

estimated screening test performance and PCHI prevalence in those who were or were not admitted to NICU.

Methods Eligible studies, reporting UNHS-detected PCHI prevalence in very highly-developed countries (no restrictions by language or date), were identified from six electronic databases (January 2017) along with references of cited papers and unpublished literature (November 2017). Papers reporting on at-risk populations only, with no English abstract (unless unpublished), or of ineligible study type were excluded. Two reviewers independently extracted data and assessed quality of included papers using criteria adapted from the Newcastle-Ottawa, STARD and QUADAS-2 tools, with differences resolved by consensus. Pooled prevalence was estimated from random-effects models using Freeman-Tukey double arcsine transformation. Negative predictive value (NPV), sensitivity and specificity were calculated only for studies with follow-up to ascertain false negatives, whilst positive predictive value (PPV) calculation was not restricted by follow-up. Confidence intervals (95% CI) were estimated using Wilson (Score) methods (Stata: Release 15; StataCorp LP).

Results 41 eligible reports on 32 study populations (1,799,863 infants) were identified from 6195 non-duplicate references. Pooled UNHS-detected PCHI prevalence was 1.08 (95% CI 0.90 to 1.28) per 1000 screened ($I^2=89.2\%$). Prevalence was 6.9 times (95% CI 3.8 to 12.5) higher among those admitted to NICU (3 studies). Smaller studies were significantly associated with larger prevalences (Egger's test: $p=0.017$). PPV ranged from 1.5%–83.5% (25 studies), NPV 100% (7 studies), sensitivities 88.9%–100% (8 studies) and specificities 92.3%–99.9% (7 studies). Quantitative pooling of screening programme performance was not possible due to methodological differences.

Conclusion In very highly-developed countries, around 1 per 1000 screened infants will require PCHI investigation and management. Prevalence is almost 7 times higher in infants admitted to NICU. Strengths of our study include the systematic search strategy and robust statistical methods. Our findings are limited to very highly-developed countries. Estimates were restricted by lack of high-quality reporting on attrition and surveillance. Improved reporting of surveillance and attrition should be encouraged to enable evaluation of screening programme performance.

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School-based interventions

OP34 #THE PRIMARY OUTCOMES OF THE SOCIAL AND EMOTIONAL EDUCATION AND DEVELOPMENT (SEED) TRIAL: A STRATIFIED, CLUSTER RANDOMISED TRIAL OF A MULTI-COMPONENT PRIMARY SCHOOL INTERVENTION IN SCOTLAND AIMED AT IMPROVING PUPILS' SOCIAL AND EMOTIONAL WELLBEING

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Background The Social and Emotional Education and Development (SEED) intervention process aimed to improve the

social and emotional wellbeing (SEW) of primary school pupils. The iterative process involved three components: 1. questionnaire completion; 2. providing benchmarked feedback to all staff; and 3. All staff involved in reflexive discussion, led by educational psychologists, to facilitate selection and implementation of evidence-based initiatives (resource guide provided) to address pupils' SEW needs.

Methods A stratified randomised controlled trial involved 37 schools across Scotland and was conducted between 2013 and 2018. This involved 2639 pupils across two cohorts. At baseline the younger cohort were aged 4–5 and the older cohort were aged 8–9. After a one year gap, to enable commencement of action plans, three waves of follow-up data were collected annually. The primary outcome was the Total Difficulties score from the Strengths and Difficulties Questionnaire (SDQ) at Follow-up 3, when the younger pupils were aged 8–9 and the older pupils were aged 12–13. Secondary outcomes included all five SDQ subscales.

Hierarchical regression analysis allowing for clustering at school learning community level was conducted in the statistical package, 'R'. Missing data was handled using repeated measures.

Results The primary outcome, pupils' SDQ Total Difficulties at Follow-up 3, showed a statistically significant result in the desired direction: -1.334 ($-1.918, -0.751$), $p<0.001$. (Please note these are preliminary results and are still to be formally published, whilst robust, final figures may vary slightly after reviewers' comments). All five SDQ subscales also showed beneficial and statistically significant results.

Subgroup analysis showed that all results were stronger for the older cohort, particularly the older boys. The results were significant for both affluent and deprived pupils.

Discussion The SEED intervention process led to beneficial results for the social and emotional wellbeing of intervention schools' pupils. The Scottish Government are actively planning a SEED type of process for Scotland, we hope to extend that throughout the UK. Longer term outcomes can be explored using routine data.

OP35 A PROCESS EVALUATION OF THE SOCIAL AND EMOTIONAL EDUCATION AND DEVELOPMENT TRIAL: CASE STUDY FINDINGS

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Background The Social and Emotional Education and Development programme (SEED) aims to improve the social and emotional wellbeing (SEW) of primary school pupils. It is based on a cycle of collecting school specific data on pupil and staff SEW, providing benchmarked feedback and facilitating the adoption of evidence-based initiatives to address need.

A stratified randomised controlled trial (RCT) involved 37 schools across three local authority districts in Scotland between 2013 and 2017. Complementing the RCT was a detailed process evaluation, which enabled interpretation of the trial outcomes and answered secondary questions on implementation, mechanisms and context. We present the first stage of the process evaluation, an assessment of the likely

effectiveness of the intervention prior to knowing the quantitative outcomes of the trial, focusing on case study schools.

