

Indiana Medicaid Therapeutics Committee **Therapeutic Class Review Summary**

Therapeutic Class:

Prenatal Vitamins

Overview:

Prenatal Vitamins are specially formulated supplements containing numerous vitamins and minerals including folic acid, iron, and calcium. Prenatal vitamins are recommended during pregnancy to supplement any nutritional deficiencies in the diet of the mother, as deficiencies of specific supplements can lead to birth defects, preterm delivery, and low birth rate. Additionally, there is increasing evidence that maternal under nutrition in pregnancy can lead to developmental delays and behavioral disturbances, as well as other health consequences in adult life. In 1973, the United States Food and Drug Administration (FDA) established recommended daily allowances (RDA) to be used as a reference for use in nutritional labeling, and to provide a standard for amounts of specific vitamins and minerals that are needed each day.

Folic acid, also known as Vitamin B9, is important in preventing neural tube defects (NTD), which develop in the first 28 days after conception, and should ideally be taken during the month before conception, and for the first month of pregnancy. Available evidence indicates that 0.4mg (400mcg) per day of folic acid will reduce the number of cases of NTDs, and as a result, the United States Public Health Service recommends that all women of childbearing age including women who have had a previous NTD-affected pregnancy should consume 0.4mg of folic acid per day for the purpose of reducing their risk. Because the effects of high intakes of folic acid are not well known but include complicating the diagnosis of vitamin B12 deficiency, total folate consumption should be \leq 1mg per day, except under the supervision of a physician. Prenatal vitamins containing 1mg of folic acid are available by prescription only whereas those containing \leq 0.8mg are available over-the-counter (OTC).

Iron deficiency is the most common known form of nutritional deficiency, particularly in women of childbearing age and during pregnancy. In pregnant women, iron deficiency increases the risk of preterm delivery, low birth weight, and perinatal mortality, and in children can lead to development delays and behavioral disturbances. There also may be an association between maternal iron deficiency anemia and postpartum depression. The recommended daily allowance (RDA) of iron is 27mg per day, but the typical diet and endogenous iron stores are insufficient sources for the increased iron requirements during pregnancy. Both the American College of Obstetricians and Gynecologists

(ACOG) and The Centers for Disease Control (CDC) recommend universal iron supplementation to meet the iron requirements of pregnancy.

Calcium needs also increase during pregnancy, and numerous studies have shown that calcium supplementation can reduce the incidence of pregnancy induced hypertension. A recent analysis in the Journal of the American Medical Association (JAMA) reports that calcium supplements lower the risk of hypertension caused by pregnancy by 70%, as well as the risk of preeclampsia by over 60%. Women typically consume less than 600mg/day of calcium in their diet, and it is recommended that during pregnancy they ingest at least 1500 mg/day. Unfortunately, most prenatal vitamin formulations only contain 200 to 300mg of calcium; therefore, additional supplementation would be needed.

Other vitamins and minerals often requiring supplementation during pregnancy include vitamin A, vitamin B6, vitamin B12, vitamin D, choline, iodine, magnesium, selenium, and zinc. Vitamin A is an essential nutrient for normal cellular function including reproduction and development, but taken in excess before or during pregnancy may increase the risk of congenital abnormalities, except in the form of beta-carotene, which has not been associated with toxicity in animals or humans. Vitamin B6 (pyridoxine) is important for the production of protein for new cells, bolstering the immune system, and participating in red blood cell formation. Pyridoxine has also demonstrated both significantly lower nausea scores and fewer vomiting episodes in clinical trials of women with severe pregnancy-induced nausea. Vitamin B12 (cyanocobalamin) assists in red blood cell production and helps the body use fat and carbohydrates for energy. Vitamin D promotes calcium absorption from food and its deposition into the bones and teeth of the mother and the fetus. Studies have shown that vitamin D deficiency during pregnancy may adversely effect fetal growth, bone ossification, tooth enamel formation, and neonatal calcium homeostasis. Choline helps prevent neural tube defects and enhances brain development. Iodine is an essential mineral needed for proper thyroid function, and a maternal iodine deficiency can cause significant irreversible mental retardation in the fetus. Magnesium levels decrease during pregnancy, and there is evidence of magnesium disturbance in women who later develop pre-eclampsia. Newborns from a selenium deficient mother can suffer from muscular weakness, and selenium deficiency in humans has also been implicated as a risk factor for pregnancy loss. Zinc is essential for cell growth and repair, energy production, and brain development, and low maternal levels have been associated with low birth weights.

