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## BODY MASS INDEX (BMI) SCREENING, EVALUATION AND TREATMENT IN ADULTS AND CHILDREN

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### ISSUE

Overweight and Obesity are major concerns that affect our national, state, and local public health.

In response to the national obesity epidemic and the national call to action to reverse this escalating trend, the Washington State Nurses ratified Resolution #1 “*Body Mass Index (BMI) Screening, Evaluation and Treatment*” at the Washington State Nurses Association 2005 Convention & Summit held May 5-6, 2005 in Seattle, Washington.

### PURPOSE

The purpose of this position paper is to outline the Washington State Nurses Association’s (WSNA) position on routine Body Mass Index (BMI) Screening, Evaluation and Treatment utilizing the evidence-based clinical guidelines on *Identification, Evaluation and Treatment of Overweight and Obesity in Adults* developed by the National Heart, Lung and Blood Institute (NHLBI) in collaboration with the National Institutes of Diabetes, Digestive and Kidney Diseases (NDDK) of the National Institutes of Health (NIH) available at website: [http://www.nhlbi.nih.gov/guidelines/obesity/ob\\_home.htm](http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm) and the Centers for Disease Control and Prevention’s (CDC) *BMI-for-Age Growth Chart Guidelines* at website: <http://www.cdc.gov/growthcharts/>

### SCOPE AND BACKGROUND OF PROBLEM

Overweight and obesity have become national concerns affecting the health and well being of both children and adults. There are several known contributing factors. These may include one or several of the following: physical inactivity, poor eating habits, lifestyle habits, genetic influences, physiologic influences and eating disorders. Overweight and obesity have created a concern for the health of the nation. According to the National Institutes of Health and Centers for Disease Control and Prevention, health risks associated with overweight BMI and obesity in adults include:

- **Premature death**
- **Coronary Heart Disease (Atherosclerotic vascular disease)**
- **Diabetes Type 2**
- **Certain types of Cancer (e.g. endometrial, breast, colon, prostate)**
- **Hypertension**
- **High blood cholesterol, dyslipidemia**
- **Stroke**
- **Gallstones, Gall Bladder Disease**
- **Osteoarthritis**
- **Nonalcoholic fatty liver disease**
- **Obstructive sleep apnea and respiratory problems**
- **Complications of pregnancy**
- **Poor female reproductive health (e.g. menstrual irregularities, infertility, irregular ovulation)**
- **Psychological disorders (e.g. depression, eating disorders, distorted body image, and low self esteem)**

The CDC press release Vol. 27, No 2, Winter 2005 *Target Obesity and Bring Down the Big Three: Cancer, Cardiovascular Disease, and Diabetes* points out that obesity is the common

factor in all three. This press release reports on the common agenda for the American Cancer Society, the American Diabetes Association and the American Heart Association. <http://www.cdc.gov/nccdphp/publications/cdnr/pdf/CDNRwinter05.pdf>

**ECONOMIC COSTS OF OVERWEIGHT AND OBESITY ARE A MAJOR CONCERN.**

The annual cost of obesity is approximately \$117 billion yearly in direct and indirect costs, crippling our nation’s ability to provide affordable health care coverage. A 2005 survey conducted by the Kaiser Family Foundation and the Health Research Educational Trust showed that since 2000, health care premiums have gone up 73%, while wages have grown 15%. Kaiser researchers concluded that rising costs are forcing many businesses, especially smaller companies, to stop offering coverage and are causing some employees who can no longer afford insurance at work to buy it on their own -- or go without.

**DEFINING OVERWEIGHT, OBESITY, UNDERWEIGHT AND NORMAL WEIGHT IS CRITICALLY IMPORTANT IN PROVIDING QUALITY HEALTH CARE.**

The National Institutes of Health, The World Health Organization, and the Centers for Disease Control and Prevention define **overweight** as a BMI of 25 to 29.9; obesity as a BMI of 30 or more; **underweight** as a BMI below 18.5 and **normal weight** as a BMI of 18.5 to 24.9. These definitions are based on evidence that suggests health risks are greater at or above a BMI of 25 kg/m<sup>2</sup>. BMI, which describes relative weight for height, correlates with both morbidity and mortality. The increase in mortality, however, tends to be modest until a BMI of 30 kg/m<sup>2</sup> is reached. For persons with a BMI of 30 kg/m<sup>2</sup>, mortality rates from all causes, and especially from cardiovascular disease, are generally increased by 50 to 100 percent above that of persons with BMIs in the range of 20 to 25 kg/m<sup>2</sup>.

Attributes of BMI are:

1. BMI is a Health Risk Indicator that identifies individuals at risk of underweight, overweight or obesity related disease.
2. BMI describes relative weight for height and correlates with both morbidity and mortality
3. BMI is a valid indirect measure of total body fat which is related to the risk of disease and death.
4. BMI ranges are scientifically based on the effect body weight

has on disease and death.

5. BMI is used to determine a “Healthy Weight Range.”
6. BMI reflects lifestyle habits and identifies the need to improve physical activity and nutritional lifestyle habits.
7. BMI is used to monitor health risk, effectiveness of nutritional /physical activity lifestyle improvements and therapy.

