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## The European COPD Audit: a pilot experience of 16 European countries

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Chronic diseases have a high perceived likelihood to impact world economic instability in the next ten years. This was published in the Global Risks report of the World Economic Forum 2011 with an estimate of likelihood similar to the global financial crisis. In the risk interconnection map (Fig. 1) of this report chronic diseases connect to climate change and demographic challenges contributing to economic disparity due to the added burden to health care systems [1].

Chronic respiratory diseases are one of the four major noncommunicable diseases (NCDs) that are causing premature death and disability in all countries of the WHO European region. There are an estimated 8.6 million deaths from NCDs including 1.5 million before the age of 60 years. It is well accepted now that this rapidly growing epidemic of all NCDs is affecting populations disproportionately, and the gaps within health care systems are growing between and within European countries. Improved disease management programs are able to reduce mortality and disability and contribute to better health care outcomes [2].

In COPD acute exacerbation requiring hospital care is a cornerstone of increased hospital mortality but also of the reduced survival after discharge [3, 4]. The pressure of exploding health care costs leads to discussion about standards of care that are required for adequate disease management in COPD. For more than 12 years some countries have started to audit, in a systematic way, the quality of their COPD management [5, 6]. Huge variations

and inequalities of care were detected revealing a remarkable impact of the organisation of care on clinical outcomes of COPD patients after hospitalisation. Systematic audit processes led to an improvement of standards of care including better resource allocation and better clinical standards nationwide.

Based on this experience the European Audit intended to multiply the data collection on organisation of care and clinical treatment standards within and between the participating countries. The pilot project was initiated by the European Respiratory Society (ERS) in collaboration with the Forum of the European Respiratory Societies (FERS, the platform of all national societies) with the aim to compare the quality of care compared to guideline recommendations and the related organisation of care (Fig. 2). Including 19,000 cases, the European pilot audit has created the biggest database on acute exacerbation so far (Fig. 3). The aim of the audit is to create awareness of inequalities of COPD management in different European countries and start a discussion about improving the standards of care by learning from each other and comparing individual hospital data with the national and the European standard. The evaluation of the clinical treatment standards was based on the evidence-based recommendations of the GOLD Committee [7], and the organisation of care was evaluated for technical equipment and the provision of medical professionals in numbers and specialisation.

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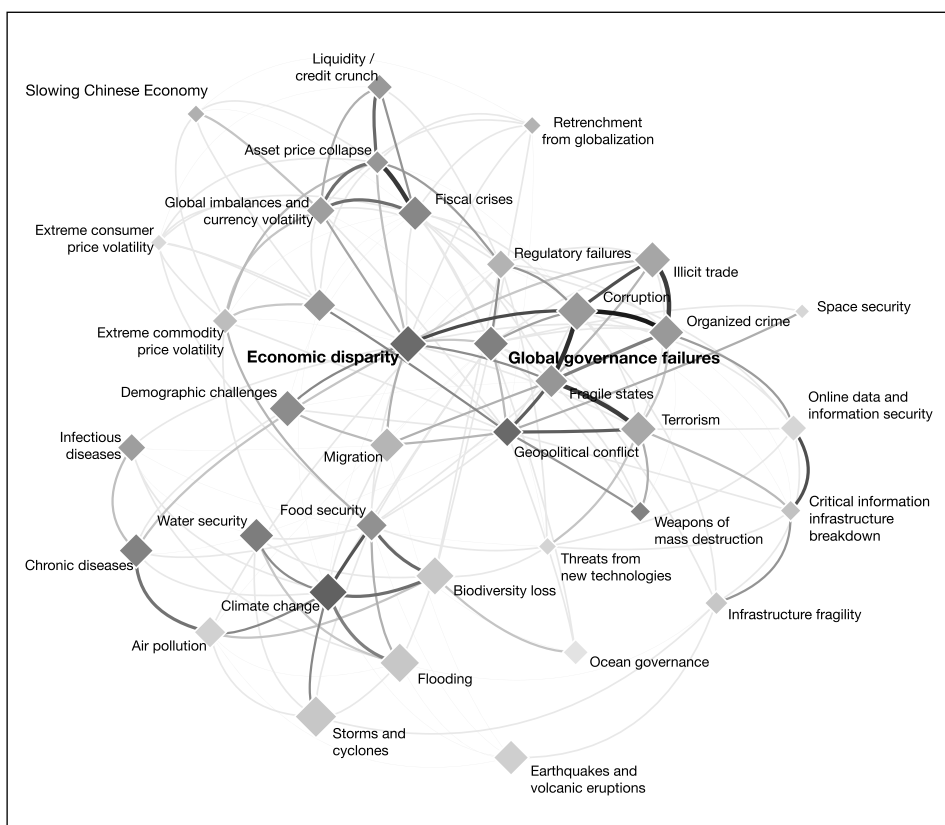


