Biometric Screening Protocol

Purpose: To collect necessary data from each participant in order to provide aggregate reporting, representative of the overall health of the employee population and to identify individual health risks.

Data Collected from Each Participant: (in order)

1. Consent Form
2. Blood Pressure and Pulse
3. Blood Glucose
4. Full Lipid Panel (via capillary puncture)
5. Weight
6. Waist Circumference
7. Hip Circumference
8. Body Fat%
9. BMI

Consent Form and Introduction

The consent form gives Triad Care the participant's permission to proceed with the biometric screening. Without a completed form, we cannot complete the screening process.

- Explain the biometric screening process.
- Ask the participant if they have previously participated in a screening.
- Provide a brief explanation of what the participant can expect. (Example: "We will do a finger stick, take body measurements, and review your results before you leave.")
- Review the consent form and each item with the participant.
- Confirm the participant has no history of dizziness, no pacemaker, or possibility of pregnancy.
- The participant should initial any changes made on the form.
- Ensure the participant understands our privacy policy. All providers should be able to describe the privacy policy and consent form.
- Reinforce to the participant their personal information is not shared with their employer but can be shared with their insurance provider.
- By selecting "No," the participant may be ineligible for any available company incentives.
- **Confirm signature and date.**

Blood Pressure and Pulse Protocol

Participant should:

- Refrain from smoking, ingesting caffeine, or exercising for 30 minutes prior to measurement.
- Be seated quietly for at least 5 minutes in a chair (rather than on an exam table).
- Keep feet flat on the floor, legs uncrossed, rest arm supported at heart level with palm open facing upward, and refrain from talking.

Clinician should:

- Always conduct the blood pressure and pulse measurement before blood draws.
- Use the appropriately sized cuff for the participant. The cuff bladder should encircle at least 80 percent of the upper arm. If a participant is extra-large, an extra-large cuff should be used.
- Use calibrated or mercury manometer.
- Ask the participant if they have a dialysis shunt, history of mastectomy, injury, or rash. If so, utilize the opposite arm for blood pressure measurements.
- An abnormal reading requires a second measurement. Take the second measurement at least 1-2 minutes after the initial measurement. Any reading >140/90 mm Hg requires follow up (see below).

Biometric Screening Protocol

Proper Technique: LifeSource Digital Automatic Blood Pressure Monitor

- Press the On/Off button. Let the participant know there may be a squeezing sensation as the cuff inflates. Advise the participant to remain still, without talking, and leave feet flat on the floor throughout the reading.
- Ask the participant if the blood pressure result is close to their normal readings. If not, repeat the measurement manually.
- If the blood pressure reading is greater than 140/90 mm Hg, document the value and re-test after 1-2 minutes. If the second blood pressure reading is greater than 140/90 mm Hg, retest manually.
- If the final reading is greater than 160/90 mm Hg, document the value and immediately refer the participant to their primary care provider or urgent care.

Proper Technique: Manual Blood Pressure Measurement

- Deflate the blood pressure cuff by turning screw valve counterclockwise. Then turn the screw valve clockwise to tighten.
- Select the proper blood pressure cuff size.
- Place the blood pressure cuff on the participant's arm.
- Place the end of the stethoscope below the cuff on the inside of the elbow. The brachial artery pulse can help you determine the correct location.
- Inflate the blood pressure cuff to 20 mm Hg above the digital reading.
- Deflate the blood pressure cuff at 2-3 mm Hg per second while listening for the sounds of blood flowing. (For manual sphygmomanometers, systolic blood pressure is the point at which the first of two or more sounds is heard through a stethoscope. Diastolic blood pressure is the point before the disappearance of sounds.)

TRIAD CARE
Health Care That Saves

Biometric Screening Protocol

Finger Stick: Blood Glucose and Full Lipid Panel

A finger stick is used to collect a small blood sample required for blood glucose testing and a full lipid panel. Please follow the proper finger stick protocol listed below.

Proper Technique:

