Emergency - where aged care policy meets reality

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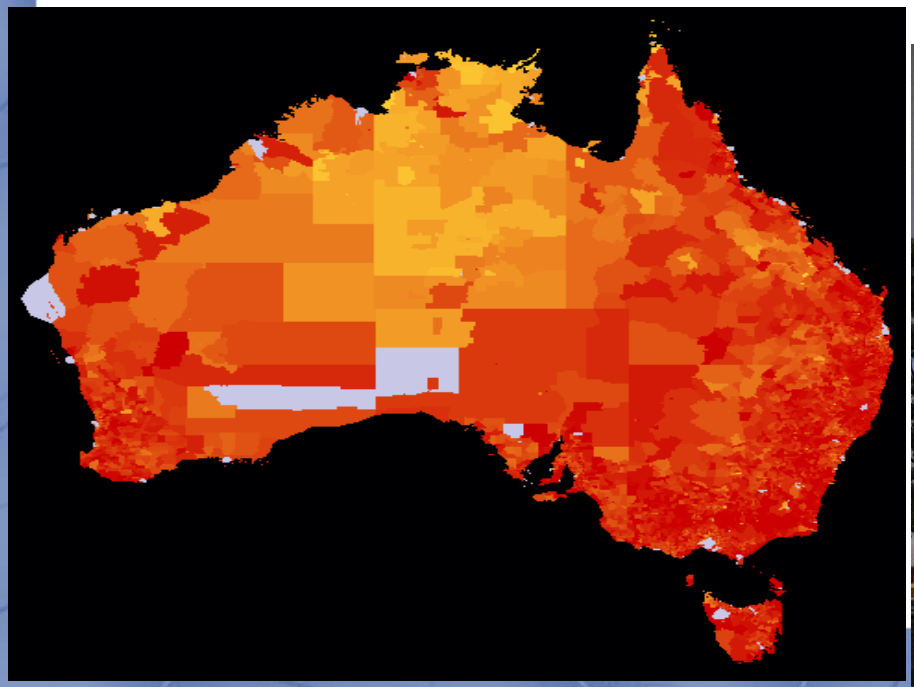
AMA
WESTERN AUSTRALIA

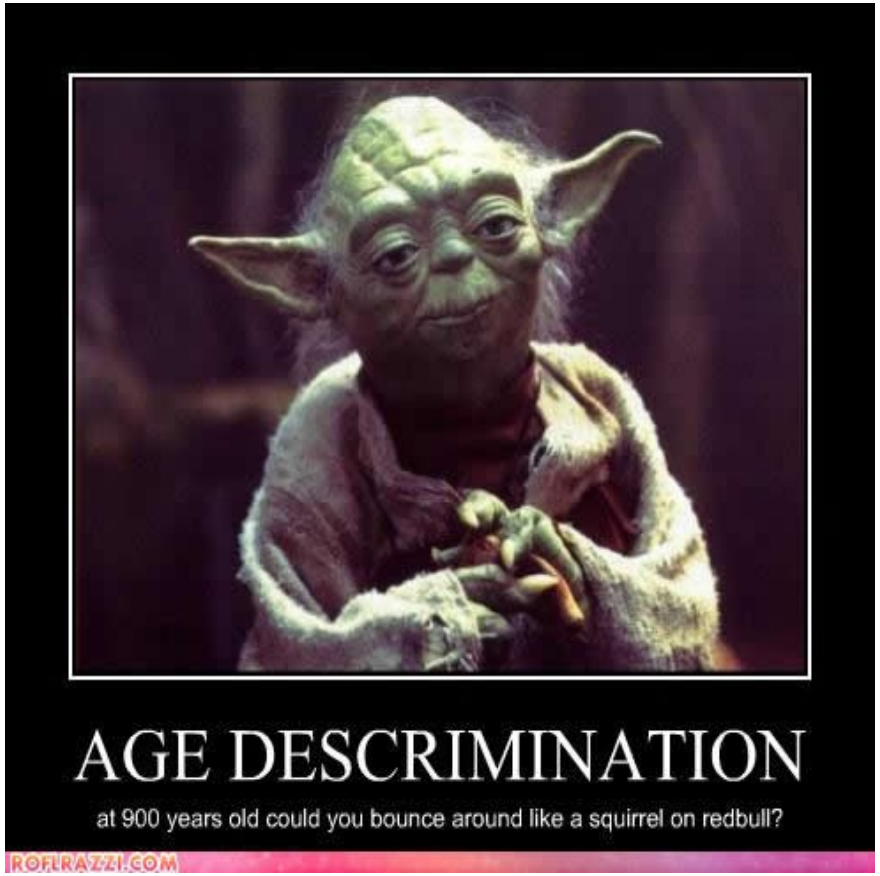
Perth WA- home

- 2.2 M
- Great ED's/ hospitals
- My ED 65000/ 35% > 65



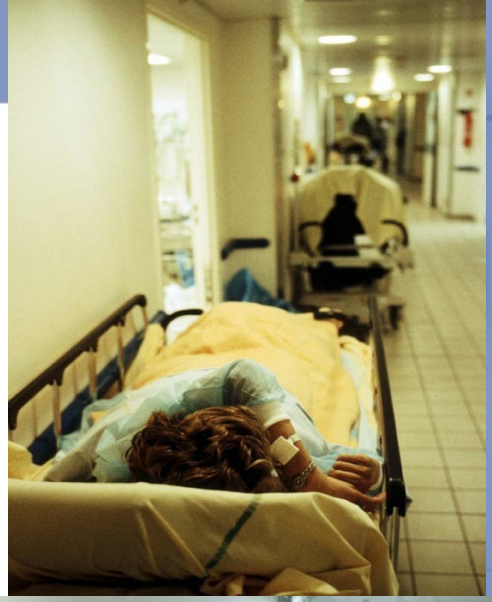
Important issues for Aged care policy and EDs

- **Overcrowded hospitals kill**
- **Demography is destiny**
- **Canaries-Policy manifests in ED's**
- **Scrimping on aged- poor policy**
- **GPs work and need support**
- **ED are aged advocates**
- **ED care effects outcomes**
- **End of life decisions vital**
  - Good deaths
  - Avoiding hospitals/ procedures
  - Senior decision makers



Major ED issues

- Overcrowding
- Access block/ ramping
- High demand
- High acuity
- High complexity
- Why important for aged?

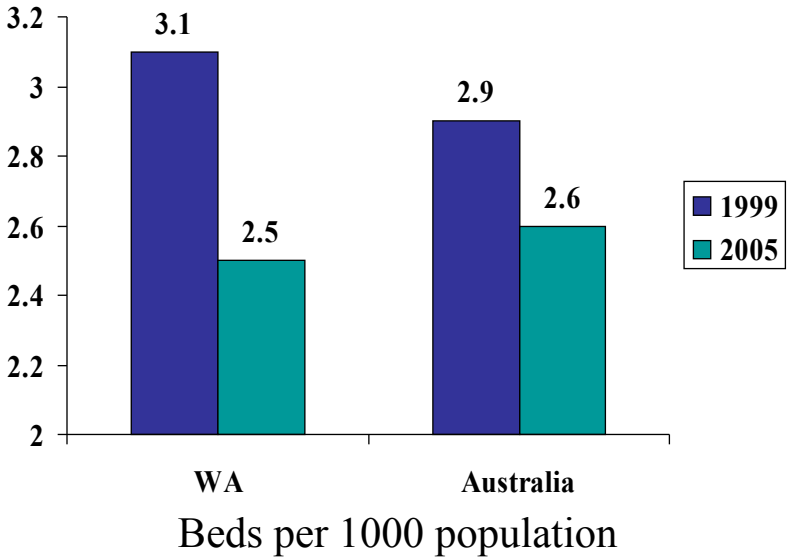


THE DATA:

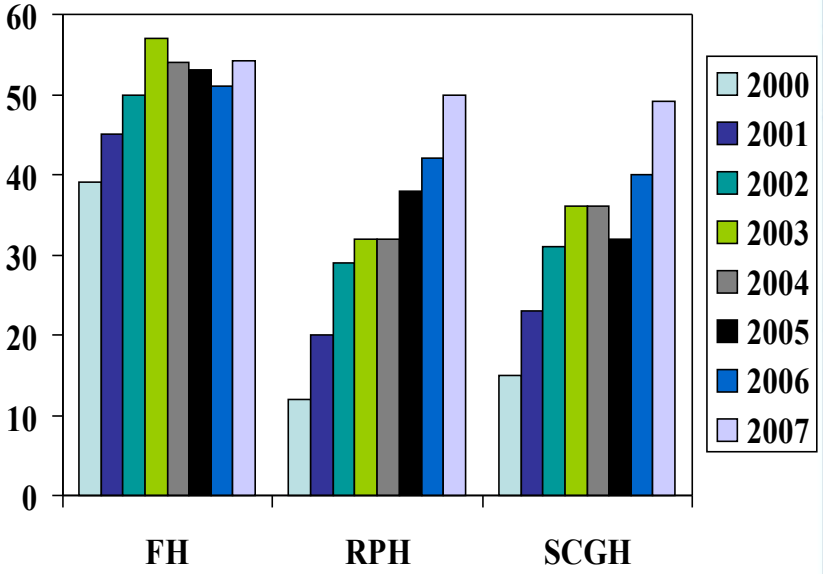
BEDS v Access BLOCK (delay of > 8 hrs for a bed) 1999 to 2006 WA

WA's public beds have reduced 18%

Australian public beds have reduced 10



% of admitted patients Access Blocked%



Australian Government
Department of Health and Ageing

Department of Health

The state of our public hospitals, June 2006 report

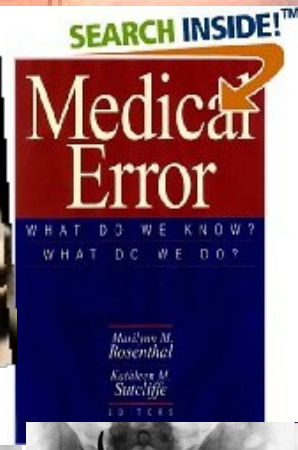
DoH WA data

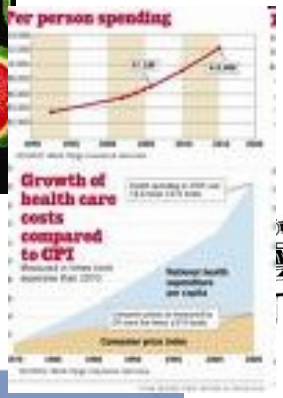
The true effects of overcrowding

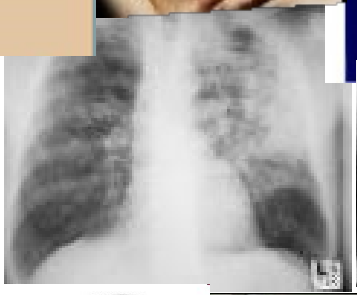
Nurses resign, 8 beds closed- WA News

RIP 1200-3000pa

'Demoralised' doctors leaving NSW hospitals- ABC







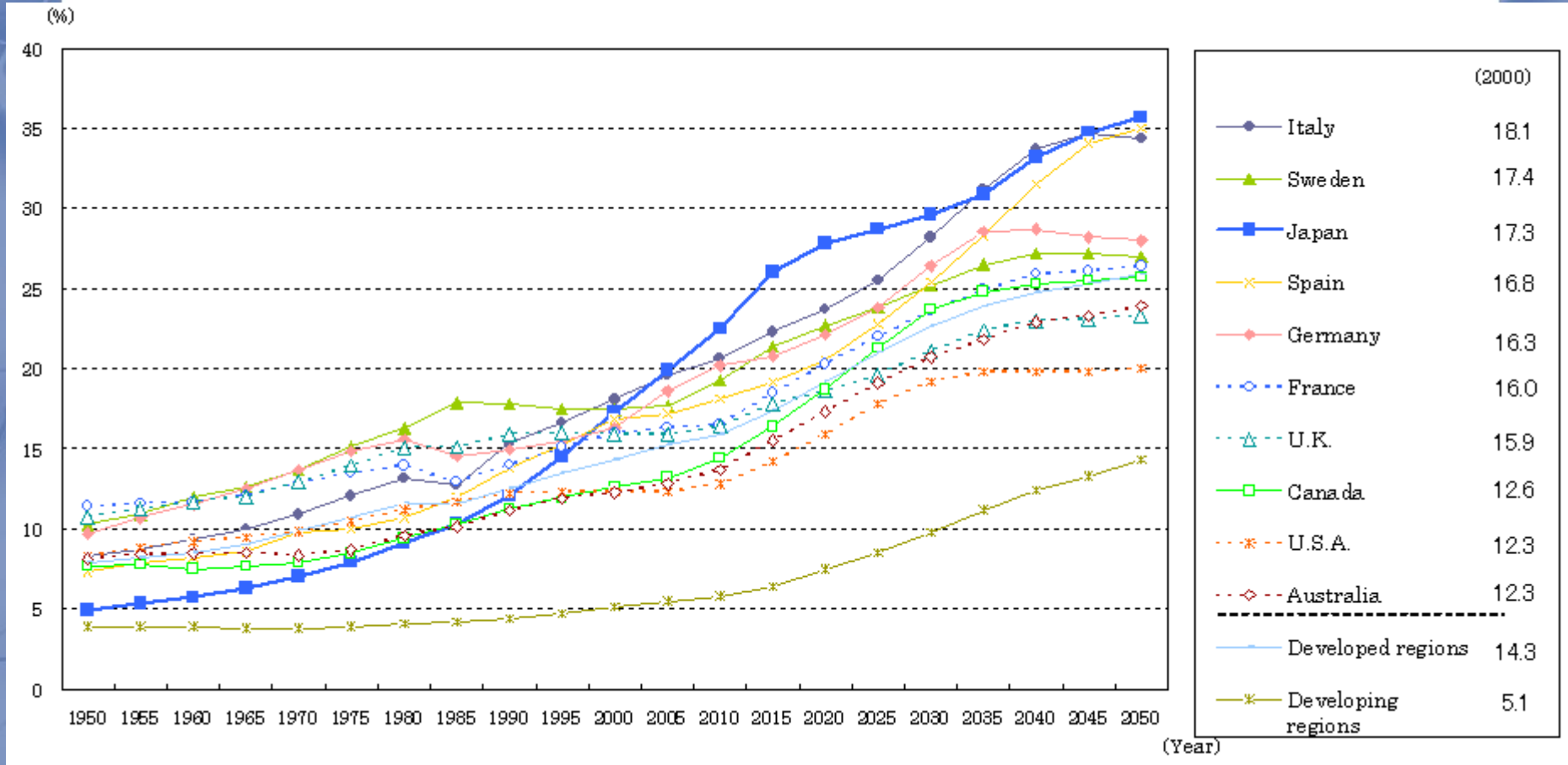
Delayed discharge costing operations- Qld Courier Mail

