Sifact

10° CONGRESSO NAZIONALE

ESITI CLINICI: UN IMPEGNO ED UNA RESPONSABILITÀ CONDIVISI

Telemedicina e cura dell'anziano fragile a domicilio: verso una cultura della appropriatezza prescrittiva

Alberto Cella

Responsabile Medico SSD Cure Intermedie

Dipartimento di Cure Geriatriche, Ortogeriatria e Riabilitazione

E.O. Ospedali Galliera, Genova

Direttore: Prof. A. Pilotto

Ente Ospedaliero Ospedali Galliera Genova

Ospedale di rilievo nazionale e di alta specializzazione

DISCLOSURE

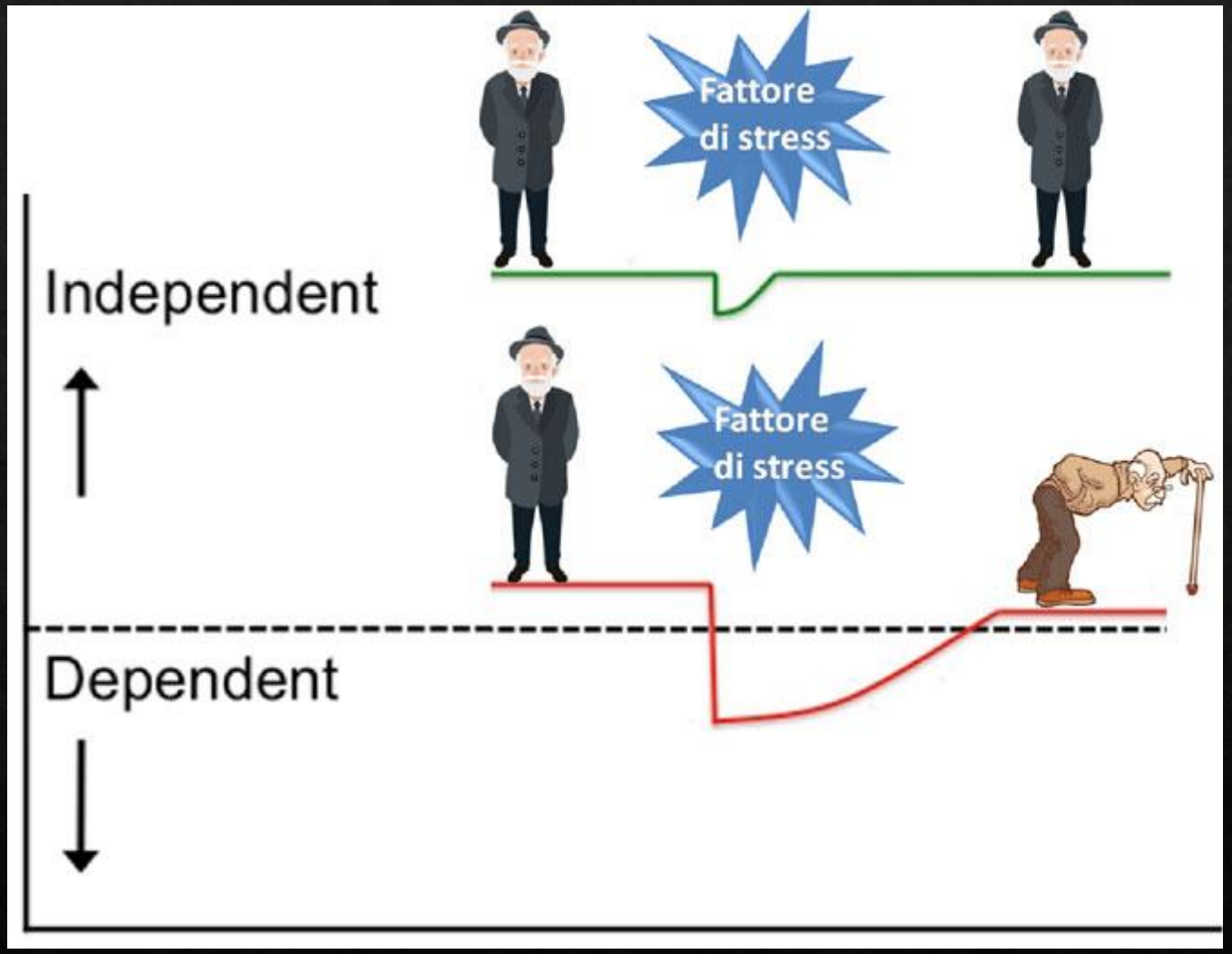
In qualità di RELATORE, ai sensi dell'art.76 sul Conflitto di Interessi dell'Accordo Stato-Regioni del 2 febbraio 2017, dichiaro che negli ultimi due anni **non ho avuto rapporti di finanziamento con soggetti portatori di interessi commerciali in campo sanitario**.

Dichiaro, inoltre, che i contenuti formativi esposti sono indipendenti da interessi commerciali.

Fragilità

Suscettibilità alle malattie e difficoltà di recupero dello stato '*quo ante*'

Fattore di rischio per cadute, ricoveri, morte



- Televisita
- Teleconsulto
- Telerefertazione
- Telemonitoraggio
- Teleriabilitazione

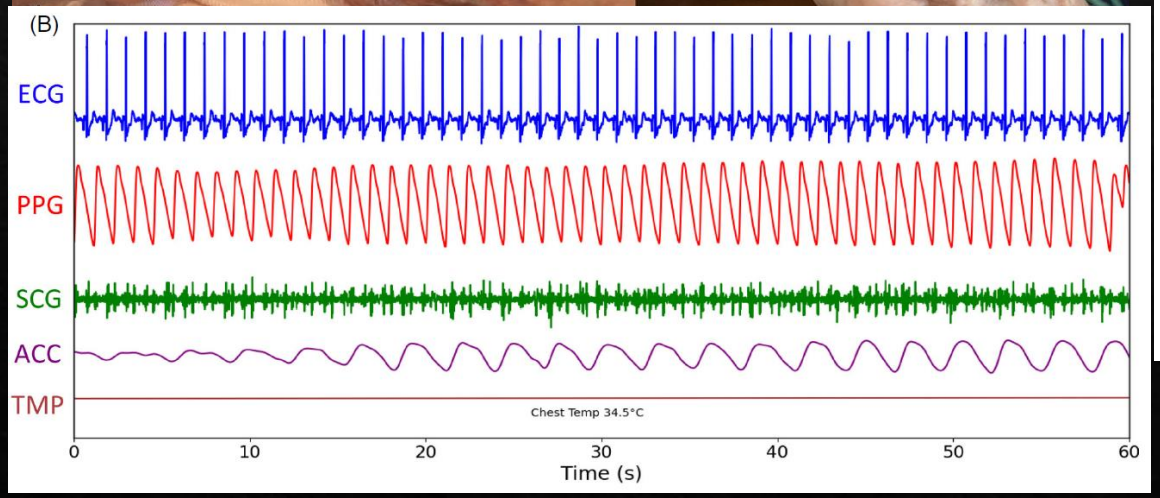
Esperienze di telemedicina rilevate per Regione/PA - 2018

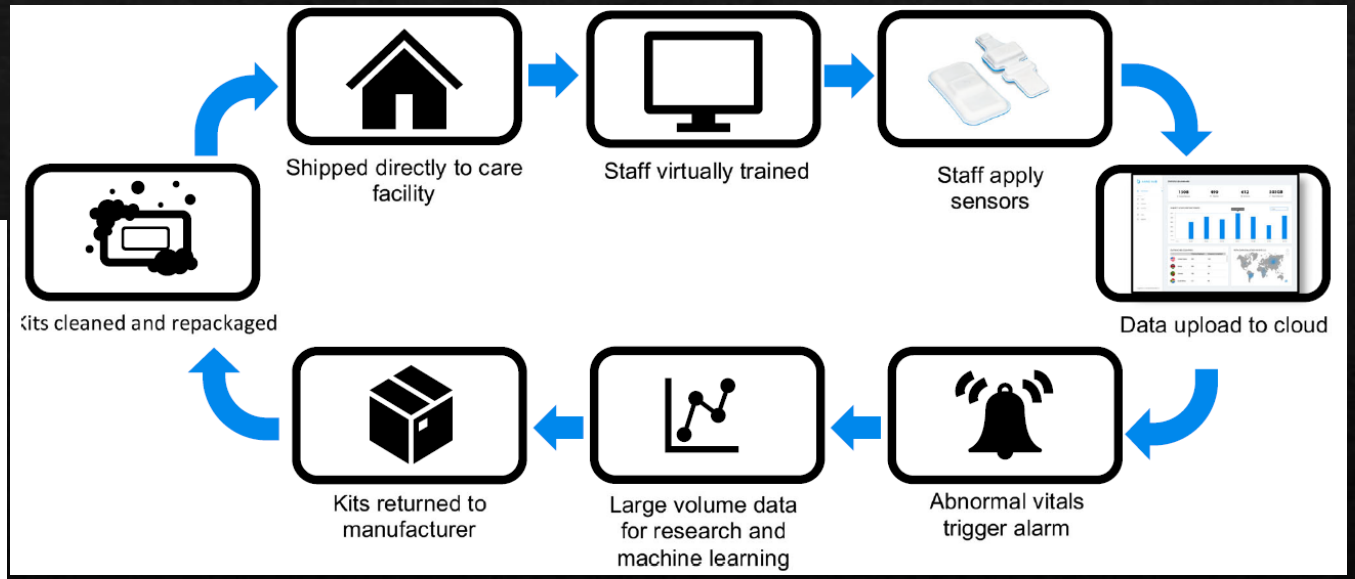
Televisita

Teleconsulto

Pilot and feasibility deployment of an advanced remote monitoring platform for COVID-19 in long-term care facilities

