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## HYPERTENSION

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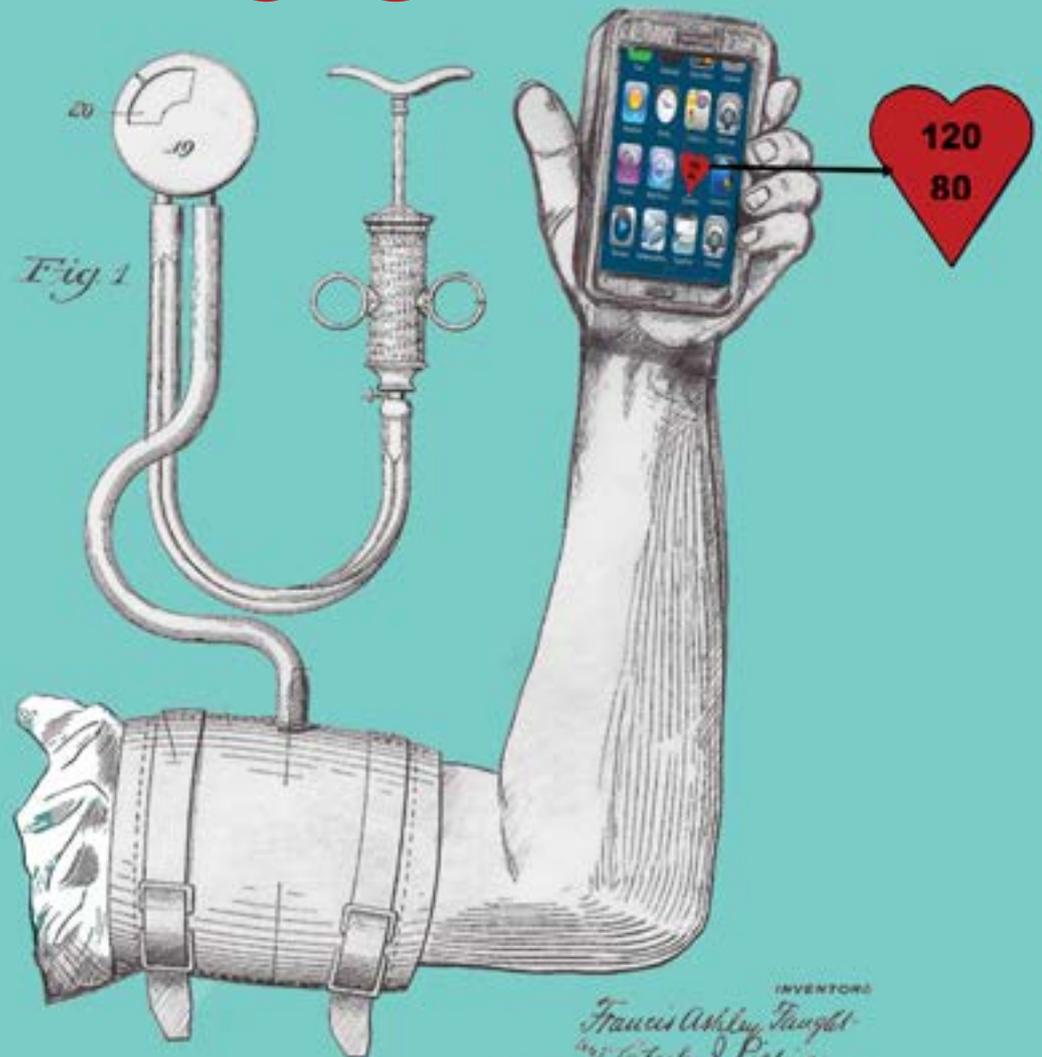
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Residency**

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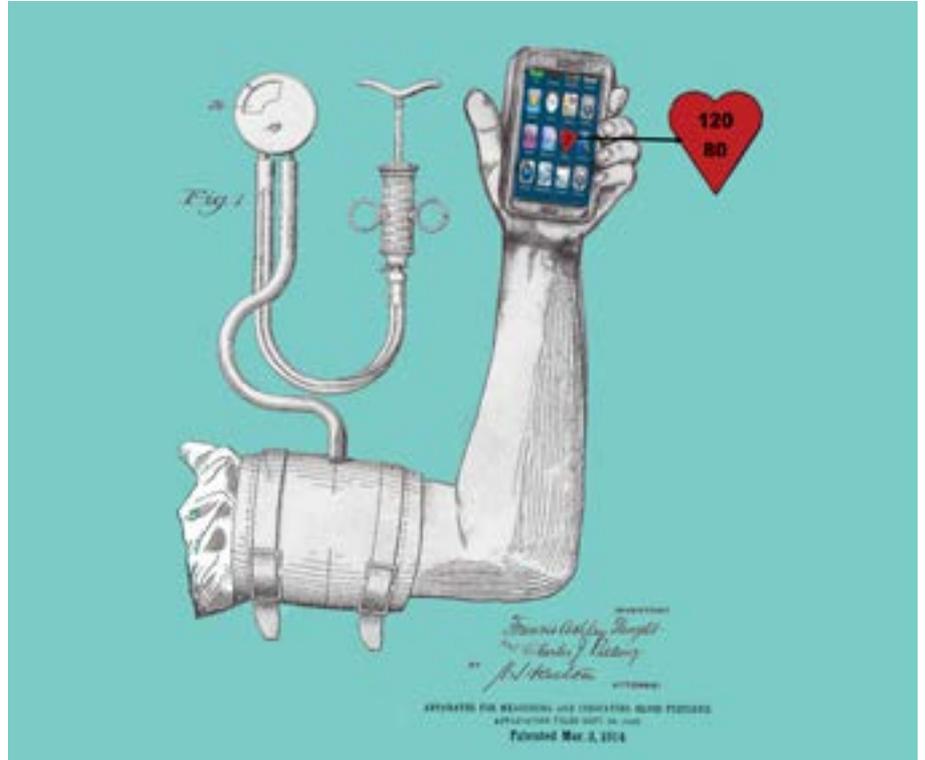


