

Upper age limit for pilots

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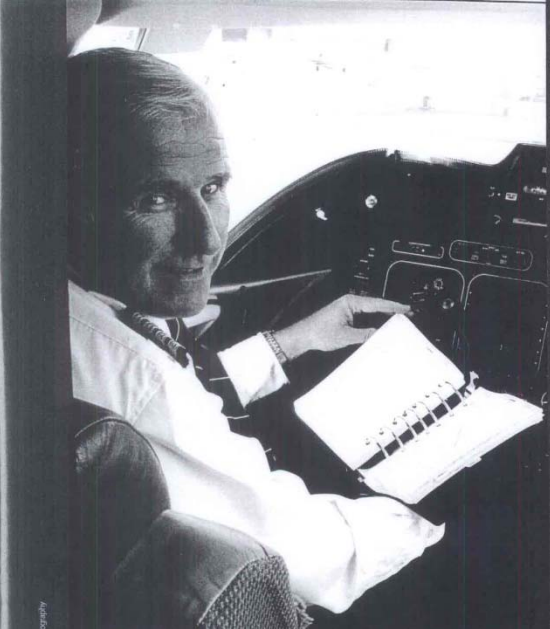
International Civil Aviation Organization, Montreal



Plan

- ICAO Provisions
 - Prior to 23 Nov 2006
 - After 23 November 2006
- Why change?
- Summary/Conclusions

ICAO Provisions



AVIATIONMEDICINE

ICAO has increased the mandatory upper age limit for airline pilots to 65, but some wonder if a limit is really necessary.


BY LINDA WERFELMAN

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TOO OLD TO FLY

Most people are in their 40s or older when they become aware that they are experiencing gradual age-related physical and mental changes. The effects of aging are different for everyone, however, and the age-related developments that present problems for some people at 40 may materialize for others when they are considerably younger or older — or they may not materialize at all.

The effect of aging on pilot performance has been the subject of numerous studies; results have been mixed. The Aerospace Medical Association (AsMA) said that, because of the significant differences in study findings,



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- Prior to Nov 2006
 - Standard max. age 60 years (PIC)
 - Recommendation max. age 60 (co-pilot)
- From Nov 2006
 - '60' increased to '65' years

Chicago Tribune

“Great record. Tip-top health. Too old”

“Older pilots question mandatory retirement age of 60, but younger brethren want FAA rule to stay in place”

Jon Hilkevitch and John Schmeltzer

Tribune staff reporters

August 22, 2006

From Nov 2006 - conditions for pilots 60-65

- PIC over 60, co-pilot must be under 60
- All pilots over 60 must have a 6-monthly medical (annual otherwise)
- Single pilot limit remains at 60

ICAO review

ICAO Council vote, 10 March 2006

- 27 in favour
- 4 against
 - Including USA, France
- 4 abstentions
- 2/3 (24) in favour needed

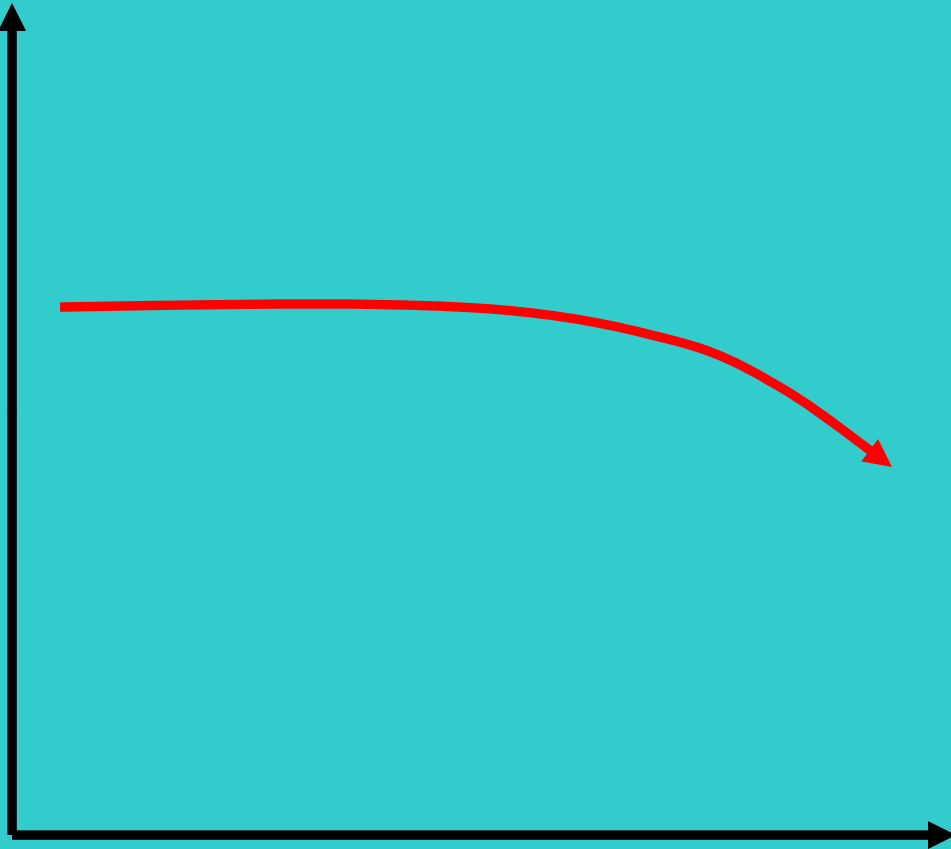
Why change the upper age limit?

