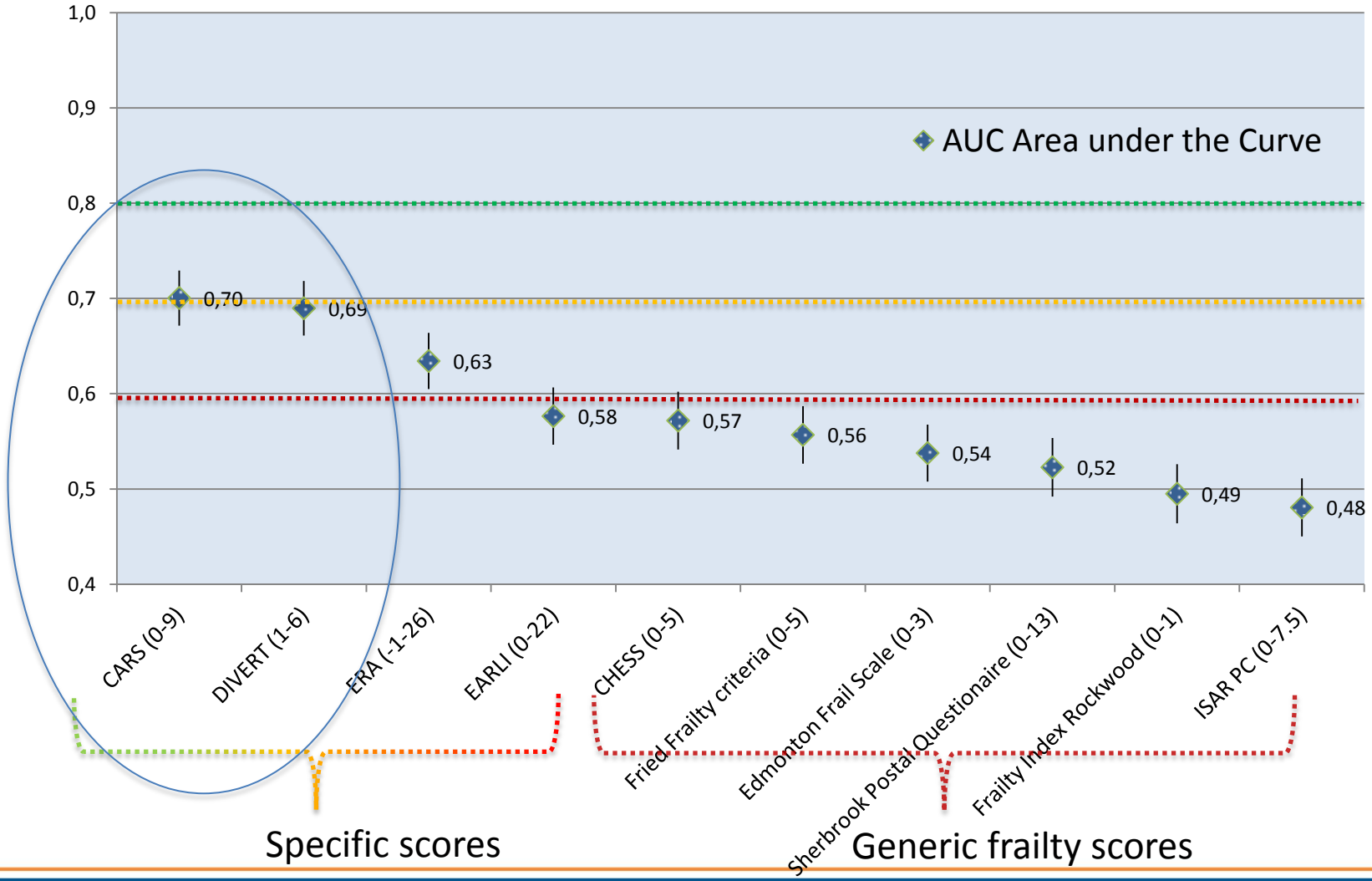
OUTCOME:

One or more Hospitalisations OR Emergency Department visits during 6 months follow up.

