Gruppo di ricerca geriatrica
vent'anni per gli anziani
1988-2008

Aggiornamento in Geriatria
22 maggio 2015

UNIVERSITÀ DEGLI STUDI DI MILANO BICOCCA

Lo studio Reposi e le sue ricadute cliniche

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Outline

- Cosa è il registro REPOSI
- Con che finalità è nato
- Principali pubblicazioni
  - Polifarmacoterapia
  - Ricerca di fattori predittivi di outcomes avversi
  - Identificazione di aree di “knowledge improvement” in ambito clinico
- Aree di ricerca

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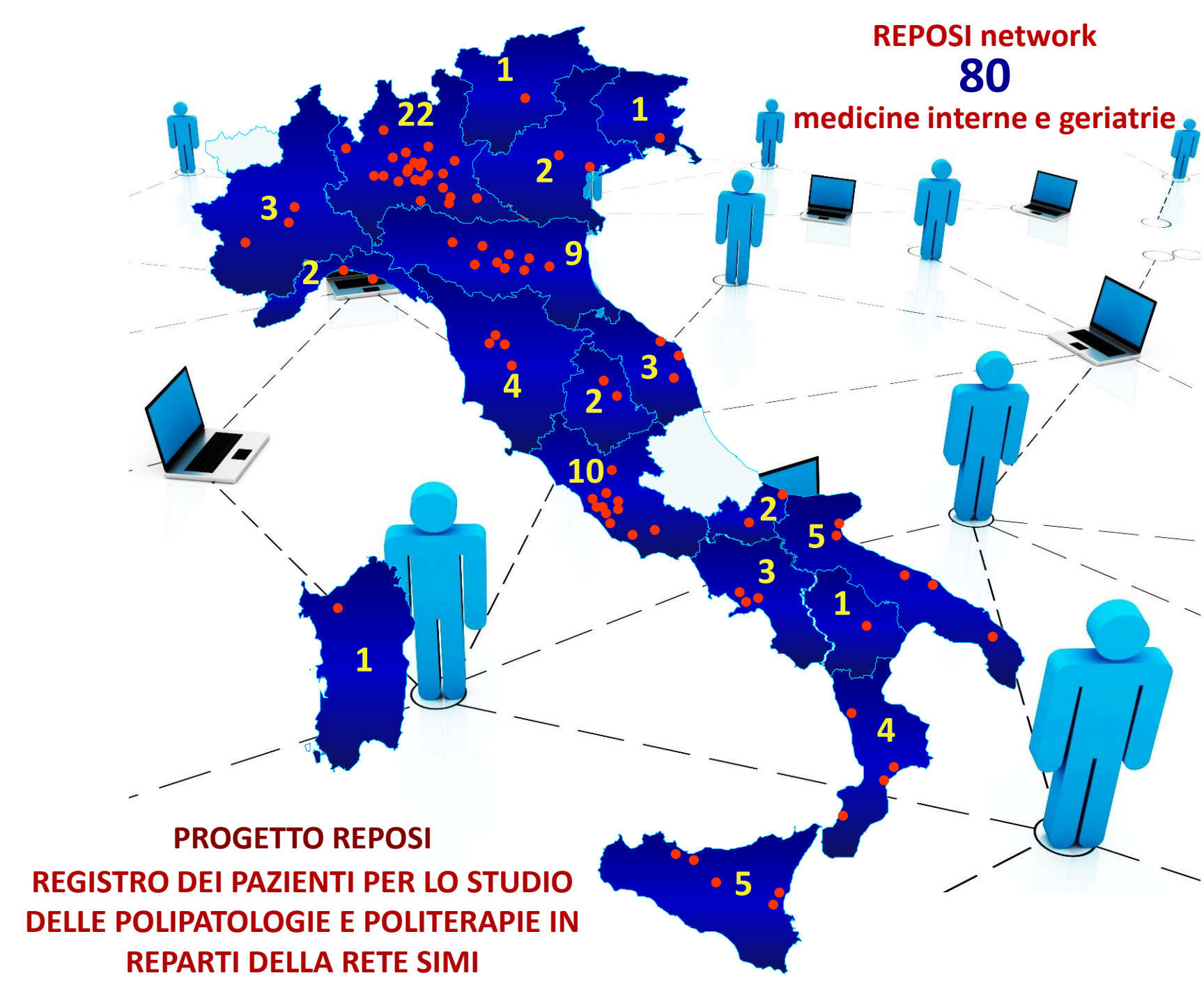
Come nasce il Registro REPOSI

Anno 2008

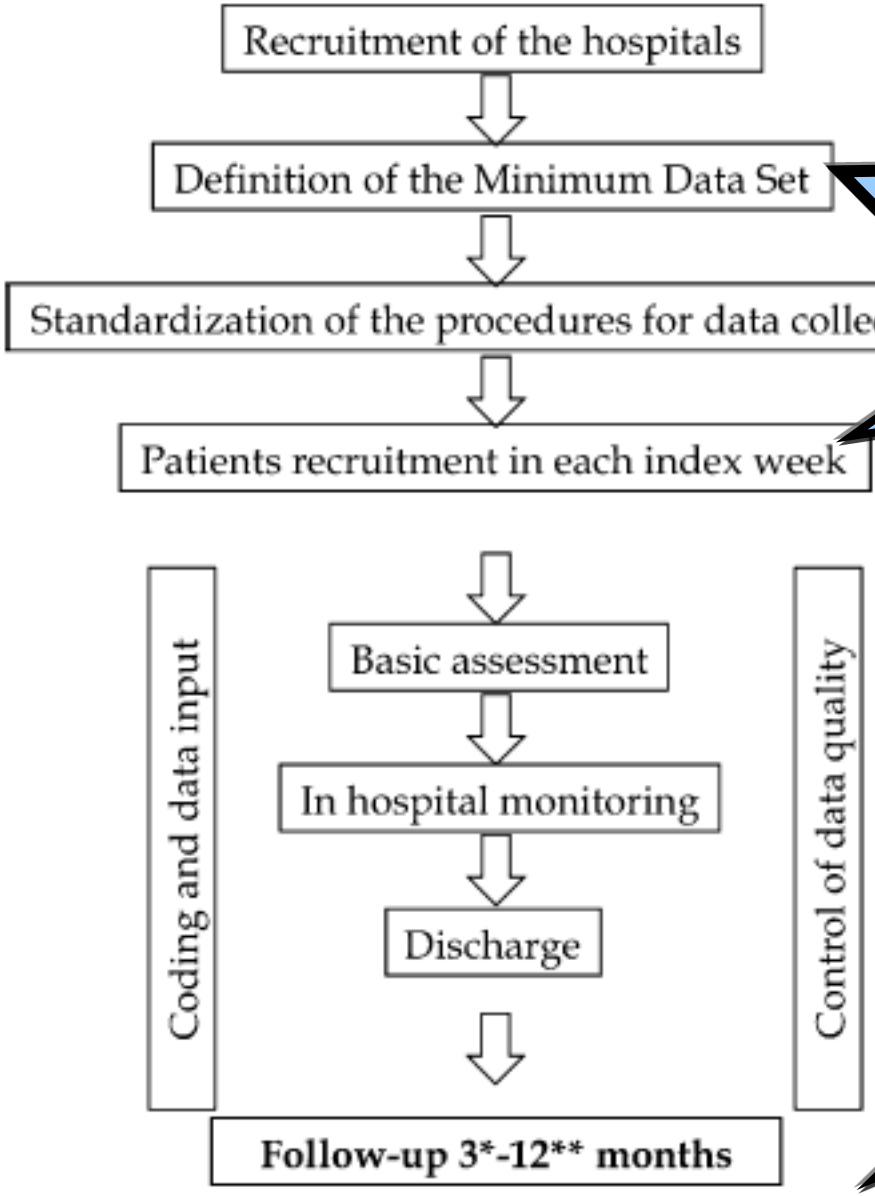
Studio collaborativo, osservazionale NON Sponsorizzato, tra Società Italiana di Medicina Interna (SIMI), Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico di Milano e IRCCS Istituto di Ricerche Farmacologiche "Mario Negri" di Milano.

OBIETTIVO

Attivare una rete/osservatorio di reparti di medicina interna per il reclutamento, il monitoraggio e lo studio dei pazienti anziani ospedalizzati.