- Sudden incapacitation
- Gradual performance degradation

Gradual performance degradation

Everything

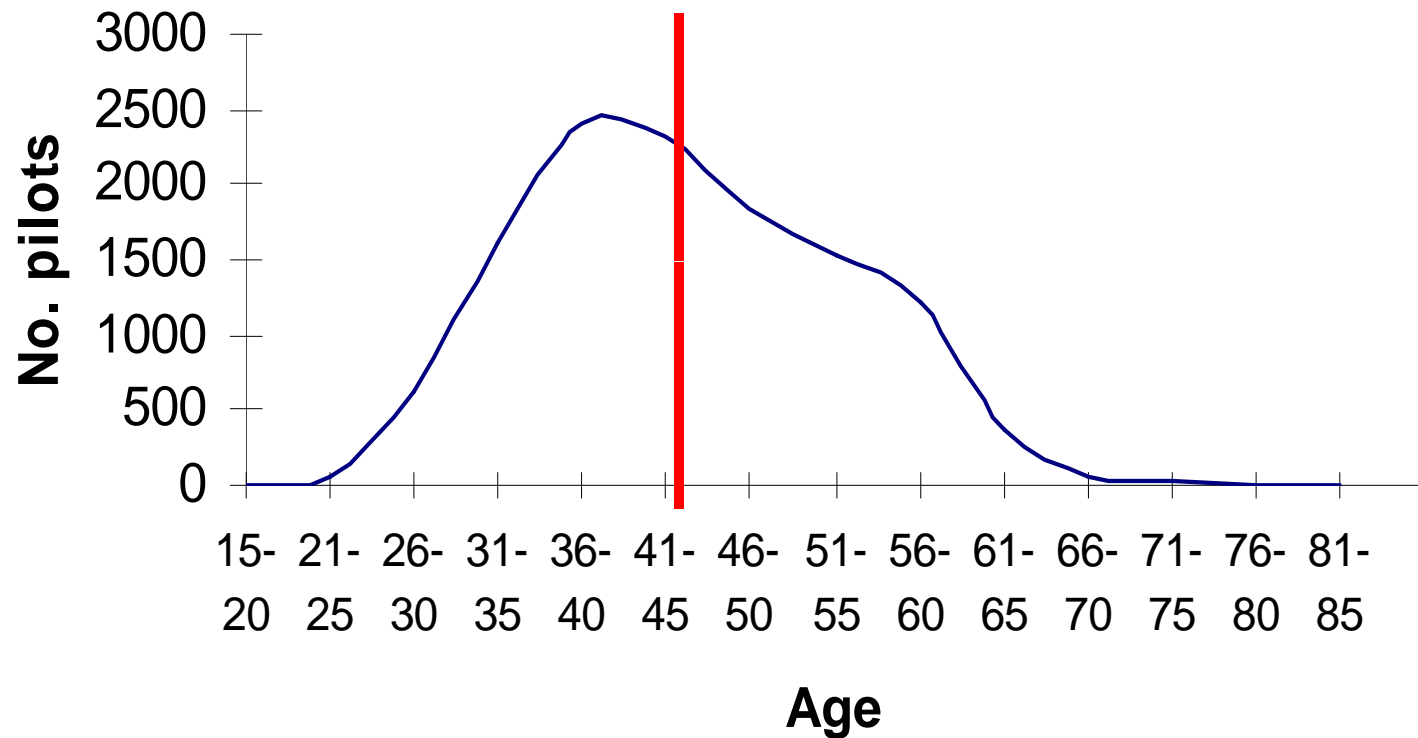
Age



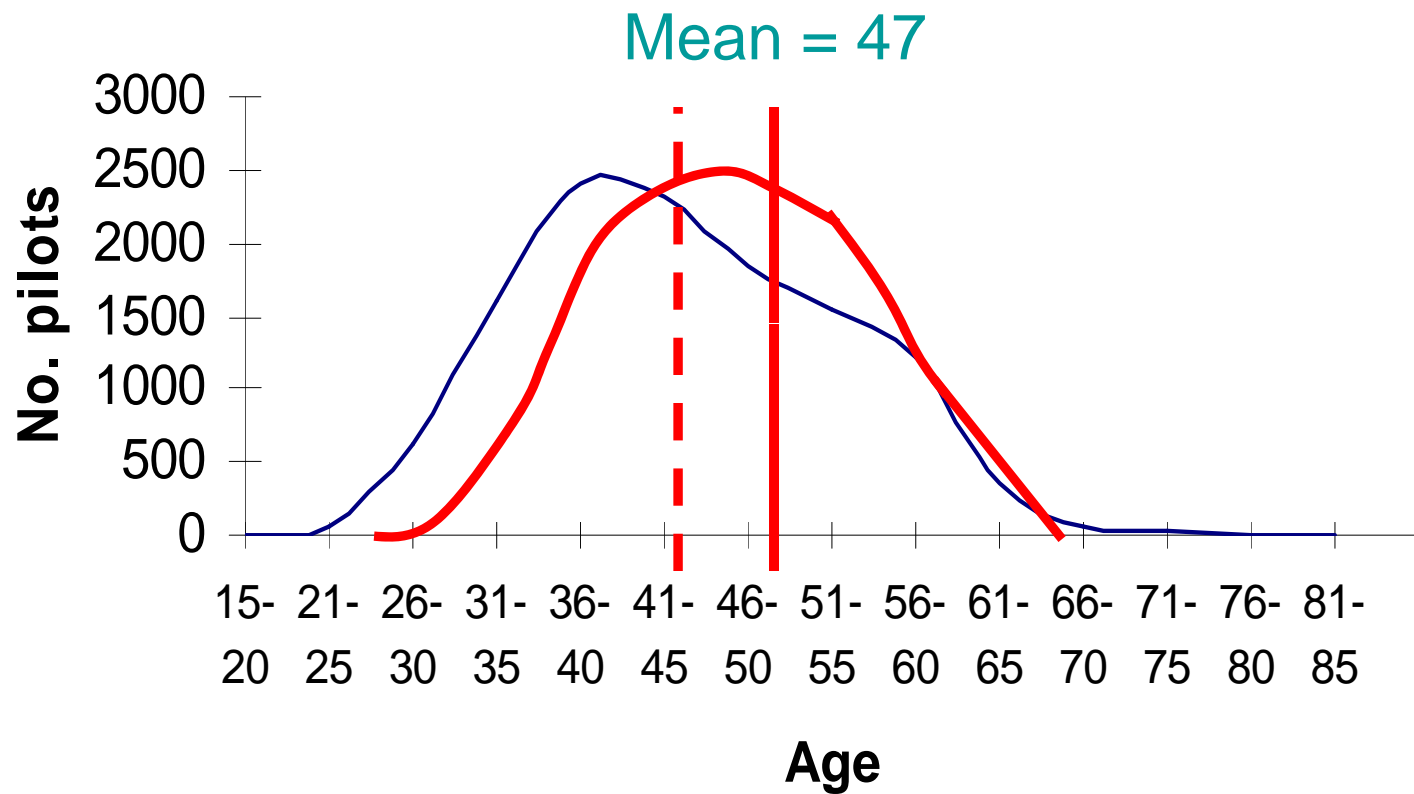
Sudden incapacitation