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# Southwest Atlanta NEPHROLOGY, P.C.

## Shines The Light on Hypertension



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# HYPERTENSION

By William H. Cleveland, M.D.

**H**ypertension has a long history involving an evolution in medical knowledge and clinical technology. Ancient Egyptians and Greeks observed the pulse frequency, size, strength and rhythm. They believed the heart speaks out of every limb. (Herophilus 335-280 BC)<sup>1</sup>. To give a historical perspective, in the early 1800s clinical measurement of blood pressure was achieved with a cumbersome device as illustrated on the cover of this edition.

In 1905, a Russian surgeon named Dr. Nikolai Korotkoff<sup>2</sup> reported that when he placed a stethoscope over the brachial artery, a tapping sound could be heard as an inflated cuff was deflated. This provided a practical way for systolic and diastolic blood pressures to be measured.

As measuring and recording blood pressure became more common, elevated blood pressure (hypertension) was recognized by the 1940s. Debate at the time centered on whether hypertension was harmful or helpful, and the term benign hypertension was established.

By the late 1950s, clinical trials documented that lowering blood pressure with thiazide medication was effective. Debate continued until the 1960s, when the U.S. Veterans Study<sup>3</sup> convincingly showed that lowering high blood pressure is associated with a reduction in strokes. Since that time, “observational studies have firmly established the relationship between blood pressure and cardiovascular disease to be direct and progressive.”<sup>4</sup>

Today, clinical hypertension has expanded into a wide spectrum of medical classifications, including malignant, accelerated, secondary, pregnancy associated, adult, adolescent, pediatric, systolic, diastolic, nocturnal and white-coat hypertension, to name only a few.

The medical evaluation of hypertension now requires the understanding of the above classifications along with the appropriate diagnostic and therapeutic options for each classification. Our medical literature has provided specific blood pressure targets, and the pharmacological industry has provided more than 200 oral medications from which physicians can choose. With these advances, the healthcare team can tailor their patients’ treatment regimen to achieve maximum blood pressure benefit with minimal to no side effects.

As the medical landscape in the 21st century changes from individual physician-patient interactions to patient-

clinical team interactions, innovative approaches are being used, including new wireless technologies to improve clinical effectiveness, quality and patient satisfaction.

We are pleased to have six outstanding original articles that address important current topics in hypertension. Our physician authors are highly experienced in treating patients with hypertension, and their articles provide important information to our physician community.

Dr. John Davis Cantwell gives us 12 tips to maintaining optimal blood pressure in young athletes.

Dr. Rachel Harris shows us how obesity plays into hypertension among our adolescent population, of which approximately 20 percent are affected, and asks some compelling questions that could cause us to consider redefining and treating hypertension.

Dr. Angus Howard steers us away from the myths and towards the facts of white-coat hypertension.

Dr. Brittany Thomas wants to start the conversation about hypertension and sexual dysfunction, and she does not want to leave the women out of this conversation.

Dr. Janice Lea’s article, “Should we SPRINT to a Lower Blood Pressure Goal,” hones in on the current recommendations and blood pressure goals.

Dr. Jennifer Zrelhoff along with co-author Dr Jason Higdon wisely advises us to “shift our practice style away from episodic care to comprehensive, longitudinal care that can help more of our patients reach their health goals.” ■

## References

1. J Rocca, ‘Herophilus of Chalcedon and Erasistrasus of Ceos’, in W F Bynum and H Bynum (eds), *Dictionary of Medical Biography*, Vol. 3 (Westport and London: Greenwood Press, 2007), pp 637-9.
2. N C Korotkoff, Imperial Military Medical Academy in St. Petersburg in December 1905.
3. Veterans Administration Cooperative Study Group on Antihypertensive Agents. Effects of Treatment on Morbidity and Hypertension: Results in patients with diastolic pressures averaging 115 through 129 millimeters of mercury. *JAMA* 1967; 202:1028-1034.
4. Lawrence J. Appel, M.D., M.P.H., William H. Cleveland, M.D., et al, ‘Intensive Blood-Pressure Control in Hypertensive Chronic Kidney Disease’. *N Engl J Med* 2010; 363: 918-29.

