

# Health & Productivity MANAGEMENT

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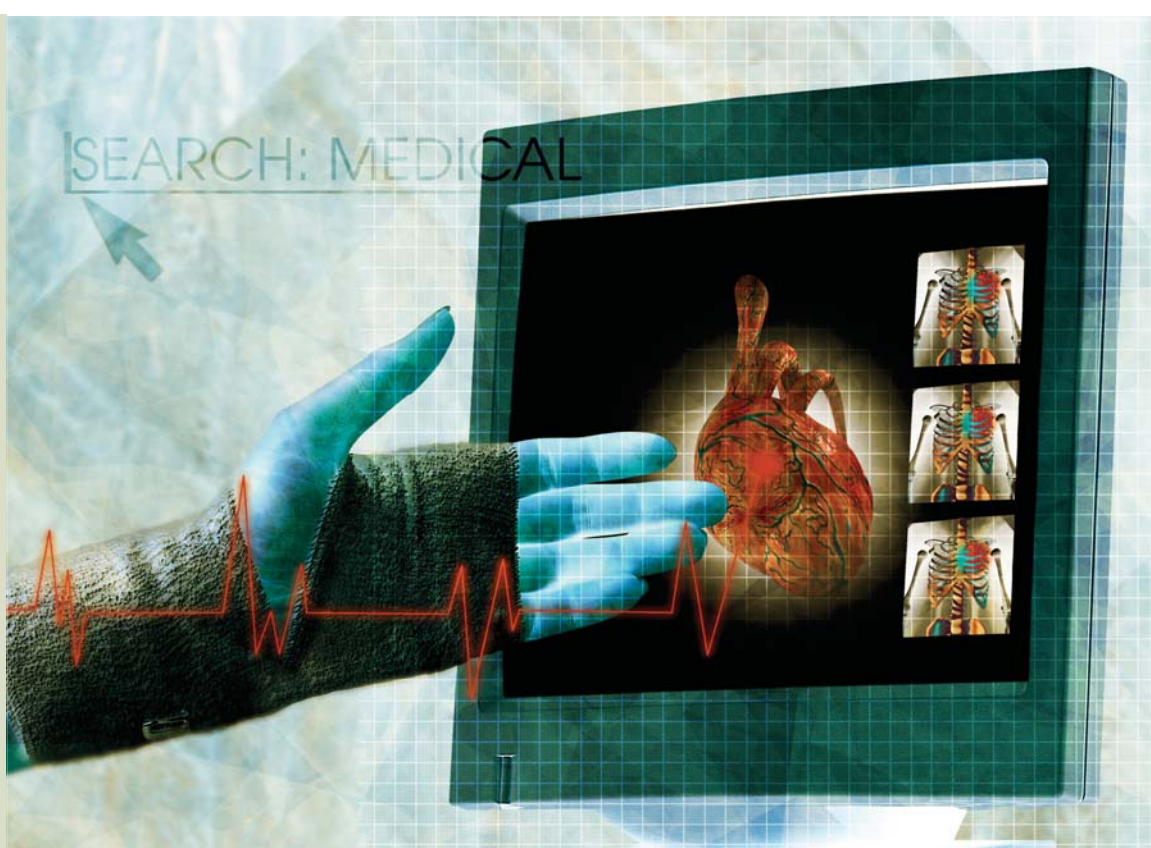
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# Incidence of **Atherosclerotic Vascular Diseases Increases** When Individual Metabolic Syndrome **Risk Factors Cluster**

By Rick Nevins, MD

**T**he real pathophysiology of the metabolic syndrome is atherosclerotic vascular disease (ASVD) or plaque formation in arteries. ASVD can result in cardiovascular, cerebrovascular and peripheral vascular diseases, as well as aneurysms and small vessel disease. In these conditions, lipids, platelets and other blood elements obstruct arteries and reduce blood flow and oxygen supply to tissues and cells.

It is because of this common outcome that the combined diseases of the metabolic syndrome are so powerful in creating significant physical and fiscal burdens.

Any one of the four metabolic syndrome diseases can be, by itself, a significant health problem and risk factor for the development of atherosclerosis. Additionally, the metabolic syndrome diseases are co-morbidities for each other – increasing the incidence, accelerating the progression and complications, and making the medical management of the other diseases more difficult. Therefore, each of the four diseases of the metabolic syndrome brings its own pathology and co-morbidity dynamics.

