



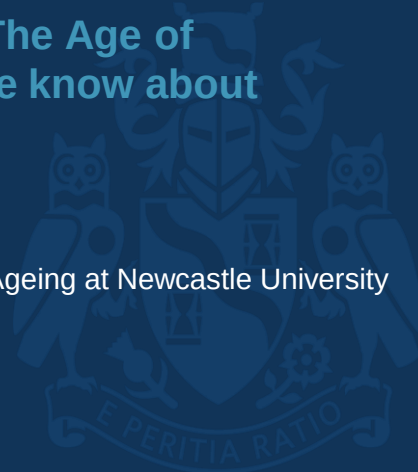
Institute
and Faculty
of Actuaries

Autumn Lecture 2014: The Age of Uncertainty: What do we know about Growing Old?

Speaker:

Professor Carol Jagger

AXA Professor of Epidemiology of Ageing at Newcastle University



The Age of Uncertainty

What do we really know about growing old?

Outline

- Uncertainty in measuring health
- Five things we know about getting older
- Mainly drawing on 3 longitudinal studies
 - Newcastle 85+ Study



- MRC Cognitive Function and Ageing Study (CFAS)

- DYNOPTA (pooled dataset of Australian longitudinal studies)



Health is a slippery concept

- Death is an unequivocal endpoint



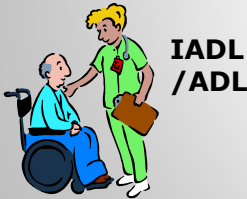
- Health is
 - ... "a state of complete physical, mental and social well-being, and **not merely the absence of disease** or infirmity" (WHO)

Individual or population health?

LLI
SRH



GALI
SRH

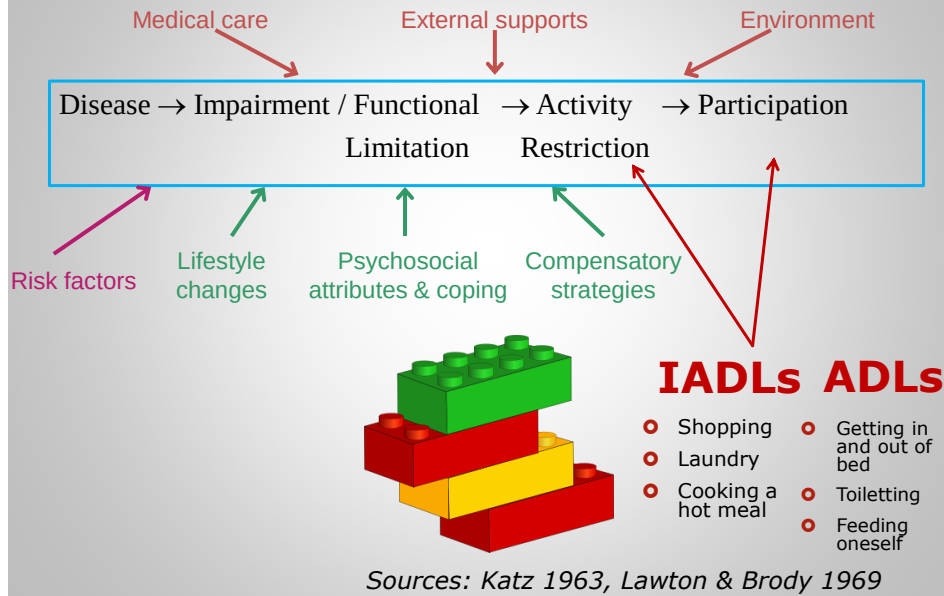


It is better to measure **inaccurately** something which is **important** than to measure **accurately** something which is **unimportant**.

