

# DETECTING AND MANAGING METABOLIC SYNDROME: A FEASIBILITY STUDY IN A GENERAL MEDICINE CLINIC

Metabolic syndrome is a constellation of risk factors associated with increased cardiovascular and diabetes risk. Clinical research indicates that lifestyle changes can dramatically modify and even reverse all factors of metabolic syndrome. This study examines the feasibility of lifestyle interventions on metabolic syndrome in a busy public primary care clinic such as General Medicine Clinic at John H. Stroger, Jr. Hospital of Cook County, Illinois. Ninety-one participants were randomly allocated for the study, 43 in the control group and 48 in the intervention group. Each group visited on separate clinic days with different attendings and residents. Patients continued regular visits with their physicians and had no additional visits for study purposes. At every visit, the intervention patients received 10–20 minute counseling sessions with a metabolic syndrome educator (registered dietitian). Moreover, study physicians were audited for documentation of metabolic syndrome treatment. Physicians of intervention patients also received education on how to diagnose and treat patients with metabolic syndrome. After approximately 1.5 years, intervention patients managed to maintain weight and reduced the rate of abnormal risk factors better than the controls. Furthermore, metabolic syndrome was reversed in one third of intervention participants. Intervention physicians also did significantly better in focusing on metabolic syndrome than their control colleagues. For all providers, however, the effort was not yet satisfactory; on average only 15% of all progress notes audited showed a documentation of metabolic syndrome or its treatment. So far, this non-intensive approach to patient and provider education shows promising improvement in a public clinical setting.

Student Researcher: Alexandra De la Rosa, Elgin High School  
Mentors: Bettina Tahsin, RD; Roshani Sanghani, MD;  
Irv Pikelnny; Leon Fogelfeld, MD; John H. Stroger, Jr.  
Hospital of Cook County, Chicago, Illinois

## INTRODUCTION

The United States is facing a type 2 diabetes epidemic. Over the past 40 years there has been a six-fold increase in the number of people diagnosed with diabetes.<sup>1</sup> By 2025 diabetes incidence will rise from 17 million (6.2% of the population) to 22 million people. To stabilize or reverse these growth rates, we must address patients at risk for diabetes and heart disease before these conditions develop. Current guidelines developed by National Cholesterol Education Program, Adult Therapy Panel (NCEP ATP III)<sup>2</sup> and the International Diabetes Federation (IDF) Epidemiology Task Force Consensus Group,<sup>3</sup> define metabolic syndrome as a precondition that leads to overt diabetes and its complications, and to heart disease. Patients with metabolic syndrome are those with at least three of the following five metabolic risk factors: obesity (central obesity), elevated blood pressure, elevated blood sugar (prediabetes), abnormal lipids (low HDL and high triglycerides) and elevated waist circumference. Metabolic syndrome afflicts one in every five Americans and it dramatically increases cardiovascular disease risk.<sup>4</sup> Several recent important clinical trials established that pharmacological and, more importantly, lifestyle interventions can prevent or delay the development of diabetes.<sup>5</sup> This study aimed at recreating the effect of lifestyle intervention on metabolic syndrome risk factors; it incorporated a lifestyle intervention and education program in a public clinic setting.

## METHODS

The current report studied 91 participants diagnosed with metabolic syndrome seen at baseline. Participants were randomly divided into two groups: control and intervention. Each group visited on separate clinic days. Individuals were recruited from the John H. Stroger, Jr. Hospital of Cook County General Medicine Clinic. Written informed consent was acquired from all participants, consistent with the approval of Cook County Bureau of Health Services Institutional Review Board.

Participants were diagnosed according to established criteria,<sup>2,3</sup> which includes three or more of the following conditions: waist circumference >40 inches in men and >35 inches in women; fasting triglyceride level of at least 150 mg/dL; high-density lipoprotein (HDL) cholesterol level <40 mg/dL in men and <50 mg/dL in women; blood pressure of  $\geq 130/85$  mm Hg; and fasting glucose level  $\geq 100$  mg/dL. Participants who were being treated with anti-hypertension, triglyceride-lowering, or cholesterol medications were also counted as having the respective criterion. The patients in the control group were told they had metabolic syndrome and were advised to direct their questions to their primary care physician.