Overcrowded hospitals kill patients

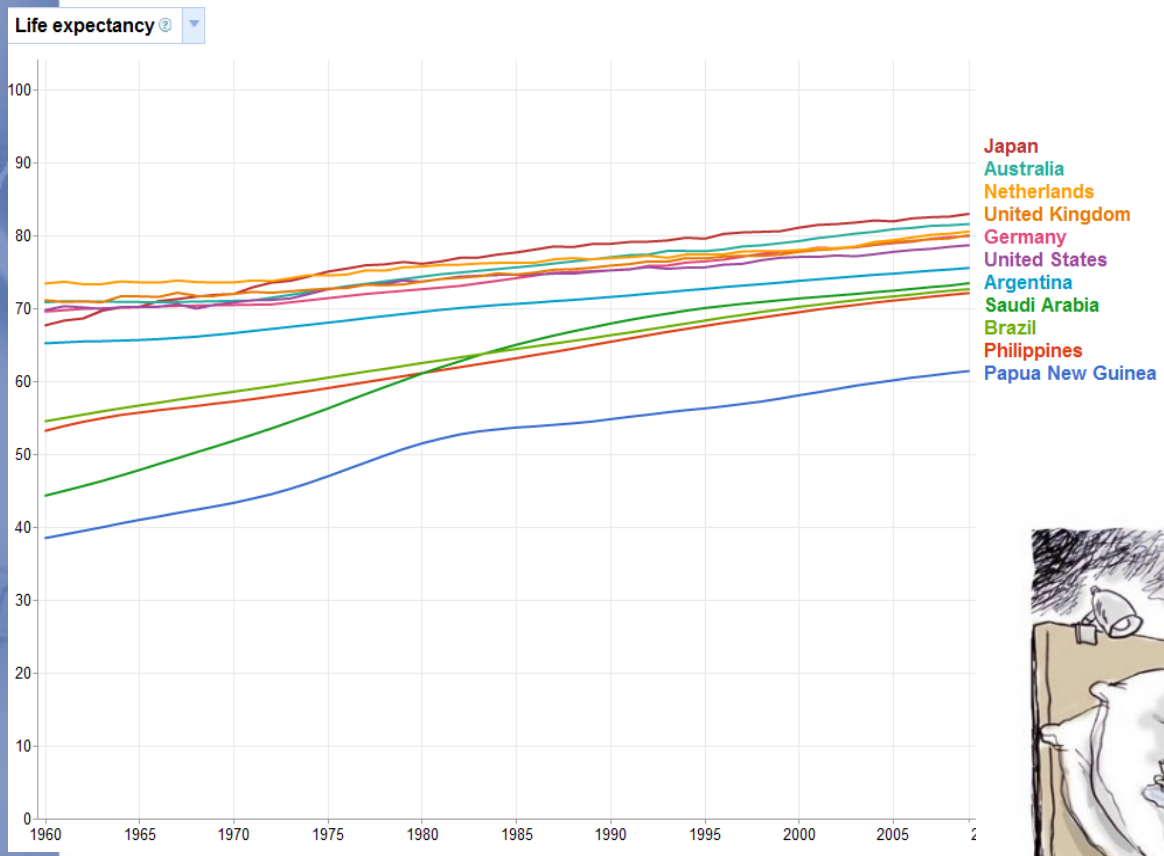
Sprivulis MJA 2006 / Richardson MJA 2006, Schull BMJ 2011 (OP), Geelhoed 2012 MJA

- **Moderately overcrowded hospitals – excess mortality of 30% for overcrowded days**
- **120 deaths - 3 hospitals, 1 year: mainly aged**
- **More elderly die (but in expected ratios)**
- **Effect also seen in discharged (Schull et al)**
- **Reduced overcrowding reduces mortality??**

Demographics:
Australias' aging- not so bad!



Ageing- it's not going away

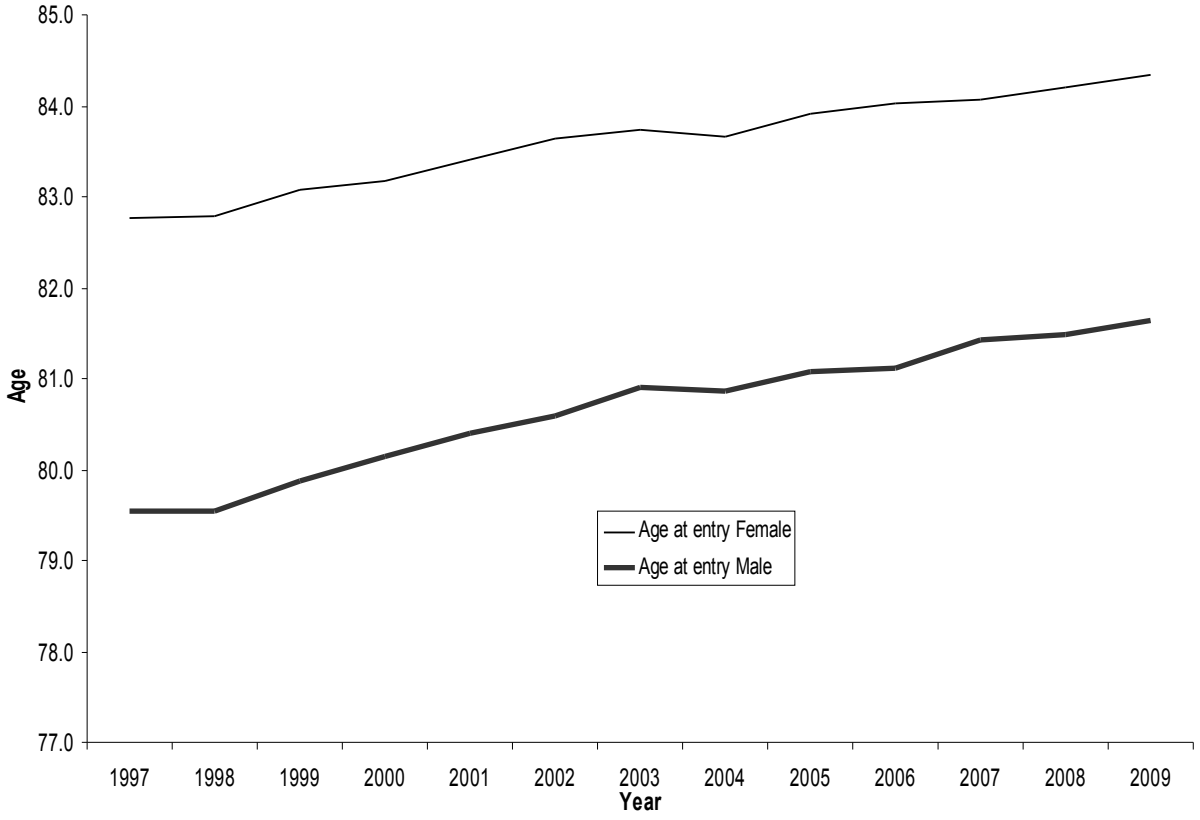


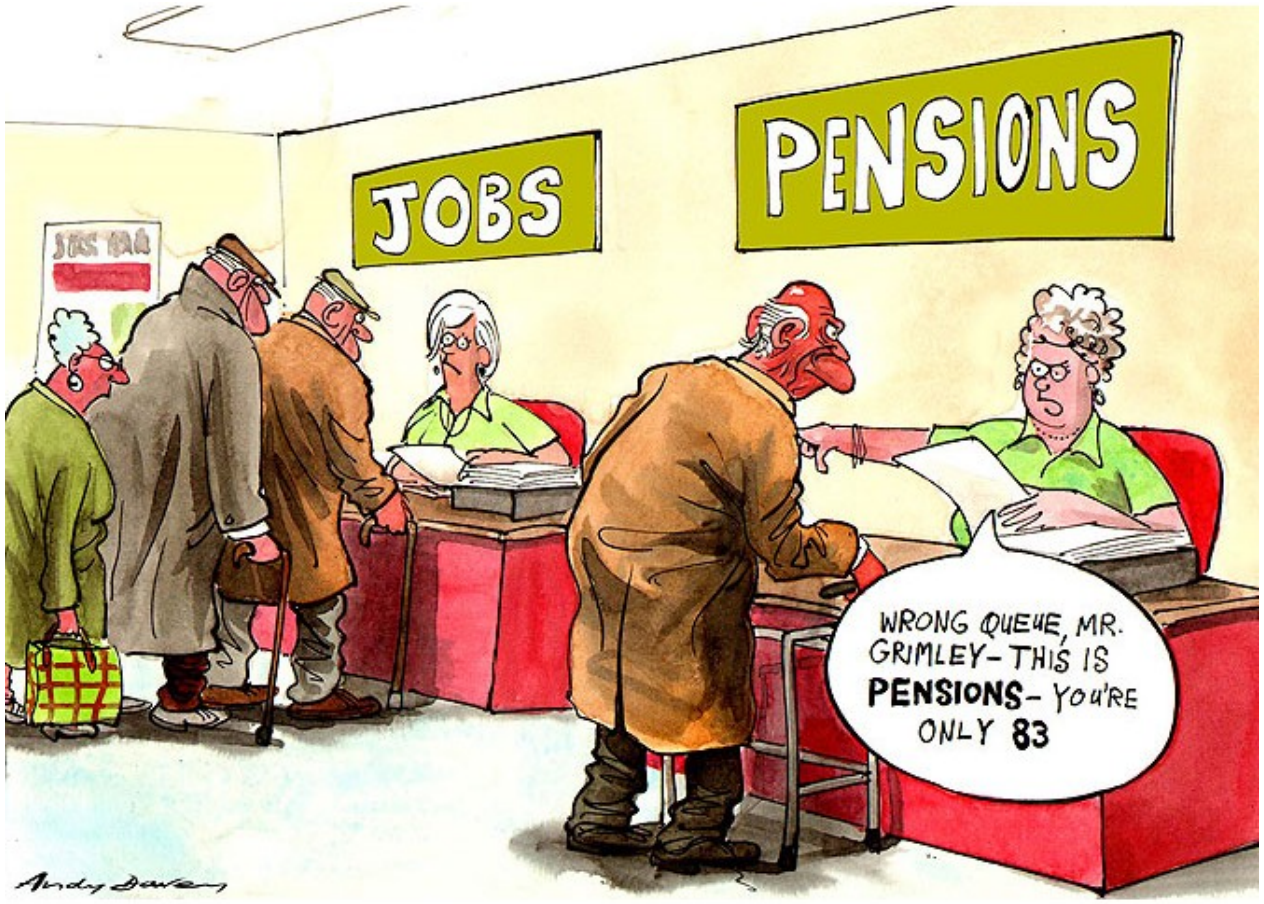
80: the new 70!

Age of first admission to residential aged care

•The age of entry for both sexes has also been increasing (Figure 13).