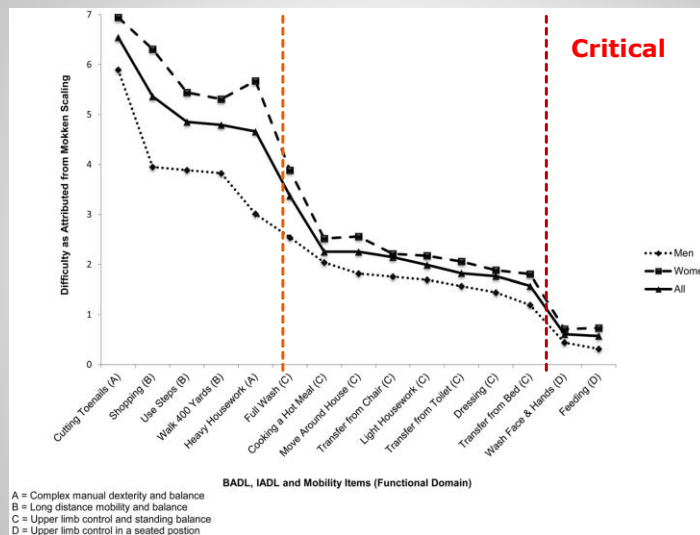
Professor Stephen Evans

1. The course of disability is predictable

Disablement model

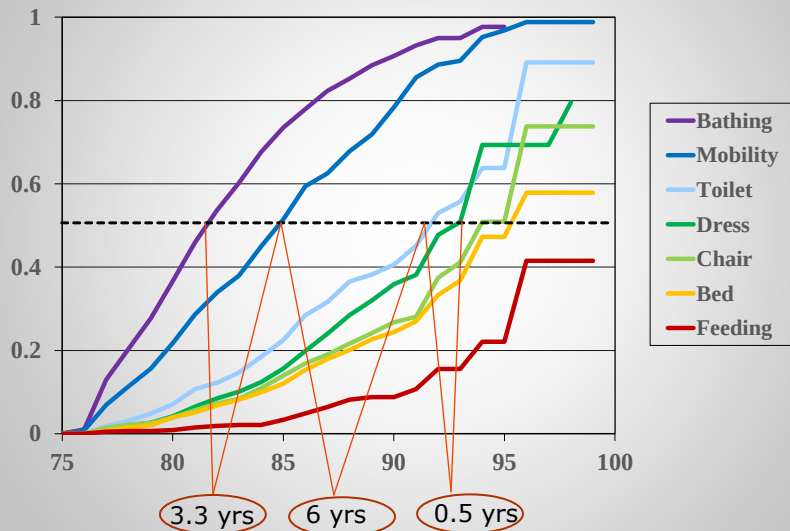


Order of activity loss



Source: Kingston et al. 2012

Age at onset of activity difficulty



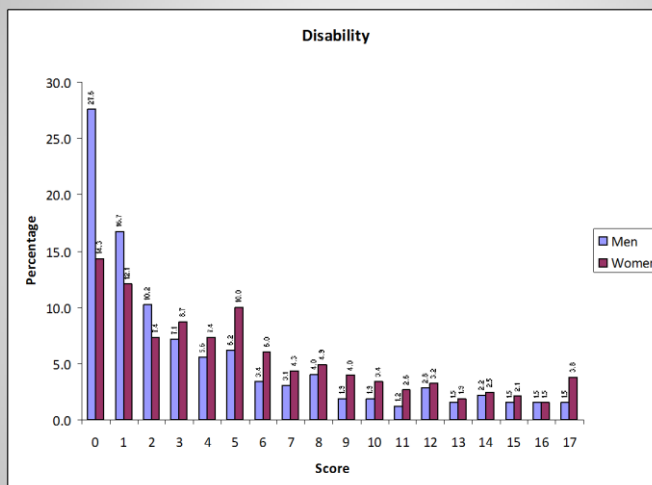
Source: Jagger et al 2001

Using the activity loss curve

- Local councils currently delivering reablement services at RHS (too late!) or moving the minimum threshold down to save money
- Focus of 2014 Care Act will be the individual – what they need – rather than what the council can provide. Acting earlier up the curve may shorten the time further down where it costs more
- Provide information for older people to be able to better plan support and housing
- Use rapidity of loss as marker for seeking health care
- Designers need to understand order of loss

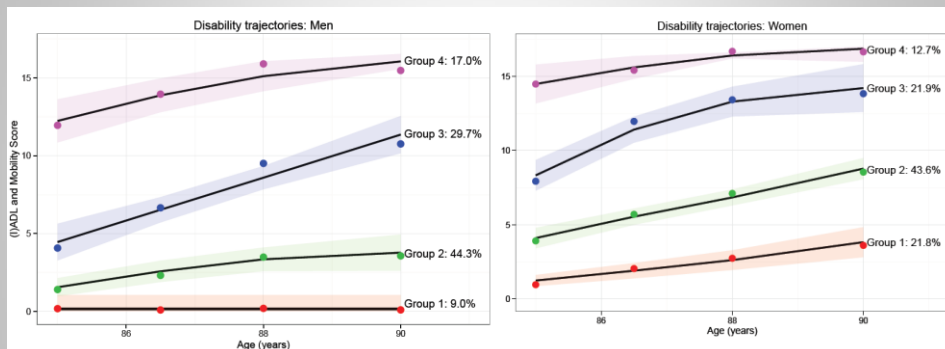
2. Most of old age is NOT spent dependent