REPOSI network
80
medicine interne e geriatrie
1
22
1
2
3
9
2
4
3
2
10
2
5
3
1
1
4
5
PROGETTO REPOSI
REGISTRO DEI PAZIENTI PER LO STUDIO DELLE POLIPATOLOGIE E POLITERAPIE IN REPARTI DELLA RETE SIMI

Organization of REPOSI



Web-based case report form: aspetti sociodemografici, parametri clinici, diagnosi, comorbidità (Cumulative Illness

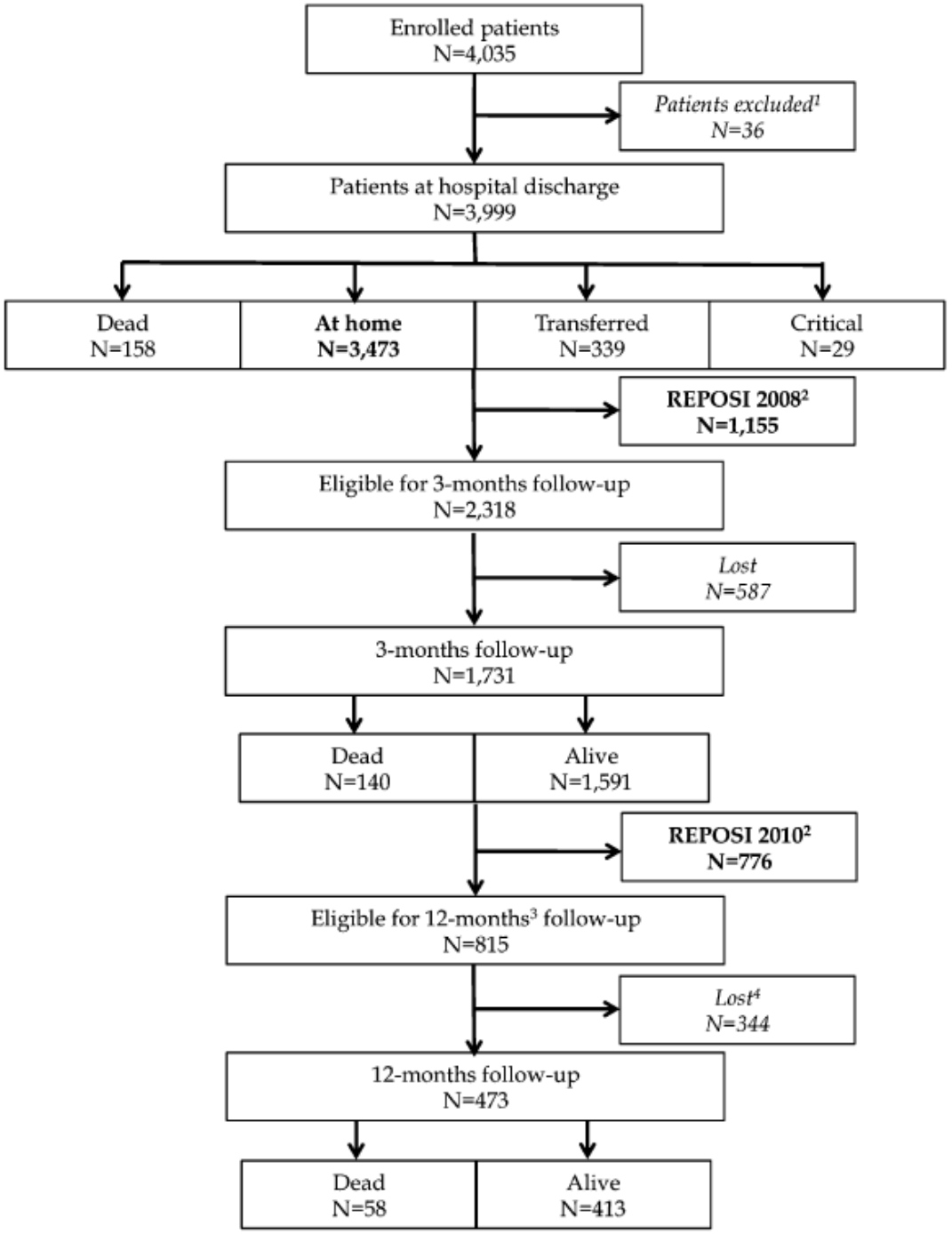
almeno 20 pazienti (età > 65 anni) ricoverati consecutivamente in un periodo di 4 settimane, ogni 3 mesi (anni 2008, 2010, 2012 e 2014).

all' ammissione e alla dimissione ed eventi clinici intercorrenti durante la degenza.

•Follow-up telefonico 3 mesi (2010 and 2012) e 12 mesi (solo 2012) dalla dimissione (mortalità, riospedalizzazione, eventi clinici avversi maggiori, disabilità e farmaci)

Mannucci P, int Emerg Med 2014

Fig. 2 Flow-chart of the cohort of 4,035 patients enrolled in REPOSI. *1* Low quality of data, *2* follow-up not requested, *3* only for REPOSI 2012, *4* ten wards were unavailable for 12-month follow-up



Mannucci P, Int Emerg Med 2014

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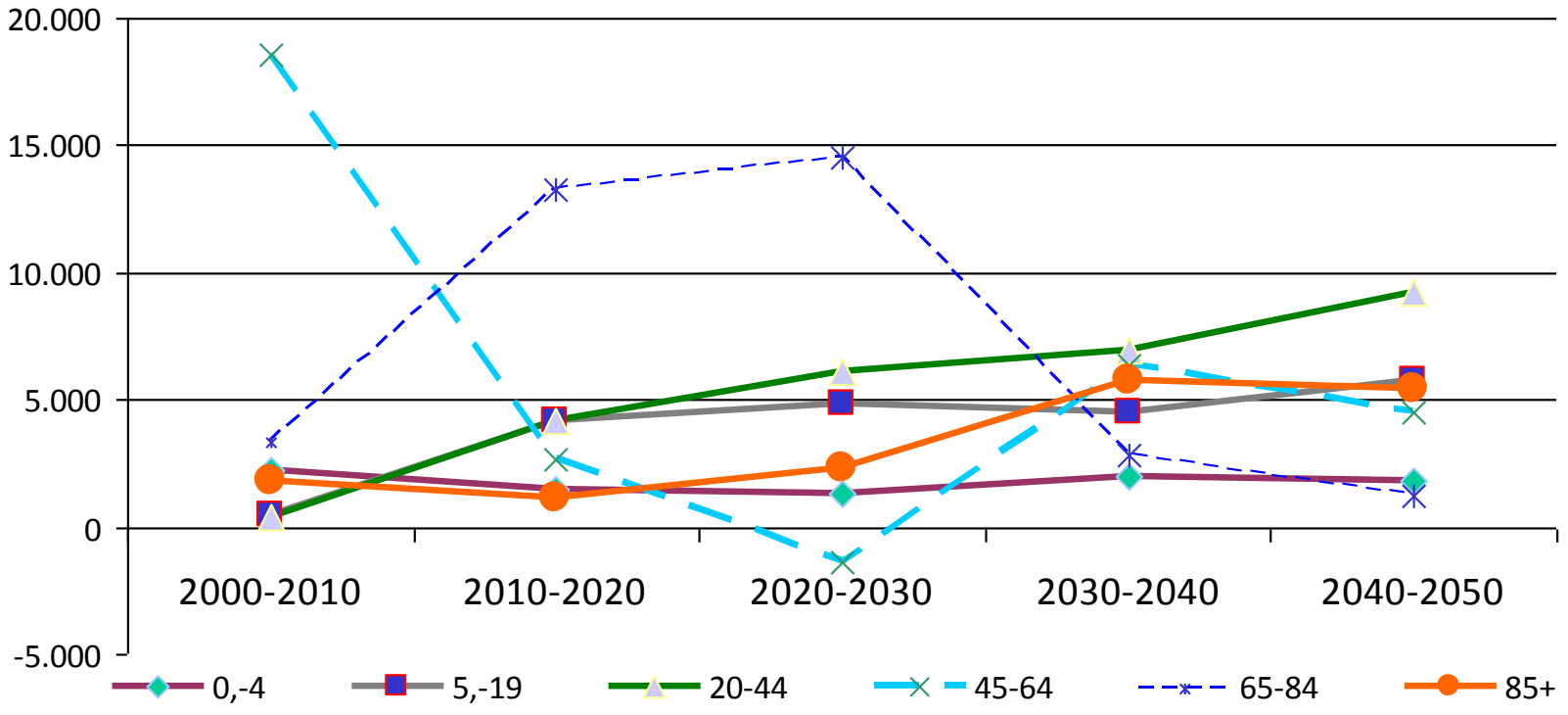
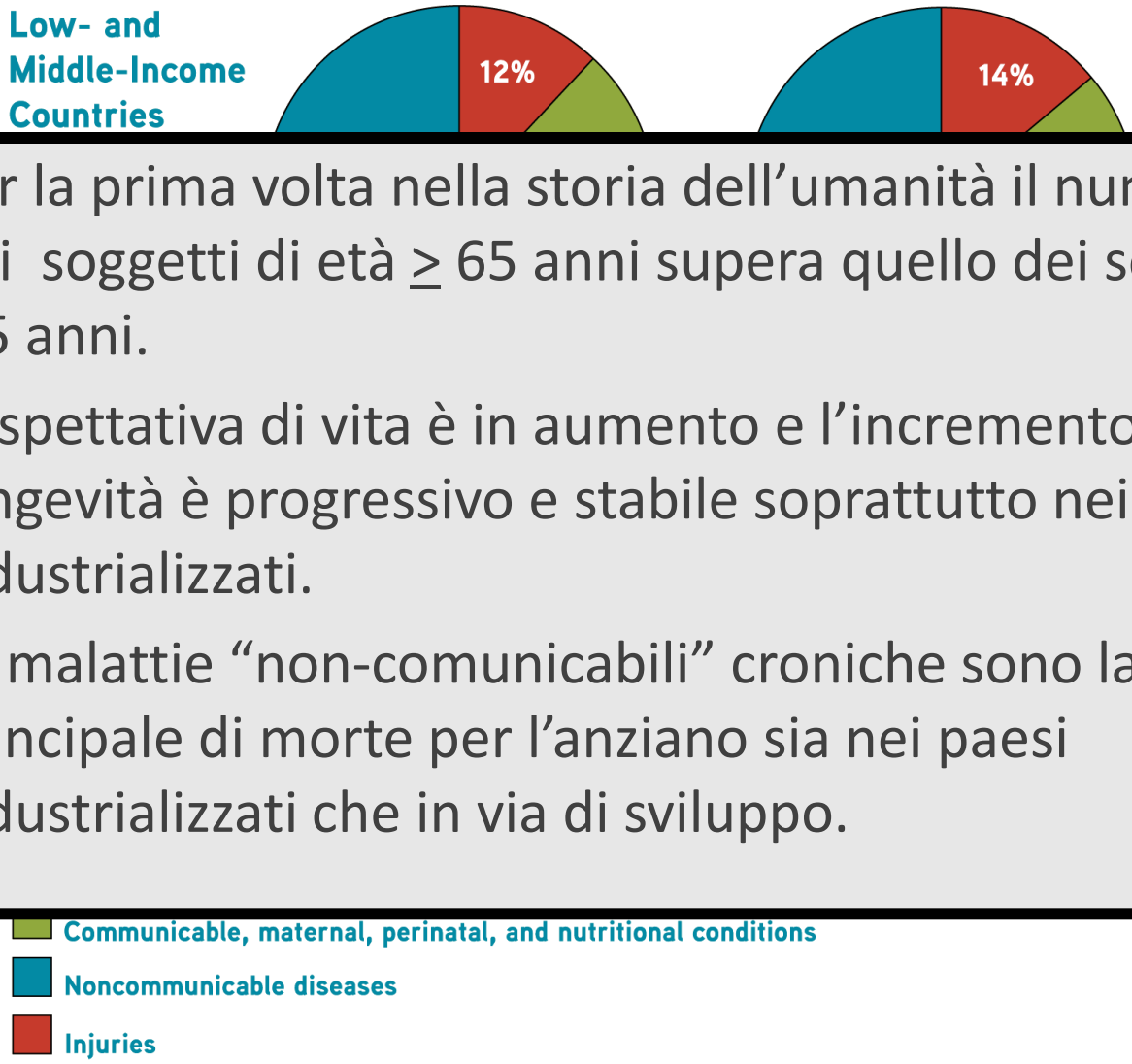
Projected Population Change (in thousands) in the United States, by Age and Sex: 2000 to 2050