Docosahexaenoic acid (DHA), a long chain omega-3 fatty acid accrues rapidly in the human brain from about 26 weeks gestation until the age of 2 years, and is also a component of the retina. The mother is the primary source of DHA for the

fetus, and epidemiologic evidence suggests consumption of DHA during pregnancy increases birth weight, prevents preterm birth, and decreases risk of pre-eclampsia. Despite this evidence, randomized clinical trials do not support DHA for this use; however, they do show a correlation between newborn DHA levels and newborn brain maturity and infant visual maturation. There is not enough scientific evidence to determine an RDA for DHA in pregnancy, but 300mg per day is assumed to meet or exceed needs.

Prenatal vitamins are indicated for use in improving the nutritional status of women throughout pregnancy and in the post-natal period for both lactating and nonlactating mothers. Prenatal vitamins are also beneficial in improving the nutritional status of women prior to conception. Numerous prenatal vitamins are commercially available with varying amounts and combinations of vitamins, minerals, and other agents to meet the needs of individual women. CombiRx and Folbecal include 75mg of pyridoxine as a sustained-release preparation and have the additional indication for use in conjunction with a physician prescribed regimen to minimize pregnancy-related nausea. Neevo and Neevo DHA contain L-methylfolate, the biologically active isomer of folate, and have additional indications for patients with high risk pregnancies, older OB patients, and patients unable to fully metabolize folic acid. Several products, including Duet DHA, CitraNatal DHA, and Primacare contain DHA, or DHA plus eicosapentanoic acid (EPA). Products such as Poly-Iron 150 Forte and Vinate GT contain more than the recommended 27mg of iron. A number of products including Prenacare, Prenatal AD, Vinate Calcium, and Vinate GT contain the stool softener docusate sodium. The vast majority of prenatal vitamin formulations contain vitamins B1, B2, B6, B12, C, D, and E, calcium, folic acid, niacinamide, and zinc.

Name	Rx / OTC	Generic/Brand	Manufacturer
Advanced Care Plus	Rx	B	Trigen
BP FoliNatal Plus B	Rx	G	Acella
BP MultiNatal Plus Chewable	Rx	G	Acella
Cavan EC Sod DHA	Rx	G	Seton
Cavan One Omega	Rx	G	Seton
CitraNatal [®] 90 DHA	Rx	B	Mission
CitraNatal [®] Assure	Rx	B	Mission
CitraNatal [®] DHA	Rx	B	Mission
CitraNatal [®] Harmony	Rx	B	Mission
CitraNatal [®] Rx	Rx	B	Mission
Complete-RF Prenatal	Rx	B	Trigen
CompleteNate Chewable	Rx	B	Trigen
Complete Natal DHA	Rx	B	Trigen
Concept DHA	Rx	B	US Pharmaceuticals
Duet [®]	Rx	G	Xanodyne
Duet [®] Stuartnatal Chewable	Rx	G	Xanodyne
Duet [®] DHA	Rx	G	Xanodyne
Duet [®] DHA EC	Rx	G	Xanodyne