Age profile UK ATPL(A) today

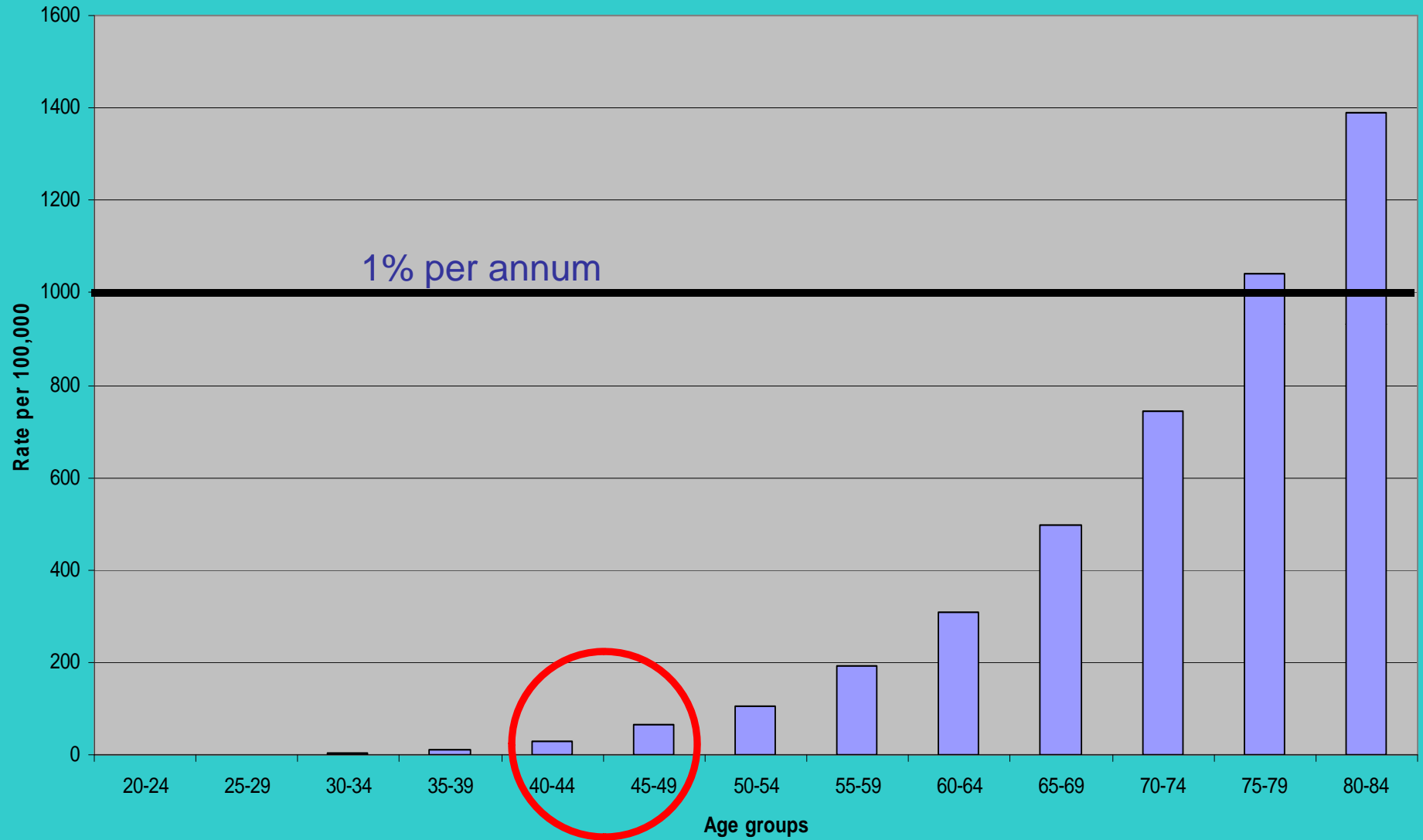
Mean = 42



Potential age profile UK ATPL(A) post 2006



Coronary Heart Mortality, Males, England & Wales, 2002



Office for National Statistics

So...

