Great Results start with a Great Plan!

City of Valdez

January-October 2017

Program Overview

- Biometric Screenings January 2017
- Point Program: Engaging in wellness activities throughout the year
    - 90 employees actively participated in 1 or more wellness activity
    - 17 employees achieved 100 points and were entered into prize raffles
    - Top point achiever earned 400 points

What's to come in 2018

- Biometric Screenings: Now including Smart testing for:
    - A1c: Glucose over 100, self reported Diabetic, 3 out of 5 risk factors for metabolic syndrome
    - PSA: Men over 50; Prostate
    - TSH: Women over 40; Thyroid
- Conditional Outreach Coaching: Outreach coaching to moderate and high risk employees engaging them to work with a wellness coach

Healthy Merits℠

Great Results start with a Great Plan!

2017 Engagement and Participation Rates

Wellness Activity	Eligible Participation	2017 Participation	Program Engagement %	2016 Participation
Biometric Screenings	121 EE/78 Spouses	63 employees/ 17 spouses	52% EE 22% Spouses	72 employees
Health Assessment	121	28	23%	68
Healthier You	121	11	9%	35
Digital Coaching Modules	121	6	5%	7
Snooze Your Way to Health Challenge	121	7	6%	N/A
Live in the Now Challenge	121	6	5%	N/A
Brown Bag Lunches	121	11 Unique Employees	9%	60 Unique Employees
Annual Well Visits	121	16	13%	28
Physical Activity	121	13	11%	44
Try a new activity	121	3	2%	N/A
Participate in a Valdez Sponsored Activity	121	2	2%	N/A
Health Focus Course	121	2	2%	N/A
Achieved 100 Points throughout the year	121	17	14%	37
Actively Participating in wellness activities to receive wellness points	121	90	74%	96

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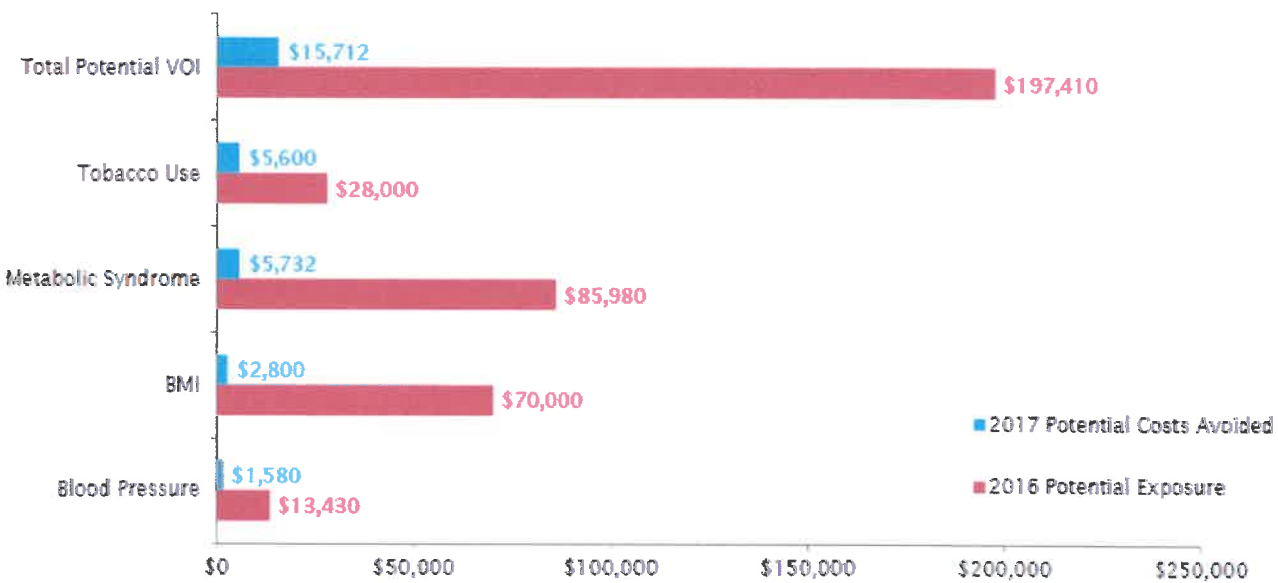**Biometric Screening Data**

U.S. Bench Mark
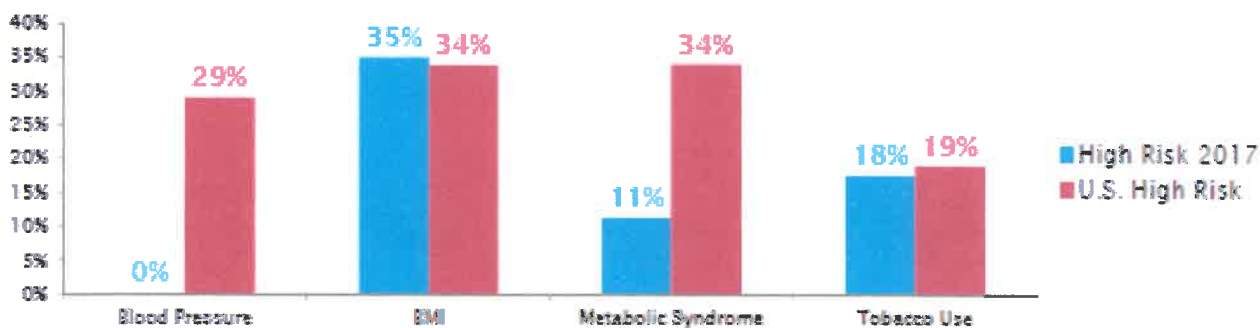
Year	Biometric Screening Participation:	Average BMI:	Tobacco Use:	Newly Discovered Conditions:	Referred to a physician:	Company IH Score:
2016	72 Employees	28 Women 32 Men	18.1%	37	58%	-2
2017	63 Employees 17 Spouses	28 Women 29.6 Men	17.5%	28	50%	-2

