L’ANZIANO IN PRONTO SOCCORSO

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Journal Club del Venerdì

Gruppo di Ricerca Geriatrica

EPIDEMIOLOGIA

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

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Study objective: In 2005, the Centers for Disease Control and Prevention reported increasing emergency department (ED) visit rates per 100 people. The greatest increase in visit rate was among individuals 65 years and older. Given that older ED visitors have longer lengths of stay in the ED, are more likely to be admitted, and compose a growing proportion of the American population, this finding could have a significant negative effect on ED crowding. The first step toward addressing this issue is a better understanding of the nature of these visits.

Methods: We performed trend analysis for persons aged 65 years and older using 1993 to 2003 National Hospital Ambulatory Medical Care Survey data, an annual national sample of visits to the EDs of nonfederal general and short-stay hospitals. SAS 9.1 computed population estimates and standard errors for number of ED visits. Annual census data were used to compute visit rates per 100 persons. A least-squares test for trend determined slopes and 95% confidence intervals.

Results: Visits for patients aged 65 to 74 years increased 34% during the study period. The visit rate for blacks increased 93% to 77 visits per 100 population, whereas the rate for whites increased 26% to 36 visits per 100. The admission rate did not change significantly during the study period. The number of visits at which 3 or more medications were prescribed increased 44%. The increased visits occurred primarily in the category of "other and undefined" diagnoses (90% increase).

Conclusion: If these trends continue, ED visits in the United States for the 65- to 74-year-old group could nearly double from 6.4 million visits to 11.7 million visits by 2013. [Ann Emerg Med. 2007;xx: xxx.]

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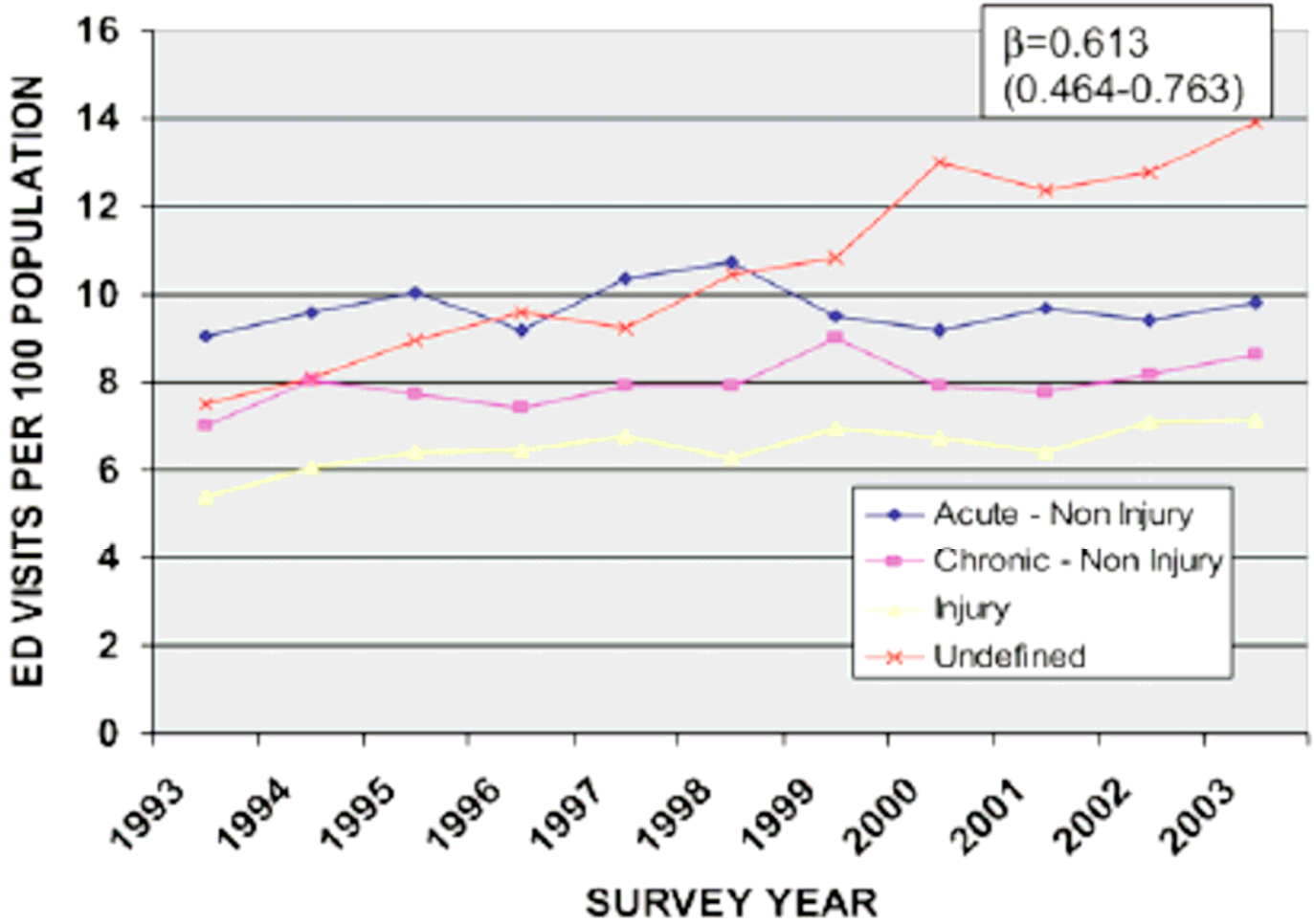
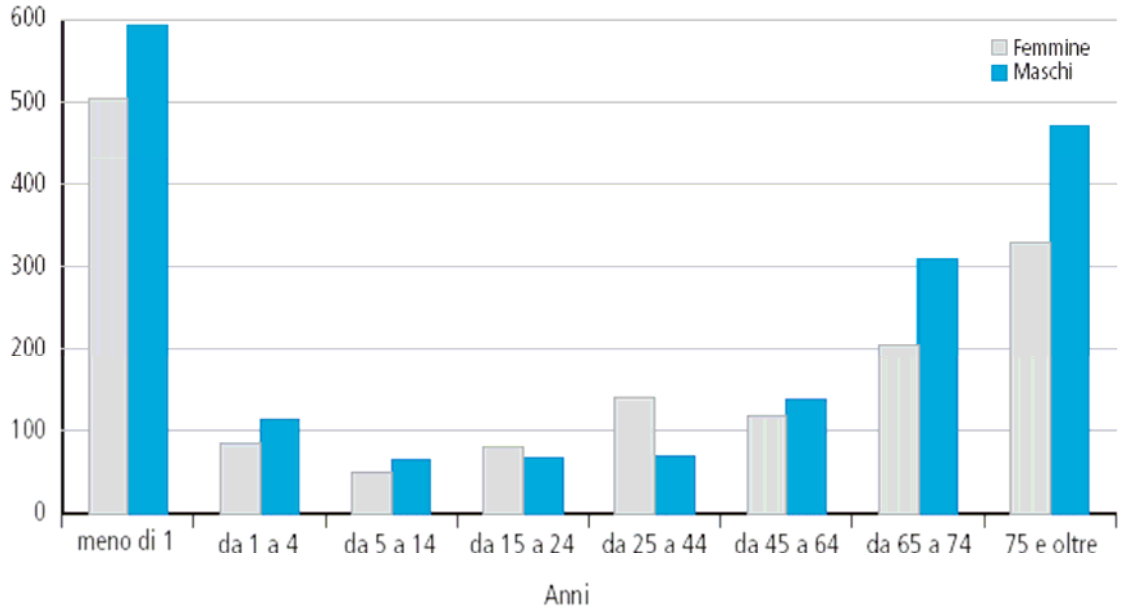


