New approaches to the management of chronic respiratory disease

Guy B. Marks

WOOLCOCK
LEADERS IN BREATHING & SLEEP RESEARCH

UNSW SYDNEY

Disclosures

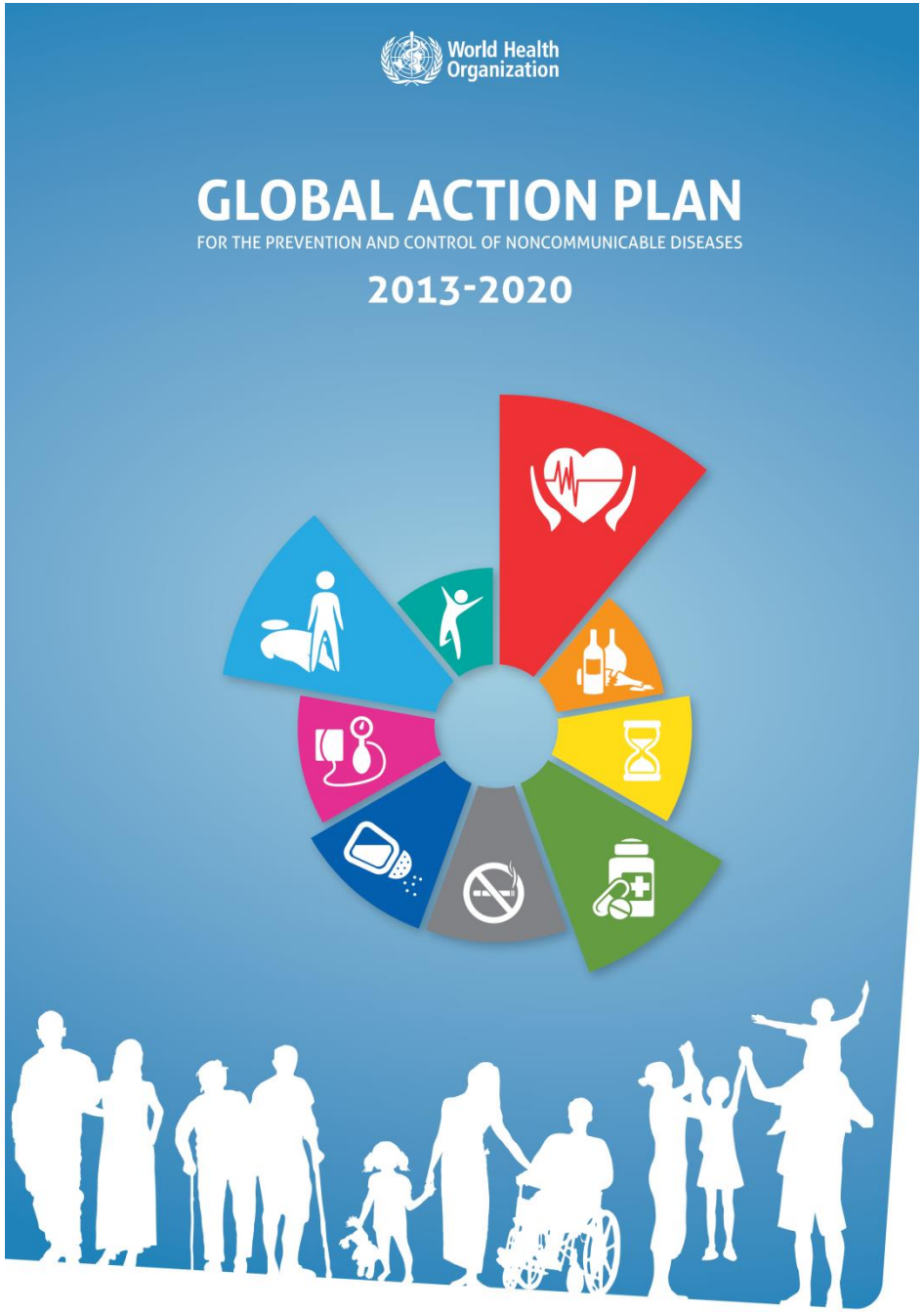
- My institutions receive funds for research from
  - GSK
  - AstraZeneca
- This trip is funded by Boehringer Ingelheim
- I have served on Advisory Boards for
  - Novartis
  - AstraZeneca
- I am President of the International Union Against Tuberculosis and Lung Disease (IUATLD, The Union)

What I will talk about

- Trends in global burden of COPD and respiratory disease, in general
- What is chronic lung disease? Outdated disease paradigms and labels
- Some new concepts – targeting treatment, treatable traits
- Integrated models of care

