

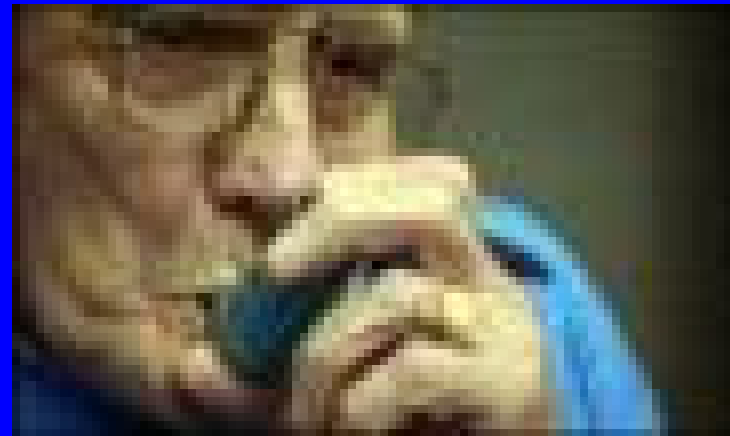


Asthma in the Elderly

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Asthma in the Elderly

Disclosure of Conflict of Interest Information

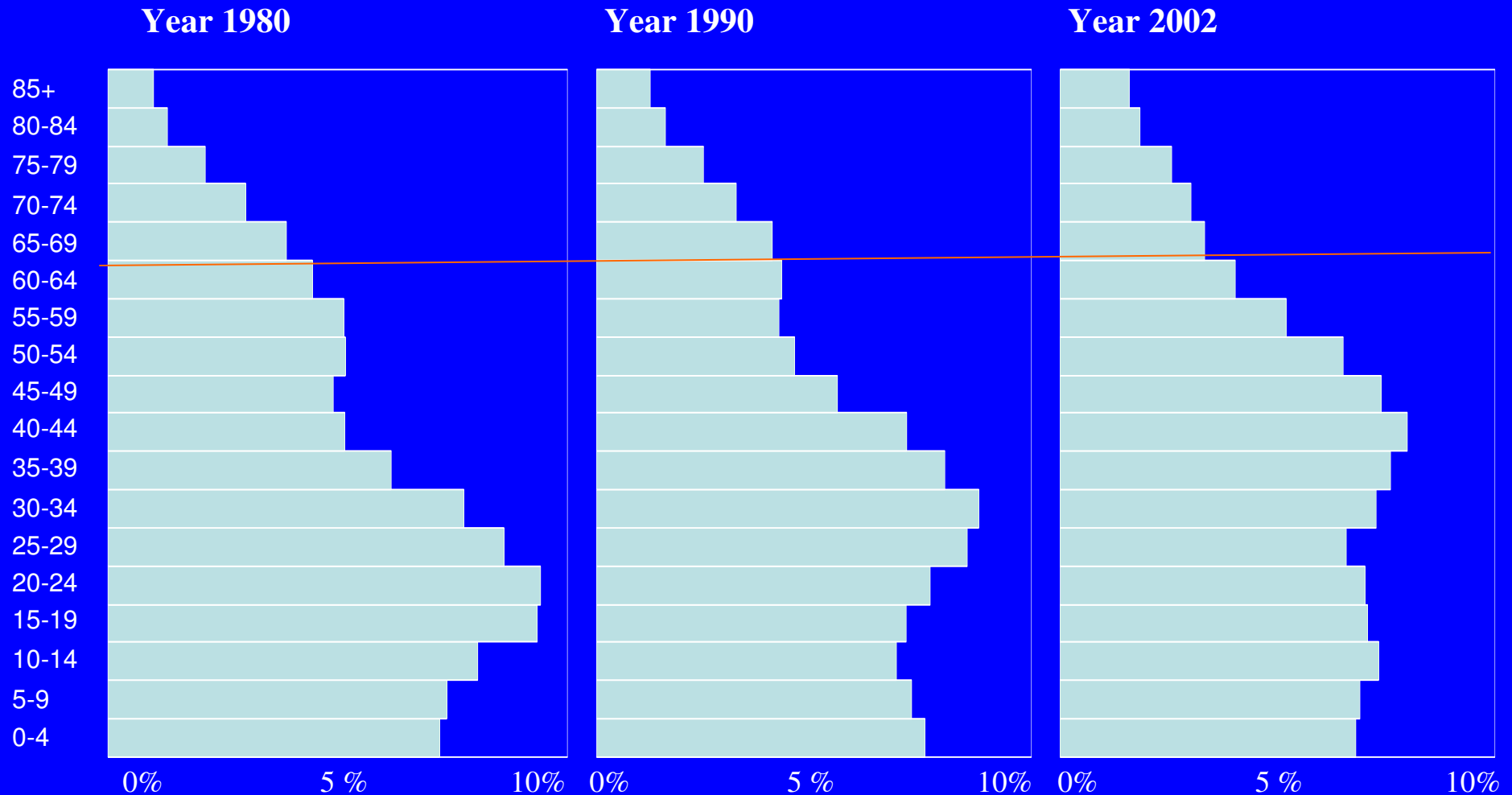
I have no existing conflict of information to disclose.



Objectives

- describe clinical studies and data useful in assessing and managing asthma in elderly patients
- discuss interactions among the effects of aging, asthma, coexisting diseases, and the use of multiple medications
- discuss differential diagnosis of asthma and COPD
- describe assessment and management principles that may reduce the risk of complications and hospitalizations in elderly asthmatics