Figure 2. ED visit rates by diagnosis category, ages 65 to 74 years.

Tabella 3 Accessi in Pronto Soccorso per 1.000 abitanti nell'anno 2003

Regione	% di ricoverati sul totale degli accessi in Pronto Soccorso	Accessi in Pronto Soccorso per 1.000 abitanti
Piemonte	12,6	400,7
Valle d'Aosta	15,7	383,5
Lombardia	17,4	65,2
Prov. Auton. Bolzano	15,5	392,6
Prov. Auton. Trento	11,7	498,9
Veneto	16,7	455,9
Friuli Venezia Giulia	16,4	329,8
Liguria	19,6	344,1
Emilia Romagna	16,0	409,3
Toscana	15,9	338,1
Umbria	23,5	456,7
Marche	15,7	384,0
Lazio	19,6	416,7
Abruzzo	29,8	443,1
Molise	39,8	488,4
Campania	16,6	454,1
Puglia	30,9	359,6
Basilicata	32,7	324,1
Calabria	27,1	410,2
Sicilia	24,6	412,3
Sardegna	20,7	233,9
TOTALE	19,7	347,7

Fonte: Ministero della Salute, Sistema Informativo Sanitario



nte: Ministero della Salute, Scheda di dimissione ospedaliera

Figura 3 Tassi di ospedalizzazione per fasce di età e sesso. Ricoveri per acuti in regime ordinario - Anno 2003 (dati per 1.000 abitanti).

Demographics:

- The oldest old (>85) is the most rapidly growing proportion of the overall population.
- The older population expanded from 12.3 million to 35 million between 1950 and 2000. This is projected to double over the next 30 years.
- Older patients will increase from 15% to 25% of ED visits in the next 30 years.
- ED utilization in the 65 years and older age group is increasing more than in any other demographic group with a 26% increase in visit rate from 1993-2003.
- In 2002, 58% of 75-year-olds vs 39% of those of all ages had at least 1 visit to an ED.

Geriatric Emergency Medicine Section
A Newsletter from the American College of Emergency Physicians

L’anziano in PS - epidemiologia

	PS United States 2004	PS Poliambulanza 2004 - 2005	PS S.Anna 2006 – 2007
> 65 anni	25% (↑ 26% in 10 aa)	21%	23.9%
> 85 anni		3.3%	5.1%

Emergency department utilization patterns among older adults.

Wolinsky FD, et al. J Gerontol A Biol Sci Med Sci 2008;63(2):204-9.

BACKGROUND: We identified 4-year (2 years before and 2 years after the index [baseline] interview) ED use patterns in older adults and the factors associated with them. METHODS: A secondary analysis of baseline interview data from the nationally representative Survey on Assets and Health Dynamics Among the Oldest Old linked to Medicare claims data. Participants were 4310 self-respondents 70 years old or older. Current Procedural Terminology (CPT) codes 99281 and 99282 identified low-intensity use, and CPT codes 99283-99285 identified high-intensity use. Exploratory factor analysis and multivariable multinomial logistic regression were used. RESULTS: The majority (56.6%) of participants had no ED visits during the 4-year period. Just 5.7% had only low-intensity ED use patterns, whereas 28.9% used the ED only for high-intensity visits, and 8.7% had a mixture of low-intensity and high-intensity use. Participants with lower immediate word recall scores and those who did [illegible] w-intensity-only ED users. Older individuals, th[illegible] and functional status burdens, and lower[illegible]tensity-only ED users. Participants who w[illegible]els, had greater morbidity and functional statu[illegible]re likely to have mixed ED use patterns. CONCLUSIONS: Nearly half of these older adults used the ED at least once over a 4-year period, with a mean annual ED use percentage of 18.4. Few, however, used the ED only for visits that may have been avoidable. This finding suggests that triaging Medicare patients would not decrease ED overcrowding, although continued surveillance is necessary to detect potential changes in ED use patterns among older adults.

Anziani si presentano in PS per reale stato di malattia

Continuity of primary care and emergency department utilization among elderly people.

Ionescu-Ittu R, **et al.**

CMAJ. 2007 Nov 20;177(11):1362-8.

BACKGROUND: People aged 65 years or more represent a growing group of emergency department users. We investigated whether characteristics of primary care (accessibility and continuity) are associated with

Gli anziani si presentano in PS per mancanza di altri punti di riferimento

con years or m data on t a visit was made to an emergency department per 1000 days at risk [i.e., alive and not in hospital] during the 2-year study period), use of hospital and ambulatory physician services, residence (urban v. rural), socioeconomic status, access (physician: population ratio, presence of primary physician) and continuity of primary care. RESULTS: After adjusting for age, sex and comorbidity, we found that an increased rate of emergency department use was associated with lack of a primary physician (adjusted rate ratio [RR] 1.45, 95% confidence interval [CI] 1.41-1.49) and low or medium (v. high) levels of continuity of care with a primary physician (adjusted RR 1.46, 95% CI 1.44-1.48, and 1.27, 95% CI 1.25-1.29, respectively). Other significant predictors of increased use of emergency department services were residence in a rural area, low socioeconomic status and residence in a region with a higher physician:population ratio. Among the patients who had a primary physician, continuity of care had a stronger protective effect in urban than in rural areas. INTERPRETATION: Having a primary physician and greater continuity of care with this physician are factors associated with decreased emergency department use by elderly people, particularly those living in urban areas.

Does lack of social support lead to more ED visits for older adults?

Hastings SN, **et al.** Am J Emerg Med. 2008 May;26(4):454-61.

