INRCA Istituto di Ricovero e Cura a Carattere Scientifico
HEALTH AND SCIENCE ON AGING

62° CONGRESSO NAZIONALE SIGG
NAPOLI2017
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INVECCHIAMENTO: SCENARIO 2.0

GERIATRIC EMERGENCY MEDICINE (GEM)

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U.O.C. Geriatria – Accettazione Geriatrica d'Urgenza

INRCA – IRCCS Ancona

OUTLINE

- GEM: definizione
- GEM: perché è utile
  - Epidemiologia
  - Problemi clinici
- GEM: come?
  - Silver Book
  - Guidelines
  - EUSEM/EUGMS Task Force
- GEM: dove?
  - The Geriatric Emergency Department

GEM CURRICULUM

- Pre-hospital care;
- Assessment
  - Triage,
  - Primary clinical assessment and stabilisation of life threatening conditions,
  - Secondary clinical assessment,
  - Clinical assessment in older people–what's different?
- Management of older people–what's different?
  - Nonspecific presentations,
  - Management of geriatric syndromes (e.g. falls, confusion, continence),
  - Pitfalls in the management of common conditions–'atypical presentations',
  - Comprehensive Geriatric Assessment (CGA),
  - Risk benefit analysis,
  - Medication: review and reconciliation,
  - Pain management,
  - Transitions of care and disposition,
  - Principles of rehabilitation in older people,
  - Ethical issues, including advance directives,
  - Palliative Care.

Chapter	Sub-heading	Competency
Pre-hospital care		
	1	To understand the risk of under-triage in older people (i.e. vital signs may be in the normal range, but not normal for that patients – e.g. normotension in someone with systolic hypertension)
	2	To recognise the need to take a collateral history or documentation about the patients usual status and medical history
Primary c		
	33	To be able to undertake an assessment of Basic and Extended Activities of Daily Living and incorporate that findings into the clinical management plan
	34	To appreciate the importance of the patient's home circumstances on his or her functional ability–this can be facilitatory (e.g. established care home resident with supportive care) or may need further considerations as part of the discharge planning process (e.g. no carer but increased dependency)
		Interpreting investigations in older people
	35	To be aware of the high prevalence of asymptomatic bacteriuria and to note that asymptomatic bacteriuria is not the same as a Urinary Tract Infection, nor does it need treatment
	36	To have an awareness of the altered laboratory findings and reference ranges that impact of data interpretation–for example, reduced renal function, age-adjusted D-Dimer and high-sensitive Troponins
	37	Incidental or long-standing abnormal findings are more common on older people and should not usually be investigated unless they are clinically relevant
		Abuse, neglect & safeguarding
	38	To recognise injury patter suggestive of abuse and/or neglect
	39	To be able to identify systems of safeguarding older people and special challenges such as medicines administration, pressure sores, falls & under-nutrition
	Non-specific presentations	
	40	Generate a differential diagnosis recognising that signs and symptoms such as pain and fever may be absent or less prominent in older people with acute coronary syndrome, acute abdomen, or infectious processes
		Trauma
	41	Injuries tend to be under-recognised and under-managed in older people, especially those with frailty or cognitive impairment, and their outcomes are worse–clinicians should demonstrate greater awareness in this population
	42	To know that older people are at increased risk from traumatic brain injury because of more friable blood vessels and medication affecting bleeding status, features of TBI may be masked in this population due to cerebral atrophy 'accommodating' intra-cranial collections
Secondary		
Risk benefit analysis		
	71	To be able to carefully consider the competing risks associated with standard, protocol driven treatment in older people, for example
	72	To be able to weigh up the risk of bleeding associated with 'triple therapy' (Aspirin, Clopidogrel and Low Molecular Weight Heparin)
	73	To appreciate the risk of routine urinary catheters to assess fluid status, that may increase the risk of catheter associated UTI and sepsis
	74	To appreciate that urinary catheters can cause substantial problems with detrusor instability and urinary incontinence as well as impairing dignity and increasing the risk of falls
		Identify and implement measures that protect older people from developing iatrogenic complications common to the ED including invasive bladder catheterisation, spinal immobilization, and central line placement
Medication: review and reconciliation		
	75	To be aware that medication can be a common cause of presentations e.g. bleeding with anti-coagulants, hypoglycaemia with anti-diabetic medication or toxicity associated with drugs with narrow therapeutic windows
	76	To be aware of the importance that medication reconciliation adds to the clinical assessment and management of older people
	76	Describe the changes in pharmacokinetics and pharmacodynamics seen in older people
	78	Prescribe appropriate drugs and dosages considering the current medication, acute and chronic diagnoses, functional status, and knowledge of age-related physiological changes (renal function, central nervous system sensitivity)
	79	Compliance–awareness that older people may not be taking medication as prescribed because of a range of reasons including side-effects
	80	Search for interactions and document reasons for use when prescribing drugs that present high risk either alone or in drug–drug or drug–disease interactions (e.g. benzodiazepines, digoxin, insulin, NSAIDs, opioids, and warfarin)
	81	To understand the need and be able to access support newly prescribed drugs to older people and caregivers at discharge, checking that they understand how and why the drug should be taken, the possible side-effects, and how and when the drug should be stopped
Pain management		
	82	Define the effects of age, body size, organ dysfunction and concurrent illness on drug distribution and metabolism
	83	To be aware of the importance of early analgesia in preventing delirium–e.g. fascio-iliac block for hip fracture
Palliative care		
	84	To be able to work within a multidisciplinary team incorporating patient preferences to determine when escalation of care is indicated, and when it may not be appropriate
	85	Know how to access the local pathways for hospice care and how to manage older people in hospice care while in the ED
	86	Know when to institute or seek developing an end of life care plan
Ethical issues, including advance directives		
	87	To understand the local/national legal position of advance directives and Power of Attorney
	88	To be able to formulate a best interests decision in the emergency context
	89	To be able to understand ethical dilemmas around standards of care versus goals of care (for example, best practice management of an acute coronary syndrome may not be appropriate or relevant in an older person with end stage dementia who has a limited life expectancy for whom the goals of care may be comfort related)
Transitions of care and disposition		
		For every care transition (intra- or extra hospital), the practitioner will be able to formulate the following information
	91	Physiological parameters with the individualised clinical interpretation
	92	Clinical narrative including communication needs and key informants
	93	Medication and any changes
	94	Thoughts about discharge planning and the home environment
	95	Escalation status including advance care plans
	96	To assess and document suitability for discharge considering the ED diagnosis, including cognitive function, the ability in ambulatory patients to ambulate safely, availability of appropriate nutrition/social support, and the availability of access to appropriate follow-up therapies
	97	Discharge planning should include an assessment of whether the patient is able to give an accurate history, participate in determining the plan of care, and understand discharge instructions
	98	Provide skilled nursing homes and primary care providers with an ED visit summary and plan of care, including follow-up when appropriate

Conroy SP, et al. Eur Geriatr Med 2016

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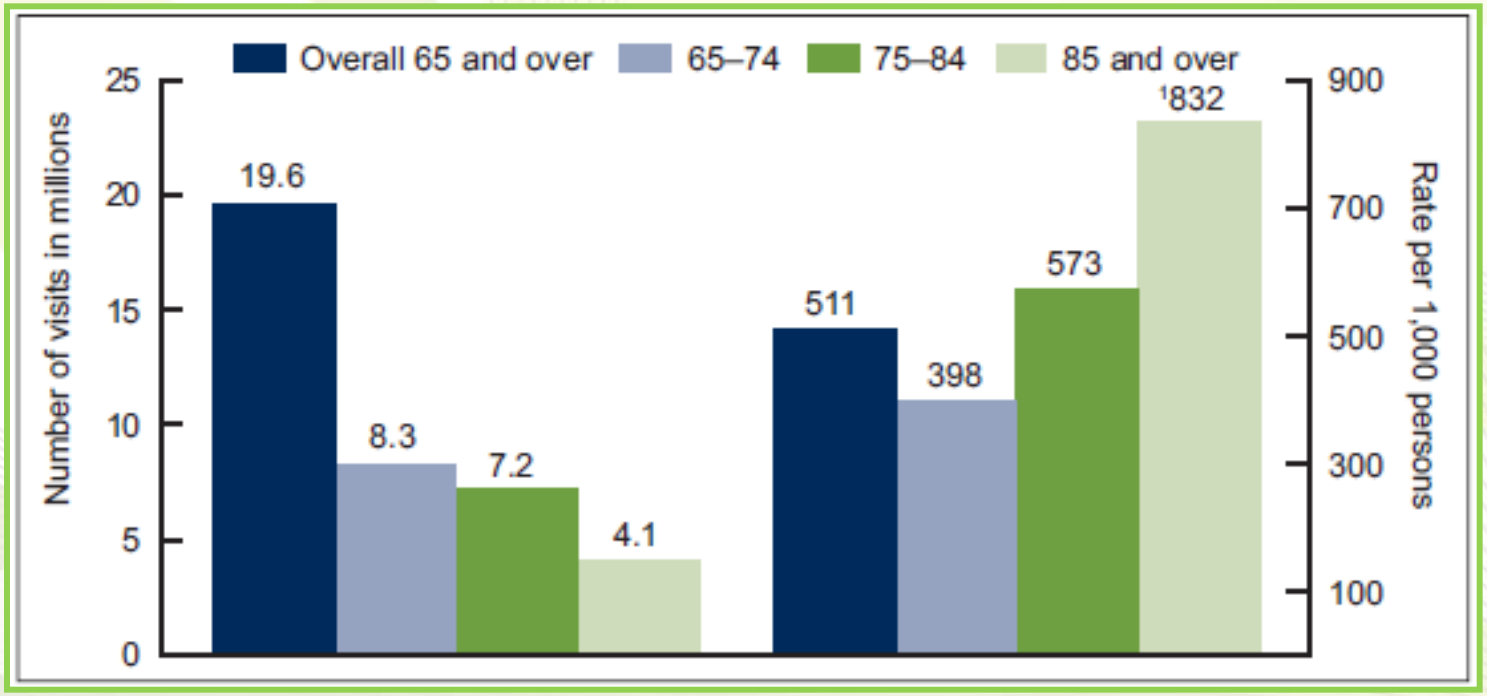
GERIATRICS/ORIGINAL RESEARCH

Increasing Rates of Emergency Department Visits for Elderly Patients in the United States, 1993 to 2003

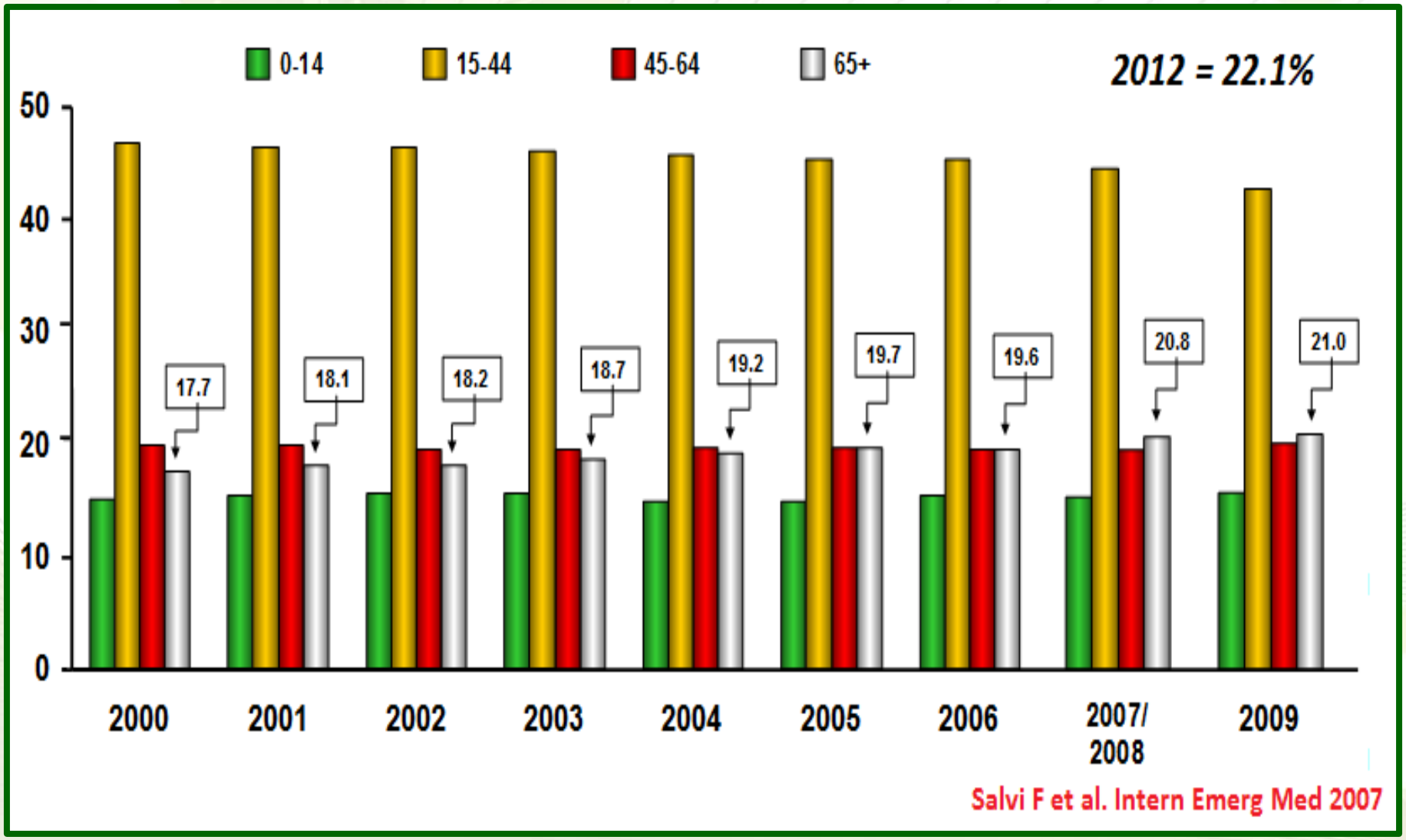
The overall trend in the rate of ED visits for the 65- to 74-year-old group showed a 34% increase in visit rate per population throughout the study period