Age distribution of U.S population, 1980, 1990, and 2002



Data source: The Bureau of the Census

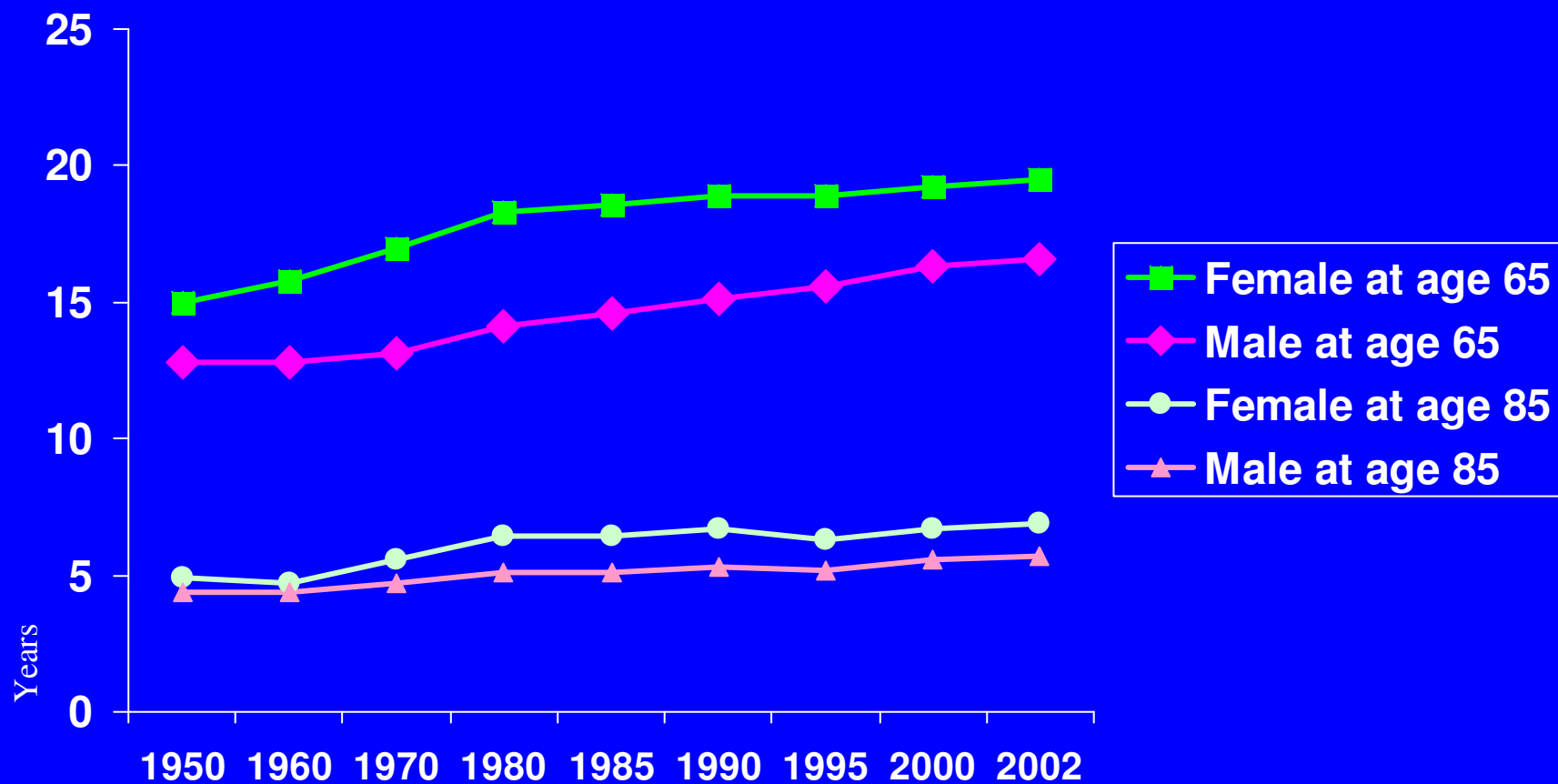
Slide 5

s1

Axes.

src8, 8/9/2005

Life expectancy at age 65 and 85, U.S., 1950-2002, by sex



Data source: The National Vital Statistics System

Slide 6

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ezl4, 6/21/2005

Asthma Prevalence in Subjects 65 Years or Older, world-wide

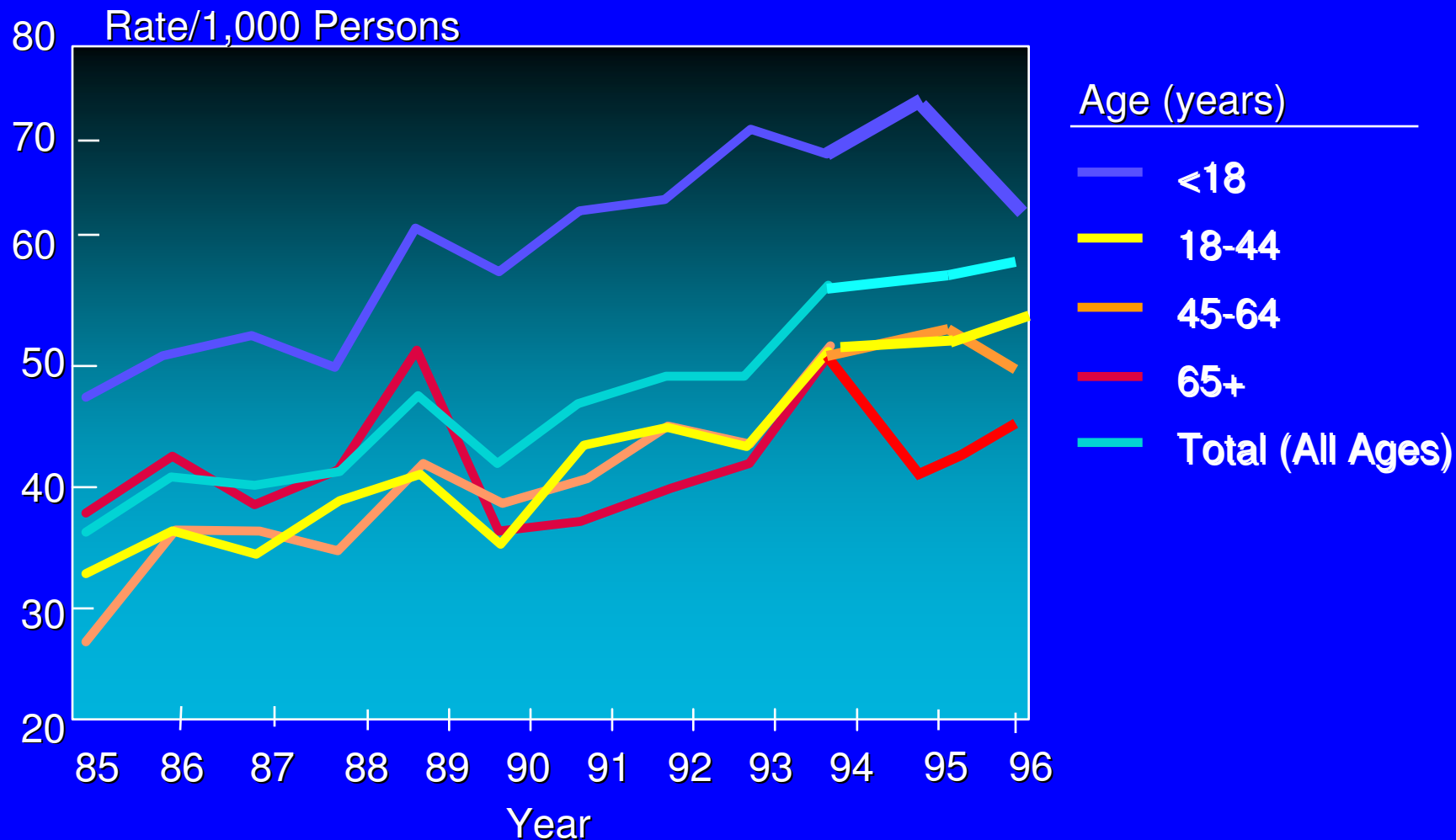
| | | |
|--------|------------------|------------------------------|
| UK | Horsley, Renwick | 7.3%-8.4% |
| France | Nejjari | 6.1% |
| USA | Burrows | 7.1% (female) 3.8% (male) |

Horsley JR, et al. *Age Ageing*. 1991;20:325
Renwick DS, Connolly MJ. *Thorax*. 1996;51:164

Nejjari C, et al. *Respir Med*.1996;90:401
Burrows B, et al. *Chest*. 1991;100:935



Trends in Prevalence of Asthma By Age, U.S., 1985-1996



Current (active) asthma prevalence: NHIS “have you had an attack in past 12 months”

