Dynamic Bayesian Networks with Measurement error for cardiovascular diseases

I am interested in understanding gene regulation in CVD. My data comprises gene expression (from blood) obtained from patients admitted in hospital with a cardiac episode. Expression measurements are taken at admittance and 1,3, 7, 30 and 90 days after the cardiac episode. Due to the nature of the measurements and the relative short sample size, I propose a first-order autoregressive Bayesian network which accommodates measurement error to model gene regulation. Model fitting is carried out using MCMC on a subset of genes selected from the literature.