A 30 minute initial session was given to patients in the intervention group by a physician and a metabolic syndrome educator/registered dietitian. They were provided with a referral to The Lifestyle Center (TLC) to learn about nutritional label reading, exercise, and other healthy lifestyle choices. An

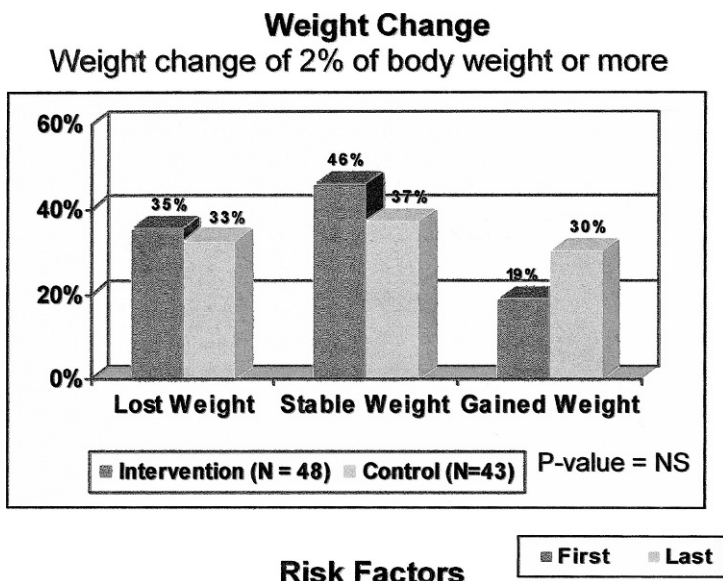


Fig 1. Weight change of 2% of body weight or more

individualized *Passport For Healthy Living* containing information on metabolic syndrome was also provided. The passport provided the opportunity to identify which of their parameters were abnormal and to personalize their goals. On subsequent visits with their primary care physicians they had short interventions (10–20 minutes) with a

metabolic syndrome educator (RD) who discussed goal setting, nutrition and exercise information, and reinforced the importance of visiting TLC. Also, once a month they received a phone follow-up from the RD. Emphasis was placed on weight loss, increasing physical activity, decreasing fats, portion control, and healthier food group

selection. Patients’ metabolic syndrome parameters and weight were being closely followed in both groups for the duration of the study (1.5 years). Fasting blood sugar and lipid levels were measured at the discretion of the primary care physician when clinically indicated.

Physicians of intervention patients also received educational in-service on metabolic syndrome. They learned how to recognize and treat metabolic syndrome by monitoring the parameters and giving patients lifestyle recommendations. They also received a pocket reference guide to facilitate charting parameters and give dietary counseling.

All charts (both control and intervention) were audited for proper documentation of metabolic syndrome and lifestyle changes. Intervention providers received feedback and a report card on their performance.

## RESULTS

To date, complete baseline and end data are available for 28 control and 30 intervention participants. This data shows that, although not statistically significant, the intervention group managed to maintain weight better (Figure 1) and reduced the rate of abnormal risk factors (Figure 2) better than the controls. Furthermore, metabolic syndrome was reversed in one-third of intervention participants. Intervention physicians also did significantly better in focusing on metabolic syndrome than their control colleagues. For all providers, however, the effort was not yet satisfactory as on average only 15% of all progress notes audited showed a documentation of metabolic syndrome or its treatment.

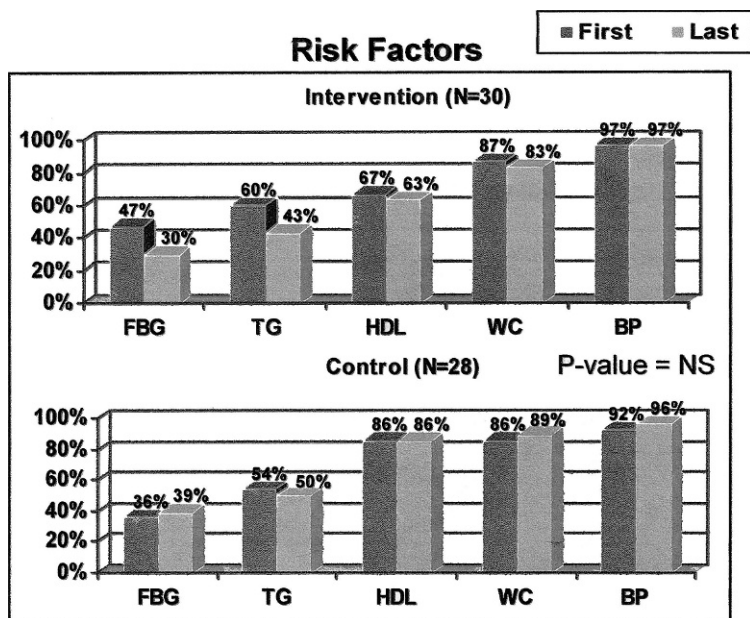


Fig 2. Risk factors present in intervention vs control group (baseline vs end data)

## DISCUSSION

Similar studies with more intense lifestyle interventions have demonstrated a great impact in reducing metabolic

syndrome risk factors. These results show that even this non-intensive approach to patient and provider education can be promising in a public clinical setting. A busy clinic like the General Medicine Clinic is a difficult setting because of changing staff roles and responsibilities. More thorough charting of waist circumference would allow for a more complete analysis of patient progress. Additionally, lab tests are often out of date and charting is incomplete or illegible. Phone follow-ups have been problematic as patients' phone information is frequently out of date, patients have moved with no forwarding contact information, or patients do not return voice mail messages. As the study concludes and if education proves to be feasible and

beneficial the program will eventually be made available to more patients.

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