- Wear gloves.
- Select and prepare the 3rd or 4th finger (middle or ring finger) of the non-dominant, or non-writing, hand.
- Hand should be warm and relaxed. To prepare the finger, gently massage the finger from base to tip several times to bring blood to the fingertip.
- Participant's finger should be clean and dry. Clean the finger with an alcohol swab, to remove any fats from soap or make up. Allow the area to air dry or wipe with gauze.
- Prepare a single use retractable lancet by turning the small blue end and pulling it out. It is designed to generate an adequate sample of blood, equaling 40µL or two large drops of blood. We recommend the use of 21-gauge (1.8mm) depth lancets. To remove the protective cover, turn and twist in one movement (a full turn). Please note, standard diabetic lancets do not produce a sufficient volume of blood.
- Perform a deep, firm puncture. The best position is the side of the middle finger, about 5mm from the edge of the nail. There are relatively few nerve endings here, resulting in a less painful, well-formed drop of blood.
- It may help to put the participant's finger on a table to allow additional pressure when activating the lancet. By pressing down firmly, you ensure a deep enough penetration to get a good blood sample. Do not worry, this should not be painful for the participant.
- Dispose of the used lancet in a suitable sharps container immediately.
- Create a free-flowing drop of blood. Remember to collect the first blood drop with the glucose strip. It is important not to move the device after the first sample is collected. Wipe excess blood away with clean gauze. NEXT, hold the capillary tube (heparinized, to avoid clotting) parallel to the new drop of blood. Touch the capillary tube into the drop of blood, and the tube will fill by capillary action. Usually, you will need to create another drop of blood by squeezing the finger again to have an adequate blood volume to fill the tube. When the second drop is created, reapply the capillary tube to the drop of blood. Completely fill the capillary tube to the black mark. Avoid collecting air bubbles in the capillary tube by ensuring you place the capillary tube into a large enough drop of blood on the side of the finger, parallel to the floor.
- Dispense blood from the filled capillary tube by squeezing the capillary bulb until all the blood is dispensed into the lipid strip. The blood should be dispensed within a few minutes of collection. Dispose of the used capillary tube in the sharps container immediately.
- As soon as you have dispensed the blood sample onto the lipid strip, the machine will begin testing. Do not move the machine while tests are running.
- Wipe off any excess blood and have the participant apply pressure to the puncture with gauze, then apply a bandage.
- For complete information on disposing of wastes, refer to Bloodborne Pathogens (BBP) training.

*****Further testing is required if fasting glucose is greater than 126 mg/dL, or non-fasting is greater than 200 mg/dL**.** Participant should be encouraged to follow up with his/her primary care provider. *****

Weighing Protocol

Test and calibrate each scale by weighing yourself each time the scale is moved, or each morning of a screening event. Please verify and note that the scale reports about what you normally weigh.

Biometric Screening Protocol

Weight

- Place scale on the provided tile.
- Turn on the scale and allow it to turn off without touching it or weighing an object.
- Test and calibrate each scale by weighing yourself.
- Document the weight is your normal weight in the blue folder each day before visits begin.
- Be sure to ask the participant if the weight matches what they typically weigh.
- Document measurement as required.

Waist Circumference

- Use a retractable or paper tape measurer.
- Proper placement for waist circumference is around the "natural" waist, or between the hip bone and the bottom of the rib cage. Ask the participant to identify his or her bellybutton. Measure around the participant at the widest point near the bellybutton. Measurement should be taken on exhale.
- Document measurement as required.

Hip Circumference

- Use a retractable or paper tape measurer.
- Proper placement for hip measurement is just below the belt line to the side of the participant. The measurement should be taken around the widest portion of the buttocks.
- Document measurement as required.

Body Fat & BMI Monitor (OMRON)

The OMRON is used to measure body fat percentage by sending a small electrical signal through the hand, which is received by the opposite hand. The device also calculates the participant's body mass index (BMI) by using data entered the monitor.

Each provider must ask all participants if they have a pacemaker and must ask all females if they are or could be pregnant. If the answer is "yes" to either question, DO NOT PERFORM THE TEST, and document the reason in the collection field.

Proper Technique:

- Press On/Off Button.
- "Guest" will begin to flash. Press the Set button.
- When "Normal" begins to flash, press the Set button.
- "Height" will begin to flash. Enter the participant's height to the nearest ¼ inch by using the Up/Down arrow buttons, then press the Set button.
- "Weight" will begin to flash. Enter the participant's weight by using the Up/Down arrow buttons, then press the Set button.
- "Age" will begin to flash. Enter the participant's age by using the Up/Down arrow buttons, then press Set button.
- "Gender" will begin to flash. Choose the appropriate gender by using the Up/Down arrow buttons, then press Set button.
- Instruct the participant to firmly grip the silver plates with both palms. Place thumbs on top of monitor, hold monitor straight out in front, and lock the elbows. Be sure to remind the participant to remain still.
- Press Start.
- When monitor shows values, document information as required.

Body Fat & BMI Monitor (OMRON)

Common OMRON error reports and suggested resolutions are listed below.

Error Reports for OMRON	
E1, E2	Grip or posture error; Re-grasp grips and re-try with arms fully extended & immobile.
E3	Hands are too dry; Re-test after participant slightly moistens hands.
E4	Body fat % error; The participant's fat % is greater than 50% or less than 6%.
E5, E6	Abnormal operation; Turn off the device and re-start measurement.
Be sure to record the data in the correct field.	

