Philosophy behind the Heart and Vascular Screenings

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Objectives

* Describe the purpose behind and benefits of Heart and Vascular Screenings
* List components of Heart and Vascular Screenings
* State the statistical impact of the Heart and Vascular Screenings components on reducing episodes of cardiovascular episodes/disease

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Disclosures

No disclosures

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Purpose and benefits behind H&V Screenings

H&V Screenings is not:

* It is not to take the place of yearly physicals with primary care provider
* Drum up business for the cardiologists
* Does not guarantee that you will or will not experience a cardiovascular event

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Purpose and benefits behind H&V Screenings

H&V Screenings:

* Empowers the patient to take charge of their health
* Promotes collaboration across disciplines
* Advances health campaigns within communities
* Affordable jump start to identifying cardiovascular risk factors
* Assists providers in developing a tailored health care plan for patients to control or reduce cardiovascular risk factors

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Purpose and benefits behind H&V Screenings

American Heart Association says it the best:

"Few of us have ideal risk levels on all screening tests. However, if you do have test results that are less than ideal, it doesn't mean you're destined to develop a serious cardiovascular disease. **On the contrary, it means you're in a position to begin changing your health in a positive way**."

https://www.heart.org/en/health-topics/consumer-healthcare/what-is-cardiovascular-disease/heart-health-screenings

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Components of the H&V Screenings

Common Components:
* Blood Pressure
* Blood Glucose
* BMI/Weight circumference
* Cholesterol
* Lifestyle assessment

Other:
* Carotid US
* Abdominal US
* ABI
* Calcium Score

NOTE: According to the American Heart Association most of the screening components should start as early as age 20; frequency of follow up depends on risk factors
https://www.heart.org/en/health-topics/consumer-healthcare/what-is-cardiovascular-disease/heart-health-screenings

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Altru's H&V Screening Components

Ankle/Brachial Index
- The ankle-brachial index test is a quick, simple way to check for peripheral artery disease (PAD).
- The disease occurs when narrowed arteries reduce the blood flow to the arms and legs.
- PAD can cause leg pain when walking/standing.
- PAD also increase the risk of heart attack and stroke.

LEFT / RIGHT
- NO BLOCKAGE: 1.0-1.4
- BORDERLINE BLOCKAGE: 0.90-0.99
- PAD: Less than 0.90

Aorta
- An aorta ultrasound is a noninvasive test that uses ultrasound waves to produce images of the aorta, the large blood vessel that carries oxygen-rich blood from the heart to the rest of the body.
- The test is used to evaluate the aorta for conditions such as aneurysms, blockages, or other abnormalities.

- Normal: less than 3cm
- Concerning: greater than 3cm
- Critical: greater than 5cm

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Carotid Arteries
- A carotid ultrasound tests for blocked or narrowed carotid arteries, which can increase the risk of a stroke.
- Carotid arteries are usually narrowed by a buildup of plaque-made up of fat, cholesterol, calcium and other substances that circulate in the bloodstream.
- Early diagnosis and treatment of a narrowed carotid artery can decrease your stroke risk.

LEFT / RIGHT
- 0-50%
- 51-69%
- 70% or greater

Height/Weight/BMI
- BMI uses weight and height to estimate body fat. A high BMI is associated with an increased risk of chronic disease such as heart disease, high blood pressure and type 2 diabetes.
- BMI may underestimate risk for people of different descents, in part because it doesn't factor in the risk associated with excess abdominal fat.
- Fat stored around the waist, sometimes called visceral fat or abdominal fat, may further increase the risk of heart disease and diabetes.
- Healthy BMI measurements improves overall health and lowers the risk of developing complications related to obesity.

- Underweight: BMI less than 18.5
- Healthy Weight: BMI 18.5-24.9
- Overweight: BMI 25-29.9
- Obese: BMI 30-39.9
- Extreme Obesity: BMI 40 & above

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Blood Pressure
- Top number is called systolic pressure and measures the pressure in the arteries when the heart beats.
- Bottom number is called diastolic pressure and measures the pressure in the arteries between heartbeats.
- Changing your lifestyle can help control and manage high blood pressure.
  - Eating a heart healthy diet with less salt
  - Getting regular physical activity
  - Maintaining a healthy weight or losing weight
  - Limiting alcohol
  - Not smoking
  - Getting 7 to 9 hours of sleep daily.
- A diagnosis of high blood pressure is based on your medical history and your blood pressure readings are consistently at high levels.