Roberts DC et al. Ann Emerg Med 2008



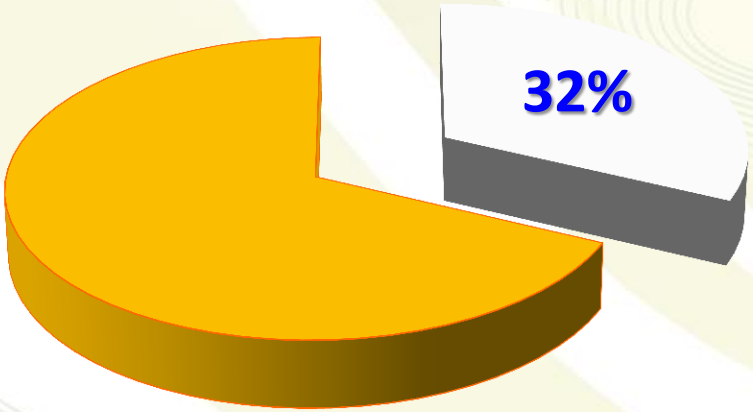
Albert M et al. NCHS Data Brief 2013

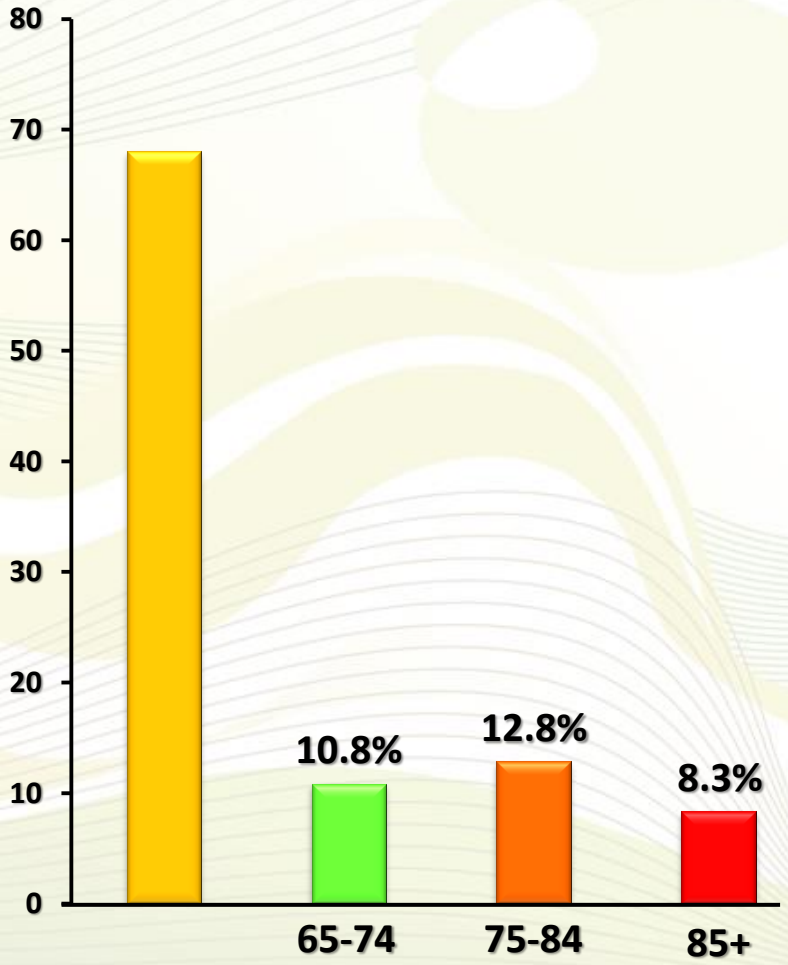
THE ITALIAN PICTURE



DATI FLUSSO EmUr

519431 accessi nei PS/PPI della Regione Marche, anno 2015





Older Adults in the Emergency Department: A Systematic Review of Patterns of Use, Adverse Outcomes, and Effectiveness of Interventions

- **More likely to arrive by ambulance (35-40% vs. 10-12%)**
- **Higher proportion of emergent/urgent visits**
- **Use more diagnostic and staff resources**
- **Longer ED stay**
- **Higher admission rate (30-50%; 2.5-4.6 fold more than younger people)**
- **More likely to require an ICU bed**

Aminzadeh F, Dalziel WB. Ann Emerg Med 2002

DATI FLUSSO EmUr

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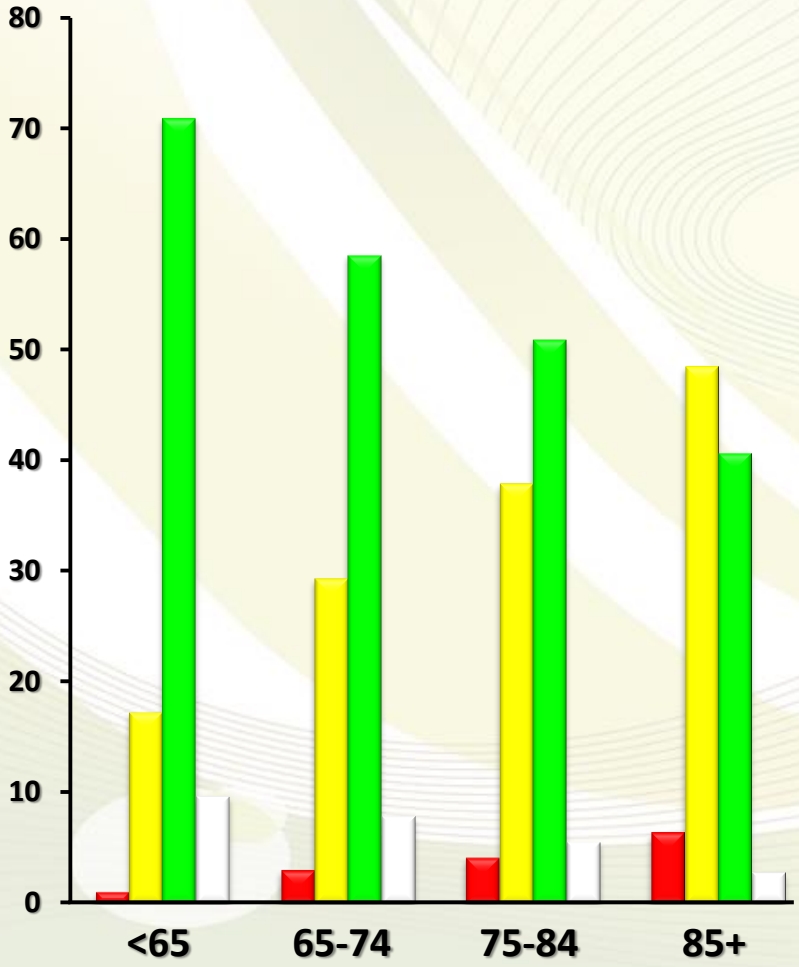
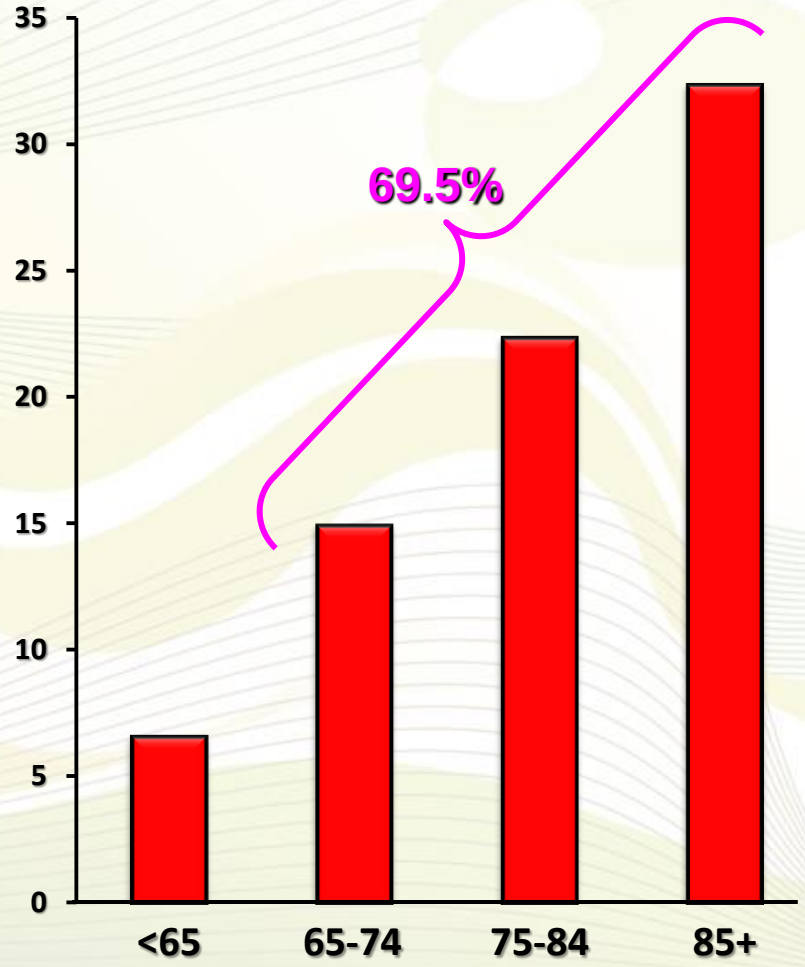
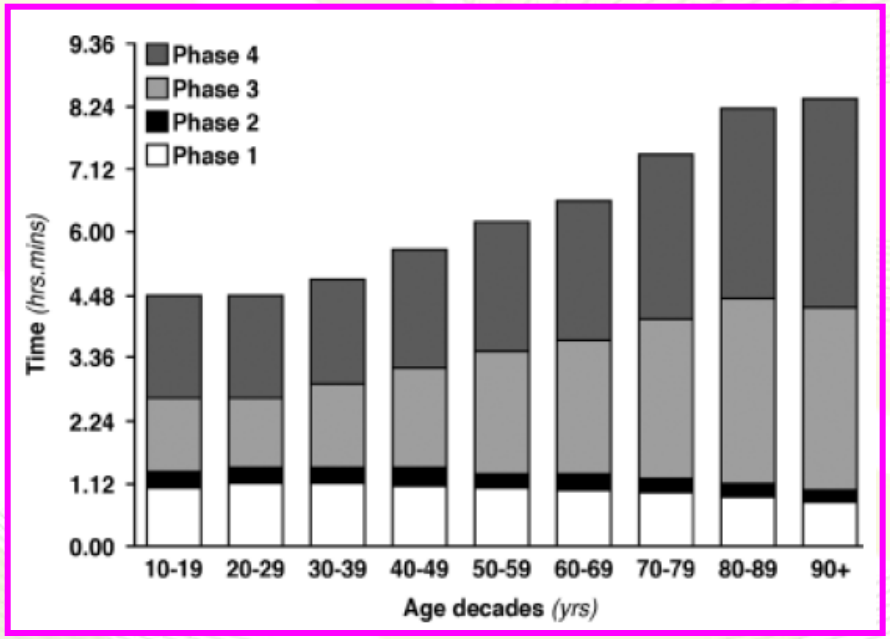




AGE & LOS IN THE ED



- **Phase 1: Triage to ED admission**
- **Phase 2: ED admission to first diagnostic procedure**
- **Phase 3: First to last diagnostic procedure**
- **Phase 4: Last diagnostic procedure to hospitalization or discharge**

Rossi PD et al. JAGS 2010 [Letter]

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- **More likely to require an ICU bed**
- **More often present problems of medical nature**
- **Higher rate of adverse outcomes (i.e. ED return, functional decline, hospitalization, death) in the 3-6 months after an ED index visit**
- **Their ED diagnoses tend to be less accurate**

Aminzadeh F, Dalziel WB. Ann Emerg Med 2002

DATI FLUSSO EmUr

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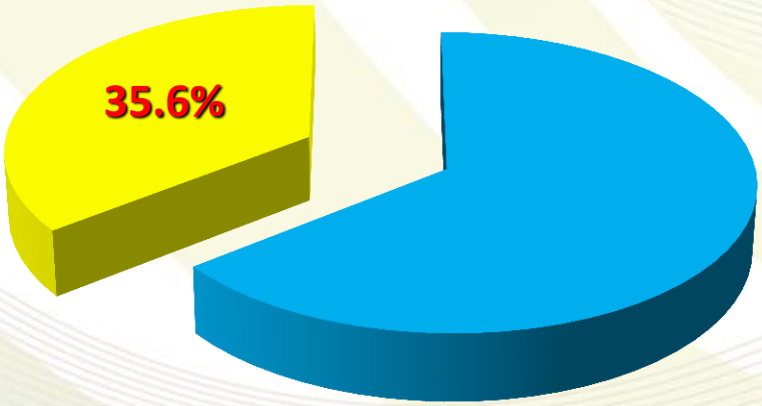
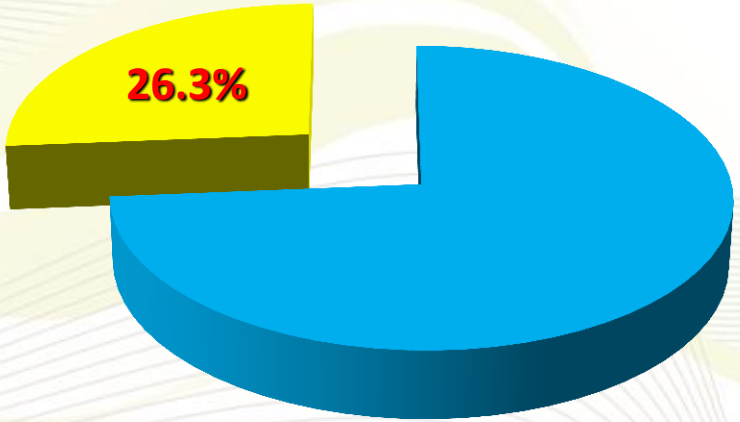
Young adults

