

Easing of America's Healthcare Burden: The Case for Aggressive Prevention of the Metabolic Syndrome

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Abstract: The term "metabolic syndrome" was used in 1977 by Herman Haller who was studying the risk factors associated with atherosclerosis. In the same year, Dr. Singer used the term to describe the associations between hyperlipoproteinemia and obesity, gout, diabetes mellitus, and hypertension. In 1988, Gerald Reaven hypothesized that insulin resistance could be the underlying factor linking this constellation of abnormalities, which he went on to name "syndrome X or Reaven's syndrome".

Regardless of the clinical term that is utilized, the global impact on health care resources and humanity is massive.

- 47 million adult patients meeting the criteria for metabolic syndrome which represent over 24% of the adults in the United States.
- National inpatient hospital costs for metabolic syndrome with complications were nearly \$400 billion in 2009.
- With appropriate primary care for the complications of metabolic syndrome, nearly \$17 billion in hospital costs might have been averted, with significant potential savings obtained in US government health care programs.
- Non-pharmacological approaches to fight the risk factors associated with metabolic syndrome have been known for centuries.
- The scientific evidence supports the efficacy of nutritional remedies.

Metabolic syndrome is a preventable life threatening disease process. With its roots in childhood, this vicious cycle slowly destroys lives while we spend billions in the process. Delegating responsibility of financing our health and wellness to the insurance industry, Americans are ill prepared to deal with the reality that health is neither a luxury nor an entitlement. The impact of accepting the responsibility of prevention through nutritional counseling and education combined with regular exercise could save billions of dollars annually. More importantly aggressively preventing metabolic syndrome would save millions of lives.

Keywords: Metabolic syndrome, insulin resistance, type II diabetes mellitus, obesity, hyperlipidemia, syndrome - X.

Metabolic syndrome [1] (MetS) is a vicious cycle of declining health related to diabetes mellitus, exogenous obesity, insulin resistance, hypertension, hyperlipidemia and vascular disease. The constellation of interrelated conditions leads to cardiovascular occlusive disease and/or cerebrovascular disease. The condition (also known as Syndrome X, Reaven's Syndrome or cardio-metabolic syndrome) affects approximately 25% of the US adult population [2]; however, the behavioral risk factors begin much earlier in childhood and adolescent development.

The pathogenesis of the metabolic syndrome [3] has been described as a vicious cycle, which leads to profound organ failure. The cycle begins, classically with a sedentary life style. Caloric consumption that is greater than the calories utilized, which leads to exogenous obesity. This can occur at any age. The length of time that the body fights the battle against elevated lipids will increase the effect on the vascular system, endocrine system and ultimately leads to end organ damage due to vascular occlusive disease.

Pictured below is a schematic of the phenomena that progresses to vascular occlusive disease. It is slow yet deadly killer, and if the cycle is not broken it is an expensive and lethal weapon.



PROGRESSION OF THE METABOLIC SYNDROME (MeTS)

The toll on human life is echoed by the financial burden [4] it places on our nation's health care. The

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health care cost of diabetes treatment is markedly higher [5] than that of a healthy individual of equal age. When the diagnosis of metabolic syndrome is included, the cost can quadruple. Hospitalizations in the USA due to metabolic syndrome approximated \$137 billion in 2002. By 2009, that figure exceeded \$400 billion [6]. These numbers neither include outpatient costs nor do they include the societal impact of lost wages, admissions to extended care facilities or private duty nursing.

A large portion of metabolic syndrome is preventable. Diet and exercise has been and remains the gold standard of prevention and mandatory for ultimate treatment [7]. Prevention requires accountability and responsibility. American society has become complacent, entitled and dependent upon others with regard to our health care. The end result is a disease syndrome and associated health care costs that are spiraling out of control.

THE CREATION OF A SILENT KILLER – WE BROUGHT IT ON OURSELVES

The problem is multi-factorial. There are three major contributors to this health care and financial dilemma, which should and can be corrected.

I. Childhood Obesity – Killing our Children Slowly

Childhood and adolescent obesity has more than tripled in the last 30 years [8]. By 2012, greater than 30% of all individuals aged 6-18, were clinically overweight or obese. Obese children are at a higher risk of developing cardiovascular disease, hypertension, sleep apnea and diabetes. There are also social stigmatization of low self-esteem, peer rejection, eating disorders and social isolation. Nutritional and social behaviors normally carry over into adulthood along with the risk factors for life threatening illnesses.

