

# Elderly Airline Passengers

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# Disclosure Information

*Ries Simons, M.D.*

I have no financial relationships to disclose.

I will not discuss off-label use and/or investigational use in my presentation



## EU: population by age groups [Eurostat EUROPOP2013 data]

	<b>0-14</b>	<b>15-64</b>	<b>65+</b>
2013	16%	66%	18% [5% of them 80+]
2060	15%	57%	28% [12% of them 80+]

The U.S. Travel Association: travelers born before 1946, account for 21% of all leisure travelers, making 4 trips a year on average; and 14% of all business passengers, making around 8 trips a year.

The proportion of older travelers choosing to fly will increase as a result of increased affluence and education levels.



# The Trend . . . . .

- **increasing number of passengers:**
  - higher age
  - chronic diseases (medication)
  - predisposing factors
  - diseases during holiday
  
- **travels non-stop over increasing distances**

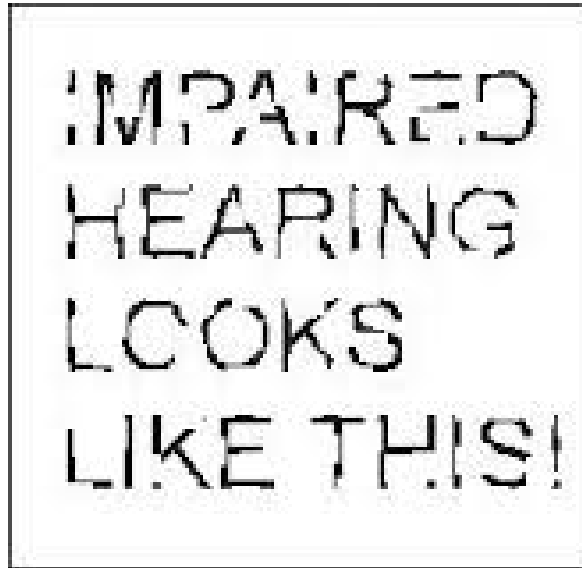




Although the 'new elderly' are healthier in some respects than earlier generations, this age group is subject to chronic illnesses which can affect a person's ability to travel (cardiovascular and respiratory disease, Alzheimer's, diabetes, osteoporosis, obesity).



The normal effects of aging, including muscular/skeletal problems and deteriorating sight and hearing, also play a role.



Contributing psychological issues include anxiety and lack of ability to adapt to change.

The increase of aging and elderly travelers challenges airports, airlines, and doctors to respond to the physical, psychological, and medical needs of this important age group





# Travel conditions

- medication, sleep loss, stress
- lengthy immobilisation, alcohol
- jet lag





**QANTAS** Spirit of Australia

Fergus McMaster















Ries Simons

Er rijden minder treinen door winterweer. Schiphol en Utrecht zijn beperkt bereikbaar.

Vertrek	Naar / Opmerkingen	Spoor	Trein	15:59
15:40	Den Haag Centraal Stopt niet op tussengelegen stations	8 <sup>b</sup>	Intercity +15 minuten	
15:52	Utrecht Centraal Stopt ook in Leiden Lammensch, Bodegraven, Woerden	1	Intercity	
15:58	Amsterdam Centraal via Heemstede-Aerden, Haarlem, Sloterdijk	5	Intercity	
16:00	Almere Oostvaarders Rijdt niet	4	Sprinter	
16:04	Vlissingen Dit is een gewijzigd vertrekspoor	8 <sup>b</sup>	Intercity +10 minuten	
16:07	Amsterdam Centraal Rijdt niet	4	Intercity	
16:10	Den Haag Centraal Stopt niet op tussengelegen stations	8 <sup>b</sup>	Intercity	







**PARKEREN**  
**SCHIPHOL**











# Airport Cooperative Research Program - Synthesis 51 (2014)

## Impacts of Aging Travelers on Airports

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### **Wayfinding:**

- Unfamiliarity with a complex airport environment
- Unclear or confusing informational and directional signage
- Difficulty understanding the meaning and terminology of directional signs

### **Fatigue:**

- Standing or waiting in line, at check-in, passenger security screening, or bag claim
- Long walking distances in terminal, parking garage, and surface lots
- Handling heavy bags at curbside, check-in, and bag claim



## Technology and equipment:

- Understanding and using self-service devices
- Negotiating the security checkpoint process
- Using escalators and moving walkways.