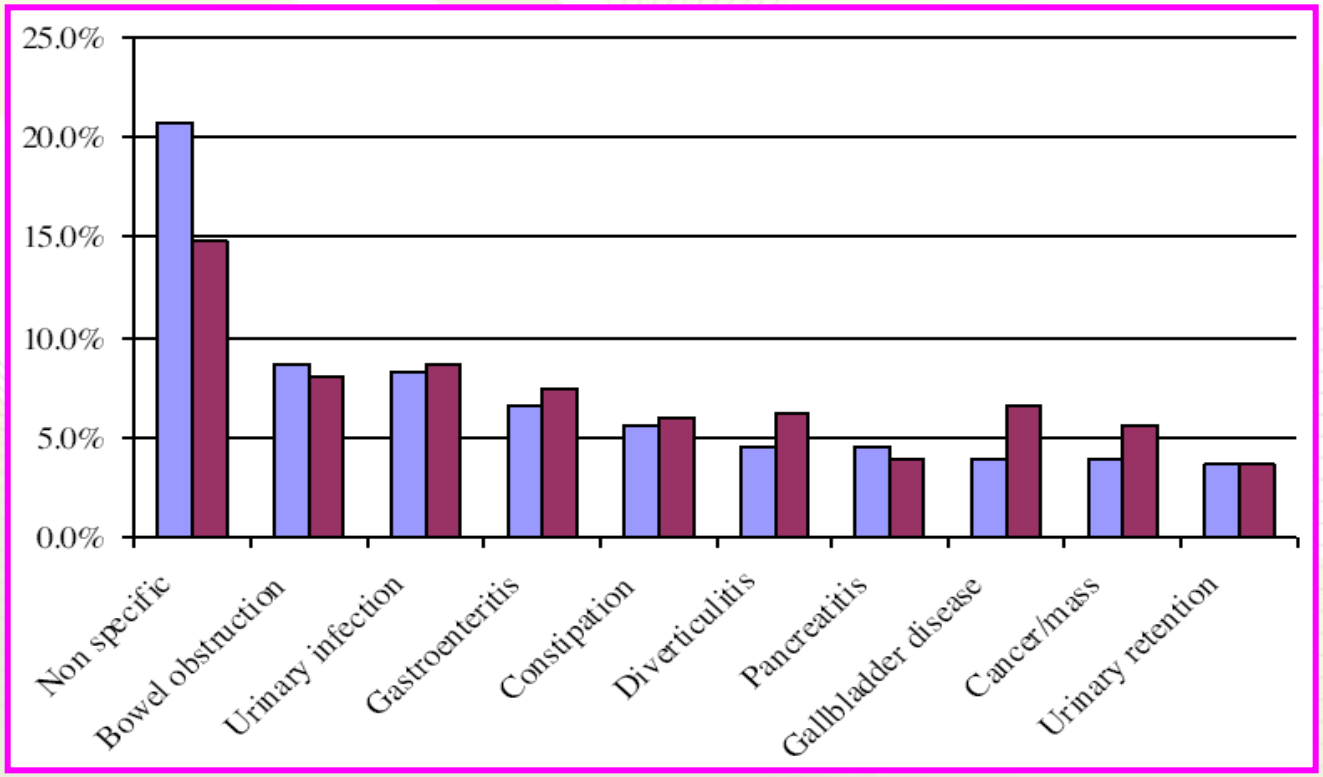


Elderly



Period*	(a) Alive at Beginning of Period	(b) Died during Period	(c) Hospitalized for Entire Period	(d) Number at Risk of Return (a–c)	(e) Returned		(f) Number of Episodes	
					n	% (e/d)	*n*	Mean per Patient (f/e)
2–31 days	1,122	11	0	1,122	216	19.3	269	1.25
32–61 days	1,111	16	12	1,099	134	12.2	160	1.19
62–91 days	1,095	11	12	1,083	96	8.9	112	1.17
92–121 days	1,084	12	11	1,073	96	8.9	116	1.21
122–151 days	1,072	5	6	1,066	77	7.2	90	1.17
152–181 days	1,067	6	5	1,062	98	9.2	118	1.20
Total (6 months)	1,122	61	0	1,122	492	43.9	867	1.76

McCusker J et al. Acad Emerg Med 2000



Samaras N et al. Ann Emerg Med 2010 adapted from Lewis LM et al. J Gerontol A 2005

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F. Salvi • V. Morichi • A. Grilli • R. Giorgi • G. De Tommaso • P. Dessì-Fulgheri

The elderly in the emergency department: a critical review of problems and solutions

Intern Emerg Med (2007) 2:292–301

- ***The elderly in the ED is a diagnostic challenge***

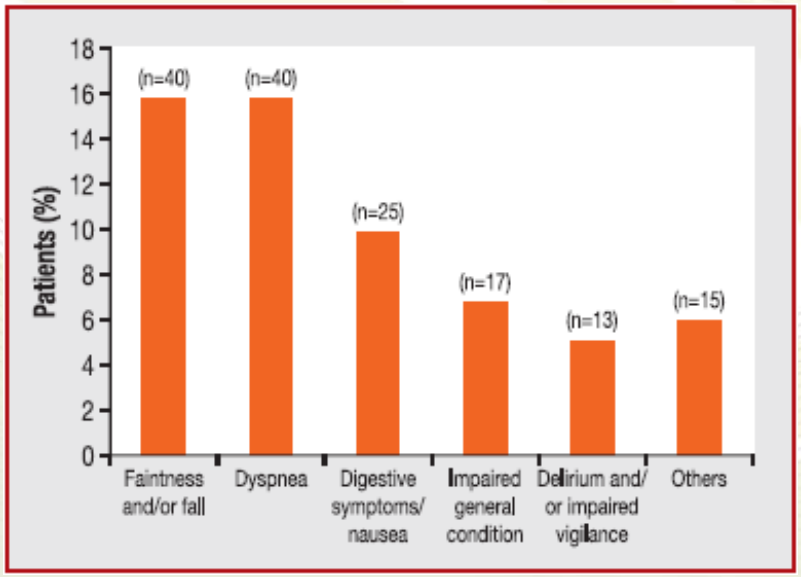
Disease presentations in the elderly:

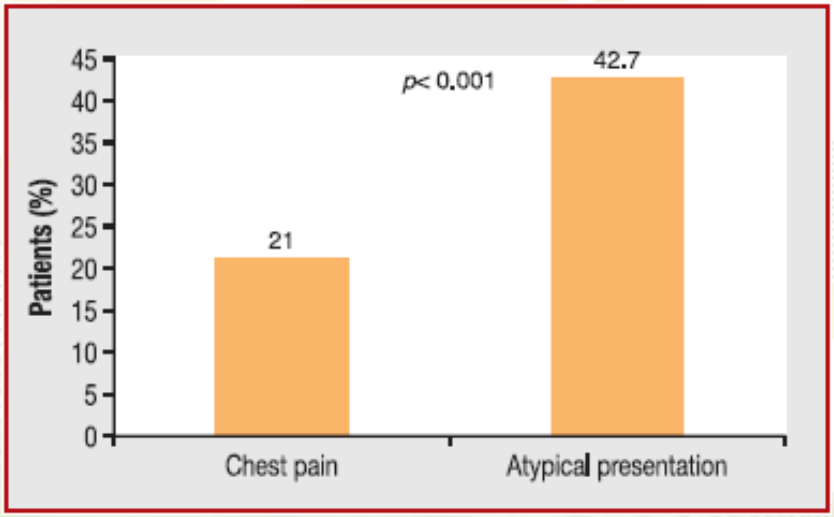
- **Classic**
- **Silent**
- **Pseudosilent**
- **Atypical**
  - **Weakness/fatigue**
  - **Functional decline**
  - **Falls/immobilization**
  - **Incontinence**
  - **Delirium**
  - **“Social crisis”**

“The results of your tests were negative. Get lost!”

ATYPICAL PRESENTATIONS

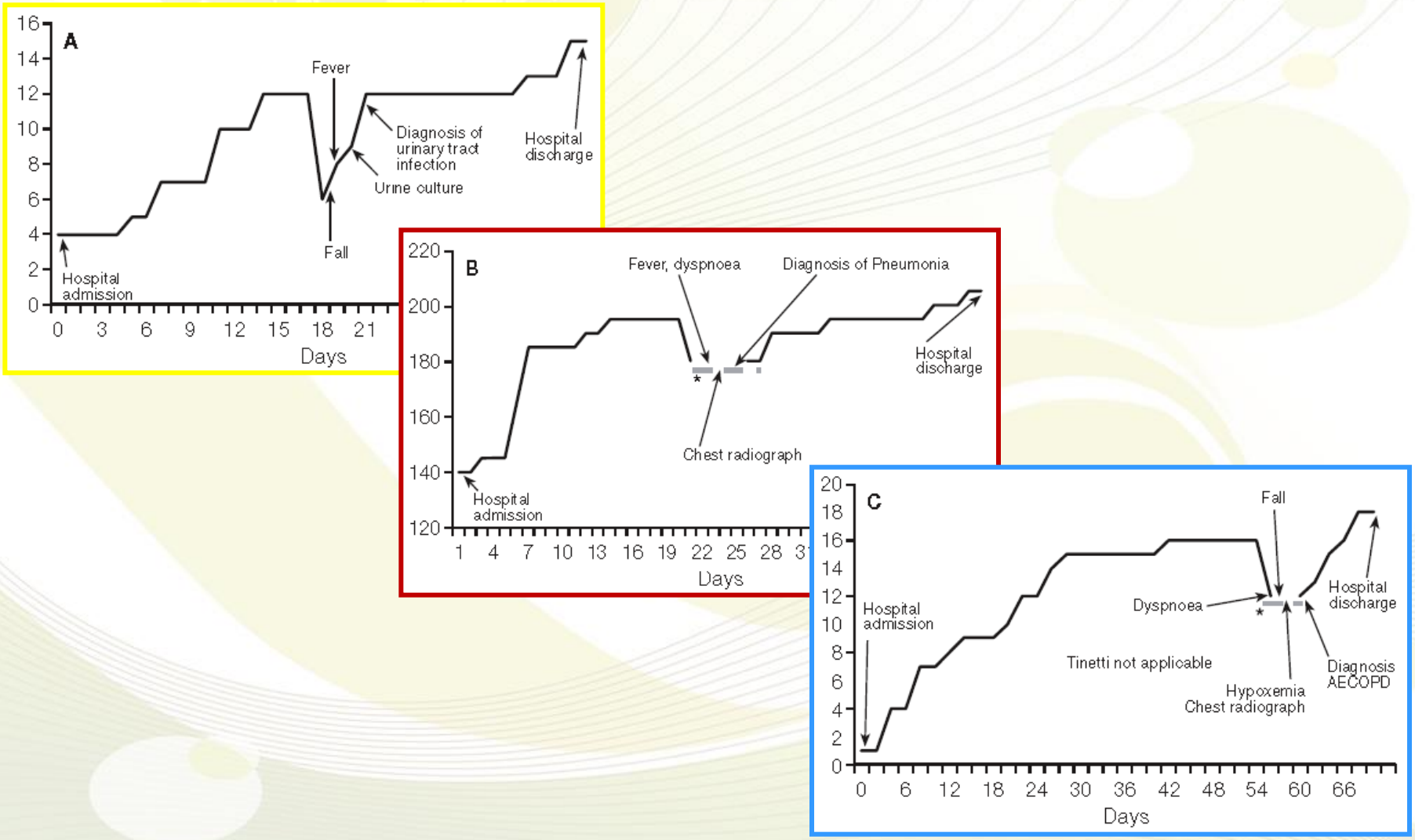
- **Solo il 40% degli anziani segue la regola "1 sintomo = 1 malattia"**
  - **IMA senza dolore toracico**
  - **FA come sintomo di crisi tireotossica; iposodiemia/ipotiroidismo**
  - **Astenia (deficit funzionale acuto) quale sintomo principale di scompenso cardiaco, infezione (polmonite; sepsi)**
  - **Sincope quale presentazione di embolia polmonare**





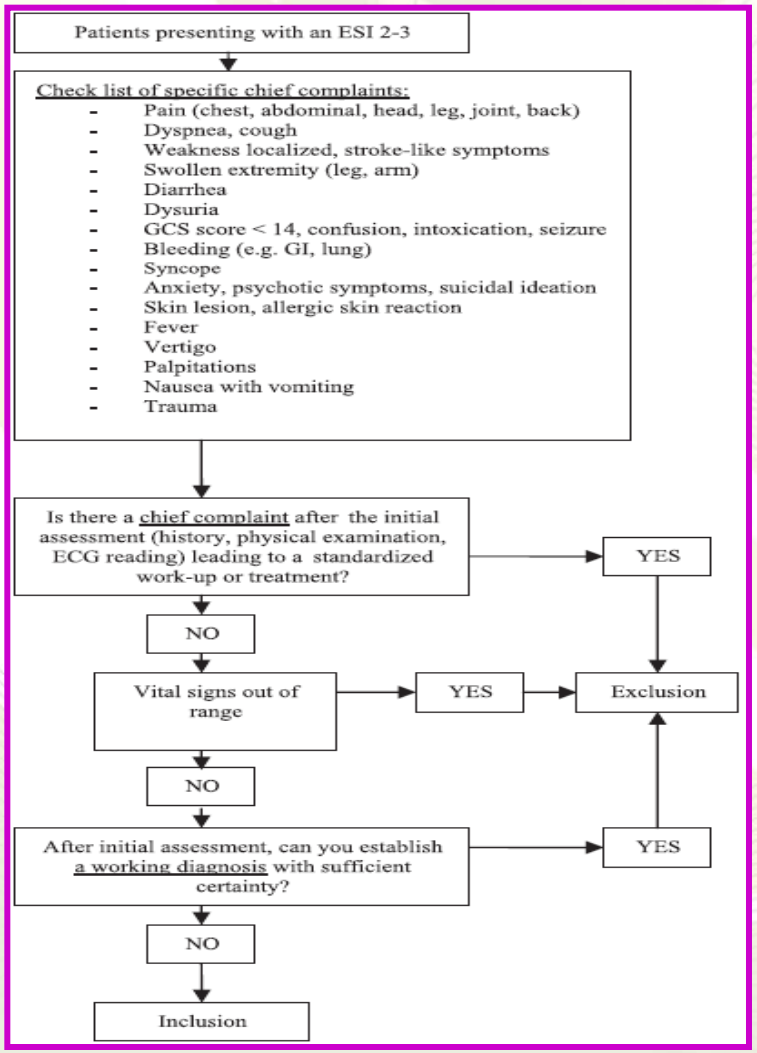
Grosmaitre P et al. Arch Cardiovasc Dis 2013

