Methods Systematic methods were used to identify relevant studies, assess study eligibility for inclusion and evaluate study quality. Cohort studies of adults with a primary diagnosis of lung cancer, published in peer-reviewed English language journals up to 2011, were examined. All studies reporting rates of receipt of any treatment for lung cancer according to a measure of SES were included in the review. Studies that reported odds ratios for receipt of treatment, adjusted for at least age and sex, were included in the meta-analysis. Subgroup analyses by healthcare system (universal healthcare system or insurance-based system), histology and stage were conducted.

Results From the initial 1345 studies identified, 46 studies were included in the review and 29 in the meta-analysis.

Socio-economic inequalities in receipt of lung cancer treatment were observed. Low SES was associated with a reduced likelihood of receiving any treatment (OR=0.79, CI (0.74 to 0.84) p<0.001), surgery (OR=0.71 (CI 0.65 to 0.77), p<0.001) and chemotherapy (OR=0.81 (CI 0.73 to 0.91), p<0.001), but not radiotherapy (OR=0.95 (CI 0.84 to 1.07), p=0.41), for lung cancer. The association was found in both insurance-based and universal healthcare systems and remained when stage and histology were taken into account for receipt of surgery.

Conclusion This systematic review and meta-analysis found that lung cancer patients living in more socio-economically deprived circumstances were less likely to receive any type of treatment, surgery and chemotherapy. These inequalities cannot be accounted for by socio-economic differences in stage at presentation or by type of healthcare system. Further investigation is required into the patient, clinician and system factors that may contribute to socio-economic inequalities in receipt of lung cancer care and how these inequalities may impact on survival, and also into how to reduce such inequalities.

Poster Programme

PS01 ASSOCIATIONS OF HEALTH, PHYSICAL ACTIVITY AND WEIGHT STATUS WITH MOTORISED TRAVEL AND TRANSPORT CARBON DIOXIDE EMISSIONS

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Background Motorised travel and associated carbon dioxide (CO_2) emissions generate substantial health costs, many of which disproportionately affect socio-economically disadvantaged groups. These health costs may include contributing to rising obesity levels. Obesity has in turn been hypothesised to increase motorised travel and/or CO_2 emissions, both because heavier people may use motorised travel more and because heavier people may choose larger and less fuel-efficient cars. These hypothesised associations have not been examined empirically, however, nor has previous research examined associations with other health characteristics. Recent years have, however, seen increasing research and policy attention to the potential 'co-benefits' of pursuing policies which simultaneously enhance public health and promote environmental sustainability. We therefore aimed to examine how and why weight status, health, and physical activity are associated with transport CO_2 emissions.

Methods 3463 adults (18–91 years, 45% male) completed questionnaires in the baseline iConnect survey at three study sites in the UK, self-reporting their health, weight, height and past-week physical activity. Seven-day recall instruments were used to assess travel behaviour and, together with data on car characteristics, were used to estimate CO_2 emissions. We used path analysis to examine how far active travel, motor travel and car engine size mediated associations between health characteristics and CO_2 emissions.

Results CO_2 emissions were higher in overweight or obese participants (multivariable standardized probit coefficients 0.16, 95% CI 0.08, 0.24 for overweight vs. normal; 0.16, 95% CI 0.04, 0.28 for obese vs. normal). Lower active travel and, particularly for obesity, larger car engine size explained 19–31% of this effect, but most of the effect was directly mediated by greater motorised travel distance. Walking for recreation and leisure-time physical activity predicted higher motorised travel distance and therefore higher CO_2 emissions, while active travel predicted lower CO_2 emissions. Poor health and illness did not independently predict CO_2 emissions.

Conclusion Establishing the direction of causality between weight status and travel behaviour requires longitudinal data, but the engine size association suggests at least a potential causal effect of obesity on CO_2 emissions. More generally, transport CO_2 emissions are differently associated with different health characteristics, including associations between a health good and an environmental harm (recreational physical activity and high emissions). Thus health-environmental 'co-benefits' cannot be assumed. Instead, attention should also be paid to identifying and mitigating potential areas of tension, for example promoting low-carbon recreational activity.

PS02 "WE CAN ALL JUST GET ON A BUS AND GO": RETHINKING INDEPENDENT MOBILITY IN THE CONTEXT OF THE UNIVERSAL PROVISION OF FREE BUS TRAVEL TO YOUNG LONDONERS

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Background Recent years have seen increasing attention to 'independent mobility' as a determinant of children's physical health and psychosocial development. Previous research, however, largely frames independent mobility as a matter of having parental permission to travel without adults. It also predominantly focuses upon walking any cycling trips in the local area by young children. We therefore aimed to extend the independent mobility literature by examining mobility on public transport, mobility beyond the local area and mobility by adolescents. For this we use as a case study the recent provision of universal free bus travel to all young people in London, UK. We argue that idea of independent mobility can usefully be situated within the broader conception of opportunity and process freedoms which underpin Amartya Sen's influential 'capabilities approach' to human development.

Methods As part of the *On the buses* study, 118 young Londoners (age 12–18, 65 females) took part in 43 in-depth interviews (group size 1–3, 61 individuals) and 10 focus groups (group size 4–8, 57 individuals). Interviews and focus groups elucidated tacit, or everyday, influences on and effects of young people's transport mode choices. We analysed this data qualitatively, drawing on techniques from the constant comparative method, including initial micro-level open coding and an iterative approach to identifying and refining emerging conceptual categories.

Results Free bus travel enhanced young Londoners' capability to shape their daily mobility, both directly by increasing financial access and indirectly by facilitating the acquisition of the necessary skills, travelling companions and confidence. These capabilities in turn extended both opportunity freedoms (e.g. facilitating non-"necessary" recreational and social trips) and process freedoms (e.g. feeling more independent by decreasing reliance on parents). Moreover, the universal nature of the entitlement often seemed crucial as