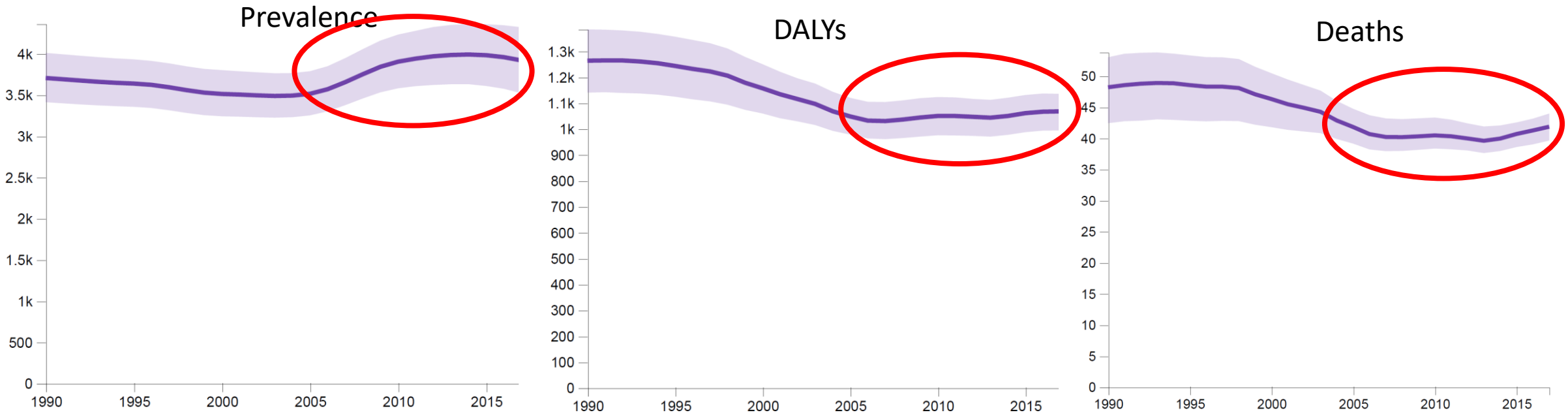
U.N. Sustainable Development Goals

- Goal 3. Good Health
  - 3.4: 30% ↓ in deaths due to non-communicable diseases (NCDs) by 2030



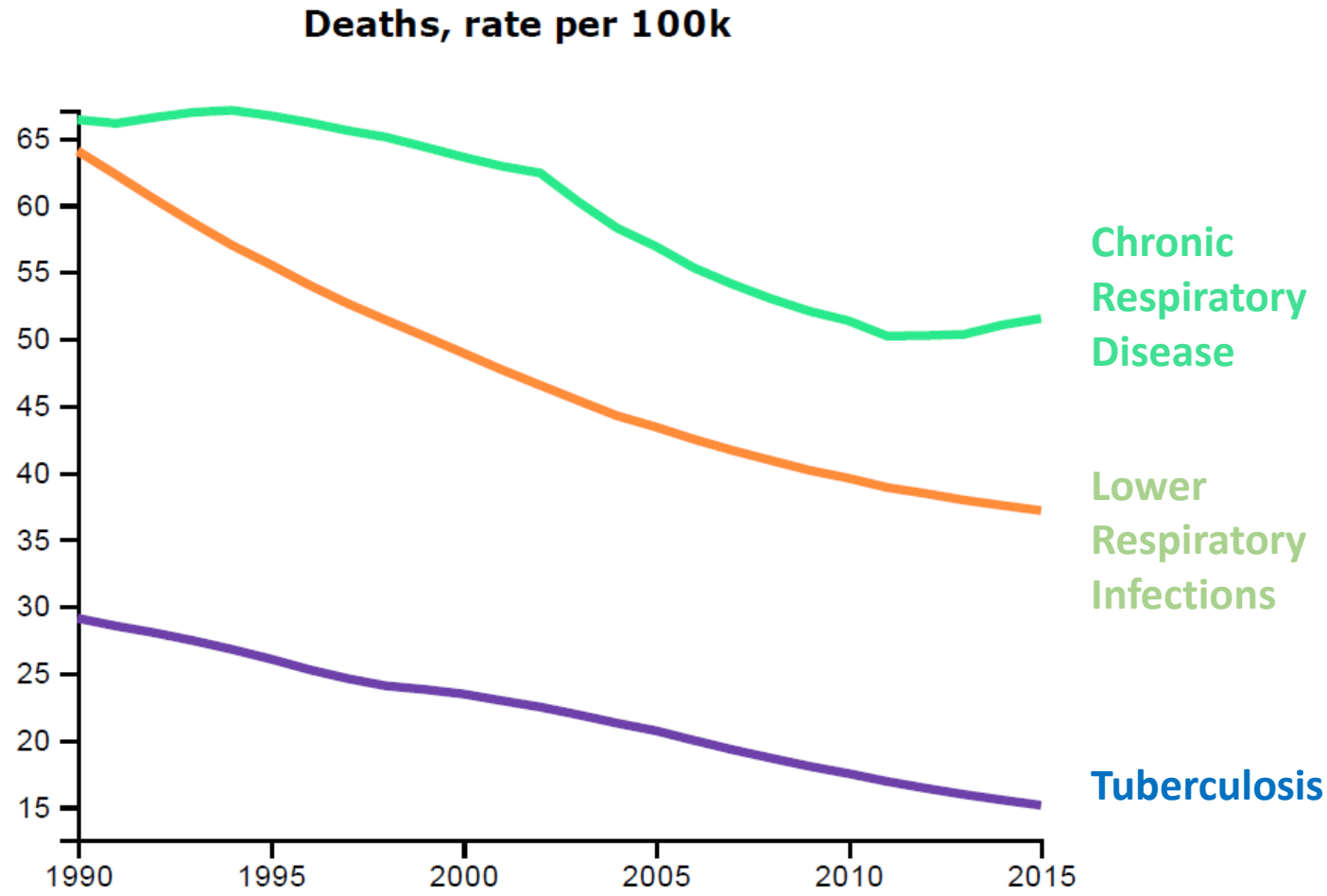
- 25% ↓ in premature deaths due to … chronic respiratory diseases
- Focus on people-centred primary health care
  - Primary health care package with referral systems