- Number of fatal accidents per year, unlikely to change
- But...what about individual risk?

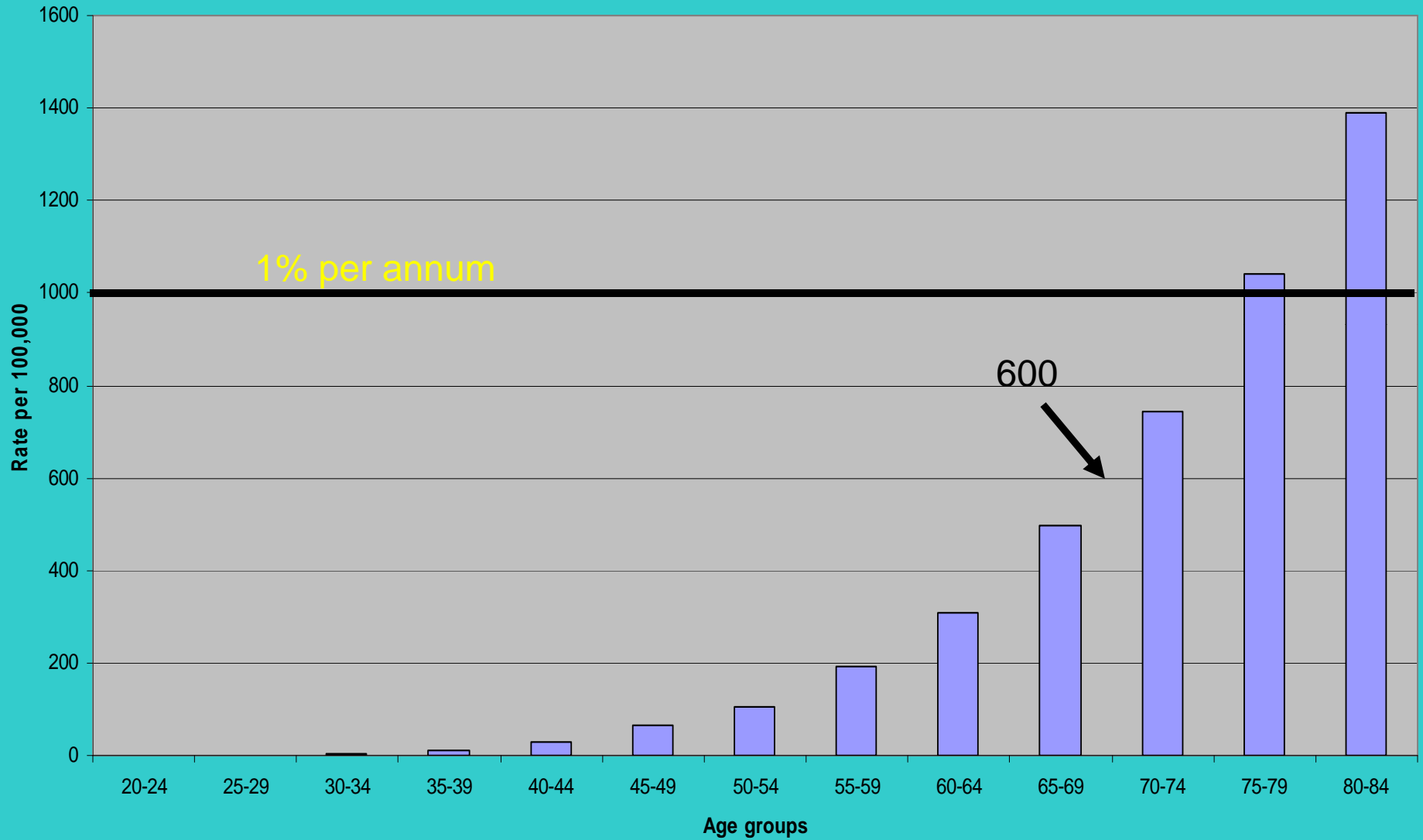
Review individual medical risk

Main, potentially predictable, suddenly incapacitating diseases

- Coronary heart disease
- Stroke
- Seizure