Jessica R. Walter et al, JAGS 2022





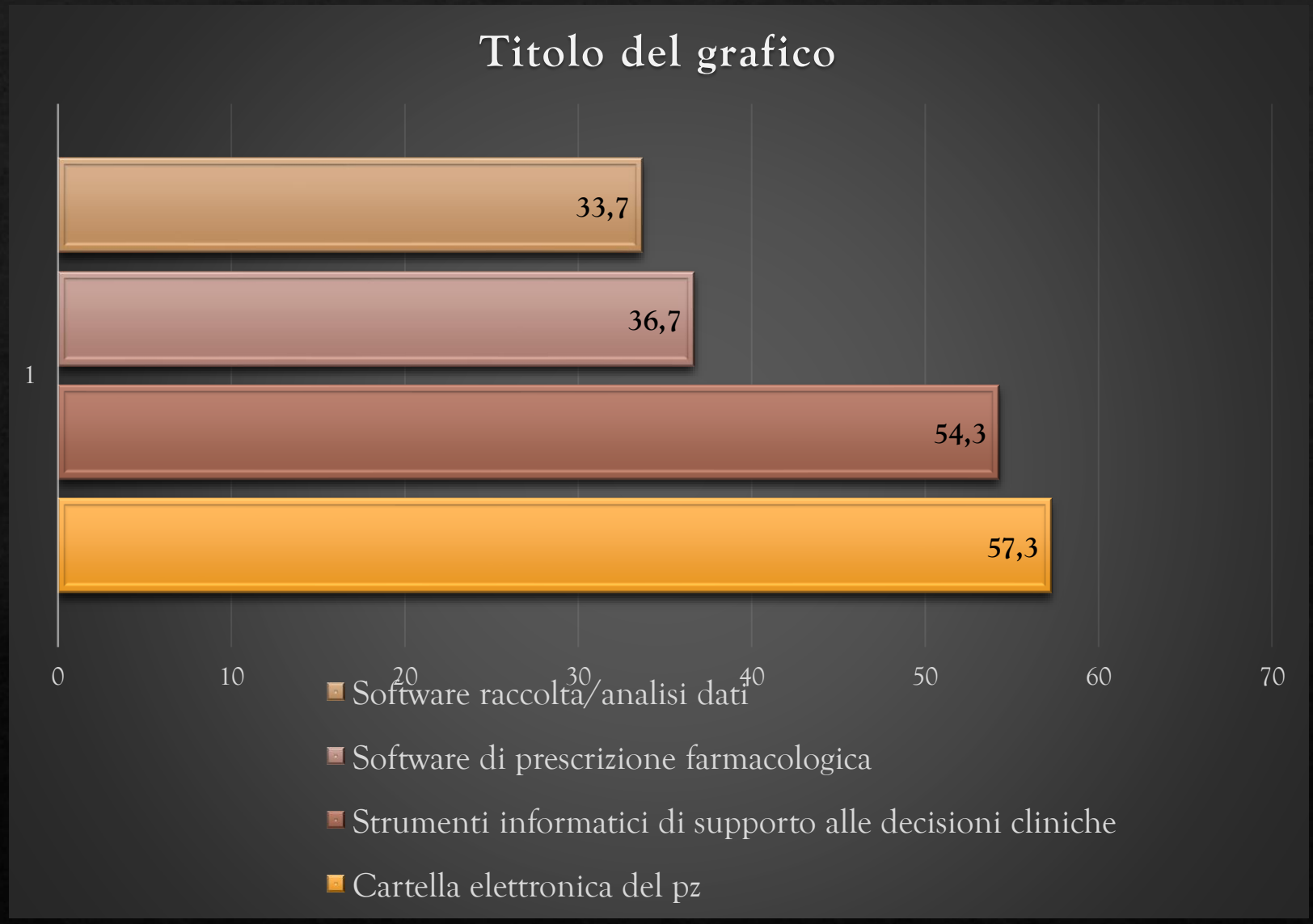
Geriatric Care 2021; volume 7:10301

The use of eHealth and digital technologies in the Italian geriatric practice: a survey of the Italian Geriatric Society (SIGOT)

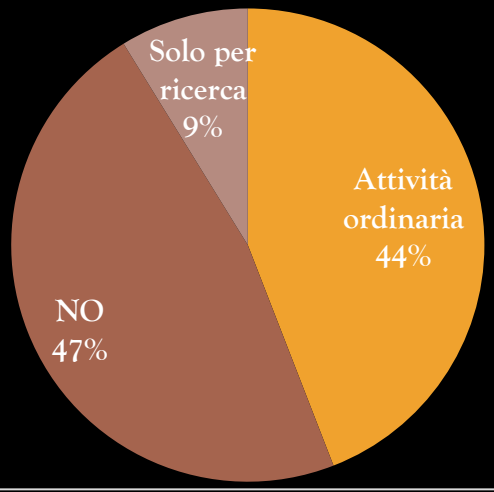
A. Cella et al., 2021

Applicativi informatici in uso

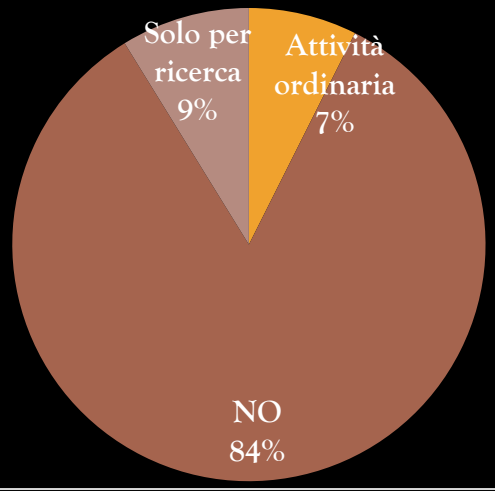
(% dei rispondenti)