Figure 1. Global risks report 2011, World Economic Forum

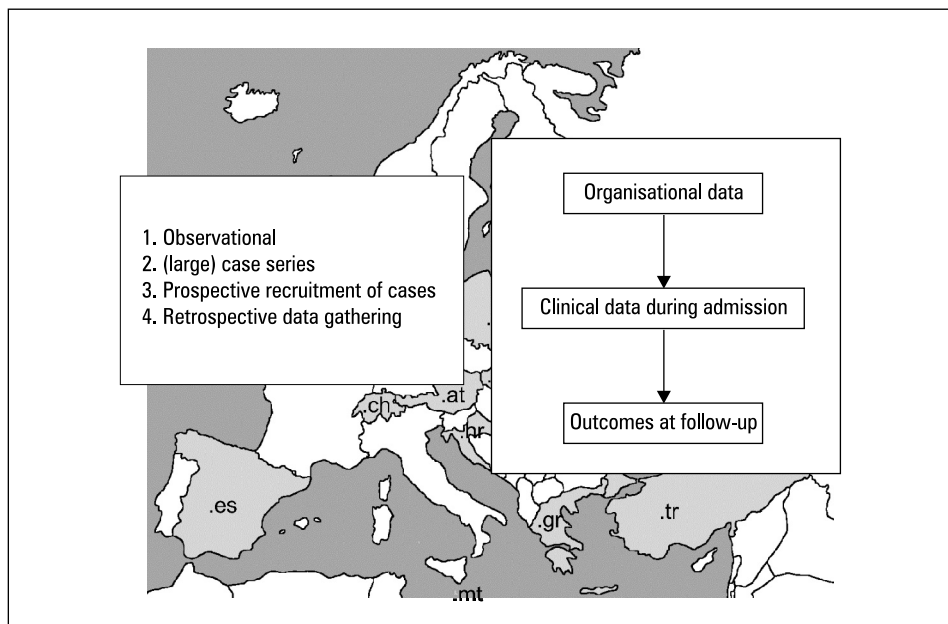
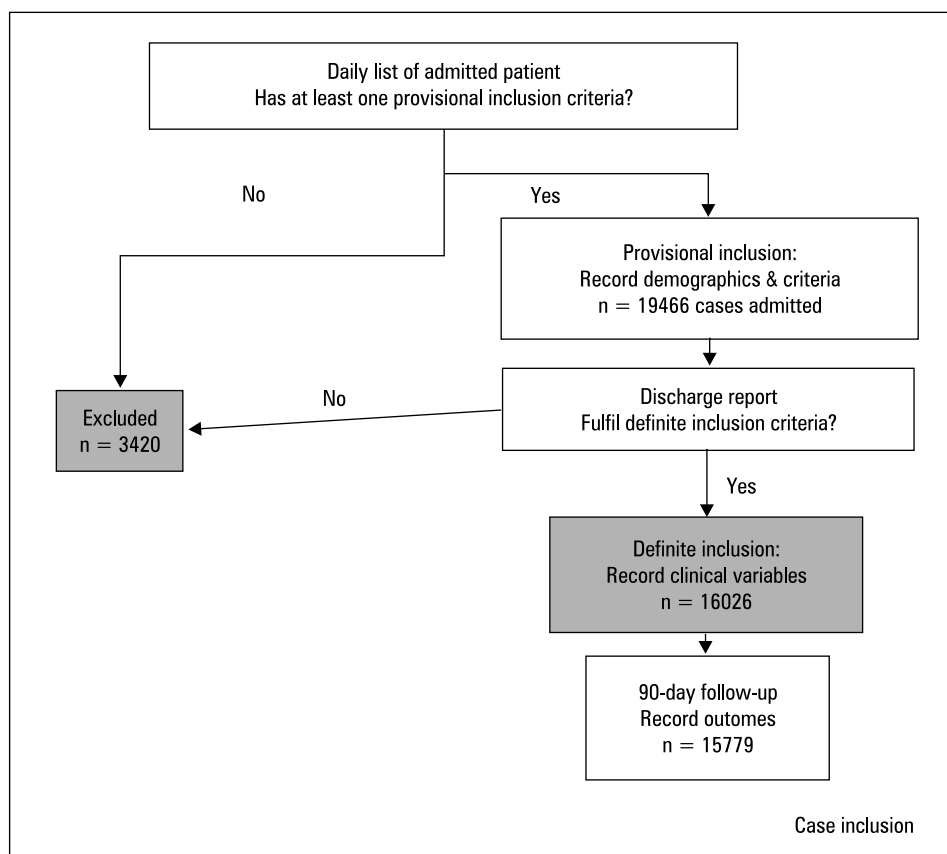