Global Burden of COPD, 1990-2017



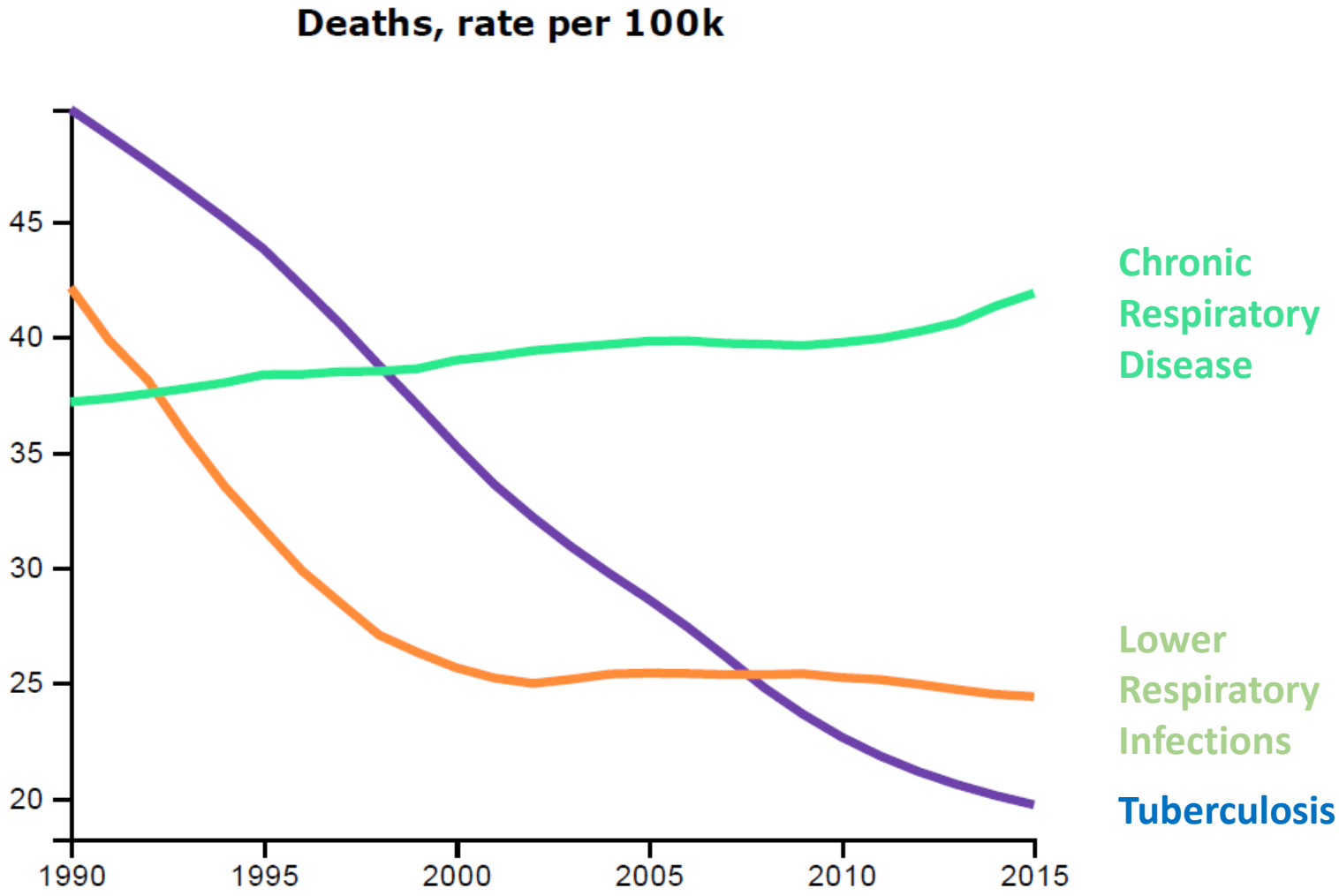
IHME Global Burden of Disease study

Global Deaths due to Respiratory