Gli strumenti di Valutazione Multidimensionale
interRAI in Italia

interRAI LTCF
Storia e stato dell'arte

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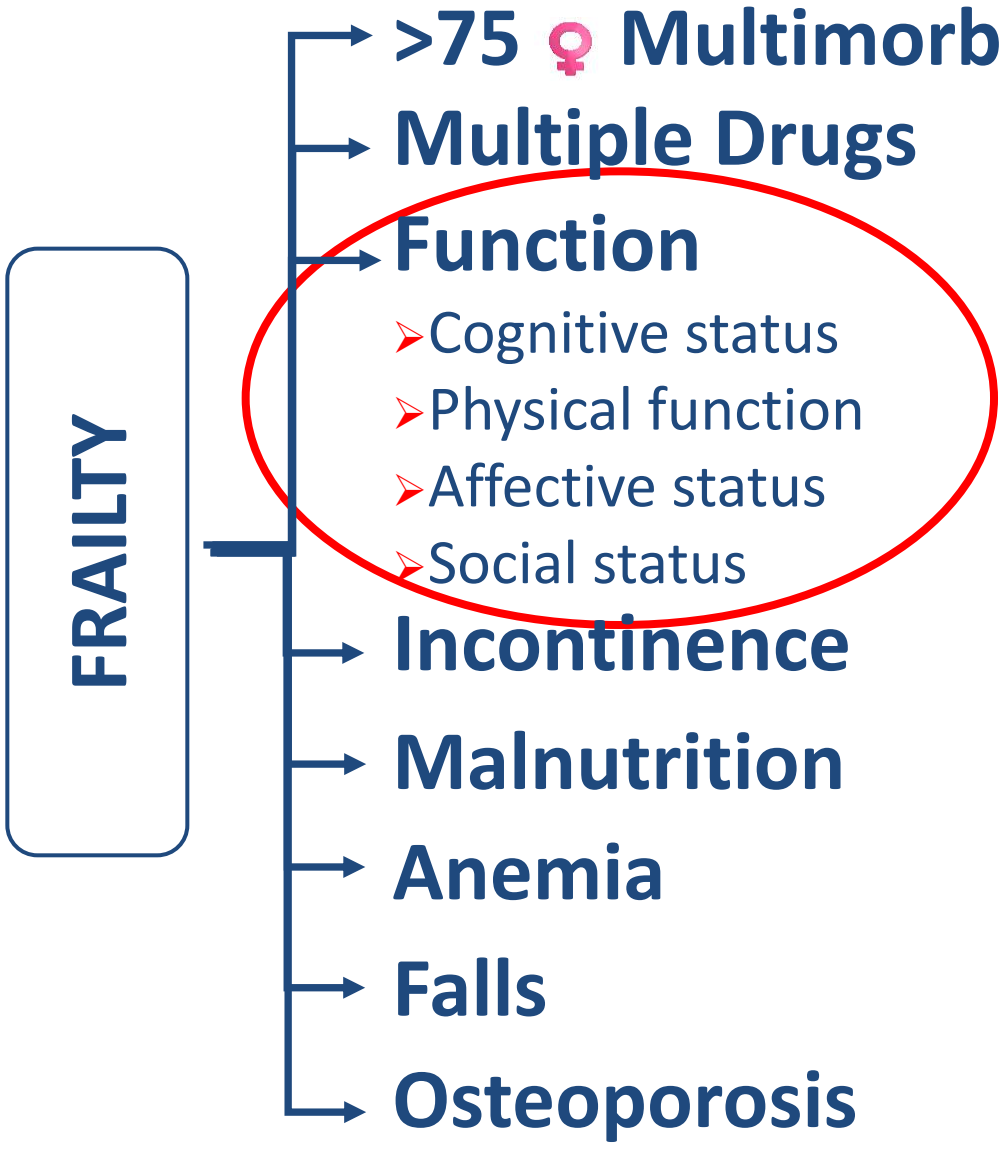
Roma, 23 settembre 2015

ITALIA LONGEVA
RETE NAZIONALE DI RICERCA SULL'INVECCHIAMENTO E LA LONGEVITA' ATTIVA

The "Modern" Patient

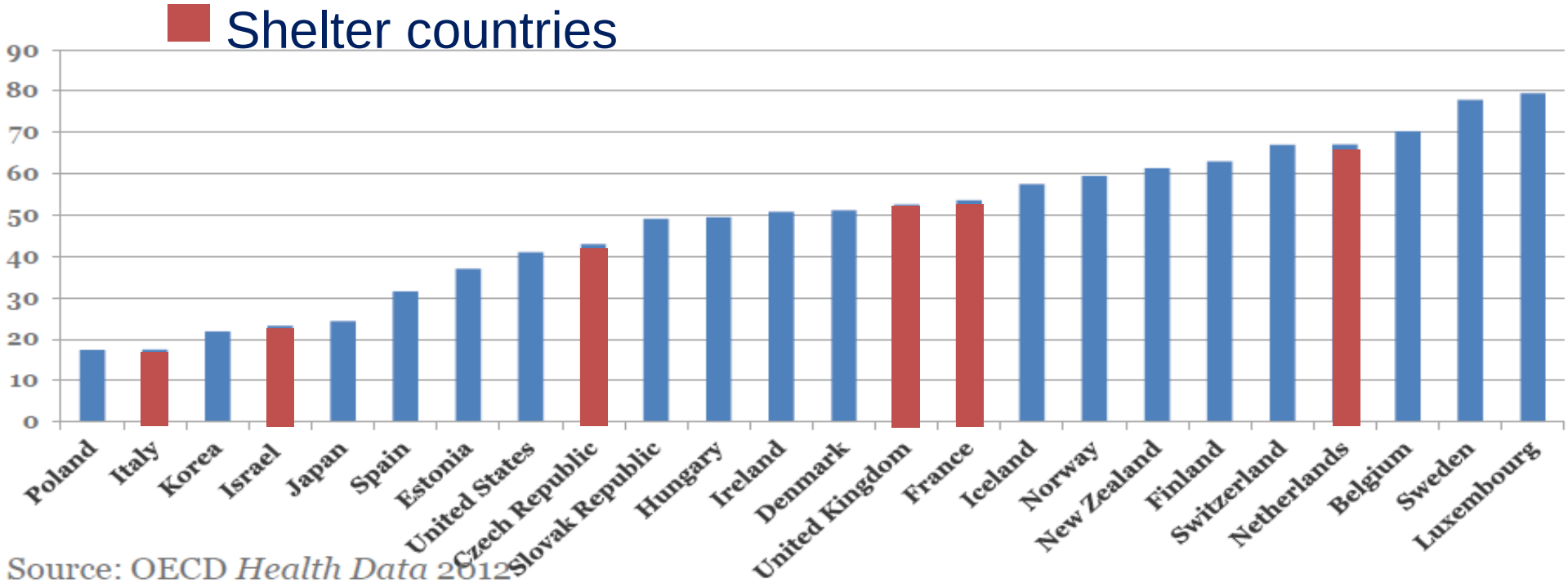


Researchers have largely shied away from the complexity of multiple chronic conditions — avoidance that results in expensive, potentially harmful care of unclear benefit.

NEJM FREE FULL TEXT

Tinetti M. NEJM2011

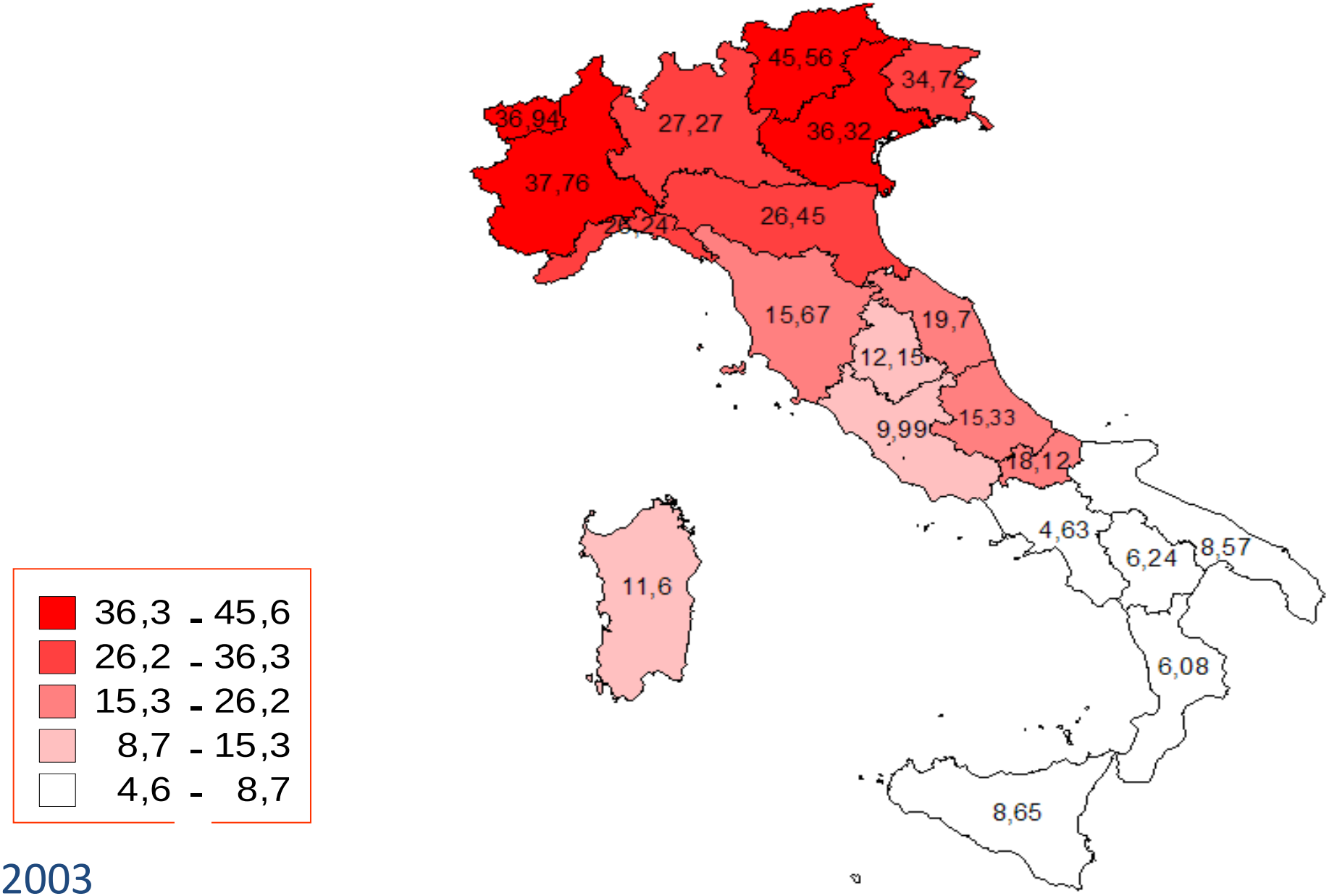
Number of beds in nursing homes per 1 000 pop aged 65+, 2010 (or nearest year)



Source: OECD *Health Data* 2012

- Large variation: lowest (POL, ITA), highest (SWE, LUX)
- Average: 49 beds per 1 000 pop aged 65 and over