OBJECTIVE: The goals of this study were to (1) determine whether level of social support and living situation predicted emergency department (ED) use among older adults and (2) identify correlates of ED visits according to whether the patient was admitted to the hospital. METHODS: Secondary analysis of a longitudinal, prospective study was conducted. RESULTS: In adjusted analyses, subjects who lived alone were 60% more likely to visit the ED than those who lived solely with their spouse. Neither type nor level of social support as measured by the Duke Social Support Index predicted ED use. Indicators of poor physical health (prior hospitalization, poorer self-rated health, and functional disability) were predictors of ED visits that resulted in hospitalization; however, these were not significantly associated with outpatient ED visits. DISCUSSION: Older adults who live alone are more likely to visit the ED.

Gli anziani si presentano in PS per condizioni di precarietà di salute-stato funzionale, e di solitudine

Hospital characteristics and emergency department care of older patients are associated with return visits.

McCusker J, et al. Acad Emerg Med. 2007 May;14(5):426-33.

OBJECTIVES: To explore hospital characteristics and indicators of emergency department (ED) care of older patients associated with return visits to the ED. METHODS: Provincial databases in the province of Quebec, Canada, and a survey of ED geriatric services were linked at the individual and hospital level, respecti n ED during 2 welling individua me. Charact c services in the hospital and the ED. Indicators of ED care at the initial visit included day of the visit, availability of hospital beds, and relative crowding. The main outcome was time to first return ED visit; the authors also analyzed the type of return visit (with or without hospital admission at return visit, and return visits within seven days). RESULTS: In multilevel multivariate analyses adjusting for patient characteristics (sociodemographic, ED diagnosis, comorbidity, prior health services utilization), the following variables were independently associated ($p < 0.05$) with a shorter time to first return ED visit: more limited ED resources, fewer than 12 ED beds, no geriatric unit, no social worker in the ED, fewer available hospital beds at the time of the ED visit, and an ED visit on a weekend. CONCLUSIONS: In general, more limited ED resources and indicators of ED care (weekend visits, fewer available hospital beds) are associated with return ED visits in seniors, although the magnitude of the effects is generally small.

Gli anziani ritornano in PS se non hanno ricevuto adeguate risposte mediche

Differenze paziente anziano vs giovane nel PS "S.Anna" nel 2007

	TOTALE	< 65 ANNI	> 65 ANNI	*p*
N. accessi	28'861	21'888 (75.8)	6'973 (24.2)	
Codice di Triage				
Bianco	1'445	1'237 (5.7)	208 (2.9)	.000
Verde	24'976	19'676 (89.9)	5'304 (76.2)	.000
Giallo	2'300	930 (4.2)	1'370 (19.6)	.000
Rosso	140	49 (0.2)	91 (1.3)	.000
N. ricoveri o trasferimenti	4'232 (13.9)	2'088 (9.5)	2'144 (30.7)	.000
Decessi	33	11 (0.0005)	21 (0.003)	n.s.
N. prestazioni	203'303	123'545 (60.8)	79'758 (39.2)	
per paziente		5.6	11.4	.000
Minuti trascorsi in PS	84.04	66.5	86.5	.003

[Numero assoluto (%)]

Numero di prestazioni suddivise per tipo – confronto anziano vs giovane nel PS “S.Anna” nel 2007

	< 65 ANNI	**> 65 ANNI**	Rapporto giovane:vecchio
Anestesia	50	104 (67.5)*	1.3 : 10
Cardiologia	1’916	2’151 (52.9)	0.3 : 10
Chirurgia generale	311	200 (75.7)	0.5 : 10
Chirurgia vascolare	193	250 (56.4)	1.4 : 10
Laboratorio analisi	50’537	47’419 (48.6)	3.4 : 10
Medicina	197	787 (79.9)	0.8 : 10
Neurologia	297	317 (51.6)	3.1 : 10
Ortopedia	3’394	1’408 (29.3)	7.6 : 10
Otorino	821	401 (32.8)	6.6 : 10
Pronto soccorso	48’084	20’430 (29.9)	7.5 : 10
Radiologia	10’256	4’999 (32.8)	6.5 : 10

* % prestazioni rispetto al totale

Older Adults in the Emergency Department

Older patients are more likely to

- have an emergent or urgent condition
- arrive by ambulance
- be refferd to the ED by their primary care physician
- be hospitalized (30-50% of all ED visits; 2.5-4.6 times higher than for younger)
- be admitted to a critical care unit
- receive a greater number of diagnostic tests
- spend longer time in the ED
- have higher charges for their ED services.

Cardiopulmonary complaints are most common (chest pain and dyspnea each comprising 11% of chief complaints), followed by abdominal pain, vertigo, and generalized weakness. Among surgical emergencies, traumatic injuries caused by falls are the most prevalent.

(JAGS 2007; Acad Emerg Med 2003; Ann Emerg Med 2002)

Older Adults in the Emergency Department

- 25% of older adults in the ED are affected by geriatric syndrome: delirium, falls, incontinence, failure to thrive, problems of caregiving
- Management of pain, loss of consciousness, dizziness and trauma is more complex
- The older adults' ED diagnoses tend to be less accurate. This has been attributed to the atypical disease presentation, polypharmacy, and multiple comorbidities in the elderly, which complicate their ED presentation, diagnosis, and management.
- Many older patients also complain of the lack of complete resolution of their presenting complaints after an ED visit.
- When discharged, older patients are more likely to have follow-up arrangements, but they experience higher rates of adverse health outcomes.

(Aminzadeh, Ann Emerg Med 2002)

Principi teorici dell'approccio geriatrico in PS

- Presentazione complessa del paziente
- Presentazione atipica di malattie comuni
- Effetto confondente della comorbilità
- Polifarmacoterapia
- Deficit cognitivi
- Differenze nei valori di normalità dei test ematochimici
- Riduzione della riserva funzionale
- Inadeguato supporto sociale
- Essenzialità della conoscenza dello stato funzionale di base
- Spesso l'accesso in PS è un'opportunità per valutare importanti condizioni di salute e di vita del paziente

Rischi del paziente anziano in PS secondari alle caratteristiche intrinseche del servizio

- stato confusionale (rumori, luce, mancanza di fineste, isolamento sociale)
- diagnosi scorrette o sottovalutate (necessità di percorso diagnostico rapido)
- posizionamento catetere vecicale
- disidratazione / non adeguata alimentazione
- scompenso glicometabolico nel paziente diabetico
- non trattamento del distress e dolore
- non prosecuzione trattamenti cronici
- cadute
- ipotermia

Patients' perceptions of quality of care at an emergency department and identification of area for quality improvement.