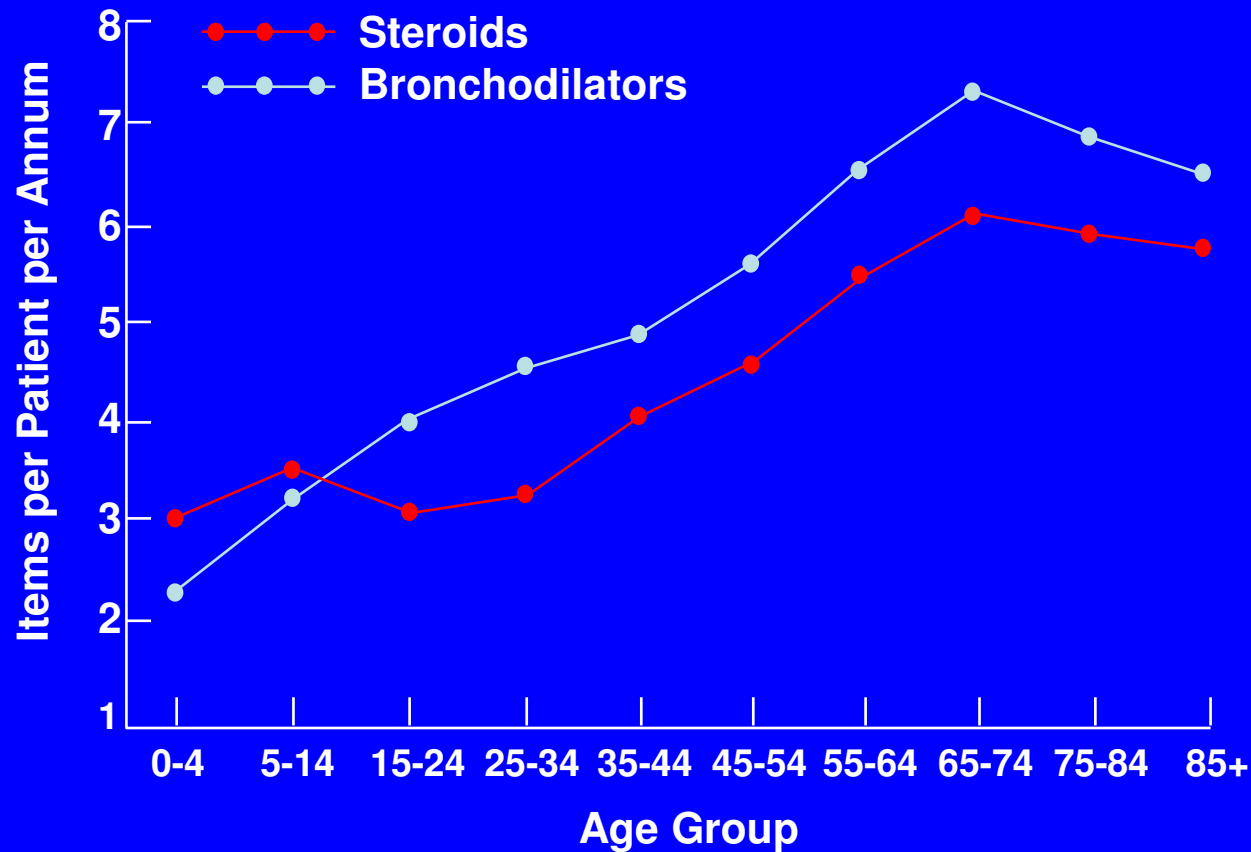
- 2003: 5.8% of American population ≥ 65
 - 4.2% male
 - 7.0% female
- Total elderly with asthma, 2003:
 - 1.98 million

National Center for Health Statistics, Data Warehouse on Trends in Health and Aging, <http://www.cdc.gov/nchs/agingact.htm>. accessed 03/17/06

Prevalence of Respiratory Symptoms in Patients ≥ 65

- Wheeze in 28.4%
- Morning phlegm in 21.6%
- Cough on exposure to smoke in 21.6%
- Daytime breathlessness at rest in 20.6%
- Reported at least one symptom, 58.4%
- Respiratory symptoms are characteristically nonspecific