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Value on Investment

Value on Investment bar chart

	2017 Potential Costs Avoided	2016 Potential Exposure
Total Potential VOI	$15,712	$197,410
Tobacco Use	$5,600	$28,000
Metabolic Syndrome	$5,732	$85,980
BMI	$2,800	$70,000
Blood Pressure	$1,580	$13,430

	≈ Additional Cost PEPY	2016 Potential Exposure	Movement from High to Low Risk	Movement from Moderate to Low Risk	2017 Potential Costs Avoided
Blood Pressure	$395	$13,430	0	4	$1,580
BMI	$2,800	$70,000	0	1	$2,800
Metabolic Syndrome	$5,732	$85,980	0	1	$5,732
Tobacco Use	$5,600	$28,000	1	0	$5,600

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Engagement		
Quality Survey	**2016**	**2017**
Total number of respondents	13	72
Was the blood drawer courteous?	100%	100%
Was the blood drawer professional?	100%	97%
Was the blood drawer's appearance professional?	92%	100%
Overall, was the program of value to you?	100%	99%
Participation	**2016**	**2017**
Total Members	72	80
Age 40 +	59.7%	57.5%
Male	42	43
Female	30	37
Spouses	0	17
Website usage	**2016**	**2017**
Members registered	69	77
Items researched per visit	15.3	19.3
Physician Link/ Faxed Labs to Physician	3%	8%

Health Awareness		
Interesting Insights	**2016**	**2017**
Average Body Mass Index - Females	27.8	28.0
Average Body Mass Index - Males	32.0	29.6
Percentage of Tobacco Users	13 (18.1%)	14 (17.5%)
Percentage of Problem Drinkers	6 (8.3%)	5 (6.3%)
Percentage of members referred to a physician	42 (58.3%)	40 (50.%)
Members at risk for a heart attack over next 10 years	11 (15.3%)	10 (12.5%)
Newly Discovered conditions	23	16
At Risk conditions	10	7
Critical conditions	5	2
Metabolic Syndrome	14 (19.4%)	12 (15.%)

IHI Trends		
IHI Trends	**2016**	**2017**
IHI Risk Stratification		
High Risk (IHI 26+)	15%	19%
Moderate Risk (IHI 1 to 25)	14%	6%
Low Risk (IHI -20 to 0)	71%	75%
Average IHI Score	-2	-2
IHI Improvements		
Blood Pressure	N/A	N/A
LDL Cholesterol	N/A	4 (57%)
Glucose	N/A	3 (100%)
Triglycerides	N/A	10 (83%)
Smoking	N/A	1 (20%)

Additional Facts
Per CDC, BMI of 25-29.9 is overweight; BMI of 30+ is obese. Higher BMI increase risk of fatty liver disease, diabetes, heart disease, and workers comp
Diabetics cost 2-3 times more than healthy plan members; if left unmanaged, diabetes can significantly impact productivity and quality.
Per the AHA & CDC, 20% of working adults in the US smoke, costing $3800 more per person per year in direct and indirect costs.

NOTE: All Percentages represent the total identified as a percentage out of the Total Participation

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2017 Aggregate Population Analysis

Company: City of Valdez

Reporting Date: Screening period January 2017

2017 Aggregate Population Analysis

The following **Aggregate Population Analysis** provides valuable, evidence-based insight designed to help guide your organization's decisions around its health and wellness programs.
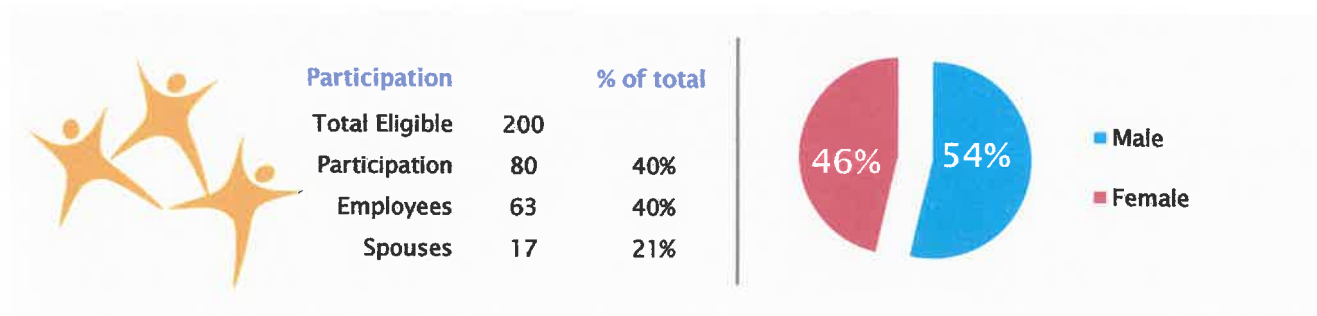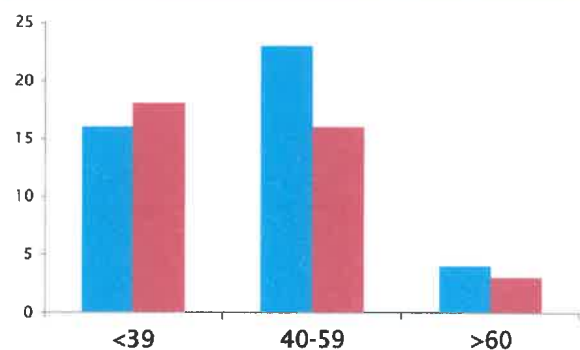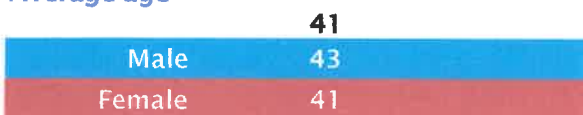
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Demographics