It is critically important that nurses/clinicians realize that even though BMI is an inexpensive, reliable, and easy-to-apply measure, it is a **qualified predictor of risk**. Therefore BMI screening, evaluation, and treatment is critical to our national, state and local efforts to prevent and decrease overweight and obesity. In adults, BMI is evaluated in conjunction with Waist Circumference and Risk Factors associated with overweight and obesity. In Children ages 2-20, BMI is evaluated in conjunction with the BMI-for-Age Growth Charts. BMI is calculated by using a formula, BMI table, or calculator at <http://www.nhlbisupport.com/bmi/>

Formulas commonly used are:

English Formula: BMI = Weight in pounds ÷ Height in inches ÷ Height in inches x 703.

Metric Formula: BMI = Weight in kilograms ÷ Height in meters<sup>2</sup>

In adults, the score is valid for both men and women but it does have some limitations. It may overestimate body fat in athletes and others who have a muscular build. *Measuring waist circumference and other risk factors determines risk for these individuals.* It may underestimate body fat in older persons and others who have lost muscle mass. *Increased waist circumference can be a marker for health risk even in persons of normal weight.* BMI should not be used on pregnant or lactating women or frail and sedentary elderly.

Federally developed Evidence-Based Clinical Guidelines on Identification, Evaluation and Treatment of Overweight and Obesity for Adults and Children are available. They have the potential of reversing the obesity epidemic and preventing and reducing overweight and obesity and the vast related chronic diseases. But, sadly, there is no system in place to get them incorporated into health care practice. Consequently, present health care practice is to record heights and weights without conversion to a BMI for identification of individuals who are underweight, overweight, or obese and in need of medical intervention.

The guidelines are:

1. Evidence-based *Clinical Guidelines on Identification, Evaluation and Treatment of Overweight and Obesity in Adults*, developed by the National Heart, Lung and Blood Institute (NHLBI), in cooperation with the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) of the National Institutes of Health in 1998, are available along with educational materials for health professionals, patients and the public at website: [http://www.nhlbi.nih.gov/guidelines/obesity/ob\\_home.htm](http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm)

The adult guidelines apply to 18 years and above, both men and women and all races or ethnic groups. Assessment of overweight and obesity involves using three key measures:

- BMI
- Waist circumference
- Risk factors for diseases and conditions associated with obesity

The ten step process provided by the NHLBI guidelines provides a simple, easy to understand, systematic format for identification, evaluation and treatment which includes behavioral modification, exercise, dietary, pharmaceutical and surgical guidelines.

2. The Centers for Disease Control and Prevention BMI-for-Age Guidelines for Children ages 2-20. The CDC BMI for Age Growth Charts was released in May 2000. CDC recommends that the BMI-for-Age charts be used for all children 2-20 years of age in place of the old weight-for stature charts that was developed in 1977.

The guidelines are age and gender specific. Available at website: <http://www.cdc.gov/growthcharts/>

The 4 training modules cover:

- Overview of the CDC Growth Charts
- Using the BMI-for-age Growth Charts – (a training module)
- Overweight Children and Adolescents: Recommendations to Screen, Assess and Manage
- Related Maternal and Child Health Modules

Obesity in children and youth refers to the age and gender-specific BMI that are equal to or greater than the 95th percentile of the CDC BMI charts. In most children these values are known to

indicate elevated body fat and to reflect the co-morbidities associated with excess body fatness.

The *Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity 2001* at website: [http://www.surgeongeneral.gov/topics/obesity/calltoaction/1\\_1.htm](http://www.surgeongeneral.gov/topics/obesity/calltoaction/1_1.htm) recommends adopting BMI as a common measure of overweight and obesity. The key actions outlined are organized in a framework called CARE: Communication, Action, Research and Evaluation. Various settings include: Families and Communities; Schools; Health Care; Media and Communications; and Worksites. The U.S. Preventive Task Force (USPTF) in December 2003, issued the recommendation for clinicians to screen all Adult patients for obesity using the Body Mass Index (BMI) and offer intensive counseling and behavioral interventions to promote sustained weight loss is at website <http://www.ahrq.gov/clinic/3rduspstf/obesity/obesrr.htm>. Consistency in doing this on a routine basis could be achieved if BMI and Waist Circumference were included on all patient charts in hospitals, clinics, physician or nurse practitioner's offices, and health care agencies.

The National Diabetes Education Program (NDEP) – Guidelines for Health Professionals recommend: Screening for Pre-Diabetes by first identifying High-Risk Patients based upon the following risk factors: Overweight: defined as a BMI > 25 (> 23 if Asian American or >26 if Pacific Islander). Hypertension Guidelines (Evidence-Based): The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure available at the NHLBI website: <http://www.nhlbi.nih.gov/guidelines/hypertension/phycard.pdf> Diagnostic workup of hypertension calls for assessing major cardiovascular disease risk factors and lists these as Hypertension, Obesity (body mass index > 30 kg/m<sup>2</sup>), Dyslipidemia, Diabetes Mellitus, Cigarette smoking, Physical Inactivity, Micro-albuminuria estimated glomerular filtration rate < 60 ml/min, Age (>55 for men, >65 for women), Family history of premature CVD (men age <55, women age <65). Consistency in doing this on a routine basis could be achieved if BMI and Waist Circumference were included on all patient charts in hospitals, clinics, physician or nurse practitioner's offices, health care agencies.