Average Annual Number of Items Prescribed per Patient

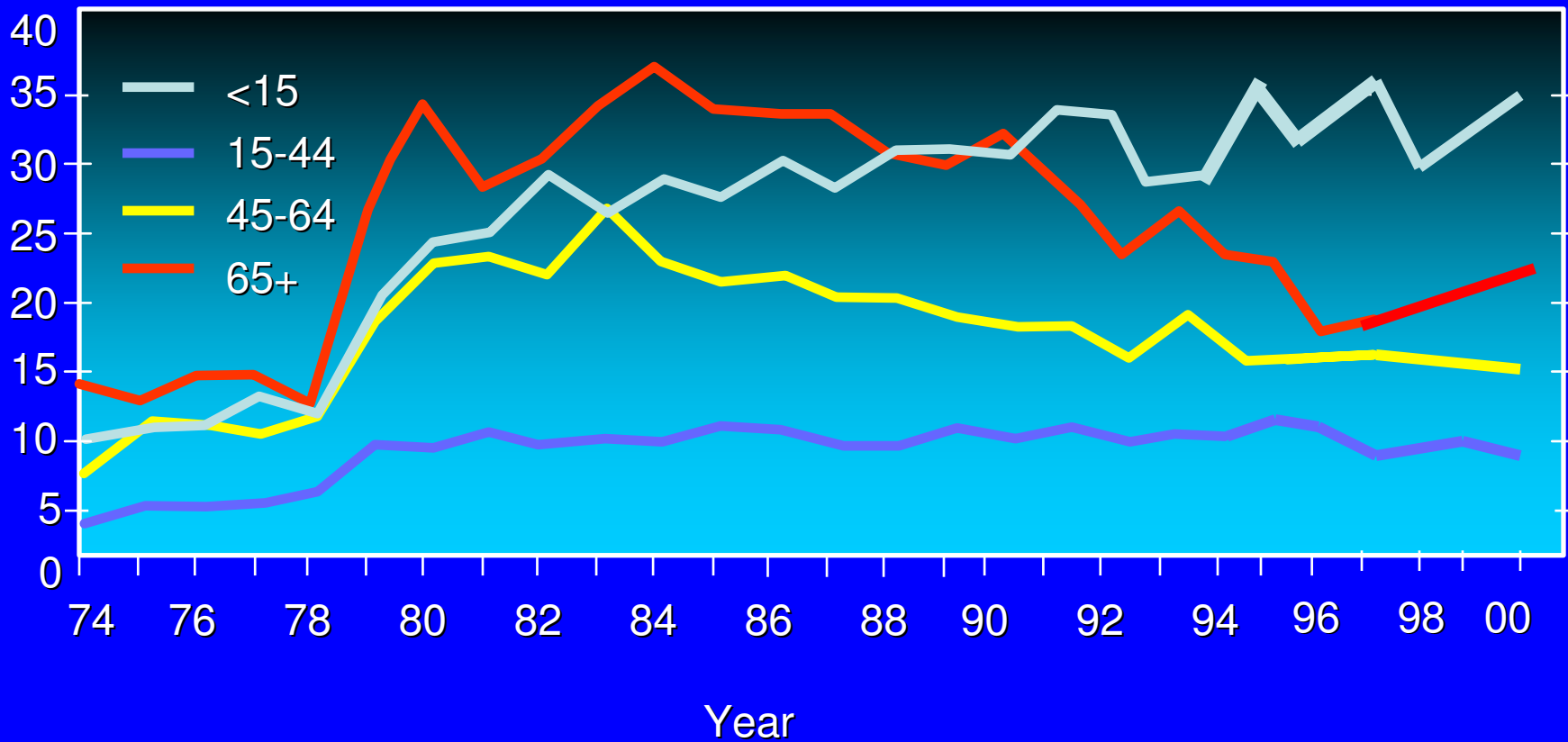


Roberts SJ, Bateman DN. *Thorax*. 1994;49:1090



Hospitalization Rates for Asthma by Age, U.S., 1974 - 2000

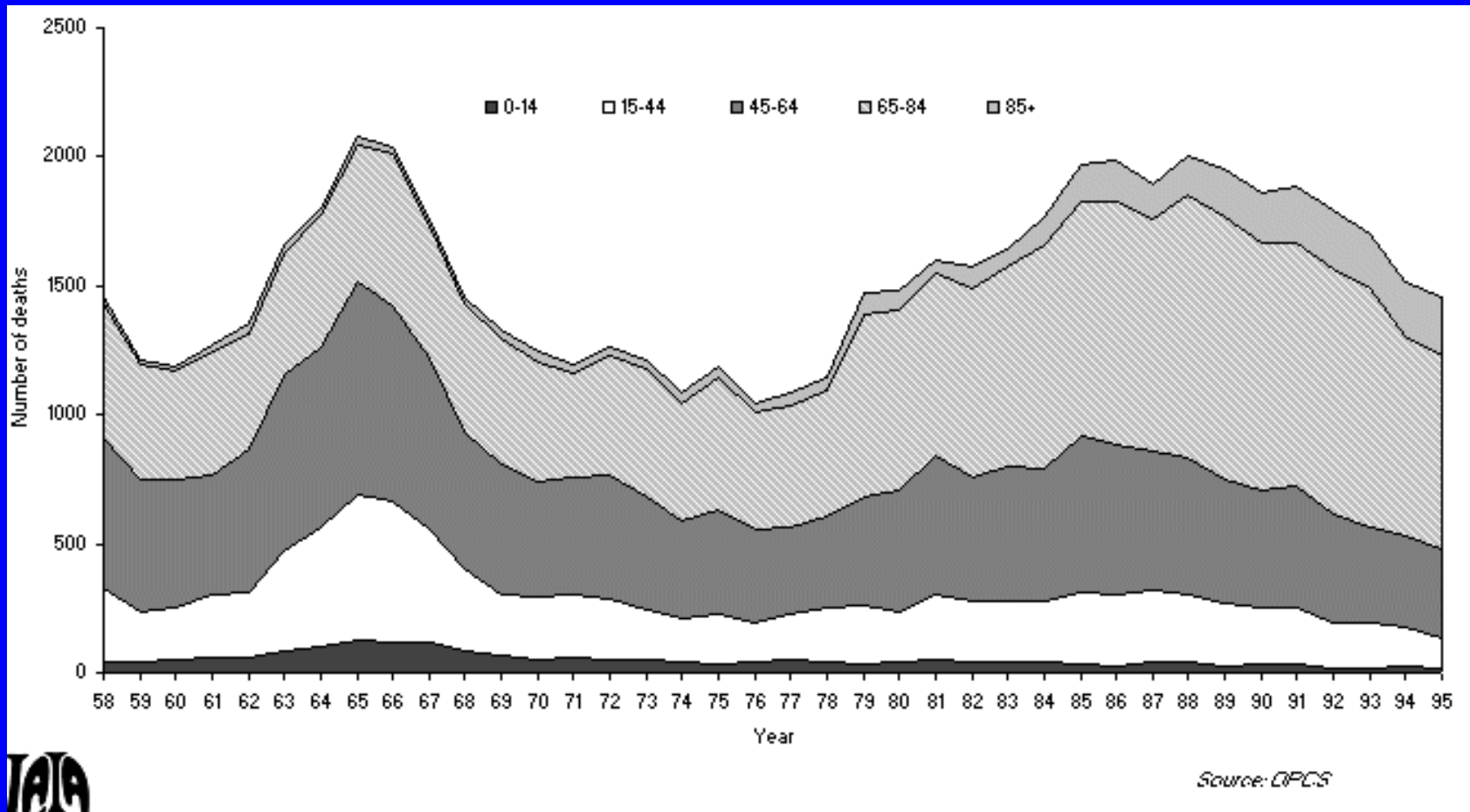
Rate/100,000 Persons



Factors associated with hospitalization in the elderly asthmatic

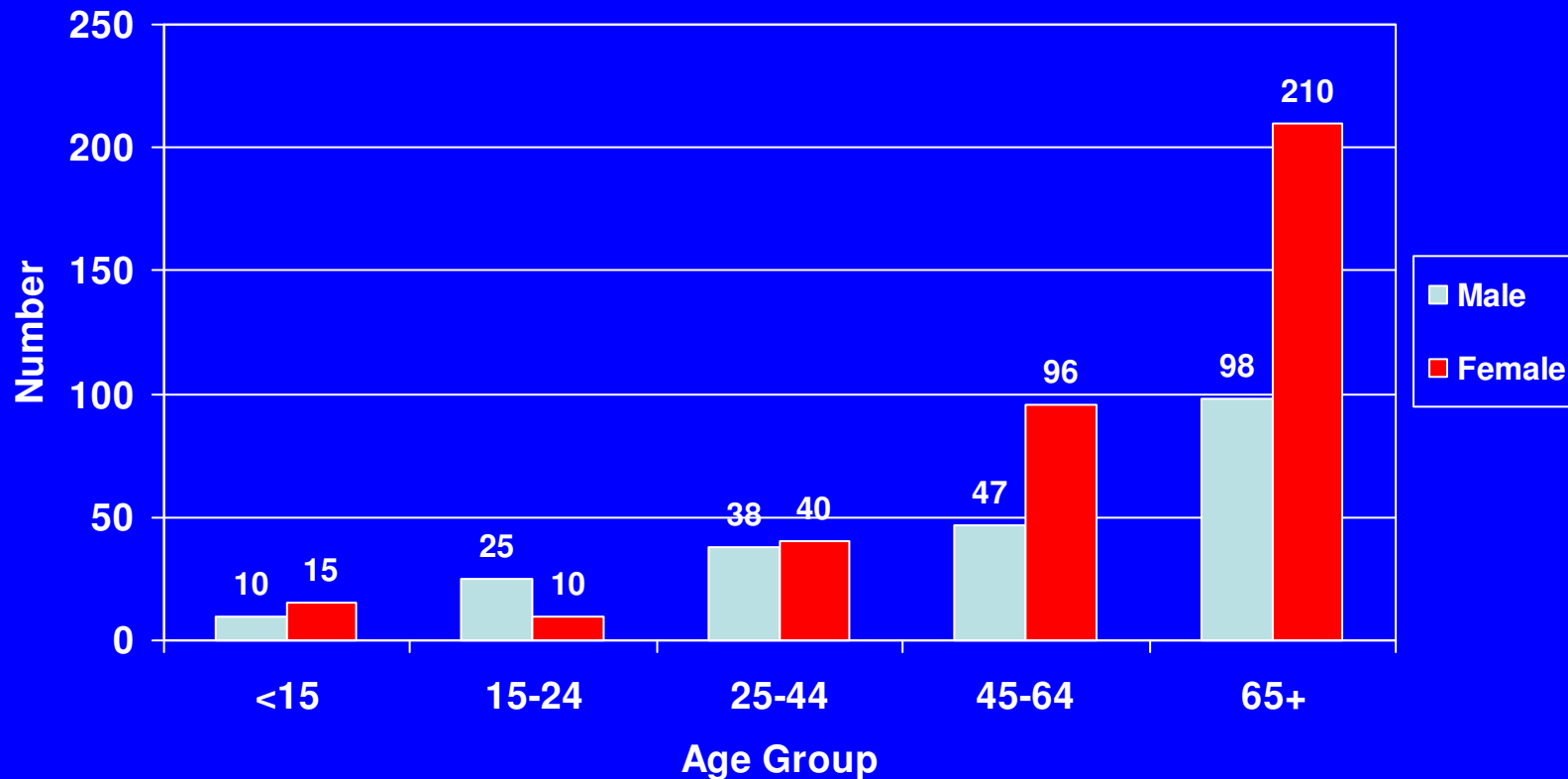
- Elderly had:
 - more symptoms at baseline
 - more co-morbid conditions
 - more knowledge and better care
- More hospitalization, but not after adjustment for covariates
- Independent predictors of hospitalization:
 - female
 - nonwhite
 - lower education
 - more severity at baseline