NH residents /1000 persons 65 or older



ISTAT 2003

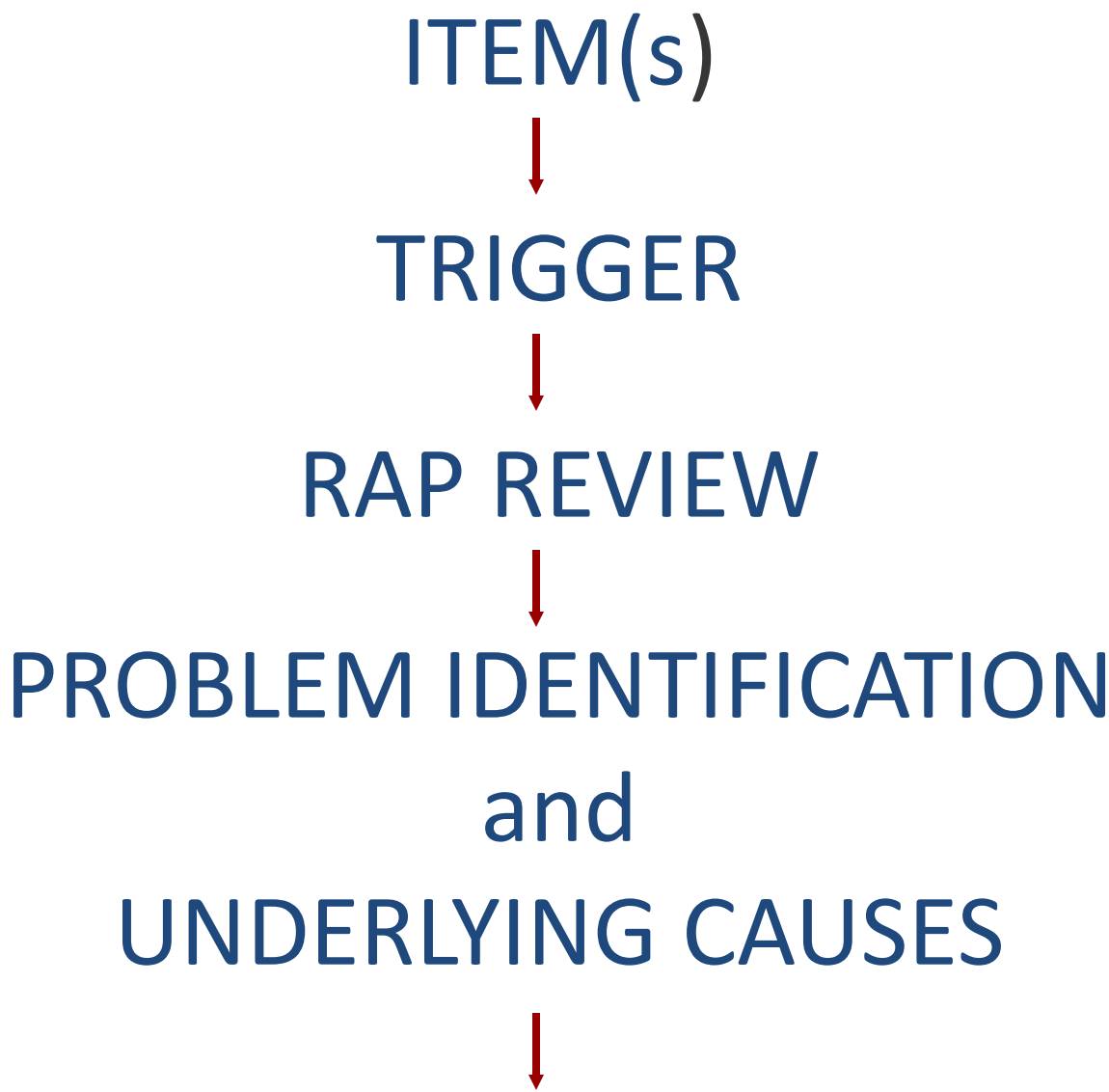
Limits of the traditional assessment instruments

- Descriptive
- No etiology available
- Assessment of a single area
- “Individual” assembly
- Difficulties in comparisons

National Nursing Home Resident Assessment Instrument (RAI)

Background:

- Federal response to quality of care problems
- Omnibus Budget Reconciliation Act of 1987 (OBRA ’87)
    * Many federal reforms of nursing homes
    * Mandated a uniform resident assessment


ITEM(s)
TRIGGER
RAP REVIEW
PROBLEM IDENTIFICATION
and
UNDERLYING CAUSES
CARE PLANNING

Care Planning

Resident Assessment Protocols (RAPs)

Resident Assessment Protocols (RAPs) are clinical tools that are designed to make MDS 2.0 data useful for care planning. Each RAP was developed by a group of experts and validated through clinical focus groups and on-going empirical research.

There are 18 RAPs included in the RAI 2.0.

Key:

- ● = One item required to trigger
- ❷ = Two items required to trigger
- ✱ = One of these three items, plus at least one other item required to trigger
- @ = When both ADL triggers present, maintenance takes precedence

Proceed to RAP Review once triggered

MDS ITEM		CODE	Delirium	Cognitive Loss/Dementia	Visual Function	Communication	ADL-Rehabilitation Trigger A @	ADL-Maintenance Trigger B @	Urinary Incontinence and Indwelling Catheter	Psychosocial Well-Being	Mood State	Behavioral Symptoms	Activities Trigger A	Activities Trigger B	Falls	Nutritional Status	Feeding Tubes	Dehydration/Fluid Maintenance	Dental Care	Pressure Ulcers	Psychotropic Drug Use	Physical Restraints	
B2a	Short term memory	1		●																			B2a
B2b	Long term memory	1		●																			B2b
B4	Decision making	1,2,3		●																			B4
B4	Decision making	3					●																B4
B5a to B5f	Indicators of delirium	2	●																	●			B5a to B5f
B6	Change in cognitive status	2	●																	●			B6
C1	Hearing	1,2,3				●																	C1
C4	Understood by others	1,2,3				●																	C4
C6	Understand others	1,2,3		●		●																	C6
C7	Change in communication	2																		●			C7
D1	Vision	1,2,3			●																		D1
D2a	Side vision problem	✓			●																		D2a
E1a to E1p	Indicators of depression, anxiety, sad mood	1,2								●													E1a to E1p
E1n	Repetitive movement	1,2																		●			E1n
E1o	Withdrawal from activities	1,2							●														E1o
E2	Mood persistence	1,2								●													E2
E3	Change in Mood	2	●																	●			E3
E4aA	Wandering	1,2,3													●								E4aA
E4aA - E4eA	Behavioral symptoms	1,2,3										●											E4aA - E4eA
E5	Change in behavioral symptoms	1										●											E5
E5	Change in behavioral symptoms	2	●																	●			E5
F1d	Establishes own goals	✓							●														F1d
F2a to F2d	Unsettled relationships	✓							●														F2a to F2d
F3a	Stress at past roles	✓							●														F3a

COGNITIVE LOSS/DEMENTIA RAP KEY *(For MDS Version 2.0)*

TRIGGER — REVISION

A cognitive loss/dementia problem suggested if one or more of following are present:

- Short-term Memory Problem
  [B2a = 1]
- Long-term Memory Problem
  [B2b =1]
- Impaired Decision-making[a]
  [B4 = 1, 2, 3]
- Problem Understanding Others[b]
  [C6 = 1, 2, or 3]

---

[a] Note: Code B4=3 also triggers on the ADL (Maintenance) RAP

[b] Note: These codes also trigger on the Communication RAP.

GUIDELINES

Factors to review for relationship to cognitive loss:

- **Neurological**. MR/DD status **[AB10],** Delirium **[B5]**, Cognitive decline **[B6]**, Alzheimer's or other dementias **[I1q,I1u]**,

Confounding Problems that may require resolution or suggest reversible causes:

- **Mood/behavior**. Depression, Anxiety, Sad mood or Mood decline **[E1, E2, E3]**, Behavioral symptoms or behavioral decline **[E4, E5]**, Anxiety disorder **[I1dd]**, Depression **[I1ee]**, Manic depressive disorder **[I1ff]**, Other psychiatric disorders **[I1gg, J1e, J1i]**.
- **Concurrent medical problems**. Constipation **[H2b]**, Diarrhea **[H2c]**, Fecal impaction **[H2d],** Diabetes **[I1a]**, Hypothyroidism **[I1c]**, CHF **[I1f]**, Other cardiovascular disease **[I1k]**, Asthma **[I1hh]**, Emphysema/COPD **[I1ii]**, Cancer **[I1pp]**, UTI **[I2j],** Pain **[J2]**.
- **Failure to thrive**. Terminal prognosis **[J5c]**, Low weight for height **[K2a,b]**, Weight Loss **[K3a]**, Resident status deteriorated since last assessment **[Q2]**.
- **Functional limitations**. ADL impairment **[G1]**, ADL task segmentation **[G7]**, Decline in ADL **[G9]**, Decline in continence **[H4]**.
- **Sensory impairment**. Hearing problems **[C1]**, Speech unclear **[C5]**, Rarely/never understands **[C6]**, Visual problems **[D1]**, Skin desensitized to pain/pressure **[M4e]**.
- **Medications**. Antipsychotics **[O4a]**, Antianxiety **[O4b]**, Antidepressants **[O4c]**, Diuretics **[O4e]**.
- **Involvement factors**. New admission **[AB1]**, Withdrawal from activities **[E1o]**, Participates in small group activities **[F1f, N3b, record]**, Staff/resident believe resident can do more **[G8a,b]**, Trunk, limb or chair restraint **[P4c,d,e]**.

Inter*RAI* Mission Statement

inter*RAI* believes that standardized assessment provides crucial information about the needs of the elderly population which is rapidly growing world-wide. Comprehensive evaluation, including functional, psychosocial and environmental needs, is the key to care planning decisions resulting in quality care for the individual and information for wider policy issues.

Did the RAI improve the processes of care in the U.S.?

- Rates of advanced directives increased 60%
- Restrain use dropped 40% particularly among cognitively intact residents
- Indwelling catheter use dropped
- Increased use of preventive skin programs
- Fewer residents not involved in activities

V Mor et al. JAGS 1997

What was the impact of RAI on resident outcomes?

- Functional decline decreased significantly in ADL, Cognition, Continence and Psychosocial problems
- BUT, improvement in ADL & Cognition was Reduced for least impaired
- Prevalence of Pressure Ulcers, Dehydration and poor Nutrition declined
- Hospitalization rate declined with no increase in mortality

V Mor et al. JAGS 1997

Second and third generation assessment instruments: The birth of standardization in geriatric care

Bernabei R, Landi F, Onder G, Liperoti R, Gambassi G.

