improved from baseline to 5-year of follow-up for: 21% of those still in paid employment; 25% of those who exited the workforce not on health grounds; and 18% among those who exited due to their health. Regression analysis showed that normal exit from the workforce was associated with improving health subsequently (OR: 1.32, 95%CI: 1.07,1.61), while health-related exit was associated with poorer health subsequently (OR: 2.88, 95% CI: 2.16,3.85). These effects were stronger among males than females, and were robust to adjustments for demographic, employment, and socio-demographic factors.

Conclusion This study highlights the need for more in-depth exploration of the dynamic impact of work exit on health amongst older people, aiming to develop effective policy measures for a healthy transition from work to retirement.

P37 MEASURING THE HEALTH OF PEOPLE IN PLACES: A SCOPING REVIEW OF OECD MEMBER COUNTRIES

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Background Defining and measuring population health in places is fundamental for local and national planning and conducting cross-geographic health comparisons. Yet availability and comparability of place-level health data is unknown.

Methods A scoping review was performed to identify how Organisation for Economic Co-operation and Development (OECD) countries measure overall health for sub-national geographies within each country. The search was conducted across MEDLINE, Scopus and Google Scholar, supplemented by searching all 38 OECD countries statistical agency and public health institute websites. For all three electronic databases, three concepts were created to identify studies where health indicators would have been used to assess health at a population-level: (1) health indicator, (2) population assessment and (3) OECD countries. Only at the full article assessment stage were studies excluded for not having health indicator data at a sub-country geography.

Results Out of a total of 1,157 non-duplicate titles and abstracts screened, 210 full texts were reviewed and sixty publications selected; plus extracted information from 37 of 38 OECD countries statistical agency and/or public health institute websites. Twelve health indicators were identified where data was available at a population level for sub-national geographies. Data sources varied by categorisation into mortality (all-cause, cause-specific, life expectancy at birth, life expectancy at 65 years, preventable, excess or amenable) or morbidity (self-rated health, long-standing illness, disability, activity limitations or healthy life expectancy) health indicators: the former mostly from national statistical agencies and the latter from population-level surveys. In all cases, geographic boundaries used administrative definitions. Region, or equivalent large subnational entities, was the predominant geographic level for both mortality and morbidity indicators. All-cause mortality, and some cause-specific mortality indicators, were available at regional level for all 38 OECD countries. All other mortality indicators were frequently available at this level, with the exception of life expectancy at 65 years (5 countries only). Similar but slightly fewer indicators were available for urban areas (max countries per most frequent indicator = 24), followed by municipality (range of 1–14 countries per indicator). Other geographies, particularly those at smaller granularity, were infrequently available across health indicators and countries.

Conclusion Health indicator data at sub-national geographies are generally only available for a limited number of indicators at large administrative boundaries. Relative uniformity of health indicator question format allows cross-national comparisons. However, wider availability of health indicators at smaller, and non-administrative, geographies is needed to explore the best way to measure population health in local areas.

P38 MAKING SENSE OF THE EVIDENCE IN POPULATION HEALTH INTERVENTION RESEARCH: BUILDING A DRY STONE WALL

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Background To tackle population health challenges, we must address the fundamental determinants of behaviour and health. Systematic reviews frequently conclude that the available evidence about the effects of population health interventions is too diverse, flawed or inconclusive to support a more general conclusion about what should be done. However, merely increasing the supply of intervention studies is not enough. The pivotal link between research and policy or practice should be the cumulation of insight from multiple studies. In spite of all the developments in quantitative methods for evidence synthesis, however, we struggle to derive meaningful generalisable inferences to guide and support public health action.

Methods We review theoretical, methodological and case study material from a variety of disciplines and propose a more eclectic, flexible and reflexive approach to building and interpreting the evidence.

Results If conventional evidence synthesis can be thought of as analogous to building a wall, then we can increase the supply of bricks (the number of studies), their similarity (statistical commensurability) or the strength of the mortar (the statistical methods for holding them together). However, many public health challenges seem akin to herding sheep in mountainous terrain, where ordinary walls are of limited use and a more flexible way of combining dissimilar stones (pieces of evidence) may be required. This would entail shifting towards generalising the functions of interventions, rather than their effects; towards inference to the best explanation, rather than relying on binary hypothesis-testing; and towards embracing divergent findings, to be resolved by testing theories across a cumulated body of work. We present case studies of mixed-method primary research and evidence synthesis to illustrate ways of doing this in practice.

Conclusion We should look beyond simple notions of 'interventions', search for patterns and embrace the mess in evidence synthesis in order to better understand what makes for an effective public health strategy. In this way we might channel a spirit of pragmatic pluralism into making sense of complex sets of evidence, robust enough to support more

plausible causal inference to guide action, while accepting and adapting to the reality of the public health landscape rather than wishing it were otherwise. The traditional art of dry stone walling can serve as a metaphor for the more 'holistic sense-making' we propose.