Muntlin A, et al. *(J Clin Nurs 2006;15:1045-56)*

- waiting time unreasonably long (34% don't know why they had to wait)
- treatment and nursing care unsatisfactory (patients should be treated as individuals and not as a group)
- informations received from physicians and nurses unsatisfactory (lack of interest in their life situations and informations about self-care)
- examination rooms, general atmosphere (lack of empathy)
- nutrition
- pain relief

TRIAGE

Triage

- Parola francese che significa “suddividere, smistare”
- Costituito in era napoleonica, da Dominique Jean Larrey, per identificare, evacuare e curare i feriti più gravi
- Gestito da infermiere professionale

giusto paziente
allocato nel posto giusto
per il giusto motivo
nel giusto tempo
con la giusta assistenza

Codice rosso:imminente pericolo di vita, il pronto soccorso si ferma e riceve immediatamente l'utente. **EMERGENZA**

Codice giallo: non c'è imminente pericolo di vita ma la situazione è grave; tempo di attesa di norma non superiore a 10 minuti. **URGENZA**

Codice verde:urgente, tempo di attesa stimato entro le due ore. **URGENZA MINORE**

Codice bianco:nessuna urgenza, tempo di attesa indefinito. **NESSUNA URGENZA**

Obiettivi da conseguire con l'attivazione di un sistema di triage

- Ridurre al minimo possibile il ritardo nell'intervento sul paziente urgente e attribuire a tutti i pazienti un codice di priorità che gradui l'accesso alle cure mediche in relazione alla loro potenziale gravità e urgenza

- Regolare il flusso dei pazienti e mantenere l'efficienza complessiva della struttura PS

Il Codice-colore: il punto di vista del Geriatra

- L'età non è un criterio di urgenza *(OK, MA…)*
- Le patologie acute dell'anziano vanno affrontate sempre come urgenti *(FORSE)*
- I tempi d'attesa secondari al sovraffollamento dei PS trasformano un codice verde nell'anziano disabile in codice giallo *(gravidanza-handicap)*
- La confusione mentale è codice giallo, ma viene poco valutata

Identifying high-risk patients for triage and resource allocation in the ED

Jennifer Prah Ruger, et al. *(Am J Emerg Med 2007;25:794–98)*

AIM: to explore whether the addition of a small number of demographic and/or presenting characteristics to the triage protocol may better identify a group of higher-risk patients from among all those included in the midlevel category (acuity C = conditions that cause significant discomfort and/or could potentially become serious, and they should be evaluated by a physician within 30-60 min).

This middle group is most problematic because it constitutes almost half of all patients.

RESULTS: patients 65 years or older were 2.5 times more likely to be hospitalized than those younger. Patients who fell from 0 to 10 ft or presented with shortness of breath, weakness or dizziness, or abdominal pain were also more likely to be admitted than those not presenting with these conditions.

Problematiche dell'accettazione d'emergenza geriatrica

Difficoltà nel raccogliere i dati (manca documentazione del curante, spesso mancano i parenti)

Atteggiamento rinunciatario del medico d'emergenza

Pitfalls in Care and Communication

- Practicing EPs have not received extensive training in geriatrics.
- The rapid triage and care process is often unable to elicit a full understanding of elderly patients to allow for optimal care.
- Multiple medical conditions, a long list of medications, communication challenges and slowly evolving problems all impair effective understanding of the patient's current need in the ED.
- Nursing home residents are frequently transported to the ED without any written documentation. Important patient information is missing in the 90% who arrive with paperwork.
- Adverse drug reactions account for 7-11% of all ED visits

Variation in medication information for elderly patients during initial interventions by emergency department physicians

Choen V, et al. *Am J Health-Syst Pharm—Vol 65 Jan 1, 2008*

Inaccurate information is responsible for as many as 50% of all medication errors in hospitals and up to 20% of adverse drug events.

The ED physician's knowledge of a geriatric patient's medication history may be incomplete or erroneous, which could present serious issues when important medical and surgical decisions arise.

The median discordance rate was 33%

Table 2.
Classes of Medications that Varied Most Frequently Among the Medication Lists of 98 Study Patients

Medication Class	No. Discrepancies
Antihypertensives	83
Supplements	60
Analgesics	39
Nitrates	34
Antiplatelets and anticoagulants	32
Respiratory agents	30
Antibiotics	30
Lipid-lowering agents	21
Ophthalmic preparations	20
Proton pump inhibitors and histamine H_2-receptor antagonists	20
Antidiabetic agents	18
Psychiatric agents	17
Herbal products	7
Osteoporosis agents	6

Parametri rilevati all'ingresso in PS:

- Pressione arteriosa
- Frequenza cardiaca
- Saturazione % O2
- Livello di coscienza
- Temperatura corporea
- Frequenza respiratoria

DOLORE?

STATO FUNZIONALE E MENTALE??

Short Portable Mental Status Questionnaire

- Che giorno è oggi? (mese, giorno, anno)
- Che giorno è della settimana?
- Come si chiama questo posto?
- Qual è il suo indirizzo?
- Quanti anni ha?
- Quando è nato?
- Chi è il Presidente della Repubblica? (o il Papa)
- Chi era il Presidente precedente? (o il Papa)
- Qual è il cognome da ragazza di sua madre?
- Sottragga da 20 tre e poi ancora fino in fondo

Sono stati proposti i seguenti *cut-score*:

0 – 3 punti = funzioni cognitive intatte
4 – 5 punti = lieve deterioramento cognitivo
6 – 8 punti = moderato deterioramento cognitivo
9 – 10 punti = severo deterioramento cognitivo.

The Richmond Agitation - Sedation Scale: RASS

Punteggio	Definizione	Descrizione	
+ 4	Combattivo	Chiaramente combattivo, violento, imminente pericolo per se stesso o per lo staff	
+ 3	Molto agitato	Aggressivo, rischio evidente di rimozione cateteri o tubi	
+ 2	Agitato	Frequenti movimenti afinalistici, disadattamento alla ventilazione meccanica	
+ 1	Irrequieto	Ansioso ma senza movimenti aggressivi e vigorosi	
0	Sveglio e tranquillo	Comprende i periodi di sonno fisiologico	
- 1	Soporoso	Non completamente sveglio, apre gli occhi allo stimolo verbale, mantiene il contatto visivo > 10 secondi	Stimolo verbale
- 2	Lievemente sedato	Brevi risvegli allo stimolo verbale, contatto visivo < 10 secondi	
- 3	Moderatamente sedato	Movimenti o apertura degli occhi allo stimolo verbale (ma senza contatto visivo)	
- 4	Sedazione profonda	Non risposta allo stimolo verbale, movimenti o apertura occhi alla stimolazione fisica	Stimolo tattile-dolorifico
- 5	Non risvegliabile	Nessuna risposta alla stimolazione tattile/dolorosa	

CASO CLINICO

G.U. 80 anni, sesso femminile

Un martedì di giugno 2008 ore 12.05

Paziente condotta in PS mediante 118, inviata dal medico curante per persistenza di febbre resistente a terapia con ceftraxone e amoxicillina+ac.clavulanico e stato soporoso ndd.