The systematic adoption of "second-generation" comprehensive geriatric assessment instruments, initiated with the Minimum Data Set (MDS) implementation in U.S. nursing homes, and continued with the uptake of related MDS instruments internationally, has contributed to the creation of large patient-level data sets. In the present special article, we illustrate the potential of analyses using the MDS data to: (a) identify novel prognostic factors; (b) explore outcomes of interventions in relatively unselected clinical populations; (c) monitor quality of care; and (d) conduct comparisons of case mix, outcomes, and quality of care. To illustrate these applications, we use a sample of elderly patients admitted to home care in 11 European Home Health Agencies that participated in the AgeD in HOme Care (AD-HOC) project, sponsored by the European Union. The participants were assessed by trained staff using the MDS for Home Care, 2.0 version. We argue that the harmonization by InterRAI of the MDS forms for different health settings, referred to as "the third generation of assessment," has produced the first scientific, standardized methodology in the approach to effective geriatric care

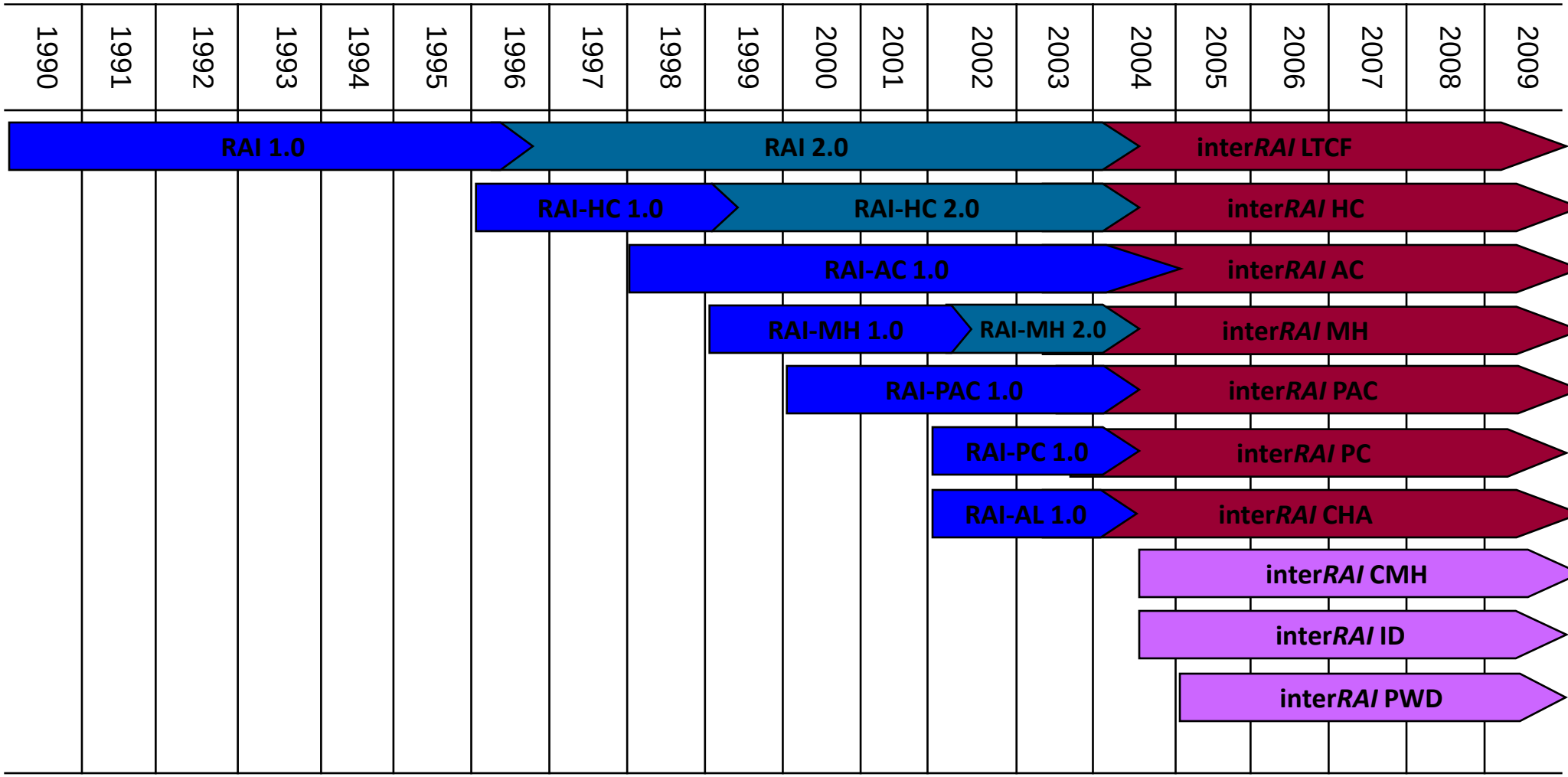
J Gerontol A Biol Sci Med Sci. 2008 Mar;63(3):308-13

InterRAI – Third generation assessment instruments

InterRAI has recently released a suite of 18 instruments, revised, validated and standardized.

These instruments share a substantial amount of information (core elements) and are intended for older patients in all health care settings and to improve the transfer of information (third generation instruments).

Developmental Time Line for Inter*RAI* Suite



The Inter*RAI* Suite

- Nursing Home Care, Long Term Care
- Home Care
- Community Health Assessment
  - ✓CHA
  - ✓Functional Supp
  - ✓Mental Health Supp Psych
  - ✓Assisted Living Supp
- Mental Health
  - ✓Inpatient
  - ✓Community Mental Health
- Post-Acute Care
- Palliative Care
- Assisted Living
- Intellectual Disability

Comprehensive Geriatric Assessment (inter*RAI* suite)

Patient → **Better Physical Exam**

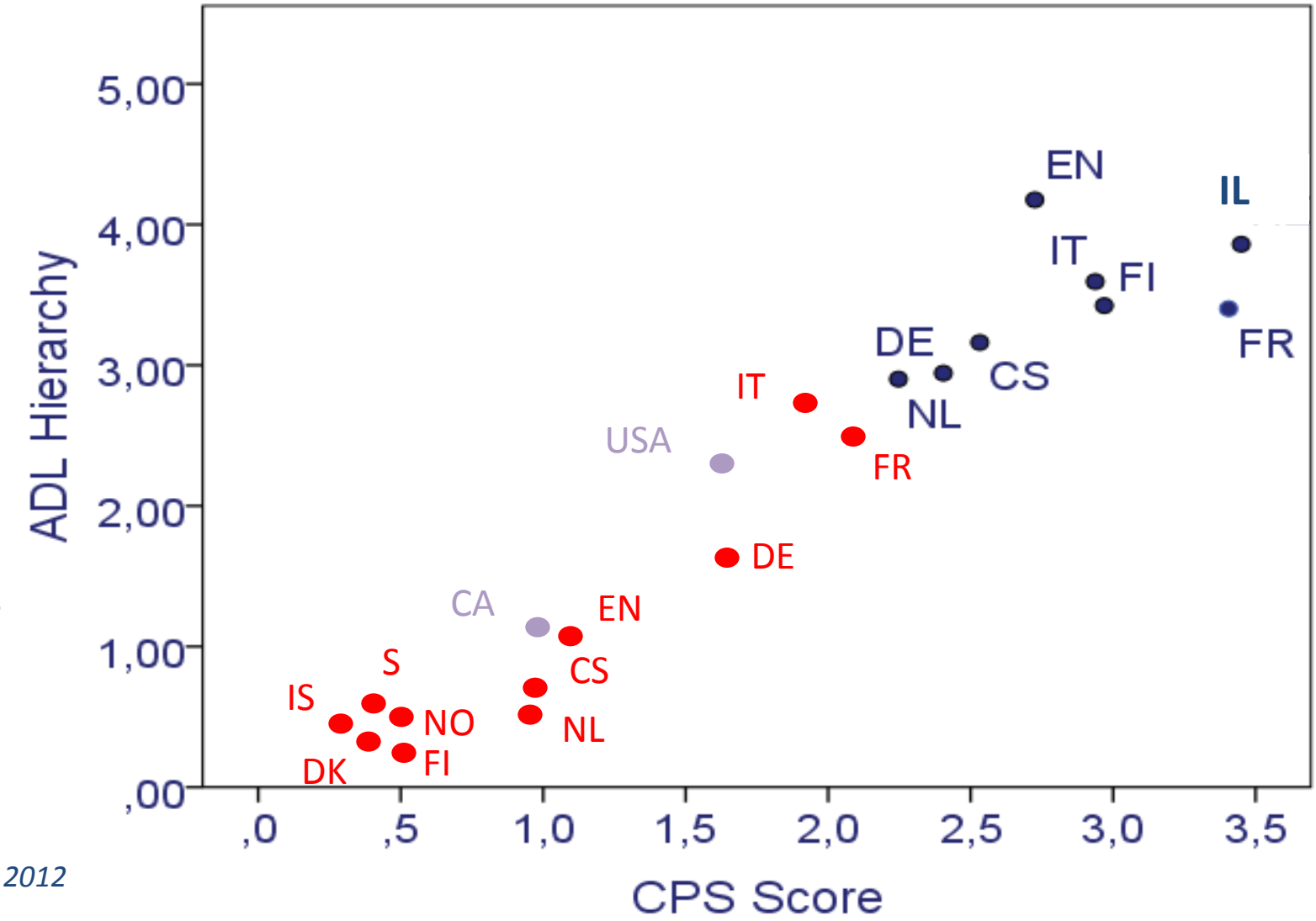
Better Care Plan

Population → **Data-base**

- **Risk Factors**
- **Outcome Measurement**
- **Quality of Care**
- **Comparison**