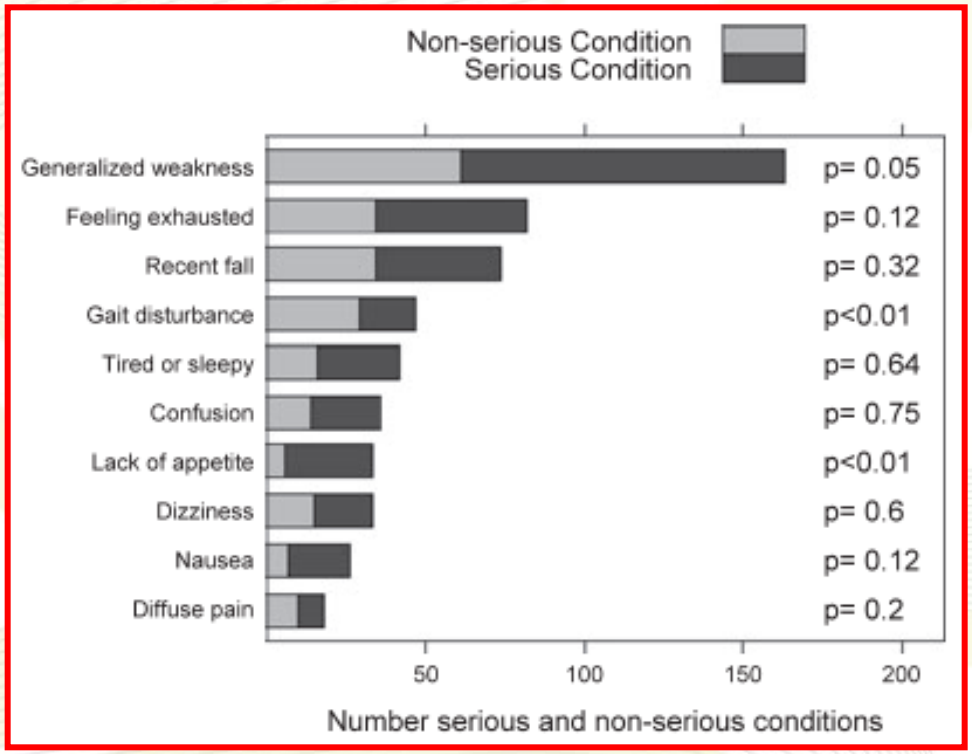
ACUTE FUNCTIONAL DECLINE



Bellelli G et al. Aging Clin Exp Res 2012

Patients Presenting to the Emergency Department With Non-specific Complaints: The Basel Non-specific Complaints (BANC) Study

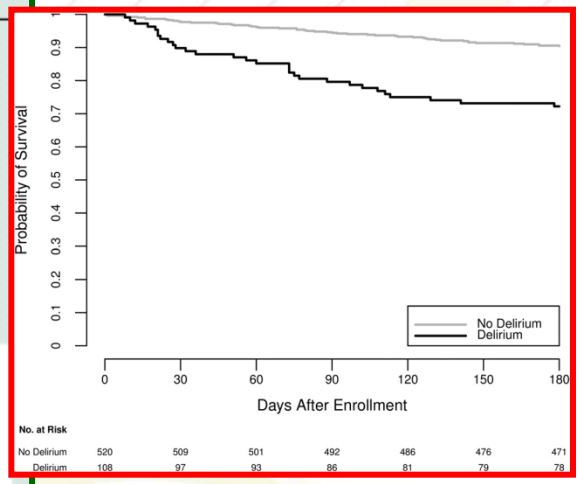


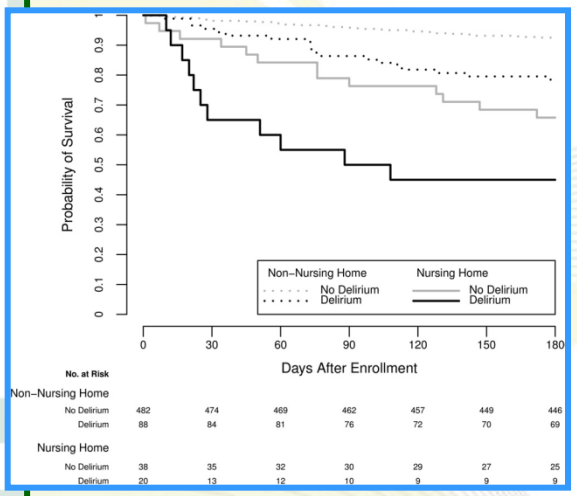


Nemec M et al. Acad Emerg Med 2010

DELIRIUM

	Prevalence (%)*	Incidence (%)*	Outcomes (adjusted RR†)
Surgical			
Cardiac	..	11–46	Cognitive dysfunction 1·7; functional decline 1·9
Non-cardiac	..	13–50	Functional decline 2·1; cognitive dysfunction 1·6
Orthopaedic	17	12–51	Dementia or cognitive dysfunction 6·4–41·2; admission to institution 5·6
Medical			
General medical	18–35	11–14	Mortality 1·5–1·6; functional decline 1·5
Old age medicine	25	20–29	Falls 1·3; mortality 1·9; admission to institution 2·5
Intensive care	7–50	19–82	Mortality 1·4–13·0; longer length of stay 1·4–2·1; extended mechanical ventilation 8·6
Stroke	..	10–27	Mortality 2·0; any of increased length of stay, functional impairment, or death 2·1
Dementia	18	56	Cognitive decline 1·6–3·1; admission to an institution 9·3; mortality 5·4
Palliative care, cancer	..	47	..
Nursing home or postacute care	14	20–22	Mortality 4·9
Emergency department	8–17	..	Mortality 1·7





Inouye S et al. Lancet 2014

Han JH et al. Ann Emerg Med 2010

DELIRIUM: CAUSE

- ***Farmaci***
- ***Ritenzione fecale e/o urinaria***
- ***Infezione*** *(polmonite ed IVU)*
- ***Malattie endocrino-metaboliche***
  - *ipo/iperglicemia*
  - *ipo/ipertiroidismo*
  - *insufficienza renale/epatica*
  - *squilibri idro-elettrolitici*
- ***Malattie cardiovascolari***
  - *infarto miocardico*
  - *scompenso cardiaco*
  - *aritmie*
  - *embolia polmonare*

Cause meno comuni

- ***Alcool*** *(abuso o astinenza)*
- ***Ictus***
- ***Ematoma subdurale***
- ***Neoplasie (cerebrali)***

Cause rare

- ***Anemia***
- ***Malnutrizione***
- ***Trauma cranico***
- ***Epilessia***

CAUSE: ACRONIMI

Iatrogenic (drugs)

Infections

Injury (trauma)

Illness exacerbation

Inconsistent environment

Inconsistent caregiver

Is patient depressed?

Drugs

Environment

Low oxygen

Infections

Ritention

Ischemia

Undernutrition

Metabolic

Subdural haematoma

Vascular

Infections

Nutrition

Drugs

Injury (trauma)

Cardiac

Autoimmune

Tumors

Endocrine

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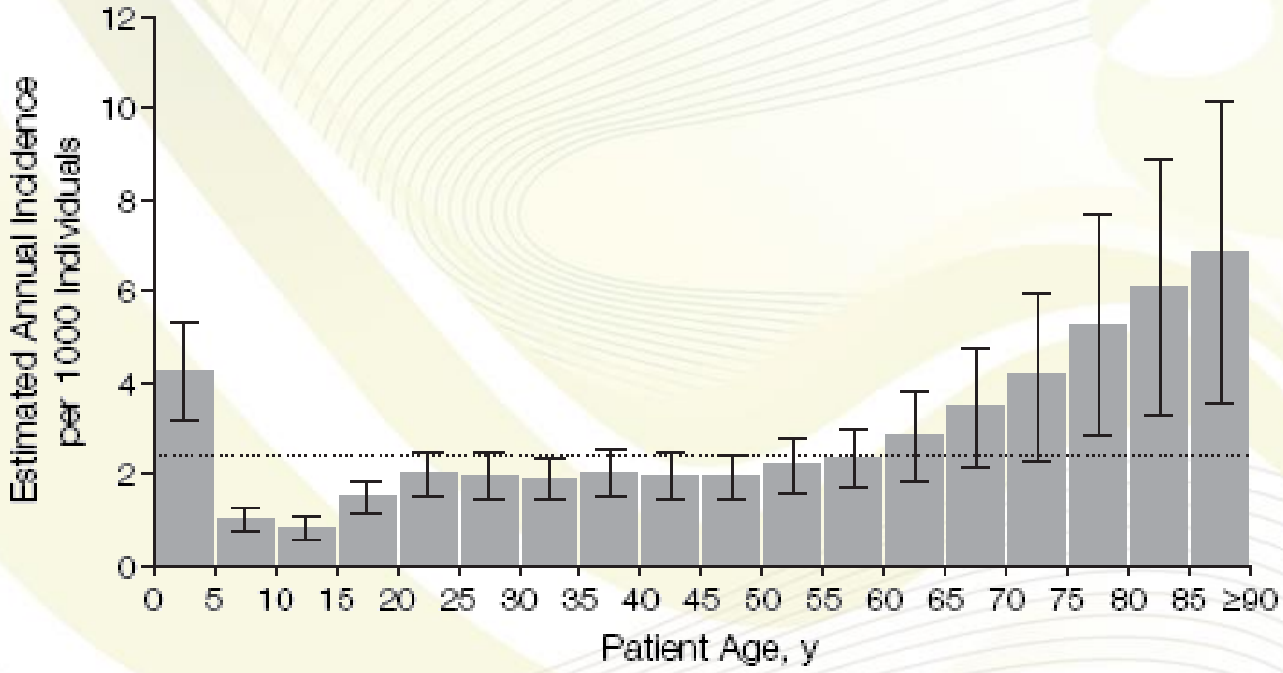
The elderly in the emergency department: a critical review of problems and solutions

Intern Emerg Med (2007) 2:292–301

- The elderly in the ED is a diagnostic challenge
  - Atypical presentations
  - Delirium
- Polypharmacy
  - Adverse Drug Reactions (ADR)
  - Inappropriate prescriptions

AGE & ADR

Figure. Estimated Annual Incidence of Adverse Drug Events Treated in US Emergency Departments



The estimated annual population rate of adverse drug events (dotted line) is 2.4 per 1000 (95% confidence interval, 1.7-3.0). Error bars represent 95% confidence intervals. Data are from the 2004-2005 National Electronic Injury Surveillance System–Cooperative Adverse Drug Event Surveillance project.

Budnitz DS et al. JAMA 2006

MORE FREQUENTLY IMPLIED DRUGS

Drugs classes more frequently involved are:

- **NSAIDs / Anticoagulants**
- **Hypoglycemics (oral or insulin)**
- **β-blockers & CCB**
- **Antibiotics**
- **Diuretics**
- **BDZ, α-H1**

Most commonly implicated medications‡		
Warfarin	854	17.3 (12.7–21.9)
Insulin	616	13.0 (9.4–16.6)
Aspirin	232	5.7 (3.3–8.2)
Clopidogrel	173	4.7 (1.5–7.9)§
Digoxin	130	3.2 (1.6–4.7)
Metformin	103	2.3 (1.4–3.2)
Glyburide	98	2.2 (0.9–3.5)
Acetaminophen–hydrocodone	76	1.7 (1.0–2.5)
Phenytoin	78	1.5 (0.8–2.3)
Glipizide	57	1.5 (0.8–2.1)
Levofloxacin	63	1.4 (1.1–1.8)
Lisinopril	62	1.4 (0.8–2.0)
Trimethoprim–sulfamethoxazole	52	1.3 (0.9–1.7)
Furosemide	48	1.2 (0.6–1.8)

Budnitz DS et al. Ann Intern Med 2007

ADR & POTENTIALLY INAPPROPRIATE MEDICATIONS

- **ADR represent 10-16% of the ED visits of elderly patients, but the diagnosis is correctly done only in 50% of the cases**
- **31% of the elderly ED patients have at least one potentially inappropriate medication (PIM) following the Beers' criteria; 50% of those with an ADR have also a second, not-related PIM**
- **13% of the elderly ED patients receive one PIM; among them, 20% has more than one; the risk of receiving a PIM correlates with the number of administered/prescribed medications in the ED**

Table 3. Multivariate Predictors of Inappropriate Medication Administration in Elderly Emergency Department (ED) Patients, 1992–2000

Characteristic	Rate per 1,000 ED Visits (95% CI)	Odds Ratio	95% CI	*P*-value
Number of medications received in ED				
0–1	43 (37–50)	1	Referent	
2–3	205 (185–226)	6.0	5.3–6.7	< .001
4–6	244 (219–270)	8.1	7.2–9.2	< .001

Caterino JM et al. JAGS 2004

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  - Delirium
- Polypharmacy
  - ADR
  - Inappropriate prescriptions
- Cognitive assessment
- Functional assessment

STATO COGNITIVO/FUNZIONALE

Un certo grado di deterioramento cognitivo è presente nel 15-40% degli ultra65enni in PS (specie se >80 anni e/o istituzionalizzati), ma viene riconosciuto solo nel 27-50% dei casi, con implicazioni nell'accuratezza dell'anamnesi (undertriage, ritardo in diagnosi/terapia) e comprensione delle indicazioni fornite alla dimissione

Lo stato funzionale viene pressoché ignorato (75% casi), eppure:

- **i ⅔ sono disabili in almeno una IADL o BADL**
- **soltanto il 22% è completamente indipendente in tutte le ADL**
- **il 74% afferma che il declino funzionale dall'inizio dei sintomi è stato determinante nella decisione di ricorrere al PS**
- **il 28% non sarebbe in grado di badare a sé stesso a domicilio: il 20% viene dimesso ugualmente**

Hustey FM et al. Ann Emerg Med 2002
Wilber ST et al. Acad Emerg Med 2006

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- GEM: come?
  - Silver Book
  - Guidelines
  - EUSEM/EUGMS Task Force
- GEM: dove?
  - The Geriatric Emergency Department

NICE: SILVER BOOK

QUALITY CARE FOR OLDER PEOPLE WITH URGENT & EMERGENCY CARE NEEDS

Cooke M, Oliver D, Burns A.