This report summarizes the primary controllable health findings for participants in the most recent biometric screening. In addition, the report looks at a year over year comparison of the repeat participants.
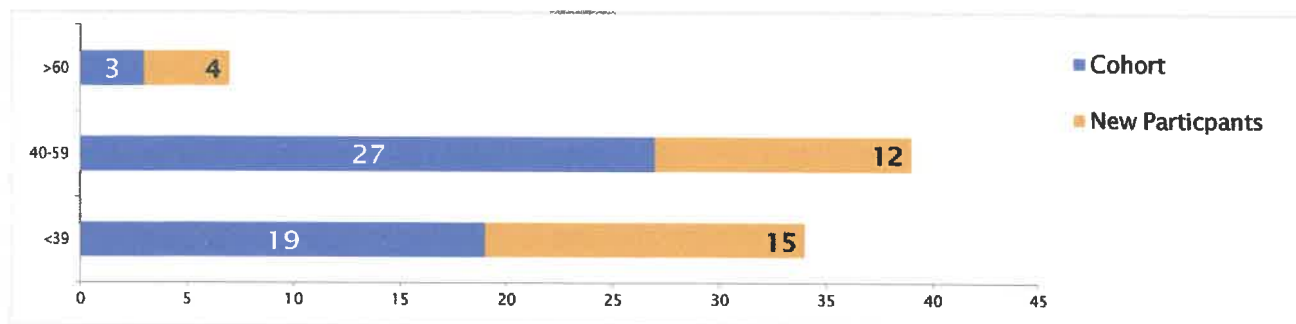
Participation		% of total
Total Eligible	200	
Participation	80	40%
Employees	63	40%
Spouses	17	21%

- Male 54%
- Female 46%

Average age

	41	
Male	43	
Female	41	

Cohort Participation		% of total
Total	49	
Employees	49	100%
Spouses	0	0%

Cohort Average Age

Total	42	
Male	43	♂
Female	41	♀

Participants Cohort vs New

- Cohort
- New Particpants

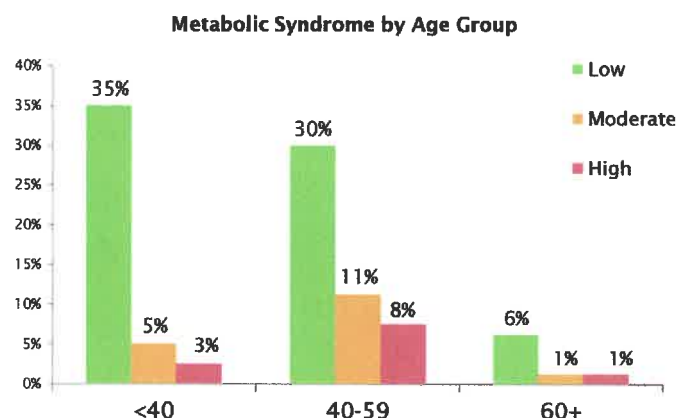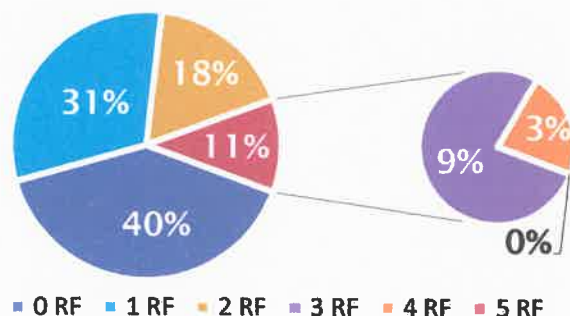|	Cohort	New Particpants
>60	3	4
40-59	27	12
<39	19	15

Metabolic Syndrome

Metabolic syndrome is a name for a group of risk factors that occur together and increase the risk for coronary artery disease, stroke and type 2 diabetes.

Risk factors

- Glucose greater than 100.
- Blood pressure exceeding 130/85.
- BMI greater than 30.
- HDL in men <40 or HDL in women <60.
- Triglycerides equal to or higher than 150 mg/dl.

Pie chart legend: 0 RF · 1 RF · 2 RF · 3 RF · 4 RF · 5 RF
(31%, 18%, 11%, 40%, 9%, 3%, 0%)

Metabolic Syndrome by Age Group

Legend: Low, Moderate, High

- <40: 35%, 5%, 3%
- 40-59: 30%, 11%, 8%
- 60+: 6%, 1%, 1%

Benchmark for risk factors among U.S. adults over age 20

- **32%** have metabolic syndrome
- **39%** have elevated blood pressure
- **31%** have elevated glucose
- **40%** have at-risk HDL cholesterol
- **33%** have a BMI above 30
- **33%** have elevated triglycerides

Data released by Express Scripts®, shows Metabolic Syndrome increases a person's healthcare costs by 1.6% or about $2,000 annually. In addition, the average yearly pharmacy cost of treating adult patients over age 20 with metabolic syndrome exceeds $4,000. The following graphs depicts metabolic syndrome by risk category. Understanding the most prevalent preventable risk categories will help with planning wellness interventions and activities to impact your population's health.

