Human exposure to chemical pollutants is one of many factors that contribute to human health risks and burden of disease. Persistent organic pollutants (POPs) such as dioxins, PCBs, persistent organochlorine pesticides (OCPs) and brominated flame retardants such as polybrominated diphenyl ethers (PBDEs) as well as perfluorinated compounds (PFCs) are ubiquitous in the human population. Hence many studies worldwide focus on measuring POPs in serum. We have systematically studied exposure and body burden of trace organic pollutants including POPs in the Queensland population since the 1990s using breast milk and blood serum samples. Our data demonstrate distinct chemical specific age trends. In particular we demonstrate that for the traditional POPs there is an increase in body burden with age whereas the opposite is true for chemicals such as PBDEs where exposure is substantially higher in infants and small children. For PFCs we find chemical specific age trends that vary from compound to compound with the highest mean concentrations of PFOA found in children < 15 years, while PFOS was highest in adults > 60 years. The data have been used to identify sources, estimate intake, evaluate changes in exposure and assess parameters that are used in pharmacokinetic modelling. New work is commencing where we investigate chemical exposure through sampling and analysis of urine samples. An overview of the ongoing and proposed future work will be presented.