Methods The process evaluation design was guided by the UK Medical Research Council framework for the evaluation of complex interventions. Mixed methods included semi-structured interviews with head/depute head teachers and educational psychologists, ethnographic notes from reflexive discussion sessions, focus groups with pupils and staff, pupil and parent questionnaires. The preliminary analysis was carried out on ten case study schools.

Results SEED was delivered largely as intended, the main exception being fewer reflexive discussion and action cycles than intended. Participants cited restrictions on time and resources and a lack of embeddedness in local authority structures as barriers to implementation.

There was evidence that SEED was valued for providing time and structure to reflect on SEW and foster a collective commitment to tackle and prevent problems, although actions often reinforced existing priorities rather than encouraged the adoption of innovative initiatives. There was limited evidence of an improvement in pupils' SEW but there was evidence that SEED improved relationships between staff. The school's pre-existing climate, strength of leadership and readiness for change appeared important in determining engagement with SEED.

Conclusion Based on this preliminary case study analysis we were not confident that enough schools implemented the intervention in sufficient depth to demonstrate an effect on pupils' Strengths and Difficulties Questionnaire scores (primary outcome). However, the RCT subsequently found a significant improvement in pupil SEW across the life of the trial, particularly for older pupils. Ongoing process evaluation analyses aim to explain this and revisit key questions of implementation and mechanisms for change. These analyses will be available by September 2018.

OP36 **INDIVIDUAL, FAMILY AND SCHOOL-BASED INTERVENTIONS TO PREVENT MULTIPLE RISK BEHAVIOURS IN YOUNG PEOPLE AGED 8–25 YEARS: A COCHRANE SYSTEMATIC REVIEW AND META-ANALYSIS**

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Background We aimed to undertake a Cochrane systematic review to quantify the effect of multiple risk behaviour interventions on prevention of substance use, antisocial behaviour, sexual risk, vehicle risk, self-harm, gambling, physical inactivity and unhealthy diet among individuals aged 8–25 years as little is known about their effectiveness (CD009927).

Methods Eleven databases were searched to 14 November 2016. Randomised controlled trials were included that addressed two or more risk behaviours in individuals aged 0–18 years. Data were pooled in a random-effects meta-analysis in Revman 5.3. For each outcome, we included subgroups relating to study type (individual, family or school-level and

universal or targeted in approach). The quality of evidence was assessed using the GRADE approach.

Results We identified 34 680 titles, screened 27 691 articles and included seventy studies. We found moderate quality evidence indicating that universal school-level interventions were beneficial in relation to tobacco use (odds ratio [OR] 0.77, 95% confidence interval [CI] 0.60–0.97, n=15 354, I² 57%), alcohol use (OR 0.72, 95% CI 0.56 to 0.92, n=8,751, I² 58%), and physical activity (OR 1.32, 95% CI 1.16 to 1.50, n=6 441, I² 0%) compared to a comparator. Lower quality evidence indicated possible benefit for drug use (OR 0.74, 95% CI 0.55 to 1.00, n=11 058, I² 69%) and antisocial behaviour (OR 0.81, 95% CI 0.66 to 0.98, n=20 756, I² 66%), while findings were less certain for sexual risk behaviour (OR 0.80, 95% CI 0.60 to 1.08, n=13 351, I² 80%; low quality evidence) and unhealthy diet (OR 0.82, 95% CI 0.64 to 1.06, n=6441, I² 49%, moderate quality evidence). Analyses indicated that family- and individual-level interventions probably have little or no effect on these outcomes, although fewer such studies were identified. The quality of studies was judged to be of moderate or low quality for most outcomes, primarily owing to concerns around selection, performance and detection bias, and heterogeneity between studies.

Conclusion Available evidence is strongest for universal school-level interventions that target multiple risk behaviours demonstrating that they may be effective in preventing certain risk behaviours. However, concerns around poor reporting and study quality highlight the need to strengthen the evidence base in this field.

This abstract is based on preliminary findings from a Cochrane review currently underway. Upon completion and approval, the final version is expected to be published in the Cochrane Database of Systematic Reviews.

OP37 **DO INTERVENTIONS INTEGRATING HEALTH AND ACADEMIC EDUCATION IN SCHOOLS PREVENT SUBSTANCE MISUSE AND VIOLENCE? SYSTEMATIC REVIEW AND INTERVENTION COMPONENTS ANALYSIS**

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Background Increasingly constrained school timetables mean that there is often little space for specifically timetabled health education lessons. Interventions that integrate health education into academic lessons may prove more appealing to schools, and may be a promising means of addressing outcomes such as violence and substance use while also promoting academic attainment. This evidence has not yet been systematically reviewed. We synthesised evidence for these interventions' effectiveness and analysed their components.

Methods We searched 19 bibliographic databases and 32 websites. References were extracted from the reference lists of included studies and authors were contacted. We included reports with no restrictions on language or date. References were screened on title/abstract and those passing this screening were then screened on full report. Data extraction and appraisal were informed by the Cochrane risk of bias tool. Outcome evaluations were synthesised by key stage (KS) using multilevel meta-analysis where possible; otherwise, evidence was narratively synthesised. Components were analysed