OBJECTIVES: To investigate psychosocial influences on hypothalamic-pituitary-adrenal (HPA) axis activity and immune susceptibility to upper respiratory infection (URI). Findings reported are from two longitudinal studies of i) preschool age; ii) school transitioning children.

METHODS: i) Mother-child dyads (n = 67) with pre-school age children (32 boys and 35 girls) assessed at baseline and at six month follow-up. Salivary cortisol was measured at awakening and at 5-6pm. Mothers’ completed questionnaire data for child temperament, family relations, and maternal well-being (including job role quality and burnout). ii) One-hundred-and-five parent-child dyads (53 boys and 52 girls, mean age 4 years), observed over a 12 month period. Awakening and evening salivary cortisol levels, parental reports of child behaviour and URI were tracked 6 months before transition to reception class and during the first two weeks of school.

RESULTS: i) Cortisol levels in children differed as a function of mothers’ reported levels of well-being and family expressiveness. Moderating effects of hours in day care and maternal well-being and child temperament on cortisol levels were found but not for diurnal cortisol change. Child inhibitory control and shyness were predictive of diurnal cortisol decline. ii) Evening cortisol levels at baseline and during school transition were associated with subsequent severity and duration of URI but not with infection onset. Evening cortisol levels at school transition were associated with parental reports of child activity levels and inhibitory control.

CONCLUSIONS: Maternal stress, child temperament and transition to school are important predictors of cortisol reactivity and link to health outcome as shown by the example of URI. This has health implications for understanding development of the neuroendocrine system throughout the lifespan.