# 12 TIPS FOR HYPERTENSION IN THE ATHLETE

By John Davis Cantwell, M.D., MACP, FACC

For the past 40 years, I have been doing pre-season Atlanta Braves baseball physicals at their spring training facility in Florida (Fig 1). Thirty-five years ago, I began doing pre-season cardiovascular examinations on freshman Georgia Tech athletes.

Usually every year there are several athletes noted to have hypertension. This is not surprising, since prior surveys suggest that 3.5 percent of children and up to 9 percent of young adults are hypertensive<sup>1</sup>. Yet, in all those years, we have never had to disqualify an athlete from competition due to this disorder.

I have a mental checklist in evaluating the hypertensive athlete, which includes:

- 1 Using a wide cuff in large athletes. I also check the blood pressure in both arms at least once.
- 2 Arranging to get multiple follow-up blood pressure (BP) readings with the athletic trainer or with the athlete (using an Omron home arm BP cuff), noting the findings on our graph paper chart.



Fig. 1. The author with Hall-of-Fame pitcher John Smoltz.

- 3 Taking a thorough family history, especially regarding hypertension, strokes and early coronary events (male relatives < age 55, female relatives < age 65).
- 4 Asking about weekly caffeine and alcohol intake and use of nonsteroidal drugs, amphetamines and anabolic steroids.
- 5 Checking the body mass index. The BodPod is a more accurate determination of excess body fat in heavily muscled, weight-training athletes.
- 6 Discussing the athletes' typical daily diet, including their sodium intake.
- 7 Reviewing the urinalysis, blood creatinine, calcium, TSH and lipid results.
- 8 Looking at the QRS voltage on the ECG. We find it to be falsely suggestive of myocardial hypertrophy, especially in some of the Georgia Tech track athletes, compared to the more precise echocardiographic readings.
- 9 Remember the ABCDs in choosing drug therapy, when indicated:  
Ace/ARB, Beta blocker-best in young, whites.  
Calcium channel blockers, Diuretics-in older, blacks. However, I usually do not start with beta blockers in any athlete as it seems to affect the perceived exertion level in some, while athletes have enough issues with sweating and fluid balance without adding a diuretic. Accordingly, I usually start with a low-cost generic ACE or ARB (like lisinopril, losartan), watching the creatinine and potassium levels. Be sure that any drug you prescribe is okay with the appropriate governing body, like the NCAA or International Olympic Committee (IOC).
- 10 Consider a 24-hour continuous blood pressure monitor reading in selected cases. Unfortunately, this is not readily available.

**11** I rarely screen for pheochromocytomas, Conn's syndrome, and renal artery abnormalities, but I do listen for abdominal bruits, check for radial and femoral pulse delays and auscultate the posterior chest to exclude coarctation, but have never found these disorders.

**12** Be aware of the new American College of Cardiology Guidelines on dealing with a hypertensive athlete.<sup>2</sup>

Finally, bear in mind as Harvard cardiologist, Elliott Antman, M.D., recently stated: "The epidemiologic evidence clearly shows that increased blood pressure relates to an increased risk for cardiovascular events across a blood pressure range from 115/75 mmHg to 185/115 mmHg."<sup>3</sup> As Ventura and Lavie remind us, "Projecting into the athlete's future, for every 20 mmHg systolic BP reading above 115 mmHg and/or 10 mmHg diastolic reading above 75 mmHg, there is a two-fold increase in mortality associated with strokes and coronary artery disease."<sup>4</sup> ■

#### REFERENCES:

1. McNiece KL, Paffenbarger RS, Turner JL, et al. Prevalence of hypertension and pre-hypertension among adolescents. *J Pediat* 2007; 150:640-644.
2. Maron BJ, Zipes DP, Kovacs RJ. Eligibility and disqualification recommendations for competitive athletes with cardiovascular abnormalities: Preamble, principles, and general considerations. *JACC*, 2015. (In press.)
3. Antman EM. New hypertension guidelines clarify prior confusion. *Int Med News* 2015; 48:15.
4. Lewington S, Clarke R, Qizilbash N et al. Prospective studies collaboration. Age-specific relevance of usual blood pressure to vascular mortality: A meta-analysis of individual data for one million adults in 61 prospective studies. *Lancet* 2002;360:1903-1913.