The Institute of Medicine's October 2004 report, *Preventing Childhood Obesity: Health in the Balance* calls on schools to assess student's BMI and send the information to parents.

## POSITION

WSNA recognizes that nurses, as leaders in health promotion and disease prevention, have the knowledge, skills and leadership abilities to incorporate routine BMI screening, evaluation and treatment in health care practice utilizing evidence-based guidelines to target the obesity epidemic and to conduct the research necessary to evaluate the effectiveness.

WSNA recognizes that routine BMI Screening, evaluation and treatment of adults and children with evidence-based nationally developed guidelines is critical to reversing the overweight/obesity epidemic by identifying individuals whose health is at risk due to underweight, overweight, or obesity and in need of medical intervention and management to reduce their risk.

WSNA endorses the guidelines because:

1. BMI is a Health Risk Indicator that identifies individuals at risk of underweight, overweight or obesity related disease.
2. BMI describes relative weight for height and correlates with both morbidity and mortality.
3. BMI is a valid indirect measure of total body fat that is related to the risk of disease and death.
4. BMI ranges are scientifically based on the effect body weight has on disease and death.
5. BMI is used to determine a “Healthy Weight Range”.
6. BMI reflects lifestyle habits and identifies the need to improve physical activity and nutritional lifestyle habits.
7. BMI is used to monitor health risk, effectiveness of nutritional /physical activity lifestyle improvements and therapy.

WSNA endorses implementation of routine BMI screening, evaluation and treatment of adults utilizing the evidence-based clinical guidelines on *Identification, Evaluation and Treatment of Overweight and Obesity in Adults* developed by the National Heart, Lung and Blood Institute (NHLBI) in collaboration with the National Institutes of Diabetes, Digestive and Kidney Diseases (NIDDK) of the National Institutes of Health (NIH).

WSNA endorses the implementation of routine BMI screening, evaluation and treatment of children ages 2 – 20 utilizing the CDC and Prevention’s evidence-based *BMI-for-Age Growth Chart Guidelines*.

WSNA supports initiatives, strategies, programs, activities, and legislation at the local, state, and national levels that promote a comprehensive and collaborative approach to implementing routine evidence-based nationally developed and endorsed clinical obesity guidelines into health care practice, worksite wellness programs, and the community at large.

WSNA supports professional training for healthcare professionals on how to incorporate national evidence-based clinical guidelines into health care practice in order to provide a system of risk management where is a consistent protocol by which you assess, manage, treat and refer patients, and receive reimbursement. The elements include standardized measurements and standardized protocols by which we can measure outcome (change of risk levels in BMI and waist circumference in adults and BMI and growth in children, plus other defined measures physical and laboratory).

WSNA supports collaboration with the Washington State Medical Association, The Washington State Nurse Practitioner Association, the Department of Health and other health professional organizations, the Department of Health and others to:

- Develop and evaluate a consistent training module for health professionals.
- Develop and evaluate a consistent training module for patients.
- Develop and evaluate a continuous quality improvement system. (Elements: Identification, Evaluation and management of Overweight and Obesity nutritional, physical activity, behavioral, medical/surgical) and outcome measurements.
- Development of a Reimbursement Process.
- Development of Informational System and Training Tools.
- Provision of the training sessions and workshops for health professionals using systems already in place such as Hospitals, Veterans Administration, Clinics, Regional Health Districts, and Community Educational Resources.
- Beta Testing of the above.

WSNA endorses education of health care professionals, the business community, and the public on the importance of evaluating the BMI as a key health indicator; how to evaluate the BMI and level of risk, and how to improve weight status or reach/maintain a healthy weight.

## WSNA RECOMMENDATIONS

WSNA recommends a focus on the nurse's role of leadership in promoting of quality evidence-based health care for consumers through education, advocacy and influencing health care policy in relation to implementing BMI in healthcare practice settings.

## SPECIFIC AND GENERAL SUGGESTIONS FOR ACTION, BY CATEGORY

- **EDUCATION:** Promote the education of BMI in health education settings.
- **RESEARCH:** Utilize existing research in BMI to decrease overweight and obesity and improve public health.
- **HEALTH CARE PRACTICE:** Work collaboratively with all healthcare settings to effectively utilize the concepts and benefits of BMI
- **SCHOOLS:** Educate the leaders of all educational institutions on the importance of preventing overweight and obesity at all levels.
- **WORKSITES:** Increase awareness on the part of employers of the importance of maintaining a healthy life style and the importance of utilizing preventive measures to avoid overweight and obesity in the workplace.
- **COMMUNITY:** Work toward increasing community awareness in relation to the dangers of overweight and obesity and the importance of prevention.
- **LEGISLATIVE:** Develop and/or support legislative initiatives that promote the use of BMI in preventing overweight and obesity and improving the national public health.

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