

# Heart Talk

## Blood pressure chronicles and the New Orleans connection

BY BROBSON LUTZ M.D.



First and foremost, the heart is a pump with an electrical system. It is the Sewerage and Water Board and the Department of Sanitation all rolled into one. High pressure surges propel blood containing oxygen, nutrients, and hormones from head to toe via thick-walled pipes or arteries. Veins and lymphatics are the lower pressure drainage canals responsible for recycling cellular wastes.

Structurally the heart is a four-chamber muscular pump. It is a variable pressure that responds to changing needs. If blood pressure is too low, various essential organs suffer by not getting needed oxygen and nutrients. On the other hand, if it takes a higher pressure to keep the blood moving, electrical and mechanical damages over time fuel premature cardiovascular disasters.

Blood pressure readings are two-component numbers measured in millimeters of mercury. Systolic pressure, the first and always higher number, represents the maximum pressure produced by the pulsating heart. The diastolic pressure is the lowest arterial pressure as the heart rests between beats. In the 1970s blood pressure treatment guidelines focused on elevated diastolic blood pressure. Since then, tides shifted.

How much pressure is too much? The numbers keep falling. Dateline New Orleans, November 2017. Dr. Paul Whelton, Tulane School of Public Health and Tropical Medicine, was the lead author on a team which toiled over more than 900 published papers to produce the new guidelines.

Dr. Whelton is the latest in a string of New Orleanians making seminal contributions in the field of hypertension. Dr. George Burch at Tulane pioneered research in venous hypertension and promoted better blood pressure taking techniques. He mentored Drs. Gilbert McMahon and Tom Giles.

Dr. McMahon trained 10 inner city students to take blood pressures one summer in the early 1970s. They fanned out, taking blood pressures of over 11,000 New Orleans housing development residents. They found an incredible amount of undiagnosed and

undertreated hypertension.

Dr. McMahon studied essentially every new drug tested for hypertension over three decades. Dr. Giles was a recent president of the American Society of Hypertension and continues as a prolific researcher and medical journal contributor.

Another New Orleans pioneer still in the business is Dr. Gerald Berenson. In 1972, he founded the Bogalusa Heart Study to define pediatric cardiac risk factors including hypertension. Dr. Berenson started this study at LSU and moved it to Tulane. He is now in his 90s, back at LSU, and going strong.

Dr. Whelton and his collaborators under the mantles of the American College of Cardiology and the American Heart Association were center stage last year. They redefined blood pressure categories and lowered the bar for diagnosing high blood pressure. Time for concern was lowered to 130/90 when before it was 140/90. Headlines in medical news publications screamed "130/80 is the new 140/90".

The new categories are elevated blood pressure, Stage 1 hypertension, and Stage 2 hypertension (see sidebar). They made recommendations on blood pressure taking techniques, including proper blood pressure cuff size, the importance of a relaxed environment, and home recordings that echoed what Drs. Burch, McMahon, and Giles had preached decades ago. White coat hypertension and masked hypertension are defined. Medication suggestions are updated.

Based on these new guidelines, experts calculated that the number of Americans with high blood pressure jumped from 72 to 103 million last November with the stroke of a pen. The number of men less than 45 years old with the diagnosis tripled while the number of women in this lower age range with high blood pressure doubled.

My first blush after reading these new recommendations was that Big Pharma must have been driving the bus. Actually, the new treatment guidelines do not recommend drug therapy for most of the 31 million folks who woke up last November with high blood pressure under the new numbers. For most, the new recommendations call for diet and lifestyle changes without drug treatment as listed in the sidebar. Only 4.2 million of the newly christened hypertensives would actually need to begin medication under the new guidelines.

Tons of compelling data show that elevated blood pressure is a defined risk factor for cardiovascular complications including heart attacks, stroke, heart failure, and aneurysm rupture. A systolic blood pressure elevation of just 20 points doubles the risk of cardiac complications. Hypertension is second only to cigarettes as a preventable factor related to cardiovascular disease.

In the absence of underlying cardiovascular disease, most persons even with Stage 1 hypertension will not need drug therapy. The American College of Cardiology has an easy to use website that will calculate your 10-year risk of having a heart attack or stroke. It lets you follow your risk factors over times and will also show how much each specific intervention will lower that risk.

Back to the Sewerage and Water Board. When their pumps failed, the city appointed a new director and the retirement board paid the piper. Persons who ignore elevated blood pressure, long known as the silent killer, can't blame Mitch Landrieu and Cedric Grant.

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## NON-DRUG MEASURES THAT DECREASE BLOOD PRESSURE

Decrease salt intake (avoid chips, canned vegs, cold cuts, pizza to name a few)

Decrease fatty foods (French fries, animal fats, ice cream)

Increase dietary potassium (fish, raisins, prunes, bananas, beets, spinach, tomatoes, mushrooms, citrus)

Weight loss if overweight

Increase physical activity

Cut down on alcohol intake

Avoid tobacco smoke

## DATA TO CALCULATE RISK OF A HEART ATTACK OR STROKE IN THE NEXT 10 YEARS

Age, sex, race

Cholesterol values

Systolic blood pressure

Current or former cigarette smoker

Diabetes

Prior stroke or heart attack

Peripheral vascular disease

Current medications if any

Website: <https://tools.acc.org/ASCVD-Risk-Estimator/>

## NEW HIGH BLOOD PRESSURE DEFINITIONS AND RECOMMENDATIONS

Systolic BP		Diastolic BP	Blood pressure category	Is drug therapy indicated?
<120	and	<80	Normal blood pressure	No
120-129	and	<80	Elevated BP	No
130-139	or	80-89	Stage 1 hypertension	No unless cardiovascular risks are high
140-159	or	90-99	Stage 2 hypertension	Yes
>159	or	>99	Stage 2 hypertension	Yes
>180	or	>120	Hypertensive crisis	Yes