Source: U.S. Census Bureau, 2004, "U.S. Interim Projections by Age, Sex, Race, and Hispanic Origin," <http://www.census.gov/ipc/www/usinterimproj/>

The Increasing Burden of Chronic Noncommunicable Disease: 2002 - 2030



- Per la prima volta nella storia dell'umanità il numero dei soggetti di età ≥ 65 anni supera quello dei soggetti ≤ 5 anni.
- L'aspettativa di vita è in aumento e l'incremento della longevità è progressivo e stabile soprattutto nei paesi industrializzati.
- Le malattie "non-comunicabili" croniche sono la causa principale di morte per l'anziano sia nei paesi industrializzati che in via di sviluppo.

Source: Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJL, eds. *Global Burden of Disease and Risk Factors.* Washington, DC: The World Bank Group, 2006.

Multimorbidity—older adults need health care that can count past one

- **General hosp**itals are **increasingly filled with older people** with **multimorbidity** who are **admitted as an emergency**
- The **services and interventions** provided are generally **designed for young or middle-aged people**, with only one disorder and a discrete episode of illness.
- The notion of **unidisciplinary**, **technical superspecialism** has grown in the past 50 years to dominate policy, research, practice, and education.

Banerjee, Lancet November 6, 2014

Multimorbidity—older adults need health care that can count past one

- **Prevalence of Multimorbidity is much higher in older age groups**, with 65% of people aged 65–84 years and **82% of people aged at least 85 years** affected.
- The BGS quote UK Hospital Episode Statistics showing that **people aged older than 65 years comprise 60% of admissions** to hospital**, 65% of occupied-bed days**, 90% of delayed transfers, **and 65% of emergency readmissions**.
- People aged **older than 65 years** make up 17% of the UK's population, but **more than 2 million unplanned admissions** a year account for **68% of hospital emergency-bed days**, and the use of more than 51 000 acute beds at any time.

Banerjee, Lancet November 6, 2014

Multimorbidity—older adults need health care that can count past one

- The working assumption is that the **optimum treatment** of someone with more than one condition is **to add together the treatments** for the individual conditions.
- **Clinical guidelines** for chronic illnesses almost always **focus on one disorder**, although most people with those disorders will have multimorbidity, which leads to questions about whether treatments and services that are developed in otherwise healthy people work in people with many health problems.

Banerjee, Lancet November 6, 2014

Distribuzione per età della spesa e dei consumi territoriali 2011 di classe A-SSN

	Spesa lorda pro capite			Spesa totale		DDD/1000 ab die			DDD totali	
Fascia d'età	uomini	donne	totale	%	% cum	uomini	donne	totale	%	% cum
0-4	34,0	29,1	31,6	0,8	0,8	86,0	74,7	80,5	0,5	0,5
5-14	30,7	25,5	28,2	1,3	2,1	68,2	56,1	62,3	0,7	1,2
15-24	32,8	33,5	33,1	1,6	3,7	79,0	111,3	94,7	1,1	2,3
25-34	40,6	51,4	46,0	2,9	6,6	109,2	190,4	149,7	2,2	4,5
35-44	65,3	79,8	72,5	6,1	12,7	205,7	288,7	247,0	4,9	9,4
45-54	130,8	138,6	134,8	10,4	23,2	509,3	547,3	528,5	9,7	19,1
55-64	281,0	274,1	277,5	18,0	41,2	1221,9	1120,6	1169,8	17,8	36,9
65-74	494,1	458,6	475,1	26,0	67,2	2253,5	1961,1	2097,5	26,8	63,7
≥75	666,6	557,2	598,5	32,8	100,0	3233,2	2608,4	2844,6	36,3	100,0