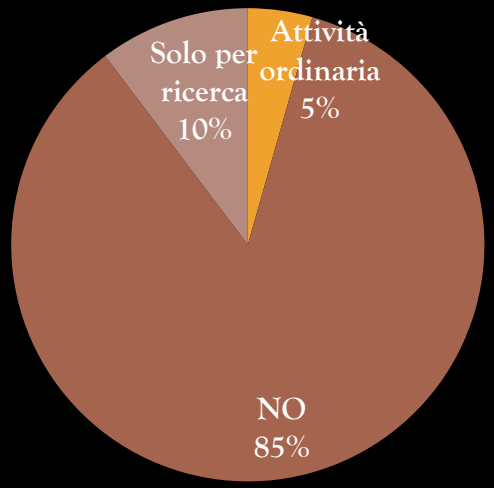
Telemedicina-telecare



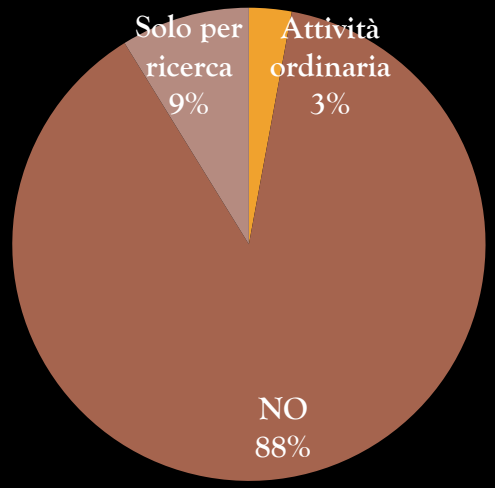
Teleriabilitazione



Robotica assistiva/Rehab

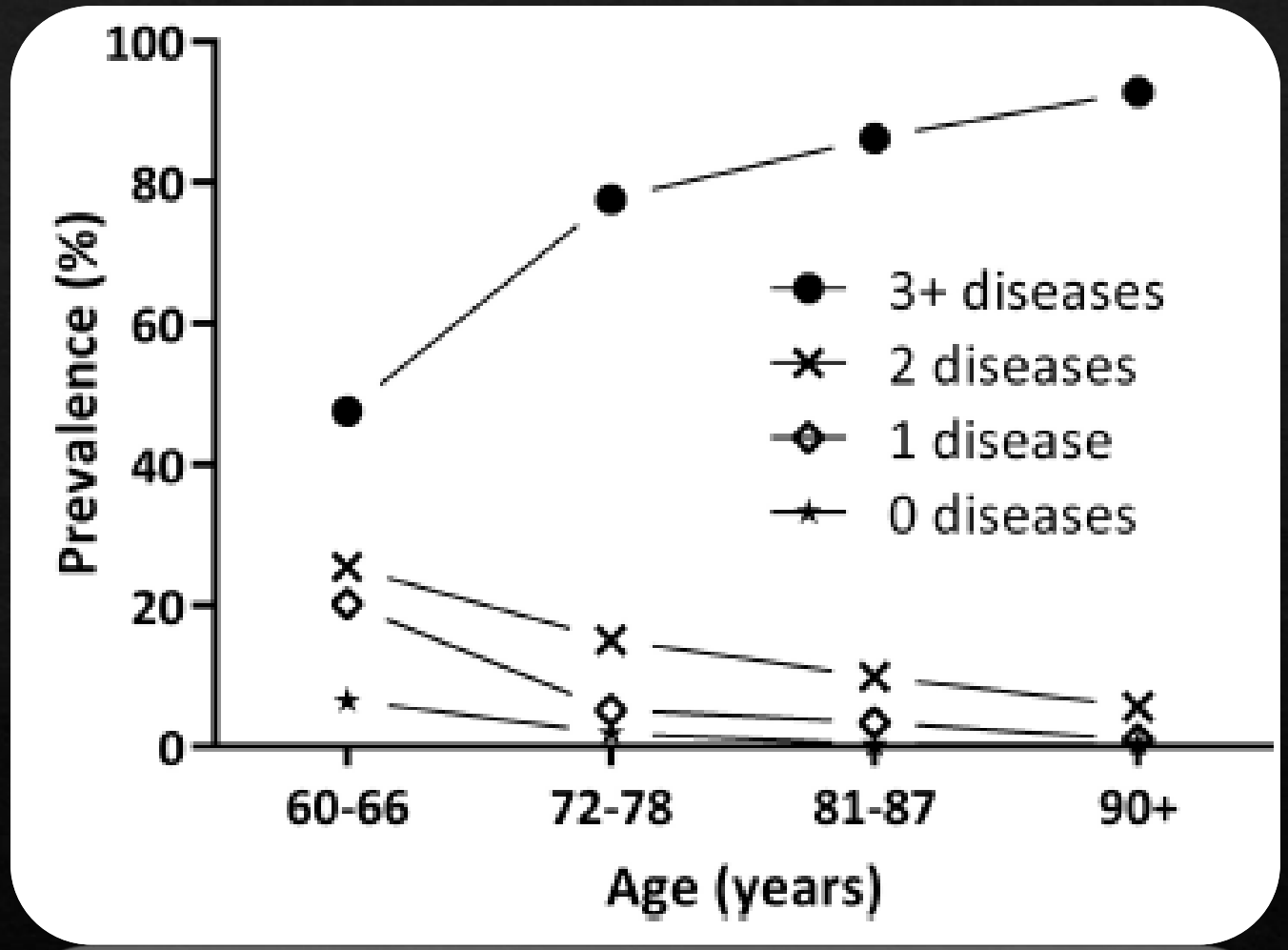


Domotica/AAL

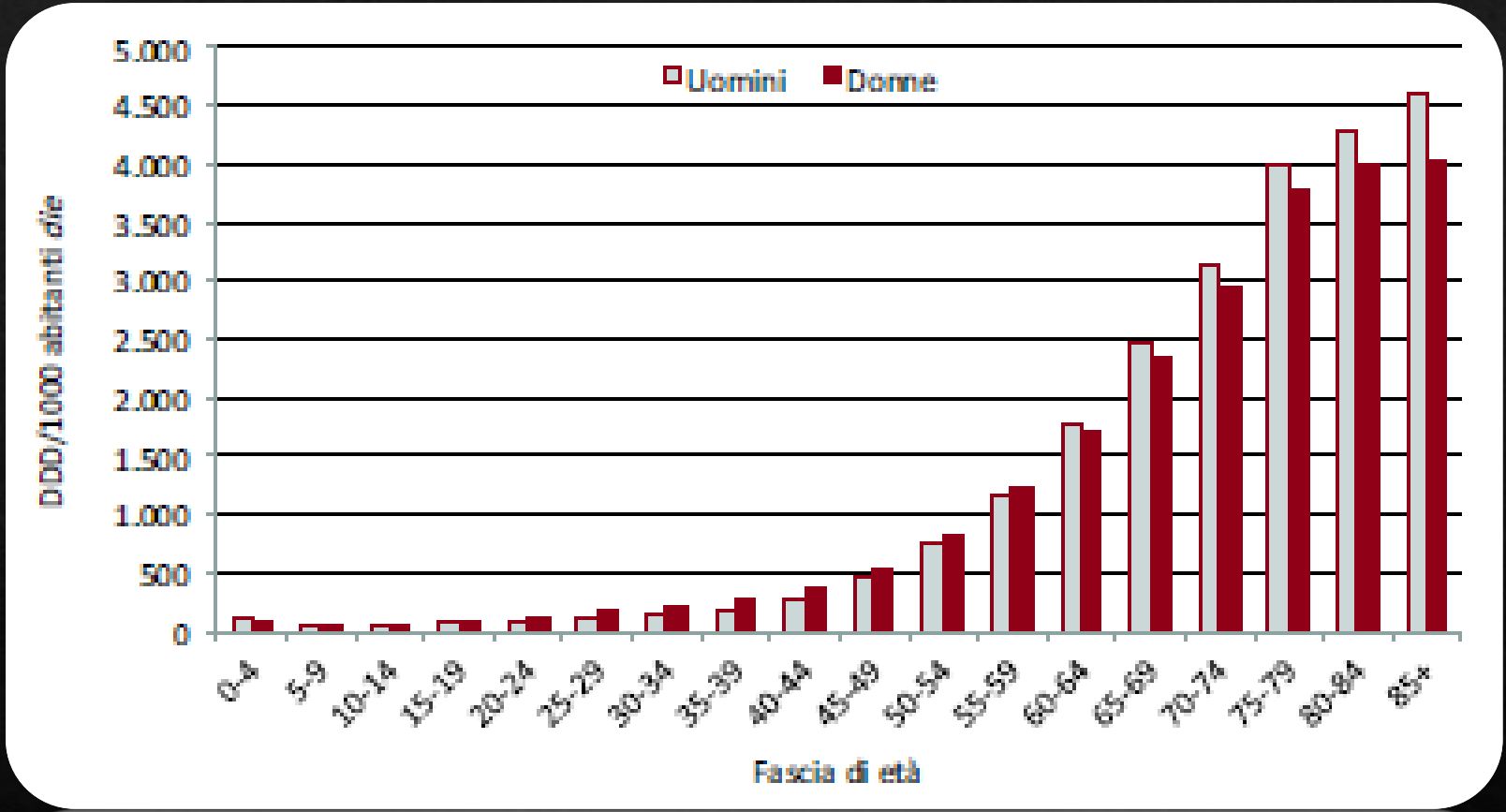


A. Cella et al., Geriatric Care 2021

Number of chronic diseases by age groups in the Swedish National Study on Aging and Care in Kungsholmen (SNAC-K; *N* = 3,363)



Andamento delle DDD/1000 abitanti die territoriali per età e genere nel 2021

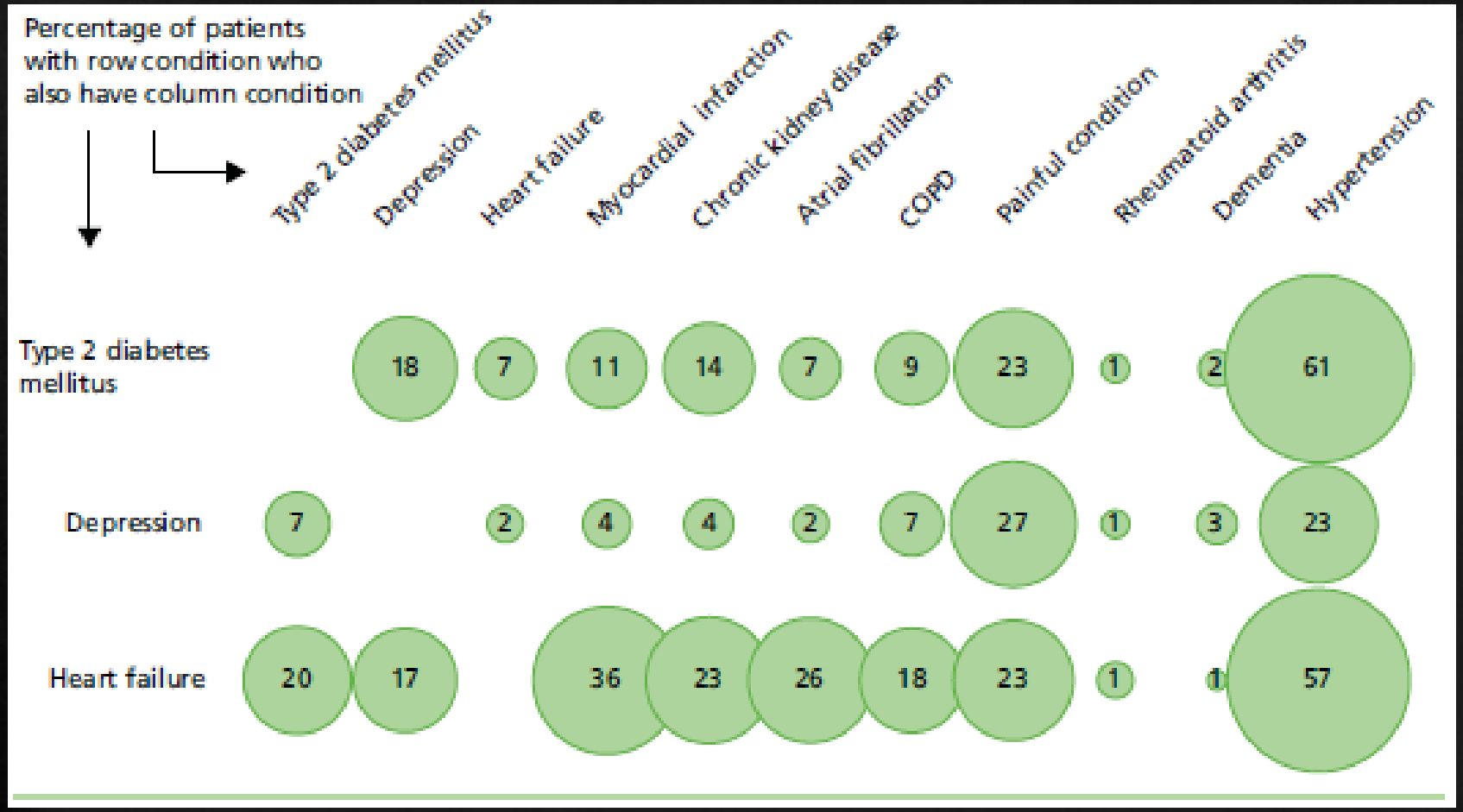


NHS
National Institute for Health Research

VOLUME 5 ISSUE 16 APRIL 2017
ISSN 2050-4349

Better guidelines for better care: accounting for multimorbidity in clinical guidelines – structured examination of exemplar guidelines and health economic modelling