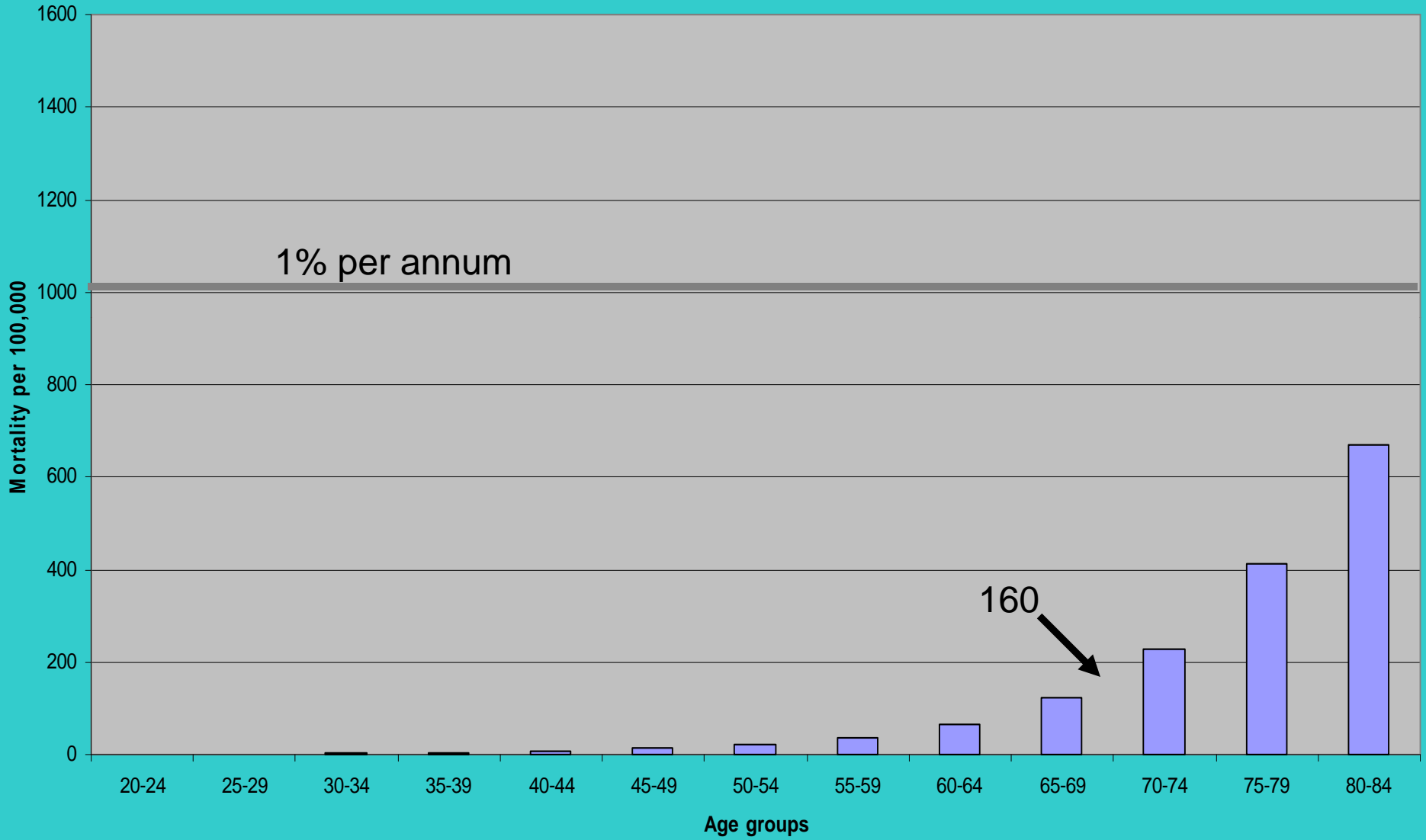
Review risk for age 70

Coronary Heart Mortality, Males, England & Wales, 2002

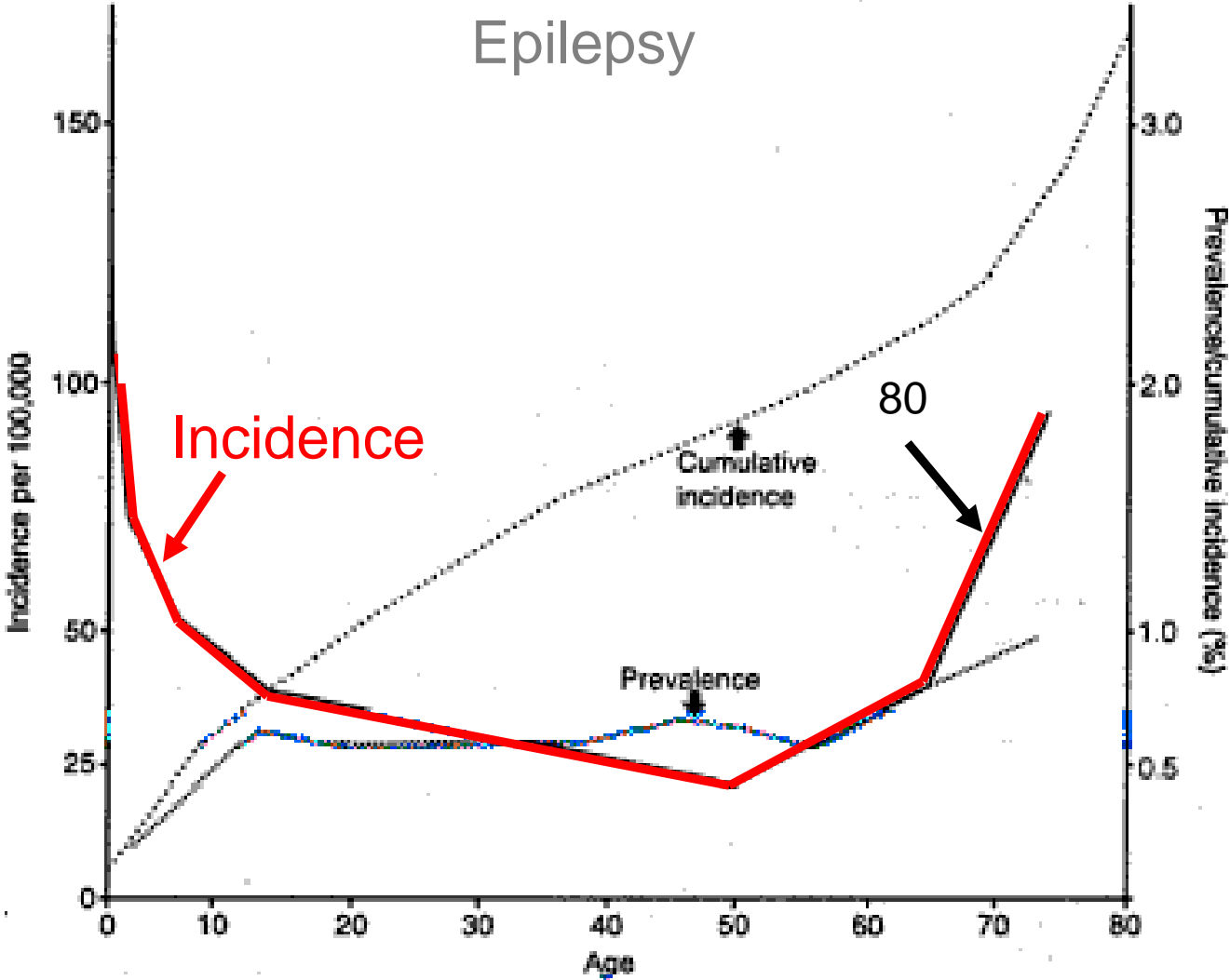


Office for National Statistics

Cerebrovascular mortality, Males, 2002, England & Wales



Epilepsy



From: HAUSER et al, 1983³

