

Prenatal Nutrition Today, Findings and Recommendations (A Multi-site Study)

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As of November, 2009, "The U.S. is now ranked 30th in the world in infant mortality", yet spends almost twice as much per capita as other industrialized countries. The main cause of this infant mortality is low birth weight babies (LBW). The #1 predictor of many disorders is (LBW) babies, followed closely by being a male child. Male babies are almost three times as likely to be underweight. Additionally, in very low birth weight (VLBW) babies, the #1 common mortality risk factor is being male. Children diagnosed as ADHD are three times more likely to be males. Prenatal under nutrition is not only the well-established, prime cause of LBW babies, but it is also the prime cause of numerous delayed developmental disabilities in normal birth weight babies. Pre-term deliveries can, in 40% of the cases, be linked to intrauterine infections, which are believed to be reduced through autoimmune enhancement via improved nutrition. Likewise, preeclampsia, the #1 cause of maternal deaths in developed countries, has recently been shown to be reduced by as much as 71% via improved nutrition. Damaged or weakened DNA, linked to countless disorders, including an increase in autism from 0.57% in 2007 to 1.1% in 2009, is now correlated to dietary intake of zinc, vitamin B-12, folate, and other nutrients.

Meanwhile, the incidence of Autism Spectrum Disorder (ASD), neurological comorbidities, both juvenile and gestational diabetes, and a host of other chronic degenerative and delayed developmental disabilities is rapidly increasing. Major contributors and solutions to the impending crisis are identified in this report.

In recent years, concerns over contamination of fish by mercury, pesticides, and other chemicals has resulted in a significant reduction of omega-3 essential fatty acid (EFA) consumption, especially by expecting mothers. Consequently, physicians seldom prescribe or recommend omega-3 supplementation. Concurrently, the American diet has been inundated by unhealthy fats and excessive amounts of omega-6 EFA's. With a generally accepted ideal ratio of omega-3's to omega-6's being about 1:3, the average U.S. diet is closer to 1:17. Studies show that a high percentage of ADHD diagnosed children exhibit significant signs of omega-3 deficiency, characterized by excessive thirst and frequent urination. Animal studies show that male animals need three times as many omega-3's as females for proper neurological development. Because 70% of the total energy to the fetus goes to development of the brain, which mainly consists of marine fat, the lack of adequate omega-3 EPA's in the prenatal diet is a major deficiency in need of correction. U.S.P. grade omega-3 supplements with certified EPA/DHA content and free of toxins, are inexpensive and effective, but they are not now available to Medicaid patients.

In November, 2008, the American Academy of Pediatrics spearheaded the quest for nutritional change by issuing a clinical report recommending, "...that the vitamin D intake be raised from 200 IU/day to 400 IU/day for all infants, children, and adolescents beginning in the first few days of life." They state, "The knowledge that prenatal vitamins containing 400 IU of vitamin D3 have little effect on circulating maternal 25-OH-D concentrations and that doses exceeding 1,000 IU/day are necessary... should be imparted to all health care professionals involved in the care of pregnant women. With every additional 40 IU of maternal vitamin D intake, there was an associated 11 g increase in birth weight." Numerous additional studies now link inadequate vitamin D levels to "...impaired brain development, neonatal hypocalcemia, poor post natal growth, bone fragility, asthma, cancer, cardiovascular disease, and increased incidence of autoimmune diseases." In adults, including pregnant women, increased levels of vitamin D plus calcium have been reported to reduce the incidence of all cancers by as much as 77%, breast cancer by 80%, type I diabetes by 78% in children, and 200% in vitamin D deficient children.