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# ADOLESCENT HYPERTENSION

## ASSESSMENT OF FUTURE ADULT CARDIAC RISK

By Rachel Harris, M.D., MPH

Hypertension affects one in four adults in the U.S. and remains the leading modifiable cause of chronic illness in the world.<sup>1</sup> While the correlation between hypertension and cardiovascular risk has been established in adults, less data exists for adolescents. What has been shown is that adult blood pressure correlates with childhood blood pressure, body size and obesity from childhood to adult life, with those who are most obese as adults having shown the greatest increase in weight for height from their childhood years.<sup>2</sup>

Since the 1990s, hypertension and prehypertension have been increasing among children and adolescents.<sup>3</sup> From 2003 to 2006, among children and adolescents aged 8 to 17 years, the prevalence of prehypertension was approximately 14 percent in males and approximately 6 percent in females, and the prevalence of hypertension was estimated to be 3 percent-4 percent in various studies.<sup>3</sup>

From 1997 to 2006, hospitalization rates for children and adolescents with a diagnosis of hypertension doubled, from approximately 18 cases per 100,000 pediatric hospital discharges in 1997 to approximately 35 cases per 100,000 in 2006.<sup>3</sup> The prevalence of hypertension among all adolescents remains approximately 3.5 percent, with rates of prehypertension even as high as 15 percent.<sup>4,5</sup>

Traditionally, conventional wisdom taught that while essential hypertension was highly prevalent in adults, children and adolescents with hypertension usually had a secondary cause for elevated blood pressure. While it's still true that hypertensive children are more likely than adults to have a secondary cause, obesity-related essential hypertension is becoming the predominant form of blood pressure abnormality seen in adolescents.<sup>6</sup>

Obesity affects approximately 20 percent of adolescents in the United States, and the prevalence of hypertension is much higher among

obese adolescents compared with non-obese adolescents.<sup>4</sup> The correlation between body mass index and blood pressure in adolescence is moderate to strong in most studies and strongest in those classified as overweight or obese.<sup>7</sup>

In this population, the evaluation of hypertension should begin with a confirmation of the blood pressure elevation followed by a focused diagnostic work-up to detect possible secondary causes of hypertension.<sup>4</sup> Primary or essential hypertension is diagnosed when persistently elevated (three or more separate occasions) blood pressure cannot be explained by any underlying organic cause.

According to the recommendations of the Task Force on Blood Pressure Control in Children, children and adolescents age 1 to 17 are considered hypertensive if their average systolic and/or diastolic blood pressure readings are at or above the 95th percentile (based on age, sex, and height) on at least three separate occasions (Table 1).<sup>8</sup>

Close monitoring should be performed for those with prehypertension as well, given that an analysis of the National Childhood Blood Pressure database found that 14 percent of adolescents with prehypertension developed elevated blood pressure within two years.<sup>3</sup>

Left ventricular hypertrophy (LVH) is a powerful independent risk factor for cardiovascular morbidity and

	<b>SBP or DBP Percentile</b>
<b>Normal</b>	< 90th percentile
<b>Prehypertension</b>	≥ 90th and < 95th percentiles or if BP > 120/80
<b>Stage 1 Hypertension</b>	≥ 95th percentile but < 99th percentile + 5 mmHg
<b>Stage 2 Hypertension</b>	> 99th percentile + 5 mmHg

Table 1. Classification of Hypertension in Children and Adolescents (Courtesy of Fourth Task Force on Blood Pressure Control in Children, children and adolescents 1 to 17 years of age)<sup>8</sup>

mortality among hypertensive patients. Among children and adolescents with hypertension, as many as one in three has target organ damage, especially left ventricular hypertrophy.<sup>3</sup>

Adolescents with significantly elevated blood pressure require a comprehensive assessment of end-organ damage and cardiovascular risk. This assessment should include an echocardiogram and renal ultrasound in all children with persistently elevated blood pressure. Moreover, as an ECG is a less reliable indicator of ventricular mass in children, echocardiography is the most sensitive and specific tool to assess left ventricular hypertrophy in childhood.<sup>6</sup>

Additionally, because LVH is such a strong marker of end-organ damage in children and an early predictor of heart disease in adults, the presence of LVH is an indication to initiate or intensify pharmacologic treatment of hypertension.<sup>6</sup>

Assadi demonstrated that in children with essential hypertension, the treatment of microalbuminuria by renoprotective therapy (angiotensin-converting enzyme inhibitors or angiotensin-receptor blockers) was associated with LVH regression.<sup>5</sup> It is also clinically important to recognize that while LVH is a modifiable risk factor, its management is more complex than just blood pressure control. As left ventricular hypertrophy strongly predicts cardiovascular morbidity and overall mortality in

hypertensive patients,<sup>9,13</sup> antihypertensive treatment that causes LVH regression decreases rates of adverse cardiovascular events and improves survival, independent of how much the blood pressure is lowered.<sup>9,13</sup>

A number of nonmodifiable and modifiable factors have been implicated in the development of hypertension. Importantly, certain clinical and biochemical markers in overweight adolescents are indicative of high risk for hypertension, including family history of hypertension and hyperinsulinemia.<sup>7</sup>