Disease, 1990-2015



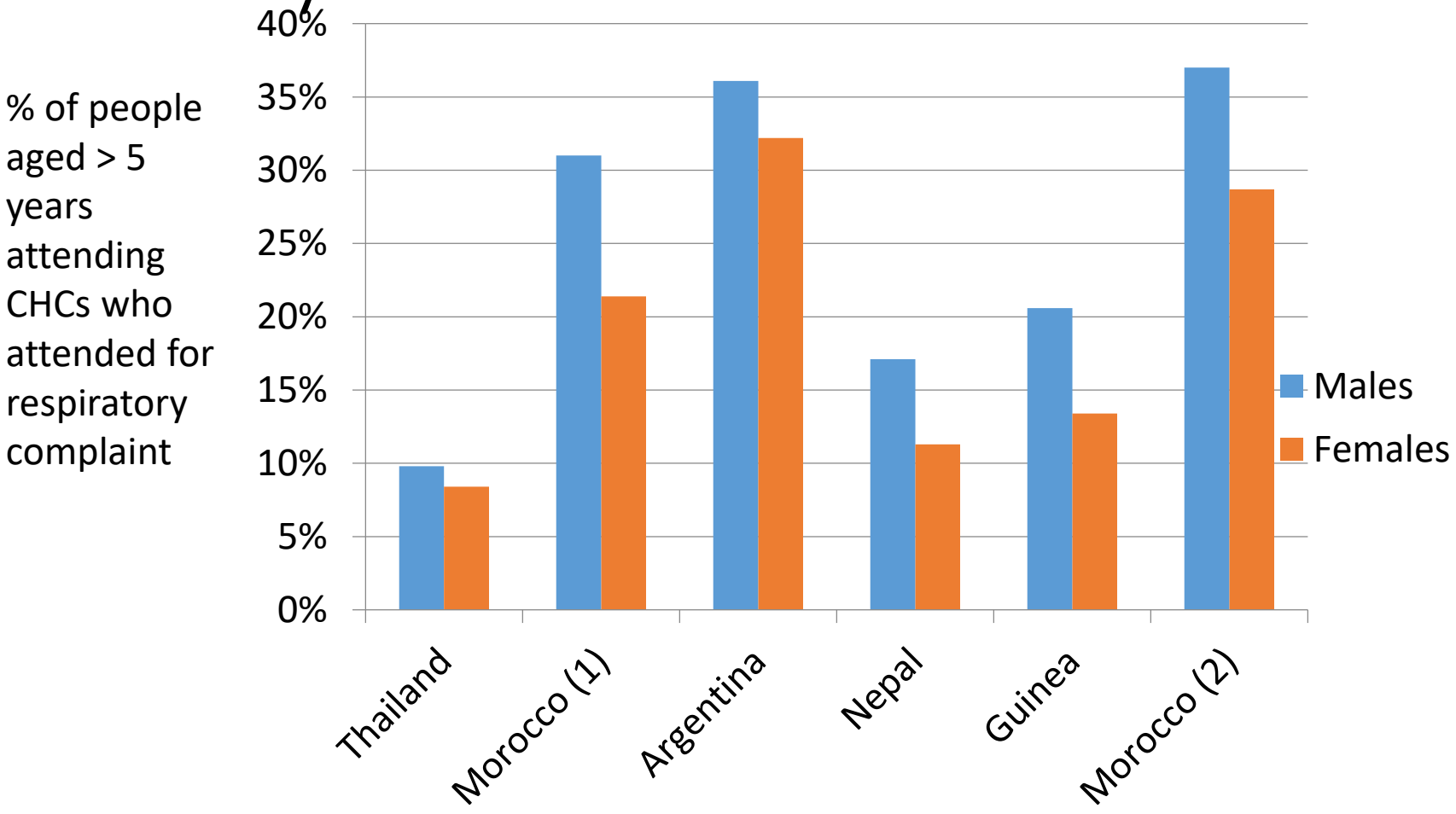
IHME Global Health Data Exchange http://ghdx.healthdata.org/gbd-results-tool