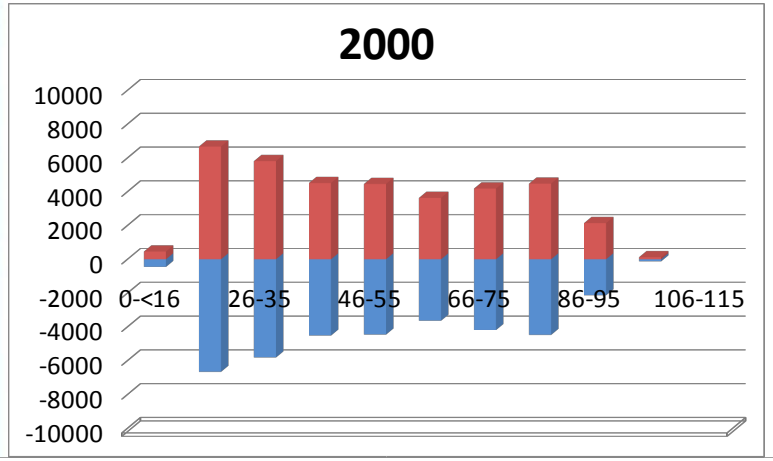
Figure 13: Average age at entry, by sex and year

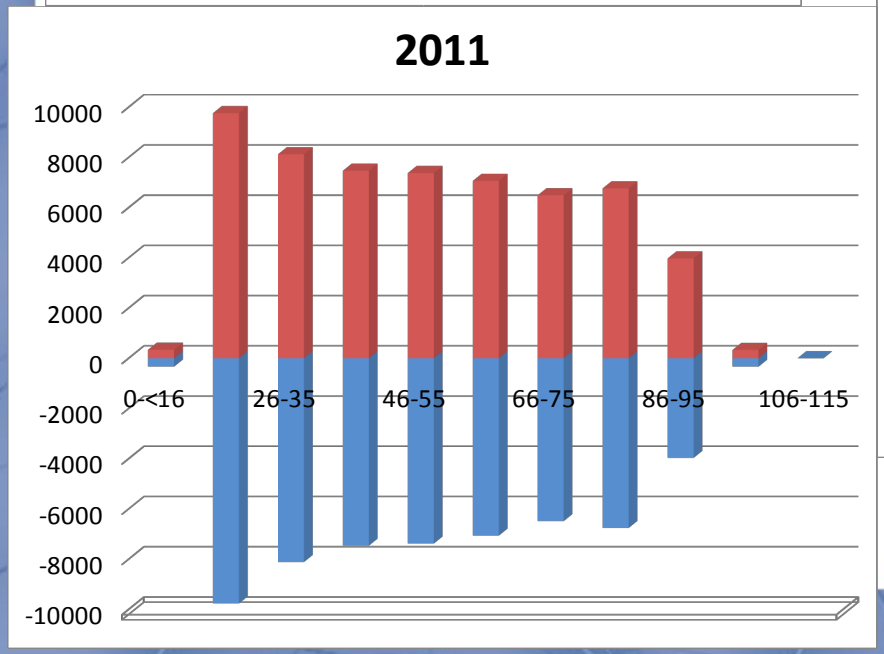


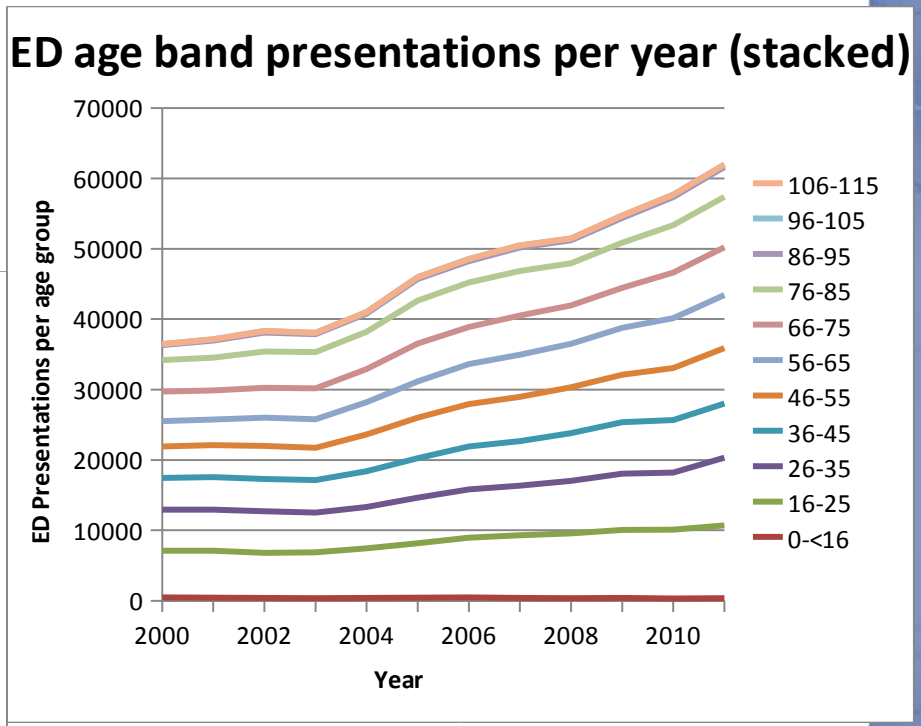

JOBS
PENSIONS
WRONG QUEUE, MR. GRIMLEY- THIS IS PENSIONS- YOU'RE ONLY 83

A little bit of age has some remarkable effects- normally good!

MY hospitals data- EDIS data set



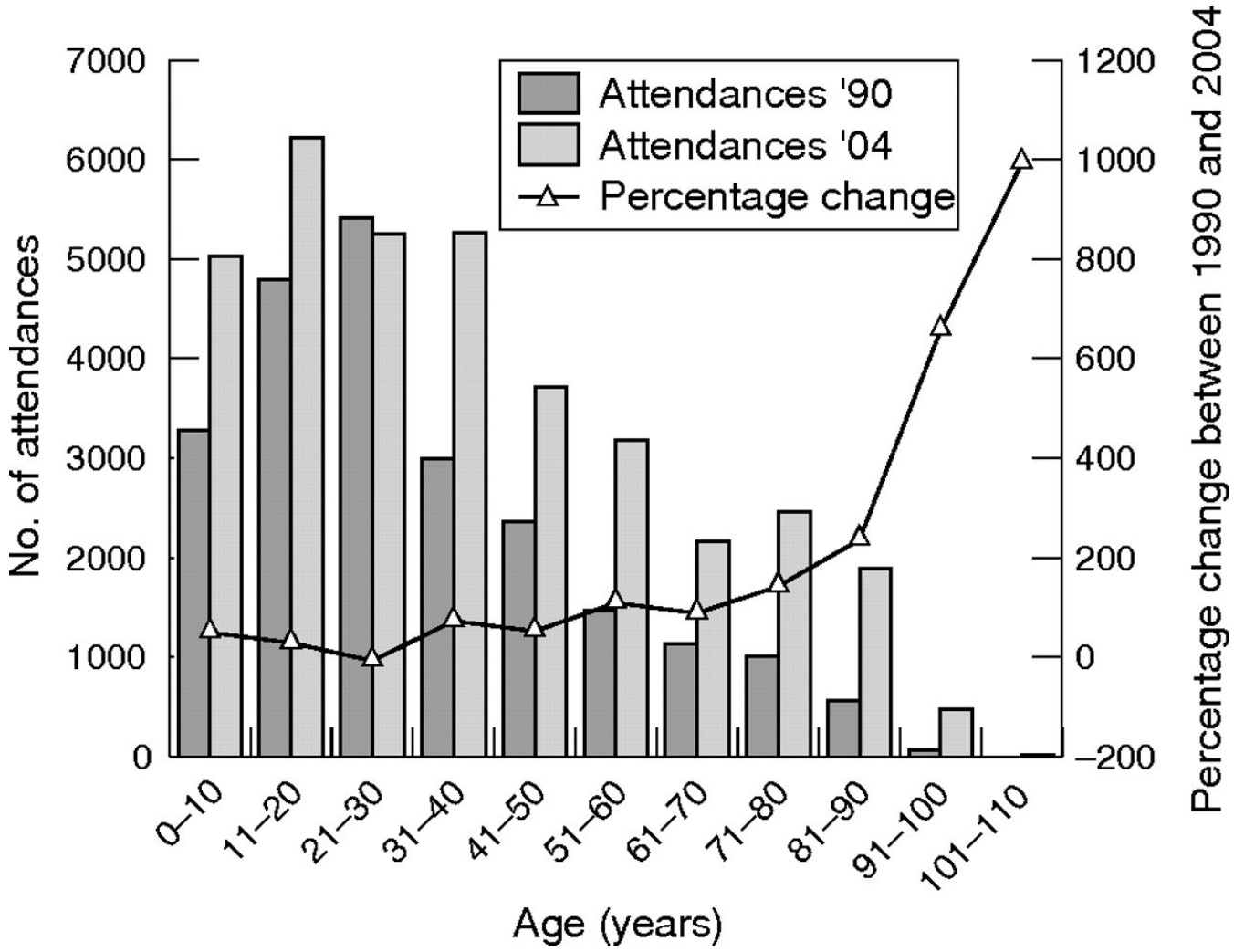




ED aged populations

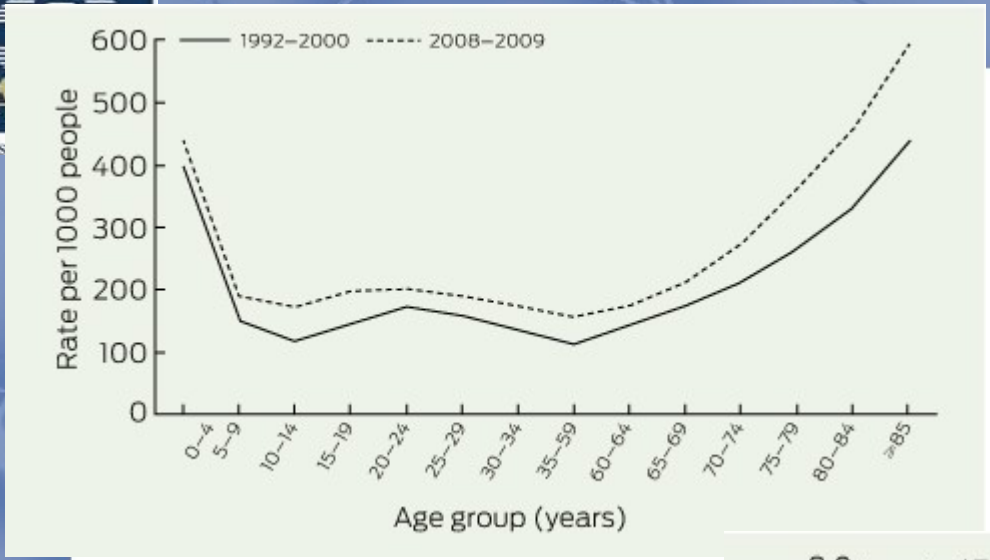
- Aged always over represented (SCGH)
- Getting older (quickly)
- Higher:
  - Ambulance use (1.5-2 x)
  - Admissions (2.5 -4.5x)
  - Higher acuity/ severity
  - Resource use > BUT diagnosis <
  - More follow up - > loss of function

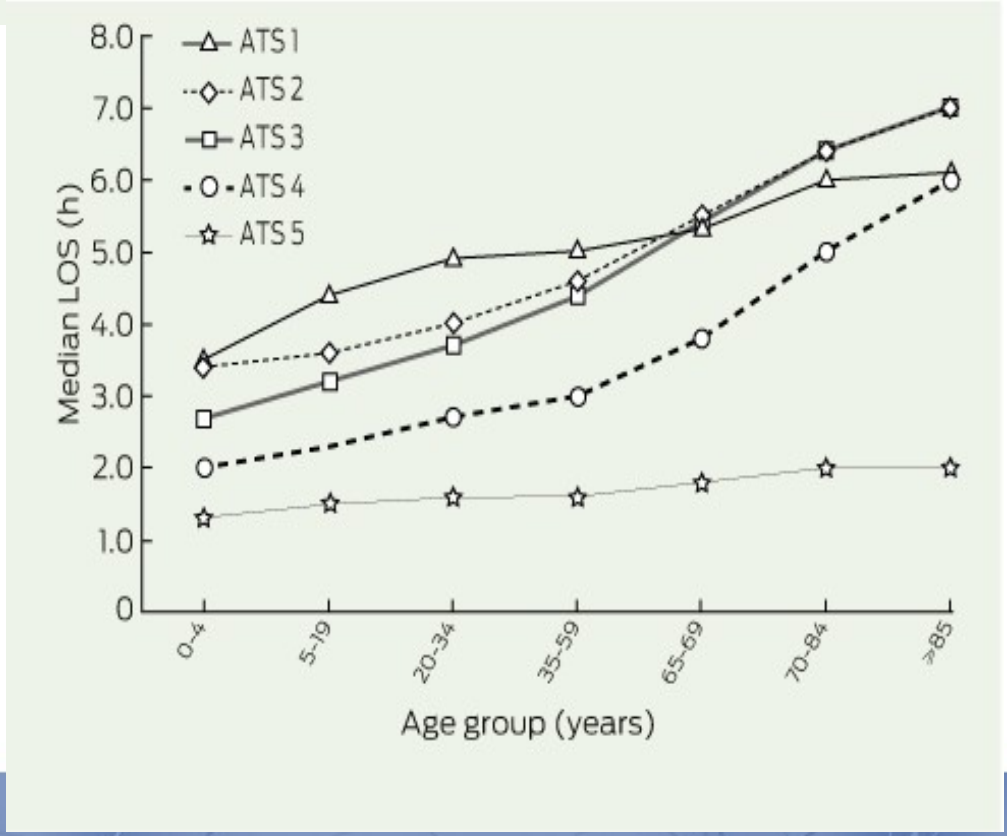
The number of patients in each decade of life who attended the emergency department in 1990 is compared with the number of patients in each decade of life who attended the emergency department in 2004.