Despite the absence of robust longitudinal data to assess outcome risk among adolescents with hypertension, data on surrogate markers of vascular injury indicate that vascular abnormality does occur. Structural changes in forearm vessels of obese adolescents with hypertension were detected by Rocchini et al.,<sup>5</sup> who observed a significant correlation between peripheral vascular resistance at maximum vasodilation and measures of insulin resistance. The Pathologic Determinants of Atherosclerosis in Youth study demonstrated quantifiable vessel injury is detectable in adolescents and young adults, and there is a relationship, even in youth, between early atherosclerotic lesions and cardiovascular risk factors, including hypertension, dyslipidemia and smoking exposure.<sup>5</sup> Carotid artery intimal medial thickness (cIMT) has also been found to be greater in young adults who have had multiple risk factors since childhood.<sup>5</sup>

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## Since the 1990s, hypertension and prehypertension have been increasing among children and adolescents.

While examining modifiable risk factors, a focus on behavior is paramount.<sup>10</sup> One must ask the question: Are population- and individual-level approaches that support the establishment of positive health behaviors early in life the foundation of preserving ideal cardiovascular health and promoting positive cardiovascular outcomes?

While the majority of adolescents are free of cardiovascular disease, far fewer are free of cardiovascular disease risk factors, especially lifestyle factors such as poor exercise and dietary habits.<sup>10</sup> Evidence of the effectiveness of long-term dietary intervention for the reduction of risk factors for cardiovascular disease (CVD) in children is limited, but ample data suggest that changes in specific dietary macronutrients (eg, dietary fat and carbohydrates) and micronutrients (eg, sodium and calcium) have an impact on the risk of CVD.<sup>14</sup>

Yang et al analyzed NHANES database to assess the association between usual dietary sodium intake and blood pressure among U.S. children and adolescents ages 8-18 years old, overall and by weight status, and found sodium intake and weight status to have synergistic effects on risk for pre-hypertension and hypertension with a stronger association among those who are overweight or obese.<sup>11,14</sup> Moreover, combined diet and physical activity interventions have led to a significantly greater reduction in both systolic blood pressure and diastolic blood pressure than the diet-only or physical activity-only intervention.<sup>12</sup>

While continued longitudinal studies are needed to assess long-term risk, there are many pressing potential areas of focus, such as a re-evaluation of the definition of prehypertension and hypertension. It is currently based on the upper segment of the normal blood pressure distribution. Can the percentiles currently used underestimate the longitudinal risk? Is the true threshold lower? Can additional predictors such as BP to height ratio be as accurate and not as cumbersome as current practice? Is there an increased role for 24-h ambulatory blood pressure monitoring (ABPM) as an initial confirmatory test in all adolescents with suspected hypertension due to elevated office readings?<sup>26</sup>

Cumulative BP measurements on an individual child provides a better definition of the BP phenotype, with ambulatory BP monitoring (ABPM) becoming a potential useful tool for evaluating BP patterns (with some normative ABPM data now available).<sup>5</sup>

Accumulating evidence continues to support elevated blood pressure levels in adolescence as a precursor of elevated blood pressure in adulthood, making it of utmost importance to identify elevated blood pressure in childhood and adolescence.<sup>3</sup> Primary therapy for obesity-

related hypertension in adolescents begins with weight loss and targeted dietary intervention. It may also include antihypertensive medications if target-organ damage or other indications for drug therapy are present. The emphasis for reduction of future adult cardiovascular risk continues by addressing all modifiable factors with early recognition and intervention.<sup>4</sup> ■

*For more information, please visit [www.nhlbi.nih.gov/files/docs/resources/heart/hbp\\_ped.pdf](http://www.nhlbi.nih.gov/files/docs/resources/heart/hbp_ped.pdf)*