Asthma deaths by age England & Wales 1958-1995



Campbell BMJ 1997;314:1427

Asthma Deaths in Missouri 1993-1998, by Age and Sex



The number of female asthma deaths was greater than the number of male deaths across all age groups except the 15-24 age group. This disparity was greatest in the elderly population.



Differential diagnosis of asthma in adults

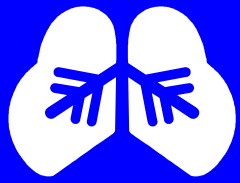
Some of symptoms of asthma are shared with diseases of other systems

Numerous relatively common lung diseases

Need to differentiate from infections and restrictive lung disorders, and between local and generalised obstruction

Differential diagnoses include:

- COPD
- cardiac disease
- laryngeal, tracheal or lung tumour
- bronchiectasis
- foreign body
- interstitial lung disease
- pulmonary emboli
- aspiration
- vocal cord dysfunction
- hyperventilation



Initial Assessment and Diagnosis of Asthma

- v Determine that:
 - Patient has history or presence of episodic symptoms of airflow obstruction
 - Airflow obstruction is at least partially reversible (trouble w spirometry, standards?)
 - Alternative diagnoses are excluded

Diagnostic work-up

- Pulmonary function tests
 - Include volumes and DLCO if uncertain of dx
- Chest radiograph
- Electrocardiograph
- Others only as directed by history
 - Echocardiograph
 - Sleep studies

Asthma or COPD?

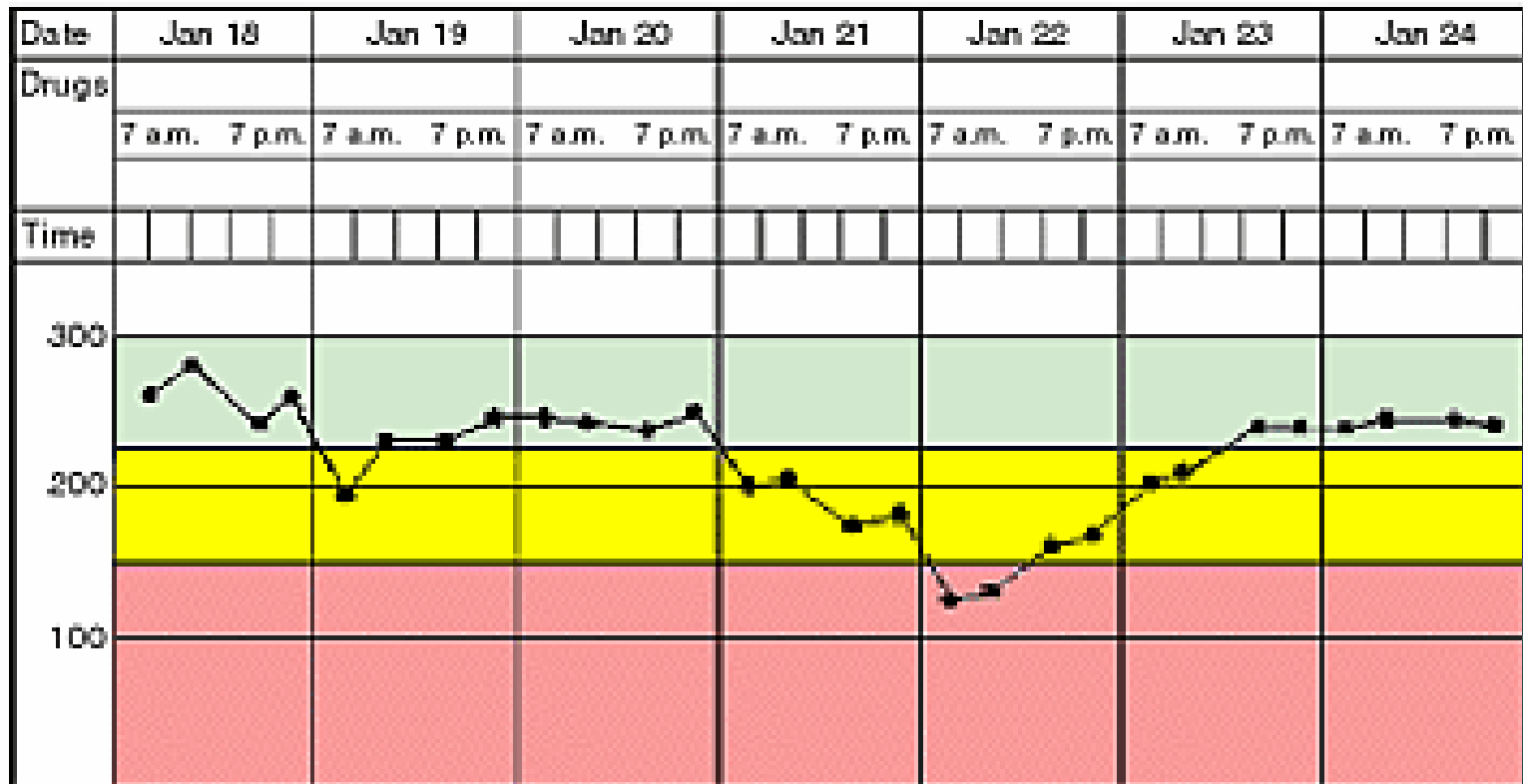
- Early onset
- History of atopy
- Less smoking
- More wheezing
- More specific triggers
- Pronounced reversibility (lab or subjective)
- Greater response to corticosteroids

