

The City of Dalton Health Improvement Initiative

Chronic Disease Risk Reduction Program Improved Health and Lowered Costs

INTRODUCTION

Nestled in the foothills of the Blue Ridge Mountains, Dalton is home to many of the world's floor covering manufacturers. The City of Dalton employs approximately 460 people to serve an estimated population of 33,045.

The City of Dalton has a long history of offering voluntary health initiatives for its employees for the dual purposes of improving the overall health of its employee population, as well as positively impacting the rising costs of its health plan. Results of these previous efforts were difficult to measure and did not meet the City's objectives of either improved health or improved costs.

Greg Batts, Director of Human Resources for the City of Dalton, GA, was only interested in a health initiative that focused on their most critical health needs, was data-driven and measurable, and had a proven track record of helping other organizations achieve similar goals. He engaged Health Navigator's, Atlanta, GA to implement a city-wide health improvement effort. This paper will demonstrate the rationale for The City of Dalton's decision to move forward, as well as the clinical outcome of their efforts.

EVIDENCE

The City of Dalton validated the potential for success from models that included:

- The North Karelia, Finland Project - 158,000 people reduced both cardiovascular disease (heart disease and stroke) by 73% and cancer related death rates by 44%, through a cardiovascular-focused intervention. The reduction of total cholesterol of 17% was credited as the strongest contributor to their success.*
- A rural Georgia company of 4,600 employees kept annual health care cost increases over 12 years to only 2.5% annually though an internally delivered cardiovascular disease focus. Their efforts were "home-grown" and implemented with minimal support from external consultants.*
- A large Alabama municipality of 2,000 employees held annual health care cost increases to 2% annually over 5 years through a cardiovascular disease focus highlighted by 100% participation in the initiative. *

* Note: Health Navigators did not contribute to the success of any of these models.

RATIONALE

Cardiovascular disease is the primary focus of the health initiative in Dalton for two reasons. First, cardiovascular disease represents the greatest financial threat. And second, cardiovascular disease shares risk factors with other high cost chronic diseases (e.g. the number one cause of death for those with diabetes is heart disease.) A cardiovascular focus, therefore, can help mitigate both the effects and the cost of the disease. This is further validated through existing research and evidence:

- Cardiovascular Disease is the number one cause of death in the US and half the American population has Cardiovascular Disease. Similarly, Cardiovascular Disease is usually the greatest cost contributor to employer-sponsored health plans.
- Cholesterol is the primary contributor to the development of Cardiovascular Disease. The American Heart Association states, "For every one point reduction in LDL cholesterol, the risk of death due to heart disease drops 2%" and "a 10% reduction in cholesterol can reduce heart disease death by 30%".
- Research consistently demonstrates that Cardiovascular Disease is both preventable and reversible.

The City of Dalton understood that success was based on targeting their greatest need and knew that a focused intervention was needed to achieve their goals of reducing the number of high risk individuals and their associated costs. They also understood that by prioritizing their budget and realigning their resources based only on measurable and actionable results, they would need to move away from traditional "population based wellness" which strives to provide "something for everyone."

TRACK RECORD

The City of Dalton selected Health Navigators as their partner to implement and manage the program, based on successes with previous organizations that improved employee health and reduced health care costs, including:

- An international auto parts manufacturer under a partially self-funded health plan with 4,600 employees in the U. S. launched the cardiovascular disease focused initiative throughout its North American locations in 2004 and has consistently experienced reductions in their number of high risk employees. The pilot site (250 employees) began to see an average annual reduction in health care costs of 13% for the first two years after adding in the cost of the Program.
- An employer with 450 employees identified 74 employees at high risk for chronic disease. By implementing the aggressive risk reduction program, not only did employee health improve, but post intervention cost of this fully-funded health plan had been reduced from an average annual increase of 17% to 5-6% for each of the last two years after the Program was instituted.

- A City-County-Utilities partially self-funded health plan with 1,800 employee lives was able to improve the health of high risk employees and reduced the number of high risk individuals at the start by 42% and the number with diabetes by 35%.

CLINICAL FINDINGS

By implementing The Risk Reduction Program, the City of Dalton found that it could focus on cholesterol as the primary indicator to reduce not only the prevalence of cardiovascular disease, but other chronic diseases as well, such as hypertension, diabetes and obesity.

The City of Dalton had 456 employees participate in an evidence based health assessment. 77 employees were identified as "high risk" via clinical thresholds (total cholesterol \geq 240 mg/dl) or (LDL cholesterol \geq 160 mg/dl). Below are the results for the High Risk group.