### References

1. WHO, World Health Organization. A global brief on hypertension, 2013. Geneva: World Health Organization; 2013.
2. Lauer RM, Clarke WR. Childhood risk factors for high adult blood pressure: the Muscatine Study. *Pediatrics*. 1989;84(4):633.
3. Kaikkonen JE, Mikkilä V, Magnussen CG, et al. Does childhood nutrition influence adult cardiovascular disease risk?—insights from the Young Finns Study. *Ann Med*. 2013;45(2):120-8.
4. Flynn JT, Falkner BE. Obesity hypertension in adolescents: epidemiology, evaluation, and management. *J Clin Hypertens (Greenwich)*. 2011; 13(5):323-31.
5. Falkner B. Hypertension in children and adolescents: epidemiology and natural history. *Pediatr Nephrol*. 2010; 25(7): 1219–1224.
6. Samuels, J, Bell C, Samuel J et al. Management of Hypertension in Children and Adolescents. *Curr Cardiol Rep*. 2015; 17:107.
7. Kelly RK, Magnussen CG, Sabin MA et al. Development of hypertension in overweight adolescents: a review. *Adolesc Health Med Ther*. 2015;6:171-87.
8. The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents. U.S. Department of Health and Human Services. National Institutes of Health. National Heart, Lung, and Blood Institute. [https://www.nhlbi.nih.gov/files/docs/resources/heart/hbp\\_ped.pdf](https://www.nhlbi.nih.gov/files/docs/resources/heart/hbp_ped.pdf)
9. George MG, Tong X, Wingington C. Hypertension Screening in Children and Adolescents — National Ambulatory Medical Care Survey, National Hospital Ambulatory Medical Care Survey, and Medical Expenditure Panel Survey, United States, 2007–2010. *MMWR Suppl*. 2014 Sep 12;63(2):47-53.
10. Chung RJ, Touloumtzis C, Gooding H. Staying Young at Heart: Cardiovascular Disease Prevention in Adolescents and Young Adults. *Curr Treat Options Cardiovasc Med*. 2015;17(12):61.
11. Yang Q et al. Sodium Intake and Blood Pressure Among US Children and Adolescents. *Pediatrics*. 2012;130(4):611-9.
12. Cai L, Wu Y, Wilson RF, et al. Effect of childhood obesity prevention programs on blood pressure: a systematic review and meta-analysis. *Circulation*. 2014; 6;129(18):1832-9.
13. Bauml, MA, Underwood DA. Left ventricular hypertrophy: An overlooked cardiovascular risk factor. *CCJM* 2010 Jun;77(6):381-387.
14. Daniels SR, Pratt C, Hayman L. Recent Advances in Preventive Cardiology and Lifestyle Medicine - Reduction of Risk for Cardiovascular Disease in Children and Adolescents. *Circulation*. 2011; 124: 1673-1686.



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# WHITE COAT HYPERTENSION: MYTHS VS. FACTS

By Angus C. Howard, M.D.

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**T**he diagnosis of white coat hypertension (also called “isolated clinic,” “office hypertension” or “white-coat effect”) is applied to patients with office readings that average more than 140/90 mmHg and reliable out-of-office readings that average less than 140/90 mmHg.<sup>25</sup>

Observational and sequential studies have clearly demonstrated that in patients who have been diagnosed with hypertension, on the first office visit to a “new” clinician there is a mean 15 and 7 mm Hg fall in the systolic and diastolic blood pressure, respectively, by the third visit<sup>26</sup>, and some patients do not reach a stable value until the sixth visit.<sup>27</sup>

Most definitions of the “white coat effect” or “white coat hypertension” use the values obtained with Ambulatory Blood Pressure Monitor (ABPM) to calculate the difference in Blood Pressure (BP) between the healthcare settings versus non-healthcare setting.

Blood pressure typically decreases at night for both

normotensive and hypertensive individuals. Therefore, the daytime BP (ABPM) is often used to calculate the delta in BP changes in clinic versus non-clinic.<sup>6</sup>

The average nocturnal blood pressure is approximately 15 percent lower than daytime values. The failure of the BP to fall by at least 10 percent during sleep is called “nondipping,” or an increase in BP at night (“reverse dipping”) correlates with increased risk of ESRD and fatal and nonfatal cardiovascular events among patients with chronic renal disease by 60 percent to 70 percent.<sup>2,6</sup>

Ambulatory blood pressure monitoring (ABPM) is obtained by using a device worn by the patient that takes blood pressures measurements usually over a 24-hour period, typically ranging from 70 to 80 readings in 24 hours (usually every 15 to 20 minutes during the daytime and every 30 to 60 minutes during sleep). These blood pressures are recorded on the device, and the average (or mean) day (diurnal) or night (nocturnal) blood pressures are

determined from the data by a computer. The percentage of blood pressure readings exceeding the upper limit of normal can also be calculated.<sup>1,6</sup>

The definition of hypertension using ABPM interpretation is the 24-hour average blood pressure greater than or equal to 135/85 mmHg; daytime (awake) blood pressure greater than or equal to 140/90 mmHg; or nighttime (asleep) blood pressure greater than or equal to 125/75 mmHg.<sup>1,25</sup>

Typical indications and clinical usages for ABPM in accordance with published practice guidelines and expert panel recommendations include:<sup>25</sup>

- Suspected white coat hypertension
- Suspected episodic hypertension (e.g., pheochromocytoma)
- Patients with evidence of end-organ damage (LVH) despite repeatedly normal blood pressure when measured in the clinic (Masked Hypertension)
- Hypertension resistant to increasing medications
- Hypotensive symptoms while taking antihypertensive medications
- Autonomic dysfunction

### Clinical Vignette

The prevalence of white coat hypertension ranges from 10 to 20 percent and appears to be higher in children and the elderly.<sup>15, 21-23</sup> It is also present in patients with apparent “resistant” hypertension.