- Later onset
- Less atopy
- Heavy smoking hx
- Less wheezing
- Fewer specific triggers
- Less clear reversibility
- Less response to corticosteroids

“Variability” is characteristic of asthma- including the elderly

Jane Doe Height: 49” Predicted norm: 240 Patient's personal best: 260

Instructions



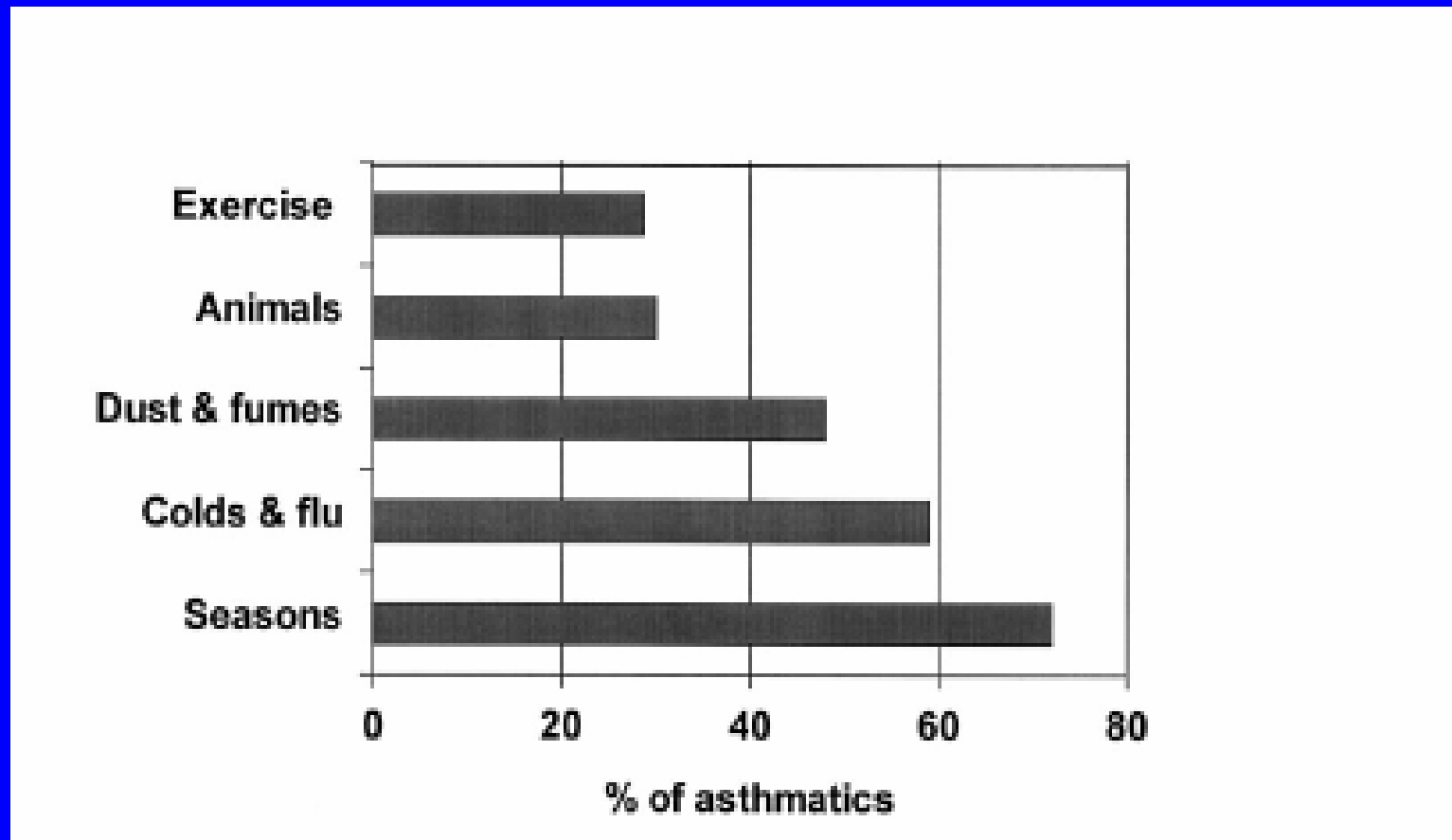
*On black & white copies of this chart, green is represented by light gray, yellow by medium gray and red by dark gray.

Asthma in elderly

- Associated with higher sleepiness scores and lower QOL **Enright CHEST 1999;116:603**
- Associated with fewer symptoms (adjusted for spirometry) **Weiner ERJ 1998;12:564**

Precipitants of wheezing in elderly

N=185 (4% of 4581 CHS participants)



Enright CHEST 1999;116:603

Late-Onset Asthma

- Late-onset asthma may occur after age 65, with an annual incidence rate of 60-100 cases/100,000
- Little clinical difference between patients who develop asthma at age 40 versus those at age 70;
....however, asthma not as frequently diagnosed in the elderly
- History of allergy, atopy, and concomitant atopic diseases is less frequent among patients with late-onset asthma

Late-Onset Asthma

- Asthma in older patients is often under-diagnosed;
 - similar respiratory symptoms in COPD, lung cancer, pulmonary infection, chronic bronchitis
- Treatment of late-onset asthma is similar to treatment of asthma in younger patients
- Bronchopulmonary pathology of late-onset asthma has not been fully elucidated