George G et al. Emerg Med J 2006;23:379-383

Over 70s – filling ED/ wards?





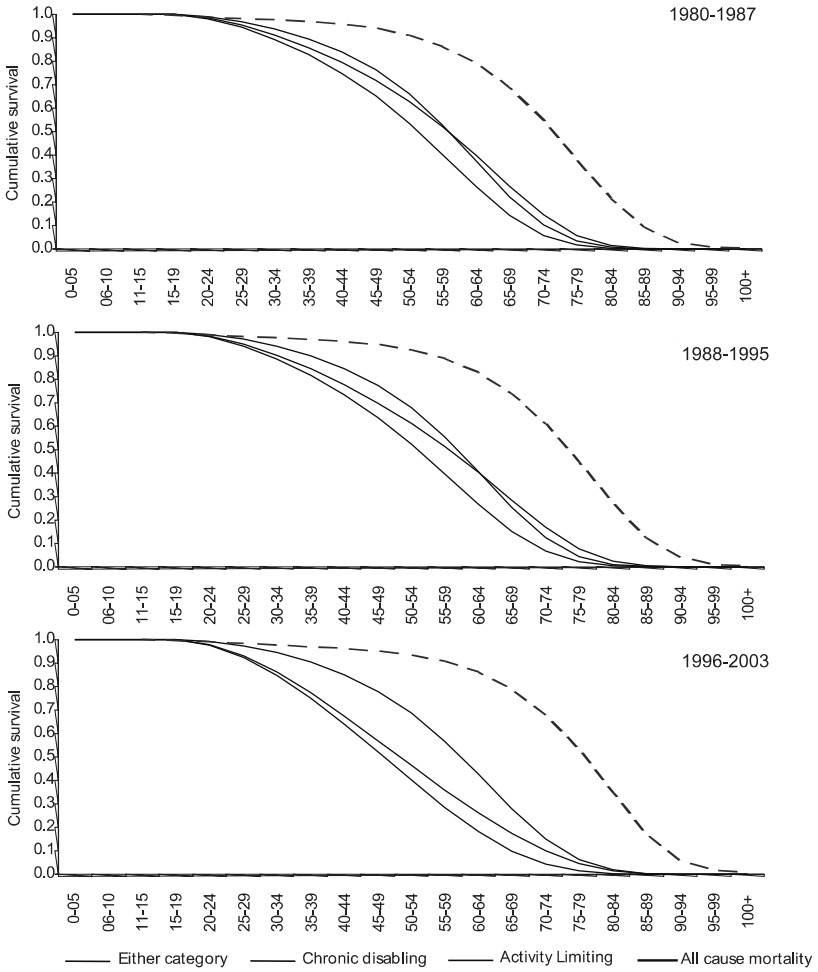
Policies driving ED attendance/ crowding

- Acute medicine 100 years success - <death > illness
  - Infectious disease -1950,acute illness - 2000, Chronic?
- Poorly co-ordinated/ integrated chronic care
  - Poor remuneration for chronic disease
- Poor funding of residential aged care (RACF)
  - Lack of places in RACF
  - Poor staffing ratios
  - Poor medical facilities
- Poor remuneration for RACF care for GPs
- Hospital capacity- deliberate run down bedstock

D Holman (WA)

- Life expectancy >by
- **2.3 yrs**
-
- Time with disabling/ limiting chronic disease > by
- **9.4 yrs**

4 Survival to first-time hospitalisation for activity limiting and chronic disabling events compared with all cause mortality in males between 1980–1987 and 1996–2003



hypothesis, thus we distinguished between severe ("chronic disabling") and moderate ("activity limiting") disability. However, despite the overall finding being consistent with Davis et al,[16] our examination of disability severity found some evidence that the expansion of morbidity may be due to an increase in the prevalence of more severe disability. Therefore, our study has confirmed the expansion hypothesis and provided some evidence against the dynamic equilibrium hypothesis.

Available literature suggests that recent US data support the compression of morbidity hypothesis whereas, in concordance with our

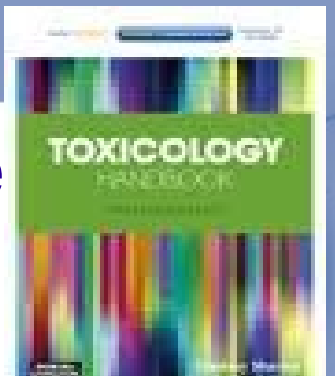
ED attendance: a defining event in >65

- Mortality 10% (by 3/12)
-
- Return to ED 24% at 3/12 (40% - 6/12)
-
- Re-Hospitalisation 20-25% (6/12)
-
- Loss of functional independence (25-40%)

Anything that reduces these events?

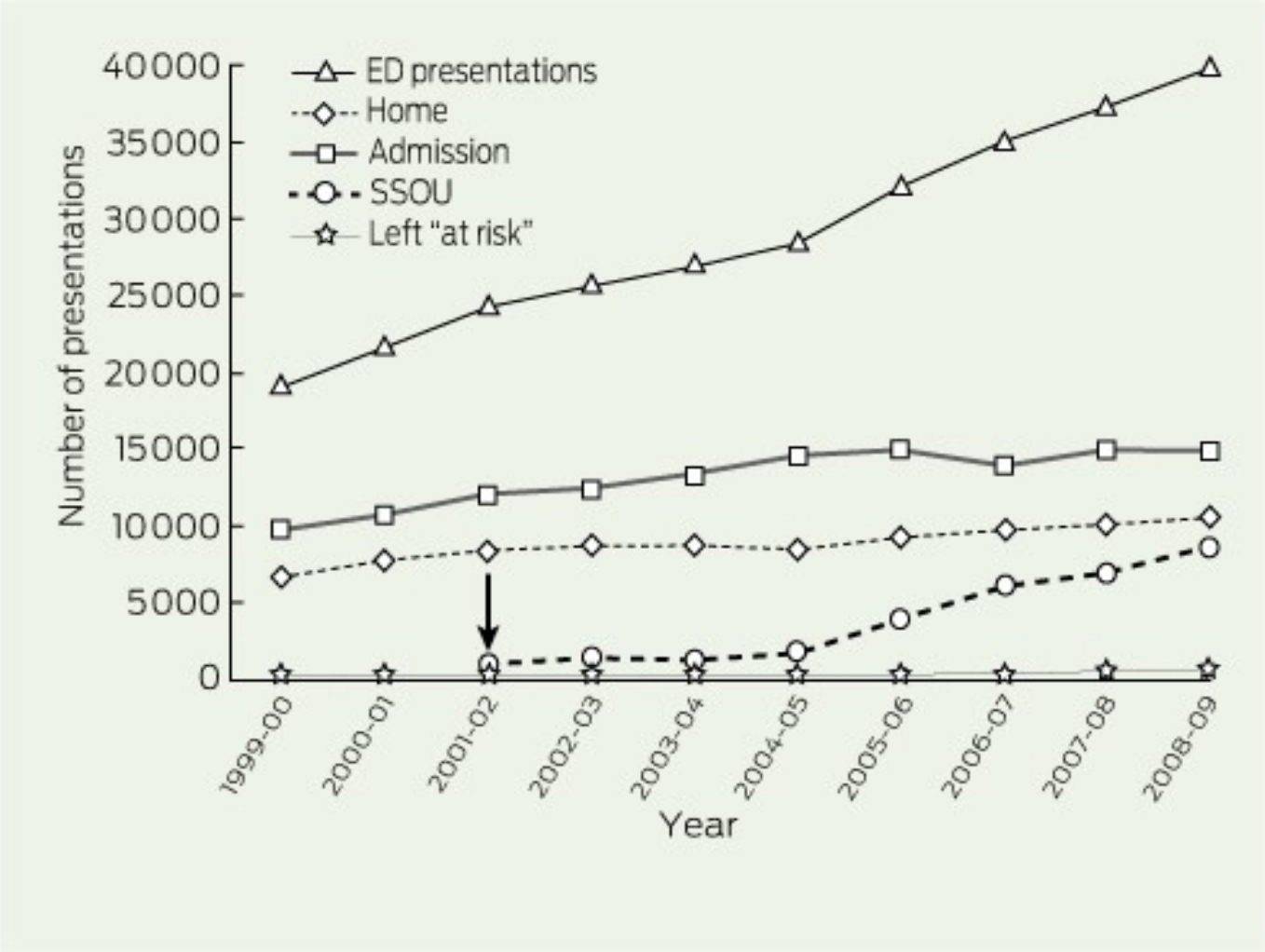
- Evidence base small – a few RCTs
- Things with evidence are
  - ID at risk pts to Gps- others
  - Good communication – GP interventions
  - Increased services post d/c(1:12 benefit)
- Need major studies in this area
- Need to support/ enhance role of GPs

Team based care in ED: ? Evidence



- Social work
- OT/Physio
- Pharmacists
- Discharge co-ordinators
- RAC liaison nurses
- Liaison psych
- Drug and alcohol

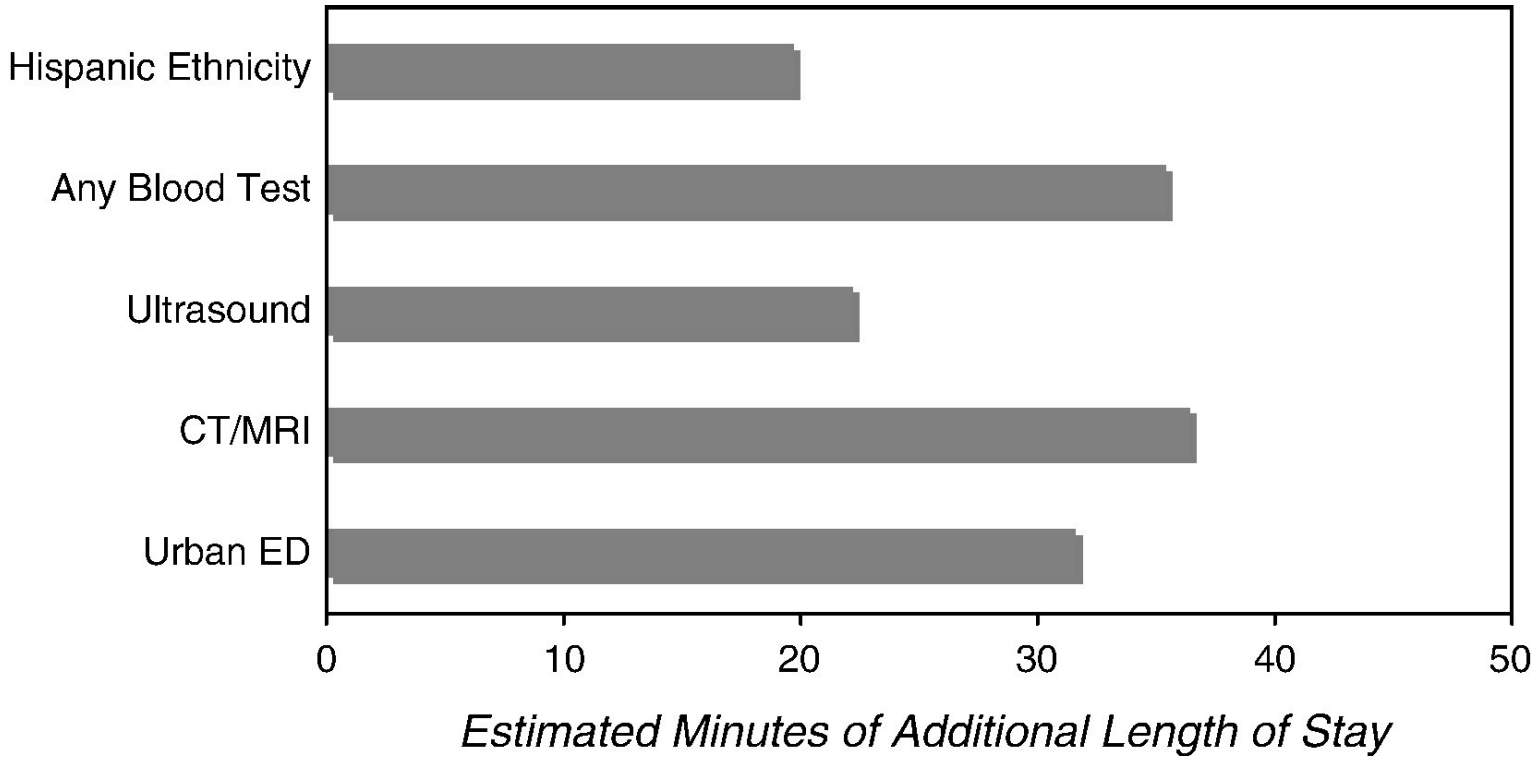
ED management- something working



Elders discriminated against in EDs?

- Little evidence
  - Admitted more often,
  - No < in admission rates when overcrowded
  - No >ED LOS (adjusted for admission/diagnosis)
  - Investigated more frequently
  - Major additional services in last 10 years
    - HITH
    - Allied health/ assessments/ home services
    - Follow up services, diversion services

Older patients - longer EDLOS when admitted?



