Background and Aims Offspring of diabetic mothers (ODM) are at increased risk of the metabolic syndrome in later life. We aimed to perform a systematic review and meta-analysis of studies examining offspring systolic and diastolic blood pressure (SBP, DBP) in childhood in relation to maternal diabetes.

Methods Citations were identified in PubMed. Authors were contacted for additional data where necessary. SBP and DBP in ODM and controls were compared. Subgroup analysis was performed according to type of maternal diabetes and offspring gender. A fixed effect meta-analysis was performed, and a random effects analysis where significant heterogeneity was present. Meta-regression was used to test the relationship between offspring SBP and maternal pre-pregnancy BMI.

Results Fifteen studies were included in the systematic review and in the meta-analysis. SBP was 1.88 mmHg higher in ODM (95% CI 0.47, 3.28; p = 0.009). The increase in SBP was similar in both offspring of mothers with gestational diabetes (1.39 mmHg [0.00, 2.77]; p = 0.05) and type 1 diabetes (1.64 mmHg [0.09, 3.18]; p = 0.04). Male ODM had higher SBP (2.01 mmHg [0.93, 3.10]; p = 0.0003) and DBP (1.12 mmHg [0.36, 1.88]; p = 0.004) than controls, but the differences in SBP and DBP between female ODM and controls were not statistically significant. Offspring SBP was positively correlated with maternal pre-pregnancy BMI; however, the association was not significant (p = 0.57).

Conclusions ODM have higher SBP than controls. This increase is independent of type of maternal diabetes and may be related to maternal pre-pregnancy BMI. Gender-specific differences require further investigation.