

Nutrition and Physical Activity Services Across the Life Course-DRAFT

The information below includes an overall recommendation and rationale for the inclusion of nutrition and physical activity services across the life course in the Preventive Services for all women.

STATEMENT OF RECOMMENDATION

Supporting Optimum Nutrition and Physical Activity is essential to the health and reproductive health and of women and should be included as a covered essential benefit.

RATIONALE

Supporting Optimum Nutrition and Physical Activity is An Essential Component of Women's Health

Optimal nutrition is important for sustenance, good health, and well-being throughout life. The impact of nutrition prior to and during pregnancy is significant because studies show that environmental factors, particularly nutrition, act in early life to program the risks for adverse health outcomes in adult life. Early exposure to healthy nutrition is important starting in-utero and dietary preferences and behavior during adolescence throughout adulthood are largely shaped within early childhood.¹ For example, the "fetal origins" hypothesis demonstrates that maternal nutrition is important not only for weight management and chronic disease prevention, but is critical for optimal fetal growth and development. Adverse intra-uterine environments jeopardize the growth and development of the fetus and increase the child's risks for chronic diseases such as coronary heart disease, diabetes and obesity in adulthood. These findings emphasize the need for life-course perspectives on nutrition within the maternal and pediatric populations and the urgency of improving the health status of women before, during and after pregnancy.²

Proper nutrition and physical activity is particularly important before and during pregnancy. Women who enter and continue into pregnancy with optimal nutrition and regular physical activity have fewer medical complications and better perinatal outcomes.^{3,4} Mothers being overweight or obese before and during pregnancy pose negative health consequences for their offspring during birth, infancy, childhood, adolescence and adulthood. Women of child-bearing age should maintain good nutritional status through a lifestyle that optimizes maternal health and reduces the risk of birth defects, suboptimal fetal growth and development, and chronic health problems in their children.^{5,5} Maternal overweight and obesity perpetuates the disease burden and economic and social costs of the epidemic into future generations, as there is increasing evidence associating overweight mothers, independent of GDM, to the development of the metabolic syndrome (obesity, hypertension, dyslipidemia, and glucose intolerance) in the offspring.⁶

Early prenatal nutrition and physical activity counseling is not enough and, in many cases, may be too late as studies have shown that interventions recommended during pregnancy are more effective and beneficial if implemented before conception.⁷ Nutrition education remains overlooked in routine medical practice and is even less accessible for low-income and/or uninsured women who do not receive prenatal care. Low-income households are less likely to have access to routine medical care including preventive services and information regarding nutrition and physical activity.⁸

Health-promoting lifestyle includes a healthy weight and appropriate weight gain during pregnancy.⁹

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However, a large proportion of the Californian population is falling short of meeting these lifestyle recommendations. In California, 25% of women in their reproductive ages were overweight and an additional 20% were obese in 2007.⁷ What is becoming an increasing concern is that obesity and diabetes are occurring at earlier ages and stages of life.¹⁰ One in every three California teens and over half of adults are overweight or obese.^{5,11} This epidemic affects virtually all age, income, educational, ethnic, and disability groups, although rates are highest among Californians of Latino, American Indian, African American, and Pacific, and Pacific Islander descent, Californians from lower-income households, and those with disabilities.⁵

In California, low-income women comprise half (53% in 2006) of all women giving birth. In 2006, almost one-third lived below poverty and another 21% were “near-poor,” with incomes between 101% and 200% of the poverty level. Of women delivering in California in 2006, nearly one-quarter had less than a high-school education. Almost one-half (52%) were Latina; white women comprised almost one-third (31%) of the total.¹² In any given year, approximately 4 million women in the United States become pregnant.¹³ Given the high percentage of unplanned pregnancies, 41% in California, it is important for women to maintain optimal health and weight throughout their reproductive age. Additionally, obesity cannot be optimally addressed solely during pregnancy.^{7,8}