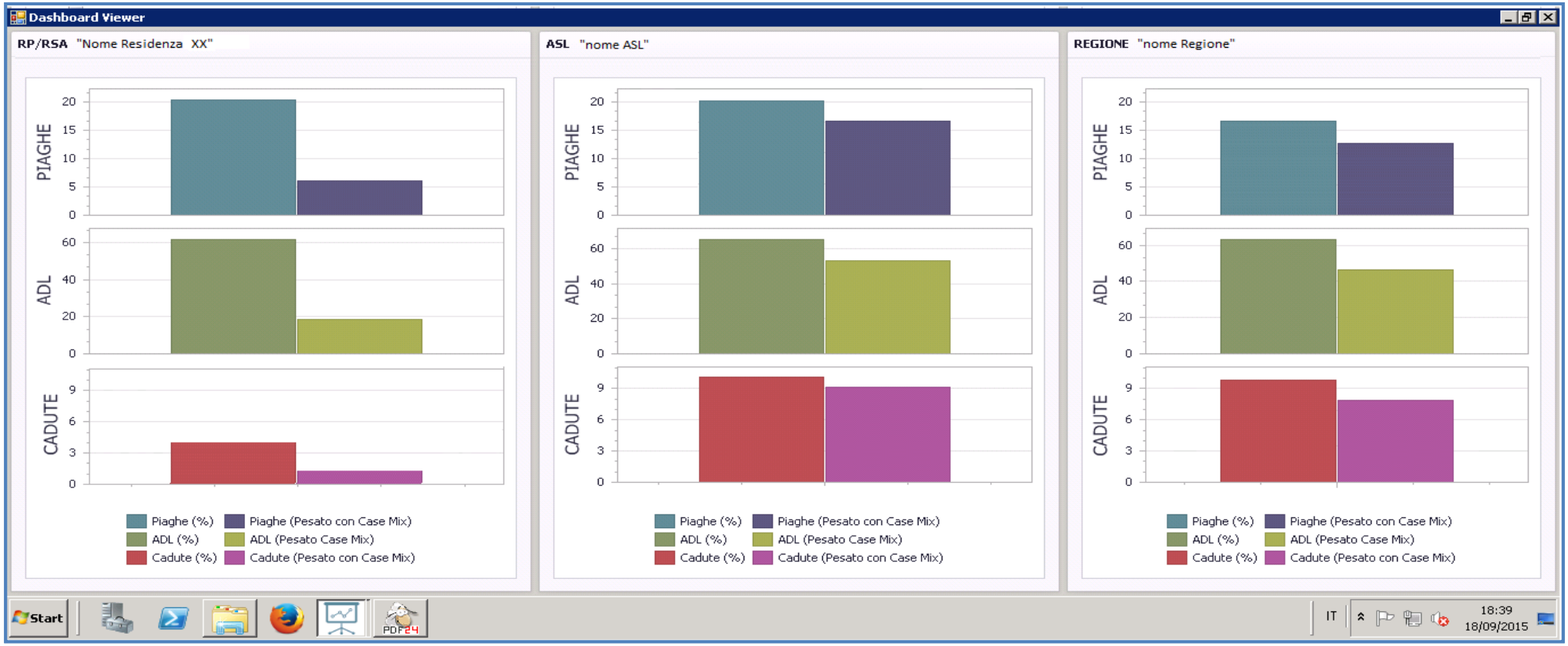
Characteristics by country

- SHELTER
  NH residents
- ADHOC
  HC patients
- Non EU countries
  HC patients



Onder G et al. BMC Health Serv Res 2012

Supporto interRAI IT per indicatori



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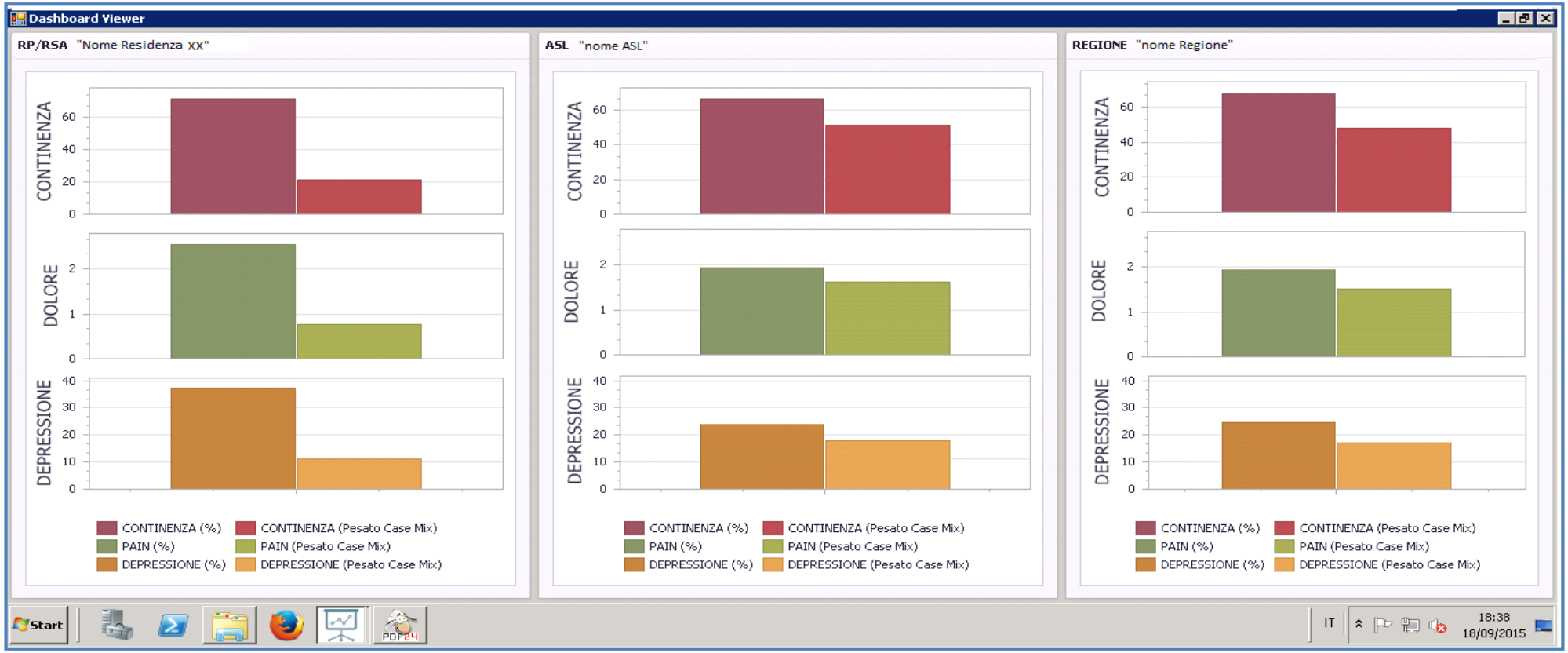
Supporto interRAI IT per indicatori



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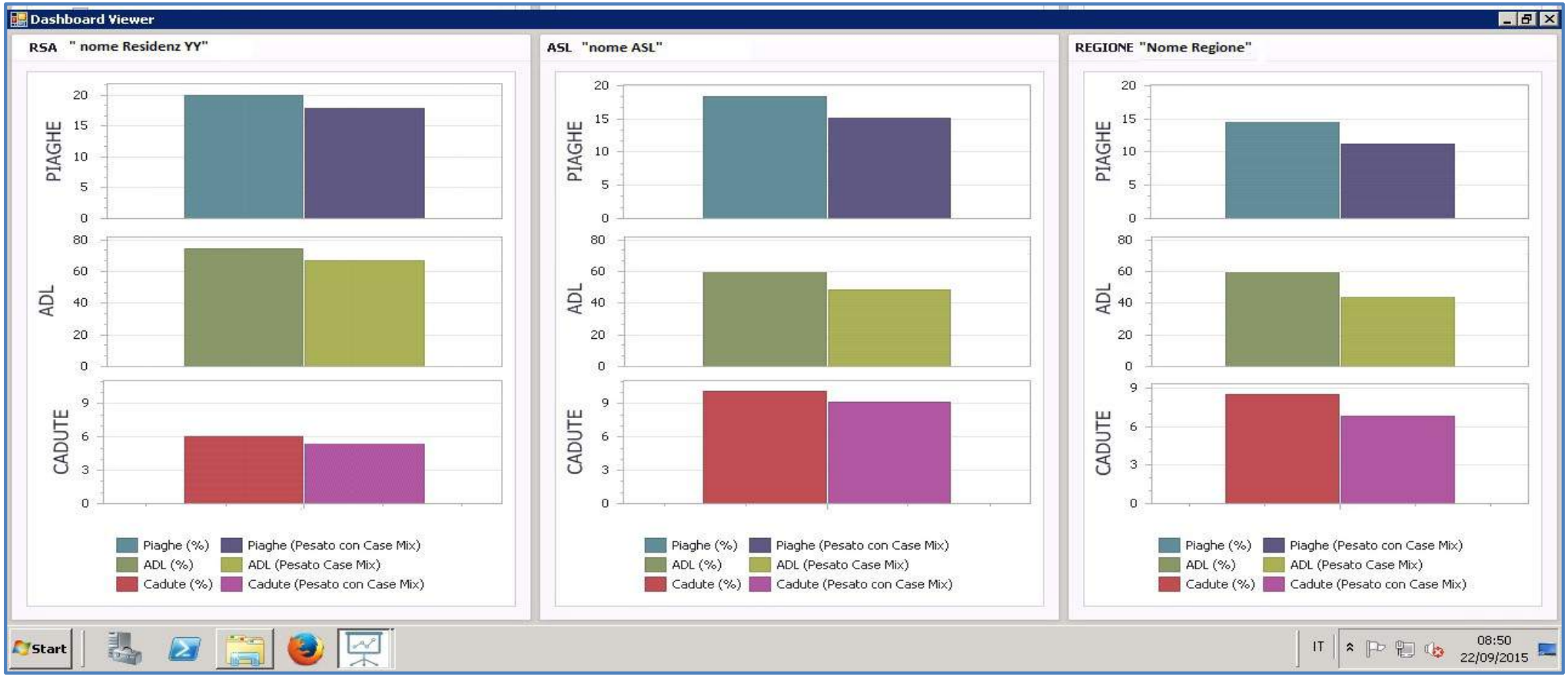

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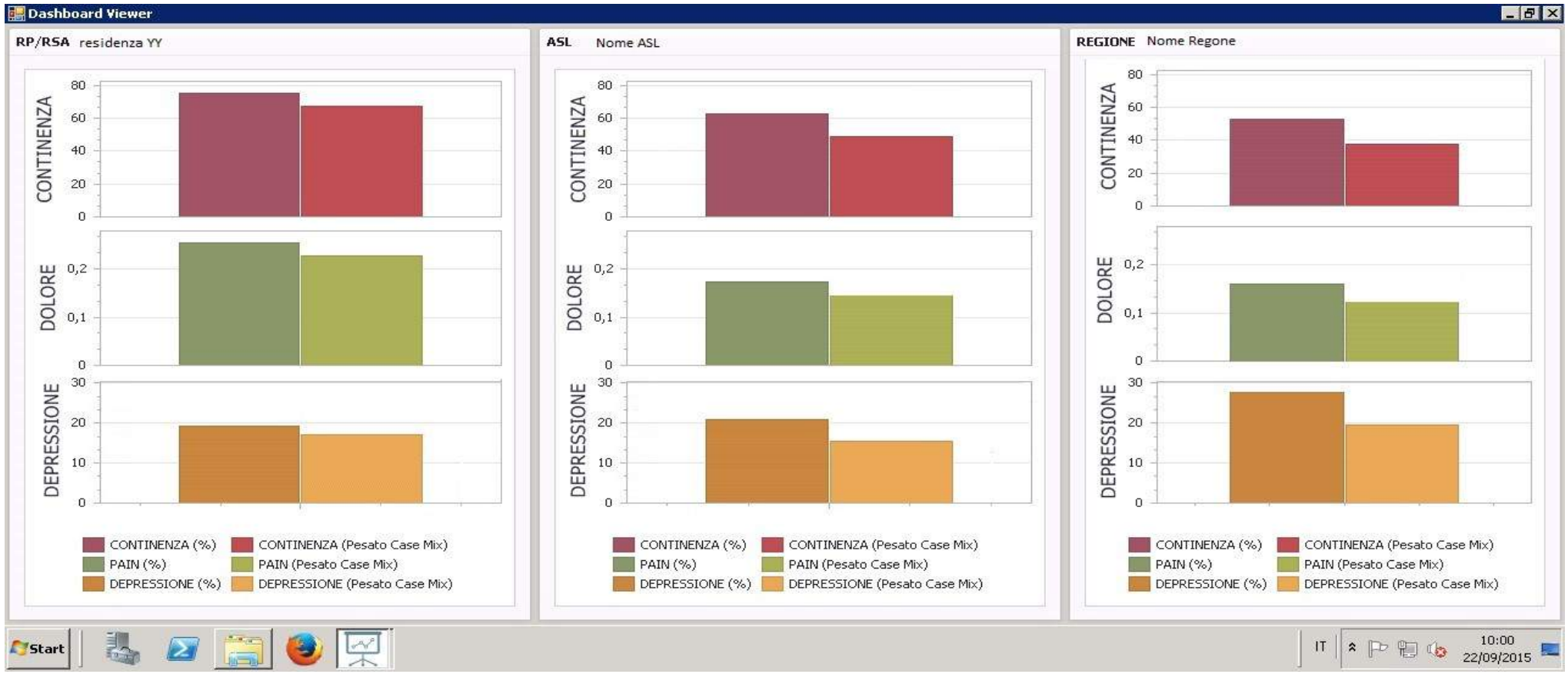