Physical functioning



- 20% able to perform without difficulty all 17 activities of daily living

Disability trajectories

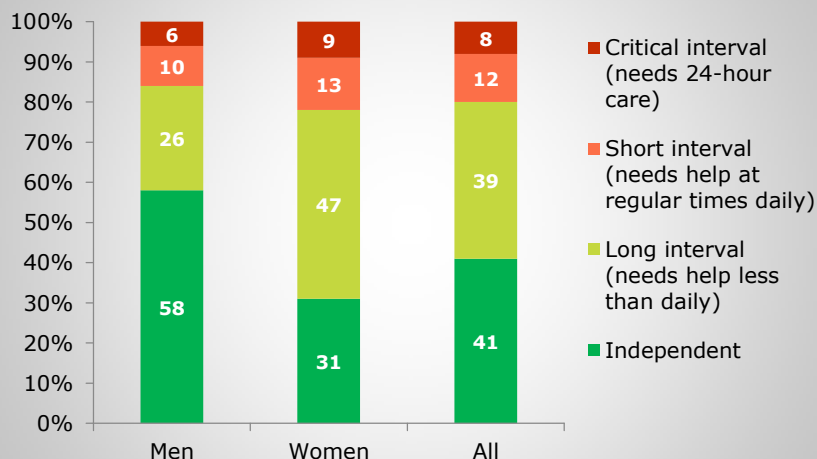


- 9% of men remained fully able over the 5 years
- 12+ years of education associated with better trajectories

Source: Kingston et al

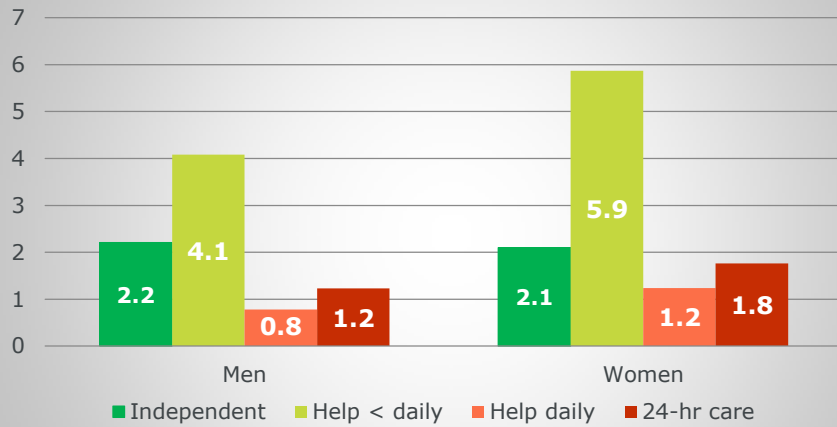


Need for care



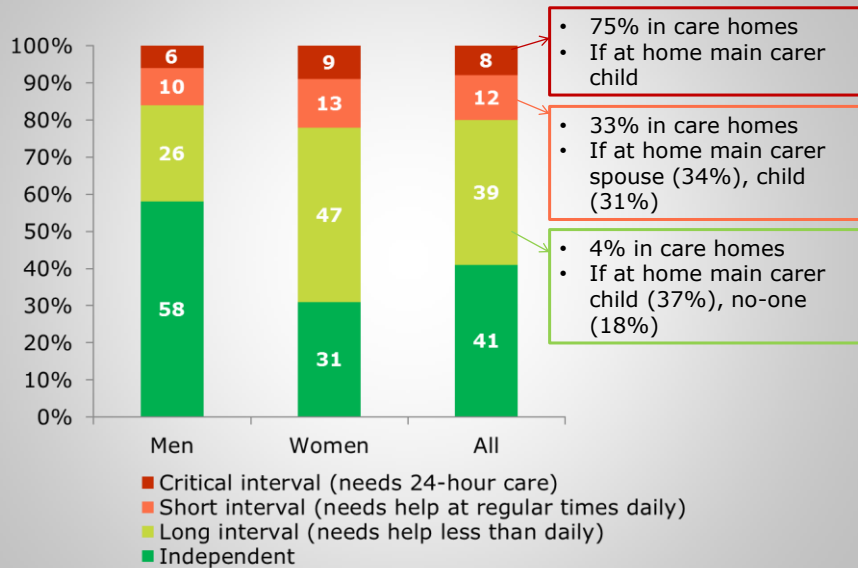
Source: Jagger et al. BMC Geriatrics 2011, 11:21