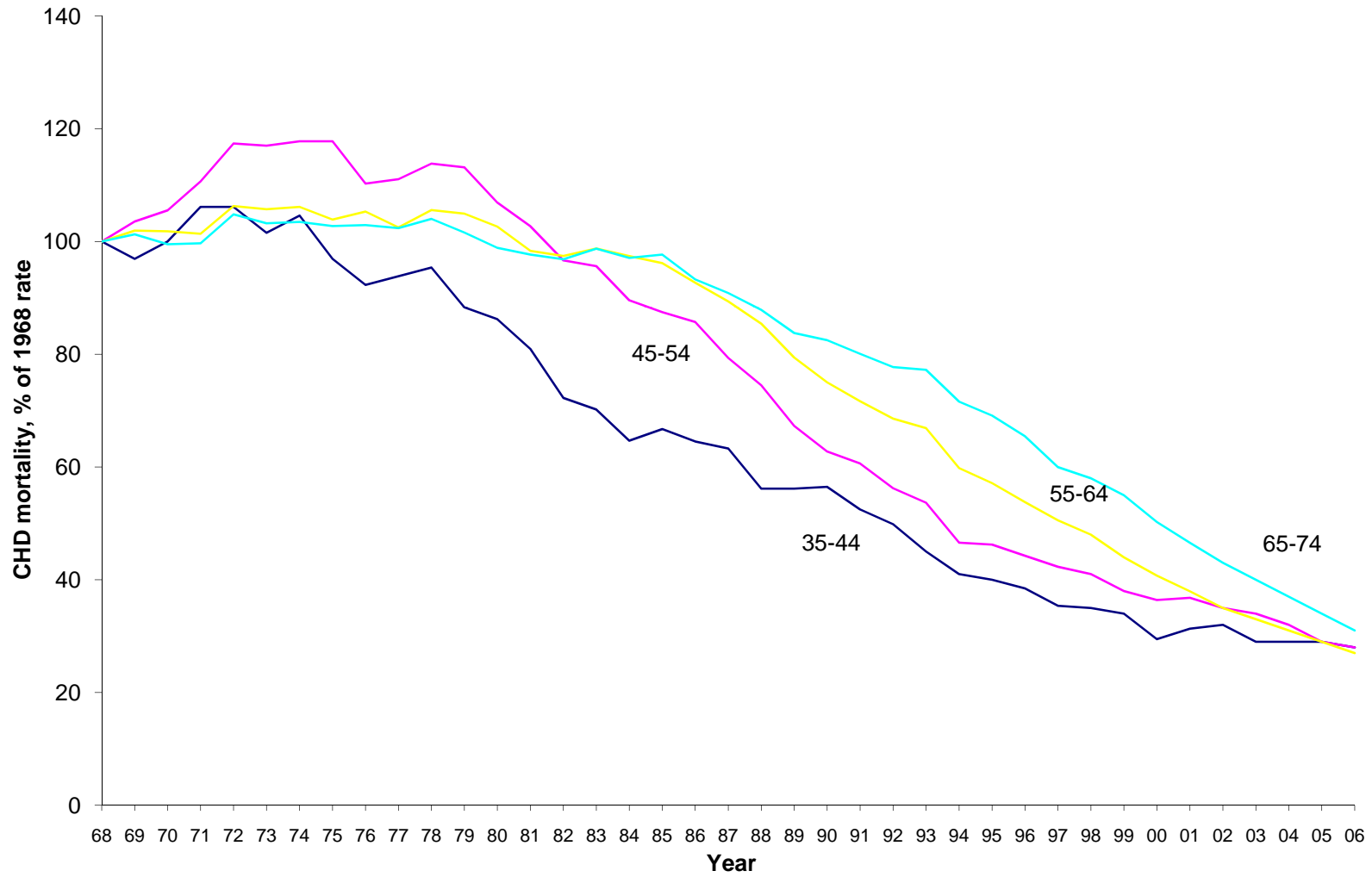
Annual incidences at age 70 yrs, per 100,000 population

- CHD mortality (male) = 600
- CVD mortality (male) = 160
- Seizure incidence (M & F) = 80
- Total risk sudden incapacity =
840/100,000

= 0.84% p.a.

i.e. below 1% p.a.