The Institute of Medicine(IOM) provides guidelines on weight gain during pregnancy. Prenatal weight gain within the IOM recommended ranges has been associated with better pregnancy outcomes.¹⁴ The 2009 CDC Pregnancy Nutrition Surveillance System indicates that 48.2% of mothers gained more weight than is recommended by the IOM.¹⁴ Among women who become pregnant, the shift toward higher prepregnancy weight in recent years is evident.¹³ However, only 30-40% of women have prenatal weight gains within these ranges. Most women state that they either did not receive information or received misleading information on how much weight to gain during pregnancy.⁸

Studies have shown a positive correlation between neonatal birth weight in relation to maternal BMI. Offspring of obese mothers whose birth weight is appropriate for gestational age have a higher proportion of body fat when compared to offspring born to lean mothers. Furthermore, birth weight is associated with raised BMI throughout childhood and into adulthood.^{15,16} Even more concerning is the finding that children born to obese mothers demonstrate insulin resistance calculated from fetal cord blood.¹⁵ Obesity during pregnancy has been associated with gestational diabetes, gestational hypertension, pre-eclampsia, birth defects, cesarean delivery, fetal macrosomia, perinatal deaths, postpartum anemia, and childhood obesity.¹³ Risk for gestational diabetes is doubled amongst overweight women in comparison to normal weight women and increased eight-fold amongst the severely obese. Pre-eclampsia is also doubled among overweight and three times as likely among obese women.¹³ Maternal obesity negatively impacts breastfeeding as it is initiated and maintained with significantly less success both as a consequence of maternal attitude and mechanical difficulty with infant positioning.¹⁵ The length of prenatal and postnatal hospitalization is 4.43 days longer for obese woman.¹⁷ Studies have identified maternal BMI as the greatest single risk factor contributing to maternal death and adverse maternal outcome of pregnancy.¹⁷ Studies have identified maternal BMI as the greatest single risk factor contributing to maternal death and adverse maternal outcome of pregnancy.¹⁷

California did not meet the Healthy People 2010 goal of 80 percent of women of reproductive age taking the recommended daily 400 micrograms of folic acid daily. The overall prevalence of daily intake of supplements containing folic acid among California women aged 18--44 years was 41.1% and among Hispanic women was 30.2% in 2006.⁵ Population groups least likely to take folic acid supplements and at the highest risk for neural tube defects include Hispanic women (especially those

born outside the United States).⁵

Iron deficiency is the most prevalent nutritional deficiency globally and is highly associated with poverty.¹⁴ Severe anemia is associated with a higher mortality rate, low birth weight and pre-term delivery among pregnant women.¹⁸

Osteoporosis is a common health problem associated with an unhealthy lifestyle, and the data indicate the problem is increasing. The disease involves complex interactions among genetic, dietary, and environmental factors over a long period of time, resulting in reduced bone mass, increased bone fragility, and increased risk of fracture.¹⁹ Less than optimal bone growth during childhood and adolescence, as well as bone loss later in life, are factors leading to osteoporosis.¹⁹ For girls, the peak for calcium accretion rate occurs around the age of 13, and retention, bone formation, and reabsorption decline after menarche.²⁰ The prevalence of osteoporosis among postmenopausal women is 21% for Caucasians and Asians, 16% for Hispanics, and 10% for African Americans.²¹

In addition to the importance of proper nutrition in a healthy lifestyle, physical activity is also a vital component. Physical activity is equally important for women before and during pregnancy. Women and youth fall short of physical activity recommendations. United States Department of Agriculture's (USDA) Physical Activity Guidelines for Americans recommends 60 minutes of aerobic activity daily, in addition to muscle- and bone-strengthening exercises three times a week for adolescents.²² Healthy women should get at least 150 minutes of moderate-intensity aerobic activity per week, and it is advised that this activity be distributed evenly throughout the week.²² The 2009 Youth Risk Behavioral Surveillance System (YRBSS) indicated that 23.1% of students did not participate in at least 60 minutes of exercise at least one day of the days before the survey was conducted.²³ The survey also reported that 32.8% of students watched three or more hours of television per day on a school day and 24.9% reported spending 3 or more hours per day on the computer outside of school.²³ For adults, the 2007 Behavioral Risk Factor Surveillance System (BRFSS) estimated that the prevalence of no leisure time activity was 17-44%.⁵

In order to illustrate the magnitude of importance of healthy eating, physical activity, and proper bone health, Healthy People 2020 outlines pertinent goals in its National Health Promotion and Disease Prevention Objectives section. See Attachment 1 for related goals.