Years with care needs from age 85

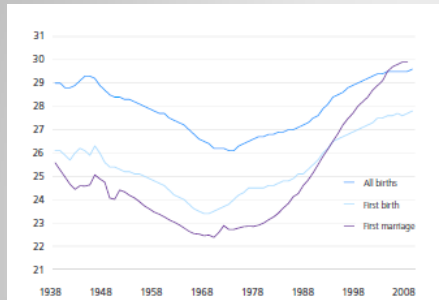


- Most years spent needing help < daily
- Women spend more years requiring care at every level

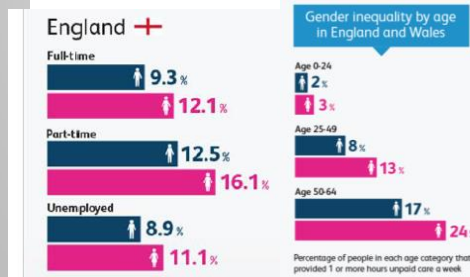
Need for care



Who are the carers?

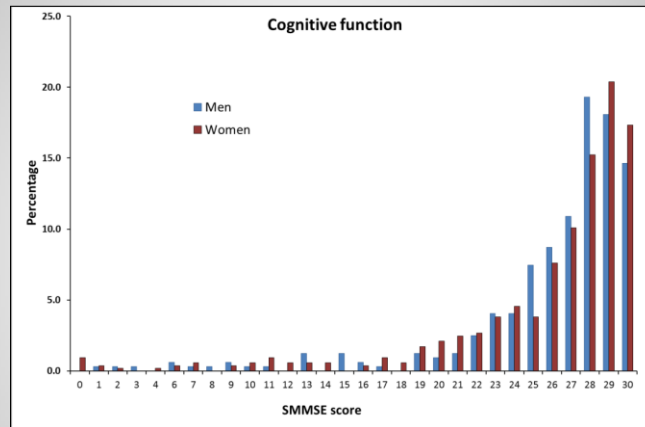


Born	age 85	child born	child age when parent 85
1921	2006	1947	59
1931	2016	1956	60
1941	2026	1965	61
1951	2036	1976	60
1961	2046	1986	60
1971	2056	1997	59



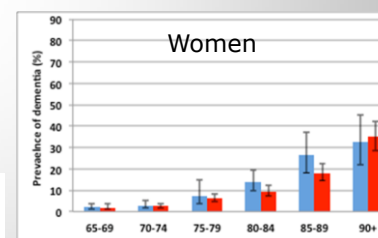
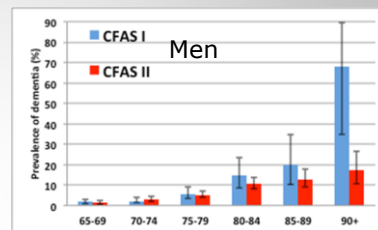
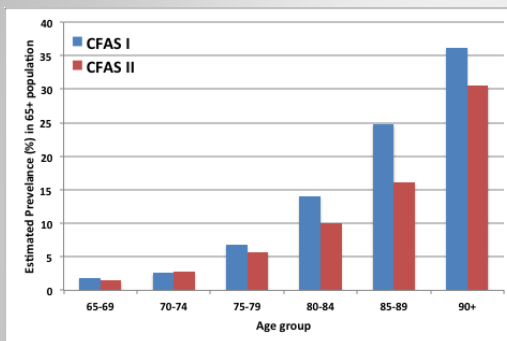
3. Most of old age is NOT spent cognitively impaired

Cognitive functioning



- 3% scored 10 or less
- 10% (81) scored 11-21
- 16% (137) scored 22-25
- 70% not impaired (26-30)
- 16% scored 30!