NICE: SILVER BOOK

Standards

1. All older people accessing urgent care should be routinely assessed for:

○ Pain	○ Delirium and dementia
○ Depression	○ Nutrition and hydration
○ Skin integrity	○ Sensory loss

Older people tend to present to clinicians with non-specific presentations or frailty syndromes, in contrast to the classical presentation seen in younger people. The reasons behind the non-specific presentations include the presence of multiple comorbidities, disability and communication barriers. The ability to recognise and interpret non-specific syndromes is key, as they are markers of poor outcomes.

Falls

Distinguish between syncopal (e.g. cardiac, polypharmacy), or non-syncopal (strength, balance, vision, proprioception, vestibular and environmental hazards all to be assessed).

Immobility

'Off legs' can hide many diagnoses ranging from cord compression to end-stage dementia. A comprehensive assessment is needed to focus on the urgent and important issues to be addressed.

Delirium and dementia

These are closely interrelated but each requires clinically distinct management – collateral history is key detect a recent change in cognition; it is common for delirium to be super-imposed on pre-existing dementia. Delirium can be hyperactive, hypoactive or mixed.

Polypharmacy

Adverse drug events lead to increased hospital stay, morbidity and mortality[8]. Consider a medication review focussing on identifying inappropriate prescribing, as well as drug omissions (e.g. STOPP/START[9]). Consider also medicines reconciliation

Incontinence

An unusual acute presentation, but a marker of frailty and a risk factor for adverse outcomes. More common is abuse of urine dipstick testing leading to erroneous diagnosis of infection, inappropriate antibiotics and increased risk of complications such as clostridial diarrhoea.

End of life care

Mortality rates for frail older people in the year following discharge from hospital, which presents an ideal opportunity to consider advance care planning[10].

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Optimal Older Adult Emergency Care: Introducing Multidisciplinary Geriatric Emergency Department Guidelines From the American College of Emergency Physicians, American Geriatrics Society, Emergency Nurses Association, and Society for Academic Emergency Medicine

Christopher R. Carpenter, MD, MSc*; Marilyn Bromley, RN; Jeffrey M. Caterino, MD, MPH; Audrey Chun, MD; Lowell W. Gerson, PhD; Jason Greenspan, MD; Ula Hwang, MD; David P. John, MD; William L. Lyons, MD; Timothy F. Platts-Mills, MD, MSc; Betty Mortensen, RN; Luna Ragsdale, MD, MPH; Mark Rosenberg, DO, MBA; Scott T. Wilber, MD, MPH; for the ACEP Geriatric Emergency Medicine Section, American Geriatrics Society, Emergency Nurses Association, and SAEM Academy of Geriatric Emergency Medicine

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Ann Emerg Med; Acad Emerg Med; J Am Geriatr Soc 2014

EDUCATION

- Atypical presentations of disease
- Trauma, including falls and hip fracture
- Cognitive and behavioral disorders
- Modifications for older patients of emergent interventions
- Medication management
- Transitions of care and referrals to services
- Pain management and palliative care
- Effect of comorbid conditions
- Functional impairments and disorders
- Management of the group pf diseases peculiar to the geriatric adult, including conditions causing abdominal pain
- Weakness and dizziness
- Iatrogenic injuries
- Elder abuse and neglect

PROTOCOLLI

- Triage and initial evaluation
  - Family/care provider presence/participation in the triage process is highly encouraged
- Initial screening tool to recognize and evaluate at-risk seniors * **(ISAR)**
- Patient safety
- Suspected elder/dependent adult abuse and neglect
- Sedation/analgesia in the geriatric patient
- Assessment and evaluation of delirium/agitation *
  - Restraint policies
- DNR/POLST/palliative care
- Patient Death
  - Inclusion of the grieving family in the "code" situation is encouraged
- Urinary catheter placement guidelines *
- Fall risk assessment and clinical guideline for the evaluation of the "geriatric adult fall" *
- Wound assessment and care
- Transition of Care and Follow-up
- Medication reconciliation and pharmacy review *

SCREENING TOOLS

ISAR
(Identification of Seniors At Risk)

	Y	N
1) Before the illness or injury that brought you to the ED, did you need someone to help you on a regular basis?	1	0
2) Since the illness or the injury that brought you to the ED, have you needed more help than usual to take care of yourself?	1	0
3) Have you been hospitalized for one or more nights during the past six months (excluding a stay in the ED)?	1	0
4) In general, do you see well?	0	1
5) In general, do you have serious problems with your memory?	1	0
6) Do you take more than three different medications everyday?	1	0
TOTAL		

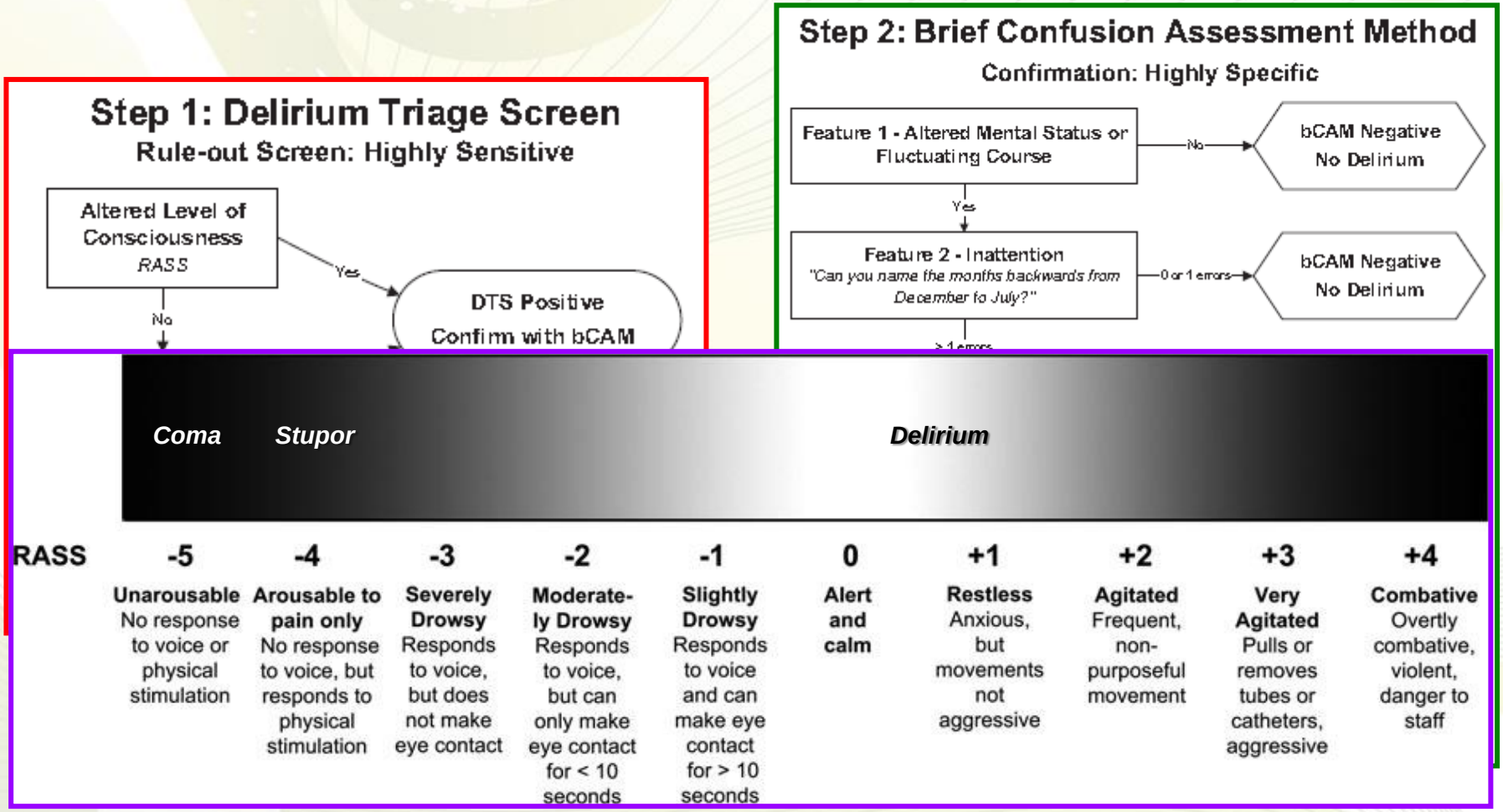
McCusker J et al. Acad Emerg Med 2000

TRST
(Triage Risk Screening Tool)

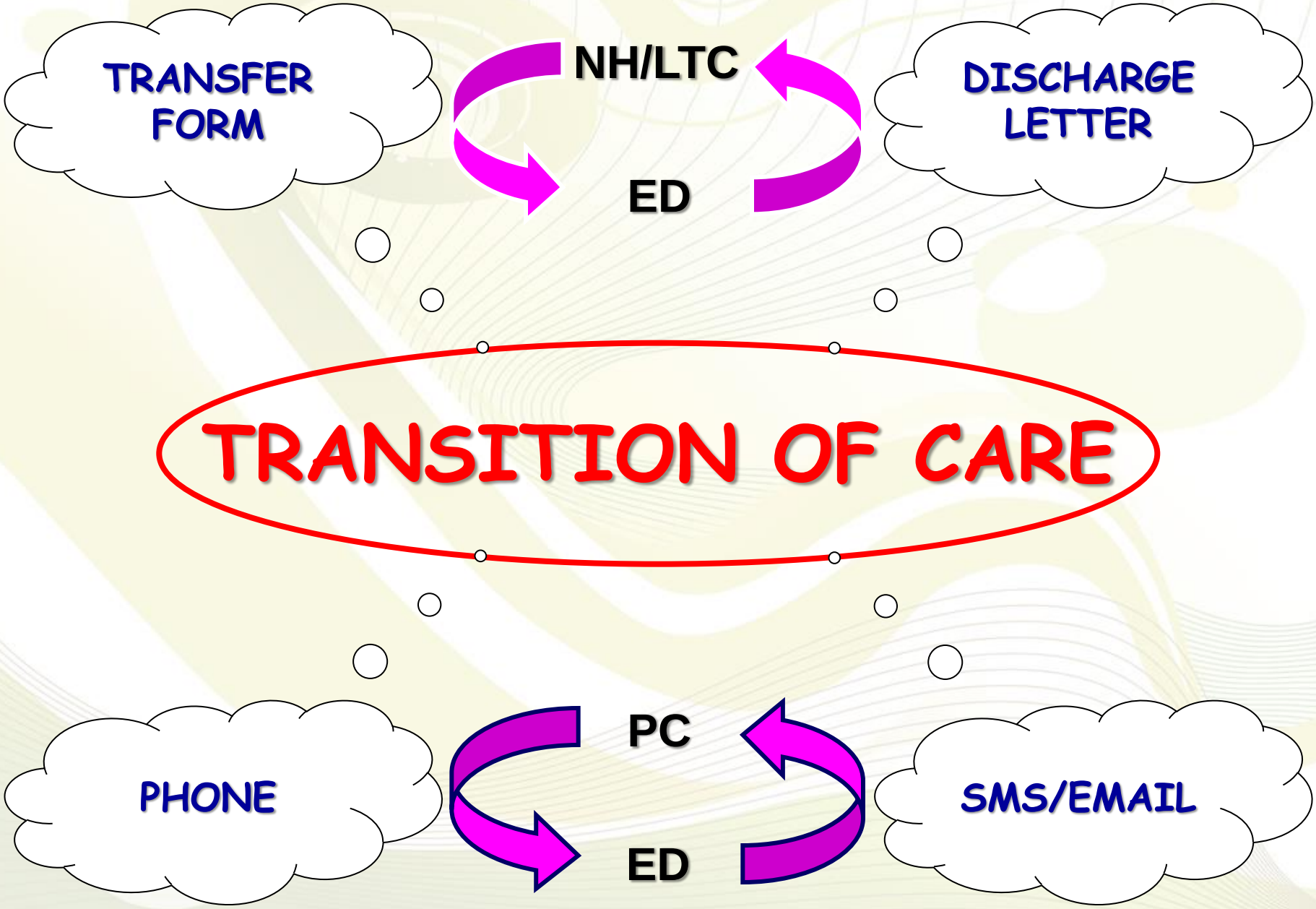
	Y	N
1) Presence of cognitive impairment (i.e. confusion, unable to follow directions, diagnosis of dementia or delirium)	1	0
2) Lives alone or no caregiver available, willing or able	1	0
3) Difficulty with walking or transfers or history of recent falls	1	0
4) Patient/family states has used ED within past 30 days or has been hospitalized within last 3 months	1	0
5) Five or more different medications	1	0
6) Professional recommendations: nurse believes this patient requires further follow-up at home for any of the following: a) suspected abuse, neglect, self-neglect, exploitation b) noncompliant patient with <5 medications who keeps coming back to the ED c) suspected substance abuse (alcohol or drug) d) problems with meeting IADL e) other (please specify)	1	0
TOTAL		