Gardner RL, Sarkar U, Maselli JH, Gonzales R. Factors associated with longer ED lengths of stay. The American Journal of Emergency Medicine. 2007 Jul;25(6):643–50.

Age not associated with LOS in admitted pts

Table 2 Selected characteristics associated with ED length of stay[a]

	Admitted patients			Discharged patients		
	β Coefficient	Additional LOS (min)	*P*	β Coefficient	Additional LOS (min)	*P*
Patient characteristics						
Female	.0390	5.6	.11	.0374	2.2	<.001
Age, y						
0-5	−.0670	−9.1	.24	−.0778	−4.3	<.001
6-17	−.0769	−10.4	.34	−.0920	−5.1	<.001
18-44	−.0161	−2.2	.66	−.0341	−1.9	.002
45-64	Reference	—	—	Reference	—	—
65-79	−.0194	−2.7	.51	.0312	1.8	.06
≥80	.0110	1.5	.77	.0525	3.1	.003
Race/ethnicity						
White (non-Hispanic)	Reference	—	—	Reference	—	—
Black (non-Hispanic)	.0582	8.4	.19	.1014	6.2	<.001
Hispanic	.1314	19.7	.01	.1642	10.3	<.001
Asian	−.1766	−22.7	.05	.0325	1.9	.58
Method of payment						
Commercial insurance	Reference	—	—	Reference	—	—
Governmental insurance[b]	−.0347	−4.8	.22	−.0031	−0.2	.78
Uninsured[c]	−.0667	−9.1	.20	.0353	2.1	.004
Triage score						
<15 min	Reference	—	—	Reference	—	—
15-60 min	.0933	13.7	.006	.0687	4.1	.002
61-120 min	.1475	22.3	.009	.0956	5.8	<.001
>120 min	.1368	20.6	.07	.0652	3.9	.03
Hospital characteristics						
Location in urban area[d]	.2032	31.6	.006	.2466	16.2	<.001
Ownership						
Proprietary	Reference	—	—	Reference	—	—
Voluntary, nonprofit	−.0121	−1.7	.89	.0550	3.3	.15
Government, nonfederal	−.0846	−11.4	.36	.0417	2.5	.33
High trauma volume hospital[e]	.0391	5.6	.60	−.0176	−1.0	.61
Safety-net hospital	.1145	17.0	.14	.0636	3.8	.10
Clinician type						
Staff physician	Reference	—	—	Reference	—	—
Resident	.0251	3.6	.61	.1401	8.7	<.001
Midlevel[f]	−.0048	−0.7	.96	.0038	0.2	.85
Diagnostic testing[g]						
Any blood test	.2248	35.4	<.001	.5263	40.1	<.001
Any blood culture	.0312	4.5	.47	.1408	8.7	<.001
Any plain x-ray	.0352	5.0	.26	.2307	15.0	<.001
Any ultrasound	.1467	22.2	.005	.3895	27.6	<.001
Any CT scan or MRI	.2308	36.4	<.001	.3966	28.2	<.001
Any ECG or cardiac monitor	−.0194	−2.7	.52	.0703	4.2	<.001

LOS indicates length of stay; ECG, electrocardiogram.

[a] Adjusted for every other characteristic in the model.

[b] Medicaid or Medicare.

[c] Self-pay or no charge/charity.

[d] As defined by SMSA.

[e] See Methods section for definition of predictor; here, top strata is compared to bottom strata as reference group.

[f] Nurse practitioner or physician assistant.

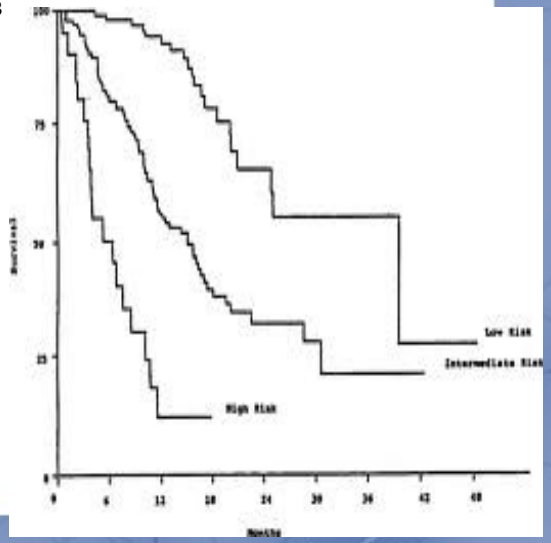
[g] Reference group for this section is no test performed in the particular category.

EoL – a major problem

- Over 50% all deaths acute hospitals
- Many multiple attendances
- Poor deaths- traumatic
- Major costs- societal / economic
- Poor services for palliation in Eds
- Advanced directives / discussions rare

Aged care – need for end of life decisions

- Dementia – a terminal disease
- 4 yrs median (much < for older/ frail:co-morbid)
  - Xie J, Brayne C, Matthews FE, and the Medical Research Council Cognitive Function and Ageing Study collaborators. Survival times in people with dementia: analysis from population based cohort study with 14 year follow-up. BMJ. 2008 Feb 2;336(7638):258–62.
    - 8% pa additional mortality (independent)
      - Johnson, Elizabeth; Brookmeyer, Ron; and Ziegler-Graham, Kathryn (2007) "Modeling the Effect of Alzheimer's Disease on Mortality," The International Journal of Biostatistics: Vol. 3 : Iss. 1, Article 13
    - Approximately 3 (2-4) x mortality pa
- High level care- median < 1 year



Advanced care planning- Important/useful/vital in the ED?

- RCT evidence
  - Improves care/ decision making
  - Patients wishes followed 90% (v 30%)
  - Reduces familial stress
  - Anxiety/ depression
  - Better deaths

Conclusions

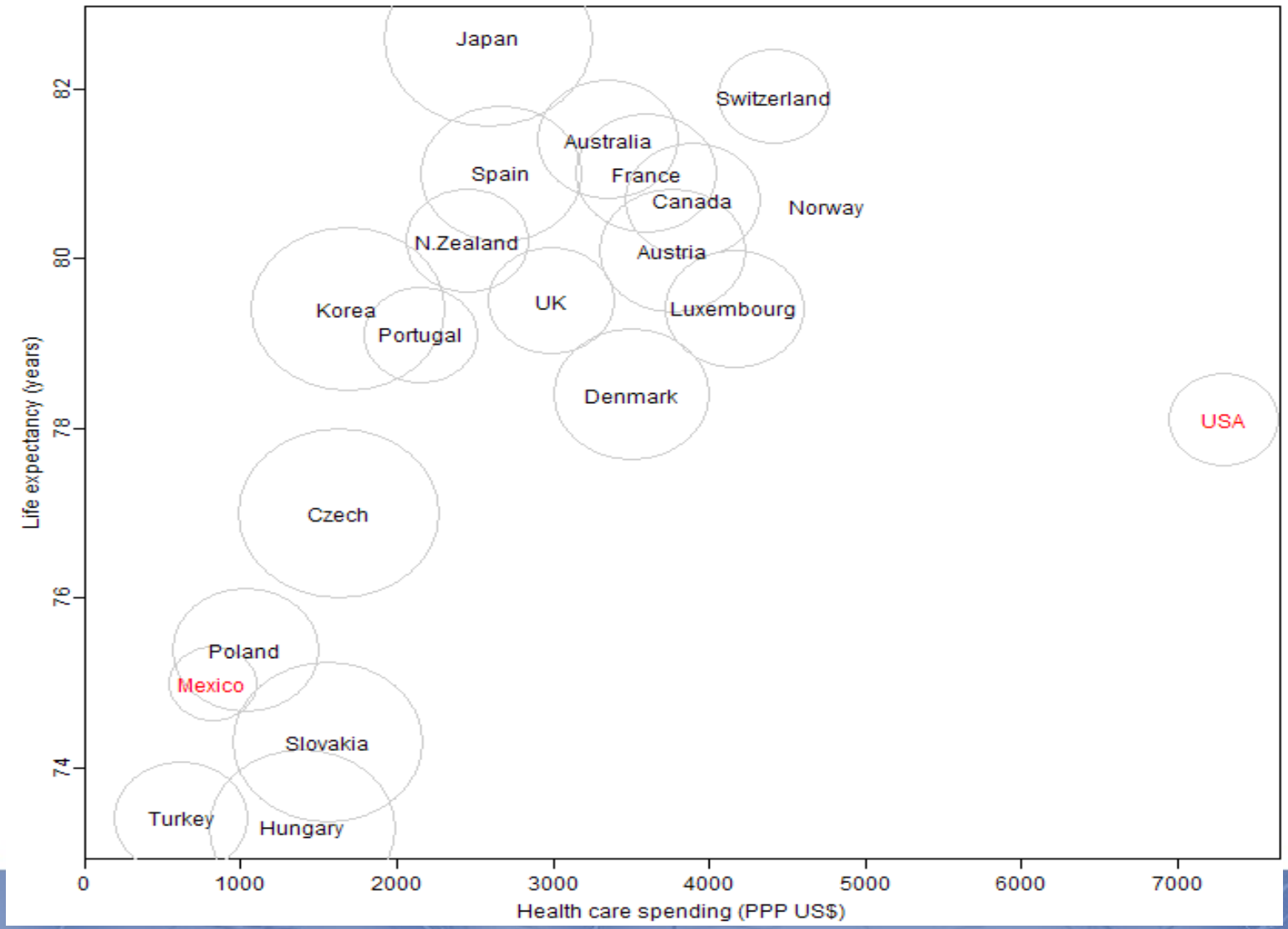
- Policy failures seen quickly in ED
- Lack of capacity kills/maims (older pts more freq)
- Need much more research re interventions that work
- Screen for problems, intervene in ED, link to community
- Must support Primary care/ GPs
  - Better supports/ co-ordination
  - Proper remuneration- reward complexity/ chronicity
- Fund RACF for beds/ staff properly
- WE must have policies that promote EoL planning earlier
- Emergency not the enemy – bad policy is!

Loss of bed capacity- deliberate policy (graph)

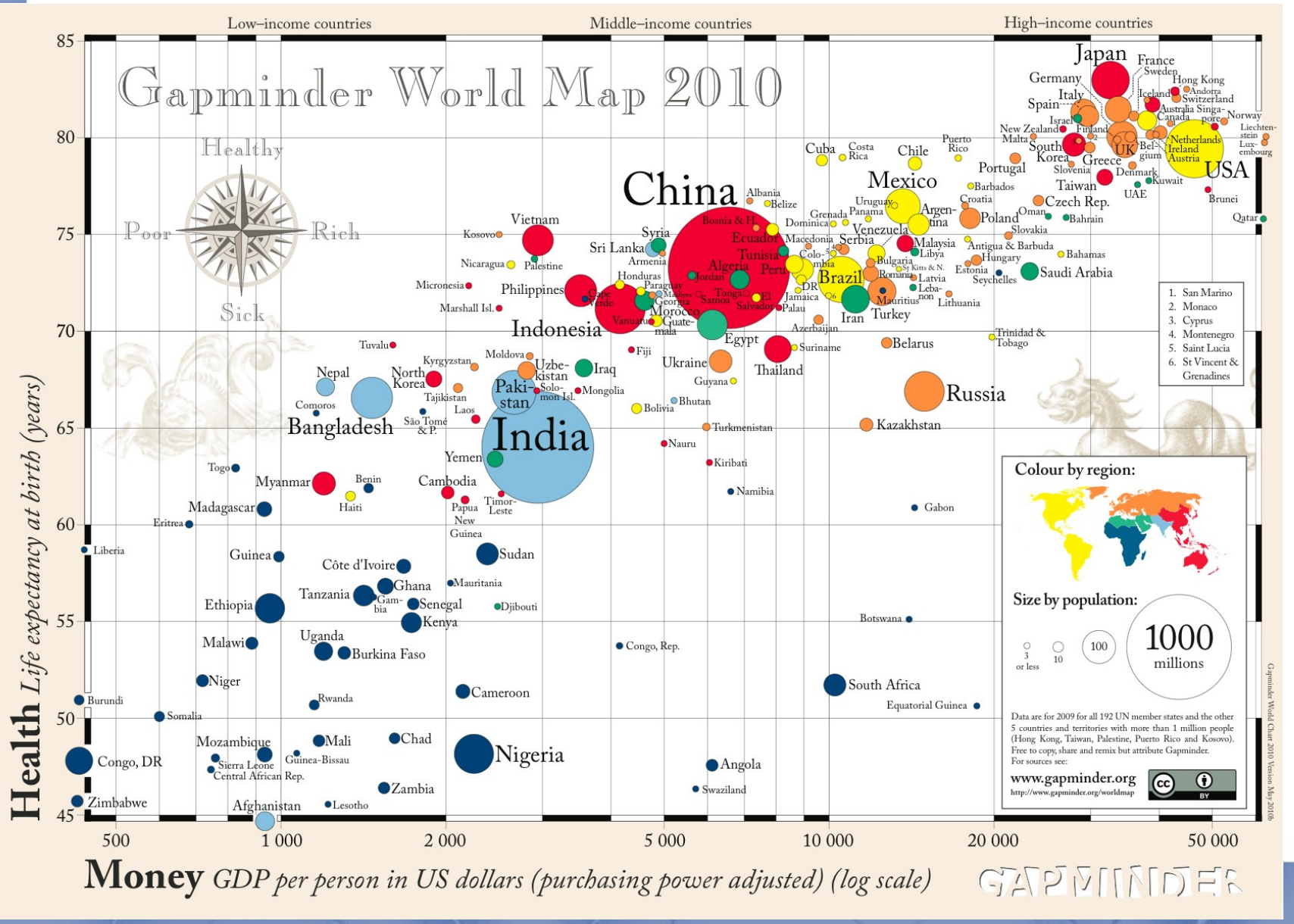
Hospitals – managing RACF pts well?

