Resting-state abnormalities in regional glucose metabolism and blood flow using PET have been identified in patients with depression, including changes associated with treatment and clinical recovery. Although the relative contribution of individual regions varies as a function of clinical state, involvement of cortical, paralimbic and subcortical regions is seen across studies. Cortical deficits normalize with treatment (state effects); paralimbic and subcortical regions show a more complex state-trait pattern. Changes in these same regions are also seen with transient provoked sadness, with differences discriminating controls from depressed patients. Common patterns seen in both unipolar and bipolar patients suggest convergent pathways mediating disturbances in mood across diagnoses including a more generalized vulnerability to emotional stressors across patient groups. Formal testing of disease-specific and state-specific functional interactions among regions in this depression “network” provides a complementary perspective for future studies examining mechanisms underlying treatment response, relapse and disease vulnerability.