Metabolic Syndrome by risk factor

Legend: Low, High

- Blood Pressure: 23%
- BMI: 35%
- HDL: 35%
- Glucose: 16%
- Triglycerides: 13%
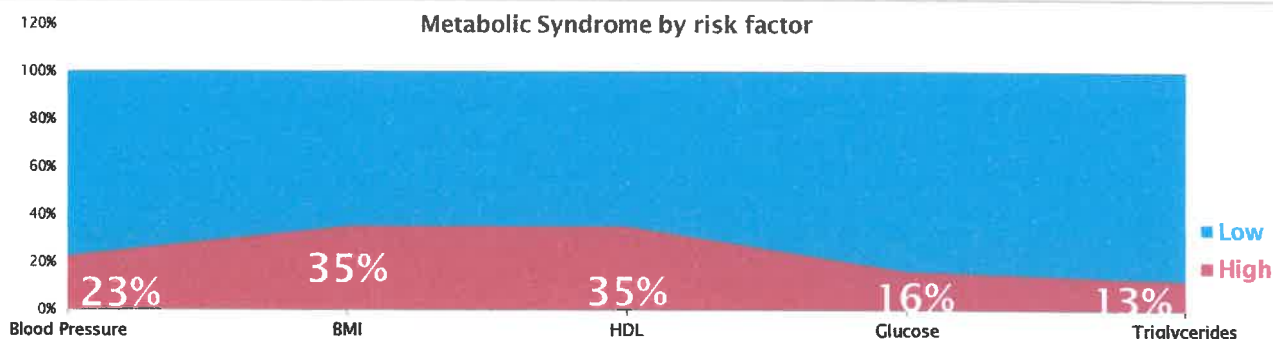
Risk migration

The chart to the right depicts Metabolic Syndrome Risk Migration from 2016. The gray represents the population that stayed in the same risk category. Red depicts movement to a high risk category, yellow to the moderate category and green to a low risk category.

| Potential value on investment	≈ Additional Cost PEPY	2016 Potential Exposure	Movement to Low Risk	Potential Costs Avoided
Metabolic Syndrome	$5,732	$85,980	1	$5,732
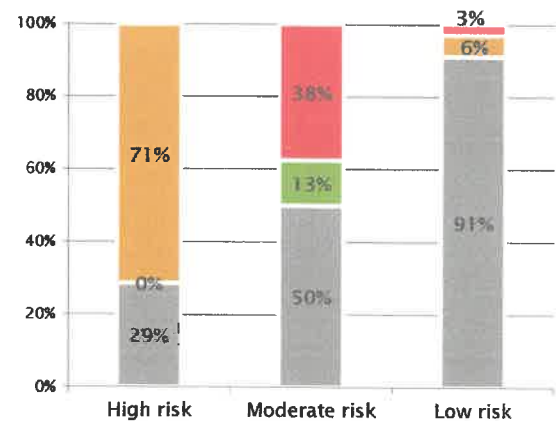
Body Mass Index (BMI)

BMI is a number calculated from a person's weight and height. BMI is a fairly reliable indicator of body fatness for most people. BMI does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat, such as underwater weighing and dual energy x-ray absorptiometry (DXA). BMI can be considered an alternative for direct measures of body fat. Additionally, BMI is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems.

The BMI ranges are based on the relationship between body weight, disease and death. Overweight and obese individuals are at increased risk for many diseases and health conditions, including the following: hypertension dyslipidemia (for example, high LDL cholesterol, low HDL cholesterol, or high levels of triglycerides), type II diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems and some cancers (endometrial, breast and colon).
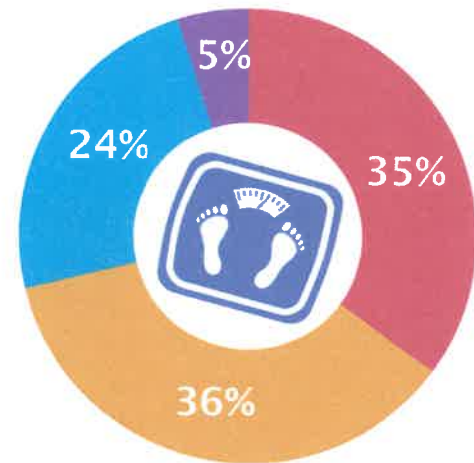
■ High >= 30   ■ Moderate 25 - 29.9   ■ Low <= 24.9

Average BMI

2017
28.8

2016
30.3

<40   40-59   60+

■ Low   ■ Moderate   ■ High
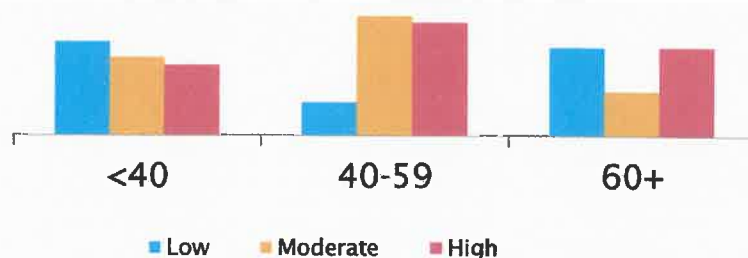
BMI and heart disease risk

Weight plays an important role in managing risk for heart disease. Cholesterol and glucose have been shown to be significantly impacted by weight (American Heart Association 2008). The following graph represents those that have high-risk blood levels and a **BMI greater than 24.9**.