Vietnam Deaths due to Respiratory Disease, 1990-2015



IHME Global Health Data Exchange http://ghdx.healthdata.org/gbd-results-tool

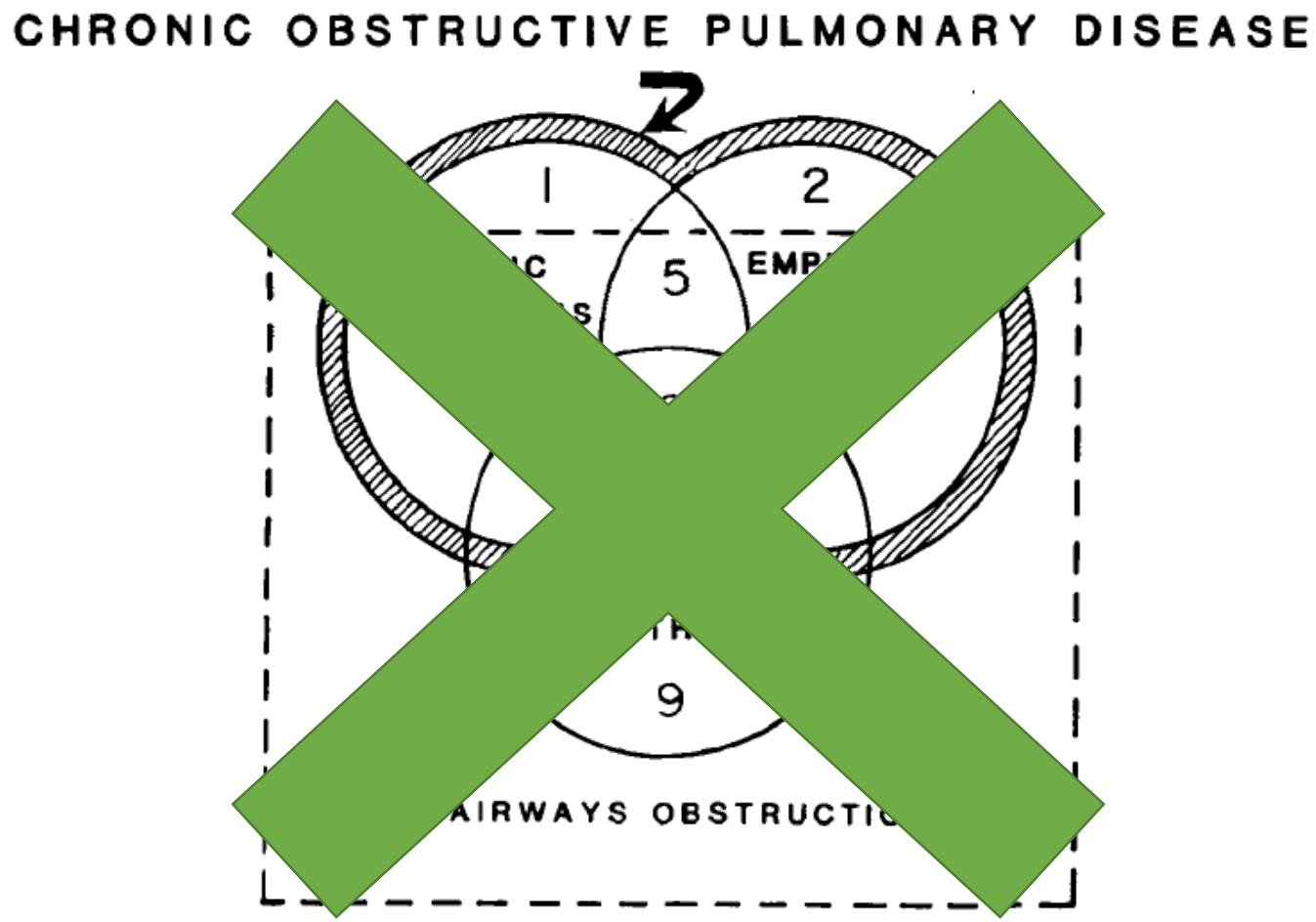
Respiratory Complaints Are Common in Community Health Centres



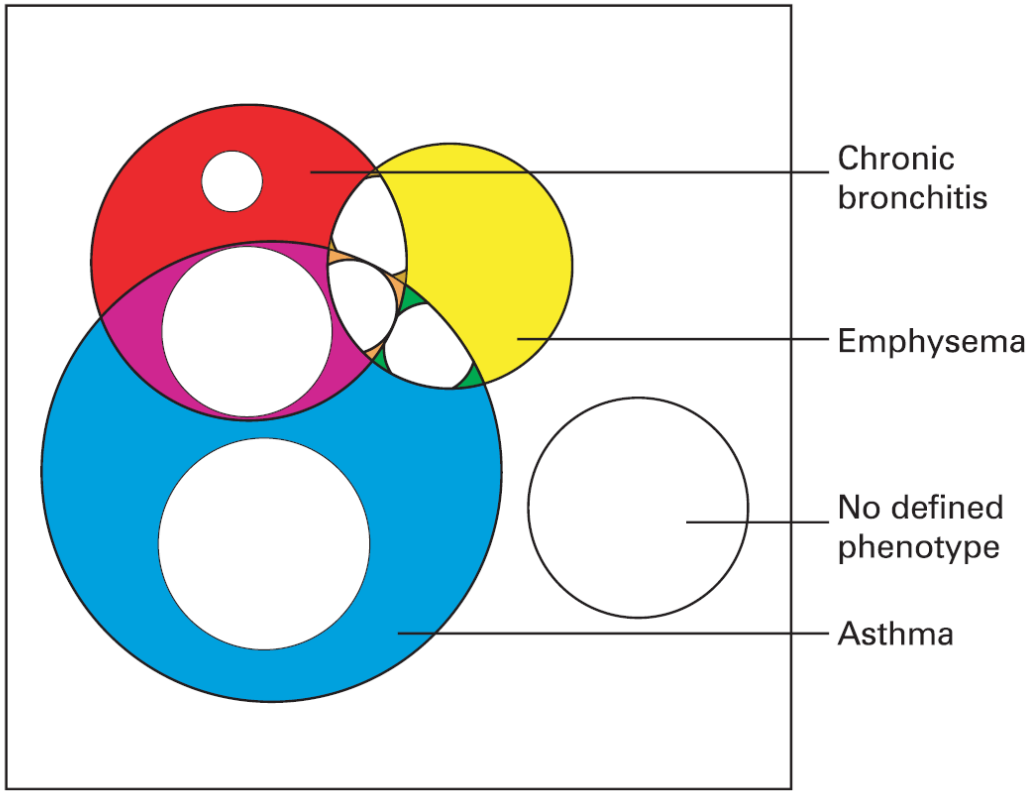
Ottmani S-E, Scherpbier R, Chaulet P, Pio A, Van Beneden C, Raviglione M. Respiratory care in primary care services- a survey in 9 countries. Geneva: World Health Organization, 2004 WHO/HTM/TB/2004.333.