PA	100/50 mmHg
FC	85 bpm
Sat.O2	97% aa
FR	n.v.
T°C	37°C
GCS	n.v. (paziente vigile, poco collaborante, non orientata, apparentemente in delirium ipocinetico)

Esame obiettivo d'ingresso: toni ritmici, normofrequenti, pause libere. Al torace crepitazioni alle basi con MV aspro. Addome nella norma. Non edemi declivi.

Anamnesi patologica remota.

Dimessa a Novembre 2007 dalla U.O.Medicina per:

- Attacco ischemico transitorio (afasia ed emiparesi dx) in encefalopatia vascolare e degenerativa, con associato decadimento cognitivo di grado moderato e parkinsonismo
- Scompenso cardiaco (II NYHA) in cardiopatia ipertensiva. PM a permanenza per malattia del nodo del seno. Fibrillazione atriale a media risposta ventricolare
- Insufficienza renale acuta da disidratazione su cronica di grado lieve-moderato in nefropatia policistica
- Diabete mellito tipo 2
- Epatopatia cronica HCV-correlata
- Anemia normocitica di grado lieve-moderato, da disordine cronico
- Gozzo multinodulare con attuale ipertiroidismo di grado lieve; pregressa tiroidectomia parziale
- Recente cistite acuta emorragica complicata da anemizzazione (sottoposta ad emotrasfusioni) e da idroureteronefrosi bilaterale (6/07)
- Pregressa ulcera gastrica; melanosi colica e proctosigmoidite aspecifica anamnestica
- Esiti di posizionamento di protesi d'anca sinistra
- Ipoacusia neurosensoriale bilaterale

MMSE = 13/30 Barthel index = 0/100

Terapia domiciliare: Coumadin; Sinemet 250/25 mg 1 cp x 3; Lasix 25 mg 1 cp x2; Trittico 15 gtt; Zoton 15 mg1 cp; Novonorm 1mg 1 cp;Triatec 2,5 1 cp.

Prestazioni eseguite in PS.

- RX torace = tecnicamente limitato, eseguito in posizione supina; non lesioni pleuroparenchimali.
- RX addome = piccoli livelli idroaerei; coprostasi diffusa, coprostasi e gas in ampolla rettale. Immagine RX opaca in ipocondrio dx di sospetta natura litiasica.
- Esami ematici (patologici) = leucociti 9.6; Hb 10.4; MCV 96.1; urea 125; creatinina 2.9; sodio 131; gamma-GT 266; mioglobina 368; troponina 0.075; PT 59
- Consulenza internistica = si ricovera per stato soporoso da verosimile delirium ipocinetico in subocclusione intestinale, IRA su cronica, sepsi ndd (IVU?)

Terapia effettuata: nessuna.

Conferma del ricovero: ore 14.00, trasferita in reparto: ore 14.40

Impostazione diagnostico-terapeutica all'ingresso in reparto.

Richiesti TC encefalo, urocoltura, controllo enzimi cardiaci

Terapia impostata:

- idratazione + ranitidina 300mg a 80ml/h
- levofloxacina 500mg
- warfarin
- furosemide 10mg ev
- L-Dopa 100mg x3
- aereosol con steroide + beta2-agonista + anti-colinergico
- clisma

Evoluzione del quadro clinico.

Episodi di ipoglicemia nel corso della notte, trattati con sol.glucosata.

Al mattino, vigile, collaborante, esegue comandi semplici.

Al controllo ematico: neutropenia con neutrofilia, si confermano anemia lieve-moderata, insufficienza renale moderata, aumento gamma-GT, PCR = 75.7, ipertiroidismo subclinico

DIMISSIONE

10% mortality in the 3 months following an ED visits

24% of elders discharged home from the ED returned for a repeat visit within 3 months (12-20% within 1 months, 40% within 6 months)

25% of elders discharged home from the ED are hospitalized

Baseline functional dependence was the most prevalent risk factor predicting various adverse outcomes, followed by recent hospitalization or ED visit, living alone, and lack of social support.

Despite their importance, functional dependence, psychosocial concerns, and geriatric conditions are often underdetected, poorly documented, and inadequately addressed during ED encounters with older patients.

(Ann Emerg Med 2002)

Adverse health outcomes after discharge from the emergency department -- incidence and risk factors in a veteran population.

Hastings SN, **et al.** J Gen Intern Med 2007;22(11):1527-31.

N. 942 older veterans (mean age 74 years)

More than 1/3 patients experienced an adverse outcome within 90 days after ED discharge

In adjusted analyses, factor associated with increased risk included:

- higher score on the Charlson Comorbidity Index
  HR 1.11 95%CI 1.03-1.21
- ED visit within the previous 6 months
  HR 1.64 95%CI 1.30-2.06
- hospitalization within the previous 6 months
  HR 1.70 95%CI 1.30-2.22
- triage to the emergency unit vs urgent care clinic
  HR 1.76 95%CI 1.32-2.36

Quality of pharmacotherapy and outcomes for older veterans discharged from the emergency department.

Hastings SN, **et al.**

J Am Geriatr Soc. 2008 May;56(5):875-80.

OBJECTIVES: To determine whether suboptimal pharmacotherapy increases the risk of adverse outcomes in older adults discharged from the emergency department (ED). DESIGN: Retrospective, cohort study. SETTING: Academically affiliated Veterans Affairs Medical Center. PARTICIPANTS: Nine hundred forty-two veterans aged 65 and older discharged from the ED. MEASUREMENTS: The primary independent variable, suboptimal pharmacotherapy, was based on drugs-to-avoid criteria, drug-drug interactions, drug-disease interactions, or failure to satisfy explicit quality indicators (QIs). An adverse outcome was defined as one or more repeat ED visits or hospitalizations or death within 90 days of ED discharge. RESULTS: Four hundred twenty-one patients were prescribed a new medication at ED discharge. Of these, 134 (31.8%) had suboptimal pharmacotherapy; 49 (11.6%) were prescribed a drug to avoid, 53 (12.6%) received a drug that introduced a new drug-drug interaction, 24 (5.7%) were given a drug that introduced a drug-disease interaction, and 74 (17.6%) did not have a QI satisfied. Overall, 320 patients (34.0%) experienced an adverse outcome within 90 days. Multivariable analyses suggested a trend toward greater risk of adverse outcomes in patients with suboptimal pharmacotherapy (hazard ratio=1.32, 95% confidence interval=0.95, 1.84). CONCLUSION: A substantial number of older male veterans discharged from the ED may be at risk for adverse events due to suboptimal prescribing and inadequate medication monitoring. Efforts to improve the quality of pharmacotherapy in this vulnerable population are warranted.