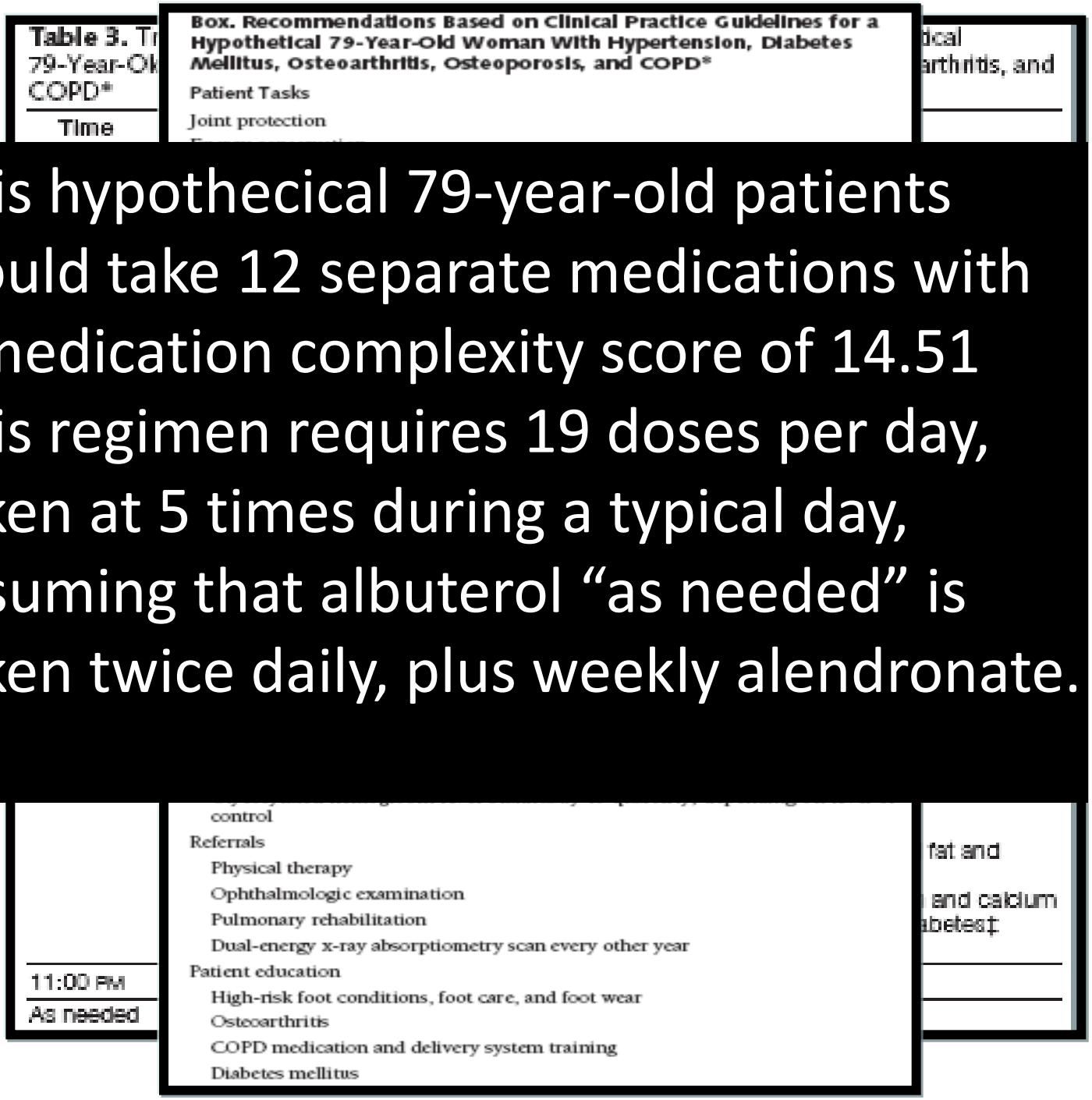
Clinical Practice Guidelines and Quality of Care for Older Patients With Multiple Comorbid Diseases

Implications for Pay for Performance

Objective. To evaluate the applicability of CPGs to the care of older individuals with several comorbid diseases.

Study Selection Of the 15 most common chronic diseases, we selected hypertension, chronic heart failure, stable angina, atrial fibrillation, hypercholesterolemia, diabetes mellitus, osteoarthritis, chronic obstructive pulmonary disease, and osteoporosis, which are usually managed in primary care, choosing CPGs promulgated by national and international medical organizations for each.

Boyd CM, et al. JAMA 2005;294:716-24



Box. Recommendations Based on Clinical Practice Guidelines for a Hypothetical 79-Year-Old Woman With Hypertension, Diabetes Mellitus, Osteoarthritis, Osteoporosis, and COPD*

Patient Tasks

Joint protection

control

Referrals

- Physical therapy
- Ophthalmologic examination
- Pulmonary rehabilitation
- Dual-energy x-ray absorptiometry scan every other year

Patient education

- High-risk foot conditions, foot care, and foot wear
- Osteoarthritis
- COPD medication and delivery system training
- Diabetes mellitus

This hypothecical 79-year-old patients would take 12 separate medications with a medication complexity score of 14.51
This regimen requires 19 doses per day, taken at 5 times during a typical day, assuming that albuterol “as needed” is taken twice daily, plus weekly alendronate.

Drug-disease and drug-drug interactions: systematic examination of recommendations in 12 UK national clinical guidelines

- **OBJECTIVE.** To identify the number of drug-disease and drug-drug interactions for exemplar index conditions within National Institute of Health and Care Excellence (NICE) clinical guidelines.
- **DESIGN.** Systematic identification, quantification, and classification of potentially serious drug-disease and drug-drug interactions for drugs recommended by NICE clinical guidelines for type 2 diabetes, heart failure, and depression in relation to 11 other common conditions and drugs recommended by NICE guidelines for those conditions. Guidelines were chosen on the basis of being a common and chronic condition; being recently published; including recommendations for the initiation of a drug treatment for a chronic condition, and being for conditions commonly comorbid with the three index conditions.
- **SETTING.** NICE clinical guidelines for type 2 diabetes, heart failure, and depression.
- **MAIN OUTCOME MEASURES.** Potentially serious drug-disease and drug-drug interactions.

Dumbreck S, BMJ 2015

Drug-disease and drug-drug interactions: systematic examination of recommendations in 12 UK national clinical guidelines

Fig 1 | Proportion of people with three index conditions who have each of other conditions. Morbidity data were not available for osteoarthritis or neuropathic pain; "painful condition" data shown are defined by receipt of four or more prescriptions for non-over the counter analgesics in previous 12 months

Dumbreck S, BMJ 2015

Drug-disease and drug-drug interactions: systematic exam clinic

WHAT IS ALREADY KNOWN ON THIS TOPIC

There is increasing recognition that clinical guidelines should better account for patients with multimorbidity

Many guidelines recommend drug treatments, but current guidelines rarely consider drug-disease or drug-drug interactions in these recommendations

WHAT THIS STUDY ADDS

For the 12 guidelines examined, drug-disease interactions were relatively uncommon, with the exception of interactions when an individual has comorbid chronic kidney disease

Potentially serious drug-drug interactions were common, although the harm caused will depend on both how commonly different conditions are comorbid and the prevalence and severity of the harm caused by the interaction

Guideline developers need to more explicitly account for drug-disease and drug-drug interactions in people with multimorbidity and should use epidemiological evidence to identify when interactions are likely to be common and serious enough to require specific mention in a guideline.

Guideline developers are currently limited by the use of paper based guidelines. Adaptive electronic based guidelines that allow interactive searching for specific conditions are a potential way forward to account for multimorbidity in guideline recommendations

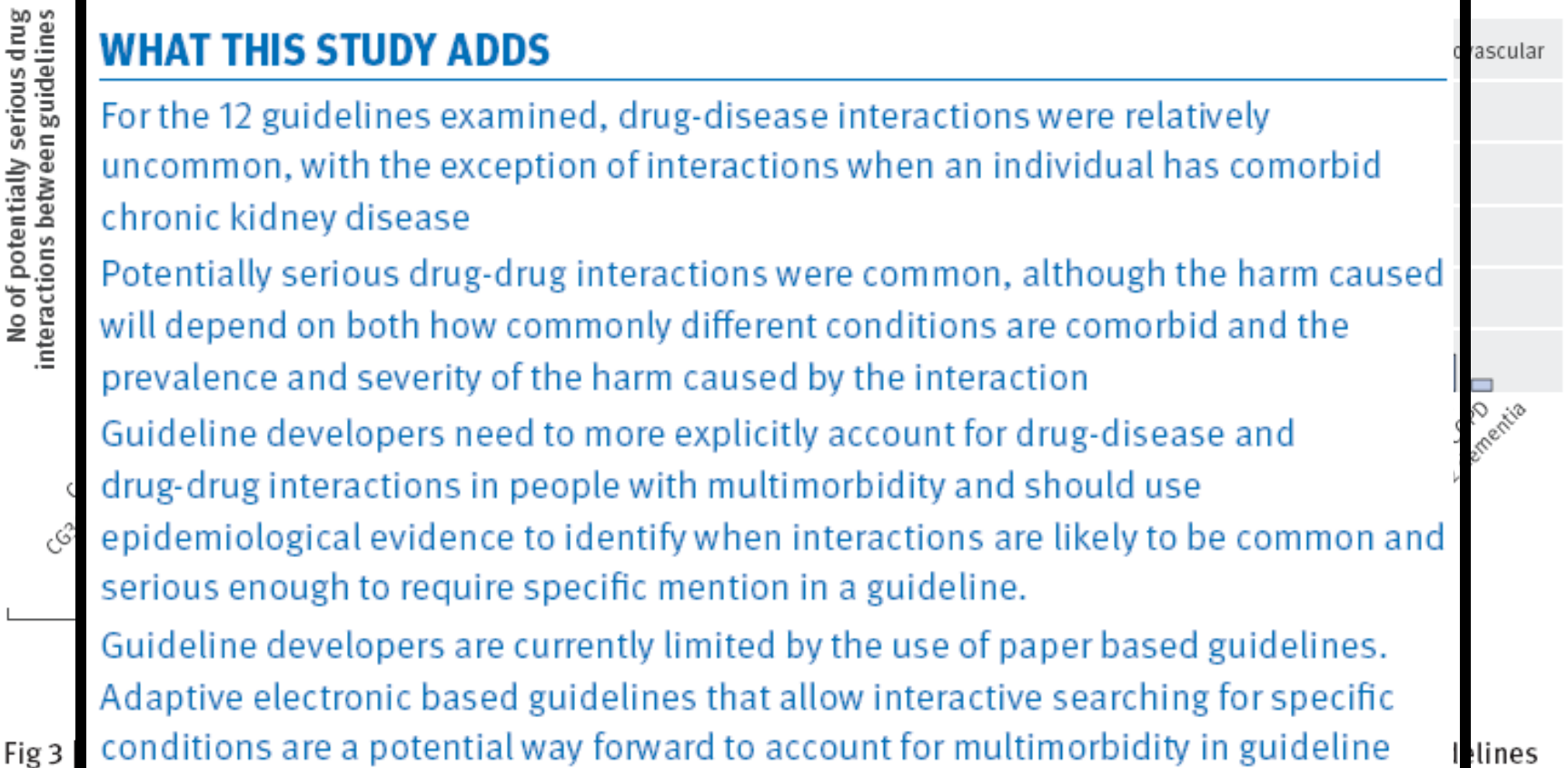


Fig 3 for th

Dumbreck S, BMJ 2015

Table 1
Characteristics of Databases That Assessed Drug Use Among In-Hospital Older Adults in Italy