Barriers to Optimum Nutrition and Physical Activity

Nutrition and health status is falling short throughout the nation. Given current trends, obesity rates among adults will continue to rise.¹³ Many women are not entering pregnancy with a healthy weight, which introduces risks for both the mother and the child.²⁴ In addition, childhood obesity rates are starting at earlier ages and are rising at alarming rates. Obesity rates have tripled for school-aged and adolescent children during the past 3 decades.¹³

Women frequently fail to consume adequate vitamins and minerals for optimal health. Only 40% of pregnant women take folic acid supplements and 3,000 babies are born each year with neural tube defects, which could be reduced with supplementation.²⁵ National Institute of Health (NIH) Osteoporosis and Related Bone Diseases National Research Center reports that medical experts currently believe osteoporosis to be largely preventable; however, the prevention message is lost since many view osteoporosis as a disease only concerned with later adulthood.¹⁹ Adolescent girls and women of childbearing age are at higher risk for iron deficient anemia due to menstruation.²⁶

Pregnant women are at a higher risk of iron deficiency because of increased iron needs due to blood volume expansion and rapid growth.¹⁸

Remove Barriers to Optimum Nutrition and Physical Activity

Because these are modifiable risk factors, women and female adolescents should receive preventive services to support healthy eating and a physically active lifestyle in order to optimize health.

Pregnancy is a period in life when women are likely to be motivated to make lifestyle changes, so interventions to reduce excessive weight gain during pregnancy could also be beneficial in promoting a healthy lifestyle later in life.⁶ Initial research suggests that helping women gain the recommended amount of weight during pregnancy through healthy eating and physical activity could make a major contribution to the prevention of postpartum weight retention.⁵ Uncontrolled maternal diabetes, abnormal birth weight, and lack of breastfeeding may contribute to overweight and obesity later in life.

Interventions based on physical activity and dietary counseling, usually combined with supplementary weight monitoring, appear to be successful in reducing gestational weight gain.⁵ Healthy eating and physical activity should be the easy and preferred lifestyle choice of all women and female adolescents. Women who enter and continue in pregnancy with optimal nutrition and regular physical activity.^{5,11,11} have fewer medical complications and better perinatal outcomes. Reducing overweight and obesity in women reduces their risks for heart disease, stroke, and cancer.²⁷ Reducing perinatal overweight and obesity reduces the risk for poor pregnancy-related outcomes such as macrosomia, gestational diabetes, preeclampsia and eclampsia, pregnancy induced hypertension, thromboembolic disease, spina bifida, omphalocele, heart defects and multiple anomalies, neonatal and fetal deaths, labor induction and cesarean section.¹⁵

California's costs attributable to physical inactivity, obesity, and overweight in 2006 were estimated at \$41.2 billion. In contrast, a five percent improvement in each of these risk factors could result in annual savings of nearly \$2.4 billion.⁵ Addressing maternal overweight and obesity not only influences her weight status but can prevent childhood and adult on-set overweight or obesity of her offspring. As a result, such efforts can prevent the disease burden and economic costs amongst the entire MCH population. Addressing racial and ethnic communities from low-income households that are disproportionately affected by overweight and obesity is of significant concern to the public health community.