What is chronic lung disease?

Figure 1



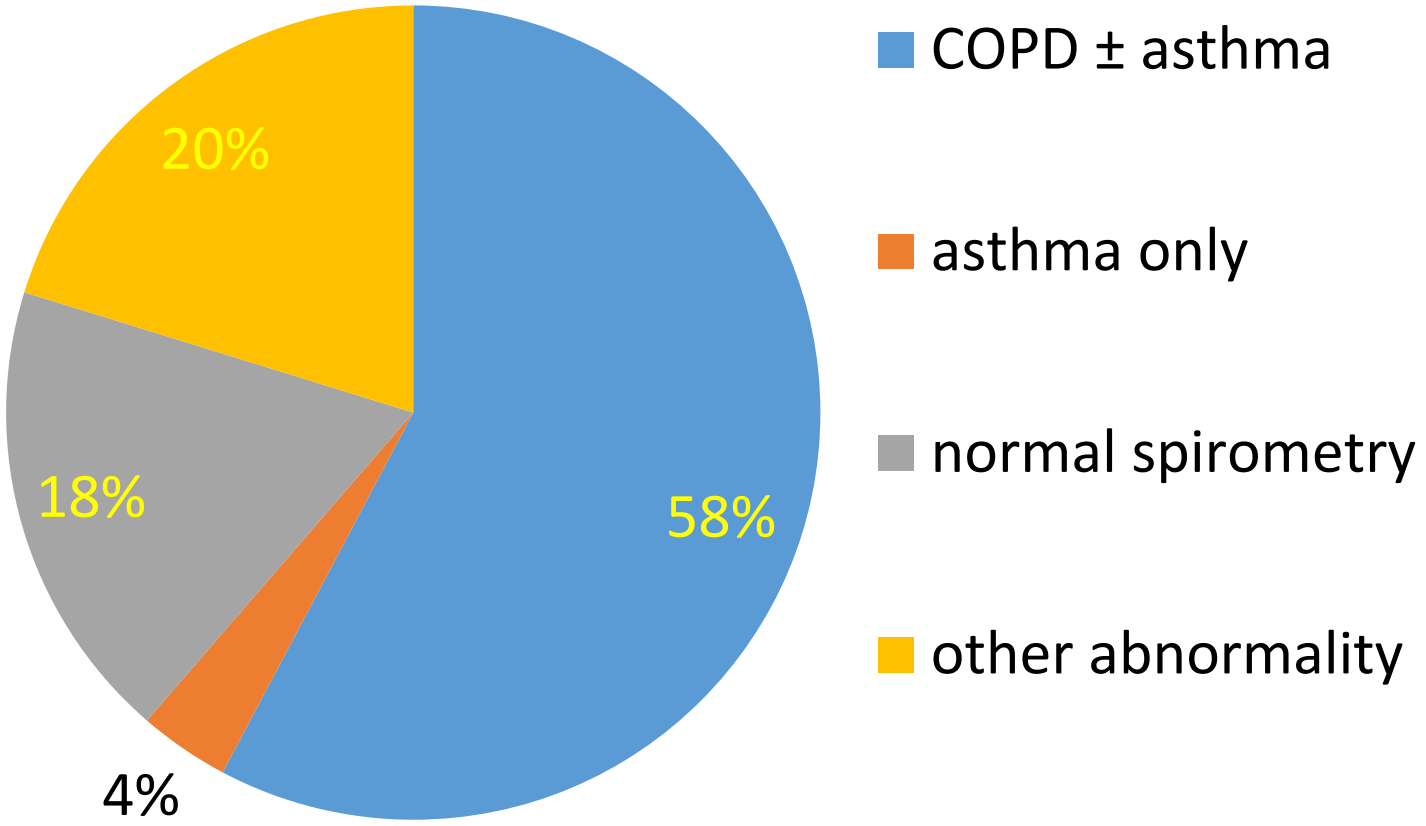
Two largest groups among those with “COPD” (post-bronchodilator airflow obstruction):
(A) those who did **not** have asthma, chronic bronchitis or emphysema and
(B) those who had asthma but did **not** have emphysema or chronic bronchitis.



Marsh SE, Travers J, Weatherall M, Williams MV, Aldington S, Shirtcliffe PM, Hansell AL, Nowitz MR, McNaughton AA, Soriano JB, Beasley RW. Proportional classifications of COPD phenotypes. Thorax. 2008; 63(9):761-7.

