Epidemiology and impact of Chronic Obstructive Pulmonary Disease (COPD) globally.

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Coordinator, Management of NCDs
WHO, Geneva.
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)

3.8.2 Number of people covered by health insurance or a public health system per 1,000 population
Four types of NCDs are largely preventable by means of effective interventions that tackle shared modifiable risk factors.

<table>
<thead>
<tr>
<th>Non-communicable diseases</th>
<th>Causative risk factors</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tobacco use</td>
<td>Unhealthy diets</td>
<td>Physical inactivity</td>
<td>Harmful use of alcohol</td>
<td>Air pollution</td>
</tr>
<tr>
<td>Heart disease and stroke</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Diabetes</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cancer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Chronic lung disease</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Mental health</td>
<td></td>
<td></td>
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<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Chronic obstructive pulmonary disease (COPD)

- Is a progressive life threatening lung disease that causes breathlessness (initially with exertion) and predisposes to exacerbations and serious illness.
- More than 90% of COPD deaths occur in low and middle-income countries.
- The primary cause of COPD is exposure to tobacco smoke (either active smoking or secondhand smoke).
- Other risk factors include exposure to indoor and outdoor air pollution and occupational dusts and fumes.
- Exposure to indoor air pollution can affect the unborn child and represent a risk factor for developing COPD later in life.
- Some cases of COPD are due to long-term asthma.
- COPD is likely to increase in coming years due to higher smoking prevalence and aging populations in many countries.
The Global Burden of Disease Study reports a prevalence of 251 million cases of COPD globally in 2016.

Globally, it is estimated that 3.17 million deaths were caused by the disease in 2015 (that is, 5% of all deaths globally in that year).
Global prevalence of asthma and COPD, persons, 1990 – 2016, age-standardised
Global death rate due to asthma and COPD, persons, 1990 – 2016, age-standardised

Deaths, rate per 100k

IHME
Global YLD due to asthma and COPD, persons, 1990 - 2016

YLDs (Years Lived with Disability), rate per 100k

COPD

asthma

IHME
RISK FACTORS
Age-standardized prevalence of tobacco smoking among persons aged 15 years and older, 2015

Prevalence of tobacco smoking (%)  
Age-standardized, per 100 000 pop.

- <10.0
- 10.0–19.9
- 20.0–29.9
- 30.0–39.9
- ≥40

Data not available  
Not applicable

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2016. All rights reserved.

Data Source: World Health Organization
Map production: Information Evidence and Research (IER)
World Health Organization
Mean Body Mass Index (kg/m²), ages 18+, 2016 (age standardized estimate)

Female

Mean Body Mass Index (kg/m²)
- ≤22.5
- 22.6–24.9
- 25.0–27.4
- 27.5–29.9
- ≥30.0
- Data not available
- Not applicable

Note: For mapping purposes, the map shows identical values for Sudan and South Sudan. These values concern the former Sudan as it existed prior to July 2011.

Data Source: World Health Organization
Map Production: Information Evidence and Research (IER)
World Health Organization
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IMPACT

- More money for health
- Protect from financial risk of NCDs
- Increased earning capacity
- Boost in GDP
- Increased workforce participation
- Reduced health care expenditure
- People become healthier
- Increased life expectancy

Economic

Social
COPD patients are affected by larger number of multiple interlinked morbidities which clustering pattern may suggest common pathobiological processes or be utilized for screening and/or therapeutic interventions.
Higher Rates of Hospitalisation Due to Comorbidities in COPD

- IHD = ischaemic heart disease
- CHF = congestive heart failure
- RF = respiratory failure
- PVD = pulmonary vascular disease
- TM = thoracic malignancy

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percent of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>16.5 (COPD) 12.6 (No COPD)</td>
</tr>
<tr>
<td>IHD</td>
<td>15</td>
</tr>
<tr>
<td>Diabetes</td>
<td>10.2 (COPD) 9.5 (No COPD)</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>11</td>
</tr>
<tr>
<td>CHF</td>
<td>9.8 (COPD) 3.6 (No COPD)</td>
</tr>
<tr>
<td>RF</td>
<td>7</td>
</tr>
<tr>
<td>PVD</td>
<td>3 (COPD) 0.4 (No COPD)</td>
</tr>
<tr>
<td>TM</td>
<td>2.6 (COPD) 1 (No COPD)</td>
</tr>
</tbody>
</table>

COPD

Total national cost (Euro/year):

1999: 1.1 billion
2010: 1.5 billion

Jansson SA et al, Resp Med 2013
ACTION
Have countries strengthened their capacities to address NCDs since 2011? Yes

Have there been improvements in NCD health outcomes since 2011? Yes, but...

Are we on track to meet the commitments made at the UN General Assembly? No

Are we on track to meet SDG Target 3.4 (NCDs) by 2030? No

2018: "The world has yet to fulfil its promise of implementing measures to reduce the risk of dying prematurely from NCDs through prevention and treatment"

2018: "It's crucial to reach agreements on a new strategic course and approach to support countries in implementing the best buys for NCDs"
Raise taxes on tobacco, 2014

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Data Source: World Health Organization
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization
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## Interventions to reduce indoor air pollution from solid fuels

<table>
<thead>
<tr>
<th>Source of Pollution</th>
<th>Home environment</th>
<th>User Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Improved Stoves</td>
<td>- Hoods and Chimneys</td>
<td>- Fuel drying</td>
</tr>
<tr>
<td>- Cleaner Fuels (Kerosene, Gas, Electricity)</td>
<td>- Windows, Ventilation holes, eaves spaces</td>
<td>- Use of Pot lids</td>
</tr>
<tr>
<td></td>
<td>- Separate Kitchen</td>
<td>- Good maintenance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Keeping children away from smoke</td>
</tr>
</tbody>
</table>

### Clean stove project in Kyrgyzstan

(FRESH AIR project)

![Image of stove project in Kyrgyzstan](Image)

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**Chart:**

Max CO in households of highlanders before and after 2 month of Installations New Clean stoves

- **Dung**
- **Coal**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>2 month</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dung</strong></td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td><strong>Coal</strong></td>
<td>80</td>
<td>20</td>
</tr>
</tbody>
</table>

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Manage chronic respiratory diseases

<table>
<thead>
<tr>
<th>Effective interventions with CEA &gt;1$100 per DALY averted in LMICs</th>
<th>Symptom relief for patients with asthma with inhaled salbutamol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Symptom relief for patients with chronic obstructive pulmonary disease with inhaled salbutamol</td>
</tr>
<tr>
<td></td>
<td>Treatment of asthma using low dose inhaled beclometasone and short acting beta agonist</td>
</tr>
<tr>
<td>Other recommended interventions from WHO guidance (CEA not available)</td>
<td>Access to improved stoves and cleaner fuels to reduce indoor air pollution</td>
</tr>
<tr>
<td></td>
<td>Cost-effective interventions to prevent occupational lung diseases, for example, from exposure to silica, asbestos</td>
</tr>
<tr>
<td></td>
<td>Influenza vaccination for patients with chronic obstructive pulmonary disease</td>
</tr>
</tbody>
</table>
Our policy is patient centred care, so you have to fill out forms, AB6-12, MR7-9 and XE113.

Umm don’t you mean paper centred care.

Standardized protocols
Operational at primary care
Availability of peak flow meters
Access to medicines
Patient education

CHAT scan
just chat with the person!
12th GARD General Meeting
Aug 29 – Sept 1, 2018

Helsinki

Click here for registration and hotel accommodation