**Age-specific death rates from CHD, men, 1968 to 2006, United Kingdom,
plotted as a percentage of the rate in 1968**



So, since the upper age limit introduced:

- Pilots are living longer
- Incapacitation training introduced in 1970s
 - since the upper age limit was introduced
- Modern aircraft are easier to fly than the pre-1970s vintage
 - Various protections in-built
- Therefore
 - The risk of an incapacitation cause accident is less now than in the 1970s

Why not abandon the age limit
completely?

Example, different age groups

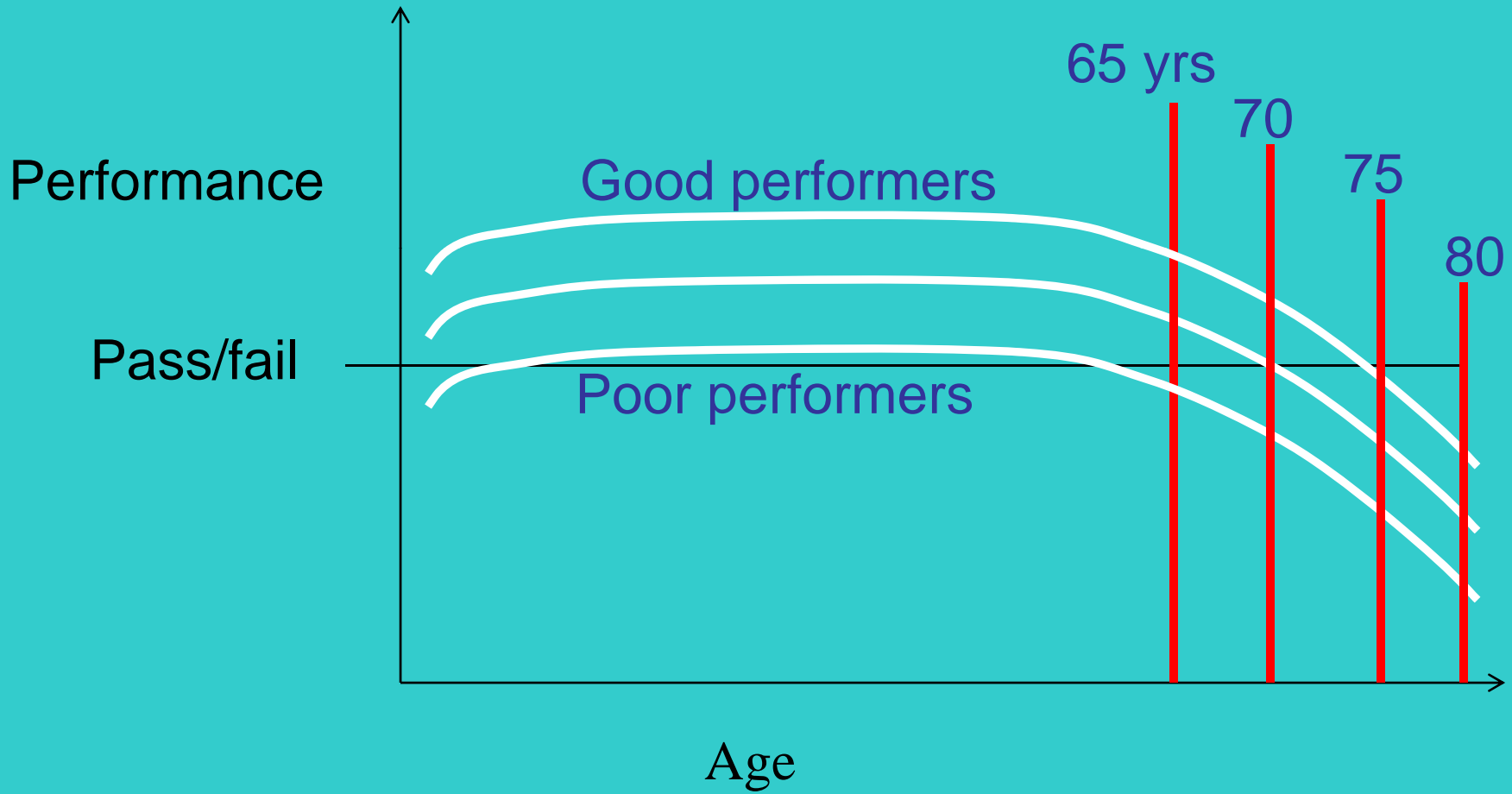
- Age 30-34
 - 3 at risk of sudden cardiac incapacitation
 - 1 detected by medical examination (ECG)
 - 2 missed
- Age 70-75
 - 300 at risk of sudden cardiac incapacitation
 - 100 detected by medical examination (ECG)
 - 200 missed

Medical examinations

- As effective (probably) in older age groups but...
- Not very effective at any age (c.1/3 of those 'at risk' detected)
- Most younger pilots are physically fit, whether examined or not
- At older ages, medical exam becomes relatively more important (but is not very reliable)

Gradual performance degradation

- Reaction time
- Short term memory
- Flexibility
- Physical degradation
 - Vision
 - Hearing



Simulator checks – every 6/12

- Better than medical exam for detecting pilots who fall below standard (only c. 1/3 detected by medical)
- But no test 100% effective

Example, different age groups

- Age 30-34
 - 10 below standard performance
 - 9 detected by sim check
 - 1 missed
- Age 70-75
 - 100 below standard performance
 - 90 detected by sim check
 - 10 missed (might be picked up by line check, peer review)

Implications

- Simulator checks, line checks, peer review good at detecting below standard performance (but no published data)
- Main risk with small operator

But, without an age limit...