	Total Cholesterol	HDL	LDL	Glucose	Triglycerides
	100%	86%	100%	67%	83%
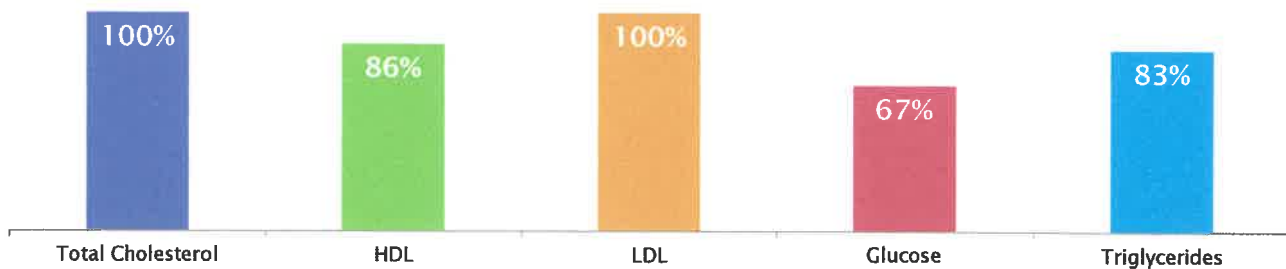
The graph below demonstrates the BMI shift by catagory.

BMI Category	2016	Normal	Over Weight	Obese	Obese II	Morbid Obesity	no value	Positive shift in BMI	Negative Shift in BMI
Normal 18.5 – 24.9	11	11	0	0	0	0	0	0	0
Over Weight 25.0 – 29.9	17	1	15	1	0	0	0	1	1
Obese 30.0 - 34.9	8	0	0	7	1	0	0	0	1
Obese II 35 -39.9	3	0	0	1	2	0	0	1	0
Morbid Obesity >=40	4	0	0	0	1	3	0	1	0
No value	6	2	1	3	0	0	0	0	0
							Total	3	2

| Potential Value on Investment	≈ Additional Cost PEPY	2016 Potential Exposure	Movement to Low Risk	Potential Costs Avoided
BMI	$2,800	$70,000	1	$2,800

Cholesterol Risk

Total Cholesterol (TC): Levels at or above 240 mg/dL typically indicates twice the risk of coronary heart disease, with respect to desirable levels of less than 200mg/dL.

High Density Lipoprotein (HDL)—*good cholesterol:* Levels of 60 mg/dL or higher gives some protection against heart disease. Men with less than 40mg/dL and women with less than 60mg/dL are considered to be at risk.

Low Density Lipoprotein (LDL)—*bad cholesterol:* Together with other substances, a high level of LDL can form plaque, a thick, hard deposit that can narrow your arteries and make them less flexible. This condition is known as atherosclerosis. If a clot forms and blocks a narrowed artery, this can cause heart attack or stroke.

Triglycerides: This is a type of fat found in the blood. High levels of triglycerides can increase your risk of heart disease.
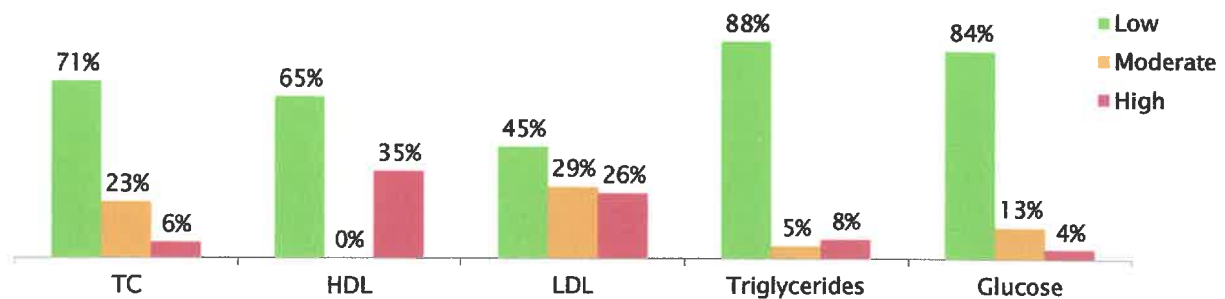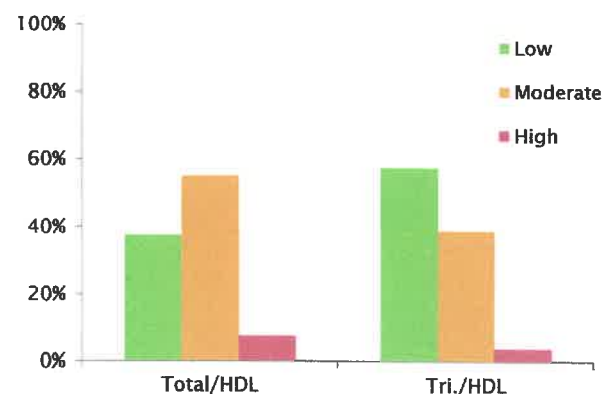

