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Sommario/riassunto	Early human development from late gestation to the neonatal period is a critical time in the individual’s life span. Medical issues that compromise the brain functions during late gestation and the first months of life could lead to different developmental problems with consequent lifelong burdens for the growing individuals and their families, and a major socio-economic impact for the health care system and the whole of society. Any potential alleviation of perinatal adversities holds promise of an improved quality of life for the individual, and a major benefit for the society at large. It remains a concerted worldwide effort to improve our understanding on effective monitoring systems and clinical diagnostic procedures to reduce fetal impairment and improve healthcare in the neonatal and infant period. The focus of this Research Topic will be on the most recent developments and findings in the field of non-invasive functional brain monitoring in order to: 1) increase our knowledge on novel diagnostic

tools and procedures for the surveillance of fetuses and newborn babies, 2) help us to perform high quality functional assessment of the developing human brain during pregnancy and after birth, 3) understand and diagnose pathological developments with a potentially high clinical and societal impact, 4) understand how to improve perinatal and infant care. Potential topics include, but are not restricted to: 1) non-invasive electrophysiological monitoring technologies for brain function in the fetus, neonate and infant, such as electroencephalography (EEG), magnetoencephalography (MEG), functional magnetic resonance imaging (fMRI) and near infra-red spectroscopy (NIRS), 2) novel or consolidated analytical methods and models for the quantification and interpretation of the functional signals recorded from the developing brain, 3) typical and atypical brain development during pregnancy and the first years of life, 4) personalized clinical diagnostic procedures for perinatal and paediatric surveillance.