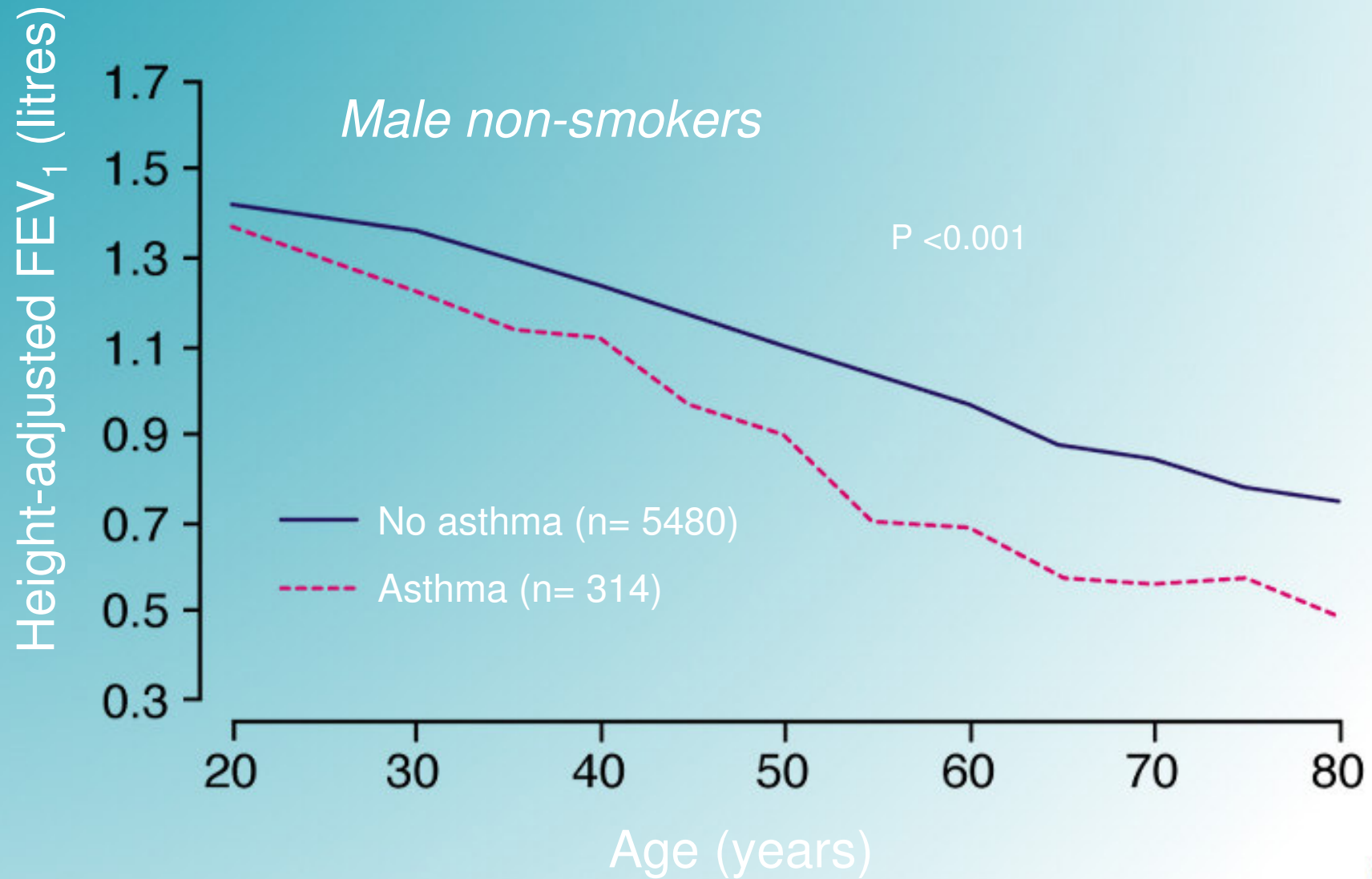
Duration of asthma and physiology

- Longer duration asthma was associated with:
 - Lower FEV₁
 - Less likelihood of normal FEV₁ after albuterol
 - Higher functional residual capacity
- Is this the precursor to fixed obstruction and “airway remodeling”?

Effect of duration of asthma

| | Long duration N=38 | Short duration N=37 |
|--|-----------------------|------------------------|
| Median duration | 40 y | 9 y |
| FEV ₁ % predicted | 59.5 _± 2.6 | 73.8 _± 3.7 |
| Attained normal FEV ₁ post-bronchodilator | 18% | 50% |

Increased loss of FEV₁ in Asthma



Monitoring asthma in the elderly

- Symptom diaries
- Peak flow monitoring
- Clarification of symptoms, esp. nocturnal
 - do they track with daytime sx?
 - Are they associated with other findings that suggest lack of control?

Asthma in Older People

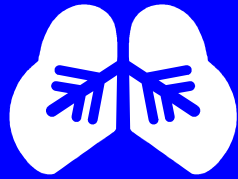
- In the biologically young, asthma is often the only respiratory disease present
- In the elderly, respiratory and heart disease frequently coexist
- problems can be compounded by disability, frailty, and cognitive impairment

Medication considerations-I

- appropriate delivery systems (MDI/breath-activated devices/DPI/nebulizers)
 - strength to operate, inspiratory flow, coordination, agility
- consistency of delivery device type
 - where possible, don't mix MDIs, DPI, etc.
- aids to delivery of medication e.g. spacers
- eyesight to read labels, ability to judge status
- confusion of the roles of medications, e.g. preventers, relievers

Medication considerations-II

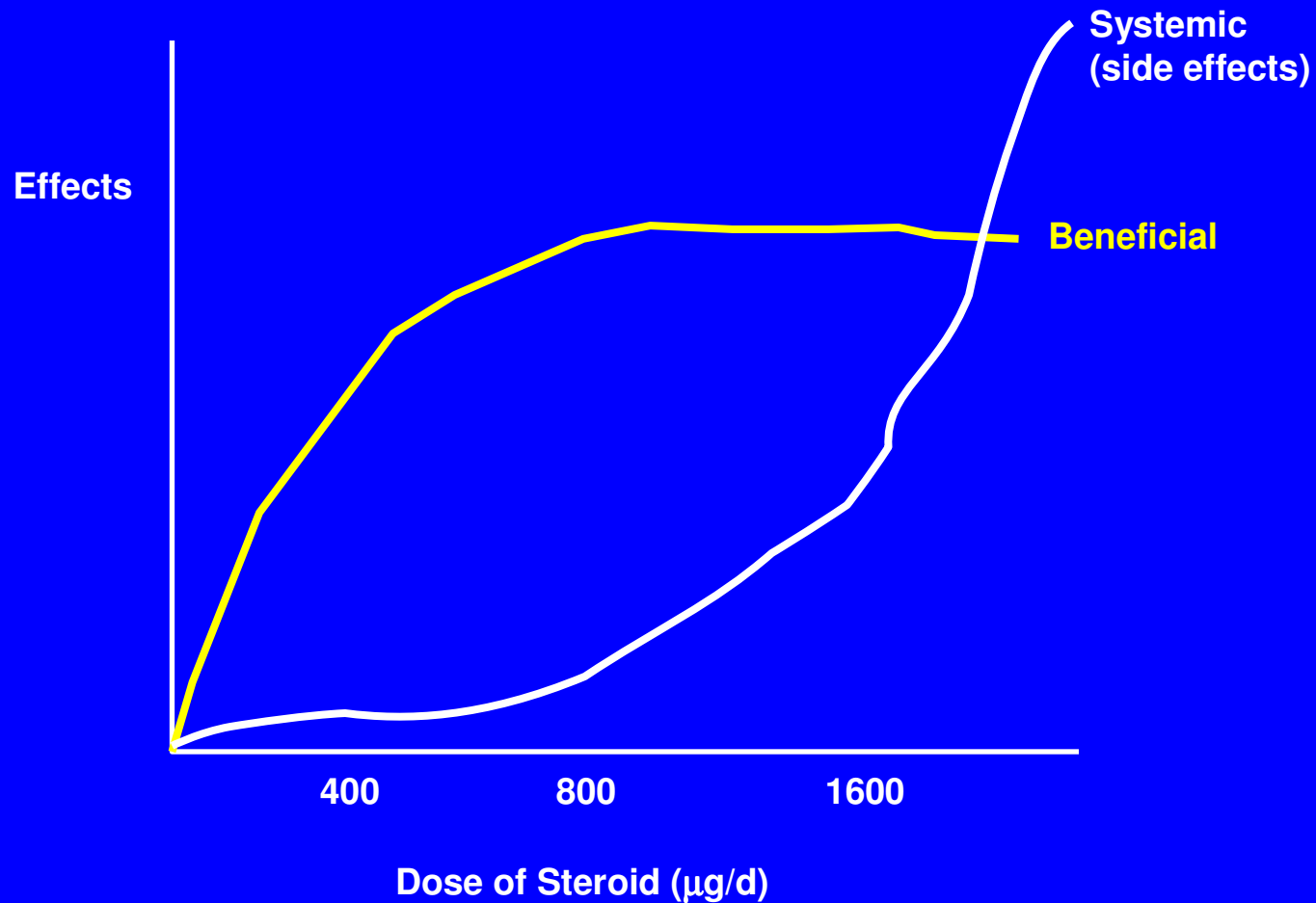
- Paucity of published data on effectiveness of medications in elderly
- As age increases, so does polypharmacy
 - potential for overall decrease in utilization
 - Increased odds of drug interactions
- Increased number of chronic diseases can lead to conflicting goals and guidelines