Table 4. Frequency and Type of Quality Problems in Emergency Department Discharge Medications (Patient N = 134)

Drug	N
Beers criteria drugs (events, n = 49; patients, n = 49)	
Cyclobenzaprine	14
Diphenhydramine	9
Indomethacin	7
Promethazine	5
Amitriptyline	4
Hydroxyzine	4
Ketorolac	2
Oxybutynin	2
Doxazosin	1
Methocarbamol	1
Drug–drug interactions (events, n = 93; patients, n = 53)	
Antihypertensives—NSAIDs	49
Diuretics—NSAIDs	17
CNS agents—CNS agents	11
Glucocorticoids—NSAIDs	6
Anticholinergics—anticholinergics	4
Angiotensin-receptor antagonists—potassium	3
Warfarin—macrolides	1
Warfarin—sulfa	1
Warfarin—fluoroquinolones	1
Drug–disease interactions (events, n = 24; patients, n = 24)	
Opioid—benign prostatic hypertrophy	9
Anticholinergic—benign prostatic hypertrophy	4
Beta-blocker—diabetes mellitus	3
Corticosteroid—peptic ulcer disease	3
NSAID—peptic ulcer disease	3
Opioid—constipation	1
Tricyclic antidepressant—arrhythmia	1

No patient factors were significant predictors of suboptimal pharmacotherapy. Patients seen on the weekend and during evening or night hours were no more likely to receive suboptimal pharmacotherapy.

(Hastings, JAGS 2007)

Quality indicator (events, n = 77; patients, n = 74)*	
Prescribing QIs	
Avoid use of a medication with strong anticholinergic effects if alternatives are available	34
Avoid use of an anticholinergic agent in patients with benign prostatic hypertrophy	4
Avoid use of an NSAID if already taking one	4
Acetaminophen should be first line for osteoarthritis unless there is a documented reason to use another agent	4
Avoid use of two or more agents with low to moderate anticholinergic activity	1
Monitoring QIs	
Potassium and creatinine should be checked within 30 days after prescribing diuretic	12
Potassium and creatinine should be checked within 30 days after prescribing angiotensin-receptor antagonist	10
INR should be checked within 4 days of starting warfarin	3
In patients taking warfarin, INR should be checked within 5 days of prescribing antibiotic	3
Patients aged 70 and older should have follow-up within 10 days of being prescribed metoclopramide	1
Patients with heart failure who are prescribed an NSAID should have follow-up within 1 week	1

A randomized, controlled trial of comprehensive geriatric assessment and multidisciplinary intervention after discharge of elderly from the emergency department--the DEED II study.

Caplan GA, **et al**.

J Am Geriatr Soc. 2004 Sep;52(9):1417-23.

OBJECTIVES: To study the effects of comprehensive geriatric assessment (CGA) and multidisciplinary intervention on elderly patients sent home from the emergency department (ED). DESIGN: Prospective, randomized, controlled trial with 18 months of follow-up. PARTICIPANTS: A total of 739 patients aged 75 and older discharged home from the ED were randomized into two groups. INTERVENTION: Patients randomized to the treatment group underwent initial CGA and were followed at home for up to 28 days by a hospital-based multidisciplinary outreach team. The team implemented or coordinated recommendations. The control group received usual care. MEASUREMENTS: The primary outcome measure was all admissions, to the hospital within 30 days of the initial ED visit. Secondary outcome measures were elective and emergency admissions, and nursing home admissions and mortality. Additional outcomes included physical function (Barthel Index (total possible score=20) and instrumental activities of daily living (/12) and cognitive function (mental status questionnaire (/10)). RESULTS: Intervention patients had a lower rate of all admissions to the hospital during the first 30 days after the initial ED visit (16.5% vs 22.2%; P=.048), a lower rate of emergency admissions during the 18-month follow-up (44.4% vs 54.3%; P=.007), and longer time to first emergency admission (382 vs 348 days; P=.011). There was no difference in admission to nursing homes or mortality. Patients randomized to the intervention group maintained a greater degree of physical and mental function (Barthel Index change from baseline at 6 months: -0.25 vs -0.75; P<.001; mental status questionnaire change from baseline at 12 months: -0.21 vs -0.64; P<.001). CONCLUSION: CGA and multidisciplinary intervention can improve health outcomes of older people at risk of deteriorating health and admission to hospital. Patients aged 75 and older should be referred for CGA after an ED visit.

A Systematic Review of Interventions to Improve Outcomes for Elders Discharged from the Emergency Department

(Academic Emergency Medicine; Oct 2005)

Susan N. Hastings, MD, Mitchell T. Heflin, MD

- ED-based discharge planning program
- Comprehensive geriatric assessment performed during nurse home visit and follow-up
- Comprehensive geriatric assessment in the ED; discharge plan with referrals, summary to primary care
- Nurse case management (monthly phone call and home visit every 6 w)

↓

Improvements in the functional status
No differences in emergency and hospital readmission

Targeting a high-risk group appears to be more effective than applying intensive interventions more broadly

IDENTIFICATION OF SENIORS AT RISK (ISAR)

(McCusker et al. JAGS 1999)

- Disabilità pre-morbosa (necessità di aiuto a domicilio)
- Disabilità acuta / ingravescente
- Ospedalizzazione nei precedenti 6 mesi
- Deficit cognitivo
- Deficit visivi
- Uso di 3+ farmaci

ALTO RISCHIO: 2+ risposte positive

TRIAGE RISK SCREENING TOOL (TRST)

(Mion et al. JAGS 2001)

- Presenza di deterioramento cognitivo (es. disorientamento, incapacità di eseguire comandi semplici, diagnosi precedente di demenza o delirium)
- Vive da solo/non si riesce a reperire un caregiver
- Difficoltà nella deambulazione o storia recente di cadute
- Ospedalizzazione/accesso in PS negli ultimi 30 giorni
- 5 o più farmaci
- Valutazione da parte dell'infermiere per sospetto di:
  - Abuso/negligenza
  - Non compliance farmacologica
  - Sospetto di abuso di sostanze
  - Problemi nelle IADL o ADL (es. assunzione di cibo, problemi nei trasferimenti..)
  - Altro (specificare)

ALTO RISCHIO: deterioramento cognitivo O 2+ altri criteri

Runciman's test

(Runciman, J Adv Nurs 1996)

- Piaghe da decubito
- Deficit di memoria
- Uso di diuretici
- Incontinenza urinaria
- Uso di device per la deambulazione
- Dipendenza funzionale al momento dell'accesso in PS
- Dipendenza al momento della dimissione nel vestirsi, fare la spesa e uscire di casa da solo

ALTO RISCHIO: 2+ criteri

Rowland's test

(Rowland, Age Aging 1990)