- RAC pts v community aged:
- RAC – multidisciplinary, managed intervention v "normal care"
  - RACpt –died 13 v 6% in hospital and 35 v 17% at 6/12
  - Intervention arm reduced RACpt deaths from
    - **22 v 4% in hospital**
    - **44 v 28% at 6/12**

Spending on health v years of life



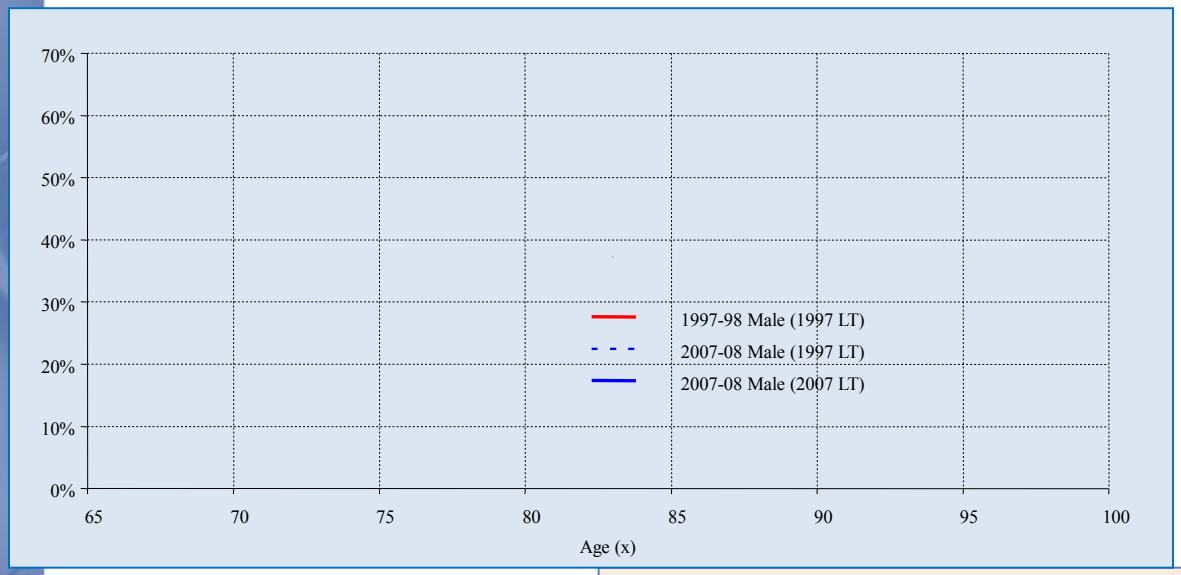
Life expectancy- policy keeping up

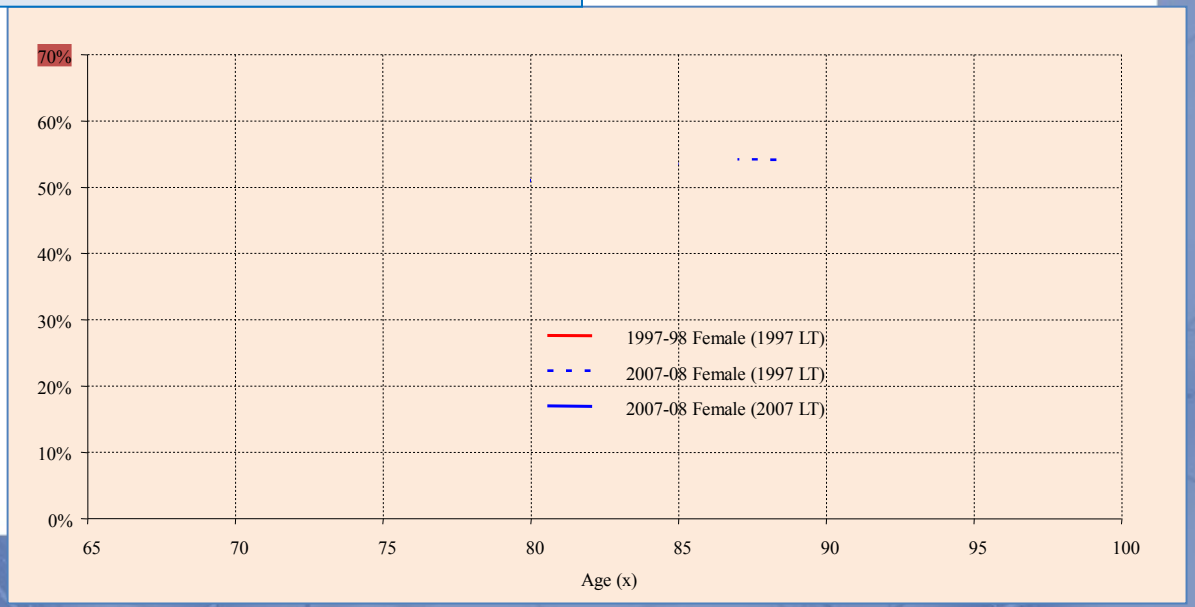


Ambulance ramping- for older patients?

- West Australian news
- May 2012

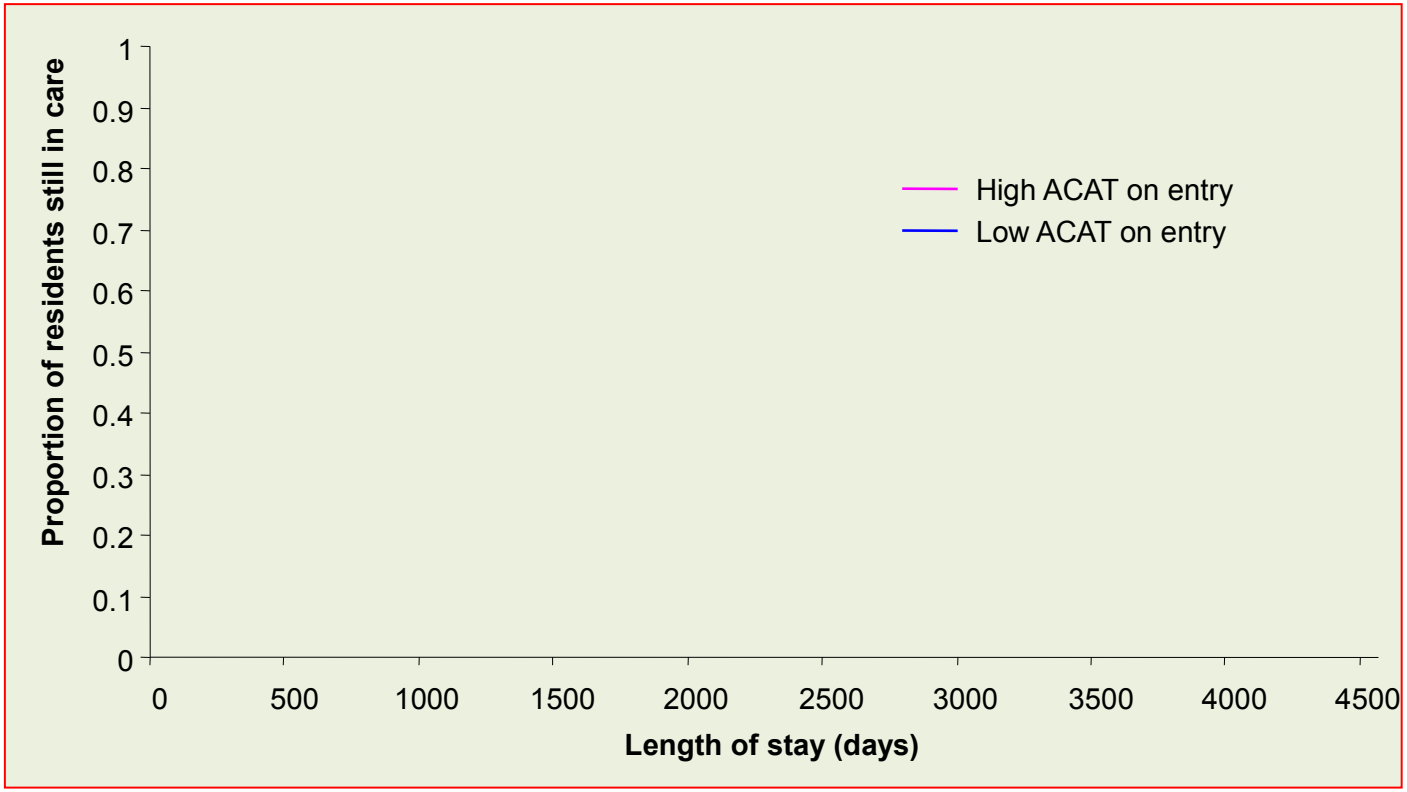
Likelihood of needing any RAC by





RACF: 5 Year survival -20% high care >50% mortality 1.5 years

Figure 17: Survival curve for admission into permanent residential aged care by ACAT level



ACAT level on entry	25th percentile	Median	75th percentile
High	90	450	1,220
Low	440	1,120	2,100

Sex of resident	25th percentile	Median	75th percentile
Female	250	890	1,850
Male	100	460	1,190

Aging dynamics

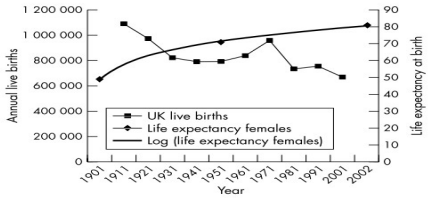


Figure 2 The changing birthrate and life expectancy in the UK. Average annual UK live births for each decade obtained from www.optimumpopulation.org and female life expectancy in years obtained from www.statistics.gov.uk. Increasing life expectancy and a declining birthrate have caused the population to age. This effect is likely to become much more extreme as those born in the 1960s' "baby boom" begin to enter old age.

We believe that the needs of older people are of central importance in planning emergency health care in the UK and in other developed countries. In the UK, increasing life expectancy and a declining birthrate have caused the population to age (fig 2). This effect is likely to become far more pronounced as people born in the 1960s' "baby boom" begin to enter old age. The currently falling birthrate means that there will be a declining population of young adults in the UK able to care for the elderly population and to support them economically. Better services for older people might include a domiciliary geratology service—available, in particular, for patients in residential and nursing homes; the provision of community nurses specialising in geratology and chronic disease; training for all primary care physicians in geratology; more community beds for elderly patients; more rapid-access geratology and falls clinics; geratology assessment units with links to acute services, occupational therapy, and social care; and better management of "exit block".

CONCLUSIONS

In the UK, EDs and their patients have experienced major difficulties in terms of overcrowding during much of the past decade. We believe that this has been caused both by changes in practice (for example, increased investigation and admission) and by ageing of the population using EDs. We expect the difficulties in relation to an ageing population to intensify appreciably during the first half of the twenty first century. This must be anticipated and effective plans prepared.

ACKNOWLEDGEMENTS

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AUTHORS' CONTRIBUTIONS

G George and B Todd wrote the paper. C Jell (Senior Information Analyst) supplied the data and B Todd led on data presentation and interpretation.