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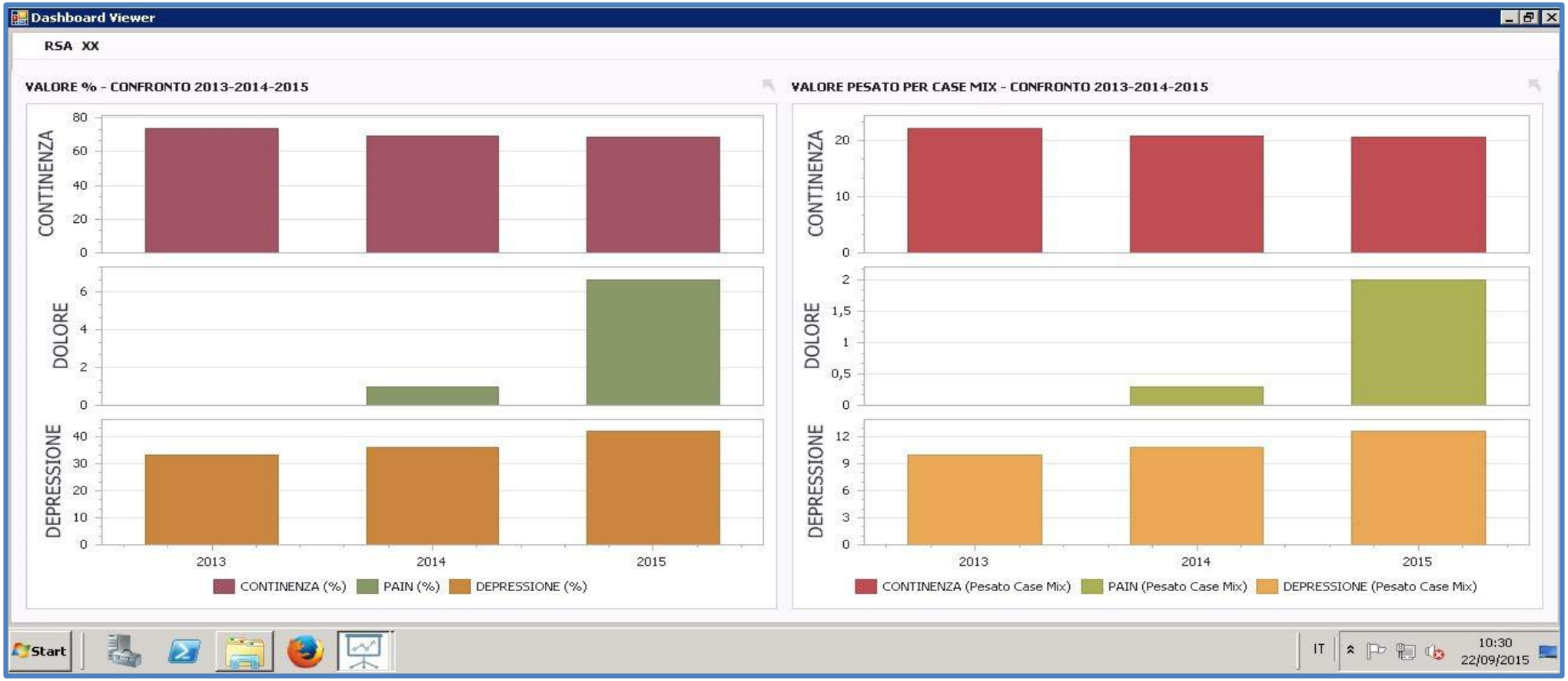
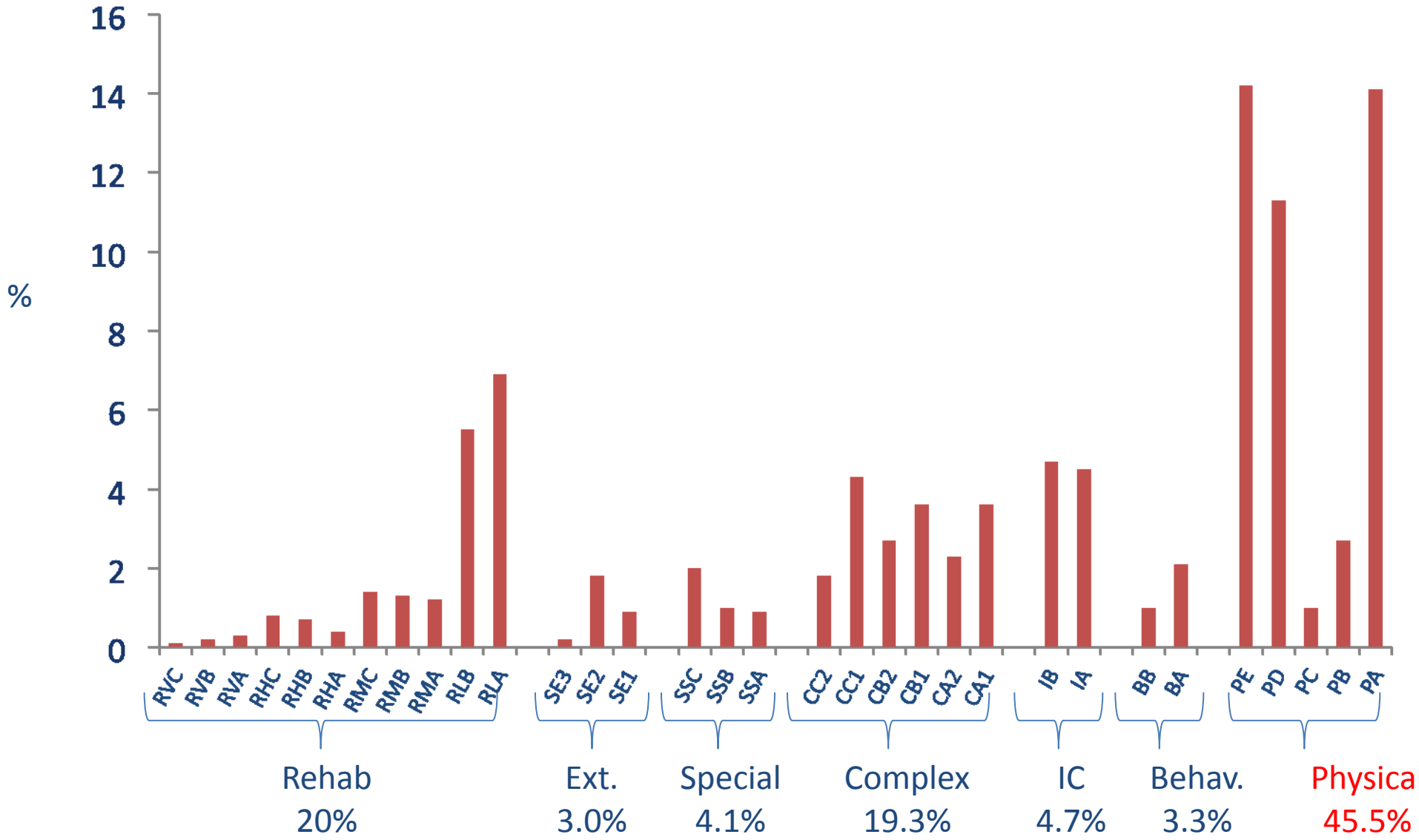
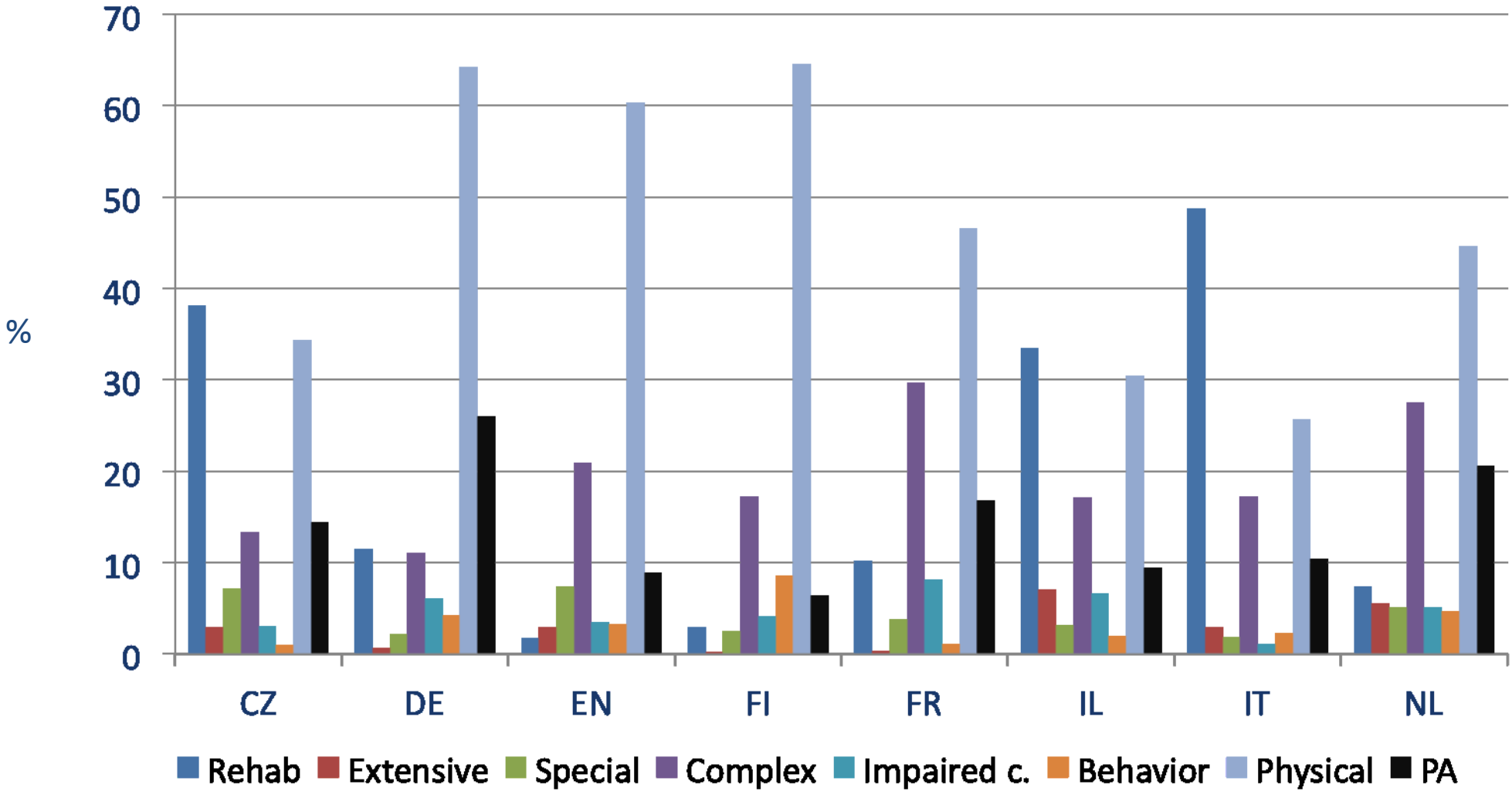


Prevalence of RUG III - SHELTER



RUG III by country - SHELTER



Medical Practice: the New Way

The past three decades have urged physicians to become familiar with the data from RCTs, systematic reviews, meta-analyses.

"Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values"

Dr. Sackett called for a new approach to the practice of medicine. The era was born of

EVIDENCE BASED MEDICINE

Minimum Data Set resident assessment protocol (RAP)

Delirium

Visual function

ADL functional / Rehabilitation potential

Psychosocial well-being

Behaviour problems

Falls

Feeding tubes

Dental care

Pressure ulcers

Physical restraints

Cognitive loss – Dementia

Communication

Urinary incontinence and indwelling catheter

Mood state activities

Nutritional status

Dehydration / Fluid mainteinance

Psychotropic drug use

Changes in staff partecipation in care planning meetings

- Therapy staff 2 to 5 times more likely to partecipate in care planning post-MDS
- Residents and families 5 times more likely to partecipate in care planning post-MDS
- Nursing assistants attend care plan meeting in 27% of facilities post-MDS

V Mor et al. JAGS 1997

Where's Gertrude?

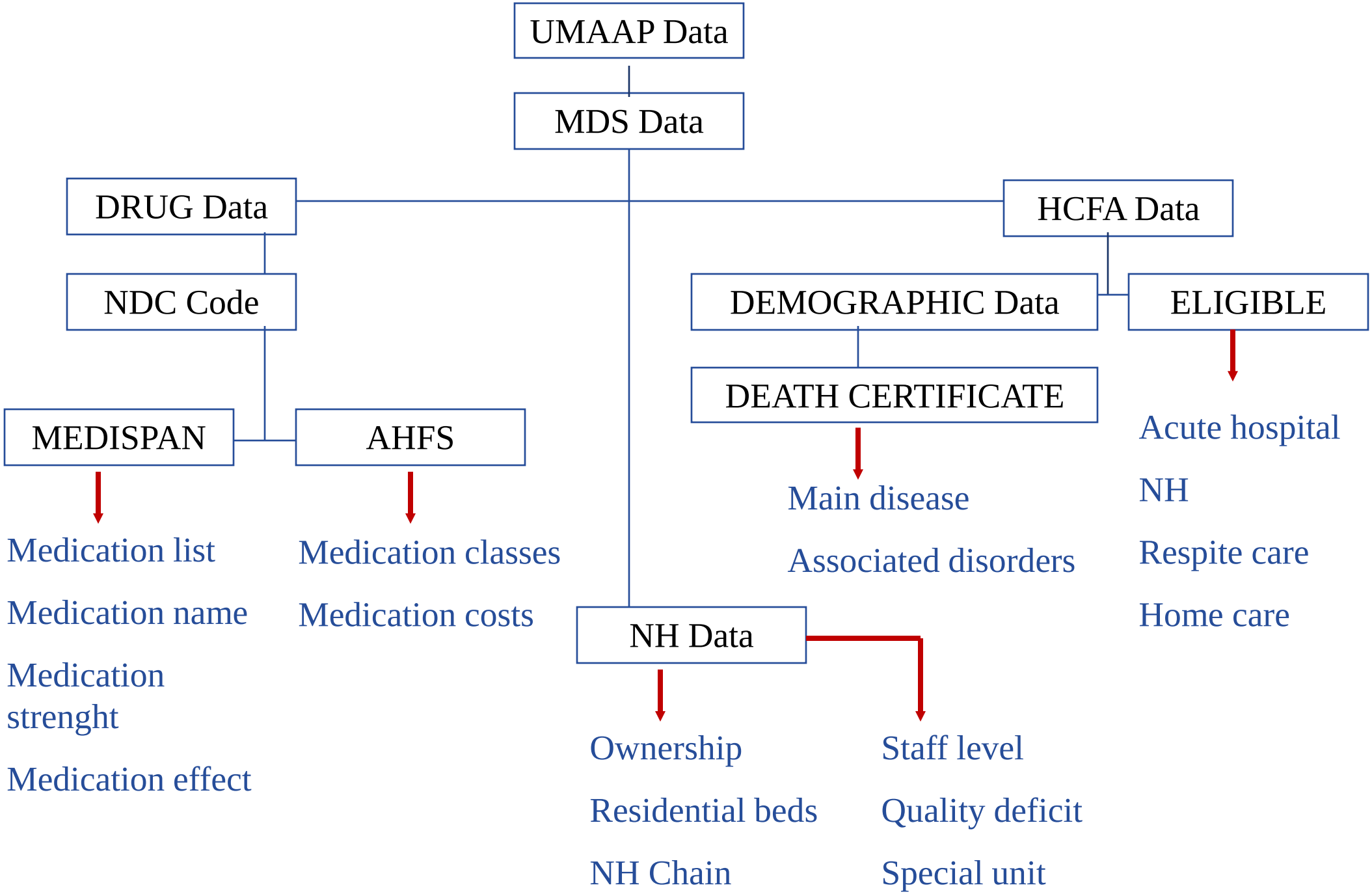
"But Gertrude's experience calls into question the *medicalization* of the nursing care facility, which the implementation of the RAI promulgates further"

Uman GC, J Am Geriatr Soc 1997; 45: 1025-6

Validity of diagnostic and drug data in standardized nursing home resident assessments: potential for geriatric pharmacoepidemiology. SAGE Study Group. Systematic Assessment of Geriatric drug use via Epidemiology.

Gambassi G, Landi F, Peng L, Brostrup-Jensen C, Calore K, Hiris J, Lipsitz L, Mor V, Bernabei R.

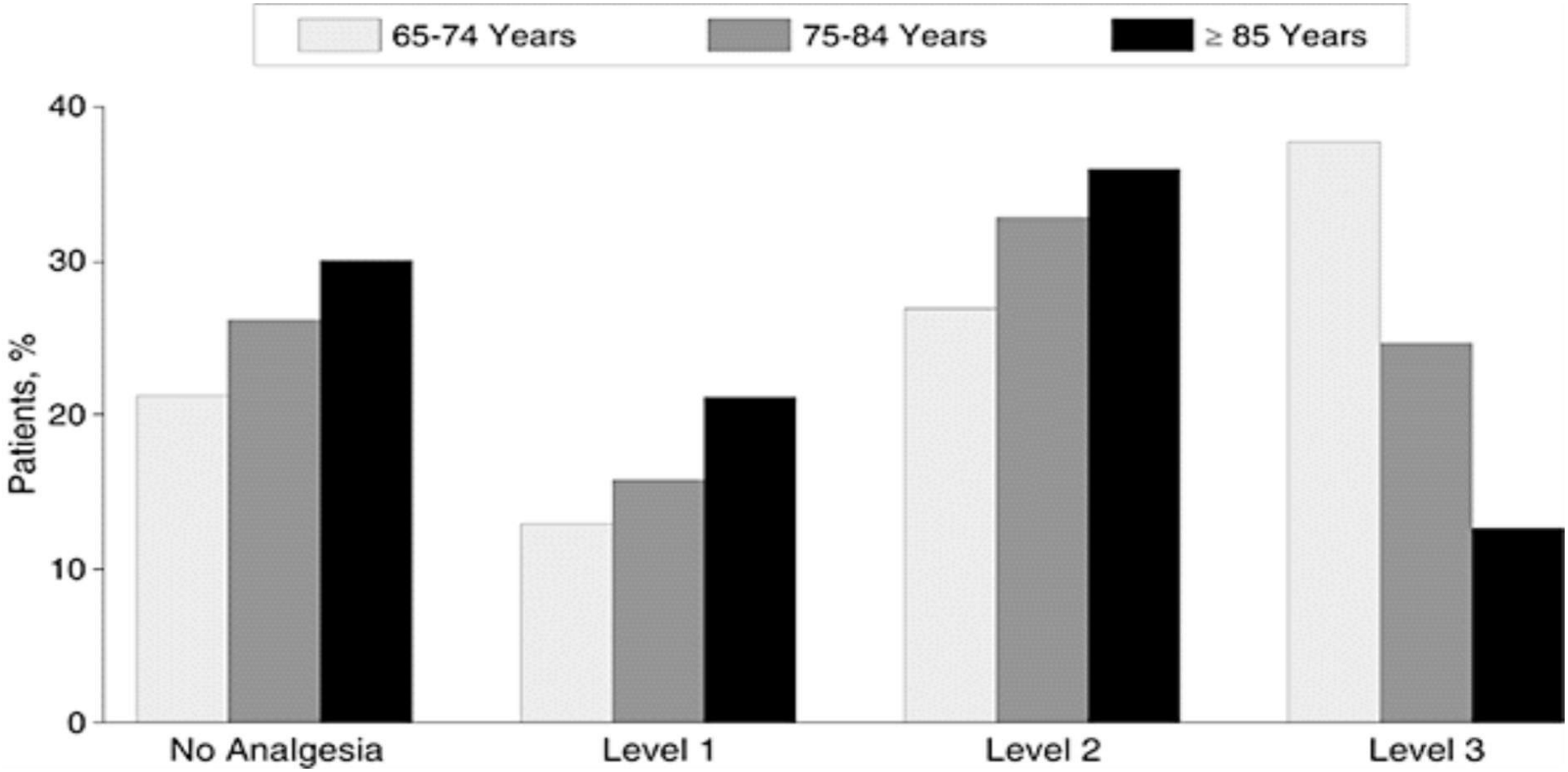
Medical Care 1998; 36(2): 167-79


UMAAP Data
MDS Data
DRUG Data
HCFA Data
NDC Code
DEMOGRAPHIC Data
ELIGIBLE
DEATH CERTIFICATE
MEDISPAN
AHFS
Acute hospital
NH
Respite care
Home care
Main disease
Associated disorders
Medication list
Medication name
Medication strenght
Medication effect
Medication classes
Medication costs
NH Data
Ownership
Residential beds
NH Chain
Staff level
Quality deficit
Special unit

Numbers of the SAGE database

- Longitudinal (1992-1996), ongoing
- 1’500 facilities in 5 US states
- About 750’000 pts (1992-1996)
- Mean age: 83 yrs (8% 95+ yrs old)
- About 3 million MDS assessments
- About 30 million of drug records

Pharmacological treatment of pain in cancer patients



Bernabei et al. JAMA 1998; 279: 1877-1882

Breve storia di interRAI

Pain predictors in oncological patients

	Daily pain (n=4003)	*No pain* (n=9610)*	*ODDS RATIO*	*95% CI*
Female	2472	5283	1.32	(1.21-1.44)
Marital status				
Single	1836	4455	1.0	
Widow	2167	5155	1.24	(1.10-1.39)
Depression	1026	6513	1.19	(1.08-1.31)
Indwelling catheter	827	1568	1.56	(1.41-1.72)
		1502	1.16	(1.04-1.30)
Restrain means	3069	6774	1.21	(1.10-1.33)
Terminal prognosis	894	796	2.53	(2.25-2.83)

* 13 missing patients

Bernabei et al. JAMA 1998; 279: 1877-1882

Pain predictors in oncological patients

	Daily pain (n=4003)	*No pain* (n=9610)*	*ODDS RATIO*	*95% CI*
85+ years old	1128	3540	0.56	(0.51-0.67)
Race: Afro-Americans	188	852	0.55	(0.44-0.68)
Cognitive impairment	1608	4955	0.72	(0.64-0.80)

* 13 missing patients

Bernabei et al. JAMA 1998; 279: 1877-1882

Quality Indicators

Currently implementing Quality Indicators based on MDS

Structure:

- Both incidence and prevalence measures
- High/low risk groups, if appropriate
- Facilities scored on measures and compared with like facilities