- Uso di device per la deambulazione
- Dipendenza nel vestirsi
- Dipendenza nel prendere la pensione
- Dipendenza nel fare la spesa
- Frequentare un centro diurno
- Utilizzare i pasti a domicilio
- Necessità di aiuto a domicilio

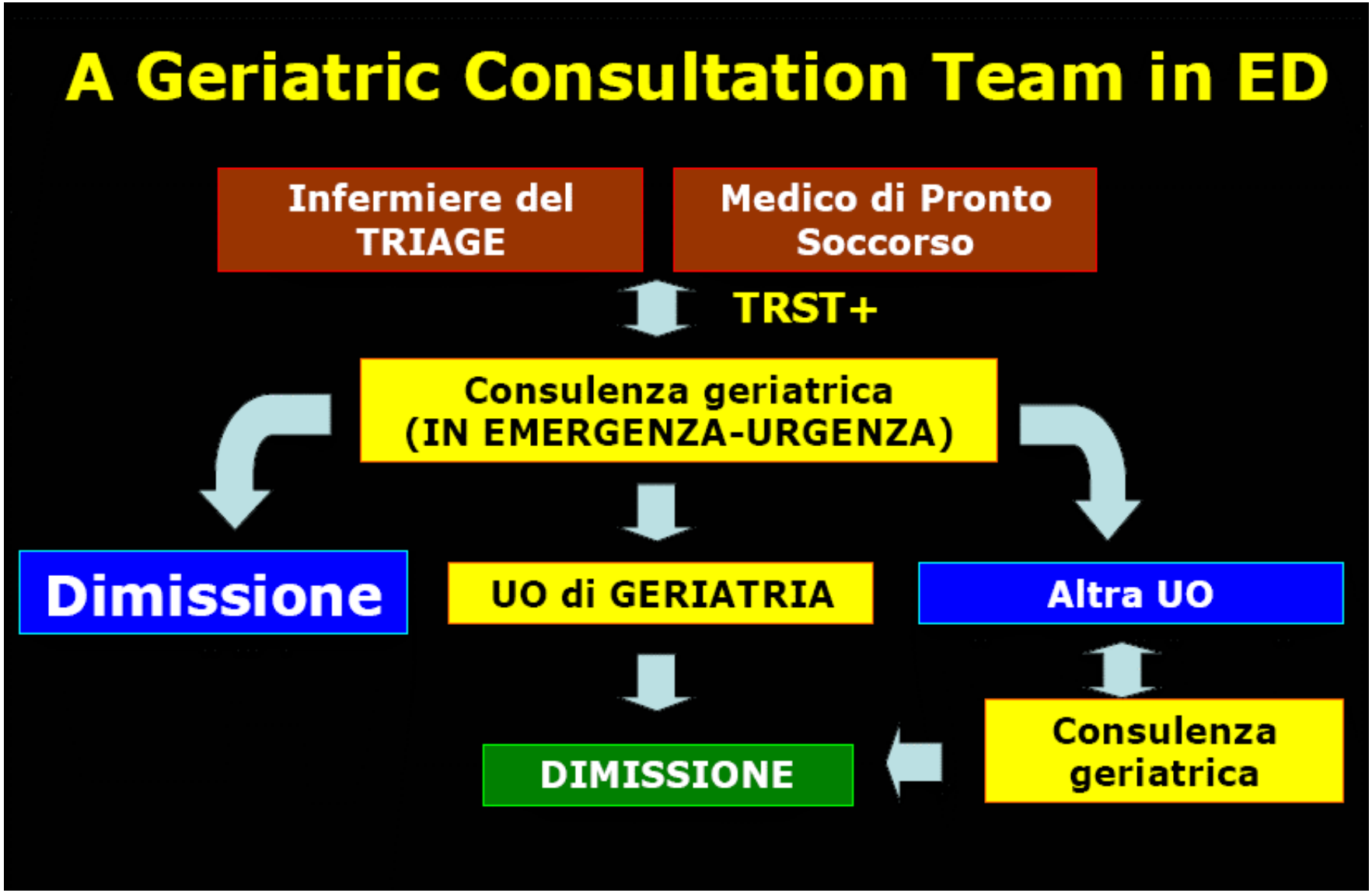
ALTO RISCHIO: 4+ criteri

Diagnostic characteristics of screening tools predicting readmission after discharge from the emergency department

(Eur J Emerg Med 2007)

Instrument	Age (years)	Cutoff score	Follow-up (days)	Sensitivity (%)	Specificity (%)
ISAR	65 +	≥ 2	180	59	57
			120	71	60
ISAR	65 +	≥ 2	30	60	Not reported
TRST	75 +	≥ 2	30	64	63
			120	55	66
Eight-item questionnaire	75 +	≥ 2	28	86.4	38.5
Seven-item questionnaire	75 +	≥ 4	14	85	28

Instrument	Follow-up (days)	Area under ROC	Cutoff score	Sensitivity (%)	Specificity (%)
ISAR	14	0.697	≥ 2	100	38
	30	0.608	≥ 2	79	37
	90	0.632	≥ 2	79	41
TRST	14	0.534	≥ 2	71	47
	30	0.568	≥ 2	64	47
	90	0.525	≥ 2	62	48
Runciman	14	0.713	≥ 4	80	60
	30	0.699	≥ 4	67	61
	90	0.679	≥ 4	59	64
Rowland	14	0.736	≥ 3	88	72
	30	0.723	≥ 3	73	75
	90	0.631	≥ 3	56	76



(Susan Gold JAGS 1997; Chiara Mussi 2007)

It has been argued that, in addition to the methodologic weaknesses, the limited success of the intervention studies targeting older ED patients may be a result of the fact that some adverse clinical outcomes, such as ED and hospital use, among the seriously ill older patients may not be avoidable.
The provision of comprehensive geriatric assessment and coordinated discharge planning may lead to a better identification and treatment of the previously undetected health problems, which can result in an actual increase in the use of acute care services, at least in the immediate post-ED discharge period.
For these patients, the potential benefits of the interventions may be realized only with longer follow-up periods and on such outcomes as enhanced patient and caregiver quality of life, improved functional level, and delayed institutionalization.
Therefore, future ED intervention studies should include a variety of quality-of-life measures, as well as indicators of the quality of health care service delivery and appropriateness of use.

(Aminzadeh, Ann Emerg Med 2002)

DISCUSSIONE
programmi di miglioramento

The Disconnect between Emergency and Elder Care

Current model of ED care are may not be meeting the needs of older adults.

After an ED visit, older adults are at greater risk for

- medical complication
- functional decline
- poorer health-related quality of life

than they were before.

Up to 27% of older adults discharged home from the ED experience revisit, hospitalization, or death within 3 months.