To prevent iron deficiency, women and adolescents should eat a healthful diet that includes good sources of iron. See Attachment 2 for guidelines. A vitamin that is particularly important during pregnancy is folic acid. A daily folic acid supplement of 400 micrograms is recommended for women of reproductive age to reduce the incidence of birth defects.²⁵

A paradigm shift is needed to expand the focus for osteoporosis prevention to include adolescents and women under the age of 60. Prevention should include screening as well as recommendations to increase calcium intake and bone-strengthening activities.¹⁹

RECOMMENDED SERVICES

Incorporation of healthy eating and physical activity promotion into routine care
Healthy eating and physical activity promotion should be integrated into preventive health, specifically

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assessment, follow-up, and referrals to appropriate health care providers for nutrition counseling. Components of these services should include screening for chronic diseases such as: obesity, eating disorders, diabetes, high blood pressure and anemia for all at higher risk. Screening for osteoporosis should be provided for women of all ages, and calcium intake and bone-strengthening activity should be encouraged for women throughout the lifespan. Education and awareness is essential for all women of child-bearing age regarding the risk of adverse outcome associated with obesity in pregnancy.

Provide pre-pregnancy nutrition and physical activity counseling before pregnancy.

Provide pre-pregnancy nutrition and physical activity counseling before pregnancy such as the California Department of Public Health's comprehensive program to address gestational diabetes. The program entitled the California Diabetes and Pregnancy Program (CDAPP) provides program information at <http://www.cdph.ca.gov/programs/cdapp/Pages/default.aspx>. CDAPP emphasizes pre-pregnancy counseling because it is the best way to help control blood sugar before pregnancy. When maternal blood sugar is high during the first 6 weeks of pregnancy the baby is at risk of: birth defects (especially of the heart and spine), miscarriage or stillbirth, failure to thrive, problems breathing after birth. High blood sugar can also compromise the mother's eyes, kidneys and blood pressure. Services include: Seeing and working with a team of diabetes specialists, having a complete physical exam, talking with a doctor about health risks for mother and baby, learning what to expect when a mother has diabetes and is pregnant, planning the best time to have a baby, choosing a method of family planning to use until your blood sugar is well under control, looking at ways to pay for your health-care costs, sharing what you have learned and your plans with family and special friends.

A healthy diet and optimal levels of physical activity between births is important for maternal weight management as well as for the exposure to proper nutrition and an active lifestyle amongst their offspring. Parental modeling of diet and physical activity influence attitudes and behavior of their children during their early years and throughout adulthood. Healthy women should be encouraged to get at least 150 minutes (2 hours and 30 minutes) per week of moderate-intensity aerobic activity, such as brisk walking, during and after their pregnancy. It is best to spread this activity throughout the week.

Women of reproductive age should be educated about the importance of daily consumption of 400 micrograms of folic acid to reduce the incidence of birth defects, especially younger women, obese women, and women with poor diet quality.

Provide prenatal nutrition and physical activity counseling

All overweight and obese women of reproductive age should receive counseling on the roles of diet and physical activity in reproductive health prior to pregnancy, during pregnancy, and in the interconceptional period, in order to ameliorate these adverse outcomes.

Maternal obesity adversely affects pregnancy outcome primarily through increased rates of chronic hypertension and pre-eclampsia, diabetes (pregestational and gestational), cesarean section and infections. Weight gain during pregnancy is also highly associated with weight gain after delivery.

Providers should have access to and utilize evidence-based healthcare policies and guidelines that support healthy eating and physical activity.

Use Bright Futures guidelines and materials to direct the planning of public health programs and subsequent monitoring and evaluation. Encourage all sectors of the infant, child, and adolescent health system to use the same general guidelines as a standard for program development, will

facilitate a system of care that is responsive to the needs of children and their families, is coordinated and can assure providers, consumers and payers of the quality. Bright Futures can provide a “common language” that can facilitate collaboration across the system of care to most effectively deliver preventive services to children and their communities in any community setting. Bright Futures can be adapted for each unique community to provide a culturally component framework to best meet the needs of each specific population.

Provide medical nutrition therapy for patients with identified need.

Pregnant women with inappropriate weight gain, hyperemesis, poor dietary patterns, phenylketonuria, certain chronic health problems or a history of substance abuse should be referred to a registered dietitian for medical nutrition therapy.

Medical Nutrition Therapy (MNT), as a part of the Nutrition Care Process, should be the initial step and an integral component of medical treatment for management of specific disease states and conditions. MNT is the development and provision of a nutritional treatment or therapy based on a detailed assessment of a person's medical history, psychosocial history, physical examination, and dietary history. It is used to treat an illness or condition, or as a means to prevent or delay disease or complications from diseases such as diabetes.