The following findings are preliminary analyses of self-reported data from a field project for metabolic syndrome. The data illustrate the impact of multiple risk factors on the incidence of metabolic syndrome, comparing obesity/overweight (OB/OW) with the other four risk factors in 994 respondents. While OB/OW alone may be present in one-third of the respondents, the other risk factors combine for the other two-thirds in this group, demonstrating the additive effect of additional risks:

**34.5 percent indicate likelihood of metabolic syndrome  
17.5 percent have OB/OW as only risk factor**

Treating individual risk factors singly inadequately addresses the adverse clinical and economic impact of metabolic syndrome diseases, leaving residual risk.

Treatment of metabolic syndrome must include optimizing the management of each disease – not just one or even two. Management must include recognizing that a patient with one or two of these diseases will likely develop at least one more of the diseases over time. This progression of disease can

## The need to focus on all of the metabolic syndrome diseases and risk factors is obvious, and management that treats only blood glucose levels will leave substantial residual risks.

be delayed or prevented if diagnosed early or its risk factors managed aggressively.

The following examples, using diabetes and OB/OW, illustrate the interaction of multiple co-morbidities to produce atherosclerosis and the need to address all of these co-morbidities.

The traditional focus of diabetes treatment has been to manage blood glucose levels to avoid hypoglycemic and hyperglycemic events that could result in complications or death. Additionally, excess glucose can bind to substances in the blood and cells, creating glycated products that damage tissues, cause blindness, decrease immunity and result in neurological signs and symptoms. Controlling glucose levels is a very important component of the overall management of diabetes, but it must not be the only focus.

Many Type 2 diabetics are obese and have hypertension and diabetic dyslipidemia – defined as increased triglycerides, increased LDL and reduced HDL. Most diabetic deaths result from dyslipidemia-induced atherosclerosis – 50 percent from myocardial infarctions (heart attacks) and 25 percent from strokes – both made more likely by hypertension and OB/OW.

Multiple studies over the last several years demonstrate that abdominal adiposity (increased visceral fat/central adiposity) is a significant risk factor or co-morbidity for Type 2 diabetes, dyslipidemia and hypertension and, thus, for development of atherosclerosis. Waist/hip ratio and body mass index (BMI), which are more commonly used, are less reliable measures of metabolic syndrome risks.

### Strategic Approach to the Metabolic Syndrome

The appropriate management of metabolic syndrome emphasizes education and compliance with medical recommendations for the six factors involved with metabolic syndrome – diabetes, hypertension, elevated triglycerides, obesity/overweight and reduced HDL, plus proper nutrition and exercise.

These last two are crucial factors in the long-term management of metabolic syndrome. It is very difficult to successfully manage metabolic syndrome without the right kinds of nutrition and exercise programs as the foundation of therapeutic lifestyle changes. Education and behavior change initiatives must include several methods to inform and educate patients, with the goal of influencing behavior to increase employee participation in management of their own diseases.

Program participants should receive education, information and instruction in several ways – print materials, from a dedicated web site, or during on-site and virtual classes and health fairs. All educational and instructional content should be delivered multiple times in various formats to maximize the

learning benefits of repeated exposure to program content.

The curricula should involve experts from various fields including physicians, nurse educators, registered dietitians, PharmDs, behavioral therapists, exercise physiologists, etc. Likewise, mentoring and health coaching should be delivered by various kinds of experts and over the same communication platforms used for the education curricula.

The instructional design of a metabolic syndrome intervention should include:

- comprehensive curricula on diabetes, hypertension, dyslipidemia, obesity/overweight, nutrition, exercise;
- integrated content delivery by instructors/educators/clinicians;
- a combination of education, coaching and mentoring to improve compliance and effect behavior change; and
- instruction, education and communications using multiple platforms – dedicated web site, classes, hard copy, telephone. [HPM](#)

*Rick Nevins is a strategist and consultant to both the care delivery and business sides of the healthcare profession, designing and developing evidence-based clinical care delivery systems, integrating benefit design, configuring formularies, and analyzing patterns of care to improve clinical, financial, and functional outcomes for employers and their employees.*



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