(Hwang, JAGS 2007;55:1873-76)

L’ossimoro “anziano in PS”

Concentrarsi su un solo sintomo	→ Comorbilità complessa; presentazione atipica della sintomatologia
Somministrazione farmaci in acuto per rapida risoluzione sintomatologia	→ Polifarmacologia; interazione farmacologica; reazioni avverse; differente farmacodinamica
Rapida acquisizione di informazioni	→ Anamnesi complessa per comorbilità, limitata per deficit di comunicazione/mancanza cargiver
Lunghi tempi d’attesa solo Attività clinica frenetica	→ Disorientamento, incapacità a esprimere i propri bisogni; disturbi comportamentali (ansia, vocalizzazioni, agitazione)
Rapida comunicazione di prescrizioni terapeutiche	→ Deficit comprensione; mancanza caregiver; deficit comunicazione con MMG
Rapido trattamento di bisogni emergenti e urgenti	→ Lenta evoluzione del processo terapeutico di bisogni complessi
Evento clinico chiaro e acuto	→ Condizioni cliniche in progressivo peggioramento

Geriatric Emergency Medicine and the 2006 Institute of Medicine Reports from the Commitee on the Future of Emergency Care in the U.S. Health System

2 recently published Institute of Medicine reports examined the current state of emergency care in the U.S., but they not discuss special needs of older patients.

Specific health and psychosocial needs unique to elders must be studied and considered in planning the emergency care system of the future.

Focus

- disaster planning (susceptibility to infections, less physiologic reserve)
- requiring caregiver
- medication
- environment
- slowly evolving problems
- alternatives to hospitalization (direct admission to NH or rehabilitation units)

(Wilber, Acad Emerg Med 2006 Dic;13:1345-51)

A research agenda for geriatric emergency medicine

Wilber ST, Gerson LW. *(Acad Emerg Med, Mar 2003;10(3): 251-60)*

Key-points:

- studi epidemiologici dell'anziano in PS
- possibilità di gestire l'anziano in ambienti extra-ospedalieri
- definire le caratteristiche ambientali del PS che influenzano gli outcome dell'anziano
- definire test di screening da utilizzare in PS per il deficit cognitivo e la disabilità funzionale
- studi per comprovare che il paziente dimesso dal PS con delirium o con disabilità funzionale ha outcome peggiori
- studi per comprovare che azioni di screening multidimensionali nell'anziano in PS siano possibili, efficaci e sostenibili (particolare attenzione a deficit visivi e uditivi, depressione, alcolismo e abuso)
- studi per comprovare l'efficacia di sistemi di prevenzione delle cadute

A research agenda for geriatric emergency medicine

Wilber ST, Gerson LW. *(Acad Emerg Med, Mar 2003;10(3): 251-60)*

Key-points [continua]**:**

- valutazione di predittori di outcome avversi
- studi per comprovare l'efficacia e sostenibilità di programmi di immunizzazione nell'anziano in PS (tetano, influenza, pneumococco)
- metodi per ridurre la prescrizione di farmaci inappropriati (formazione, supporti tecnologici)
- studi per comprendere come riconoscere il dolore addominale nell'anziano in cui sottostà un malattia severa
- studi per comprovare efficacia trombolisi in ultra-ottantenni con IMA
- studi per determinare in quali anziani vi sia efficacia della rianimazione in caso di arresto cardiorespiratorio
- studi per comprovare esito in termini di mortalità e disabilità del trattamento e monitoraggio intensivo degli anziani politraumatizzati

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 diumal 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 Abbreviated comprehensive geriatric assessments	Decrease risk of return visits or hospitalization[26,27]
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]

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Possibilità per i famigliari di accompagnare il paziente (supporto assistenziale e di informazioni)

Modificazioni strutturali

Identificazione pazienti a rischio di declino cognitivo e scarsi outcome

In Italia – Progetto "Anziano in PS", ospedale di Cinisello (MI) e Monza, premiato dalla Regione Lombardia 2006

OBIETTIVI:

- Umanizzare il percorso del paziente anziano in PS attraverso una maggior attenzione alle modalità di accoglimento (confort, attesa, necessità relazionali)
- Assicurare una maggiore continuità assistenziale

DESTINATARI DEL PROGETTO

- l'anziano > 75 anni non autosufficiente
- il soggetto responsabile delle cure (il parente, il MMG, medico di RSA, altre cooperative che erogano servizi socio-assistenziali)

In Italia – Servizio di ospedalizzazione a domicilio - Torino

L'attivazione del servizio di ospedalizzazione a domicilio può avvenire su diretta richiesta del MMG in alternativa al ricovero tradizionale oppure su richiesta dei medici dei reparti per consentire dimissioni precoci e protette o direttamente dal PS.

In PS il team medico-infermieristico dell'Oad ha il compito di valutare la possibilità di ospedalizzare a casa il paziente, se possibile entro poche ore dal suo accesso.

Percentuali di pazienti ricoverati direttamente dal Ps in Oad (dall'anno 2001 all'anno 2004)

- anno 2001: 56/367 = 15,3%
- anno 2002: 164/350 = 46,9%
- anno 2003: 219/402 = 54,5%
- anno 2004: 243/408 = 59,5%

Possibili azioni di miglioramento?

- Formazione specifica del personale alla patologia del paziente anziano
- Analisi sistematica della terapie farmacologiche e formazione specifica sulle interazioni possibili fonti di reazioni avverse
- Identificazione del paziente “ a rischio” già dal PS con l’analisi multidimensionale (collaborazione con UO Geriatria? Medicina di Comunità? MMG? Ospedalizzazione a domicilio?)
- Utilizzo della Osservazione Breve Intensiva in Pronto Soccorso per rapido inquadramento del problema e inizio della strategia terapeutica da proseguire al domicilio o in RSA quando possibile (problema del monitoraggio!)
- Maggiore coinvolgimento del MMG e dei servizi sociali

Conclusioni 1

- La metodologia di approccio clinico geriatrico è essenziale per la cura appropriata dell'anziano con patologia acuta
- La specificità risiede nel paziente più che nella malattia
- L'internista (l'intensivista) è in grado di applicare la metodologia di approccio geriatrico all'anziano acuto?
- Il geriatra è in grado di applicare l'approccio del medico di emergenza nel paziente anziano acuto?

Conclusioni 2

Il PS come è attualmente strutturato non è il luogo ideale di cura per il paziente anziano

Creare PS geriatrici

Supporto di team geriatrici
- dopo l'inquadramento della fase acuta
- al momento d'ingresso (es. gravide)
- alla dimissione

Creare protocolli di gestione del paziente acuto per le patologie prevalenti (sepsi, dispnea da scompenso cardiaco, subocclusioni intestinali)

Dare vie di priorità e diverse regole organizzative per il paziente anziano (valutazione documentazione, caregiver, assistenza/monitoraggio, astanteria)

Creare una rete informatica di segnalazione ai MMG