Recording and Assessing Values from Screening

All values should be recorded on the Triad Care retention document immediately. Do not sign and date the retention document until all values are recorded. After the retention document is completed and signed and dated, record values on the participant's document.

If any of the values in the comments section below are present for a participant, kindly suggest he or she follows up with his or her physician to share our collected data.

Lipid Panel		
	Desirable Values (mg/dL)	Comments
Total Cholesterol	< 200	
Triglycerides	<150	If > 400, recommend follow up with physician
LDL	<100	If > 160, recommend follow up with physician
HDL	Females: > 50	
	Males: > 45	

Blood Glucose		
	Desirable Values (mg/dL)	Comments
Fasting Glucose	<100	If > 126 and the participant does not have a diagnosis of diabetes, recommend follow up with physician
Non-fasting Glucose	<140	If >200 and the participant does not have a diagnosis of diabetes, recommend follow up with physician

Body Mass Index		
	Normal Values (kg/m^2)	Comments
BMI	18.5 to < 25	If BMI is > 35 recommend follow up with physician

Blood Pressure			
Classification	Systolic BP (mm Hg)		Diastolic BP (mm Hg)
Normal	<120	and	<80
Prehypertension	120-129	and	<80
Stage I Hypertension	130-139	or	80-89
Stage II Hypertension	>140	or	>90

Triad Care, Inc. Biometric Screening Expectations

Triad Care, Inc. employees represent our company and our mission at every onsite event. The customer service experienced by each company and by each participant should be exceptional and consistent. This includes using “please” and “thank you” regularly and conducting interactions professionally. The goal of every participant interaction should be to exceed expectations.

Triad Care, Inc. employees are expected to comply with company dress code expectations at all onsite events. Employees should dress professionally in black scrubs, with name tags worn at all times.

Information provided by Triad Care, Inc. employees should be consistent. It is only acceptable to discuss general information with participants. Please refer to Triad Care, Inc. participant handouts for acceptable, lifestyle modification recommendations. Do not make medication recommendations (OTC, herbal or prescription). Any specific drug therapy questions should be directed to a Triad Care, Inc. pharmacist.

Triad Care, Inc. employees are expected to be knowledgeable about the data being collected at screening events. Baseline knowledge will be assessed prior to screeners interacting with program participants. Screeners may be asked to demonstrate competencies by written test, screening colleagues, or performance assessment with a Triad Care, Inc. management team member.

Key Concepts

Blood Pressure

The heart is a muscle that functions like a pump. When it contracts, or beats, it sends a surge of blood through the blood vessels and pressure increases. This is called systolic pressure. When the heart relaxes between beats, the blood pressure decreases. This is called the diastolic pressure.

Blood pressure rises and falls throughout the day. When blood pressure stays elevated over time, it is called high blood pressure or hypertension.

The blood pressure measurement is written with the systolic value on top and the diastolic value on the bottom. For example, a reading of 126/76 mm Hg (millimeters of mercury) is expressed verbally as “126 over 76”.

Pulse

The pulse is a throbbing of the arteries as blood is propelled through them. The pulse is typically felt in the wrists or neck. For an adult, a normal resting heart rate ranges from 60 to 100 beats per minute. For a well-trained athlete, a normal resting heart rate may be closer to 40 meats per minute. For healthy adults, a lower heart rate at rest generally implies more efficient heart function and better cardiovascular fitness.

Blood Glucose and Hemoglobin A1C

Glucose is a simple sugar that serves as the main source of energy for the body. The carbohydrates we eat are broken down into glucose, absorbed by the small intestine, and circulated throughout the body. Most of the body’s cells require glucose for energy production. The body’s use of glucose hinges on the availability of insulin, a hormone produced by the pancreas. Insulin transports glucose into the body’s cells, directing the body to store excess glucose as glycogen (for short-term storage) or as triglycerides in adipose (fat) cells. Diabetes is diagnosed when the pancreas is unable to produce enough insulin or the body’s cells stop responding to insulin, resulting in an increased level of blood glucose in the blood.

Hemoglobin A1C is a blood test that shows the average blood glucose level over the past two to three months. This measurement can help to determine how well your blood glucose is controlled.

	Fasting Blood Glucose	Postprandial Blood Glucose	A1C
Normal	< 100 mg/dL	< 140 mg/dL	< 5.7%
Impaired (Pre-Diabetic)	≥ 100 - < 126 mg/dL	≥ 140 - < 200 mg/dL	≥ 5.7 - < 6.5%
Diabetic	≥ 126 mg/dL	≥ 200 mg/dL	≥ 6.5%

TRIAD CARE
Health Care That Saves

Biometric Screening Protocol

Fasting → Nothing to eat or drink for at least 12 hours (per the PTS panel package insert).