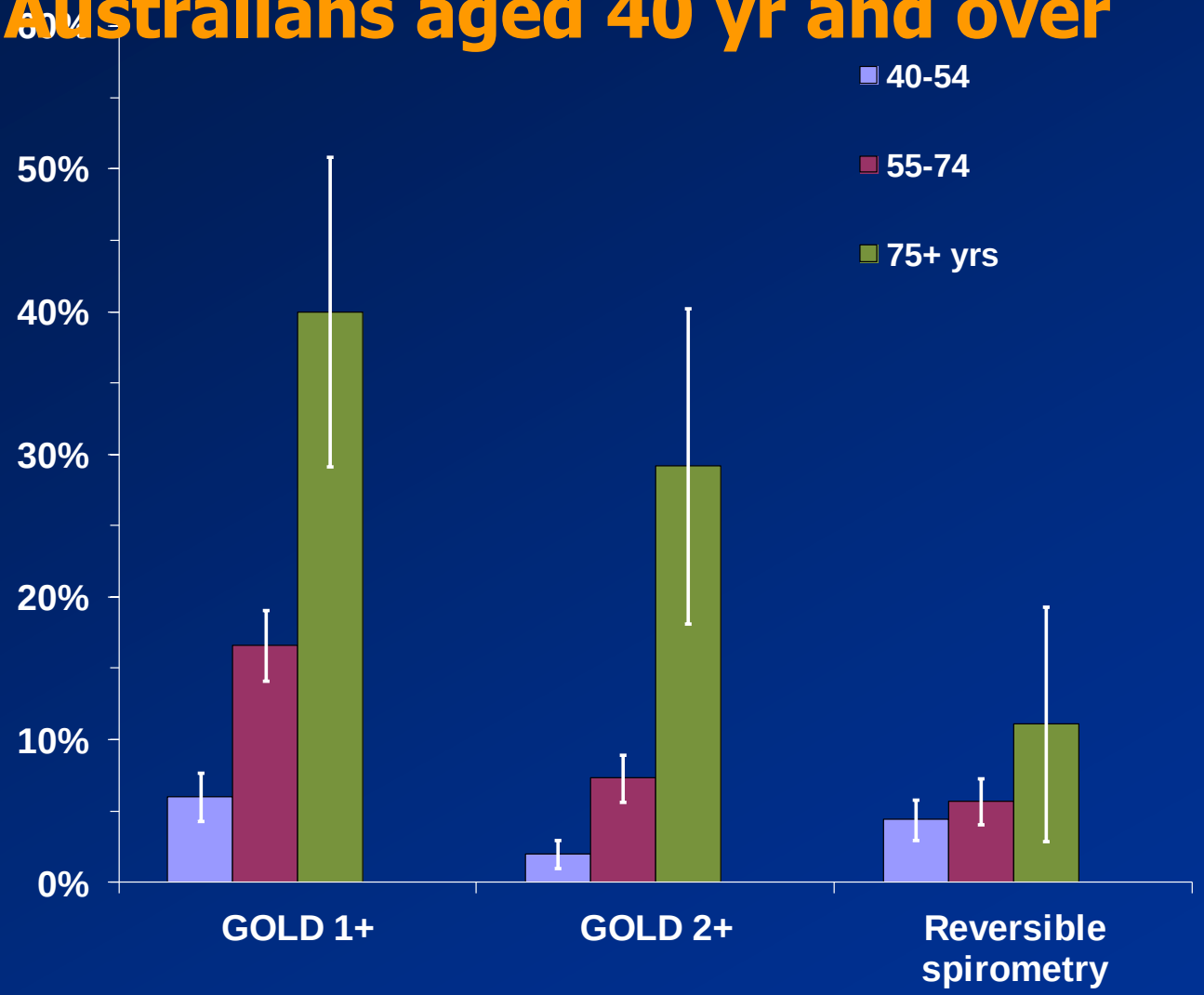
We need to go back to first principles in understanding the problem

Many patients who doctors say have ‘COPD’ do not have COPD



Zwar NA, Marks GB, Hermiz O, Middleton S, Comino EJ, Hasan I, Vagholkar S, Wilson SF. Predictors of accuracy of diagnosis of chronic obstructive pulmonary disease in general practice. Med J Aust. 2011;195:168-71.

GOLD Stage 1+, Stage 2+, reversible spirometry Australians aged 40 yr and over



Toelle B et al. Respiratory Symptoms and Illness in Older Australians: the Burden of Obstructive Lung Disease (BOLD) Study. Med J Aust. 2013;198(3):144-48.

WOOLCOCK INSTITUTE of MEDICAL RESEARCH

Most patients with spirometric evidence of COPD do not have a Dr diagnosis of COPD

Kappa =0.16		Self Report Diagnosed COPD	
		No	Yes
GOLD Stage 1 or higher	No	2,734	147
	Yes	449	97 (17.7%) (39.7 %)

Kappa =0.23		Self Report Diagnosed COPD	
		No	Yes
GOLD Stage 2 or higher	No	3,001	174
	Yes	182	70 (27.7%) (28.6 %)