	GIFA	REPOSI	CRIME
Study characteristics			
Years of survey	1988, 1991, 1993, 1995, 1997, 1998	2008, 2010, 2012	2010, 2011
Sample size	32,243	4,052	1,123
Number of participating centers	81	62	7
Patients characteristics			
Age, y (mean ± SD)	70.1 ± 15.8	79.2 ± 7.4	81.5 ± 7.4
Number of drugs prescribed at hospital discharge (mean ± SD)	3.8 ± 2.0	6.2 ± 2.9	7.1 ± 3.1
Length of hospital stay [median (IQR)]	12 (8–19)	9 (6–14)	10 (7–14)

CRIME, Criteria to Assess Appropriate Medication Use Among Elderly Complex Patients; GIFA, Gruppo Italiano di Farmacovigilanza nell'Anziano; IQR, interquartile range; REPOSI, REgistro POliterapie Società Italiana di Medicina Interna; SD, standard deviation.

Onder G et al, JAMDA 2014

Table 2
Drug Use in Nursing Home Residents in Italy and in Europe

	Italy* n (%)	Europe† n (%)
Number of drugs used (mean ± SD)	5.2 ± 2.9	7.2 ± 3.7
Gastrointestinal drugs		
Antiulcer drugs	1365 (43)	955 (27)
Laxatives	517 (16)	1025 (28)
Cardiovascular drugs		
Antiplatelets	1320 (42)	950 (26)
Diuretics	1293 (41)	904 (25)
Ace inhibitors	813 (26)	573 (16)
Calcium channel blockers	520 (16)	435 (12)
Beta blockers	216 (7)	589 (16)
Statins	[illegible]	[illegible]
Neurological drugs		
Antipsychotics	1076 (34)	612 (17)
Benzodiazepines	1050 (33)	768 (21)
Antidepressants	700 (22)	881 (24)
Antiparkinson drugs	358 (11)	181 (5)
Antidementia drugs	80 (3)	219 (6)
Others		
Analgesics	495 (16)	1001 (28)
Antiosteoporosis drugs (including vitamin D)	319 (10)	335 (9)
Oral hypoglycemic agents	283 (9)	213 (6)

SHELTER, Services and Health for Elderly in Long-Term Care; SD, standard deviation; ULISSE, un link informatico sui servizi sanitari esistenti per l'anziano.

*Data from Italy were obtained by combining data from the SHELTER (Italian sample) project, ULISSE project, and San Raffaele–Tosinvest Group facilities in 2013; n = 3179.

†Data from Europe were obtained from the SHELTER study after excluding data of Italian residents; n = 3608.

Onder G et al, JAMDA 2014

Deciding when to stop: towards evidence-based deprescribing of drugs in older populations

Ian A Scott, Leonard C Gray, Jennifer H Martin, Peter I Pillans, Charles A Mitchell

The **DRIVERS OF POLYPHARMACY** are multiple:

- plethora of **disease-specific clinical guideline recommendations** (many of which may not be applicable to older patients with multiple comorbidities) coupled with guideline derived quality indicators and performance incentives;
- **patient and carer expectations** and provider sensitivity about age discrimination;
- **inadequate knowledge** of geriatric therapeutics and toxicology;
- focus on treating acute disease (often with additional drugs) **while neglecting reappraisal of existing drugs** for chronic disease;
- **ADRs being misinterpreted** as new diseases requiring more drugs.

Evid Based Med August 2013 | volume 18, 121-24

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Original article

Factors affecting adherence to guidelines for antithrombotic therapy in elderly patients with atrial fibrillation admitted to internal medicine wards

- Antithrombotic prophylaxis in patients with AFF is known to be efficacious and safe when prescribed according to the degree of cardio-embolic risk.
- There is evidence in different healthcare settings of a low rate of adherence to guidelines on antithrombotic therapy for patients with AFF.
- We confirmed the underuse of antithrombotic therapy, namely of VKA, among elderly patients with AFF admitted to 36 Italian internal medicine wards, without a positive impact of hospital admission on the rate of adherence to guidelines.
- Considering that various socio-demographic and clinical factors other than those used to stratify the cardio-embolic risk may influence the decision to prescribe VKAs, a significant association was found between a history of cancer or previous and current bleeding and omission of VKAs prescription at admission to the hospital as well as at discharge.

a) All Patie

modifiers	OR(95% CI)
sex (male)	1.03 (0.52, 2.04)
age > 80	0.47 (0.24, 0.95) **
living alone	0.89 (0.42, 1.90)
taking > 8 drugs	1.95 (0.84, 4.56)
bleedings	1.86 (0.11, 30.37) #
cranio-facial trauma	13.64 (0.69, 269.42) †
malignancy	0.23 (0.05, 1.07) ∫∫
dementia	0.44 (0.09, 2.15)

213 pts dis
home

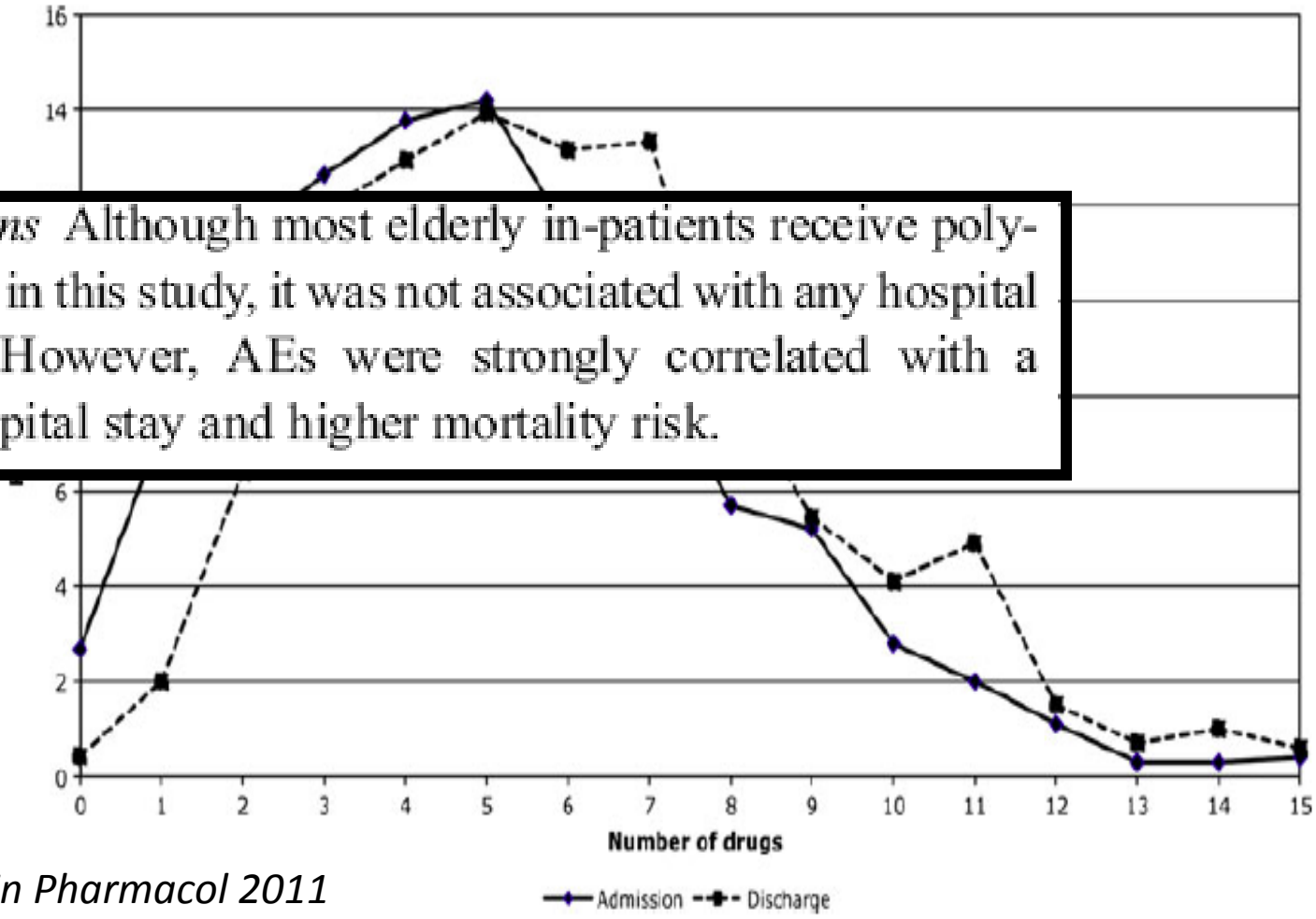
- a nursing home (11)
- another ward (3 cardiology, 2 surgery, 1 intensive care unit)
- a rehabilitation structure (2)