Bruce Guthrie, Alexander Thompson, Siobhan Dumbreck, Angela Flynn, Phil Alderson, Moray Nairn, Shaun Treweek and Katherine Payne



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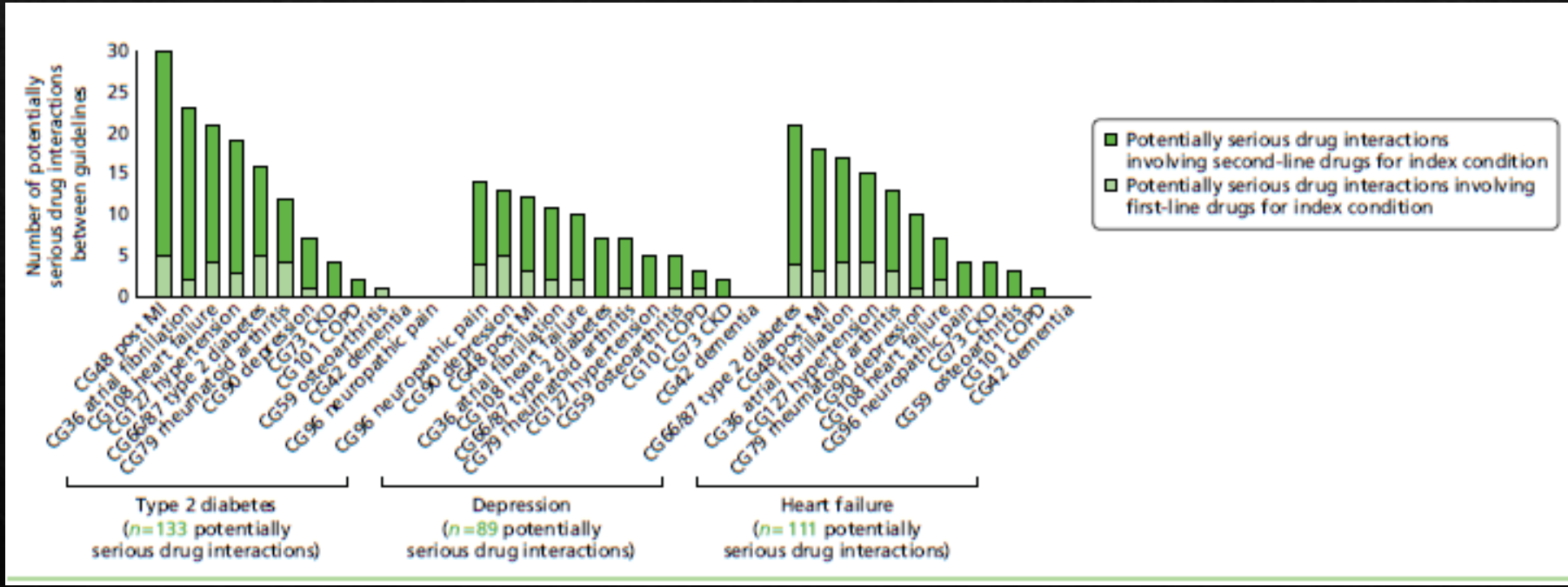
Potenziali reazioni avverse da farmaci nella terapia delle comorbilità associate a diabete di tipo 2, depressione, insufficienza cardiaca nel loro trattamento secondo Linee Guida



italiano

Istituto Superiore di Sanità

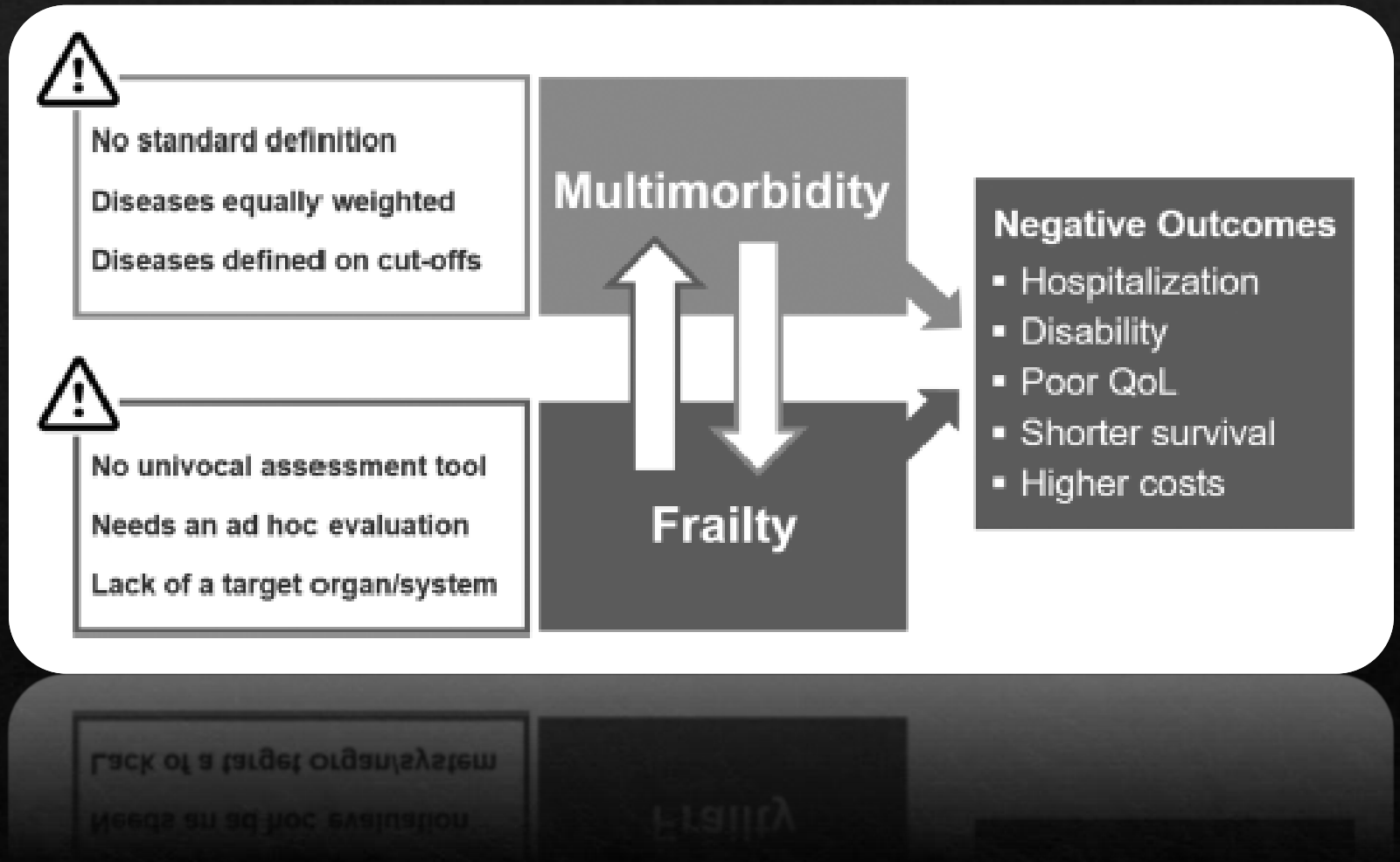
Linea guida inter-societaria per la gestione della multimorbilità e polifarmacoterapia