## Amenities:

- Difficulty in using toilet facilities
- Using congested retail and food service concessions







# Stress before, during and after the flight

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- Sleep debt
- Latent Fear of Flying (10-40%)
- Security
- Delays
- Physical exertion
- Fatigue

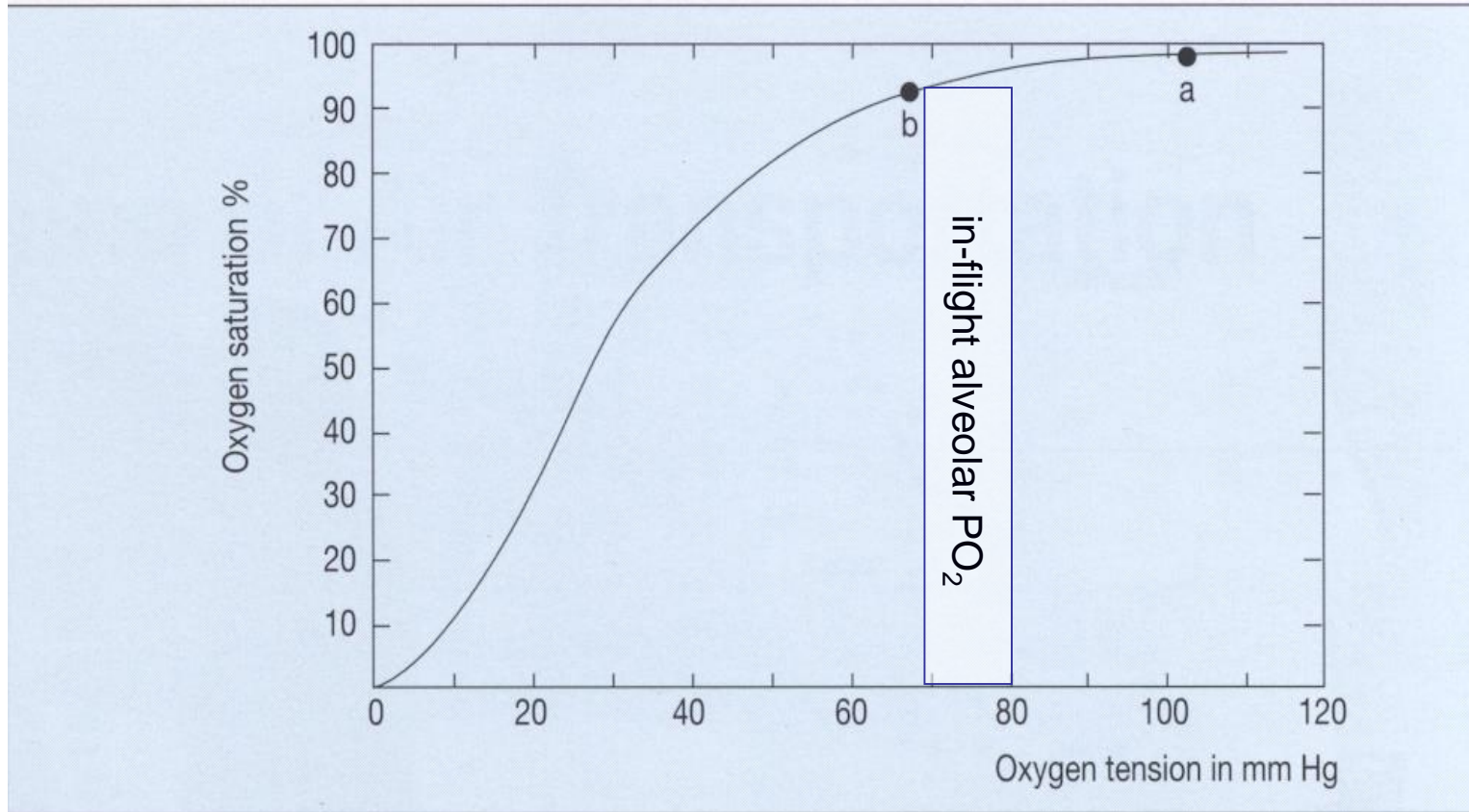


# In-Flight environmental conditions

- Lowered atmospheric pressure
  - lowered partial O<sub>2</sub> pressure
  - expansion of gasses
- Low relative humidity
- Immobility
- Turbulence, noise
- Temperature