Mion LC et al. JAGS 2001

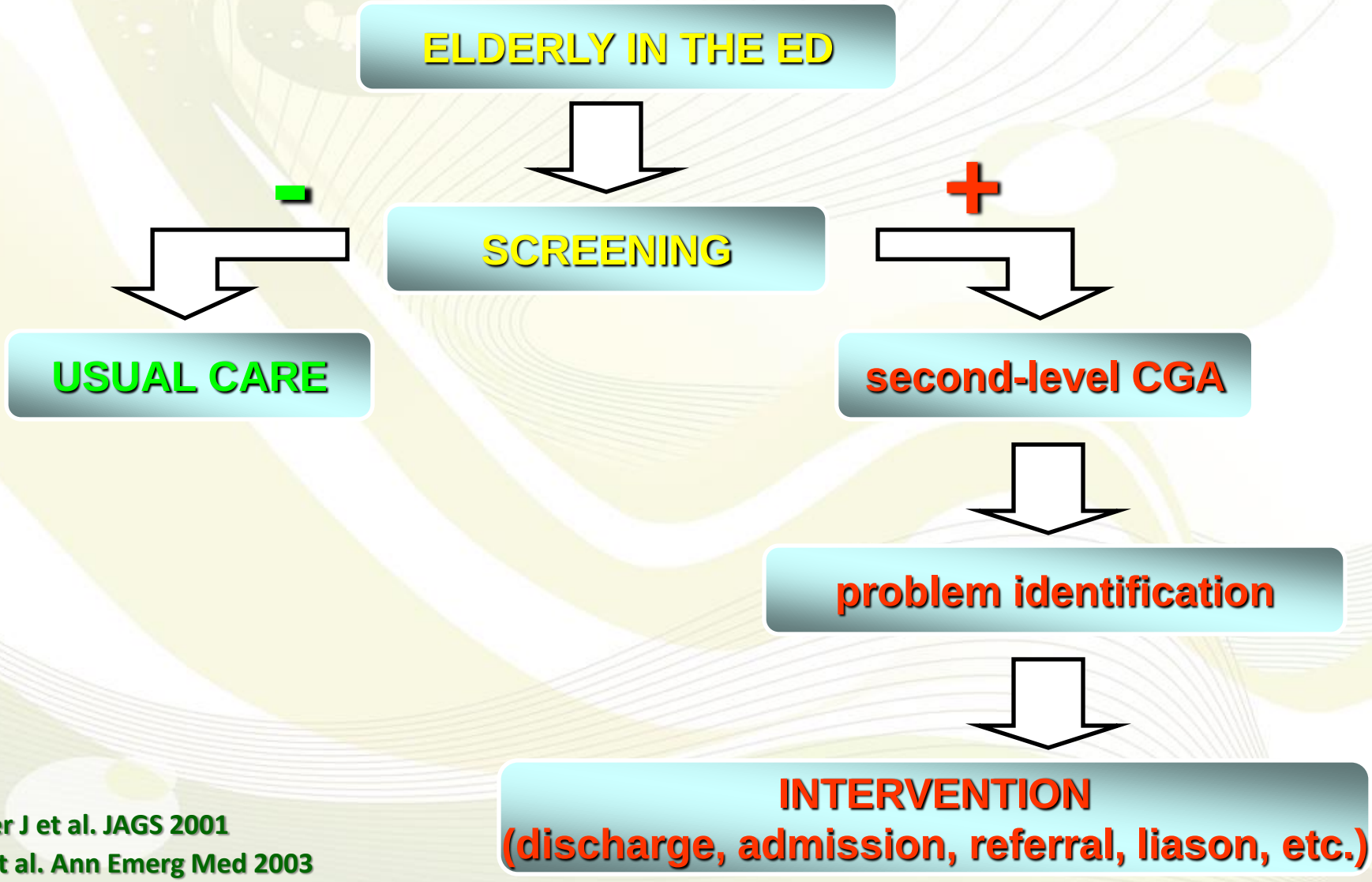
DTS+bCAM



Han JH et al. Ann Emerg Med 2013

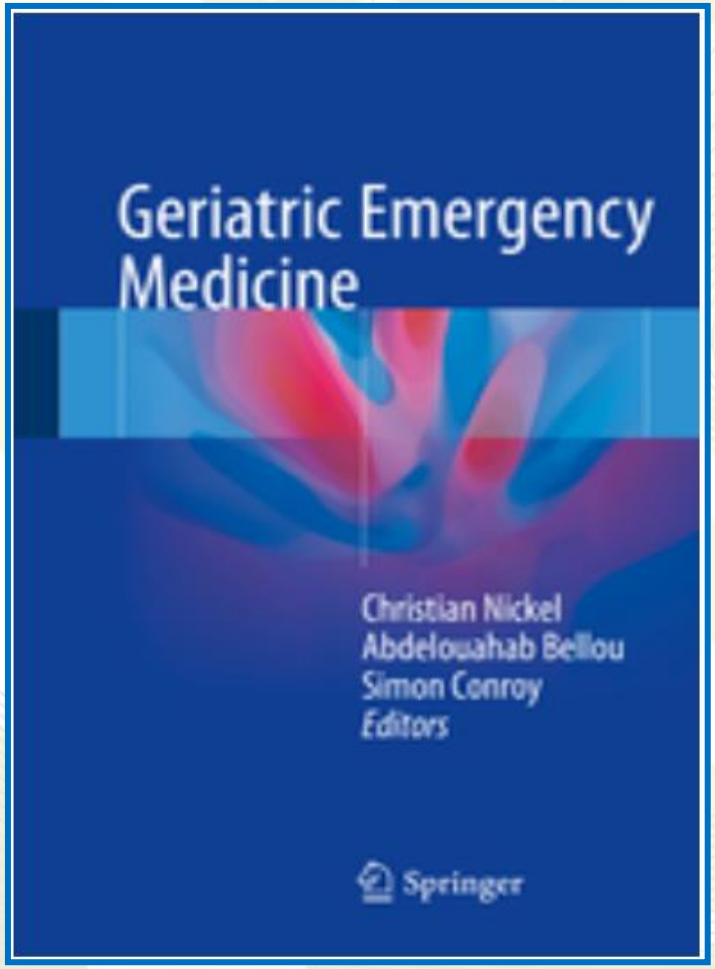

TRANSFER FORM
NH/LTC
ED
DISCHARGE LETTER
TRANSITION OF CARE
PHONE
PC
ED
SMS/EMAIL

DISCHARGE PLANNING



McCusker J et al. JAGS 2001
Mion L et al. Ann Emerg Med 2003
Meldon S et al. Acad Emerg Med 2003

EUSEM-EUGMS TEXTBOOK



1. Prehospital Management of Older Patients
2. Triage of Older ED Patients
3. Primary Assessment and Stabilization of Life-Threatening Conditions in Older Patients
4. Secondary Assessment of Life-Threatening Conditions in Older Patients
5. **Clinical Assessment and Management of Older People: What's Different?**
6. Comprehensive Geriatric Assessment in the Emergency Department
7. Pitfalls in the Management of Older Patients in the Emergency Department
8. Nonspecific Disease Presentation: The Emergency Department Perspective
9. Falls Presenting in the Emergency Department

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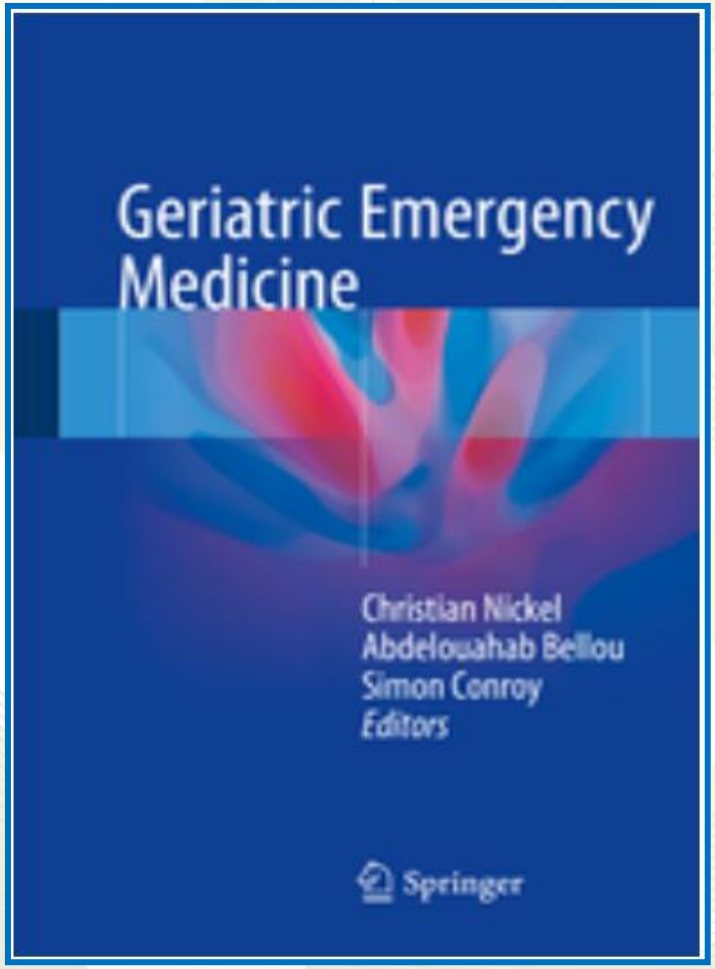

10. Syncope in Older People in the Emergency Department
11. Trauma in Older People in the Emergency Department
12. Management of Sepsis in Older Patients in the Emergency Department
13. Cognitive Impairment in Older People presenting to ED
14. Depression in Acute Geriatric Care
15. Abdominal Pain in Older Patients
16. **Urinary Tract Infections in Older Patients**
17. Management of Acute Chest Pain in Older Patients
18. Dyspnoea in Older People in the Emergency Department

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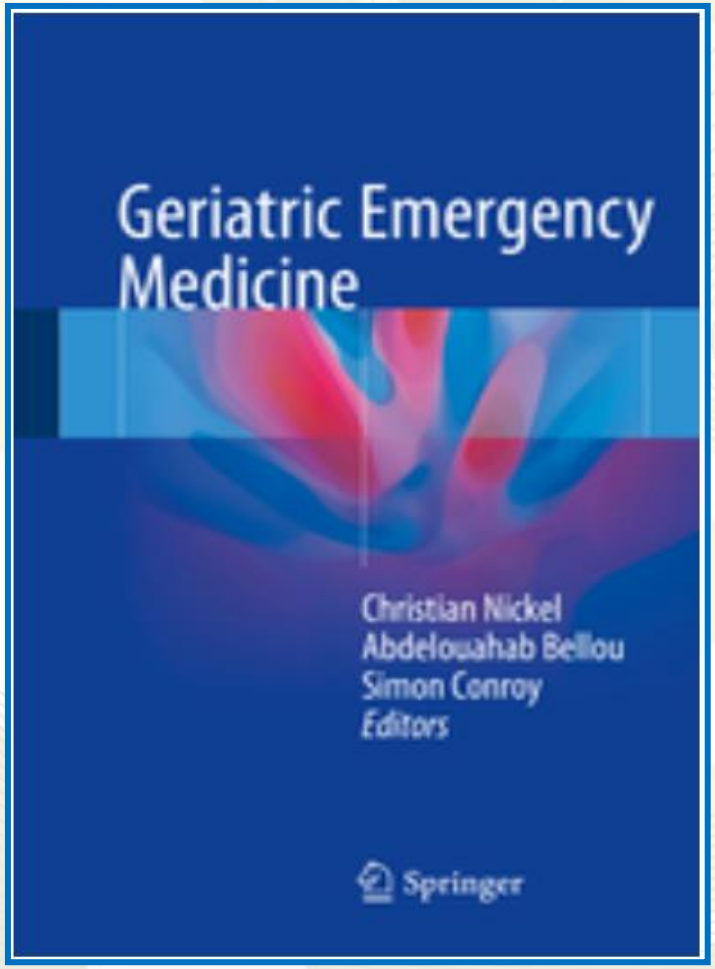
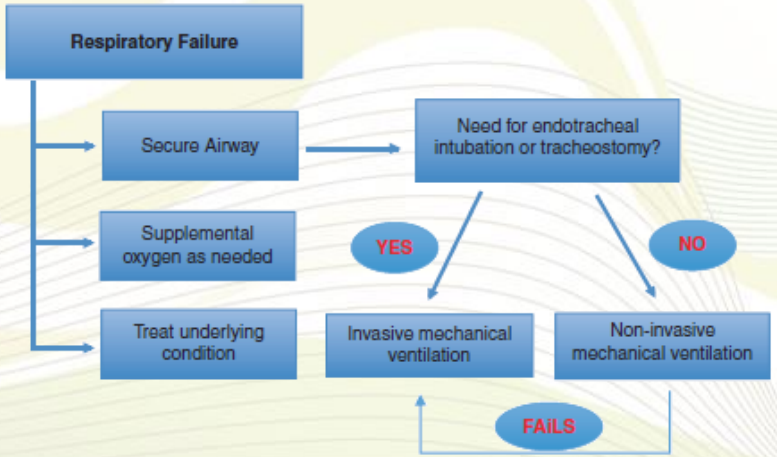


19. Management of Back Pain in Older Patients
20. Medicine in Older Patients: Evidence Based?
21. Prescribing for Older Patients
22. Pain in Older People Attending Emergency Departments
23. Transition of Care and Disposition
24. Principle of Rehabilitation in Geriatric Emergency Medicine
25. Palliative and End of Life Care for Dementia Patients in the Emergency Department
26. Palliative and End of Life Care for Older Person in the Emergency Department
27. Ethical Issues of Emergency Medical Care for Older Patients