2021

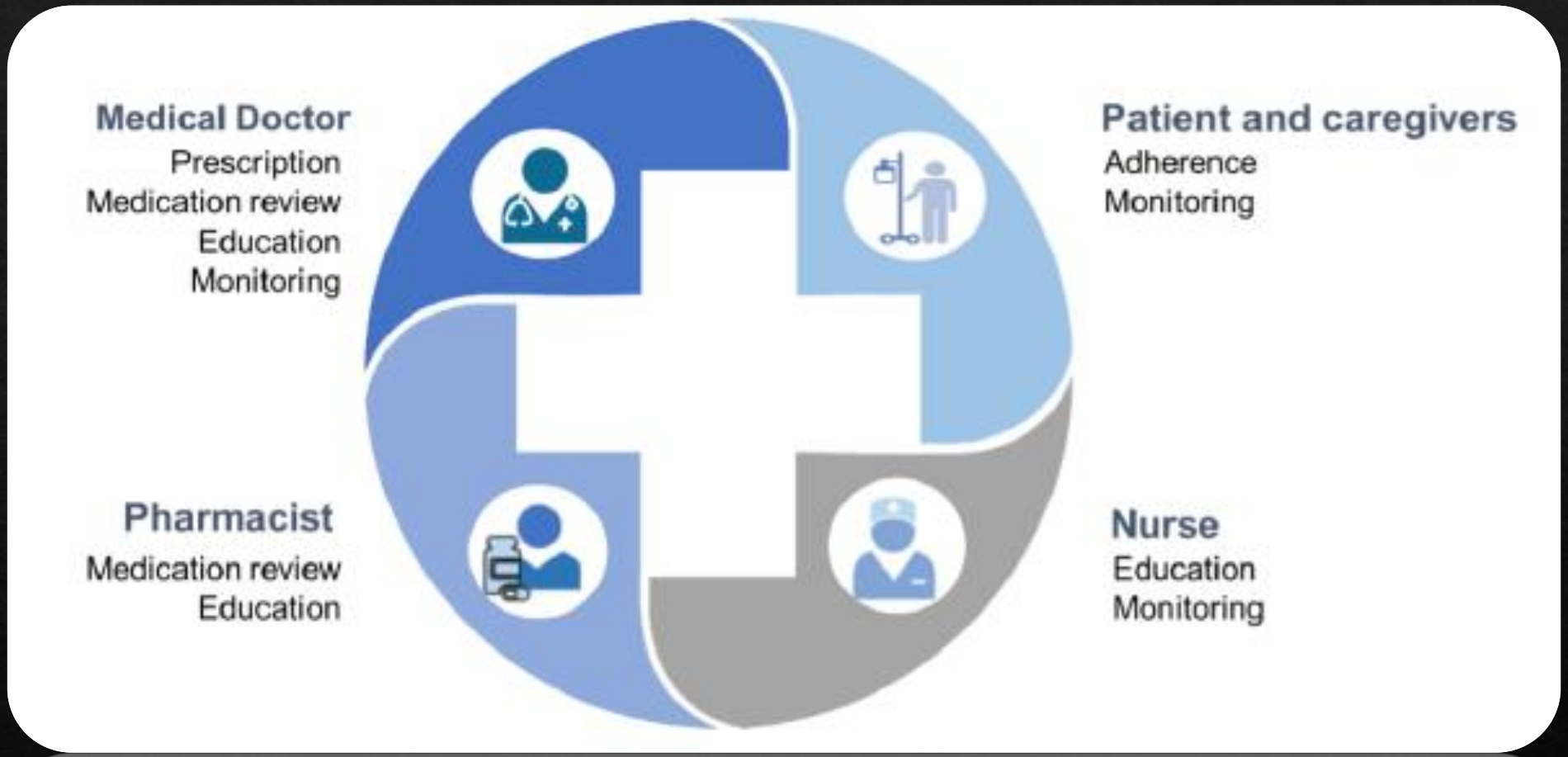
Società scientifiche partecipanti

SIGG – SIGOT – SIMG – SIMI – FADOI – SIF

Multimorbidity and frailty: two constructs with close relationship, similar consequences and equal challenges.



DL Vetrano et al., Journals of Gerontology: Medical Sciences 2018


Medical Doctor
Prescription
Medication review
Education
Monitoring
Patient and caregivers
Adherence
Monitoring
Pharmacist
Medication review
Education
Nurse
Education
Monitoring

pharmaceuticals

Carlotta Lunghi et al, jun 2022

MDPI

Review

Strategies and Tools for Supporting the Appropriateness of Drug Use in Older People

- Strategies Supporting The Appropriateness Of Medication Use
- Prescriber'S Tools
  - Lists And Indexes
  - Beers' criteria
  - START/STOPP
  - Medication appropriateness index (MAI)
  - Fit fOR The Aged (FORTA) list
  - Eu(7)-PIM list

Drugs & Aging (2019) 36:969–978
https://doi.org/10.1007/s40266-019-00703-7

ORIGINAL RESEARCH ARTICLE

The FORTA (Fit fOR The Aged)-EPI (Epidemiological) Algorithm: Application of an Information Technology Tool for the Epidemiological Assessment of Drug Treatment in Older People

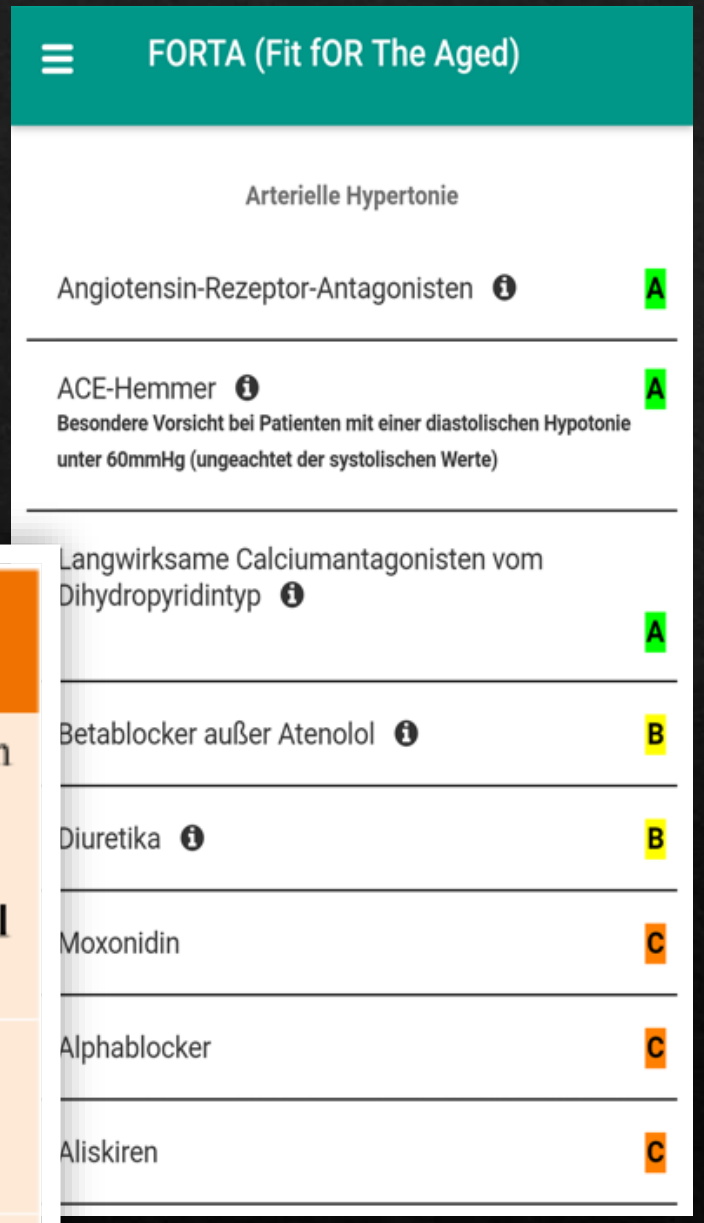
Andree Rabenberg[1] · Timo Schulte[1,2] · Helmut Hildebrandt[1] · Martin Wehling[3]

Key Points

We developed an information technology (IT) algorithm based on the FORTA (Fit fOR The Aged) List that is able to reveal medication errors (over-, under-, or mis-treatment) in large cohorts of older people (FORTA-EPI [Epidemiological]).

FORTA-EPI is capable of detecting inappropriate drug treatment in problematic therapeutic areas such as pain or diabetes mellitus on a large scale.

FORTA-EPI gives structured read-outs on medication errors that can be utilized for treatment optimization.



pharmaceuticals

Carlotta Lunghi et al, jun 2022

MDPI

Review

Strategies and Tools for Supporting the Appropriateness of Drug Use in Older People

Digital health interventions (DHIs) : Informative websites, educational videogames, telehealth interventions, mobile microsensors, apps for monitoring and reminder

- **Electronic Tools Supporting Appropriate Prescription:**
  - authoritative websites, such as deprescribing.org or intercheckweb.marionegri.it
  - medstopper.com, drugs.com
- **Web Resources on Adverse Reaction Prevention:**
  - Drug-induced Torsades de Pointes (TdP): www.crediblemeds.org, www.ncbi.nlm.nih.gov/books/NBK547852/
  - Drug-Induced Liver Injury (DILI): RECAM

pharmaceuticals

Carlotta Lunghi et al, jun 2022

MDPI

Review

Strategies and Tools for Supporting the Appropriateness of Drug Use in Older People

Patient's e-Tools aimed at:

- monitoring body parameters by mans of microsensors (e.g., heart rate, blood pressure, physical activity, vocal markers)
- pill reminder
- communication between patient and physicians

Warnings:

- In 2021, an extended search of the Apple and Google Play Stores for apps conceived to increase medication adherence found more than **2000** heterogeneous, mostly uncertified, mobile applications
- poor usability by the elderly

IMAJ · VOL 24 · JUNE 2022 ORIGINAL ARTICLES

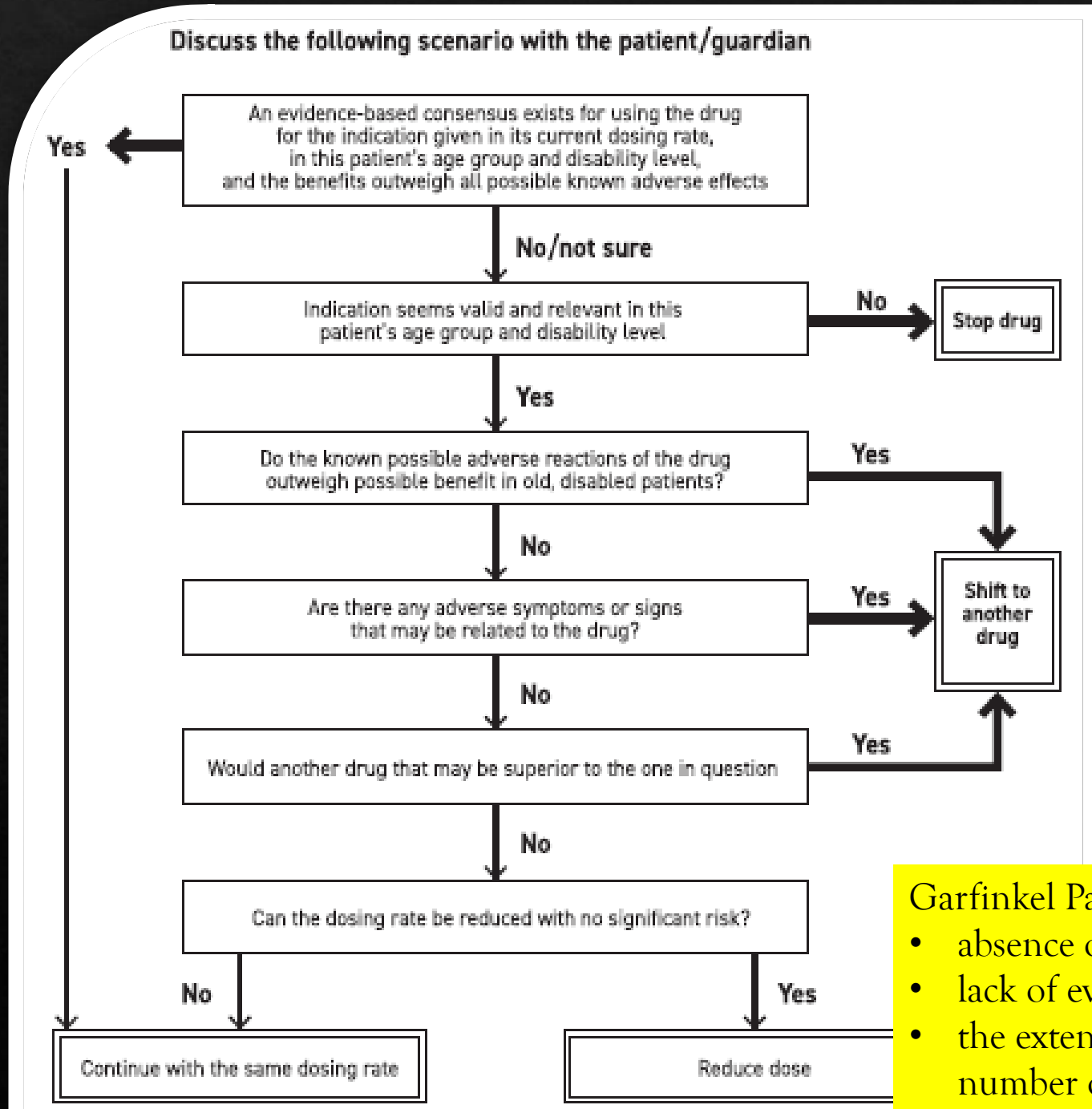
Poly-De-Prescribing to Treat Polypharmacy: Lowering the Flames of the First Iatrogenic Epidemic