- Normal: *Less than 120 and less than 80*
- Pre-Hypertension: *120-139 or 80-89*
- High BP (Stage 1): *140-159 or 90-99*
- High BP (Stage 2): *160 or higher or 100 or higher*

Glucose
- A blood glucose test measures the level of glucose (sugar) in your blood. Healthcare providers use blood glucose tests to screen for Type 2 diabetes.
- Diabetes mellitus refers to a group of disease that affects how the body uses blood sugar (glucose).
- Glucose is an important source of energy for the cells that make up the muscles and tissues.
- Glucose comes from two major sources:
  - food and liver.
- Sugar is absorbed into the bloodstream, where it enters cells with the help of insulin.
- The liver stores and makes glucose.
- When glucose levels are low, the liver breaks down stored glycogen into glucose. This keeps your glucose levels within a typical range.

Non-Fasting: 2 hours post meal:
- Normal: *less than 140*
- Pre-diabetic: 140-199
- Diabetic: *Greater than or equal to 200*

Fasting:
- Normal: 70-99
- Pre-diabetic: 100-125
- Diabetic: *Greater than 126*

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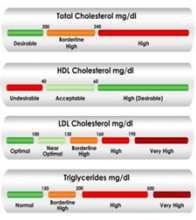
Cholesterol
- Cholesterol is a waxy substance found in the blood. Your body needs cholesterol to build healthy cells, but high cholesterol can increase your risk of heart disease.
- High cholesterol can be inherited, but it's often the result of unhealthy lifestyle choices which make it preventable and treatable.
- A healthy diet, regular exercise and sometimes medication can reduce high cholesterol.
- **Low-density lipoproteins (LDL)**, the "bad" cholesterol, transport cholesterol particles throughout your body. LDL cholesterol builds up in the wall of your arteries, making them hard and narrow,
- **High-density lipoprotein (HDL)**, the "good" cholesterol, picks up excess cholesterol and takes it back to your liver.
- **Triglycerides (TGL)** is a type of fat in the blood. Having high triglycerides levels can increase your risk of heart disease,



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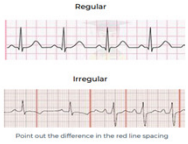
Heart Rate (HR)
- Heart rate is the frequency of the heartbeat measured by the number of contractions of the heart per minute.
- The HR can vary according to the body's physical needs, including the need to absorb oxygen and excrete carbon dioxide.
- Bradycardia symptoms:
  - chest pain, confusion/memory problems, dizziness, fatigue, fainting or shortness of breath.
- Tachycardia symptoms:
  - sensation of a racing or pounding chest, chest pain, fainting, lightheadedness or shortness of breath

- Bradycardia: *Low HR & symptomatic*
- Bradycardia: *Low HR: Below 60 bpm at rest*
- Normal: *Resting HR: 60-100 bpm at rest*
- Tachycardia: *High HR: Above 100 bpm at rest*
- Tachycardia: High HR & symptomatic

Electrocardiogram (EKG)
- An electrocardiogram (EKG) records the electrical signals in the heart.
  - Also known as an ECG or EKG.
- An ECG/EKG can determine if the heart is:
  - Beating too fast or too slow.
  - If the rhythm is regular or irregular.
  - If blocked or narrowed arteries in the heart are causing chest pain or a heart attack.
  - How well certain heart disease treatments, such as a pacemaker, are working.



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Coronary Artery Calcium Score

- A heart scan, also known as a coronary calcium scan, is a specialized X-ray test that provides pictures of your heart that can help your doctor detect and measure calcium-containing plaque in your arteries.
- Plaque inside the arteries of your heart can grow and restrict blood flow to the muscle of your heart.
- Measuring calcified plaque with a heart scan may allow your doctor to identify possible coronary artery disease before you have signs and symptoms.
- Plaque is made up of fats, cholesterol, calcium and other substances in the blood.
- These deposits can restrict the flow of oxygen-rich blood to the muscles of the heart.
- Plaque may also burst, triggering a blood clot that can cause a heart attack.

A score of zero (0) means no calcium in the heart. It suggests a LOW chance of developing a heart attack in the future.

A score of 100-300 means moderate plaque deposits. It's associated with a relatively high-risk of a heart attack or other heart disease over the next 3-5 years.

A score greater than 300 is a sign of very high to severe disease and heart attack risk.

(Calcium build up in the coronary arteries)

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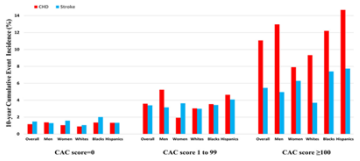
Statistical impact of H&V Screenings in reducing cardiovascular disease



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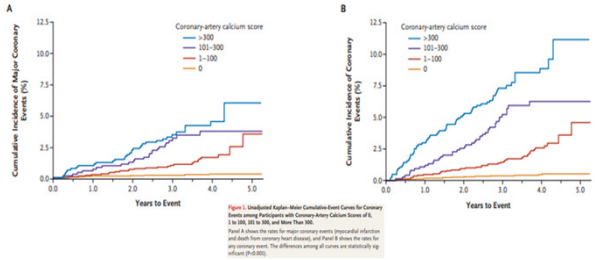
Statistical impact of H&V Screenings in reducing cardiovascular disease