- Potential for every career to end in 'failure'
- Culture change

Summary (sudden incapacity)

- Sudden incapacity risk increases with increasing age
- Number of incapacitation 'at-risk' pilots will increase with increasing age
- Medical examination will only detect a proportion of serious illnesses
- Upper age limit change from 60 to 65 will not materially affect flight safety in two-pilot operations
- Average risk at 65 remains below 1% p.a.

Summary (performance degradation)

- **Performance degradation risk increases with increasing age**
- **Number of performance 'at-risk' pilots will increase with increasing age**
- **Sim. checks, line checks, peer review will detect most cases of significant deterioration**
- **Sim. check is best test of cognitive performance**

Conclusions

- Upper age limit for PIC can be safely increased from 60 to 65 in 2-pilot operations
- Medical examinations (and, to a lesser extent, simulator checks) are not (yet) sufficiently sensitive to enable abolition of an upper age limit

Age is not a particularly interesting subject.
Anyone can get old.
All you have to do is live long enough.

Groucho Marx (1890 – 1977)

Upper age limit for pilots

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Mexico City
April 2011

PIC over ICAO upper age limit can fly only if:

1. Pilot's **Licensing Authority** allows it
2. Operations are undertaken only in **national airspace**; unless,
3. Another State has given **specific authorization** that such flights are permitted in its airspace.

Joint Aviation Authorities requirements

- Mandatory max. age 65 (captain and co-pilot)
 - Only one pilot over 60 permitted
- *Until ICAO changed* France, Italy, Portugal maintained ICAO provisions
- France only state to prevent *overflying* of PIC over 60

Some (2006) national regulations

- **US** - Mandatory upper age limit 60 years for captain and co-pilot.
- **Australia, Brazil, Canada, Costa Rica, New Zealand, Russian Federation, Senegal, Ukraine**
 - No upper age limit, captain or co-pilot

HISTORICAL NOTE

Age-60 Rule: The End Is in Sight

ANNA CORNELL, SUSAN P. BAKER, AND GUOHUA LI

CORNELL A, BAKER SP, LI G. *The Age-60 Rule: the end is in sight.* *Aviat Space Environ Med* 2007; 78:624–6.

Recent implementation of the International Civil Aviation Organization (ICAO) amendment 167 to Annex 1 allows pilots from ICAO contracting states to fly until 65 yr old. In response to the new ICAO standard, the Federal Aviation Administration (FAA) commissioned an Aviation Rulemaking Committee (ARC) to make recommendations on whether the FAA should retain or amend the Age-60 Rule. Unable to reach a consensus, the ARC formed two working groups and submitted two position papers with opposing views. After reviewing the ARC's report, the FAA has decided to move toward raising the mandatory retirement age for airline pilots from 60 to 65. In this article, we provide a brief review of the ICAO's amendment to the age limit and discuss the various implications of this new international standard.

Keywords: Age-60 Rule, aviation standards, safety.

ON NOVEMBER 23, 2006, the International Civil Aviation Organization (ICAO) implemented Amendment 167 to the provisions of Annex 1 to the Chicago Convention. This amendment to the international Standards and Recommended Practices included

1963. ICAO wrote a standard 9 yr later to Annex 1 that set age 60 as a mandatory upper age limit for airline pilots-in-command, and made it applicable in 1978 (13,16,17). In 1989, ICAO's Air Navigation Commission (ANC) took on the role of investigating the standard and its validity due to requests from a contracting state regarding the limit (14). A 1994 progress report by the ANC reviewed studies concerning the subject, and commented on the European Joint Aviation Authorities' resolution to increase its upper age limit to 65 for multi-crew commercial pilots. Due to the lack of consensus among ICAO contracting states, as well as the insufficient scientific evidence available, the standard remained unchanged, but emphasis was placed on continued study of the issue as more information became available (9,10). The topic gained attention several times over the next few years as ICAO surveys were distributed to contracting states with questions relating to the issue and results were received and reviewed by the

Cornell & Baker, ASEM 78: 624-6, 2007

Standard vs Recommendation

- Standard – ‘necessary’ i.e. mandatory
- **A PIC operating in full compliance with the ICAO Standard on age cannot be refused entry into another State’s airspace by reason of age**

History

- **1919** – International Commission for Air Navigation (ICAN) - 45 years age limit
- **1947** – ICAO takes over from ICAN – no age limit in ICAO documentation
- **1959** – FAA Age 60 limit imposed (PIC and co-pilot)
- **1960** – IATA recommends upper age limit of 60 to members
- **1963** - ICAO
 - Recommendation Age 60 limit for PIC
 - No mention of co-pilot

History (cont'd)

- **1972 – ICAO**
 - Age 60 limit became Standard for PIC
 - Introduced as Recommendation for co-pilots
 - Applicability 1978
- **1980 – Chile proposes deletion of age limit**
 - Unsuccessful
- **1991, 1996 – ICAO reviews – no change**
- **2006 – latest review**

Negative comments – from States (countries)

- Progressive decline in function with age
- Cardiac and other pathologies are more common
- Difficult to detect subtle performance decrements
- Age 60 rule has proven track record
- Public doesn't want a change
- No conclusive flight safety studies to support a change

Comments – international organisations

- **AsMA & IATA - Supported increase**
 - AsMA ‘Insufficient medical evidence to support (any) age limit’
- **IAASM - Neutral**
 - But in favour of a review
- **IFALPA - Against**
 - Maintain status quo