Doron Garfinkel MD[1,2,3] and Yuval Levy MD[4]

Objectives: To evaluate whether the benefits of reducing IMUP by poly-de-prescribing (PDP) outweighs the negative outcomes in 119 older people with polypharmacy (mean F-up: 3 years) VOCODFLEX: very old, with co-morbidity, dementia, frailty, and limited life expectancy.

Methods: The Garfinkel method and algorithm were used in older people with polypharmacy (≥ 6 drugs).

- **Results**
- At the one-year follow-up, of 331 drugs de-prescribed only 32 (10%) had to be re-administered.
- Annual mortality and severe complications requiring referral to acute care facility were significantly reduced in PDP ($P < 0.002$).
- In community dwelling older people, successful de-prescribing was achieved in 81% with no increase in adverse events or deaths.
- Those who de-prescribed ≥ 3 prescription drugs showed significantly more improvement in functional and cognitive status, sleep quality, appetite, serious complications, quality of life, and general satisfaction compared to controls who stopped ≤ 2 medications ($P < 0.002$).
- Rates of hospitalization and mortality were comparable.
- Clinical improvement by polydeprescribing was usually evident within 3 months and persisted for several years.
- **The main barrier to polydeprescribing was physician's unwillingness to deprescribe** ($P < 0.0001$).



Garfinkel Palliative-Geriatric method is based on three pillars:

- absence of a single case manager
- lack of evidence-based medicine (EBM)
- the extent of inappropriate medication use correlates to the number of drugs

RESEARCH ARTICLE

What do older adults with multimorbidity and polypharmacy think about deprescribing? The LESS study - a primary care-based survey

Rozsnyai et al. BMC Geriatrics (2020) 20:435
https://doi.org/10.1186/s12877-020-01843-x

Zsofia Rozsnyai et al., 2020

BMC Geriatrics

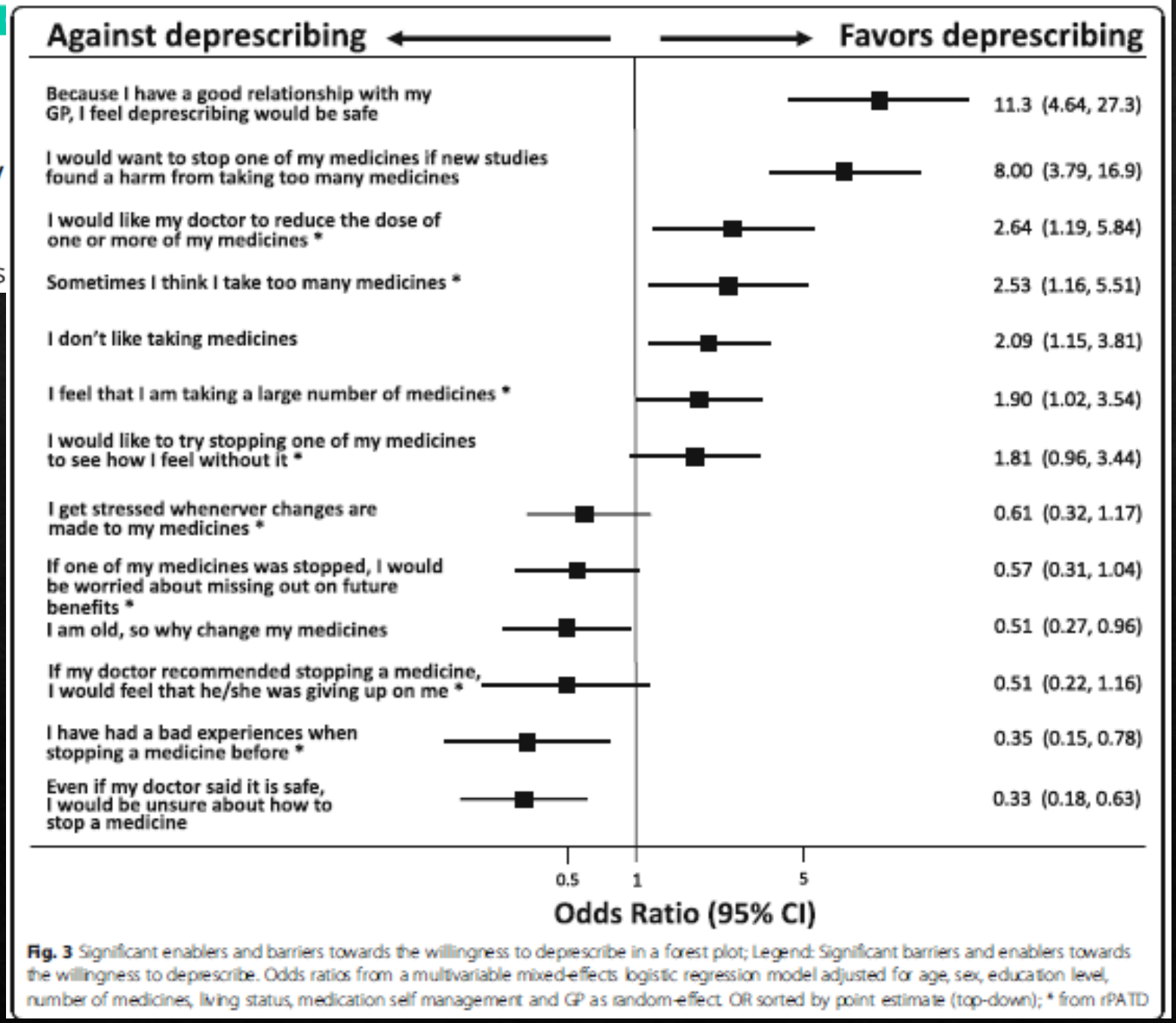


Fig. 3 Significant enablers and barriers towards the willingness to deprescribe in a forest plot; Legend: Significant barriers and enablers towards the willingness to deprescribe. Odds ratios from a multivariable mixed-effects logistic regression model adjusted for age, sex, education level, number of medicines, living status, medication self management and GP as random-effect. OR sorted by point estimate (top-down); * from rPATD

Drugs Aging (2018) 35:575–587
https://doi.org/10.1007/s40266-018-0554-2

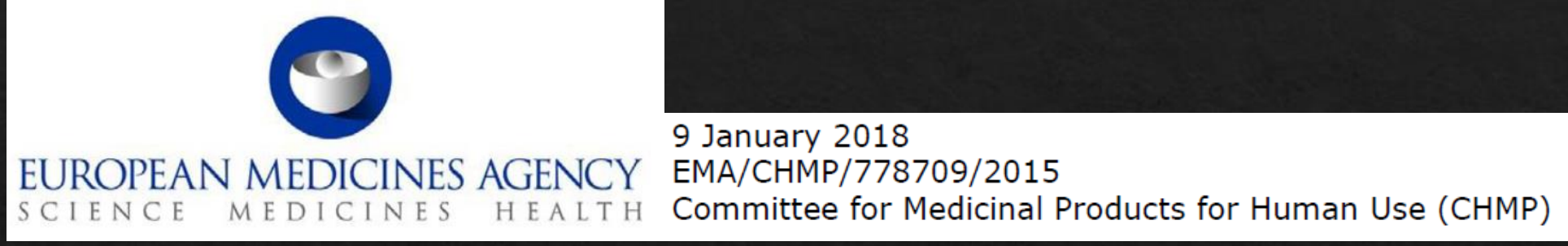
CURRENT OPINION

International Group for Reducing Inappropriate Medication Use & Polypharmacy (IGRIMUP): Position Statement and 10 Recommendations for Action

Dee Mangin et al.