hospitalization

Marcucci M, et al, Eur J Intern Med 2010

Polypharmacy, length of hospital stay, and in-hospital mortality among elderly patients in internal medicine wards. The REPOSI study

Fig. 2 Prevalence of drug use at admission and at discharge in 1,155 patients



Conclusions Although most elderly in-patients receive polypharmacy, in this study, it was not associated with any hospital outcome. However, AEs were strongly correlated with a longer hospital stay and higher mortality risk.

Nobili A et al, Eur J Clin Pharmacol 2011

Prophylaxis of venous thromboembolism in elderly patients with multimorbidity

Maura Marcucci · Alfonso Iorio · Alessandro Nobili · Mauro Tettamanti · Luca Pasina · Codjo Djignefa Djade · Alessandra Marengoni · Francesco Salerno · Salvatore Corrao · Pier Mannuccio Mannucci · REPOSI (REgistro POliterapie Società Italiana di Medicina Interna) Investigators

Table 2 Predictors of thromboprophylaxis prescription (multivariate logistic regression)

Covariate	OR (95 % CI)	*p* value
Barthel Index score <50[a]	3.74 (2.57–5.46)	<0.001
Sex (male vs. female)	0.69 (0.48–0.99)	0.049
Age >80 years old[a]	1.60 (1.10–2.32)	0.013
Length of hospital stay (days)	1.03 (1.02–1.05)	<0.001
Admission for acute heart failure	2.16 (1.22–3.83)	0.008
Admission for acute respiratory failure	5.81 (2.00–11.54)	<0.001
Platelet count <130 × 10^3/mm^3[a]	0.51 (0.27–0.97)	0.040

Eur J Intern Med 2013

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Risk factors for hospital readmission of elderly patients

1380 enrolled patients

Table 2
Risk factors affecting hospital readmission within 3 months after discharge in 5 multivariate logistic regression models.

	Model 1		Model 2		Model 3		Model 4		Model 5	
Re-hospitalization	OR (95%CI)	*P*-value	OR (95%CI)	*P*-value	OR (95%CI)	*P*-value	OR (95%CI)	*P*-value	OR (95%CI)	*P*-value
Sex (female)	1.16 (0.81–0.68)	*0.43*	1.23 (0.85–1.78)	*0.28*	1.18 (0.81–1.72)	*0.37*	1.23 (0.84–1.80)	*0.27*	1.27 (0.87–1.88)	*0.20*
Age (>=85)	0.98 (0.61–0.52)	0.92	0.93 (0.58–1.46)	*0.76*	0.93 (0.56–1.47)	*0.78*	0.90 (0.55–1.42)	*0.66*	1.01 (0.62–1.60)	*0.97*
CIRS severity index	–	–	2.24 (1.25–4.03)	*0.007*	–	–	1.80 (0.98–3.31)	*0.06*	–	–
Adverse clinical events during hospitalization	–	–	–	–	1.78 (1.22–2.60)	*0.003*	1.76 (1.21–2.58)	*0.003*	1.74 (1.19–2–56)	*0.0045*
Previous hospital admission (6 months before current admission)	–	–	–	–	2.03 (1.39–2.96)	*0.0003*	1.93 (1.31–2.83)	*0.009*	1.92 (1.31–2.82)	*0.0009*
Cardiovascular diseases (level of impairment ≥3)	–	–	–	–	–	–	–	–	1.48 (1.00–2.17)	*0.0481*
Liver diseases (level of impairment ≥3)	–	–	–	–	–	–	–	–	2.32 (1.42–3.77)	*0.0010*

Model 1: multivariate with sex and age.
Model 2: multivariate with sex, age and CIRS severity index.
Model 3: multivariate with sex, age, adverse clinical events during hospitalization and previous hospital admission.
Model 4: multivariate with sex, age, adverse clinical events during hospitalization, previous hospital admission and CIRS severity index.
Model 5: model 3+vascular and hepatic illnesses.

patients readmitted whithin 3 months (rehospitalized group)

patients non-readmitted whithin 3 months (non-rehospitalized group)

Fig. 1. Flowchart of the study.

Franchi C, et al, Eur J Intern Med 2013

Prognostic value of estimated glomerular filtration rate in hospitalized elderly patients

Table 5 Estimated glomerular filtration rate (eGFR) on admission and risk of hospital re-admission

eGFR	Univariable		Multivariable model 1		Multivariable model 2	
	OR (95 % CI)	*p* value	OR (95 % CI)	*p* value	OR (95 % CI)	*p* value
Group 3	0.87 (0.46–1.67)	0.8287	0.97 (0.50–1.80)	0.8176	0.97 (0.54–1.76)	0.9156
Group 2	1.02 (0.73–1.43)		1.08 (0.73–1.61)		1.05 (0.73–1.51)	
Group 1	1		1		1	
Age mean (SD)	0.98 (0.95–1.01)	0.1630	0.97 (0.95–1.00)	0.0790	0.97 (0.94–0.99)	0.0420
Sex (female)	1.22 (0.87–1.70)	0.2066	1.30 (0.94–1.78)	0.1010	1.34 (0.98–1.84)	0.0690
CIRS mean (SD)	1.13 (1.02–1.25)	0.0130			1.16 (1.04–1.28)	0.0090

Multivariable model 1 adjusted by sex and age

Multivariable model 2 adjusted by sex, age and CIRS on admission

Confidence intervals calculated taking into account the non-independence of data within the same ward

Confidence intervals calculated taking into account the non-independence of data within the same ward

De la Higuera L et al, Intern Emerg Med 2013

International Journal of
Geriatric Psychiatry

In-hospital death according to dementia diagnosis in acutely ill elderly patients: the REPOSI study

Table 3 ... inical events.
N = Nu...

	95% CI
No de...	—
No de...	.87–24.08
Deme...	.00–19.16
Deme...	.94–61.96

Model a...

Key Points

- Older patients affected by dementia are more likely to die during hospitalization for acute illnesses.
- The association of dementia with adverse clinical events during hospitalization has an additive effect on in-hospital death.

Marengoni A, et al, Int J Geriatr Psych 2011

Adverse Clinical Events and Mortality During Hospitalization and 3 Months After Discharge in Cognitively Impaired Elderly Patients

Table 3. Odds Ratio (OR) and 95% Confidence Intervals (CI) for In-Hospital and 3-Month Mortality After Stratification for the Presence of At Least One Adverse Clinical Event

	At Least One Adverse Clinical Event				No Adverse Clinical Event			
	In-hospital mortality		Three-month mortality		In-hospital mortality		Three-month mortality	
Severe disability	1.7	0.54–5.73	3.0	0.81–11.23	6.2	1.24–31.18	8.0	2.06–31.29
Complete disability	3.5	1.36–9.05	7.4	2.30–24.37	15.0	3.90–57.84	27.5	7.61–99.73
Age, y (80+ vs <80)	1.2	0.50–3.12	4.5	1.66–12.62	3.6	0.93–14.51	2.2	0.85–6.01
Male vs female	1.8	0.80–4.15	4.1	1.65–10.51	3.4	0.98–12.3	1.7	0.67–4.55
Malignancy	1.2	0.23–6.74	7.5	3.07–18.45	3.5	0.55–22.47	8.3	3.07–22.79
CRF	2.8	1.02–7.72	2.1	0.83–5.64	3.1	0.85–11.53	2.6	1.03–6.91

Conclusion. Elderly patients with cognitive impairment are more likely to die during hospitalization with a severity-dependent association. Adverse events may represent an important target of prevention due to their high association with mortality and cognitive impairment.