Category	Avg. Start	Avg. End	Avg. Reduction
Total Cholesterol (TC): \geq 240 is considered high risk	254	208	-18.3%
LDL Cholesterol: \geq 160 is considered high risk	175	135	-22.6%
HDL Cholesterol: \leq 40 is high risk	45	43	-2.4%
Triglycerides: \geq 150 is high risk	189	153	-18.9%
Glucose (Fasting): \geq 100 pre-diabetic & \geq 128 diabetic	94	90	-4.6%
Systolic BP: \geq 140 is high risk	130	128	-1.5%
Diastolic BP: \geq 90 is high risk	83	78.5	-5.0%
Weight (BMI): \geq 30 is high risk	206	199	-3.4%

Highlights

2007	2008
17% lowered TC by 20% or more	23% lowered TC by 20% or more
33% lowered TC by 10% to 19%	25% lowered TC by 10% to 19%
09% did not lower TC	25% did not lower TC
38% now at "low" risk (TC \leq 200 mg/dl)	23% now are "low" risk (TC \leq 200 mg/dl)
Those with (BMI) 30.0+ dropped -11 lbs average	4 with (BMI) 30.0+ dropped 10 lbs or more

"A 10% reduction in cholesterol can reduce heart disease death by 30%."
-The American Heart Association

BEHAVIORAL CHANGE

The prevailing philosophical assumption for most of the wellness and health promotion industry is based on Prochaska's Stages of Change which states that people will only change **when they are ready to change** and that external forces cannot drive change because it is one's internal state of readiness that produces change.

The City of Dalton learned through this effort that preconceived notions regarding change within their population were remarkably different. Even though many were "not ready" to change, a majority of them did, in fact, make significant changes because they were provided with the knowledge and motivation to do so.

PARTICIPANT EXPECTATIONS

Participants completed a comprehensive and confidential pre and post Program questionnaire. (Questions were answered prior to seeing their post-program results.)

36% were glad the City of Dalton was providing the Program before it started.

Of this 36%, when asked their opinion **after** the Program:

- 26% said the Program was helpful and beneficial
- 37% said the Program was "very" helpful and beneficial
- 37% said the Program was "extremely" beneficial

29% had no feeling about the Program before it started:

Of this 29%, when asked their opinion **after** the Program:

- 18% said the Program was somewhat helpful and beneficial
- 59% said the Program was helpful and beneficial
- 14% said the Program was "very" helpful and beneficial
- 9% said the Program was "extremely" beneficial

32% did not want to participate in the Program before it started:

Of this 32% when asked their opinion **after** the Program:

- 17% said the program was somewhat helpful and beneficial
- 26% said the program was helpful and beneficial
- 39% said the program was "very" helpful and beneficial
- 17% said the program was "extremely" beneficial

Overall, participants were asked how they felt at the conclusion of the Program:

- 11% said the Program was somewhat helpful and beneficial
- 34% said the Program was helpful and beneficial
- 29% said the Program was "very" helpful and beneficial
- 25% said the Program was "extremely" beneficial

OUTCOMES - DIETARY

Participants were encouraged to increase fruits, vegetables and whole grains while decreasing their consumption of animal protein. Participants were provided with lifestyle tracking forms to document daily exercise activities.

Servings (1/2 cup equals a serving)	Servings Per Day at Program Start	Servings Per Day at Program Conclusion
Fruits	1.3	2.5
Vegetables	1.3	3.5
Fruits & Vegetables	2.6	6.0

NOTE: The "Healthy People 2010" goal is the daily consumption of 5 fruits & vegetables.

Research Article: Americans Eating Fewer Vegetables, 5-a-Day for Fruits and Vegetables? No Way, Surveys Show!

March 19, 2007 -- A new report shows Americans are actually getting worse at eating their vegetables. Researchers from Johns Hopkins University confirm that Americans aren't getting better at eating fruits and vegetables -- even though public health officials urge them to do so. The Johns Hopkins study shows that, among U.S. adults, fruit consumption is holding steady, but vegetable consumption is headed down -- even if you count french fries. The study appears in the *American Journal of Preventive Medicine*.

Fruit, Vegetable Consumption

Researchers checked how many people met these goals:

- Two or more servings of fruit, (fresh fruit, dried fruit, and 100% fruit juice)
- Three or more servings of vegetables (fried potatoes count).