Who and what is to blame [9]? The children are not responsible for food selection and preparation. Our parents must be accountable for providing a healthy living environment for their children. That starts with proper nutrition. It is common for a young parent to cook the way she or he was raised. Bad habits run deep. Busy schedules of both parents working, creates little time for preparation of fresh healthy foods and convenient carry-out food or easy to fix meals predominate a child's nutrition. These foods are commonly high in saturated fats, preservatives and carbohydrates with a scarcity of fresh green vegetables. If children are given the opportunity to

choose their own meals, they tend to include large amounts of sugar, carbonated drinks with little to no vegetables, protein or whole grains

The other critical variable is a growing trend of lack of exercise. The video game has replaced the sandlot. Children are glued to a video console and gone are the days of pickup ball games, running, jumping and being a kid. The video console is also the source socialization along with cell phones and social media. Children and adolescents don't leave the couch unless they are required to do so. Many children will participate in team sports, which may provide physical activity only once or twice a week. However, children tend to retreat to their hand-held games rather than sustained activity.

WE HAVE CHOSEN TO SIT ON OUR “FATTY ACIDS”

II. The “D.I.N.K’s” Became Parents (Dual Income - No Kids)

This is actually an indictment of the baby-boomer attitude of entitlement [10]. More became better and bigger became mandatory. The generation of children born in the 50's & 60's wanted more money, massive homes and many lived a lifestyle beyond their means. They were the first generation where many young adults were college graduates and both husband and wife worked full-time. The rules had changed and many women tried to balance both a career and a family. Families found themselves making difficult decisions which might impede their lifestyle to which they had become accustomed. Eating out, fast-food and food delivery had become common place. The family meal was being replaced by convenience and eating “on the run.” Again this created a nutritional base of high fat, high carbohydrate and high sugar foods [11]. Fast and easy lifestyles were not just for the socioeconomically privileged. Fast food chains, especially those geared toward high fat fried foods [12], flourished in the poorest of neighborhoods. Childhood and adult obesity nearly doubled during this period and the trend continues.

WE HAVE TRADED OUR HEALTH FOR QUICK AND EASY

III. Our co-dependent relationship with the insurance industry

“If you pay for it, we will treat it!”

While our diet, lack of exercise and economic success was creating a health care monster, we also

wanted someone to pay the bill. We were establishing an attitude of health care predicated by reimbursement. One of the health insurance pioneers, Blue Cross & Blue Shield, would step up to the plate to meet the challenge. Early insurance plans paid 80% and the patient was responsible for 20%. This would later become a template for Medicare and BCBS would be the first Medicare Administrator. These early plans paid an amount that was considered "normal, customary & reasonable". Providers (hospitals and physicians) determined what was "normal, customary & reasonable" for their area. In order to ease the financial burden to some patients, providers created "insurance only" clients, placing 100% of the financial burden upon the insurance company. These actions by health care providers eventually led to over-sight by insurance companies (peer review) which in turn, mandated that the patients be required to contribute their contractual financial obligation. As part of the peer review process, the insurance industry mandated shorter hospital stays, alternate care scenarios such as home care and outpatient surgery. Alternate insuring plans developed in order to contain health care costs. These new plans took on names like "Health Maintenance Organizations, or HMO's" and "Preferred Provider Organizations, or PPO's". The primary objective was to contain health care cost by contracting with health care providers to provide care within a given cost formula. The insurance pendulum had swung from paying for health care to cost containment. The epitome of cost containment came with a plan labeled "capitation", which paid physicians for not exceeding health care cost. In other words, they were paid not to provide health care. Capitation plans fell out of favor; however, cost containment has not. Most insurance providers are increasing the financial burden the patient must pay.

In 1966, a new player came on the scene as a result of the Social Security Amendment of 1965. That player was Medicare. Initially they followed the guidelines set by Blue Cross/Blue Shield who were also contracted to administrate the Medicare program. Hospitals and physicians were smiling and patients stayed in the hospital for 5-8 days routinely. While this is not intended to be a dissertation on Medicare; however, a repetitive trend was developing while providing care to eligible patients. Providers (traditionally physicians, hospitals, home health agencies and skilled nursing facilities) would focus their care on services where Medicare would pay the maximum reimbursement and diminish or exclude patients without Medicare skilled needs. This created a

population of patients that received maximum care as long as their Medicare benefits were available and patient discharges based on ability to pay, not severity of illness. Medicare was not oblivious to this trend and implemented several strategies to decrease cost and recover monies already paid to providers. One such strategy was to limit the hospital days for an illness by assigning a case to "Disease Related Category" or DRG. No longer were benefits determined by the usual, customary and reasonable standards of the 1950's and 1960's. Length of stay and reimbursement was dictated by the DRG. Another was to implement retrospective audits of Medicare level of care. Medicare found that in the 1990's, their auditors could recover ten-fold what they would spend to conduct the audit. It had a chilling effect on physicians. Many dropped out of the Medicare program and those that remained were fearful to bill the amount in which they were entitled in order to avoid a fine later. In worse case scenarios, Medicare could prosecute the provider and incarcerate some found guilty of fraud. These heavy handed actions created a glut in Medicare certified providers. Ultimately, patients were the ones who suffered as they many times paid cash for services or went without care. Most recently, insurance carriers have shifted to making patients "participate" in their own care. They have done this by increasing premiums, increasing co-pays and deductibles. Even the recent "Affordable Care Act" passed by the US legislature is unaffordable to many working Americans. Some individuals can only afford major medical plans which only contribute financially for catastrophic illness.

