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### Phthalates in neonatal health: friend or foe?

J. D. Bowman <sup>(a1)</sup> and M. Choudhury <sup>(a2)</sup>

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#### Abstract

Exposure to environmental chemicals has adverse effects on the health and survival of humans. Emerging evidence supports the idea that exposure to endocrine-disrupting compounds (EDCs) can perturb an individual's physiological set point and as a result increase his/her propensity toward several diseases. The purpose of this review is to provide an update on di-(2-ethylhexyl) phthalate, the primary plasticizer found in plastic medical devices used in neonatal intensive care units, its effects on the fetus and newborn, epidemiological studies, pharmacokinetics, toxicity and epigenetic implications. We searched the PubMed databases to identify relevant studies. Phthalates are known EDCs that primarily are used to improve the flexibility of polyvinyl chloride plastic products and are called plasticizers in lay terms. Neonates and infants are particularly vulnerable to the effects of phthalates, beginning with maternal exposure and placental transfer during gestation and during infancy following birth. In line with the developmental origins of adult disease, a focus on the effects of environmental chemicals *in utero* or early childhood on the genesis of adult diseases through epigenome modulation is timely and important. The epigenetic effects of phthalates have not been fully elucidated, but accumulating evidence suggests that they may be associated with adverse health effects, some of which may be heritable. Phthalate exposure during pregnancy and the perinatal period is particularly worrisome in health-care settings. Although the clinical significance of phthalate exposure has been difficult to assess with epidemiologic studies, the evidence that physiological changes occur due to exposure to phthalates is growing and points toward the need for more investigation at a molecular, specifically epigenetic level.