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Name	Rx / OTC	Generic/Brand	Manufacturer
Duet® DHA Ferrazone Omega-3	Rx	G	Xanodyne
Elite OB	Rx	B	Trigen
Elite OB DHA	Rx	B	Trigen
Fe C Plus	Rx	G	Boca
Finest Prenatal Complete	OTC	G	Walgreens
Folbecal	Rx	G	Breckenridge
Folcal DHA	Rx	G	Midlothian
Folcaps Care One	Rx	G	Midlothian
Folcaps Omega-3	Rx	G	Midlothian
Folivane EC Calcium DHA	Rx	G	Trigen
Folivane-PRX DHA NF	Rx	G	Trigen
Foltabs Prenatal	Rx	G	Midlothian
Foltabs Prenatal Plus DHA	Rx	G	Midlothian
Foltabs 90 Plus DHA	Rx	G	Midlothian
Gesticare	Rx	G	Azur
Gesticare DHA	Rx	G	Azur
Gold Seal Prenatal	OTC	G	Walgreens
ICAR Prenatal	Rx	G	Hawthorn
ICAR-C Plus SR	Rx	G	Hawthorn
iNatal Advance	Rx	G	Nnodum
iNatal Ultra	Rx	G	Nnodum
KPN Prenatal	OTC	G	Freeda
Lactocal-F	Rx	G	Laser
Mission Prenatal	Rx	B	Mission Pharmacal
Mission Prenatal FA	Rx	B	Mission Pharmacal
Mission Prenatal HP	Rx	B	Mission Pharmacal
Multi-Nate 30	Rx	G	Rivers Edge
Multi-Nate 30 DHA 275/400	Rx	G	Rivers Edge
Multi-Nate 30 DHA 295/430	Rx	G	Rivers Edge
Multi-Nate DHA Extra 275/400	Rx	G	Rivers Edge
Multi-Nate DHA Extra 295/430	Rx	G	Rivers Edge
NataChew™	Rx	B	Warner-Chilcott
Natafort	Rx	B	Mission
Natelle® -C	Rx	G	Azur
Natelle® -EZ	Rx	G	Azur
Natelle One	Rx	G	Azur
Natelle® Plus w/DHA	Rx	G	Azur
Natelle® Prefer	Rx	G	Azur
Neevo®	Rx	G	Pamlab
Neevo® DHA	Rx	G	Pamlab
Nu-Natal Advanced	Rx	G	Rising
OB Complete	Rx	B	Vertical
OB Complete 400	Rx	B	Vertical
OB Complete w/DHA	Rx	B	Vertical
OB-Natal® ONE	Rx	G	Lannett
Obstetrix-100	Rx	B	Seyer
Obtrex DHA	Rx	B	Pronova
O-Cal Prenatal	Rx	G	Pharmics



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Name	Rx / OTC	Generic/Brand	Manufacturer
PNV DHA	Rx	G	Acella
PNV Select	Rx	G	Acella
Poly-Iron 150 Forte	Rx	G	Cypress
Precare Chewables	Rx	G	Ther-Rx
Precare Conceive	Rx	G	Ther-Rx
Precare Premier	Rx	G	Ther-Rx
PreferaOB	Rx	G	Alaven
PreferaOB plus DHA	Rx	G	Alaven
PrenaCare	Rx	G	Cypress
Prenafirst	Rx	G	Cypress
PrenaPlus	Rx	G	Cypress
Prenatabs FA	Rx	G	Cypress
Prenatabs Rx	Rx	G	Cypress
Prenatal 19	Rx	G	Cypress
Prenatal 19 Chewable	Rx	G	Cypress
Prenatal AD	Rx	G	Cypress
Prenatal Low Iron	Rx	G	Contract Pharmacal
Prenatal Plus	Rx	G	Amneal
Prenatal Plus Iron	Rx	G	Major
Prenatal S	OTC	G	Ivax
Prenatal Tablet	OTC	G	Major
Prenate DHA	Rx	G	Shionogi
Prenate Elite	Rx	G	Shionogi
Prenate Essential	Rx	B	Shionogi
Prenate Plus	Rx	G	Boca Pharmacal
Prenavite	OTC	G	Rugby
PreNexa	Rx	G	Upsher-Smith
Previte Rx	Rx	G	Midlothian
Primacare	Rx	G	Ther-Rx
Primacare One	Rx	G	Ther-Rx
PR Natal 400	Rx	G	PruGen
PR Natal 400 EC	Rx	G	PruGen
PR Natal 430	Rx	G	PruGen
PR Natal 430 EC	Rx	G	PruGen
Pruet DHA	Rx	G	PruGen
Pruet DHA EC	Rx	G	PruGen
RE OB + DHA Prenatal	Rx	G	Rivers Edge
RE OB 90 + DHA Prenatal	Rx	G	Rivers Edge
RE Prenatal Multivitamin w/Iron	Rx	G	Rivers Edge
Re-Nata 29 OB	Rx	G	Rivers Edge
Renate DHA	Rx	G	Rivers Edge
Renate DHA 430	Rx	G	Rivers Edge
Renate DHA Extra	Rx	G	Rivers Edge
Renate Prenatal	Rx	G	Rivers Edge
RightStep Prenatal Vitamins	OTC	G	TriMarc
Rovin-NV DHA	Rx	G	Trigen
Se-care Chewable	Rx	G	Seton
Se-care Conceive	Rx	G	Seton