Cost of a heart attack

The National Business Group on Health reports that the cost of a major hear attack is roughly $1 million. A less severe heart attack is still around $760,000. This factors in hospital stays, surgery, exams, prescription drugs, follow-up visits, etc.
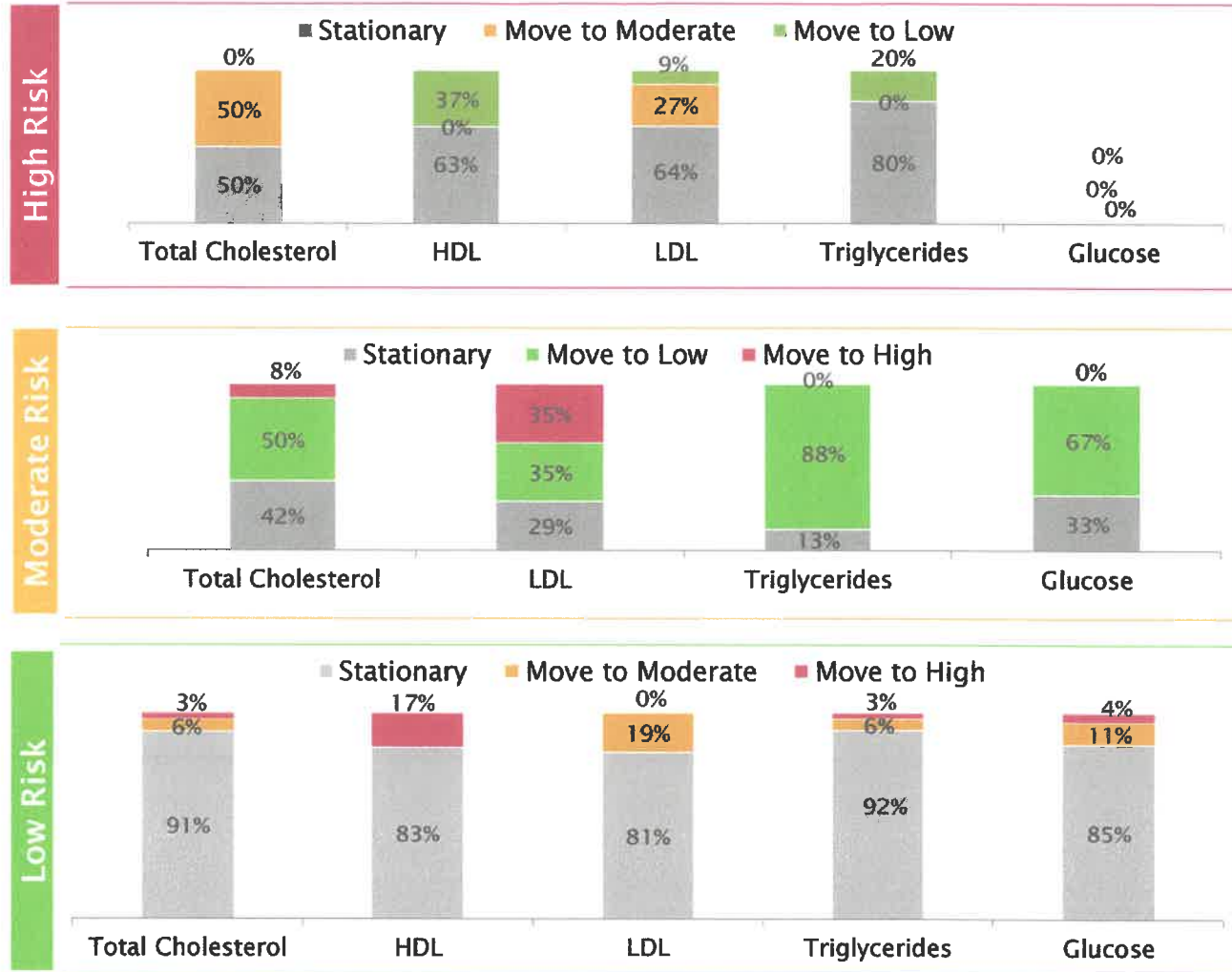
Ratio—TC/HDL: Having a high TC/HDL ratio is helpful in predicting the devolvement of atherosclerosis. **A ratio of 3 or less is considered ideal,** while a ratio of five or greater puts an individual at risk.

Ratio—triglycerides/HDL: Research has shown that people with the highest ratio of triglycerides to HDL have 16 times the risk of heart attack as those with the lowest ratio of triglycerides/HDL. **A ratio of 2.1 or less is desirable.**

TC/HDL Risk	% of Pop.	Avg. TC/HDL Ratio
High	8%	
Moderate	55%	3.5
Low	38%	

Tri./HDL Risk	% of Pop.	Avg. Tri/HDL Ratio
High	4%	
Moderate	39%	2
Low	58%	

Progression and Regression—Heart Glucose Panel

High Risk

Legend: Stationary | Move to Moderate | Move to Low

	Total Cholesterol	HDL	LDL	Triglycerides	Glucose
Move to Low	0%	37%	9%	20%	0%
Move to Moderate	50%	0%	27%	0%	0%
Stationary	50%	63%	64%	80%	0%

Moderate Risk

Legend: Stationary | Move to Low | Move to High

	Total Cholesterol	LDL	Triglycerides	Glucose
Move to High	8%	35%	0%	0%
Move to Low	50%	35%	88%	67%
Stationary	42%	29%	13%	33%

Low Risk

Legend: Stationary | Move to Moderate | Move to High

|	Total Cholesterol	HDL	LDL	Triglycerides	Glucose
Move to High	3%	17%	0%	3%	4%
Move to Moderate	6%		19%	6%	11%
Stationary	91%	83%	81%	92%	85%

Tobacco Use

Why is preventing tobacco use important?

Tobacco use is the single most preventable cause of death and disease in the U.S. Each year, approximately **443,000** Americans die from tobacco-related illnesses. For every person who dies from tobacco use, 20 more people suffer with at least one serious tobacco-related illness. In addition, tobacco use costs the U.S. $193 billion annually in direct medical expenses and lost productivity.

Potential Value on Investment	≈ Additional Cost PEPY	2016 Potential Exposure	Movement to Low Risk	2017 Potential Costs Avoided
Tobacco Use	$5,600	$28,000	1	$5,600