Ms. O.D. is a 70-year-old retired female educator who was referred to Southwest Atlanta Nephrology for evaluation of azotemia based on labs collected (06/16/2015), which demonstrated BUN/CR 25/1.38 mg/dl with corresponding estimated Glomerular Filtration Rate (eGFR) 45 ml/min.

She was seen on initial consultation Sept. 21, 2015, and documented with office BP reading of 118/60

(right arm). On the second office visit (October 26), Ms. O.D. was switched from Losartan-HCT (100-25 mg) to plain Losartan (100 mg) due to complaints of morning orthostasis (office BP reading was 108/70 mmHg in the rt. arm and weight was 199 lbs.).

On the third office visit (November 23), Ms. O.D.’s office blood pressure was 134/70 (right arm) with a corresponding weight of 203 lbs., and she failed to bring records of self-recorded Home Blood Pressure readings as instructed during the previous office visit. At the fourth



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office visit (December 23), the office blood pressure was 104/60 mmHg (right arm) with a weight of 199 lbs. Ms. O.D. did not bring her Home Blood Pressure logs back on the return office visit as instructed.

Results of labs collected Dec. 23, 2015, was remarkable for resolution of azotemia with BUN/CR 18/0.89 and corresponding eGFR 76 ml/min. The plans for the return visit in three months include making arrangements for patient to undergo a 24-hour ABPM to further evaluate patient's hypertension management and risk stratification for hypertensive cardiovascular events (unpublished personal data).

### Prognosis

The cardiovascular risk associated with white coat hypertension, while greater than normotensive individuals, is well below those associated with sustained or masked hypertension and varies from being statistically significant to nonstatistically significant in various meta-analyses.<sup>15, 20, 23, 25</sup>

However, it is generally widely accepted that patients with white coat hypertension are also at high risk for developing sustained hypertension. In a study of 81 patients with office

hypertension (mean blood pressure 154/97) and normal 12-hour ambulatory blood pressure (mean blood pressure 125/77 mmHg), 60 (74 percent) had a mean ambulatory blood pressure above 140/90 mmHg after five to six years of follow-up.<sup>29</sup>

Therefore, the difference in cardiovascular (CV) risk associated with white coat hypertension cited in different meta-analyses may be related to the development of increased CV risks when they cross into the hypertensive category, as approximately 40 percent of participants have been reported to do after several years of follow-up.<sup>5</sup>

### Recommendations

Although there are no universally accepted guidelines or recommendations for the treatment of White Coat Hypertension, we should include its management in the process of risk stratification to minimize hypertensive cardiovascular events.

While the risk of cardiovascular events is not as great or well established as in “sustained hypertension” and “masked hypertension,” the risk associated with white coat hypertension is greater than in normotensive individuals.<sup>3</sup>





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Furthermore, in certain cases our treatment has more deleterious effects than the process that we are treating.

If therapy is withheld, careful monitoring is still indicated for the possible development of sustained hypertension or of end-organ damage, while the patient should be encouraged to engage in lifestyle modifications for lowering blood pressure and healthy living as prescribed in JNC 7 Hypertension Guidelines.<sup>25</sup>

The risk of hypertensive cardiovascular complications has been shown to correlate more closely with 24-hour, daytime

or nighttime ambulatory blood pressure monitoring (ABPM) than with the office blood pressure measurements.<sup>8, 9, 10-13</sup> Self-recorded casual blood pressure measurements taken at home and at work correlate more closely with the results of 24-hour ABPM or daytime ambulatory monitoring than BPs taken in the clinician's office. Therefore, home blood pressure measurements (self-recorded) are an acceptable alternative if ABPM is not available or if cost is a concern — and may also improve hypertension control.<sup>7,25</sup> ■