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Competing interests: none declared

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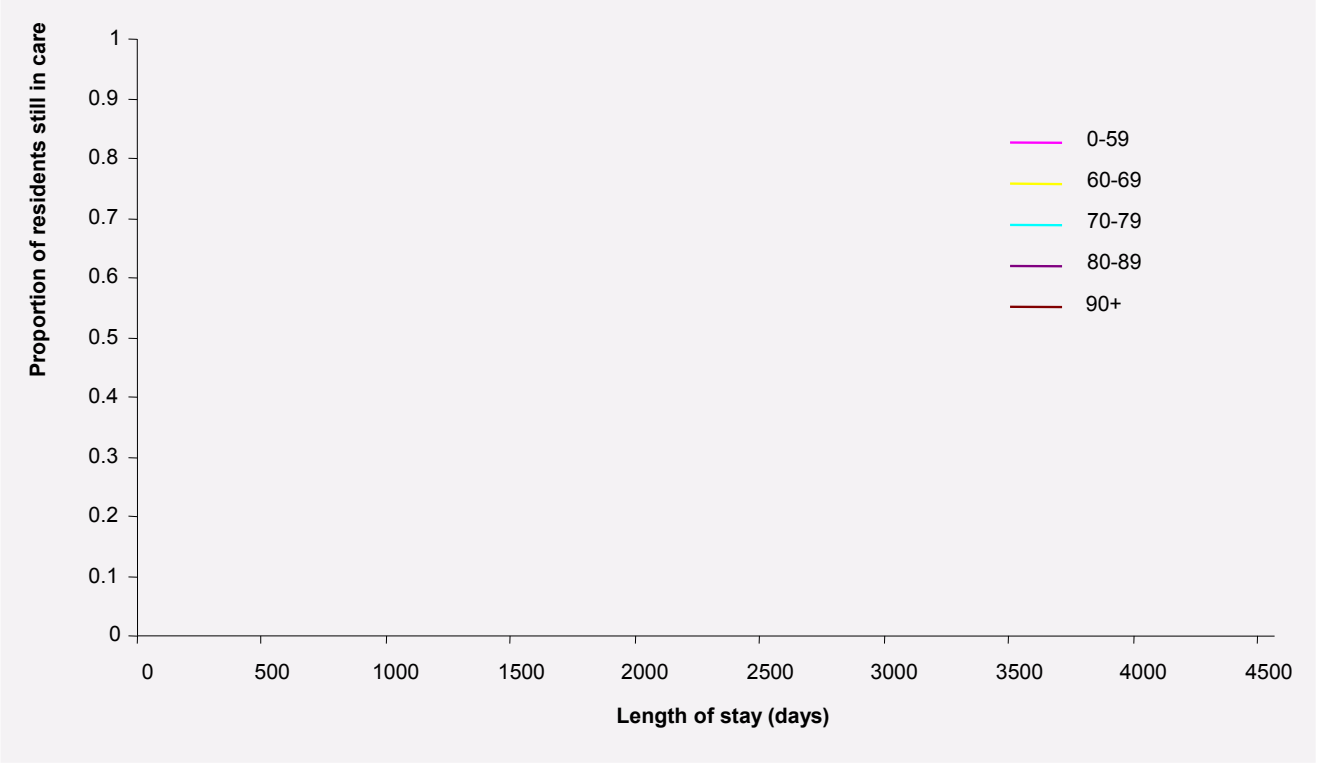
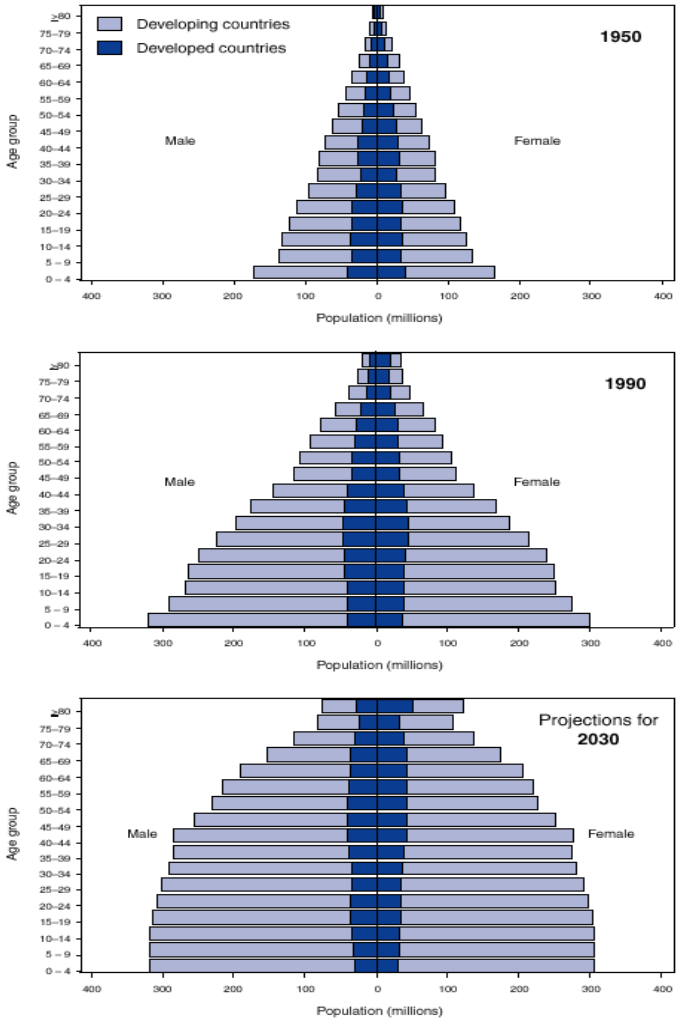
Age v survival in RACF

Technical Paper on the changing dynamics of residential aged careprepared to assist the Productivity Commission Inquiry *Caring for Older Australians*by the Department of Health and Ageing April 2011

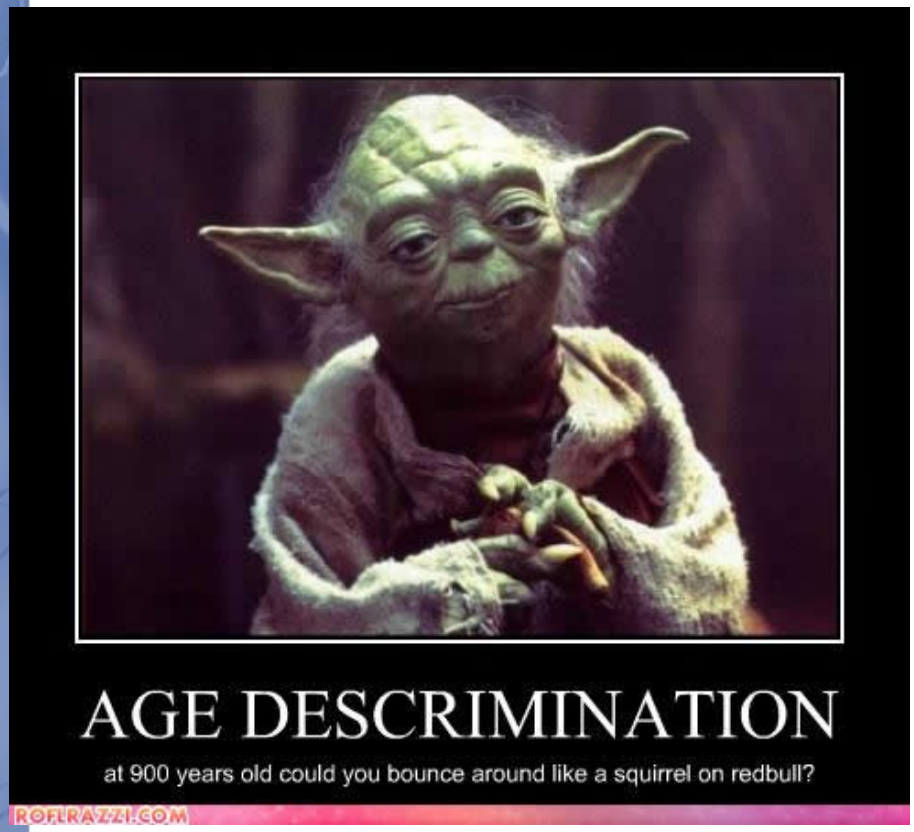


Age at entry	25th percentile	Median	75th percentile
0-59	160	930	3,150
60-69	150	800	2,280
70-79	170	770	1,840
80-89	190	730	1,590
90+	160	570	1,220

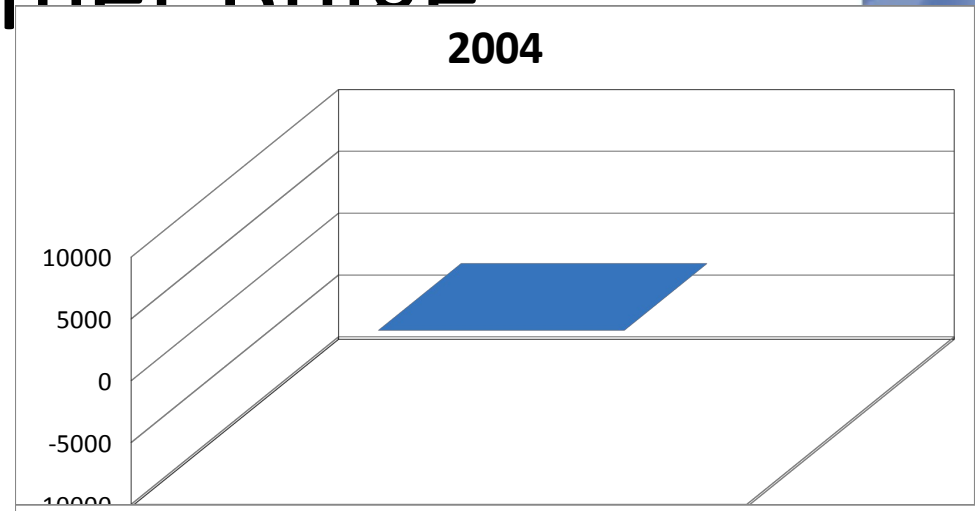
FIGURE. Population age distribution for developing and developed countries, by age group and sex — worldwide, 1950, 1990, and 2030

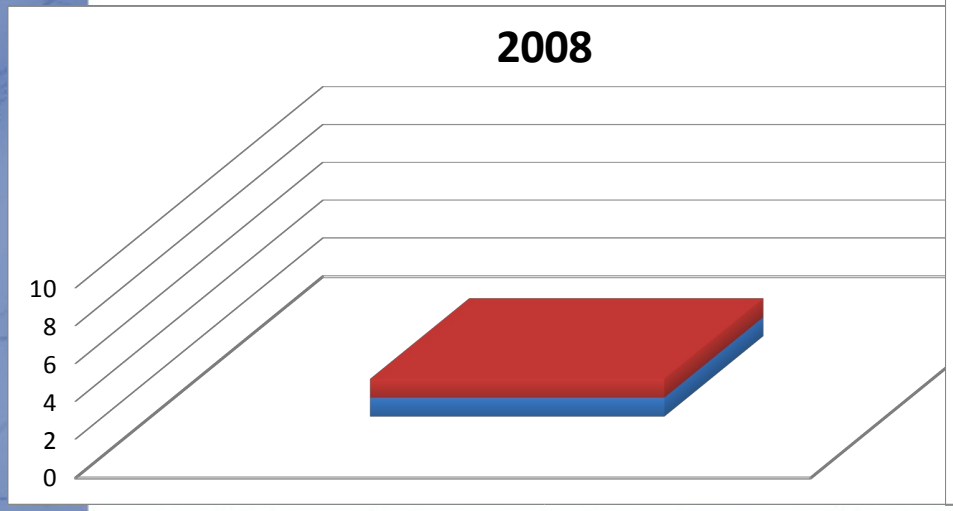


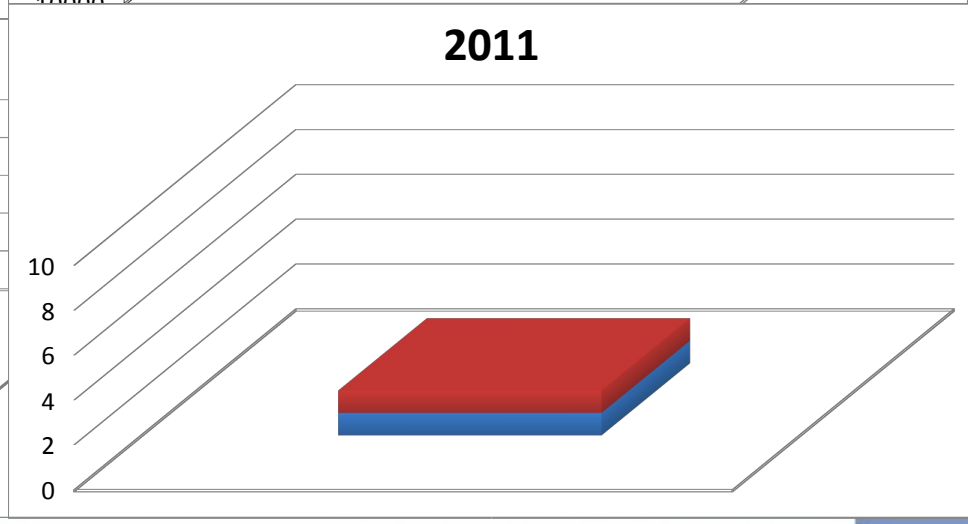
Source: United Nations, 1999, and U.S. Bureau of the Census, 2000.