Pie chart: High 18%, Low 83%
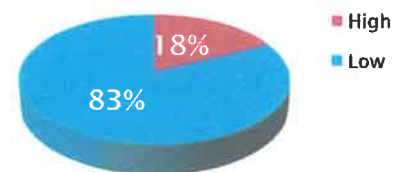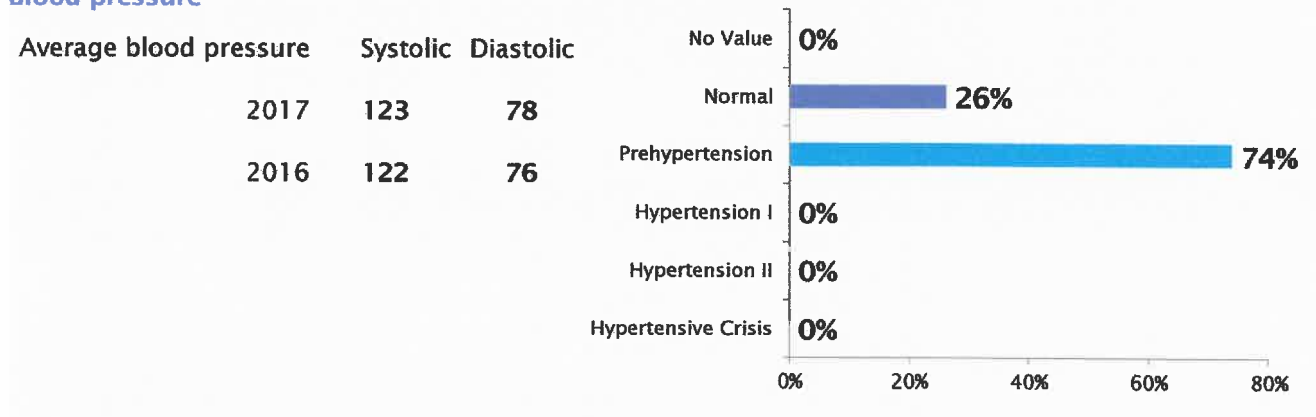
Hypertension

Hypertension, or high blood pressure, increases the risk of coronary heart disease (which leads to heart attack), stroke and kidney disease, especially in the presence of other risk factors. High blood pressure can occur in children or adults, but it's more common among: people over age 35, African-Americans, people with a BMI greater than 30, heavy drinkers, women taking birth control pills and people with a family history of high blood pressure.

Note: prehypertension is defined as slightly elevated blood pressure, a systolic pressure from 120–139 millimeters of mercury (mm Hg) or a diastolic pressure from 80–89 mm Hg.

	Systolic		Diastolic
Normal	<120	and	<80
Pre hypertension	120-139	or	80-89
Hypertension stage I	140 -159	or	90-99
Hypertension stage II	160 - 179	or	100-110
hypertensive Crisis	>180	or	>110

Blood pressure

Average blood pressure	Systolic	Diastolic
2017	123	78
2016	122	76

No Value	0%
Normal	26%
Prehypertension	74%
Hypertension I	0%
Hypertension II	0%
Hypertensive Crisis	0%

Blood pressure improvement and regression by risk level

Category	Number of participants
Hypertesive crisis	0
Hypertension II	0
Hypertension I	0
Prehypertension	4
Total improved	4
Hypertension II	0
Hypertension I	0
Prehyertension	0
Normal	2
Total regression	2

| Potential Value on Investment	≈ Additional Cost PEPY	2016 Potential Exposure	Movement to Low Risk	2017 Potential Costs Avoided
Blood Pressure	$395	$13,430	4	$1,580

Diabetes Risk

One out of every three people with diabetes is unaware they have this chronic condition. According to the American Diabetes Association, that amounts to about **7 million** Americans. Controllable biometric risk factors for diabetes include:

- Physical activity less than 3 days per week.
- Blood pressure greater than 140/90.
- BMI greater than 30.
- Fasting glucose greater than 126.
- HDL less than 35.
- Triglycerides >250mg/dL.

According to the American Diabetes Association, 79 million people in the U.S. have pre-diabetes. People with fasting glucose levels between 100 and 125 mg/dL may have pre-diabetes and are 5-6 times more likely to get type II diabetes.

It's possible to prevent the progression of pre-diabetes to diabetes with diet and exercise.

Diabetes Risk - Total Improvements

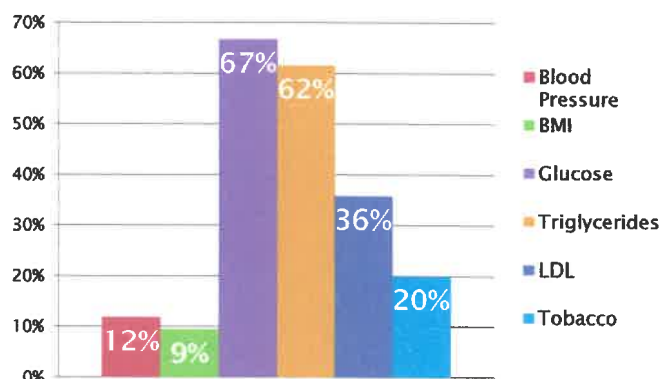Blood Pressure 12%, BMI 9%, Glucose 67%, Triglycerides 62%, HDL 37%, Physical Activity 29%
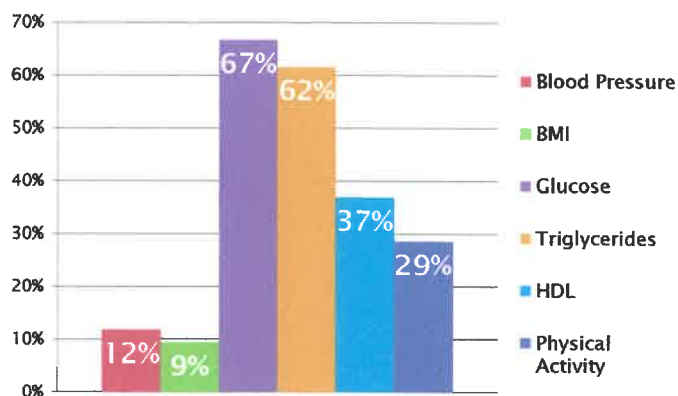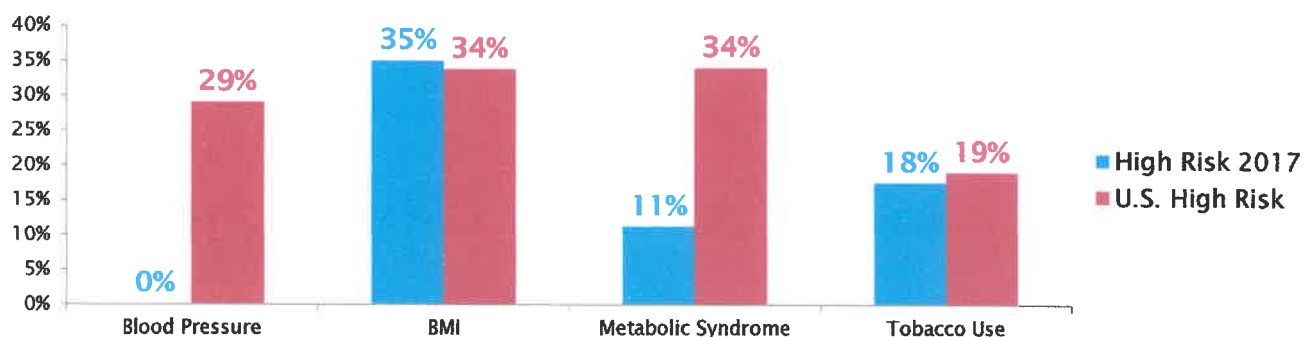
Heart Disease Risk