The Registered Dietitian (RD) is the preferred practitioner for medical nutrition therapy. See Attachment 3 for Cost-effectiveness of Medical Nutrition Therapy (MNT) services provided by an RD.

ADDITIONAL INFORMATION OR KEY EVIDENCE

The RD is a food and nutrition expert who has met academic and professional requirements including:

- Earned a bachelor's degree with course work approved by ADA's Commission on Accreditation for Dietetics Education.
- Completed an accredited, supervised practice program at a health-care facility, community agency or food service corporation.
- Passed a national examination administered by the Commission on Dietetic Registration.
- Completes continuing professional educational requirements to maintain registration.²⁸

RDs use MNT as a cost-effective means to achieve significant health benefits by preventing or altering the course of diabetes, obesity, hypertension, disorders of lipid metabolism, heart failure, osteoporosis, celiac disease, and chronic kidney disease, among other diseases. Should pharmacotherapy be needed to control these diseases, a team approach in which an RD brings expertise in food and nutrition and a pharmacist brings expertise in medications is essential. RDs and pharmacists share the goals of maintaining food and nutrient intake, nutritional status, and medication effectiveness while avoiding adverse food–medication interactions. RDs manipulate food and nutrient intake in medication regimens based on clinical significance of the interaction, medication dosage and duration, and recognition of potential adverse effects related to pharmacotherapy. RDs who provide MNT using enhanced patient education skills and pharmacotherapy knowledge are critical for successful outcomes and patient safety.¹⁸

Prenatal weight gain within the Institute of Medicine recommended ranges has been associated with better pregnancy outcomes. Most pregnant women need 2,200 to 2,900 kcal a day, but prepregnancy body mass index, rate of weight gain, maternal age and appetite must be considered when tailoring

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this recommendation to the individual. The consumption of more food to meet energy needs, and the increased absorption and efficiency of nutrient utilization that occurs in pregnancy, are generally adequate to meet the needs for most nutrients. However, vitamin and mineral supplementation is appropriate for some nutrients and situations.²⁹

Successful weight management to improve overall health for adults requires a lifelong commitment to healthful lifestyle behaviors emphasizing sustainable and enjoyable eating practices and daily physical activity. Given the increasing incidence of overweight and obesity along with the escalating health care costs associated with weight-related illnesses, health care providers must discover how to effectively treat this complex condition.³⁰

Healthy People 2020: National Health Promotion and Disease Prevention Objectives include numerous objectives on healthy eating and physical activity for women and adolescents <http://www.healthypeople.gov/2020/default.aspx> (see Attachment 1).³¹

The key components of a health-promoting lifestyle during pregnancy include appropriate weight gain; appropriate physical activity; consumption of a variety of foods in accordance with the *Dietary Guidelines for Americans 2010* <http://www.cnpp.usda.gov/dietaryguidelines.htm>; appropriate and timely vitamin and mineral supplementation; avoidance of alcohol, tobacco, and other harmful substances; and safe food handling.²⁹

Attachment 1

Healthy People 2020: National Health Promotion and Disease Prevention Objectives¹³ for healthy eating and physical activity for women and adolescents