# Hb - O<sub>2</sub> dissociation curve



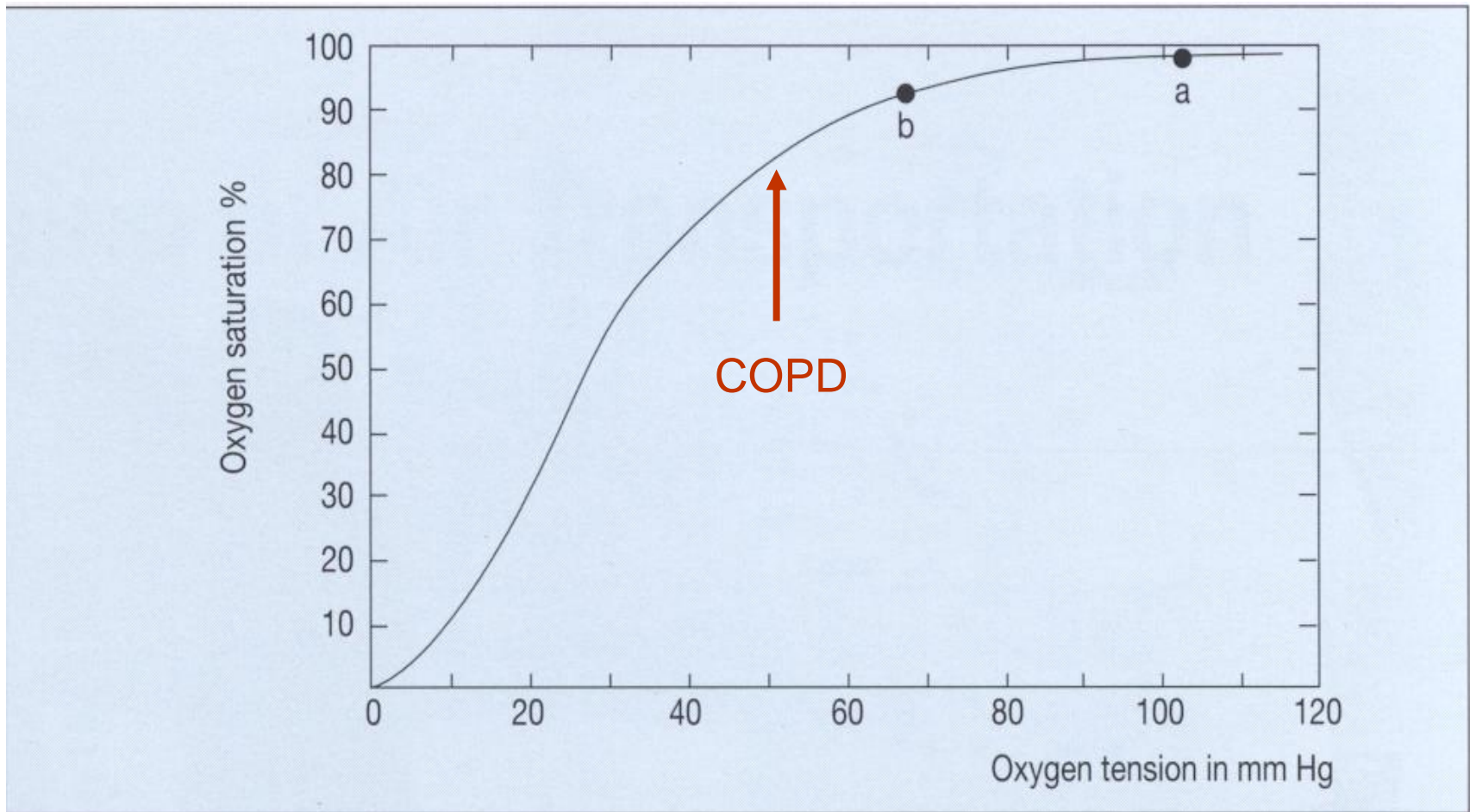
Healthy Pax: HbSaO<sub>2</sub> 90-92%

During sleep + impaired ventilation:  $\text{HbSaO}_2 < 90\%$





# Hb - O<sub>2</sub> dissociation curve: COPD



# Managing passengers with stable respiratory disease planning air travel: British Thoracic Society recommendations

*Thorax* 2011;**66**:i1–i30. doi:10.1136/thoraxjnl-2011-200295



# Fitness to fly for passengers with cardiovascular disease

David Smith,<sup>1</sup> William Toff,<sup>2</sup> Michael Joy,<sup>3</sup> Nigel Dowdall,<sup>4</sup> Raymond Johnston,<sup>5</sup> Liz Clark,<sup>6</sup> Simon Gibbs,<sup>7</sup> Nick Boon,<sup>8</sup> David Hackett,<sup>9</sup> Chris Aps,<sup>10</sup> Mark Anderson,<sup>11</sup> John Cleland<sup>12</sup>