Heart disease is currently the number one killer for men and women in the United States. Controllable biometric risk factors for heart disease include:

- LDL greater than 130
- Blood pressure greater than 140/90
- BMI greater than 30
- Fasting glucose greater than 126
- Tobacco use
- Triglycerides/HDL ratio >2

Heart Disease Risk - Total Improvements

Blood Pressure 12%, BMI 9%, Glucose 67%, Triglycerides 62%, LDL 36%, Tobacco 20%

U.S. Bench Mark

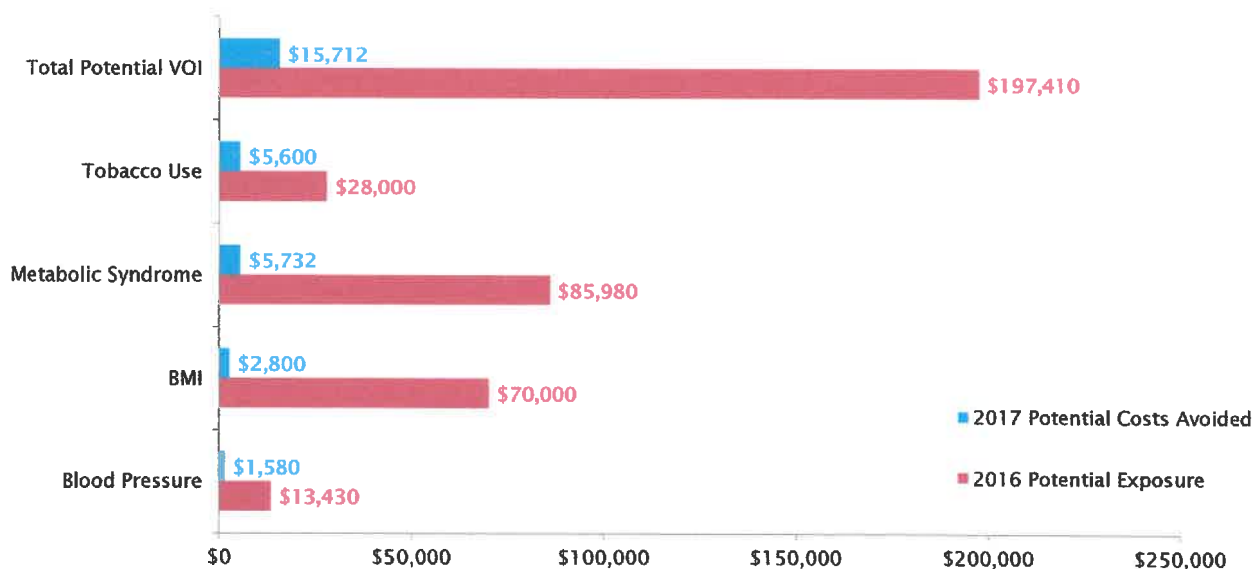|	Blood Pressure	BMI	Metabolic Syndrome	Tobacco Use
High Risk 2017	0%	35%	11%	18%
U.S. High Risk	29%	34%	34%	19%

Potential Value on Investment

Prevention rather than curing

Preventing chronic disease requires reducing tobacco intake, eating a healthier diet and exercising regularly. There are no quick fixes; people must change their behavior. To illustrate, obesity—which contributes to higher levels of cancer, heart disease and diabetes, and has been shown to limit substantially a person's ability to work—is on the increase as a consequence of poor eating habits and lack of physical activity. This lack of activity has resulted in more than half the adults in the U.S. being overweight or obese, and this amount is forecasted to increase. Research has shown that if an individual loses as little as five percent of their body weight, they can lower their risk for several diseases, including coronary heart disease and type II diabetes.

While individuals have the ultimate responsibility for ensuring that they do not suffer from the risk factors for chronic disease, they can be helped if they are given the right environment, incentives and tools.

	≈ Additional Cost PEPY	2016 Potential Exposure	Movement from High to Low Risk	Movement from Moderate to Low Risk	2017 Potential Costs Avoided
Blood Pressure	$395	$13,430	0	4	$1,580
BMI	$2,800	$70,000	0	1	$2,800
Metabolic Syndrome	$5,732	$85,980	0	1	$5,732
Tobacco Use	$5,600	$28,000	1	0	$5,600

Sources
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