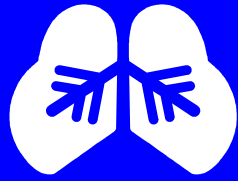
Older Adults: Special Considerations

- Systemic corticosteroids can provoke confusion, agitation, changes in glucose metabolism
- Inhaled corticosteroids
 - ✓ May be associated with dose-dependent reduction in bone mineral content
 - ✓ Treat concurrently with:
 - Calcium supplements
 - Vitamin D

Inhaled Steroids: Beneficial vs Systemic Effects



Graphic courtesy of K. F. Chung, MD.



Older Adults: Special Considerations

- v Medications for other diseases may exacerbate asthma
 - NSAIDs
 - Nonselective beta-blockers
 - Beta-blockers found in some eye drops
- Or may cause symptoms that mimic asthma
 - Angiotensin-converting enzyme inhibitors (ACE-I)



Six-part Asthma Management Program

Factors Associated with Non-Compliance in Asthma Care

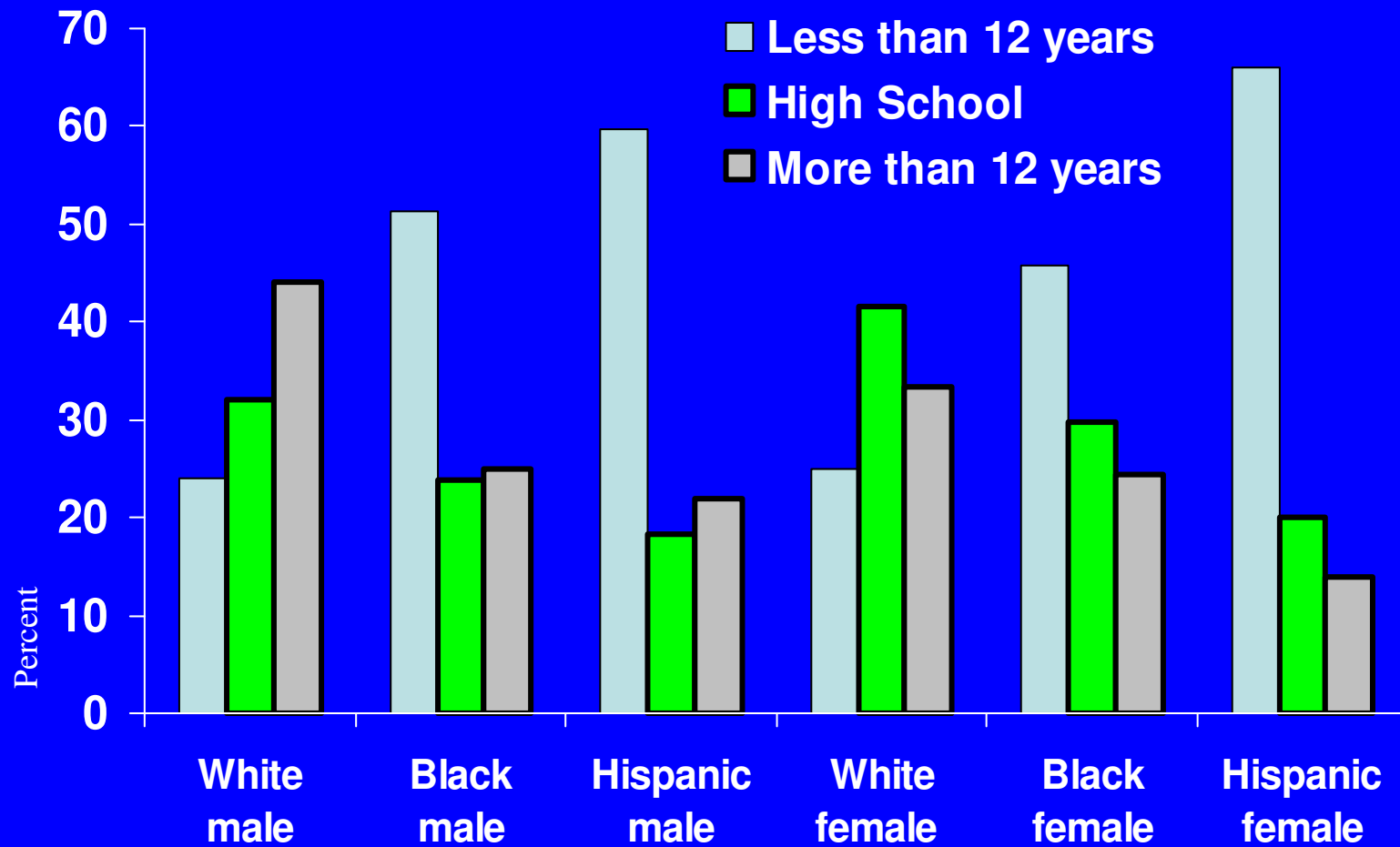
Medication Usage

- Difficulties associated with inhalers
- Complicated regimens
- Fears about, or actual side effects
- Cost

Patient/Provider

- Misunderstanding/lack of information
- Underestimation of severity
- Attitudes toward ill health
- Cultural factors
- Poor communication

Years of education among persons age 65 and over (age-adj.), by sex and race-Hispanic origin, U.S., 2004



Data source: The Bureau of the Census

So, what do I do?

- Keep it simple-the fewer the Rx, the better
- Know when to cut your losses (e.g. with inhaled corticosteroids)
- Repeat, repeat, repeat
- Observe specifically all drugs used-bring them in, “show me how.....”
- More frequent visits
- More phone contacts
- Simple action plans in large print letters

Ancillary considerations

- Vaccinate the elderly:
 - Influenza vaccination
 - pneumococcal immunization for all people 65 years and over
- Environmental control measures
 - Avoidance of smoke/smoking cessation
 - Vacuum like crazy (just kidding)

Managing Asthma in the Older Patient: Patient and Caregiver Education

- Provide written information to patient and caregiver (enlist social support)
- Teach both patient and caregiver in:
 - skills required for effective asthma management
 - action plan to address severe exacerbations

The silver lining to caring for the silver haired

- They didn't get to old age by luck
- They keep their appointments
- They have good stories
- They are better cooks

- And we are all headed to joining them.....

- THE KEY IS TIME-THE MORE YOU SPEND, THE BETTER THEY DO.