Web access by facilities

Nursing Home Quality Indicators Profile

Facility Name: ABC Manor

Report Period: 7/1/00 to 12/31/00

Domain/Quality Indicator	Number with QI	Number in Denom	Facility Percentage	Peer Group Percentage	%ile Rank	Flag
Accidents						
1. Incidence of New Fracture	1	79	1.3%	1.8%	40	
2. Prevalence of Falls	14	79	17.7%	13.3%	81	
Behavioral/Emotional						
3. Prevalence of Behavioral Symptoms	21	79	26.6%	21.2%	76	
High Risk	19	56	33.9%	26.4%	79	
Low Risk	2	23	8.7%	10.2%	58	
4. Symptoms of Depression	23	79	29.1%	15.1%	91	
5. Symptoms of Depression without Antidepressant Therapy	13	79	16.5%	7.9%	93	
Clinical Management						
6. Use of 9+ Medications	22	79	27.8%	27.6%	52	
Cognitive Patterns						
7. Onset of Cognitive Impairment	1	24	4.2%	10.3%	19	

©Center for Health Systems Research and Analysis, University of Wisconsin - Madison

Long-stay Home Care QIs

Prevalence of:

- Neglect/Abuse
- Inadequate Meals
- Social Isolation
- No Assistive Device Among Clients with Difficulty in Locomotion
- Inadequate Control Among Those with Pain
- ADL/Rehabilitation Potential and No Therapies
- Weight Loss
- Not Receiving Influenza Vaccination
- Hospitalization

Incidence of:

- Improvement in home safety
- increased health instability
- Decline in bladder continence
- Improvement in bladder continence
- Resolution of skin ulcers
- Decline in functional performance
- Improvement in functional performance
- Cognitive decline

Characteristics of RUG-III

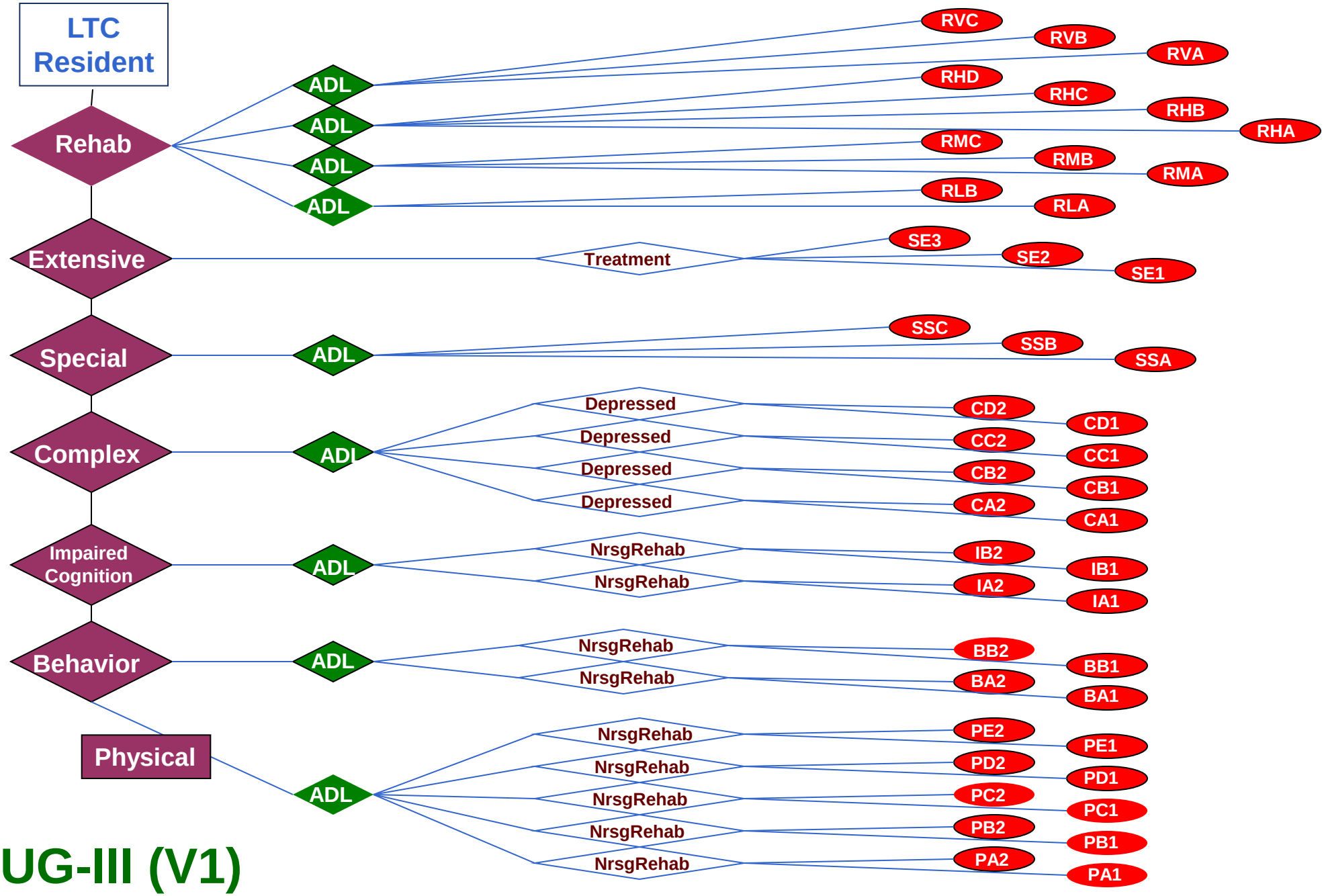
44 groups

Meets basic design criteria

- Statistical
- Clinical
- Administrative/Incentives

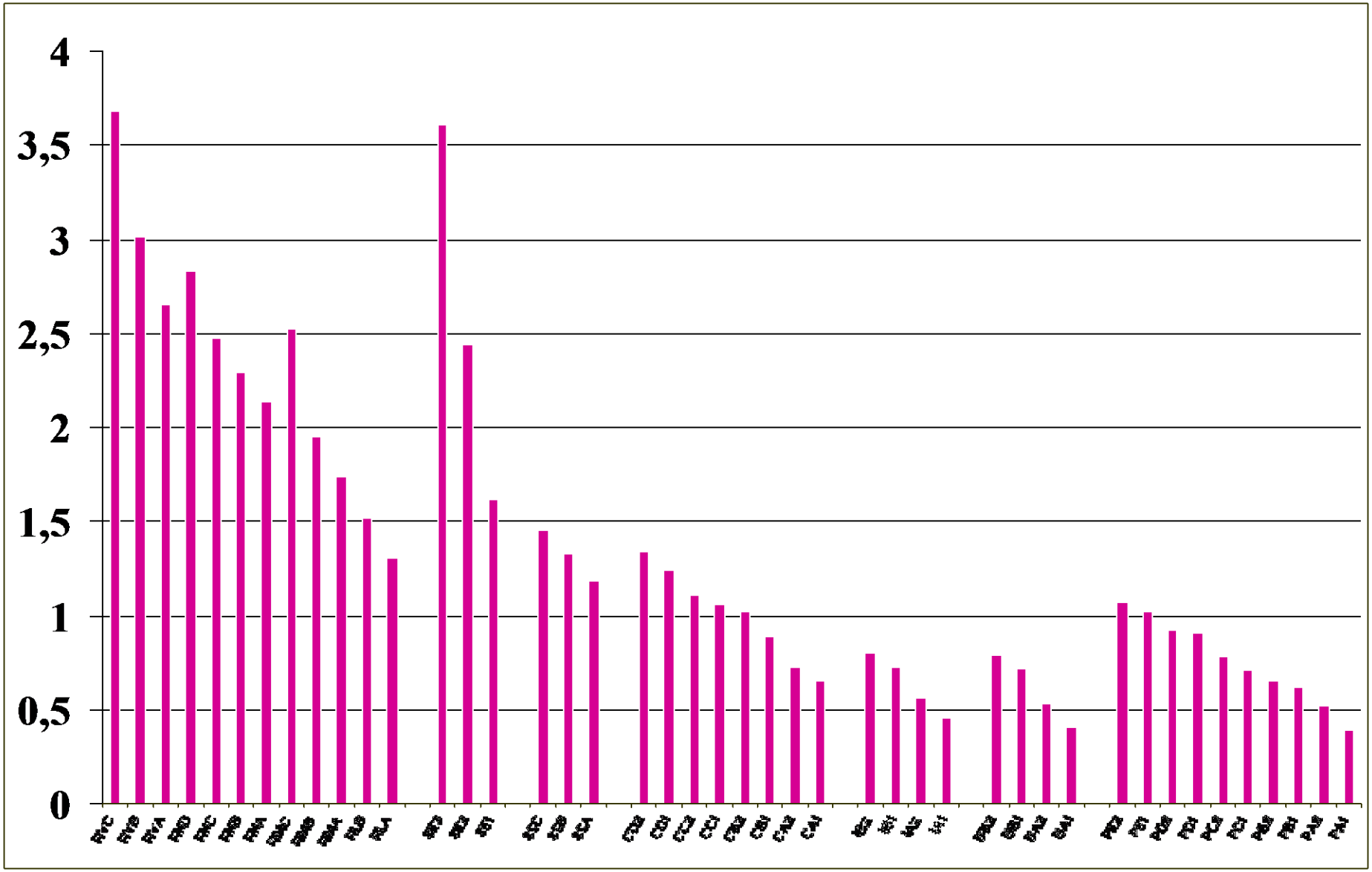
Good explanation of cost of care

Identifies rare (but expensive) residents


LTC Resident
Rehab
ADL
ADL
ADL
ADL
RVC
RVB
RVA
RHD
RHC
RHB
RHA
RMC
RMB
RMA
RLB
RLA
Extensive
Treatment
SE3
SE2
SE1
Special
ADL
SSC
SSB
SSA
Complex
ADL
Depressed
Depressed
Depressed
Depressed
CD2
CD1
CC2
CC1
CB2
CB1
CA2
CA1
Impaired Cognition
ADL
NrsgRehab
NrsgRehab
IB2
IB1
IA2
IA1
Behavior
ADL
NrsgRehab
NrsgRehab
BB2
BB1
BA2
BA1
Physical
ADL
NrsgRehab
NrsgRehab
NrsgRehab
NrsgRehab
NrsgRehab
PE2
PE1
PD2
PD1
PC2
PC1
PB2
PB1
PA2
PA1

RUG-III (V1)

