diagnosed to have pulmonary tuberculosis. The final diagnosis was consolidation in 6, bronchiectasis in 8, pulmonary tuberculosis in 1 and localized pulmonary fibrosis in 21 patients.

Conclusion. Diagnosing and treating tuberculosis predominantly on radiological basis is not appropriate and sputum microscopy and culture remains the cornerstone of diagnosing pulmonary tuberculosis.

Chronic Obstructive Pulmonary Disease in Non-smokers: A Case-Comparison Study

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Background. COPD is often regarded as a smoker's disease. In fact, up to 50% of COPD could be attributable to other causes. Relatively little is known about COPD among nonsmokers, and this group is usually excluded from studies of COPD.

Methods. In this cross-sectional case-comparison study, smokers and nonsmokers aged over 45 with COPD (post-bronchodilator FEV1 ≤ 70% predicted, FEV1/FVC ratio < 0.7) were recruited from specialist outpatient clinics and from primary care. Subjects completed a questionnaire and interview, and underwent spirometry, venesection, exhaled nitric oxide (ENO) measurement, allergen skinprick testing, formal lung function testing and high resolution CT.

Results. 48 nonsmokers and 45 smokers participated. Asthma was nearly universal among nonsmokers and was the commonest identifiable cause of COPD in that group. Nonsmokers also exhibited a high prevalence of objective eosinophilic inflammation (raised ENO and eosinophil counts, positive skinprick tests). Smokers had more severe airflow obstruction, but respiratory symptom prevalences were similar between groups. Nonsmokers reported greater lifetime burdens of respiratory disease. Nonsmokers' HRCT results showed functional small airways disease, with no significant emphysema in any subject. Previously undiagnosed bronchiectasis was common in both groups (31% and 42%).

Conclusions. Asthma is a very common cause of COPD among nonsmokers. Radiological bronchiectasis is common in COPD; the clinical significance of this finding is unclear.

Lung Function and Respiratory Symptoms in Association with Mortality: The HUNT Study

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Whether respiratory symptoms are associated with mortality independent of lung function is unclear. The authors explored the association of the exposures, i) lung function, ii) respiratory symptoms, and iii) lung function and respiratory symptoms combined, with the outcomes all-cause and cardiovascular mortality. The study included 10,491 adults who participated in the Nord-Trøndelag Health Study (HUNT) Lung Study in 1995–1997 and were followed through 2009. Cox regression was used to calculate adjusted hazard ratios (HRs) with 95% confidence intervals for all-cause and cardiovascular mortality associated with pre-bronchodilator% predicted forced expiratory volume in 1 second (ppFEV1), chronic obstructive pulmonary disease (COPD) grades, and respiratory symptoms (chronic bronchitis, wheeze, and levels of dyspnoea). Lung function was inversely associated with all-cause mortality. Compared to ppFEV1 ≥100, ppFEV1 <50 increased the HR to 6.85 (4.46–10.52) in women and 3.88 (2.60–5.79) in men. Correspondingly, compared to normal airflow, COPD grade 3 or 4 increased the HR to 6.50 (4.33–9.75) in women and 3.57 (2.60–4.91) in men. Of the respiratory symptoms, only dyspnoea when walking remained associated with all-cause mortality after controlling for lung function (HR 1.73 [1.04–2.89] in women and 1.57 [1.04–2.36] in men). Analyses of lung function and dyspnoea when walking as a combined exposure further supported this finding. Overall, associations between lung function and cardiovascular mortality were weaker, and respiratory symptoms were not associated with cardiovascular mortality. In conclusion, lung function was inversely associated with all-cause and cardiovascular mortality, and dyspnoea when walking was associated with all-cause mortality independent of lung function.

Effect of Smoke-free Legislation on Perinatal and Child Health: A Systematic Review and Meta-analysis

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Background. Smoke-free legislation has the potential to reduce the substantive disease burden associated with second-hand smoke exposure, particularly in children. We investigated the effect of smoke-free legislation on perinatal and child health.

Methods. We searched 14 online databases from January, 1975 to May, 2013, with no language restrictions, for published studies, and the WHO International Clinical Trials Registry Platform for unpublished studies. Citations and reference lists of articles of interest were screened and an international expert panel was contacted to identify additional studies. We included studies undertaken with designs approved by the Cochrane Effective Practice and Organisation of Care that reported associations between smoking bans in workplaces, public places, or both, and one or more predefined early-life health indicator. The primary outcomes were preterm birth, low birthweight, and hospital attendances for asthma. Effect estimates were pooled with random-effects meta-analysis. This study is registered with PROSPERO, number CRD42013003522.

Findings. We identified 11 eligible studies (published 2008—13), involving more than 2·5 million births and 247 168 asthma exacerbations. All studies used interrupted time-series designs. Five North American studies described local bans and six European studies described national bans. Risk of bias was high for one study, moderate for six studies, and low for four studies. Smoke-free legislation was associated with reductions in preterm birth (four studies, 1 366 862 individuals; –10·4% [95% CI –18·8 to –2·0]; p=0·016) and hospital attendances for asthma (three studies, 225 753 events: –10·1% [95% CI –15·2 to –5·0]; p=0·0001). No significant effect on low birthweight was identified (six studies, >1·9 million individuals: –1·7% [95% CI –5·1 to 1·6]; p=0·31).

Interpretation. Smoke-free legislation is associated with substantial reductions in preterm births and hospital attendance for asthma. Together with the health benefits in adults, this study provides strong support for WHO recommendations to create smoke-free environments.

Incidence of Multidrug-resistant Tuberculosis Disease in Children: Systematic Review and Global Estimates

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Background. Multidrug-resistant tuberculosis threatens to reverse recent reductions in global tuberculosis incidence. Although children younger than 15 years constitute more than 25% of the worldwide population, the global incidence of multidrug-resistant tuberculosis disease in children has never been quantified. We aimed to estimate the regional and global annual incidence of multidrug-resistant tuberculosis in children.

Methods. We developed two models: one to estimate the setting-specific risk of multidrug-resistant tuberculosis among child cases of tuberculosis, and a second to estimate the setting-specific incidence of tuberculosis disease in children. The model for risk of multidrug-resistant tuberculosis among children with tuberculosis needed a systematic literature review. We multiplied the setting-specific estimates of multidrug-resistant tuberculosis risk and tuberculosis incidence to estimate regional and global incidence of multidrug-resistant tuberculosis disease in children in 2010.

Findings. We identified 3403 papers, of which 97 studies met inclusion criteria for the systematic review of risk of multidrug-resistant tuberculosis. 31 studies reported the risk of multidrug-resistant tuberculosis in both children and treatment-naive adults with tuberculosis and were used for evaluation of the linear association between multidrug-resistant disease risk in these two patient groups. We identified that the setting-specific risk of multidrug-resistant tuberculosis was nearly identical in children and treatment-naive adults with tuberculosis, consistent with the assertion that multidrug-resistant disease in both groups reflects the local risk of transmitted multidrug-resistant tuberculosis. After application of these calculated risks,

we estimated that around 999 792 (95% CI 937 877—1055 414) children developed tuberculosis disease in 2010, of whom 31 948 (25 594—38 663) had multidrug-resistant disease.

Interpretation. Our estimates underscore that many cases of tuberculosis and multidrug-resistant tuberculosis disease are not being detected in children. Future estimates can be refined as more and better tuberculosis data and new diagnostic instruments become available.