EUSEM-EUGMS TEXTBOOK



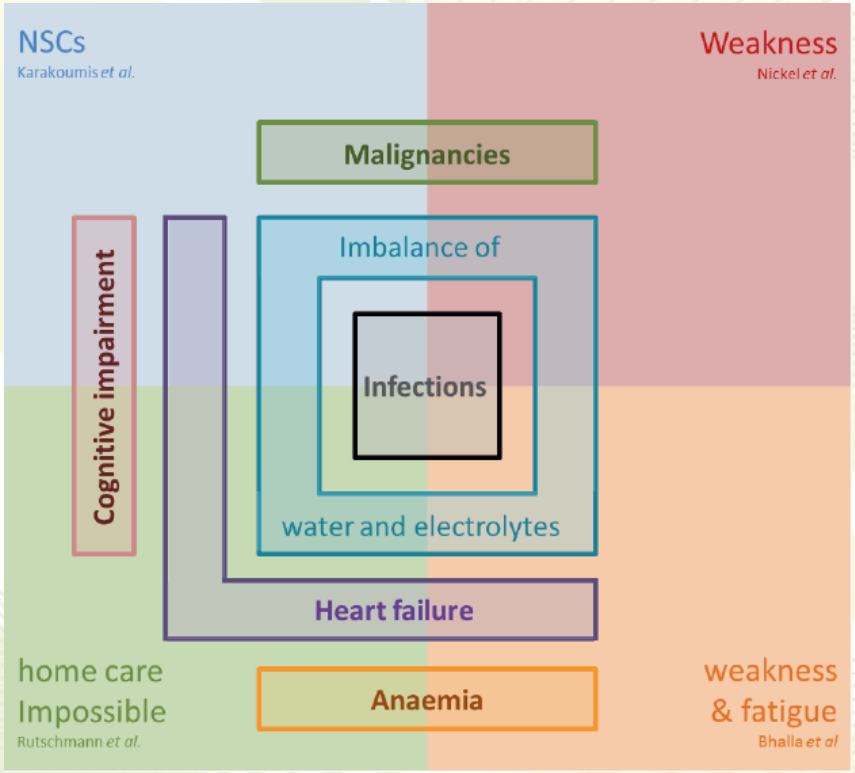
EUSEM-EUGMS TEXTBOOK

Obtaining a coherent story can be difficult due to hearing, visual or cognitive impairment [13]. It is useful to interact in a well-lit environment, taking care to eliminate as much as possible sources of noise; speak with a deep voice, slowly, stepping in front of the patient so that he/she can lip-read; formulate the questions in plain language, avoiding technical terms or jargon; and ask specific questions with respect to potentially significant symptoms. In some cases, you may need to write in large letters the questions posed allowing time to read, understand and answer (it is not a timed quiz, and not always the first answer is the one that counts!). It is essential to determine as soon as possible the reliability of the information provided by the patient, assessing cognitive status—this can usually be inferred from the opening discussion, without resorting to the need for formal cognitive tests at this stage—these may upset the flow and can usually be deferred until later time. It is especially important to differentiate delirium from dementia when cognitive impairment is present. Again an experienced clinician will be able to do this from a natural conversation, supported by a key informant perspective (carer, loved one, etc.), but there are tools available to help those less experienced (see below).

For less-urgent patients, physical examination should focus on the organ system(s) more closely related with the presenting symptom, but it should never neglect other aspects (remember the 'weakest link' concept, e.g. in an agitated/delirious patient, check systematically for acute urinary retention, faecal impaction and/or pain). A critical cornerstone in older patients is to differentiate sequelae of old illnesses from new-onset pathological signs (e.g. crackles due to old/new-onset pleural effusion, old/new-onset hemiplegia or weakness). Another important issue is to differentiate subtle clinical signs, such as crackles due to acute pulmonary oedema or aspiration pneumonia.

The presence of a family member or carer is often necessary to ease clinical examination where there is cognitive impairment or severe disability: the caregiver can help to position the patient sitting or standing, to mimic gestures and to perform open-mouth deep breaths (patients with dementia do not understand the commands but are often still able to imitate). Another little trick to get open-mouth deep breaths in the uncooperative and not-able-to-imitate demented patient can be to close nostrils: this will stimulate open-mouth breathing. Particular attention should be paid to non-verbal communication, especially in cognitively impaired patients, who are often unable to describe symptoms or pain. For example, during the palpation of the abdomen or limb, you should watch the patient's face, observing for grimaces or changes in facial expression that suggest the presence of pain; also an increase in agitation or the appearance of aggression or clumsy attempts to get away should be considered a possible expression of pain or, more generally, a 'sign'. Furthermore, it may be useful to distract the patient by talking of pleasant memories or familiar subjects whilst visiting aching parts or making medical procedures; similarly, in demented patients, mobility of the upper limbs can be assessed by asking to perform simple orders (e.g. pick up a suspended pen with right or left hand).

EUSEM-EUGMS TEXTBOOK



Diagnostic workup	
Medical history	Current complaint
	History by proxy
	Previously known malignancy
	Medication
Physical examination	Vital signs*
	Clinical indicators for dehydration*
	Overall hygiene
Laboratory test	Blood count*
	CRP*
	Urinalysis*
	Electrolyte
	Creatinine, GFR
	Serum osmolality, blood urea nitrogen-creatinine ratio
	BNP*
	Metabolic panel
	Glucose
Further tests	12-lead electrocardiogram
	Chest X-ray
	Cranial imaging
	Delirium/dementia screening test
	Neuroimaging

EUSEM-EUGMS TEXTBOOK

SOFA SCORE

System	Score 0	Score 1	Score 2	Score 3	Score 4
Respiration PaO2/FiO2 mmHg (kPa)	≥400	<400	<300	<200 with respiratory support	<100 with respiratory support
Coagulation platelets (× 10^3/μL)	≥150	<150	<100	<50	<20
Liver bilirubin, mg/dL (μmol/L)	<1.2	1.2–1.9	2.0–5.9	6.0–11.9	>12
Cardiovascular	MAP ≥ 70 mmHg	MAP < 70 mmHg	Dopamine < 5 or dobutamine (any dose)	Dopamine 5.1–15 or epinephrine ≤ 0.1[b] or norepinephrine ≤ 0.1	Dopamine >15 or epinephrine > 0.1[b] or norepinephrine > 0.1
CNS Glasgow Coma Scale score[a]	15	13–14	10–12	6–9	<6
Renal creatinine, mg/dL (mol/L), urine output, mL/d	<1.2	1.2–1.9	2.0–3.4	3.5–4.9 (300–440); <500	>5; <200

DIAGNOSTIC CRITERIA FOR SEPSIS

Infection, documented or suspected, and some of the following:

General variables

Fever (>38.3 °C)

Hypothermia (core temperature < 36 °C)

Heart rate > 90/min or more than two SD above the normal value for age

Tachypnea

Altered mental status

Significant edema or positive fluid balance (>20 mL/kg over 24 h)

Hyperglycemia (plasma glucose >140 mg/dL or 7.7 mmol/L) in the absence of diabetes

Inflammatory variables

Leukocytosis (WBC count >12,000 μL^{-1}), leukopenia (WBC count <4000 μL^{-1}), normal WBC count with greater than 10% immature forms

Plasma C-reactive protein more than two SD above the normal value

Plasma procalcitonin more than two SD above the normal value

Hemodynamic variables

Arterial hypotension (SBP <90 mmHg, MAP <70 mmHg, or an SBP decrease >40 mmHg in adults or less than two SD below normal for age). In older patients, arterial hypotension could not follow guidelines criteria because of chronic hypertension

Organ dysfunction variables

Arterial hypoxemia (PaO2/FiO2 < 300)

Acute oliguria (urine output <0.5 mL/kg/h for at least 2 h despite adequate fluid resuscitation)

Creatinine increase >0.5 mg/dL or 44.2 μmol/L

Coagulation abnormalities (INR >1.5 or aPTT >60 s)

Ileus (absent bowel sounds)

Thrombocytopenia (platelet count <100,000 μL)

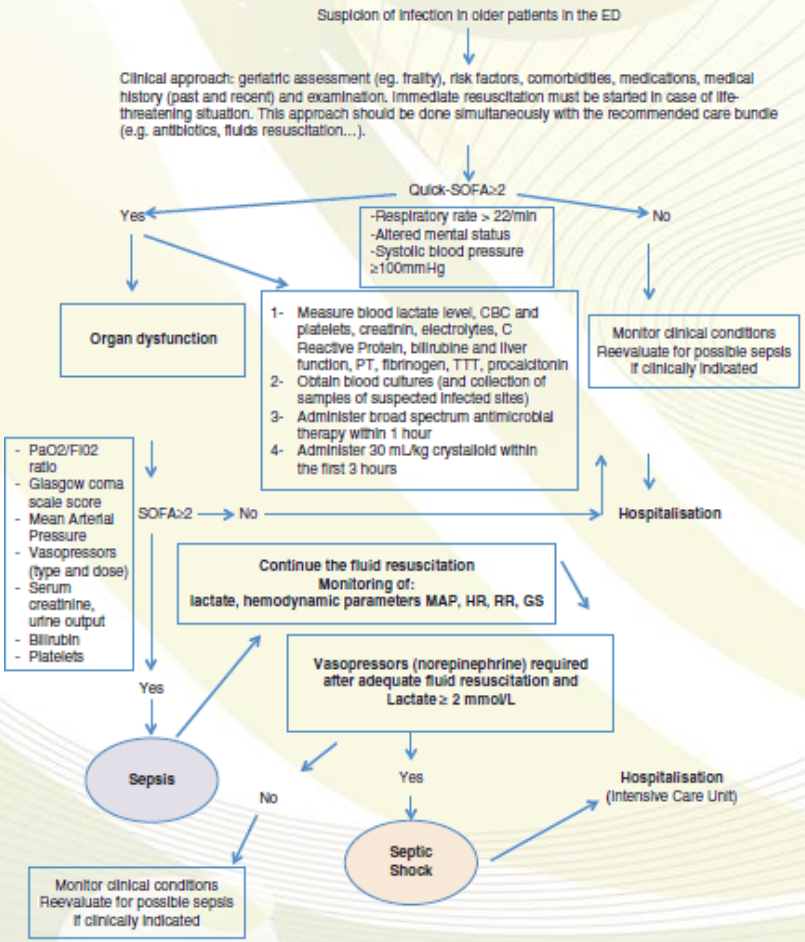
Hyperbilirubinemia (plasma total bilirubin >4 mg/dL or 70 μmol/L)

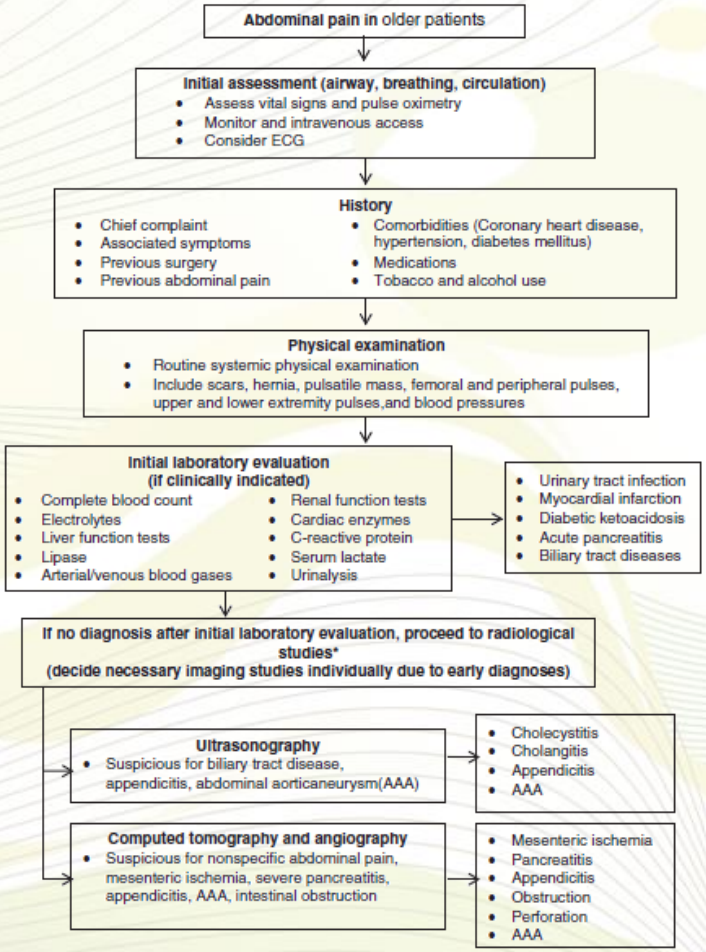
Tissue perfusion variables

Hyperlactatemia (≥2 mmol/L)

Decreased capillary refill or mottling

EUSEM-EUGMS TEXTBOOK





OUTLINE

- GEM: definizione
- GEM: perché è utile
  - Epidemiologia
  - Problemi clinici
- GEM: come?
  - Silver Book
  - Guidelines
  - EUSEM/EUGMS Task Force
- GEM: dove?
  - The Geriatric Emergency Department

THE IDEAL GERIATRIC ED

1. Geriatric education and experience of the ED staff in dealing with and management of elderly patients
2. Knowledge of the patient (primary physician contact, transfer form, electronic database) helps to save time and have reliable information (e.g. diseases, prescription medications, recent x-ray or lab examinations, allergies)
3. Team management following CGA protocols
4. Possibility to observe the patient (Observation Unit)
5. Adequate environment

ACAD EMERG MED • March 2003, Vol. 10, No. 3 • www.aemj.org

COMMENTARIES

A New Model for Emergency Care of Geriatric Patients

Adams JG, Gerson LW

A hybridized ED and observation unit might optimize care for complex but stable older people in the midst of prolonged diagnostic works