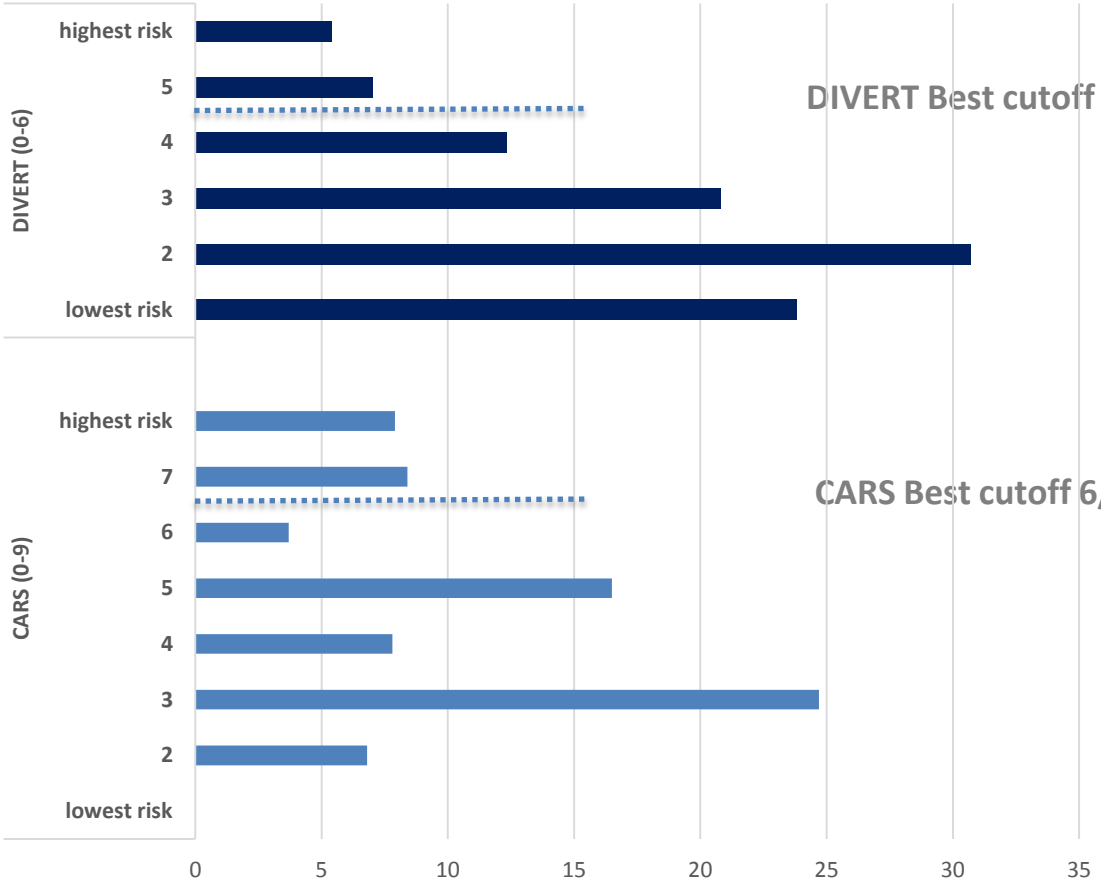
ANALYSIS: Predictive accuracy on admissions or ER visits after 6 months follow up was expressed in the area under the ROC curve (AUC).

	N=2884
Age, 65-105 mean (SD)	82 (7.3)
Female gender	67%
Lives alone	57%
Home health aides – Daily	31%
Home nurse – Daily	29%
Cognitive impairment	20%
Falls last 30 days	7%
Chronic Heart Failure	25%
Chronic Heart Disease	23%
DM II	26%
COPD	11%

ACCURACY RISK INDICTORS



Distribution and best cut offs DIVERT and CARS



DIVERT Best cutoff 4/5

Sensitivity	Specificity
0.69	0.74

CARS Best cutoff 6/7

Sensitivity	Specificity
0.41	0.72

CONCLUSION

- Generic frailty indicators were not predictive for admissions or ER visits.
- Among specific risk scores 2 are promising :
  - *(1) DIVERT (Derivation, and Validation of the Detection of Indicators and Vulnerabilities for Emergency Room Trips Scale)*
  - *(2) CARS (Community Assessment Risk Screen)*

FUTURE STEPS

- Improvement of risk scores by adding variables that modify accuracy e.g. gender, previous admissions
- Develop and test interventions to prevent hospitalisation and ER visits in high-risk groups *> Costa IAGG 2017 !*


Thank you
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Questions?