- MICH-13** (Developmental) Increase the proportion of mothers who achieve a recommended weight gain during their pregnancies
- MICH-14** Increase the proportion of women of childbearing potential with intake of at least 400 mcg of folic acid from fortified foods or dietary supplements
- MICH-15** Reduce the proportion of women of childbearing potential who have low red blood cell folate concentrations
- MICH-16** Increase the proportion of women delivering a live birth who received preconception care services and practiced key recommended preconception health behaviors
- MICH-16.2** Took multivitamins/folic acid prior to pregnancy
- MICH-16.5** Had a healthy weight prior to pregnancy
- NWS-5** Increase the proportion of primary care physicians who regularly measure the body mass index of their patients
- NWS-6** Increase the proportion of physician office visits that include counseling or education related to nutrition or weight
- NWS-8** Increase the proportion of adults who are at a healthy weight
- NWS-9** Reduce the proportion of adults who are obese
- NWS-11** (Developmental) Prevent inappropriate weight gain in youth and adults
- NWS-17** Reduce consumption of calories from solid fats and added sugars in the population aged 2 years and older
- NWS-18** Reduce consumption of saturated fat in the population aged 2 years and older
- NWS-19** Reduce consumption of sodium in the population aged 2 years and older
- NWS-20** Increase consumption of calcium in the population aged 2 years and older
- NWS-21** Reduce iron deficiency among young children and females of childbearing age
- NWS-22** Reduce iron deficiency among pregnant females
- PA-1** Reduce the proportion of adults who engage in no leisure-time physical activity
- PA-2** Increase the proportion of adults who meet current Federal physical activity guidelines for aerobic physical activity and for muscle-strengthening activity
- PA-3** Increase the proportion of adolescents who meet current Federal physical activity guidelines for aerobic physical activity and for muscle-strengthening activity
- PA-11** Increase the proportion of physician office visits that include counseling or education related to physical activity

Attachment 2

Recommendations to Prevent and Control Iron Deficiency¹⁴

Primary prevention of iron deficiency for adolescent girls and nonpregnant women of childbearing age is through diet. Information about healthy diets, including good sources of iron, is available in *Nutrition and Your Health: Dietary Guidelines for Americans* (14). Screening for, diagnosing, and treating iron-deficiency anemia are secondary prevention approaches. Age-specific anemia criteria should be used during screening ([Table 6](#)). Primary Prevention

- Most adolescent girls and women do not require iron supplements, but encourage them to eat iron-rich foods and foods that enhance iron absorption.
 - Women who have low-iron diets are at additional risk for iron-deficiency anemia; guide these women in optimizing their dietary iron intake. Secondary Prevention Screening
 - Starting in adolescence, screen all nonpregnant women for anemia every 5-10 years throughout their childbearing years during routine health examinations.
 - Annually screen for anemia women having risk factors for iron deficiency (e.g., extensive menstrual or other blood loss, low iron intake, or a previous diagnosis of iron-deficiency anemia). Diagnosis and Treatment
 - Confirm a positive anemia screening result by performing a repeat Hb concentration or Hct test. If the adolescent girl or woman is not ill, a presumptive diagnosis of iron-deficiency anemia can be made and treatment begun.
 - Treat adolescent girls and women who have anemia by prescribing an oral dose of 60-120 mg/day of iron. Counsel these patients about correcting iron deficiency through diet.
 - Follow up adolescent girls and nonpregnant women of childbearing age as is done for infants and preschool children, except that for a confirmed case of iron-deficiency anemia, continue iron treatment for 2-3 more months.
 - If after 4 weeks the anemia does not respond to iron treatment despite compliance with the iron supplementation regimen and the absence of acute illness, further evaluate the anemia by using other laboratory tests, including MCV, RDW, and serum ferritin concentration. In women of African, Mediterranean, or Southeast Asian ancestry, mild anemia unresponsive to iron therapy may be due to thalassemia minor or sickle cell trait.
- Pregnant Women

Primary prevention of iron deficiency during pregnancy includes adequate dietary iron intake and iron supplementation. Information about healthy diets, including good sources of iron, is found in *Nutrition and Your Health: Dietary Guidelines for Americans* (14). More detailed information for pregnant women is found in *Nutrition During Pregnancy and Lactation: An Implementation Guide* (112). Secondary prevention involves screening for, diagnosing, and treating iron-deficiency anemia. Primary Prevention

- Start oral, low-dose (30 mg/day) supplements of iron at the first prenatal visit.