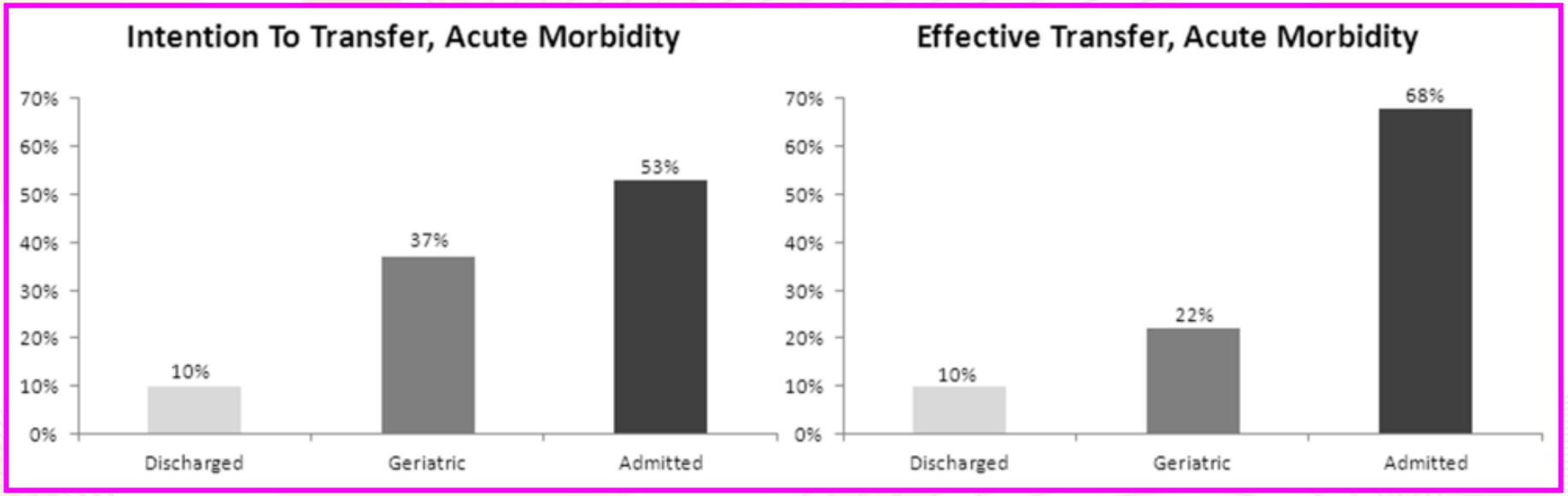
MODELS OF GERIATRIC CARE, QUALITY IMPROVEMENT, AND PROGRAM DISSEMINATION

The Geriatric Emergency Department

Ula Hwang, MD, MPH,[*†] *and R. Sean Morrison, MD*[†‡]

J Am Geriatr Soc 2007

Impact of Observation on Disposition of Elderly Patients Presenting to Emergency Departments with Non-Specific Complaints



Misch F et al. PLoS One 2014

Table 1. Potential Geriatric Emergency Department Interventions (GEDIs)

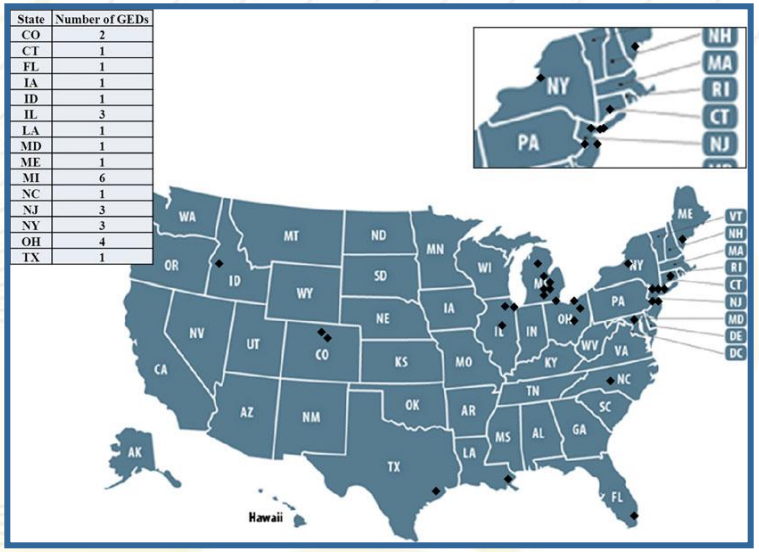
GEDI	Goal
Structural modifications	
Soundproof curtains	Reduce risk of delirium by decreasing extraneous noise[14,24]
Hearing assistance or amplifying devices	Improve communication for those with hearing impairment[24]
Removal of noise distracters (e.g., televisions)	
Reclining chairs or padded or lined stretchers	Improve patient comfort[21] Reduce pressure ulcers[22]
Large-faced clocks, calendars, boards with names of hospital and clinical staff	Reminders to improve patient orientation[14] Reduce risk of delirium[14]
Rubber-mat or nonskid floor surfaces Hand rails on walls and hallways Aisle lighting Bedside commodes	Reduce risk of falls and injury[23]
Visual aids (e.g., magnifying glasses, fluorescent tape on call bells, telephones with large keyboards, aisle lighting)	Visual support for visually impaired patients[23] Reduce risk for delirium[11,14]
Sky or ceiling lights or diurnal lighting changes	Reduce risk of delirium by use of natural lighting
Protocol interventions	
Cognitive impairment and delirium	Early identification of patients at risk for these conditions to assist in disposition, treatment, or discharge planning[25,26]
Risk of adverse health outcomes, return visit, or hospitalization screening	Decrease risk of return visits or hospitalization[26,27]
Abbreviated comprehensive geriatric assessments	
Minimum use of urethral catheters and other "tethering" devices	Reduce patient immobility Reduce risk of nosocomial infection and delirium[11,12]
Nursing discharge coordinator	Improve continuity of care Decrease risk of return visits[28] Increase patient satisfaction[28]

Hwang U, Morrison RS. J Am Geriatr Soc 2007

U.S. GERIATRIC EDs EPIDEMIC

1.	Bridgeport Hospital	Bridgeport, CT
2.	Exempla Lutheran Medical Center	Wheat Ridge, CO
3.	Exempla Saint Joseph Hospital	Denver, CO
4.	Holy Cross Hospital	Silver Spring, MD
5.	Kings County Hospital Center	Brooklyn, NY
6.	Maine Medical Center	Portland, ME
7.	Memorial Regional South Hospital	Hollywood, FL
8.	Mercy Medical Center	Dubuque, IA
9.	Mercy Hospital Grayling	Grayling, MI
10.	Mercy St. Anne Hospital	Toledo, OH
11.	Methodist Medical Center	Peoria, IL
12.	Monmouth Medical Center	Long Branch, NJ
13.	Mount Sinai Hospital	New York, NY
14.	Northwestern Memorial Hospital	Chicago, IL
15.	Ochsner Baptist Medical Center	New Orleans, LA
16.	Park Plaza Hospital	Houston, TX
17.	Saint Alphonsus Medical Center	Boise, ID
18.	Saint Joseph's Regional Medical Center	Paterson, NJ
19.	Saint Joseph Mercy	Ann Arbor, MI
20.	Saint Joseph Mercy	Livingston, MI
21.	Saint Joseph Mercy	Oakland, MI
22.	Saint Joseph Mercy	Saline, MI
23.	Saint Mary Mercy	Livonia, MI
24.	Summa Akron City Hospital	Akron, OH
25.	Upstate University Hospital, Community Campus	Syracuse, NY
26.	UH Bedford Medical Center	Bedford, OH
27.	UH Richmond Medical Center	Richmond, OH
28.	UNC Hospitals	Chapel Hill, NC
29.	University Medical Center of Princeton	Princeton, NJ
30.	Vanguard West Suburban Medical Center	Oak Park, IL

State	Number of GEDs
CO	2
CT	1
FL	1
IA	1
ID	1
IL	3
LA	1
MD	1
ME	1
MI	6
NC	1
NJ	3
NY	3
OH	4
TX	1



Physical Plant Changes

Change	Percentage of Geriatric EDs Making Change
Beds/mattresses	97
Lighting	90
Flooring skid/shine	83
Visual aids	73
Sound level	70
Corridor safety	60
Handrails	60
Hearing aids	60
Recliners	53
Nourishment	43
Other	47

Hogan TM et al. Acad Emerg Med 2014

Impact of a New Senior Emergency Department on Emergency Department Recidivism, Rate of Hospital Admission, and Hospital Length of Stay

Table 2. Outcomes by group.

Outcomes	Seniors, Pre-SED, N=3,850	Seniors, SED, N=3,748	Aged 55–64 Years, Post-SED vs Pre-SED	
			N=2,267	N=2,150
Frequency (%)				
Return within 30 days	461 (12.0)	475 (12.7)	212 (9.4)	171 (8.0)
Death or return within 30 days	612 (15.9)	594 (15.9)	244 (10.8)	186 (8.7)
Return within 180 days	1,099 (28.6)	1,038 (27.7)	451 (19.9)	401 (18.7)
Death or return within 180 days	1,354 (35.2)	1,252 (33.4)	501 (22.1)	431 (20.1)
Admitted to the hospital	1,823 (47.4)	1,662 (44.3)	604 (26.6)	558 (26.0)
Median (IQR)				
Length of stay	3.0 (2–5)	3.0 (2–5)	3.0 (2–5)	3.0 (2–6)

Table 3. Results of unadjusted and adjusted analyses.

Outcomes	Seniors, SED vs pre-SED		Aged 55–64 Years, Post-SED vs Pre-SED	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Hazard ratio				
Return within 30 days*	1.05 (0.92 to 1.20)	1.09 (0.95 to 1.23)	0.83 (0.68 to 1.02)	0.84 (0.68 to 1.02)
Return within 180 days*	0.96 (0.88 to 1.04)	0.99 (0.91 to 1.08)	0.92 (0.80 to 1.05)	0.91 (0.80 to 1.04)
Risk ratio				
Admitted to the hospital†	0.94 (0.89 to 0.98)	0.93 (0.89 to 0.98)	0.97 (0.88 to 1.08)	0.95 (0.86 to 1.04)
Difference				
Log length of stay†	0.02 (−0.03 to 0.07)	0.02 (−0.03 to 0.07)	−0.05 (0.13 to 0.04)	−0.04 (−014 to 0.04)

*Adjusted for age, sex, insurance status, triage level, admission to hospital, and observation unit stay.
†Adjusted for age, sex, insurance status, and triage level.

Keyes DC et al. Ann Emerg Med 2014

A controlled evaluation of comprehensive geriatric assessment in the emergency department: the 'Emergency Frailty Unit'

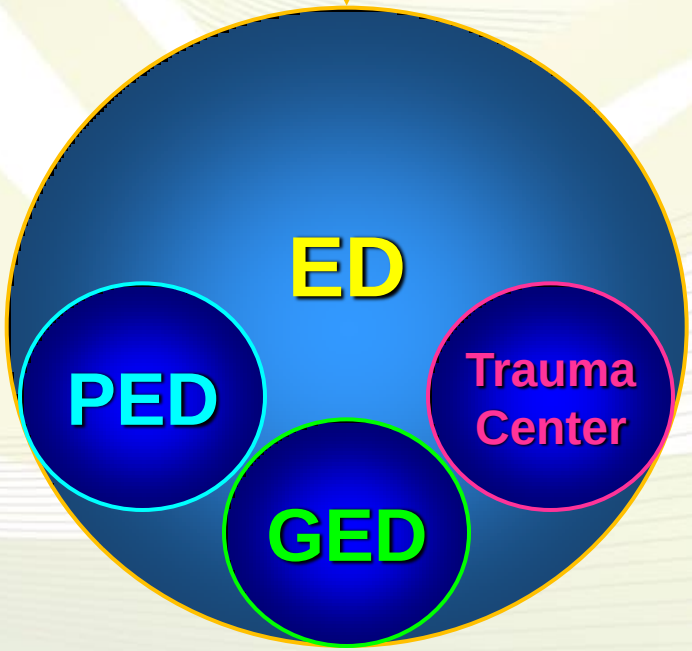
	Usual care	Intervention period
Setting	Emergency decision unit within the emergency department	Unchanged
Integration with main emergency department	Short walk, tannoy system and pathways	Unchanged except for additional frailty pathways
Clinical leads	Emergency physicians	Emergency physicians and geriatricians
Nursing	Emergency medicine	Emergency medicine with some additional training in geriatric syndromes and manual handling
Care coordination	Primary care coordinators with good knowledge of and access to community services	Unchanged
Comprehensive geriatric assessment (medical diagnoses, medication, problem list, mental health, basic and instrumental activities of daily living, social circumstances, environmental issue and spirituality)	Primary care coordinators working with nurses and therapists, supported by emergency physicians	As before with specialist geriatrician input and integrated clerking proforma Additional education and training and team-working
Access to specialist geriatrician	Via ad hoc phone calls or outpatient referrals	Embedded geriatrician available 8-6pm seven days per week
Access to community services	All community hospital and intermediate care service available	Unchanged but greater promotion and use of community services

- ED conversion:
  - 75-84 61.1→54.1
  - 85+ 69.6→61.2
- Ricovero entro 7gg
  - 75-84 4.6→3.8
  - 85+ 4.7→3.3
- Ricovero entro 30gg
  - 75-84 11.4→8.8
  - 85+ 12.4→9.2
- Ricovero entro 90gg
  - 75-84 21.8→18.3
  - 85+ 26.0→19.9
- LoS
  - 75-84 7.9→9.1
  - 85+ 8.9→11.1

Conroy SP et al. Age Ageing 2014

GERIATRIC HOSPITAL

GENERAL HOSPITALS



SMALL HOSPITALS

GEDIs

- Education
- Structural modifications
- Cognitive assessment
- Pain management
- Transitional care
- Frailty screening
- Stratification tools
- Triage
- Observation
- Discharge planning

Grazie per l' attenzione