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Name	Rx / OTC	Generic/Brand	Manufacturer
Select OB	Rx	G	Everett
Select OB w/DHA	Rx	G	Everett
Se-Natal 19	Rx	G	Seton
Se-Natal 19 Chewable	Rx	G	Seton
Se-Natal 90	Rx	G	Seton
Se-Natal One	Rx	G	Seton
Se-Plete DHA	Rx	G	Seton
Se-Tan DHA	Rx	G	Seton
Se-Tan Plus	Rx	G	Seton
Setonet EC	Rx	G	Seton
Setonet Prenatal	Rx	G	Seton
Stuart Prenatal	OTC	G	Xanodyne
Tandem DHA	Rx	B	US Pharmaceuticals
Tandem OB	Rx	B	US Pharmaceuticals
Tandem Plus	Rx	B	US Pharmaceuticals
Taron A Prenatal w/DHA	Rx	G	Trigen
Taron C Prenatal w/DHA	Rx	G	Trigen
Taron EC Cal	Rx	G	Trigen
Taron-Prex Prenatal w/DHA	Rx	G	Trigen
Trifera OB	Rx	B	Trigen
Trimesis Rx	Rx	G	Trigen
Trinatal Rx 1	Rx	G	Trigen
Trinate	Rx	G	Cypress
Triveen-One	Rx	G	Trigen
Trust Natal DHA	Rx	G	Vertical
UltimateCare Advantage	Rx	B	Trigen
UltimateCare One	Rx	B	Trigen
UltimateCare One NF	Rx	B	Trigen
Vinacal Prenatal	Rx	G	Breckenridge
Vinatal Forte	Rx	G	Breckenridge
Vinate AZ	Rx	G	Breckenridge
Vinate AZ Extra	Rx	G	Breckenridge
Vinate C	Rx	G	Breckenridge
Vinate Calcium	Rx	G	Breckenridge
Vinate Care Chewable	Rx	G	Breckenridge
Vinate GT	Rx	G	Breckenridge
Vinate IC	Rx	G	Breckenridge
Vinate II	Rx	G	Breckenridge
Vinate III	Rx	G	Breckenridge
Vinate One	Rx	G	Breckenridge
Vinate Ultra	Rx	G	Breckenridge
Vinate-M	Rx	G	Breckenridge
Vinate-PN	Rx	G	Breckenridge
Vitafof OB	Rx	G	Everett
Vitafof OB + DHA	Rx	G	Everett
Vitafof PN	Rx	G	Everett
VitaPhil + DHA	Rx	G	Rivers Edge
VitaPhil Caplet	Rx	G	Rivers Edge

Name	Rx / OTC	Generic/Brand	Manufacturer
VitaSpire	Rx	B	Trigen
Zatean-PN Plus	Rx	G	Trigen
Zatean-PN DHA	Rx	G	Trigen

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