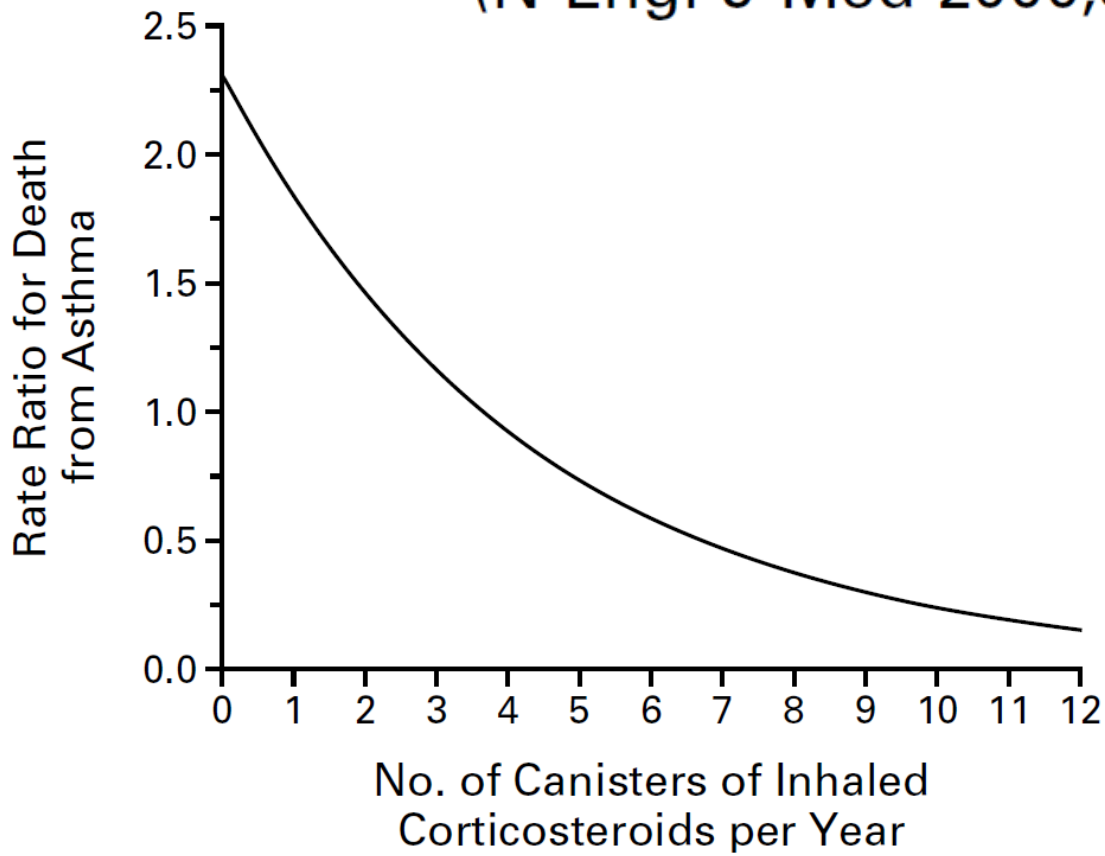
Even if we can’t get the labels right, are we using good treatment for chronic lung disease?

Inhaled steroids prevent people dying of asthma when they are used regularly

LOW-DOSE INHALED CORTICOSTEROIDS AND THE PREVENTION OF DEATH FROM ASTHMA

SAMY SUISSA, PH.D., PIERRE ERNST, M.D., SERGE BENAYOUN, M.SC., MARC BALTZAN, M.D., AND BING CAI, M.SC.

(N Engl J Med 2000;343:332-6.



But few people take them regularly

Australian Government
Australian Institute of Health and Welfare

People dispensed preventer inhalers in 2013

WOOLCOCK
LEADERS IN BREATHING & SLEEP RESEARCH
ACAM
Australian Centre for Airways disease Monitoring

Probably do not need preventers*

Infrequent* use of preventers

Regular* use of preventers

*medication history suggests dispensing consistent with regular use

*medication history suggests dispensing inconsistent with infrequent use

*medication history suggests unlikely to have chronic respiratory disease

Why are we doing so badly?

- Using out-dated concepts of the disease
- Overly complex guidelines
- Not focusing on the big picture
- Need to focus on community – primary care
- Need new, better tools

FEV_1 is important but not enough

Low Vital Capacity

- Common
- Related to poverty, nutrition
- Predicts mortality

Eosinophilia – type 2 inflammation

- Predicts response to steroids
- Predicts risk of exacerbations
- May be present or absent in both “asthma” and “COPD”
- May be measured in blood or sputum
- Related to exhaled breath biomarkers

Deconditioning

- Underweight status predicts risk of death
- Nutrition is important
- Exercise-based pulmonary rehabilitation improves quality of life and exercise capacity

Airway infection

- Clearly important in acute exacerbations
- Not limited to bronchiectasis

Targeted approach to therapy for chronic respiratory disease

- Bronchodilators for airflow obstruction
- Inhaled steroids for eosinophilic inflammation
- Antibiotics for respiratory tract infection
- Pulmonary rehab for deconditioning
- Nutrition for underweight
- Smoking cessation for smoking
- Oxygen for hypoxaemia

Gibson PG, McDonald VM, Marks GB. Asthma in older adults. Lancet. 2010;376(9743):803-13.

These are the life-saving treatments for patients with chronic respiratory disease

Nearly all of these can be done in primary care

Several integrated models of care have been proposed

- Practical Approach to Lung Health (PAL)
  - PALSA
  - PACK (Practical Approach to Care Kit)
- Integrated Management of Childhood Illness (IMCI)
- Integrated Management of Adult Illness (IMAI)
- Package of Essential Noncommuncable Disesase (PEN) interventions

Where to from here?

- We are not doing well enough – current models of care are failing
  - Reasons are complex
  - Approach seems to be flawed
  - Disease labels have NOT served us well
- Need focus on effective primary care management of common presenting problems
  - Wheeze, dyspnoea and cough
- Disease label-free approach targeting treatable traits seem a promising new model