Survey on Chronic Respiratory Diseases at the Primary Health Care Level

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Burden of major respiratory diseases

Respiratory diseases (RD) represent a global public health problem due to high morbidity and mortality, causing almost 17% of all deaths and 12% of the global burden of diseases.
## Burden of Major Respiratory Diseases

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Deaths %</th>
<th>DALY’s %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Respiratory Infections</td>
<td>6,8</td>
<td>6,1</td>
</tr>
<tr>
<td>COPD</td>
<td>4,8</td>
<td>1,9</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>2,7</td>
<td>2,3</td>
</tr>
<tr>
<td>Lung/Bronchus/Trachea Cancer</td>
<td>2,2</td>
<td>0,8</td>
</tr>
<tr>
<td>Asthma</td>
<td>0,4</td>
<td>1,0</td>
</tr>
<tr>
<td>Total</td>
<td>16,9</td>
<td>12,1</td>
</tr>
</tbody>
</table>

DALY’s = Disability-Adjusted Life-Years  

RD prevalence data

Could be received based on the population surveys within the community or the surveys at PHC level.
Population based survey

Community, population based screening in epidemiological surveys measures the frequency and distribution of the diseases in order to identify the geographical distribution of the diseases and risk factors, need and impact of intervention and monitoring time trends. It is well suitable for a single disease.
PHC survey

For a group of diseases like RD which are both chronic and acute, infectious and non-infectious this approach is not suitable from the practical point of view and in particular in developing countries, where the need to organize at least four vertical surveys in population is not realistic due to multiple reasons (cost, huge population sample, screening time etc). PHC survey is the only way to address this issue.
CRD at Primary Health Care Level

Primary health care is a backbone of the health care systems in many countries. It very often constitutes a first contact point with health professionals for majority of patients.
CRD at Primary Health Care Level

At PHC level, assessment of prevalence of RD, their risk factors status, and early diagnosis are vital not only for development of the prevention and control programme but also for the evaluation of patients flow, health professionals workload, calculation of the need of specialists, equipments and drugs. This will also allow planning and initiation of a comprehensive training and workforce development programmes.
CRD at Primary Health Care Level

Based on the WHO survey in Jordan, Kyrgyzstan, Argentina, Morocco, Guinea, Nepal and Thailand, RD represent from almost 10 to about 40% of all admissions to PHC.
CRD at primary Health Care Level

Lack of awareness of CRD and in particular of COPD, commonality of symptoms with infectious respiratory and other chronic diseases lead to dramatic under diagnosis of CRD, wrong treatment and wrong referral especially in low and middle income countries.
CRD at Primary Health Care Level

Obtaining of relevant data on the most prevalent RD and their risk factors is one of the major GARD's objectives.
Rationale

Two are the questions of research, which deserve to be prioritised in the context of the assessment of the prevalence of major respiratory diseases, in particular in middle and low income countries.
Rationale

On the one hand there is a demand for the assessment of the prevalence and the severity of respiratory diseases to develop prevention and control programme
Rationale

on the other hand, a need to know the under-diagnosis and management associated with them there to assess the need of specialists, equipment and drugs
Why PHC?

For practical reasons, it is recommended to estimate the prevalence of respiratory diseases at the Primary Health Care level.
Why PHC?

Compared to a survey at the general population level, a survey at the PHC level offers the following advantages: reduced costs, reduced time and a simpler follow-up of the patients through the GP and other health care workers network.
Emergency departments data

To complete the data, as it is usual in many countries that patients attend directly emergency room (ER) departments for their respiratory troubles without being referred by the general practitioner (GP), data from Emergency Room (ER) should be also collected.
Specific objectives of the PHC survey

• To assess reported prevalence and severity of major respiratory diseases at the primary health care level. This will be validated in a sub-sample of individuals by lung function testing.
• To determine spirometric values in a sub-sample of individuals drawn from the consultants of PHC.
• To identify factors associated with respiratory diseases
• To assess prevalence of major respiratory diseases at the ER departments.
Management of Respiratory Diseases at the Primary Health Care level.

Specific objectives:

• To evaluate the management of respiratory diseases at the primary health care level.

• To estimate the under- and over-diagnosis and the under and over-treatment of respiratory diseases at the primary health care level.
2. Situation analysis...