Figure 2. Abstract 400 ERS Congress 2011: Sylvia Hartl, Jose Lopez-Campos, Mike Roberts Diagnosis of COPD exacerbations on hospital admission: Results from the European COPD audit

The approach is observational, aiming for the reflection of real life practice of the treatment of COPD exacerbation during hospital admission. Outcome data from such observational project like

the audit allow the treatment to be benchmarked to the predicted success of controlled studies. High readmission rates within 3 months (35%) in most European countries are one of the alarming results



**Figure 3.** Abstract 400 ERS Congress 2011: Sylvia Hartl, Jose Lopez-Campos, Mike Roberts; Diagnosis of COPD exacerbations on hospital admission: Results from the European COPD audit

that indicate a need for improved management. Guideline recommendations concentrate on proper diagnosis of stable disease and recommend treatment standards for exacerbation based on the assumption of diagnosed COPD. Around 40% of patients on acute (emergency) admission do not know any lung function results and are treated as COPD exacerbation based on the clinical judgement of a senior physician. Such findings together with the high proportion of current smokers reveal obvious deficiencies in education of COPD patients in all European countries. Clearly the collection of data in a clinical setting retrieved from clinical records has weaknesses in terms of multifactorial biases that are less well controlled than in randomised controlled trials (RCT). On the other hand, looking at the whole group of patients treated as COPD exacerbations reflects a wider cohort than the selected group of controlled trials and delivers complementary information to the findings of RCTs. The methodology of the European audit is published elsewhere [8], and audit reports have been created analysing the median distribution of results in Europe (the European COPD Audit Report is available at [ersnet.org](http://ersnet.org)) and 822 national

audit reports comparing participating hospital data with their national median values and the median European values. Hospital identities are anonymised (unless the report to the individual hospitals) because an audit project is not intending to create rankings of hospitals according to excellence but wants to investigate reasons of disparities and induce changes of individual COPD-management of single hospitals or countries.

It is of utmost importance now that the most striking findings of the analysis of the reports are discussed in the light of underlying conditions: this will not only focus on the differences in patient disease severity, including comorbidities in different European countries, but also look at the influence of the availability of treatment options on the delivery of care. Noninvasive ventilation (NIV) equipment, for instance, is provided very disproportionately in different countries, leading to variable access of acidotic patients to NIV. Comparing such findings to the current evidence of predicted outcome in terms of length of stay and hospital mortality reveals that the quality of care depends very much on which hospital setting a patient is admitted.

Publication of the data at the national level will enhance the effect of the results, spreading it to national health authorities. International organisations like patient organisations, EU-research organisations, or the WHO might be interested in the European inequalities of care and may support the audit technique as an assessment tool of quality of care but have less influence on rapid changes of delivery of care at individual hospital level.

The potential of the first European COPD Audit pilot study is a unique chance to create a network of hospitals dedicated to improve their quality of care by learning from their results and measure their success in another audit after some years. This will lead to improved questions, evaluation of unmet needs of our patients, and contribution to future guidelines in terms of implementation strategies of quality of care. The resulting activity at a national level for improved standards depends on how health care is organised within a certain country according to the regional health care services. The European audit will not be able to make judgements about better or worse health care organisation as this needs to be analysed in context with the catchment population a hospital is serving as well as how pre-hospital services are established. Nevertheless, in total, a general impression of the distribution of outcomes in Europe can be estimated and relevant deviations of treatment recommendations will be identified. Nationwide, the inequality of care can be interpreted more easily as the health care system is applicable to all cases and expected provision of care from primary to tertiary care centres is defined.

We need to encourage all participating nations to deliver their analysis and come together for European conferences to discuss the results of best practice or deficiencies within their country in the light of fuzzy logic techniques to relate the effects of similar findings to the impact of identification of best practice models [9].

### Conflicts of interest

The author declares no conflict of interest in the context of this study.

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