1. Review the medications of all older adults with an eye to deprescribing
2. Before initiating a potentially 'appropriate' medication, consider the validity of the evidence based on patient characteristics and preferences
3. Consider each medication for potential withdrawal, extending beyond standardized lists
4. Employ mixed implicit and explicit approaches to polypharmacy
5. **Address the underrepresentation of older patients in clinical trials**
6. Acknowledge and address commercial influences on polypharmacy
7. Medical education needs a stronger focus on IMUP and its potential negative impact.
8. Medical training should review methods to stop treatments and provide equal attention to drug side effects and benefits

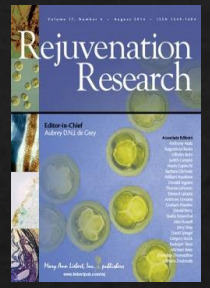
- When patients have multimorbidity, the single disease model (and its incentivization) should be spurned
- **Decisions in older complex patients should routinely consider expected survival and quality of life**



Reflection paper on physical frailty: instruments for baseline characterization of older populations in clinical trials

- It is recognized that a complete evaluation of frailty to support its management requires a multidimensional interdisciplinary Comprehensive Geriatric Assessment (CGA), which is the 'gold standard' in clinical practice

- the Multidimensional Prognostic Index (MPI) is able to extract information from CGA to categorize frailty in three subgroups with excellent prognostic value



Development and Validation of a Multidimensional Prognostic Index for One-Year Mortality from Comprehensive Geriatric Assessment in Hospitalized Older Patients

Pilotto & Ferrucci, Rejuvenation Res 2008;11:151-61

Intramural Research Program
National Institute on Aging
National Institutes of Health

Assessment	Problem		
	No (value = 0)	*Minor (value = 0.5)*	*Severe (value = 1)*
Activities of Daily Living (ADL)[a]	6–5	4–3	2–0
Instrumental ADL (IADL)[a]	8–6	5–4	3–0
Short Portable Mental Status Questionnaire (SPMSQ)[b]	0–3	4–7	8–10
Comorbidity Index (CIRS-CI)[c]	0	1–2	≥3
Mini Nutritional Assessment (MNA)[d]	≥24	17–23.5	<17
Exton Smith Scale (ESS)[e]	16–20	10–15	5–9
Number of medications	0–3	4–6	≥7
Social support network	Living with family	Institutionalized	Living alone

[a]Number of active functional activities.
[b]Number of errors.
[c]Number of diseases (see text).
[d]MNA score: ≥24, satisfactory nutritional status; 17–23.5, at risk of malnutrition; <17, malnutrition.
[e]ESS score: 16–20, minimum risk; 10–15, moderate risk; 5–9, high risk of developing scores.

M. P. I.

	Mild	Moderate	Severe
SCORE	0.18±0.09	0.48±0.09	0.77±0.08
RANGE	0.00-0.33	0.34-0.66	0.67-1.0

Predictive rules in clinical decision making in community-dwelling older people

Use of MPI to improve cost-effectiveness of drug treatments in older people with multi-morbidity and polypharmacy

The MPI_AGE multicenter trial: outcome evaluation in hospitalized elderly patients

Aging Clinical and Experimental Research (2021) 33:3363–3369
https://doi.org/10.1007/s40520-021-01871-6

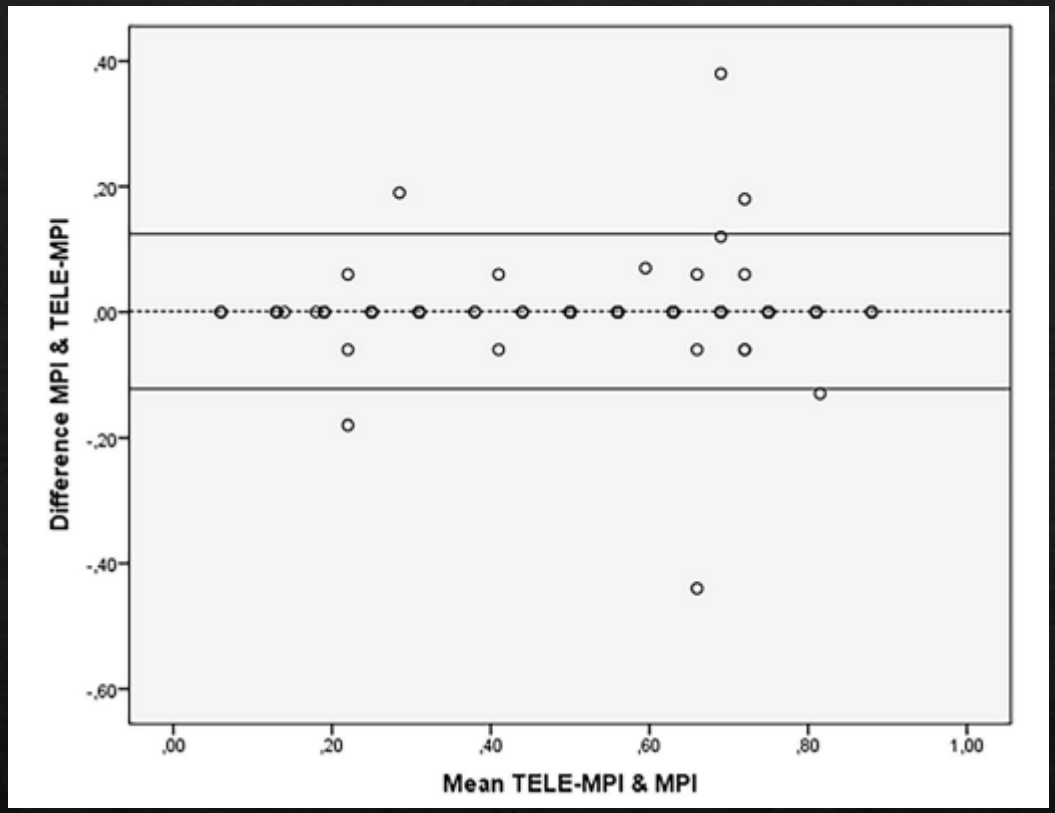
ORIGINAL ARTICLE

Validation and implementation of telephone-administered version of the Multidimensional Prognostic Index (TELE-MPI) for remote monitoring of community-dwelling older adults

Carlo Custodero[1] · Barbara Senesi[2] · Alessandra Pinna[2] · Annarosa Floris[2] · Martina Vigo[2] · Marcella Fama[2] · Valeria Mastropierro[1] · Carlo Sabbà[1] · Camilla Prete[2] · Alberto Pilotto[1,2]

Table 3 Logistic model for prediction of psychiatric disorders and falls by TELE-MPI as continuous scale or stratified in risk classes

	Odds ratio	95% CI	*p* value
Psychiatric disorders[a]			
TELE-MPI (×0.1 increase)	1.57	1.27–1.95	<0.0001
TELE-MPI class			
1 (Low risk)	1.0 (REF)		
2 (Moderate risk)	5.14	1.70–15.57	0.04
3 (High risk)	10.36	3.06–35.10	<0.0001
Falls[b]			
TELE-MPI (×0.1 increase)	1.41	1.08–1.82	0.01
TELE-MPI class			
1 (Low risk)	1.0 (REF)		
2 (Moderate risk)	3.24	0.77–13.63	0.11
3 (High risk)	4.95	1.07–22.82	0.04



TELE-MPI showed a strong agreement with the standard MPI and was able to predict psychiatric disorders and falls during lockdown period.

Therapeutic Advances in Drug Safety

Kristina M. Niehoff, Marcia C. Mecca & Terri R. Fried, 2019

Medication appropriateness criteria for older adults: a narrative review of criteria and supporting studies

	PIMs	Time to benefit	Harm *versus* benefit	Goals of care	Adherence
Barnett and colleagues[21]	X	X	X	X	X
Drenth-van Maanen and colleagues[22]	X	X			
Frank and Weir[23]	X	X		X	X
Garfinkel and colleagues[24]	X	X	X	X	
Haque[25]	X		X		
			X	X	
				X	
			X	X	
			X	X	X
			X	X	
Steinman and colleagues[32]	X	X	X	X	
Woodward[33]	X				

*The shaded boxes indicate primary literature provided to support the criterion.
PIM, potentially inappropriate medication.

Conclusion

There is strong expert consensus that the approach to evaluating appropriateness of medications among older persons needs to incorporate considerations of the **TTB** for medications prescribed for primary or secondary prevention, the potential for an altered **benefit–harm ratio**, and a **patient's most highly valued outcomes**

Interventions to improve the appropriate use of polypharmacy for older people (Review)

Rankin A, Cadogan CA, Patterson SM, Kerse N, Cardwell CR, Bradley MC, Ryan C, Hughes C

Cochrane Library

Cochrane Database of Systematic Reviews

- 32 studies (18 randomised trials, 10 cluster randomised trials, two non-randomised trials and two controlled before-after studies)
- One intervention consisted of computerised decision support (CDS); and 31 were complex, multi-faceted pharmaceutical-care based one of which incorporated a CDS component
- Interventions were provided in a variety of settings. Interventions were delivered by healthcare professionals such as general physicians, pharmacists and geriatricians, and all were conducted in high-income countries.
- Cochrane 'Risk of bias' tool: high and/or unclear risk of bias across a number of domains.
- GRADE approach: the overall certainty of evidence for each pooled outcome ranged from low to very low

Conclusions:

- It is unclear whether interventions to improve appropriate polypharmacy, such as reviews of patients' prescriptions, resulted in clinically significant improvement; however, they may be slightly beneficial in terms of reducing potential prescribing omissions

frontiers in Pharmacology

SYSTEMATIC REVIEW
published: 24 January 2022
doi: 10.3389/fphar.2021.777655

Effectiveness of Interventions to Reduce Potentially Inappropriate Medication in Older Patients: A Systematic Review

*Daniela A. Rodrigues[1], Ana I. Plácido[1], Ramona Mateos-Campos[2], Adolfo Figueiras[3,4,5], Maria Teresa Herdeiro[6] and Fátima Roque[1,7]**

Despite the extensive number of studies in the literature on PIM in older patients, only 31 of the included studies reported effective intervention. Among these, 21 presented methodological intervention limitations .
Although a meta-analysis was not done, our findings suggested that in the hospital, the most adequate strategy to decrease the number of PIM and/or the patients with at least one PIM was medication review.
In the hospital setting, Clinical Decision Support System interventions significantly reduced the PIM number in older adults.
Concerning primary care setting, the analysis of all the included studies indicated that educational interventions were the most successful.
In 47.8% of the included studies, the intervention was performed by a pharmacist or by a multifaceted team that includes at least one pharmacist, suggesting that the inclusion of a pharmacist in the PIM interventions team can be beneficial.