AGE DESCRIMINATION
at 900 years old could you bounce around like a squirrel on redbull?
ROFLRAZZI.COM

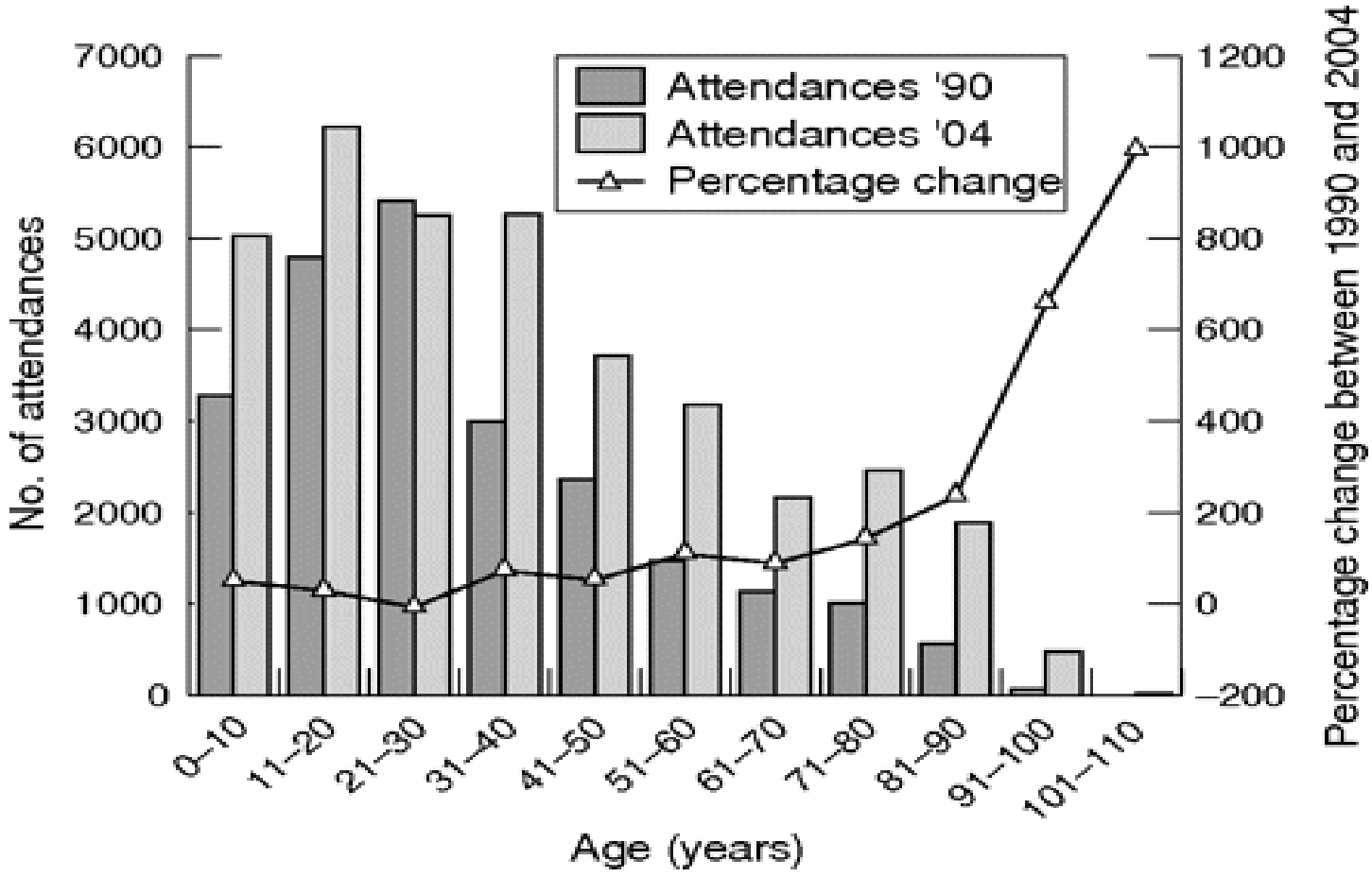
Middle age spread and the Baby Boomer Bulge







Effect of age on ED attendances



Age effects on ambulance use, lx, time to be assessed and

1990. Furthermore, the proportion of patients aged more than 90 years was 671% higher. Despite this dramatic increase in number, elderly patients still comprised a comparatively small group (4860 aged more than 70 years compared with 16 441 aged 30 years or less in 2004).

Relation between age and mode of arrival

Table 1 shows the number of attendances for each decade of life in 1990 and in 2004 together with the corresponding proportions of these patients who arrived by ambulance. Patients seen in 2004 were more likely to have arrived by ambulance than in 1990 (probability 0.214 (CI 0.210 to 0.218) compared with 0.152 (CI 0.147 to 0.156)). Furthermore, the proportion of patients who use ambulance transport increases with increasing age. Age adjusted data show that had the age distribution been that of 1990 but the probability of arriving by ambulance within each decade of life been that of 2004, the net probability would have been 0.176 (CI 0.172 to 0.180). This implies that increasing age accounts for about 61% (= (0.214–0.176)/(0.214–0.152)) of the increase in ambulance usage seen in 2004.

Relation between age and "time to diagnose and treat"

In 1990, the median time needed to diagnose and treat was 29 minutes whereas in 2004 it was 50 minutes. Table 2 shows the proportions of patients diagnosed and treated within one hour in each decade of life, both in 1990 and 2004. In both 1990 and 2004, there was a progressive decline in performance with increasing age. However, this decline was much steeper in 2004 than in 1990—there was a significant, age related "widening gap" (see table 3).

In 1990 the probability of a patient being diagnosed and treated within one hour was 0.710 (CI 0.704 to 0.716) whereas in 2004 it was 0.535 (CI 0.529 to 0.540). Had the age distribution been that of 1990 but the probability within each decade of life been that of 2004, the overall probability would have been 0.567 (CI 0.561 to 0.572). This implies that increasing age per se accounts for about 18% of the reduction in performance between 1990 and 2004. The age related widening gap, however, suggest that in 2004 other factor(s) were amplifying the effect of increasing age on performance.

Relation between age and the number of investigations

We looked at the number of investigations because it was judged that these would be surrogate indicators both of clinical complexity and the time needed to process the attendance. Furthermore, a change in the tendency to investigate patients might explain the widening gap. Table 4

Table 1 Total number of attendances within each decade of life and the proportion of those patients who arrived by ambulance for 1990 and 2004

Age (years)	Attendances		Arrived by ambulance	
	1990	2004	1990	2004
0–10	3293	5005	0.053	0.076
11–20	4799	6205	0.097	0.117
21–30	5402	5230	0.110	0.141
31–40	2987	5261	0.127	0.181
41–50	2363	3715	0.137	0.181
51–60	1490	3181	0.197	0.206
61–70	1139	2163	0.320	0.323
71–80	1003	2458	0.478	0.513
81–90	562	1901	0.683	0.682
91–100	63	479	0.841	0.825
101–110	2	22	0.500	0.955

Table 2 Values for 1990 and 2004 are shown for the following parameters for each decade of life: the number of patients who did not wait to be seen (DNW); the number of patients who did wait (obtained by subtracting columns 2 and 3 of this table from columns 2 and 3 of table 1); and the proportion of the patients who did wait and who were diagnosed and treated in less than one hour (D&T<1 h)

Age (years)	DNW		Waited		D&T<1 h	
	1990	2004	1990	2004	1990	2004
0–10	57	190	3236	4815	0.768	0.679
11–20	95	289	4704	5916	0.740	0.635
21–30	148	283	5254	4947	0.742	0.599
31–40	48	301	2939	4960	0.730	0.574
41–50	64	198	2299	3517	0.720	0.541
51–60	27	122	1463	3059	0.651	0.488
61–70	11	96	1128	2067	0.620	0.392
71–80	15	60	988	2398	0.503	0.285
81–90	3	38	559	1863	0.410	0.205
91–100	0	12	63	467	0.333	0.169
101–110	0	0	2	22	0.500	0.182

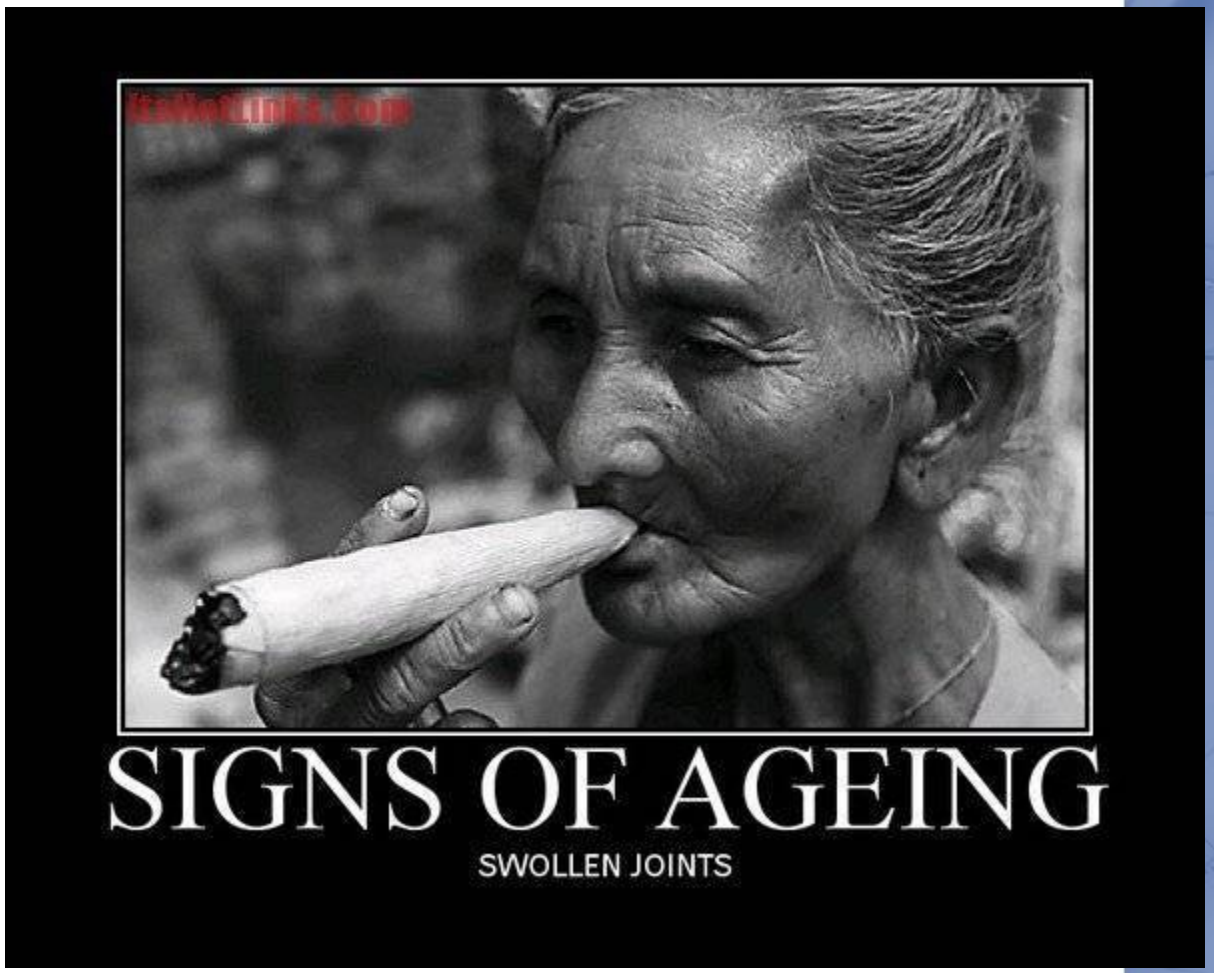
Table 3 Estimated probabilities of "time to diagnose and treat", investigations and admissions among patients aged 30 years or less and patients aged over 70 years in 1990 and 2004

Event	Year	Probability (95% CI): Event | age ≤30 years	Event | age >70 years
D&T<1 h	1990	0.748 (0.740 to 0.755)	0.464 (0.439 to 0.489)
D&T<1 h	2004	0.637 (0.630 to 0.643)	0.247 (0.233 to 0.260)
Full blood count	1990	0.019 (0.017 to 0.022)	0.199 (0.180 to 0.219)
Full blood count	2004	0.114 (0.109 to 0.119)	0.616 (0.602 to 0.629)
Electrocardiograph	1990	0.003 (0.002 to 0.004)	0.225 (0.205 to 0.246)
Electrocardiograph	2004	0.034 (0.031 to 0.036)	0.475 (0.461 to 0.489)
X ray	1990	0.286 (0.278 to 0.294)	0.453 (0.429 to 0.478)
X ray	2004	0.385 (0.377 to 0.392)	0.606 (0.592 to 0.620)
Admission	1990	0.081 (0.076 to 0.085)	0.459 (0.435 to 0.483)
Admission	2004	0.127 (0.122 to 0.132)	0.602 (0.588 to 0.616)

Notice that for each event, the difference between the probabilities for each age group increases from 1990 to 2004—there is a widening gap.

Table 4 Values for 1990 and 2004 are shown for the proportion of patients having full blood counts, electrocardiographs, and *x* rays with respect to total attendances in each age band (see table 1)

Age (years)	Full blood counts		Electrocardiograph		*X* rays	
	1990	2004	1990	2004	1990	2004
1–10	0.011	0.031	0.001	0.004	0.267	0.291
11–20	0.017	0.112	0.005	0.028	0.328	0.470
21–30	0.026	0.193	0.001	0.068	0.260	0.373
31–40	0.040	0.231	0.026	0.097	0.282	0.412
41–50	0.043	0.262	0.043	0.136	0.282	0.412
51–60	0.081	0.345	0.087	0.215	0.322	0.460
61–70	0.144	0.457	0.160	0.331	0.368	0.503
71–80	0.190	0.593	0.219	0.439	0.434	0.570
81–90	0.210	0.636	0.237	0.501	0.473	0.635
91–100	0.238	0.636	0.206	0.549	0.587	0.672
101–110	0.000	0.800	0.000	0.800	0.800	0.727


SIGNS OF AGEING
SWOLLEN JOINTS