Why are the Changes in the Insurance Industry a Problem?

Health care cost skyrocketed, primarily because someone was willing to pay the bill. Remember, they were also dealing with an "entitled generation." Every action by patients and providers required a necessary reaction, so that the insurance industry would not go bankrupt. The insurance providers pushed the responsibility back to the patient. The American consumer, typically, did not, and still doesn't seek medical advice unless their insurance provider covers the visit. Preventative care and nutritional counseling were not typically covered expenses. Therefore; unless someone else paid for the advice or therapy, it was not sought after. As we became a less healthy nation the cost increases. It is far more cost effective to prevent an illness than it is to treat the disease. The insurance industry is not at fault.

WE MUST ACCEPT RESPONSIBILITY OVER OUR OWN HEALTH AND WELLNESS!

If the definition of insanity is “trying the same thing over and over and expecting a different result,” then why do we keep treating the disease after the damage is done? (Definition of insanity erroneously attributed to Albert Einstein). My father would have said “It’s like closing the barn door after the horses have escaped!”

I am reminded of my days in medical school. The professors in dietetics and nutrition were some of the most informed and helpful in addressing disease prevention and symptom reversal. They were, unfortunately, a very small part of the curriculum. The solutions should be obvious; however, let’s outline them for the sake of clarity.

Prevention vs. treatment: As reported in 2011 [13], the results of a 5 year longitudinal study, the cost of treating obesity was 4.5 times higher than the cost of adopting a healthy lifestyle consisting of diet and regular exercise. Changing a bad habit, which was established in childhood and perpetuated into adulthood, can be as difficult as treating an addiction. Prevention is mandatory for financial and biological wellness.

Personal accountability vs. delegated responsibility: Historically, prevention has been the responsibility of an individual where treatment falls on the shoulders of the physician and the insurance provider. The first requires time, effort and personal commitment to one’s health. The second option places financial responsibility on the insurance company to treat the consequences of obesity, diabetes and vascular disease. With the incidence of both childhood and adult obesity on a continual rise, we could deduce that many have chosen to delegate responsibility to their health care plan. The insurance industry is forcing a shift back to patient responsibility. Individuals must accept that responsibility.

Diet and exercise: We have heard this mantra so many times that we have tuned it out. The definition of a diet should not include “fad” or “starvation”. Trendy “lose weight fast” diets, touted by celebrities, can be a prescription for more problems. A nutritionist can and should get you on the right track. Proper nutrition is mandatory to fuel the exercise that we need to perform. With the exception of the physically unable, exercise should be 4-6 times per week. And walking from the couch to the refrigerator is not exercise.

Nutritional counseling: Most if not all health care organizations recommend nutritional counseling and diet intervention for obesity; however, their recommendations are generally sought when insurance carriers pay for the counseling. When a disease process (diabetes, hyperlipidemia and malnutrition) is already present, it is easier to obtain nutritional intervention covered by third-party payers. Again, their mindset is to treat a disease, yet shift the responsibility of prevention to the patient. Patients rarely accept the responsibility until it’s too late as well. Early nutritional counseling is mandatory.

Nutritional Supplements: More than half of all global deaths in 2010 were related to non-communicable diseases, including obesity, cancers, diabetes, and cardiovascular illnesses. It has been suggested that the alarming increase in the incidence of cardiovascular disease is the epidemiologic result of a nutritional transition characterized by a diet high in saturated fat, cholesterol, sugars, and other refined carbohydrates. It is disappointing that all too often nutritional advice comes from biased websites selling their products for weight loss. The scientific literature addresses supplement utilization in malnourished populations and this represents only a fraction of the problem. The mission of this special edition is to showcase the much needed research of nutraceuticals utilized for obesity and the metabolic syndrome.

CONCLUSION

The metabolic syndrome is a preventable life threatening disease process. With its roots in childhood and fueled by complacent, entitled attitudes of their parents, this vicious cycle slowly destroys lives while we spend billions in the process. Delegating responsibility of financing our health and wellness to the insurance industry, Americans are ill prepared to deal with the reality that health is neither a luxury nor an entitlement. The impact of accepting the responsibility of prevention through nutritional counseling and education combined with regular exercise could save billions of dollars annually. More importantly aggressively preventing the metabolic syndrome would save millions of lives.

It’s your health. Accept ownership of the solution!

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