Association between second hand smoke exposure and COPD, quality of life, and health care use in smokers and ex-smokers

Dr. Margaret Gerbase, margaret.gerbase@hcuge.ch, MD[1], Dr. Pierre-Olivier Bridevaux, pierre-olivier.bridevaux@hcuge.ch, MD[1], Dr. Christian Schindler, christian.schindler@unibas.ch[2], Dr. Nicole Probst-Hensch, nicole.probst@uzh.ch[3], Prof. Dr Joel Schwartz, jschwrtz@hsph.harvard.edu, MD[4], Prof. Dr Nino Kunzli, kuenzli@imim.es, MD[5], Prof. Dr Jean-Michel Gaspoz, jean-michel.gaspoz@hcuge.ch, MD[6] and Prof. Dr Thierry Rochat, thierry.rochat@hcuge.ch, MD[1]. [1]Division of Pulmonary Medicine, University Hospitals of Geneva, Geneva/GE, Switzerland; [2]Institute of Social and Preventive Medicine, University of Basle, Basle, Switzerland; [3]Molecular Epidemiology/Cancer Registry Zürich, University Hospital of Zurich, Zurich/ZH, Switzerland; [4]Department of Environmental Health and Epidemiology, Harvard School of Public Health, Boston/MS, United States of America; [5]Center for Research in Environmental Epidemiology, Institut Municipal d'Investigació Mèdica, Barcelona, Spain and [6]Department of Community and Primary Care Medicine, University Hospitals of Geneva, Geneva/GE, Switzerland.

Objective: to analyse the impact of second hand smoke (SHS) on quality of life, COPD and health care utilization in smokers and ex-smokers. Methods: We analyzed 832 ex-smokers and 659 smokers participating in two surveys of the SAPALDIA cohort study. Adjusted linear and logistic regressions were used to estimate effects of SHS on SF-36 domains, GOLD-defined COPD and health-care utilization. We analyzed SHS exposure time (<3; ≥3h/day) and number of smokers at home (<2; ≥2persons) stratified by sex. Results: Reduced SF-36 scores were found in men exposed to SHS both in smokers ($p<0.05$) and ex-smokers ($p<0.01$) when compared to non-exposed subjects. SHS exposure ≥ 3h/day was associated with reduced physical functioning (-6.2, $p<0.01$) and bodily pain (-5.3, $p<0.05$) in men ex-smokers, and physical functioning (-6.5, $p<0.0001$) and mental health (-4.1, $p<0.01$) in smokers. Similar results were found in smoking men exposed to ≥ 2 persons at home. SHS was associated with higher risk for COPD (OR=1.97; 95%CI:1.22-3.17, $p=0.01$) and increased medical visits (OR=4.42; 95%CI:1.41-13.90, $p<0.01$) in men ex-smokers, and with increased medical visits (OR=5.63; 95%CI:1.04-30.5, $p=0.05$) in men smokers. In women, reduced SF-36 scores ($p<0.05$) were observed in ex-smokers exposed to SHS, but no relevant differences were found in smokers. No significant effects of SHS exposure on health care use were seen in women both smokers and ex-smokers, but analyses were limited by power. Conclusion: SHS may represent an additional risk for poorer quality of life, increased morbidity and health care use that goes beyond and above the effects determined by active smoking, notably in men.