JOURNAL OF MEDICAL INTERNET RESEARCH Monteiro et al
2019
Review

Reducing Potentially Inappropriate Prescriptions for Older Patients Using Computerized Decision Support Tools: Systematic Review

Luís Monteiro[1,2], MD; Tiago Maricoto[3,4], MD; Isabel Solha[5], MD; Inês Ribeiro-Vaz[2,6,7], PhD; Carlos Martins[2,7], PhD; Matilde Monteiro-Soares[2,7], PhD

Several definitions and units were used to measure the impact of CDS tools on changes in PIP and PIM drugs
Studies assessed the following PIP- or PIM-related outcomes:
number of PIMs started per 1000 visits, number of PIMs discontinued per 1000 visits, proportion of discontinued PIMs, percentage of PIMs, mean number of PIMs, risk of receiving a prescription for a drug exceeding the recommended maximum dose, risk of receiving a prescription for a drug exceeding the recommended standard doses, proportion of reconciliation errors corrected, proportion of recommendations implemented, proportion of patients with at least one PIM, and/or proportion of all prescribed medications that were PIM
The CDS tools consistently reduced the number of PIPs started and the mean number of PIPs per patient, while also increasing PIM discontinuation and drug appropriateness.

However…

- No clinical outcomes examined
- Only two studies assessed whether CDS tools could decrease the number of potential drug-drug interactions
- The cost-effectiveness of CDS tools was addressed in one RCT

JMIR MEDICAL INFORMATICS Damoiseaux-Volman et al 2021

Review

Effect of Interventions With a Clinical Decision Support System for Hospitalized Older Patients: Systematic Review Mapping Implementation and Design Factors

Birgit A Damoiseaux-Volman[1], MSc; Nathalie van der Velde[2], PhD; Sil G Ruige[1], BSc; Johannes A Romijn[3], PhD; Ameen Abu-Hanna[1], PhD; Stephanie Medlock[1], PhD

CDSS interventions have the potential to improve the hospital care of older patients. In total, 72% (13/18) of the included interventions were effective (mostly on process outcomes).

Future studies:

- should use a strong study design, such as a randomized trial or interrupted time series
- should include a large enough sample size and duration and select specific patient-related outcomes directly affected by the intervention
- should assess the effect on geriatric conditions, quantify the impact of implementation and design factors on CDSS effectiveness, and investigate the potential of personalized (data-driven) interventions.

RESEARCH ARTICLE Open Access

A systematic review of the evidence for deprescribing interventions among older people living with frailty

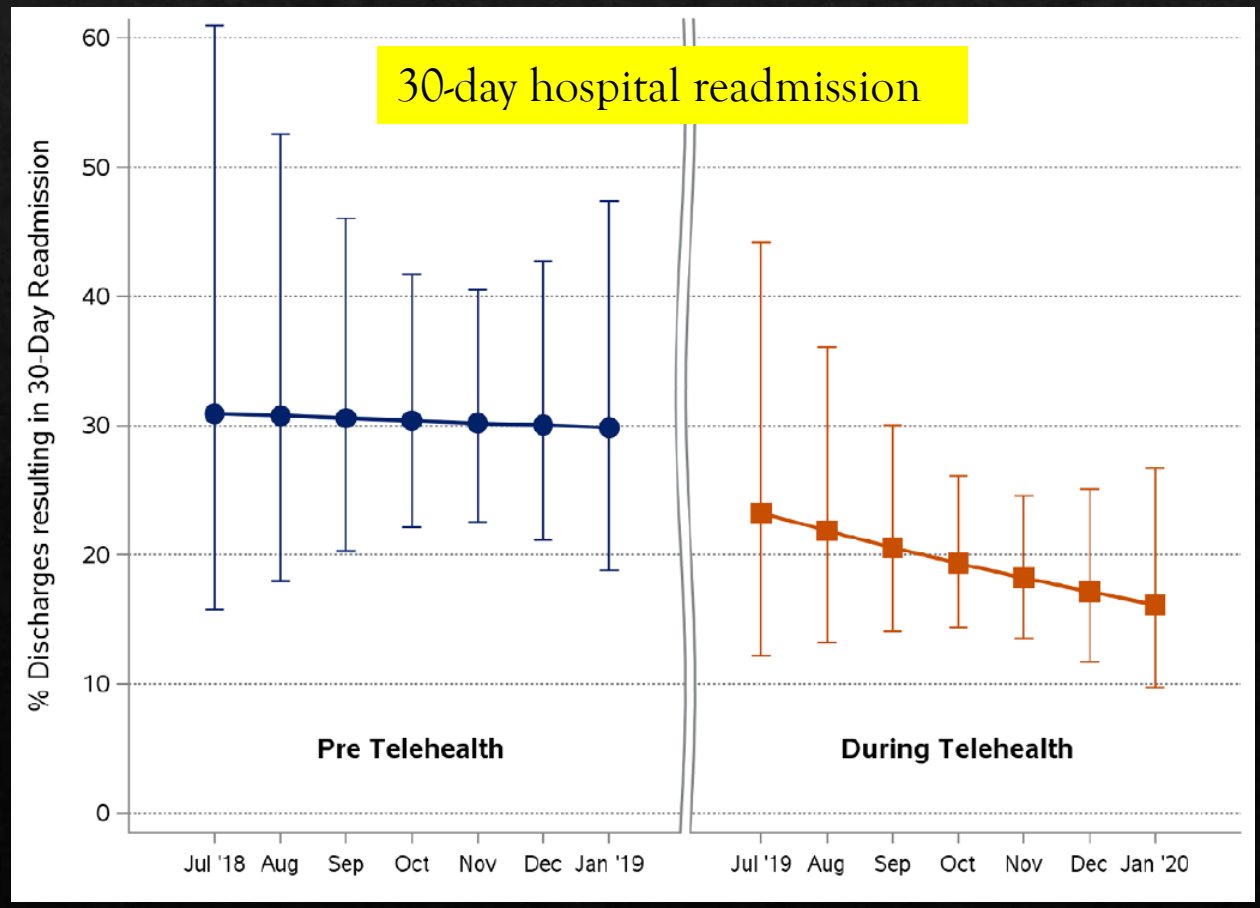
Ibrahim *et al. BMC Geriatrics* (2021) 21:258
https://doi.org/10.1186/s12877-021-02208-8

2,322 articles were identified and 6 (two randomised controlled trials) were included with 657 participants in total (mean age range 79–87 years).
Studies were heterogeneous in their designs, settings and outcomes.
Deprescribing interventions were pharmacist-led (n = 3) or multidisciplinary teamled (n = 3).
Frailty was identified using several measures and deprescribing was implemented using either explicit or implicit tools or both.
Three studies reported safety outcomes and showed no significant changes in adverse events, hospitalisation or mortality rates.
Three studies reported positive impact on clinical outcomes including depression, mental health status, function and frailty; with mixed findings on falls and cognition; and no significant impact on quality of life.
All studies described medication-related outcomes and reported a reduction in potentially inappropriate medications and total number of medications per-patient.
Feasibility of deprescribing was reported in four studies which showed that 72–91% of recommendations made were implemented.
Two studies evaluated and reported the acceptability of their interventions and further two described cost saving.

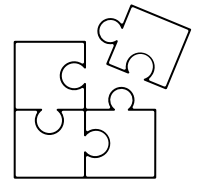
Implementation of a telehealth videoconference to improve hospital-to-skilled nursing care transitions: Preliminary data

Bellantoni J. et al., JAGS 2021

	July 2019–January 2020
Conference	26
Number of patients discussed	263
Discussion time per patient, median (IQR) (min)	7.7 (6.5, 8.6)
Hospital personnel, mean (SD)	6 (1.6)
SNF personnel, mean (SD)	4 (1.6)
Pharmacy prep time per patient, median (IQR) (min)[a]	24.2 (19.1, 27.6)
Clinician prep time per patient, median (IQR) (min)[a]	10.3 (6.2, 12.9)



Conclusioni



- Esistono oggi i presupposti, le competenze e le tecnologie per sviluppare, implementare e diffondere programmi di telemedicina finalizzati a razionalizzare l'approccio farmacologico nell'anziano fragile multimorbido e politrattato
- Le prove di efficacia dei programmi di appropriatezza prescrittiva in questa fascia di popolazione sono al momento solo parziali: questo limite potrà essere superato attraverso il lavoro di team multi-disciplinare comprensivo del farmacista e attraverso tecnologie dedicate (inclusi algoritmi di Intelligenza Artificiale)
- L'infrastruttura tecnologica a support dell'ICT, l'interoperabilità informatica, la 'usabilità' dei dispositivi e la alfabetizzazione digitale (di professionisti e utenti) dovranno ricevere adeguata considerazione nella realizzazione di questo processo
- Sono necessari studi clinici *ad hoc* che tengano conto della eterogeneità della popolazione anziana (attraverso strumenti di valutazione validati), delle preferenze personali ed anche al set di cura e assistenza (cure primarie, ospedale, RSA)

GRAZIE DELL'ATTENZIONE

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