Lipid Panel

Cholesterol is a soft, fat-like, waxy substance found in the bloodstream and in the body's cells. It is normal to have cholesterol. Cholesterol is used in the production of cell membranes and some hormones and serves other needed bodily functions. There are two ways the body accumulates cholesterol:

1. Naturally produced by the liver
2. Through food intake

Too much cholesterol in the blood is a major risk for coronary artery disease, which may lead to a heart attack or stroke. Hypercholesterolemia is the term for high levels of blood cholesterol.

Cholesterol levels should be measured at least once every five years for everyone over the age of 20. This is typically performed as a blood test call a lipoprotein (lipid) profile. Experts recommend that men aged 35 and older and women age 45 and older, be routinely screened for lipid disorders.

HDL Cholesterol (high density lipoprotein): HDL cholesterol is also known as “good cholesterol.” It is produced by the liver. The higher the HDL level, the better it is for your health. HDL cholesterol protects against heart disease by removing “bad” cholesterol from your blood, preventing it from building plaque inside the arteries.

LDL Cholesterol (low density lipoprotein): LDL cholesterol is also known as “bad cholesterol.” LDL is heavily impacted by your diet. LDL cholesterol can build up on the walls of arteries and increase your chance of heart disease. The lower your LDL cholesterol value, the better.

Triglycerides: Triglycerides are the chemical form of fats carried in the blood. Triglycerides are heavily linked to the foods we eat. Excess calories, alcohol, and sugar are converted into triglycerides and stored in fat cells throughout the body. High triglyceride levels have been linked to coronary artery disease in some patients.

Total cholesterol is a measure of LDL cholesterol, HDL cholesterol, and other lipid components. Ideal total cholesterol levels should be < 200 mg/dL.

	Desirable Levels	Borderline (High)	High Risk
Total Cholesterol	< 200 mg/dL	200 - 240 mg/dL	> 240 mg/dL
Triglycerides	< 150 mg/dL	150 - 199 mg/dL	> 200 mg/dL
LDL Cholesterol	< 100 mg/dL	100-160 mg/dL	> 160 mg/dL
HDL Cholesterol (Male)	> 45 mg/dL	45 - 35 mg/dL	< 35 mg/dL
HDL Cholesterol (Female)	> 50 mg/dL	50 - 35 mg/dL	< 35 mg/dL

Body Mass Index (BMI) and Body Fat Percentage

Body Mass Index (BMI) is a calculation based on height and weight. BMI can be used to screen for weight categories that may lead to health problems, but it is not diagnostic of the body fat or health of an individual.

Body fat percentage is a useful indicator of body composition. It is used to identify excess fat tissue which often leads to an increased risk of developing chronic disease.

Body Fat Classifications (%)		
	Women	Men
Essential	10 - ≤13	2 - ≤ 5
Athletes	>13 - ≤20	>5 - ≤13
Fitness	>20 - ≤24	>13 - ≤17
Average	>24 - ≤31	>17 - ≤24
Overweight	>31	> 24

BMI Ranges (kg/m^2)	
Underweight	< 18.5
Normal	18.5 - < 25
Overweight	25 - < 30
Obese	30 - < 35
Clinically Obese	35 - < 40
Morbidly Obese	≥ 40

Waist and Hip Circumference

Waist and hip circumference are used to identify weight distribution. Excess weight distribution in the abdominal area has been associated with increased risk of developing heart disease and type 2 diabetes.

Waist Circumference		
Risk:	Women	Men
Average	≤ 35 inches	≤ 40 inches
High	> 35 inches	> 40 inches

Waist to Hip Ratio		
Risk:	Women	Men
Low	≤ 0.8	≤ 0.95
Moderate	>0.8- ≤0.85	>0.95- ≤1
High	> 0.85	> 1

Metabolic Syndrome

Metabolic syndrome is a combination of conditions occurring together that increase the risk for heart disease, stroke, and diabetes. A person who has metabolic syndrome is twice as likely to develop heart disease and five times as likely to develop diabetes as someone who does not have metabolic syndrome. A healthcare provider may diagnose metabolic syndrome when three or more of the following conditions exist simultaneously:

Waist >35” (F) or >40” (M)	Triglycerides ≥150mg/dL	HDL <50mg/dL (F) or <40mg/dL (M)	Blood pressure ≥ 130/85 mm Hg	Fasting glucose ≥100 mg/dL