Marengoni A, J Geront Med Sci 2012

Outline

- Cosa è il registro REPOSI
- Con che finalità è nato
- Principali pubblicazioni
  - Polifarmacoterapia
  - Ricerca di fattori predittivi di outcomes avversi
  - Identificazione di aree di “knowledge improvement” in ambito clinico
- Aree di ricerca

The stigma of low opioid prescription in the hospitalized multimorbid elderly in Italy

Table 4 Univariate associations with opioid prescription at hospital discharge in the three samples of REPOSI

	Sample 2008		Sample 2010		Sample 2012	
	Opioids		Opioids		Opioids	
	No	Yes	No	Yes	No	Yes
Age, yrs, mean (SD)	79.2 (7.5)	77.7 (8.0)	78.9 (7.4)	78.6 (7.9)	79.3 (7.5)	78.7 (6.9)
Male, number (%)	506 (46.5)	29 (43.3)	540 (48.4)	25 (39.7)	523 (48.1)	40 (51.9)
Total drugs at discharge, mean (SD)	5.9 (2.8)	6.4 (3.3)	6.2 (2.8)	6.9 (3.0)*	6.3 (3.1)	7.1 (2.8)†
SBT, mean (SD)	–	–	9.6 (8.0)	8.4 (8.8)	9.1 (7.8)	8.6 (7.1)
Barthel Index, mean (SD)	–	–	78.4 (29.6)	72.9 (31.6	74.9 (31.1)	68.1 (32.8)
Dementia diagnosis, number (%)	102 (9.4)	4 (6.0)	84 (7.5)	6 (9.5)	113 (10.4)	3 (3.9)
Severe constipation, number (%)	23 (2.1)	3 (4.5)	19 (1.7)	1 (1.6)	7 (0.6)	2 (2.6)*

Marengoni A et al, Intern Emerg Med 2015

Original Article

4035
enrolled patients
in 2008-2010-2012

Adherence to ar … spitalized elderly with different tr…

Table 3
Risk factors for adherence to clinical guidelines: results from adjusted mixed logistic regression models.

	OR (95% CI)		
	Model 1	Model 2	Model 3
HAP vs CAP	0.42 (0.22–0.83)	0.42 (0.22–0.83)	0.39 (0.19–0.78)
Number of drugs			1.08 (0.98–1.2)

CAP: community-acquired pneumonia; HAP: hospital-acquired pneumonia; HCAP: health-care acquired pneumonia.

Results: A diagnosis of pneumonia was made in 317 patients. Only 38.8% of them received an empirical antibiotic regimen that was adherent to guidelines. However, no significant association was found between adherence to guidelines and outcomes. Having HAP, older age, and higher CIRS severity index were the main factors associated with in-hospital mortality.
Conclusions: The adherence to antibiotic treatment guidelines was poor, particularly for HAP and HCAP, suggesting the need for more adherence to the optimal management of antibiotics in the elderly with pneumonia.

89
with
Aderent Therapy

16
with
Aderent Therapy

18
with
Aderent Therapy

Med 2015

Table 1. General characteristics of patients recruited in REPOSI study 2010 and 2012 (n = 2521)

Age (years), mean (SD)	79.1 (7.3)
Female, n (%)	1281 (50.8)
Nursing home residents before hospital admission, n (%)	66 (2.6)
Hospitalized in the 6 months prior to current hospital, n (%)	764 (30.3)
CIRS Index of Disease Severity, admission, mean (SD)	1.6 (0.3)
CIRS Index of Comorbidity, admission, mean (SD)	3.0 (1.8)
Patients with dementia, n (%)	196 (7.8)
Patients with delirium recorded as per ICD-9-^{CM} code, n (%)	72 (2.9)
Drugs on admission, means (SD)	5.3 (2.9)
Patients with antipsychotics on admission, n (%)	88 (3.5)
Patients with benzodiazepines on admission, n (%)	339 (13.4)
Patients with antidepressants on admission, n (%)	274 (10.8)
Length of stay , mean (SD)	11.5 (8.9)
In-hospital mortality , n (%)	76 (3.0)

Bellelli G et al, unpublished

Patient: _____ DATE:_____
Age: _____

Short Blessed Test (SBT)[1]

"Now I would like to ask you some questions to check your memory and concentration. Some of them may be easy and some of them may be hard."

Orientation

1. What year is it now?_____ Correct (0) Incorrect (1)

2. What month is it now?_____ Correct (0) Incorrect (1)

Please repeat this name and address after me:

John Brown, 42 Market Street, Chicago

John Brown, 42 Market Street, Chicago

John Brown, 42 Market Street, Chicago

(underline words repeated correctly in each trial)
Trials to learning_____(can't do in 3 trials = C)

Good, now remember that name and address for a few minutes.

Orientation

3. Without looking at your watch or clock, tell me about what time it is.
   (If response is vague, prompt for specific response) Correct (0) Incorrect (1)
   (within 1 hour) _____
   Actual time: _____

Attention

4. Count aloud backwards from 20 to 1 0 1 2 Errors
   (Mark correctly sequenced numerals)
   If subject starts counting forward or forgets the task, repeat instructions and score one error

   20 19 18 17 16 15 14 13 12 11

   10 9 8 7 6 5 4 3 2 1

5. Say the months of the year in reverse order.
   If the tester needs to prompt with the last name of the month of the year, one error should be scored
   (Mark correctly sequenced months)

   D N O S A JL JN MY AP MR F J 0 1 2 Errors

Memory

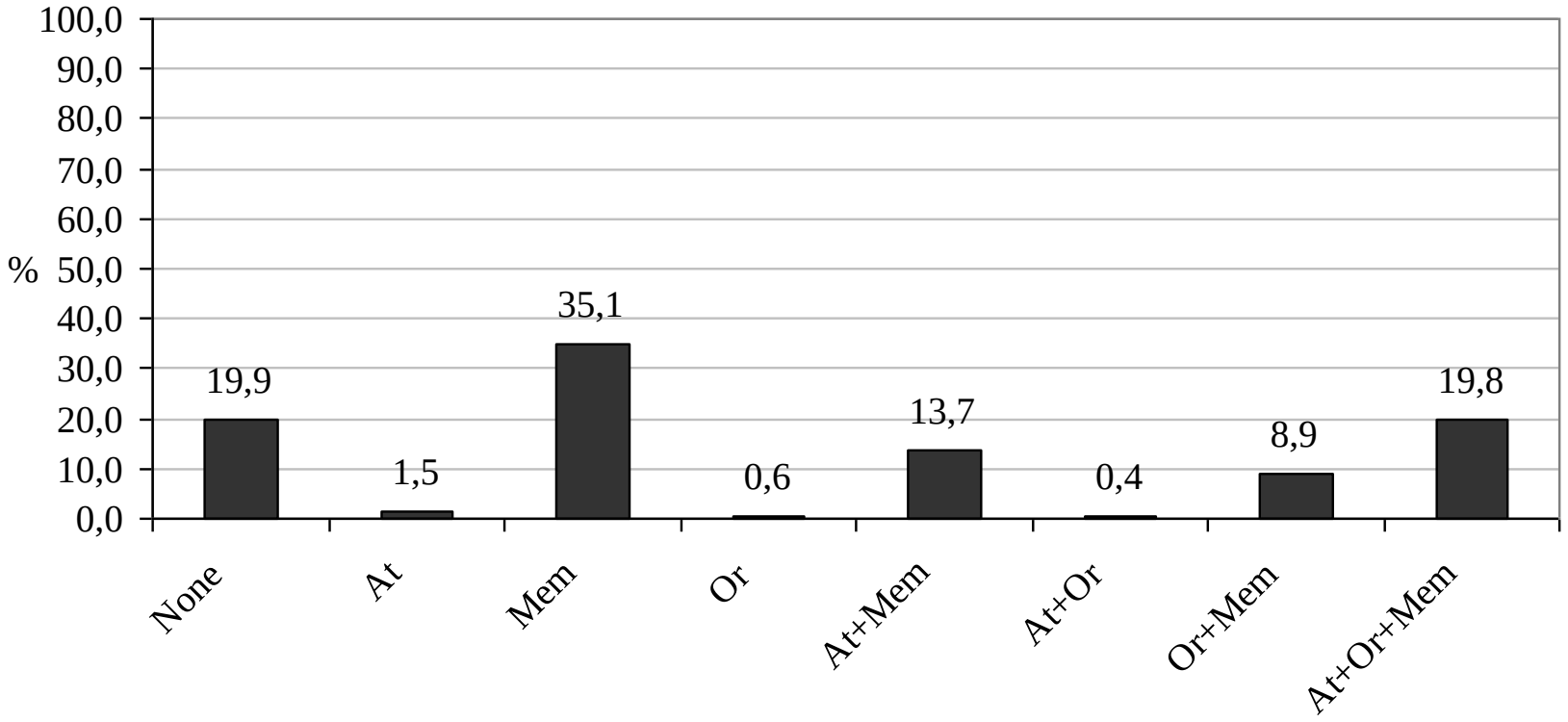
6. Repeat the name and address I asked you to remember.
   (The thoroughfare term (Street) is not required)
   (John Brown, 42 Market Street, Chicago) 0 1 2 3 4 5 Errors