The national campaign is to get Americans to eat at least five servings of fruits and vegetables a day. But apparently, most people aren't heeding the message.

OUTCOMES – PHYSICAL ACTIVITY (EXERCISE)

Changes in Exercise	Days Per Week at Start	Days Per Week at Conclusion
Total Group	2.4	3.5

Participants were encouraged to incorporate aerobic and weight bearing activity into their daily routine 3 to 5 times per week. Participants were provided with lifestyle tracking forms to document daily exercise activities.

PROGRAM SUSTAINABILITY OVER MULTIPLE YEARS

The chart below demonstrates the “sustainability” of improved health over multiple years (2006-2009) for City of Dalton employees identified at High Risk for cardiovascular disease (CVD) in 2006-2007 and were still employed by the City in 2008-2009. These High Risk employees participated in the Risk Reduction Program in 2006-2007, had continuous employment with the City, and participated in the most recent screening (2008-2009). These findings demonstrate that an effective Program allows most people to reduce their risk and maintain a lower risk over time.

Total number of Risk Reduction Program Participants in 06-07	65
Total number of participants (06-07) still in the same Health Plan and screened in 08-09	61
Number of 61 High Risk participants in 06-07 who were no longer High-Risk in 08-09	41
Percent of 61 High Risk participants in 06-07 who were no longer High-Risk in 08-09	67%
Average Cholesterol level of these 61 participants in 06-07	253
Average Cholesterol level of these 61 participants in 08-09	200
Percentage Cholesterol Reduction for these 61 participants between 06-07 and 08-09	21.0%
Number of 61 High Risk (06-07) decreasing risk at some point during the 3 years	53
Percent of 61 High Risk (06-07) decreasing risk at some point during the 3 years:	87%
Average Cholesterol level of these 53 participants in 06-07	253
Average Cholesterol level of these 53 participants in 08-09	213
Percentage Cholesterol Reduction for these 53 participants between 06-07 and 08-09	16.0%
Number of 61 High Risk participants (06-07) unable to decrease their risk to a lower risk category	08
Percent of 61 High Risk participants (06-07) unable to decrease their risk to a lower risk category	13%
Average Cholesterol level of these 8 participants in 06-07	268
Average Cholesterol level of these 8 participants in 08-09	264
Percentage Cholesterol Reduction for these 8 participants between 06-07 and 08-09	1.6%

* The study population represents employees from the Fire and Law Enforcement Departments, Public Works, Solid Waste and Administration.

HEALTH INITIATIVE RISK REDUCTION CUMULATIVE RESULTS

The chart below shows populations screened and individuals identified at risk at the beginning and end of the intervention through screening in 2009.

CATEGORY	TOTAL	NUMBER of HIGH RISK		TOTAL	NUMBER of HIGH RISK		TOTAL
	'06-'07	'07 Start	'07 End	'07-'08	'08 Start	'08 End	'08-'09
Participants	444	65	17	423	47	20	417
High Risk	82	65	17	54	47	20	46
Avg. Total Cholesterol	194	255	208	190	252	224	191
Avg. HDL Cholesterol	45	44	42	43	43	43	44
Avg. Triglycerides	144	194	156	149	221	187	145
Avg. Blood Pressure	128/83	130/83	128/78	131/83	134/86	130/83	128/82
Avg. Fasting Glucose	96	93	89	99	96	94	100
Avg. BMI	29.15	29.85	28.50	29.37	30.25	29.86	29.33
Taking CHO meds	72	10	4	65	1	5	79
Taking DIA meds	21	2	1	21	1	1	25
Taking BP Meds	77	9	2	79	3	6	97
Smokers *	74	5	1	47	8	6	25
# Elevated PSA's Referred	6	-	-	3	-	-	4

CONCLUSION

The City of Dalton found that employee health improved through an aggressive program and most employees who are high risk for cardiovascular disease could reduce their risk. Concurrently, the City's health care costs were improved to a level where their annual increase after the first year has been held to less than 1%. The result is significantly less than either the Annual CPI or Medical Trend.

Whereas, it is commonly thought that "most" people have a genetic predisposition for high cholesterol, the City of Dalton found the opposite to be true – over 90% of the high cholesterol in their population was caused by poor nutrition.

The fact that most high risk individuals were able to lower their health risk significantly is not only encouraging, but essential in the City's continued effort to mitigate the financial risk of their health plan. While it seems obvious, the lower an organization's health risk is (i.e. better health), the lower their costs will be, while the higher the health risk (i.e. poorer health), the bleaker their cost outlook.

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