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- Encourage pregnant women to eat iron-rich foods and foods that enhance iron absorption.
- Pregnant women whose diets are low in iron are at additional risk for iron-deficiency anemia; guide these women in optimizing their dietary iron intake. Secondary Prevention Screening
- Screen for anemia at the first prenatal care visit. Use the anemia criteria for the specific stage of pregnancy ([Table 6](#)). Diagnosis and Treatment
- Confirm a positive anemia screening result by performing a repeat Hb concentration or Hct test. If the pregnant woman is not ill, a presumptive diagnosis of iron-deficiency anemia can be made and treatment begun.
- If Hb concentration is less than 9.0 g/dL or Hct is less than 27.0%, refer the patient to a physician familiar with anemia during pregnancy for further medical evaluation.
- Treat anemia by prescribing an oral dose of 60-120 mg/day of iron. Counsel pregnant women about correcting iron-deficiency anemia through diet.
- If after 4 weeks the anemia does not respond to iron treatment (the woman remains anemic for her stage of pregnancy and Hb concentration does not increase by 1 g/dL or Hct by 3%) despite compliance with an iron supplementation regimen and the absence of acute illness, further evaluate the anemia by using other tests, including MCV, RDW, and serum ferritin concentration. In women of African, Mediterranean, or Southeast Asian ancestry, mild anemia unresponsive to iron therapy may be due to thalassemia minor or sickle cell trait.
- When Hb concentration or Hct becomes normal for the stage of gestation, decrease the dose of iron to 30 mg/day.
- During the second or third trimester, if Hb concentration is greater than 15.0 g/dL or Hct is greater than 45.0%, evaluate the woman for potential pregnancy complications related to poor blood volume expansion. Postpartum Women

Attachment 3

Cost-effectiveness of Medical Nutrition Therapy (MNT) services
provided by an RD³²

What is the evidence to support the cost-effectiveness, cost benefit or economic savings of inpatient MNT services provided by an RD?

Conclusion

Five studies were reviewed to evaluate the cost-effectiveness, cost benefit, and/or economic savings of inpatient Medical Nutrition Therapy services provided by a Registered Dietitian. Three studies report that nutrition screening, early assessment and treatment by a Registered Dietitian, and early discharge result in cost savings due to reduced length of hospital stay. Two studies demonstrate that appropriate use of parenteral nutrition results in cost savings related to laboratory monitoring, central line placement and maintenance care, nursing administration, pharmacy and dietitian clinical management, and/or the avoidance of catheter-related sepsis. More in-depth cost analyses of inpatient Medical Nutrition Therapy services provided by a Registered Dietitian are needed.

Grade II

Date of Literature Review for the Evidence Analysis: December 2007

What is the evidence to support the cost-effectiveness, cost benefit or economic savings of outpatient MNT services provided by an RD?

Conclusion

Ten studies were reviewed to evaluate the cost-effectiveness, cost benefit and economic savings of outpatient Medical Nutrition Therapy (MNT), involving in-depth individualized nutrition assessment and a duration and frequency of care using the Nutrition Care Process to manage disease. Using a variety of cost-effectiveness analyses, the studies affirm that MNT resulted in improved clinical outcomes and reduced costs related to physician time, medication use and/or hospital admissions for people with obesity, diabetes and disorders of lipid metabolism, as well as other chronic diseases. Further research is needed on the cost-effectiveness, cost benefit and economic savings of outpatient MNT in other disease states.

Grade I

Literature Review for the Evidence Analysis: December 2007

What is the evidence to support the cost-effectiveness, cost benefit or economic savings of lifestyle interventions for diabetes prevention?

Conclusion

Compared with pharmacotherapy or no intervention, lifestyle interventions for diabetes prevention were cost-effective in terms of cost per quality-adjusted life years gained, based on six cost-effectiveness analyses.

Grade I

What is the evidence to support the cost-effectiveness, cost benefit or economic savings of lifestyle interventions for diabetes prevention?

Conclusion

Compared with pharmacotherapy or no intervention, lifestyle interventions for diabetes prevention were cost-effective in terms of cost per quality-adjusted life years gained, based on six cost-effectiveness analyses.

Grade I

Date of Literature Review for the Evidence Analysis: December 2007

Overall strength of the available supporting evidence: Grade I - good; Grade II - fair; Grade III - limited; Grade IV - expert opinion; Grade V: not assignable

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