Prevalence of dementia has reduced

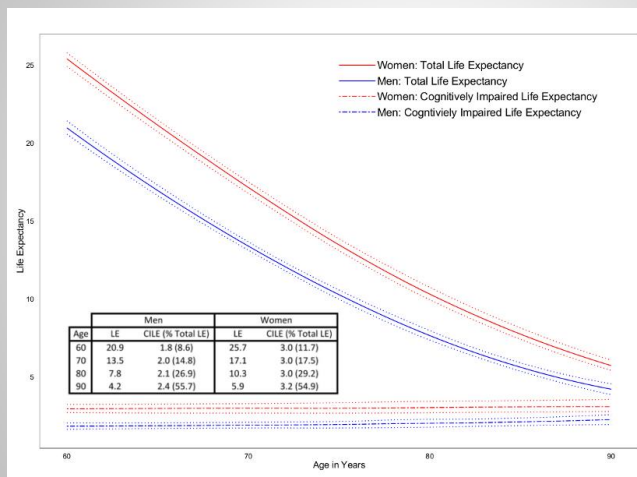


A two-decade comparison of prevalence of dementia in individuals aged 65 years and older from three geographical areas of England: results of the Cognitive Function and Ageing Study I and II

From: Matthews, Antony; Arif, Linda; Barnes, John; Bond, Carol; Jagger, Louise; Robinson, Carol; Rye, on behalf of the Medical Research Council Cognitive Function and Ageing Collaboration



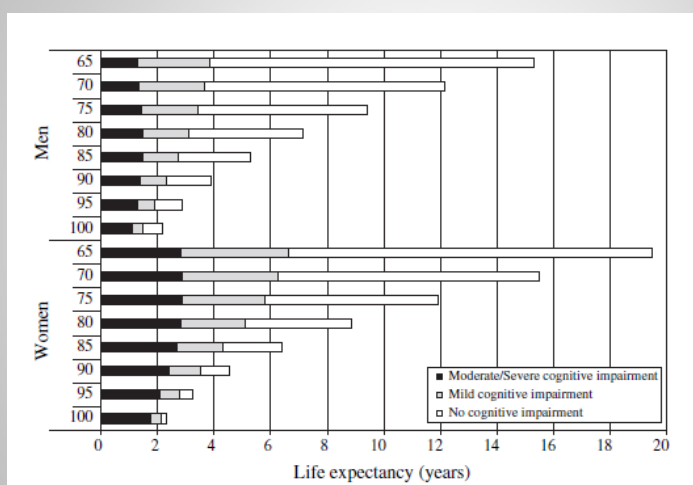
Years with cognitive impairment (1)



Cognitive
impairment =
MMSE 0-23

Source: Anstey et al. *Int J Epidemiol* 2014

Years with cognitive impairment (2)



Cognitive
impairment:
mild = MMSE
22-25
Mod/severe =
0-21

Source: Matthews et al. *J Gerontol* 2009 1:125-131

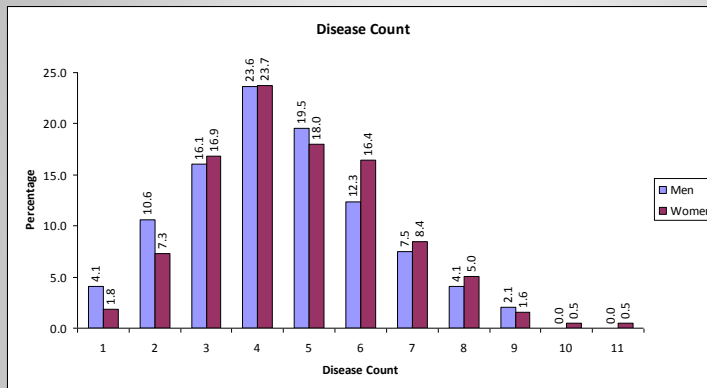
4. Very old age is not for sissies!
You don't get there without something

High prevalence of disease



- 58% Hypertension
- 52% Osteoarthritis
- 47% Cataract
- 47% Atherosclerosis
- 17% COPD
- 13% Diabetes
- 8% Dementia

