

Background: Household air pollution (HAP) due to traditional cooking fuels significantly contributes to COPD and lung cancer. In India, efforts to provide access to liquefied petroleum gas (LPG) have intensified recently, although the focus remains on providing connections and not on usage. This analysis aimed to estimate the costs and health benefits of expanding usage of modern fuels between 2015 and 2030 in India. It unpacks the health impact of possible scenarios of fuel stacking. This is one of the first studies to analyse cost effectiveness of stacking.

Methods: The baseline scenario was defined as continuation of modern fuel penetration with current trends and efforts. The intervention assumes strategic push for LPG usage where 89% households use modern fuel by 2030; resulting into four scenarios of stacking (30% [high], 20% [medium], 10% [low], and none). Health benefits in term of averted annualised disability adjusted life-years (aDALYs) were estimated using WHO projections for 2015 and 2030. Integrated Exposure Response Curves were used to calculate disease-specific relative risks for different exposures arising from different levels of usage of traditional fuels over the years. Economy-wide financial costs of the transitions were estimated. Cost per aDALYs for acute lower respiratory infections, COPD, lung cancer, ischaemic heart disease, and stroke were estimated for each scenario.

Findings: Preliminary results indicate a proportionate reduction in DALYs with high, moderate, low, and no stacking of 31%, 46%, 58%, and 62%, respectively, for COPD, and 27%, 43%, 54%, and 59%, respectively, for lung cancer by 2030. LPG penetration with no stacking could be achieved with average cost of \$2326 per aDALY.

Interpretation: While expanding access to modern fuels, addressing fuel stacking is critical and cost effective. This is despite WHO projections significantly underestimating DALYs, which makes these finding conservative. The disaggregated analysis provided by this modelling will enable better tuned policy formulation for transitioning to modern fuels.

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Conflicts of interest: We declare that we have no conflicts of interest.

0027

CLINICAL USE OF CARDIOPULMONARY EXERCISE TESTING IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE UNDERGOING A PULMONARY REHABILITATION PROGRAMME: A RETROSPECTIVE COHORT STUDY

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Background: Exercise training is a core component of pulmonary rehabilitation programmes (PRP). In addition to characterising patient limitations, pre-PRP cardiopulmonary exercise testing (CEPT) can be used to screen for adverse effects of exercise, such as ischaemia, arrhythmia, or hypoxaemia, and to design individual exercise training regimens that are effective and tolerable. This study aimed to investigate the impact of pre-PRP CPET on outcomes

Methods: Screened patients with COPD were invited to participate in PRP at a local acute hospital in Hong Kong. Patients with contraindications to exercise were excluded. Eligible patients were arranged to undergo CPET before training. Positive outcomes were defined as improvement in St George's Respiratory Questionnaire (SGRQ) score by four points or greater and/or improvement in 6-minute walk test (6MWT) distance by 30 m or more.

Findings: 70 patients were recruited, 40 (57.1%) of whom achieved positive outcomes after training. More patients who had exercise testing (29 of 42; 69%) than those who did not have exercise testing (13 of 42; 31%) attained positive outcomes ($p=0.014$). All participants attained a training intensity close to the exercise testing determined target. Participants with positive outcome attained training intensity at $97.64\pm 45.77\%$ of their target; participants without positive outcome attained a lower training intensity at $87.10\pm 21.90\%$ of their target.

Interpretation: This study shows that CPET was effective in helping PRP participants achieve positive outcomes. Whether the performance of patients without exercise testing had been limited by undiagnosed underlying medical condition was uncertain. Further studies exploring the impact of pre-PRP CPET in improving the safety and effectiveness of PRP

are warranted.

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0029

THE EFFECT OF INHALED SALMETEROL ALONE AND IN COMBINATION WITH FLUTICASONE PROPIONATE ON THE MANAGEMENT OF COPD PATIENTS

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Background: Airway inflammation is a known pathological feature of COPD. We examined the effect of inhaled salmeterol, alone and in combination with fluticasone propionate, on the management of patients with COPD.

Methods: 40 male COPD patients were randomly divided into two groups; group 1 ($n=20$) were treated with long-acting β_2 -agonist (salmeterol) each day for 3 months and group 2 ($n=20$) with long-acting β_2 -agonist (salmeterol) and inhaled glucocorticoid (fluticasone propionate) each day for 3 months. Pulmonary function tests (PFTs), including forced vital capacity (FVC), forced expiratory volume in 1 sec (FEV1), and peak expiratory flow (PEF), were measured at baseline, 1 month and 2 months after treatment, and at the end of the study. The frequency of using inhaled salbutamol per day and the 6-min walk distance were also measured at four different visits. The frequency of exacerbation was also recorded during the 90-day treatment period in the two groups.

Findings: FEV1, FVC, and PEF were significantly higher after 30 days of treatment with salmeterol and fluticasone propionate (mean change from baseline in group 2: 155 mL, 200 mL and 70 L/s, respectively; $p<0.001$). 6-minute walk distance also increased significantly in group 2 (mean change from baseline: 160 m; $p<0.001$), and there was a 70–80% reduction in the use of inhaled salbutamol ($p<0.001$). All improvements were maintained over the remainder of the study period. In group 2, exacerbations over the 90-day treatment period were significantly fewer than in the same 90-day period in the previous year (2.8 ± 0.7 versus 0.8 ± 0.9 ; $P<0.001$). In contrast, only PEF increased significantly with treatment in group 1 (salmeterol treatment alone).

Interpretation: These results indicate that inhaled corticosteroids may be beneficial in some patients with COPD.

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REDUCING BARRIERS TO CONSULTING A GP IN PATIENTS AT INCREASED RISK OF LUNG CANCER: A QUALITATIVE EVALUATION OF THE CHEST AUSTRALIA INTERVENTION

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Background: Lung cancer has one of the lowest survival outcomes of any cancer because more than two-thirds of patients are diagnosed after curative treatment is possible, suggesting that many people wait for a considerable time before presenting symptoms. We aimed to explore the barriers to consultation and the experiences of patients at increased risk of lung cancer who were exposed to a complex intervention (CHEST Australia Intervention) based on a previously theoretically designed Scottish model.

Methods: A purposive sample of participants who received the intervention in Perth ($n=13$) and Melbourne ($n=7$) were interviewed. Patients were asked about their experience of the intervention, their recall of the main messages, their symptom appraisal, and help-seeking issues when they develop symptoms. Thematic analysis was conducted to draw common themes between the participants.

Findings: We found that the Scottish model performed as expected, with some novel findings in the Australian setting. Similar barriers to