   _____, _____, ___, _____, _____

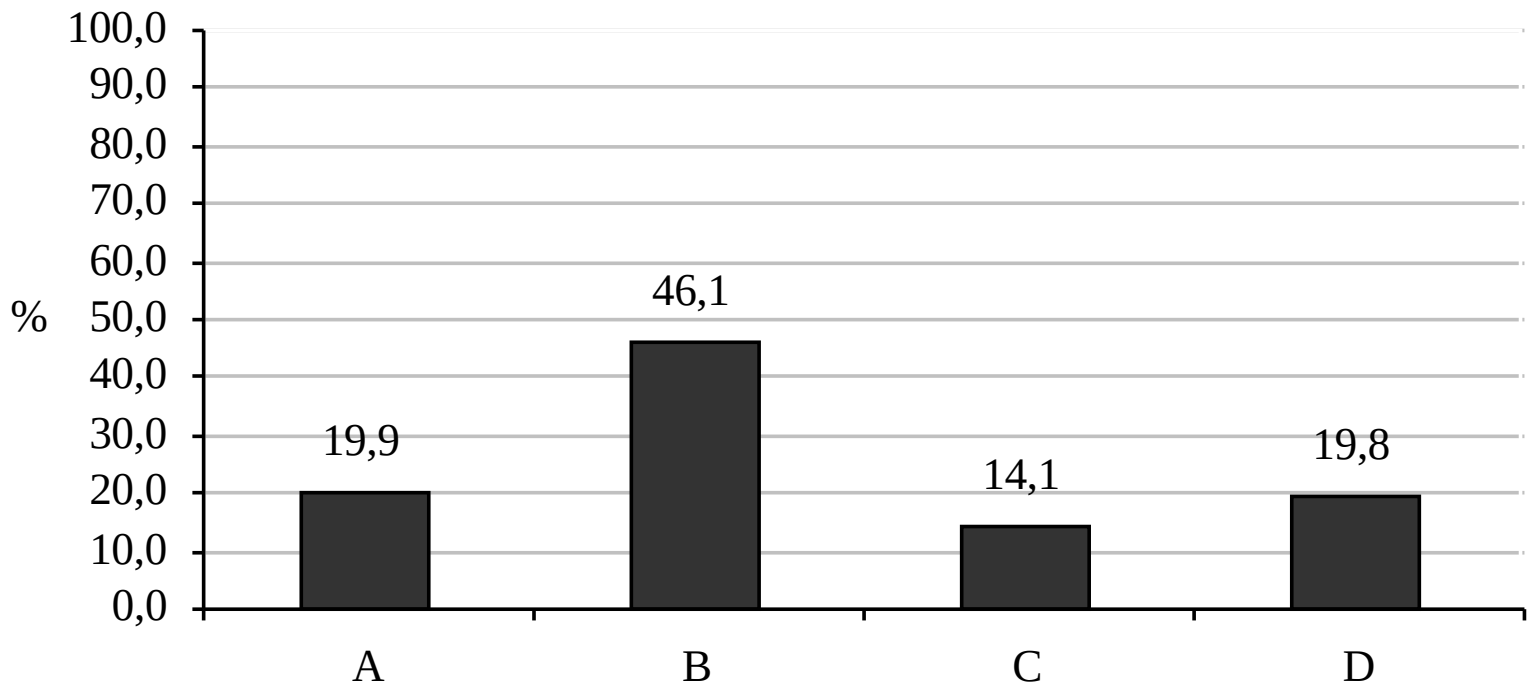
Check correct items **USE ATTACHED SCORING GRID & NORMS**

[1] Katzman R, Brown T, Fuld P, Peck A, Schechter R, Schimmel, H. Validation of a short orientation-memory concentration test of cognitive impairment. Am J Psyhciatry 140:734-739, 1983.

Quantitative analysis of SBT scores in the study cohort



Distribution of clusters of SBT neurocognitive disorders (none, single and combined) in the study



Group SBT A =patients without neurocognitive disorders;
Group SBT B =patients with neurocognitive disorder only in one domain (i.e., attention, memory and orientation alone) + those with a combined disorder in orientation and memory;
Group SBT C =patients with neurocognitive disorder in attention and in either orientation or memory;
Group SBT D =patients with combined neurocognitive disorders in attention, orientation and memory;

Logistic regression models on the effect of SBT group membership on in-hospital mortality

	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value
Age	1.1 (1.0 – 1.1)	0.0001	1.1 (1.0 – 1.1)	0.0001	1.1 (1.0 – 1.1)	0.0001
Gender (female)	0.5 (0.3 – 0.8)	0.0060	0.5 (0.3 – 0.9)	0.0142	0.5 (0.3 – 0.8)	0.0058
Nursing home residence	2.1 (0.8 – 5.0)		--		--	
Hospitalization (> 6 months)	1.7 (1.1 – 2.7)		--		--	
CIRS Index of comorbidity	--		1.1 (0.9-1.3)	0.0066	--	
Dementia (diagnosis)	--		--		1.6 (0.2-2.9)	0.1911
SBT Group A	Ref	<0.0001	Ref		Ref	
SBT Group B	1.7 (0.7–5.0)		1.5 (0.6–4.6)		1.6 (0.6–4.8)	
SBT Group C	3.3 (1.3–10.1)		3.1 (1.2–9.5)		3.3 (1.3–9.7)	
SBT Group D	5.6 (2.2 – 17.2)		5.5 (2.2–17.0)		5.2 (2.0 – 16.3)	

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Main characteristics of patients enrolled in the REPOSI Registry

	Sample 2008 N=1332	Sample 2010 N=1380	Sample 2012 N=1323
Age, yrs, mean (SD)	79.3 (7.5)	79.0 (7.3)	79.3 (7.4)
65-74 yrs	409(30.7)	430 (31.2)	403 (30.5)
75-84 yrs	607 (45.6)	650 (47.1)	583 (44.1)
≥85 yrs	316 (23.7)	300 (21.7)	337 (25.5)
Female, number (%)	721 (54.1)	696 (50.4)	672 (50.8)
Education, yrs, mean (SD)	6.3 (3.7)	7.1 (4.0)	6.4 (4.3)
Length of hospital stay, days, (SD)	11.1 (8.5)	10.9 (8.2)	11.4 (8.5)
Discharged, number (%)	1155 (86.7)	1178 (87.4)	1166 (88.6)
Transferred to another hospital ward, number (%)	111 (8.3)	120 (8.9)	108 (8.2)
In-hospital mortality, number (%)	66 (5.0)	50 (3.6)	42 (3.0)

Mannucci P, Int Emerg Med 2014

Main characteristics of patients enrolled in the REPOSI Registry

	Sample 2008 N= 1332	Sample 2010 N=1380	Sample 2012 N=1340
Total drugs at admission, mean (SD)	4.9 (2.8)	5.3 (2.8)	5.4 (3.1)
Total drugs at discharge, mean (SD)	6.0 (2.9)	6.3 (2.8)	6.4 (3.1)
Opioids at admission, number (%)	50 (3.8)	49 (3.6)	55 (4.1)
Opioids at discharge, number (%)	67 (5.8)	63 (5.3)	77 (6.6)
SBT, severe, number (%)	-	637 (47.6)	641 (44.5)
Barthel Index, mean (SD)	-	76.8 (30.7)	72.6 (32.5)
Dementia diagnosis, number (%)	122 (9.2)	90 (6.5)	116 (8.7)

Mannucci P, Int Emerg Med 2014

Areas of improvement in REPOSI research

	Sample 2014 N= 1414
Delirium detected, number (%)	4.9 (2.8)
Indwelling catheter, number (%)	362 (25.6)
Pressure sores on admission, number (%)	52 (4.1)
Malnourished, (BMI > 18.5) number (%)	37 (3.3)

Conclusioni

- Il registro REPOSI è un'opportunità unica per la Medicina Interna e la Geriatria per monitorare lo stato di salute somatica e psichica dei pazienti anziani ricoverati nei reparti per acuti degli ospedali Italiani
- È anche un'opportunità unica per permettere che alcuni concetti e nozioni "tipicamente geriatriche" trovino più spazio in un contesto di Medicina Interna
- Infine è un'opportunità per la geriatria per valutare il livello di "penetrazione" delle specifiche competenze in ambito internistico