*Heart* 2010;**96**:ii1–ii16. doi:10.1136/hrt.2010.203091



# Increasing age: likelihood of diversions?

**Table 2. Multivariable Analysis of Factors Associated with Selected Outcomes.\***

Factor	Odds Ratio (95% CI)		
	Aircraft Diversion	Transport to a Hospital	Hospital Admission
Age	1.01 (1.006–1.014)	1.01 (1.008–1.013)	1.02 (1.016–1.026)
Medical problem			
Syncope	0.82 (0.63–1.06)	0.84 (0.73–0.97)	1.04 (0.77–1.42)
Respiratory symptoms	1.14 (0.82–1.58)	0.96 (0.80–1.15)	2.13 (1.48–3.06)
Cardiac symptoms	2.75 (2.07–3.66)	2.41 (1.99–2.91)	1.95 (1.37–2.77)
Abdominal pain, nausea, or vomiting	0.99 (0.72–1.35)	1.35 (1.14–1.60)	1.13 (0.79–1.62)
Seizures	2.07 (1.48–2.89)	1.90 (1.53–2.35)	1.57 (1.04–2.37)
Possible stroke	2.52 (1.61–3.96)	2.26 (1.64–3.10)	3.36 (1.88–6.03)

[Peterson et al. N Engl J Med 2013;368:2075-83 – 11,920 in-flight medical emergencies]

## Top 5 consultations related to air travel

- Cardiovascular problems
- Pulmonary problems
- Prophylaxis Deep Venous Thrombosis / PE
- Airport Security/Customs and Medication/Medical devices
- Jet Lag





# Passengers with mental or psychiatric problems during travel

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## **Risk groups** [Dutch Alarm Centers]

- Elderly people travelling alone
- People who have recently experienced a 'major life event'
- People who departed while mentally stressed or depressive
- People with a bipolar disorder
- People who experienced a severe trauma during their holiday

## Elderly with early / mild dementia

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- May function quite well in their familiar surroundings, but may become disoriented and agitated in a strange surrounding at night (night flights)
- Effects may be potentiated by hypoxia, dehydration, alcohol, hypnotics and jet lag
- People with cognitive and memory problems: higher risk of in-flight delirium



## Psychiatric care may be different at the destination



## Consider the destination

<b>Airport</b>	<b>Altitude (feet)</b>
Bangda, Tibet	15 548
Bengdag, China	14 100
Bogota, Colombia	8 355
La Paz, Bolivia	13 310
Lhasa, Tibet	14 315
Quito, Ecuador	9 222
Telluride, USA	9 086

and what someone will be doing there . . .











# 230 Dutch General Practitioners

mean age: 44 yrs (29-68) - 128 Female /102 Male

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Cabin Pressure (cruise flight)	% (n)
around 1 atm / sea level	58% (134)
0.9 - 0.75 atm	20% (45)
0.7 – 0.5 atm	1% (2)
don't know	21% (49)

# 230 Dutch General Practitioners

mean age: 44 yrs (29-68) - 128 Female /102 Male

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Partial O <sub>2</sub> Pressure (cruise flight)	% (n)
higher than at sea level	3% (6)
lower than at sea level	20% (46)
same as during boarding	16% (37)
don't know	61% (141)



# 230 Dutch General Practitioners

mean age: 44 yrs (29-68) - 128 Female /102 Male

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<b>Gas Expansion (cruise flight)</b>	<b>% (n)</b>
no expansion	38% (87)
30-40%	29% (66)
50-60%	5% (12)
don't know	28% (65)

## **Conclusion:**

many physicians are not aware of the environmental and mental stresses of air travel and elderly passengers may be ill-prepared for travel

## **Recommendations:**

- 1) incorporate key principles of aviation medicine in the curriculum of the basic medical education
- 2) stimulate awareness of physicians, passengers, and airport and airline management concerning the specific problems of elderly passengers



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