Diabetes, long thought to be linked primarily to genetics and poor life style choices, has recently been linked directly to prenatal under nutrition. Inadequate delivery of nutrients to the fetus causes the baby's pancreatic cells to be abnormally programmed, showing up as very high blood glucose levels at six months and diabetes in adolescence or adulthood. This same under nutrition, which can easily be corrected, creates

correlating brain chemistry imagery in the mother and resultant biopsychosocial behaviors that can exacerbate inappropriate maternal decision-making and further impair fetus development

As reported in substantial previous research, including the reviews of Fairfield and Fletcher as published in the *Journal of the American Medical Association (JAMA)*, nutrient intake levels (RDA's) designed to reduce nutrient deficiency diseases, e.g. scurvy and rickets, do virtually nothing to reduce chronic degenerative diseases (CDD's). In their review of more than 30 years of published, credible studies, Fairfield and Fletcher conclude that optimal levels of nutrient intakes, far above those considered RDA's, are necessary if we wish to reduce our risks of CDD's.

Examination of most common *prescriptive* prenatal supplements today raises many questions. *Shockingly*, according to the FDA, **prescriptive prenatal vitamins receive no higher level of quality control or scrutiny than any other non-prescriptive vitamin.** The **only** exceptions are the very few non-prescriptive supplement manufacturers who voluntarily manufacture under USP specifications, signified on the label as, "**Meets USP specifications...**". Findings suggest that most *prescriptive* and over the counter (OTC) prenatal supplements today, when compared to recent medical research, are woefully lacking both in their quantity and in the spectrum of their ingredients. U.S. Pharmaceutical (**USP**) grade standards for all ingredients and USP (not food grade) Good Manufacturing Practices (GMP's) are omitted by almost all manufacturers, including pharmaceutical companies. A large number of these products are now outsourced without any oversight, many from overseas. Comparison of profit margins for supplements versus pharmaceutical drugs and the fact that the unborn can't vote, tells why vendors, manufacturers, and others have found it convenient to overlook USP standards for prenatal supplements. With 37% of all births in the U.S. paid for by Medicaid, and with state Medicaid reimbursement levels for prenatal supplements generally set at about \$6-\$7.00/month/mom, there needs to be significant new options for Medicaid physicians in keeping with today's medical research.

With Medicaid patients normally being at greater risk than the general population, a 10% LBW rate is a reasonable approximation. According to Healthy Start, "Prenatal interventions that result in a normal birth (over 5.5 Lbs.), save \$59,700 in medical expenses in the infant's first year. These public expenses can go on for a lifetime." Additionally, among the very low birth weight (VLBW) babies, "First year expenses for the smallest survivors will average \$273,900", as of 1998. (Source: March of Dimes Perinatal Data Center. Rogowski, J. Cost-effectiveness of Care for Very Low Birth Weight Infants. *Pediatrics* 012(1):35-43.)

To further illustrate our national dilemma, Sarasota Memorial Hospital's website reports that there were 3,653 births in 2006, of which 416 (11.4%) were cases for the Neonatal Intensive Care Unit. The average length of stay in this unit was 15.35 days. According to the Public Broadcasting System's current documentary, "Unnatural Causes" (available on-line), "a one month stay in a neonatal unit costs \$68,000." Therefore, 416 cases @ \$34,000/stay equals \$14.14 MILLION---just for 2 weeks.

Additional medical expenses (only) for the rest of the first year can be expected to be an additional \$40,000/case or an additional \$16 MILLION. That's \$30 MILLION total, for just the first year medical expenses. Sarasota Memorial's "Bad Debts totaled \$64,807,000 and their Medicaid losses including Obstetrics, Neonatology, and Pediatrics was \$6,211,000 in 2006." Further discussion of these findings and solutions can be found in our report.

Conclusion: With most medical and public service agencies stressing "**prevention**" as one of their major objectives, an up-dated program of prenatal nutrition appears to be essential, not only for significantly improving patient health, but also for improving the financial stability of Medicaid, Medicare, Social Security, and our entire national economy. Medicaid decision-makers need to re-evaluate current medical findings and establish new optional prenatal categories for both a U.S.P. grade multivitamin/mineral compound and a USP omega-3 (EPA/DHA specific) capsule. U.S. Pharmaceutical grade ingredients and USP GMP's should be mandatory for these categories, because F.D.A. does little or nothing of significance to inspect, monitor, or control supplement manufacturers.