Not just one disease



**Median
disease
count:**

Men = 4

Women = 5

**28% (men)
and 32%
(women)
had 6+
diseases**

Multimorbidity is the norm for very old people

5. Healthy ageing depends on
where and how you live

Inequalities at birth 2006-2011

		LE at birth		DFLE at birth	
		2006-8	2009-11	2006-8	2009-11
Men	Mean	77.7	78.7	62.8	63.2
	0.10	75.3	76.5	58.2	58.6
	0.90	79.7	80.7	66.9	67.6
	10-90% range	4.4	4.2	8.8	9.0
Women	Mean	81.8	82.7	63.9	63.8
	0.10	79.8	80.9	59.2	59.2
	0.90	83.6	84.4	68.2	68.2
	10-90% range	3.8	3.5	9.0	9.0

- DFLE inequalities exceed LE inequalities
- LE inequalities are reducing but DFLE inequalities are not

Extending working life

	UTLA (N)	Male DFLE<65 (%)	Female DFLE<65 (%)
East	11	18	18
East Midlands	9	56	67
London	32	31	31
North East	12	100	83
North West	23	74	74
South East	19	32	26
South West	15	27	7
West Midlands	14	57	50
Yorkshire and The Humber	15	73	73
ENGLAND	150	50	44

Putting into world context

- Health expectancy has been put forward in the 2nd phase of *Healthy Japan 21*
 - Goal 1: increase health expectancy (i.e. DFLE)
 - Goal 2: reduce regional inequalities in health expectancy
- Inequalities (range) in DFLE at age 65 between Japanese prefectures*
 - Men: 3.0 years (2000) to 2.1 years (2010)
 - Women: 3.1 years (2000) to 2.5 years (2010)
- Inequalities (range) in DFLE at age 65 between English UTLA**
 - Men: 7.9 years (2006-8) to 8.5 years (2009-11)
 - Women: 8.9 years (2006-8) to 9.3 years (2009-11)

Source: *Minagawa & Saito, 2014; **ONS

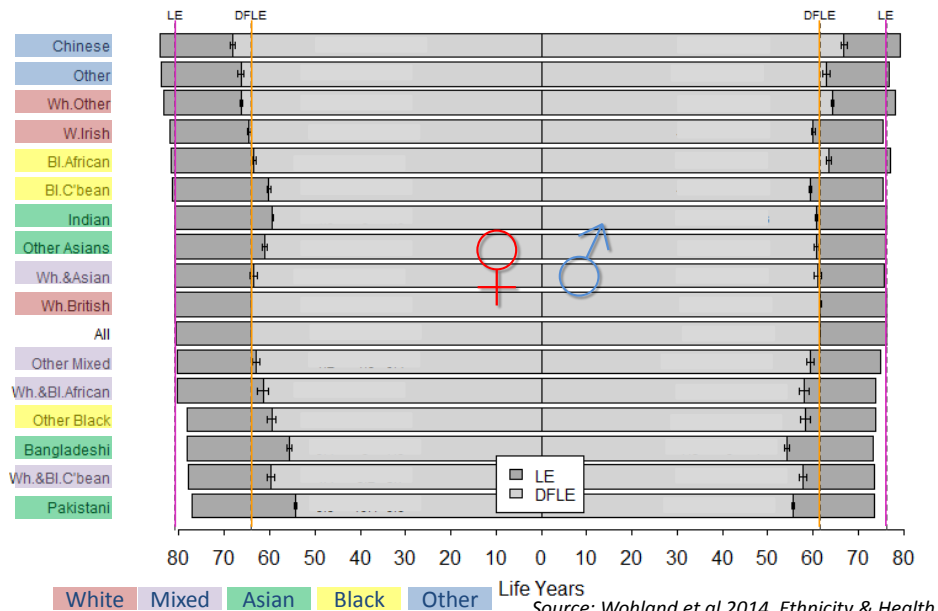


Contributors to inequalities in DFLE at birth

		DFLE at birth			
Women		1991		2001	
		β (SE)	p	β (SE)	p
	Social Class IV and V (%)	-0.16 (0.03)	<0.001	-0.35 (0.03)	<0.001
	Unemployment rate (%)	-0.53 (0.05)	<0.001	-0.67 (0.08)	<0.001
	Retirement migration	0.42 (0.11)	<0.001	1.42 (0.15)	<0.001
	Population density	0.02 (0.01)	0.005	-0.01 (0.01)	0.337
	Non-white population (%)	0.03 (0.02)	0.063	0.05 (0.01)	<0.001
	r ²	0.70		0.81	