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Altru's H&V Screening Data
Date: Jan 2023 – Oct 2023

Patients: 104

Male: 45
Female: 59
Age range: 24 -75
Average age: 56.6

Incidental Findings:

* Aortic stenosis
* 3 new onset Afib
* Pulmonary artery dilation
* Aorta dilation
* Liver Lesions
* Thyroid Cancer

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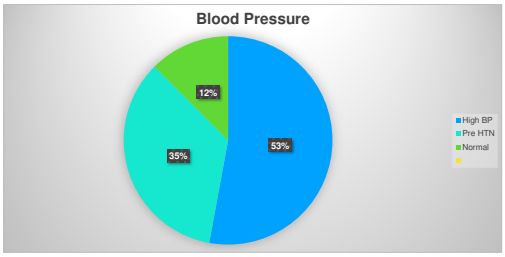
Altru's H&V Screening Data
Date: Jan 2023 – Oct 2023



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Altru's H&V Screening Data
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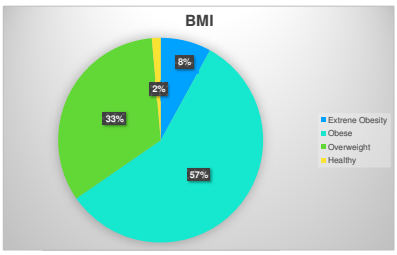

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Altru's H&V Screening Data
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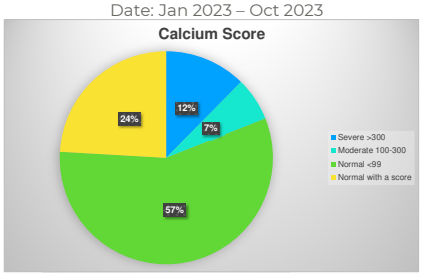

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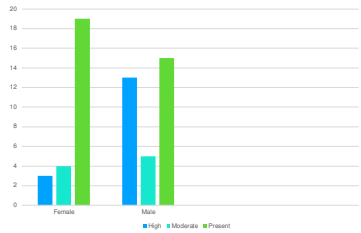
Altru's H&V Screening Data
Date: Jan 2023 – Oct 2023



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Altru's H&V Screening Data
Date: Jan 2023 – Oct 2023

*Follow up recommendations for further testing: 40/104
*Jan – Oct 2023 (As of 1/6/24)
* 6 LHC
-RCA Stent – Calcium Score – 206
-Bypass – Calcium Score – 219
-Mild disease (no fix) - Calcium score – 691
-50% lesion in mid/distal LAD (no fix) – Calcium score –889
-Prox Lad Stent – Calcium score – 1286
-LAD & RCA Stent – Calcium score - 212

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Patient case studies

Patient 2
* Male
* Age 62
* No symptoms
* Calcium score 520
* 4 vessel bypass

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Patient 2

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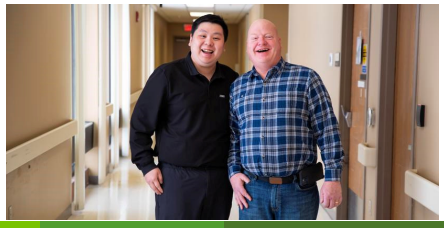
Patient case studies

Patient 1: *Male *Age 56 *Diabetic; family history *Calcium Score 553

"I had noticed I was getting a little bit winded, but I thought I was just out of shape, you know?" Chad says. "I used to play hockey and do a lot of sports, so I just thought this was a part of getting older."



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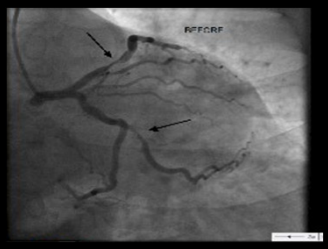
Patient 1 Before Stents



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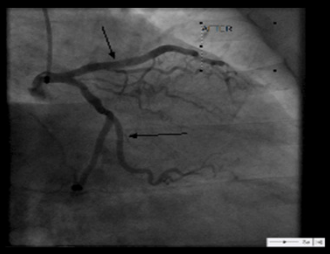
Patient 1 After stents



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Two Months Later: Discovering the new normal

"I feel fantastic," Chad says. "I've been eating better, and I'm about to start a new exercise plan. I've realized that I have to continue making myself healthier, so my heart disease does not progress."

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Summary

Heart & Vascular Screens:

- Empower patients to begin changing their health in a positive way
- Cost effective way of identifying risk factors
- Heart & Vascular Screening results can assist in decision–making aid for primary prevention for CAD and Stroke
- The calcium score is a strong predictor of incidents of CAD

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References

Slide 6 & 7
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Slide 14
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