RUG-III Case-Mix Index



Applications of RUG-III

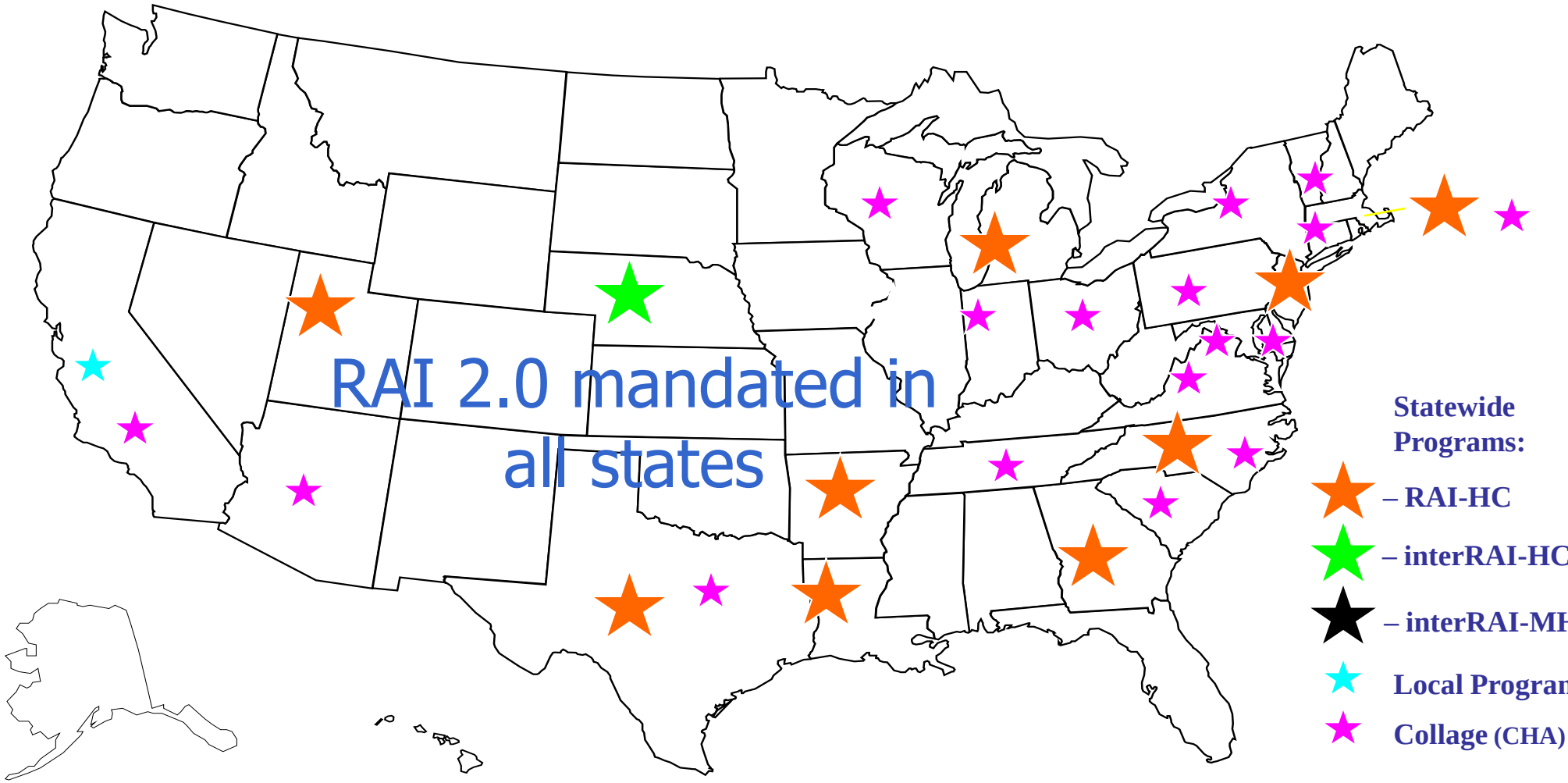
Validated in multiple sites/nations

- Relative costs remain constant
- Japan, Sweden, Netherlands, Finland, United Kingdom, Spain, Czech Republic, Italy

In use:

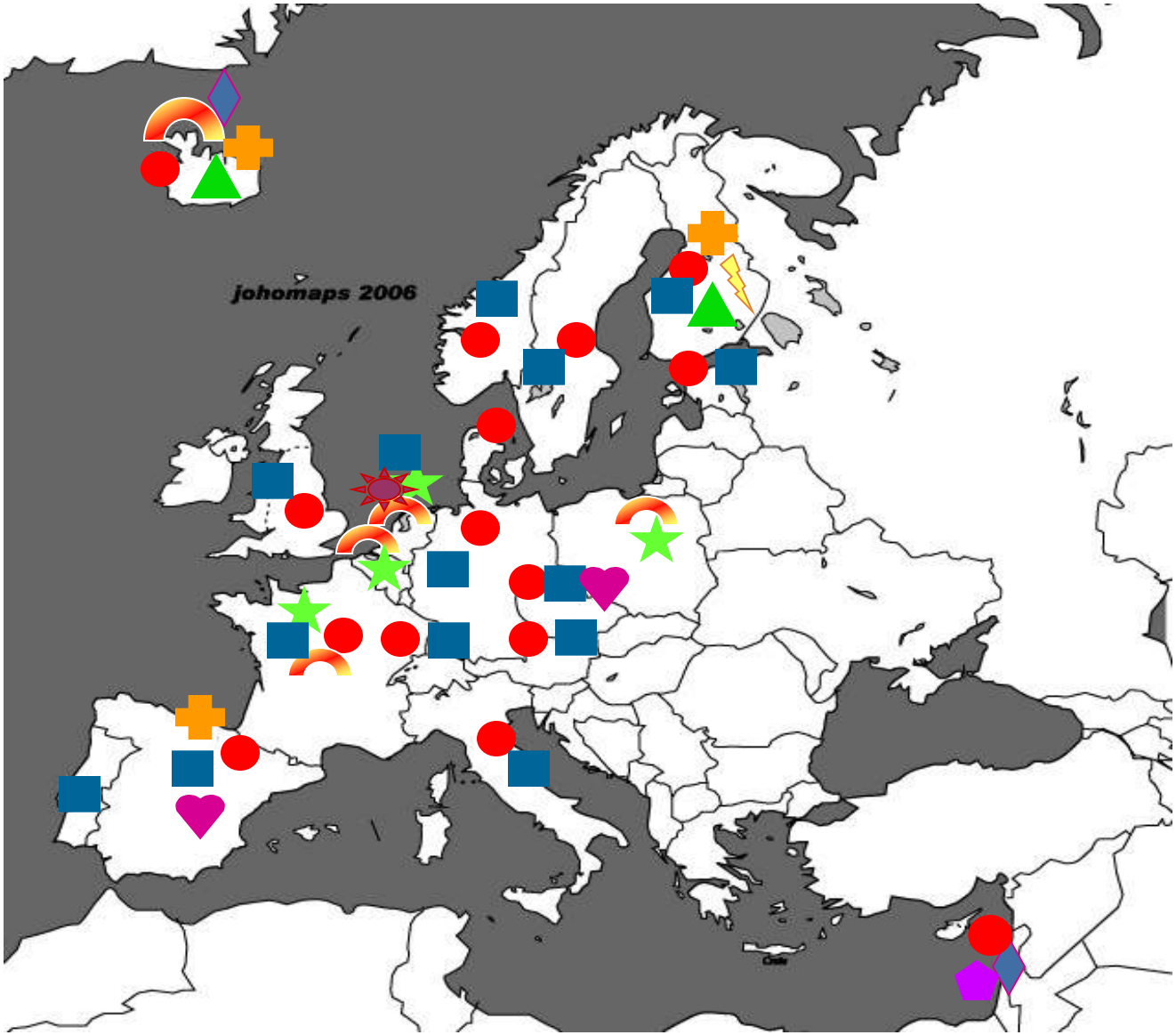
- US Medicare Prospective Payment System
- Medicaid system in ~15 US states
- Proposed in several Canadian provinces, Iceland, Barcelona

US States Using interRAI Instruments



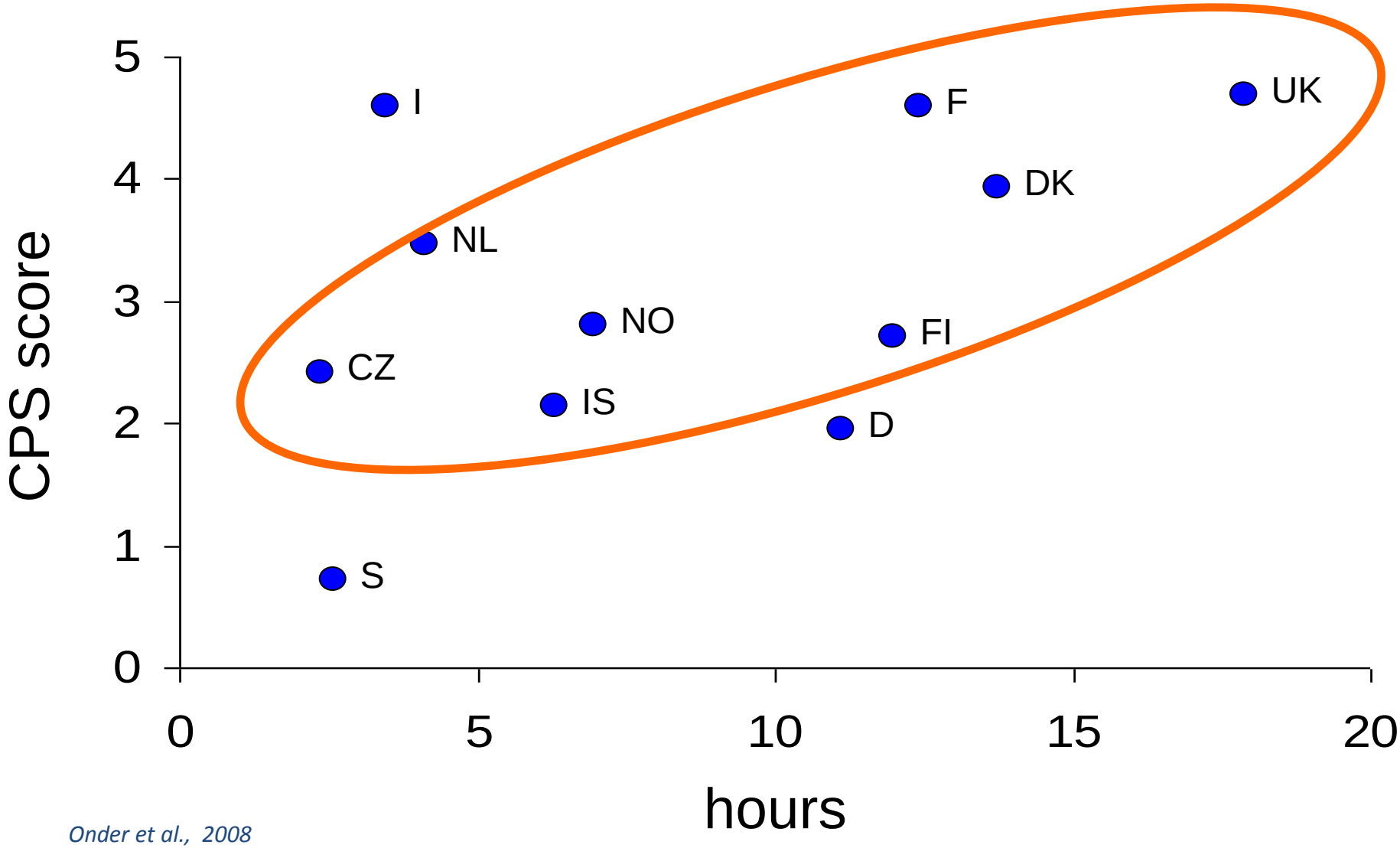
RAI 2.0 mandated in all nursing homes

Implementation and Testing of interRAI Instruments in Europe



- RAI 2.0
- RAI-HC
- interRAI LTCF
- interRAI MH
- interRAI PAC
- interRAI PC
- interRAI CHA
- interRAI AC
- interRAI CA
- interRAI HC
- interRAI AL

CPS score and hours of formal care in patients with dementia



Onder et al., 2008