Source: Wohland et al 2014, JECH

DFLE at birth for ethnic groups, 2001

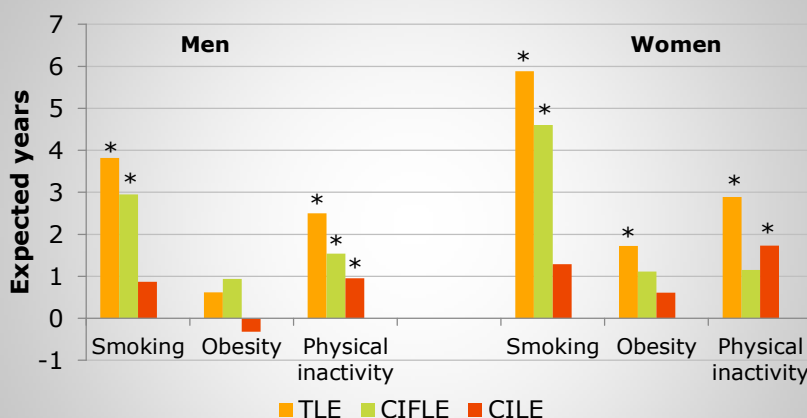


SES and lifestyle contributors - GOR

Variable	Women				Men			
	Coeff	SE	P-value	P-value	Coeff	SE	P-value	P-value
%Unemployed	-1.45	0.43	0.077	0.085	-1.67	0.49	0.062	0.058
%Low social class	-0.89	0.15	0.004	0.004	-1.00	0.18	0.003	0.003
% No qualification	-0.41	0.11	0.057	0.062	-0.45	0.14	0.057	0.055
%Binge drinking	-0.59	0.17	0.068		-0.47	0.11	0.022	
%Heavy drinking	-0.28	0.15		0.380	-0.34	0.09		0.027
%Smoking	-0.50	0.26	0.267	0.289	-0.96	0.26	0.052	0.051



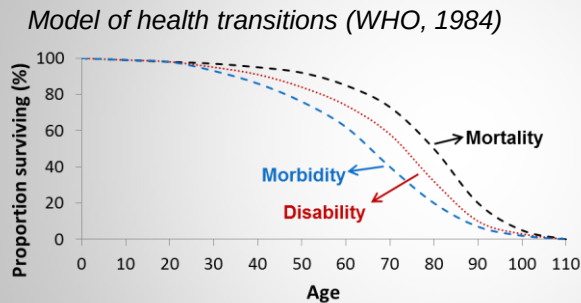
But its not all gain in good years



Years gained (*= significantly>0) in total life expectancy (TLE), cognitive impairment free life expectancy (CIFLE) and life expectancy with cognitive impairment (CILE) without risk factor (high educated)

Source: Anstey et al 2014, IJE

Healthy Life Expectancy



"Increased longevity without quality of life is an empty prize. Health expectancy is more important than life expectancy."

*Dr Hiroshi Nakajima,
Director-General WHO 1997*

Increase in healthy years should exceed increase in life expectancy or unhealthy years will increase

Conclusion

- There is a lot we know about growing older:
 - The course of disability is predictable
 - Around 2 (men) or 3 (women) years are spent requiring daily or constant help – most provided by children
 - Around 1.5 (men) or 3 (women) years are spent with moderate or worse cognitive impairment and this is constant across age
 - Multiple diseases are more the norm in very old age
 - There are strong regional differences in healthy ageing
- But our knowledge is based on current cohorts – what will the future bring?
- Microsimulation may provide a way of exploring the uncertainty of the future

Prediction is very difficult, especially about the future.

Niels Bohr (1885 - 1962).

Home About Partners Who's who Activities Videos Work packages Contact

MODEM

modelling outcome and cost impacts of interventions for dementia

Improving Dementia Care
ESRC-NIHR



How can we support and treat people with dementia in an acceptable way that's affordable?

HIGHLIGHTS
from our launch event...

<http://www.modem-dementia.org.uk/>

Acknowledgements

InHALE, MRC CFAS,
and Newcastle 85+ teams
and study participants

The Dunhill Medical Trust



And finally



To be old? It's to be young longer than the rest – that's all.



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Question and Answer Session