P39 EVALUATIONS OF PUBLIC HEALTH INTERVENTIONS USING NATURAL EXPERIMENT EVALUATION DESIGNS AND THE 'TARGET TRIAL' FRAMEWORK

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Background Natural or quasi experiments are appealing because they enable the evaluation of events or interventions that are difficult or impossible to manipulate experimentally, which is especially relevant for public health research in which the evaluation of policy and health system reforms is an important focus. There remains ambiguity about their definition and how they differ from randomized controlled experiments and from other observational designs. We conceptualise natural experiments in the context of public health evaluations and align the study design to the Target Trial Framework.
Methods A literature search was conducted, and key methodological papers were used to develop this work. Peer-reviewed papers were supplemented by grey literature.
Results Natural experiment studies (NES) combine features of experiments and non-experiments. They differ from planned experiments, such as randomized controlled trials, in that the assignment of exposure is not controlled by researchers. They differ from other observational designs in that they evaluate the impact of events or processes that resulting from changes in exposure. As a result they are, in theory, less susceptible to bias than other observational study designs. Importantly, causal inference relies heavily on the assumption of 'as-if randomisation' of exposure allocation. The target trial framework provides a systematic basis for evaluating this assumption and the other design elements that underpin the causal claims that can be made from NES.
Conclusion Although there will always remain some ambiguity about the strength of causal claims from natural experiment evaluations, there are clear benefits to harnessing these rather than relying purely on observational studies. This includes the fact that NES can be based on routinely available data and that timely evidence of real-world relevance can be generated. Aligning NES to the Target Trial framework will guard against conceptual stretching of these evaluations and ensure that the causal claims about whether public health interventions 'work' can inform public health action within a 'practice-based evidence' framework.

P40 IS THERE AN EVIDENCE BASE ON REDUCING LIFESTYLE RISK BEHAVIOURS IN DISADVANTAGED GROUPS? A SCOPING REVIEW OF SYSTEMATIC REVIEWS

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Background Lifestyle risk behaviours are associated with an increased risk of non-communicable disease and mortality. There are socio-economic inequalities in these behaviours, with some behaviours being more prevalent in particular groups, such as prisoners, homeless people and Gyspies, Travellers and Roma. The aim of this scoping review was to identify and bring together existing evidence from systematic reviews on reducing risk behaviours in disadvantaged groups and highlight where there is insufficient evidence to inform policy.
Methods MEDLINE and Embase were searched up to October 2020 for English language reviews, with supplementary searching in Epistemonikos and Health Systems Evidence. Systematic reviews reporting behavioural outcomes of interventions targeting smoking, excessive alcohol use, unhealthy diet or physical inactivity in low income or socio-economic status (SES), unemployed people, homeless people, care leavers, prisoners, refugees or asylum seekers, Travellers, Gypsies or Roma, people with learning disabilities or deprived areas or communities were eligible. Reviews of population-level policies reporting differential effects for disadvantaged groups and qualitative reviews exploring barriers or facilitators to behaviour change were also included. The literature was mapped based on the group and behaviour targeted.
Results In total 9,336 records were screened, 262 full texts retrieved and 92 systematic reviews included. The majority of reviews included studies of people with low income or SES (n=68), with diet and low income the most frequently addressed combination. There were fourteen reviews on prisoners, 12 on deprived areas, ten on homeless people and nine on people with learning disabilities. Only three reviews included unemployed people and two included refugees or asylum seekers (both focusing on barriers and facilitators to healthy eating). No reviews were identified on care leavers or Gypsies, Travellers and Roma. In total there were 11 reviews targeting alcohol use. Sixteen qualitative reviews explored participants' perceptions of barriers and facilitators to changing their behaviour.
Conclusion A large number of systematic reviews were identified but we found some evidence gaps where new syntheses or primary studies may be needed to guide policy, for example on care leavers, Gypsies, Travellers and Roma and refugees and asylum seekers. Other useful contributions might include an overview bringing together different interventions in low-income populations and an overview of the perceptions of disadvantaged groups about behaviour change, allowing common barriers to be identified as well as factors that are unique to specific groups.

P41 A SYSTEMATIC REVIEW OF INEQUALITIES IN THE UPTAKE OF, ADHERENCE TO, AND EFFECTIVENESS OF BEHAVIOURAL WEIGHT MANAGEMENT INTERVENTIONS IN ADULTS

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Background Health inequalities are a public health priority. The extent to which behavioural weight management interventions impact health inequalities is uncertain, as is the extent