GARD runs pilot projects on surveillance of chronic respiratory diseases at primary health care level

— Georgia
— Russian Federation
— Cape Verde
— Philippines
Distribution of the main symptoms (%) in two regions of Georgia

- Cough:
  - Mtskheta: 26.9%
  - Sagarejo: 18.6%
- Wheezing:
  - Mtskheta: 4.9%
  - Sagarejo: 4.5%
- BA:
  - Mtskheta: 6.4%
  - Sagarejo: 4.4%
  - Official data: 0.3%
Distribution of the main symptoms (%)
Prevalence of concomitant cardiovascular diseases in chronic respiratory disease patients (%)

- **Males**
- **Females**

Age of patients:
- '15-49 years
- '50 years and over
Possible COPD Based on Symptoms (Cough, Phlegm, or Breathlessness) In population >40 years (N=951)

E1: Do you usually have a cough this last 1 months?
E2. Do you usually bring up phlegm from your chest?
E3.1 Are you troubled by shortness of breath when hurrying on the level or walking up slight hill?

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>COPD(%)</th>
</tr>
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<tbody>
<tr>
<td>40-49</td>
<td>28.9</td>
</tr>
<tr>
<td>50-59</td>
<td>35.2</td>
</tr>
<tr>
<td>60-69</td>
<td>41.1</td>
</tr>
<tr>
<td>70-</td>
<td>55.2</td>
</tr>
<tr>
<td>Total</td>
<td>36.7</td>
</tr>
</tbody>
</table>

Preliminary Data
Estimated prevalence of hospital discharges with selected comorbidities in patients with and without COPD

- White bars show patients without any mention of a COPD discharge diagnosis. IHD ischemic heart disease; CHF congestive heart failure; RF respiratory failure; PVD pulmonary vascular disease; TM thoracic malignancy. *Chest* 2005;128;2005-2011
<table>
<thead>
<tr>
<th>Illness Category</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Vascular (including hypertension)</td>
<td>64%</td>
</tr>
<tr>
<td>Cardiac</td>
<td>38%</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>48%</td>
</tr>
<tr>
<td>Musculoskeletal or connective tissue</td>
<td>46%</td>
</tr>
<tr>
<td>Metabolic or nutritional</td>
<td>47%</td>
</tr>
<tr>
<td>Reproductive or urinary</td>
<td>27%</td>
</tr>
<tr>
<td>Neurological</td>
<td>22%</td>
</tr>
</tbody>
</table>

Cardiovascular mortality in COPD

For every 10% decrease in FEV$_1$, cardiovascular mortality increases by approximately 28% and non-fatal coronary event increases by approximately 20%

Anthonisen et al, Am J Respir Crit Care Med 2002
Increased levels of inflammatory markers in patients with COPD

Schols AMW et al. Thorax 1996; 51: 819-24
Cardiovascular morbidity in COPD

Longitudinal investigations

Systemic inflammation predicts

- Death
- Heart disease
- Acc fall in FEV$_1$

Sin and Man, Circulation 2003
ischaemic cardiac events in patients with COPD and treatment with budesonide 800 µg·day⁻¹ (■) or placebo (□) for up to 3 yrs.

Eur Respir J 2007; 29:1115-1119
Statin Use Reduces Decline in Lung Function

Neutrophil inflammation?
Oxidative stress?

AJRCCM 2007,176: 742-7
FEV1 and risk of CNS-stroke

○ = RR for men and women  △ = RR for women  □ = RR for men

Relative risk

FEV1 in percentage of expected

Truelsen T et al Int J Epidemiol 2001
Conclusion

• The survey data are directly applicable in countries with PHC based health care systems.

• Health professionals and administrators will know the number of patients with RD and accompanying risk factors, the level of control and treatment of RD and their risk factors, number of patients needed hospitalization and rehabilitation.

• Health administrators will be able to assess the drugs, equipment and oxygen supply depending on the disease prevalence and severity, number of health professionals and hospital and intensive care beds for severe cases.
Conclusion

• Identification of the number of people at risk of development of RD will help to identify the cohorts for the preventive strategy based on the reduction or elimination of the risk factors.

• In view of the commonality of the RD risk factors (smoking, air pollution, unhealthy diet, malnutrition from one side obesity and overweight from the other side, low physical activity etc) with the risk factors of major chronic diseases (cardiovascular, certain types of cancer, diabetes, osteoporosis and others) the RD prevention will be beneficial not only for these group of diseases but also for other major chronic diseases and for the health of the whole population.
PHC survey and awareness on major CRD

Finally the survey will improve the awareness on major RD, estimate the burden of RD which is certainly many folds higher than currently believed based on the official health statistics which register mainly severe cases of the diseases (in particular COPD) and dramatically underestimate the real prevalence leaving many patients undiagnosed and untreated or undertreated. It will enhance early detection of RD and promote better management according to existing guidelines based on the available and affordable therapies.