## References

1. Verdecchia P, Angeli F, Cavallini C: Ambulatory blood pressure for cardiovascular risk stratification. *Circulation* 115: 2091-2093, 2007
2. Minutolo R, Agarwal R, Borrelli S, Chiodinin P, Bellizzi V, Nappi F, Cianciaruso B, Zamboli P, Conte G, Gabbai FB, De Nicola L: Prognostic role of ambulatory blood pressure measurement in patients with nondialysis chronic kidney disease. *Arch Intern Med* 171:1090-1098, 2011
3. Hansen TW, Kikuya M, Thijs L, Bjorklund-Bodegard K, Kuznetsova T, Ohkubo T, Richart T, Torp-Pedersen C, Lind L, Jeppesen J, Ibsen H, Imai Y, Staessen JA: IDACO Investigators: Prognostic superiority of daytime ambulatory over conventional blood pressure in four populations: A meta-analysis of 7,300 individuals. *J Hypertens* 25:1554-1564, 2007
4. Pierdomenico SD, Cuccurullo F: Prognostic value of white-coat and masked hypertension diagnosed by ambulatory monitoring in initially untreated subjects: An updated meta analysis. *Am J Hypertens* 24: 52-58, 2011
5. Verdecchia P: White-coat hypertension in adults and children. *Blood Press Monit* 4: 175-179, 1999
6. NephSAP : Volume 11: Number 2: March 2012
7. Pickering TG, Miller NH, Ogedegbe G, et al. Call to action on use and reimbursement for home blood pressure monitoring: executive summary: a joint scientific statement from the American Heart Association, American Society Of Hypertension, and Preventive Cardiovascular Nurses Association. *Hypertension* 2008; 52:1
8. Fan HQ, Li Y, Thijs L, et al. Prognostic value of isolated nocturnal hypertension on ambulatory measurement in 8711 individuals from 10 populations. *J Hypertens* 2010; 28: 2036.
9. Piper MA, Evans CV, Burda BU, et al. Diagnostic and predictive accuracy of blood pressure screening methods with consideration of rescreening intervals: a systemic review for the U.S. Preventive Service Task Force. *Ann Intern Med* 2015; 162:192.
10. Hansen TW, Jeppesen J, Rasmussen S, et al. Ambulatory blood pressure and mortality: a population-based study. *Hypertension* 2005; 45: 499.
11. Dolan E, Stanton A, Thijs L, et al. Superiority of ambulatory over clinic blood pressure measurement in predicting mortality: the Dublin outcome study. *Hypertension* 2005; 46: 156.
12. White WB. Relating cardiovascular risk to out-of-office blood pressure and the importance of controlling blood pressure 24 hours a day. *Am J Med* 2008; 121:S2.
13. Salles GF, Leite NC, Pereira BB, et al. Prognostic impact of clinic and ambulatory blood pressure components in high-risk type 2 diabetic patients: the Rio de Janeiro Type 2 Diabetes Cohort Study. *J Hypertens* 2013; 31: 2176.
14. Pickering TG, Davidson K, Gerin W, Schwartz JE. Masked hypertension. *Hypertension* 2002; 40:795.
15. Pierdomenico SD, Cuccurullo F. Prognostic value of white-coat and masked hypertension diagnosed by ambulatory monitoring in initially untreated subjects: an updated meta analysis. *Am J Hypertens* 2011;
16. Hanninen MR, Niiranen TJ, Pukka PJ, et al. Target organ damage and masked hypertension in the general population: the Finn-Home study. *J Hypertens* 2013;31:1136.
17. Fagard RH, Cornelissen VA. Incidence of cardiovascular events in white-coat, masked and sustained hypertension versus true normotension: a meta-analysis. *J Hypertens* 2007; 25: 2193.
18. Bjorklund K, Lind L, Zethelius B, et al. Isolated ambulatory hypertension predicts cardiovascular morbidity in elderly men. *Circulation* 2003; 107: 1297.
19. Bobrie G, Chatellier G, Genes N, et al. Cardiovascular prognosis of "masked" hypertension detected by blood pressure self-measurement in elderly treated hypertensive patients. *JAMA* 2004; 291:1342.
20. Ohkubo T, Kikuya M, Metoki H, et al. Prognosis of "masked" hypertension and "white-coat" hypertension detected by 24-h ambulatory blood pressure monitoring 10-year follow-up from the Ohasama study. *J Am Coll Cardiol* 2005; 46: 508.
21. Pickering TG, James GD, Boddie C, et al. How common is white coat hypertension? *JAMA* 1988;259: 225.
22. Niiranen TJ, Jula AM, Kantola IM, Reunanen A. Prevalence and determinants of isolated clinic hypertension in the Finnish population: the Finn-HOME study. *J Hypertens* 2006; 24:463.
23. Mancia G, Bombelli M, Brambilla G, et al. Long-term prognostic value of white coat hypertension: an insight from diagnostic use of both ambulatory and home blood pressure measurements. *Hypertens* 2013; 62: 168.
24. Mancia G, Fagard R, Narkiewicz K, et al. 2013 ESH/ESC guidelines for the management of arterial hypertension: the Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). *Eur Heart J* 2013; 34:2159.
25. Kaplan, NM, Townsend, RR, et al. 2016; Up To Date
26. Chobanian A, Bakris GL, Black HR, et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA* 2003;
27. Watson RD, Lumb R, Young MA, et al. Variation in cuff blood pressure in untreated outpatients with mild hypertension—implications for initiating antihypertensive treatment. *J Hypertens* 1987; 5:2007.
28. Verdecchia P, Palatini P, Schillaci G, et al. Independent predictors of isolated clinic (white-coat") hypertension. *J Hypertens* 2001; 19:1015.
29. Bidlingmeyer I, Burnier M, Bidlingmeyer M, et al. Isolated office hypertension: a prehypertensive state? *J Hypertens* 1996; 14: 327.



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# Hypertension & Sexual Dysfunction: Let's Start The Conversation

By Brittany Thomas, M.D.

It has been estimated that more than 150 million men worldwide have some degree of erectile dysfunction. The prevalence of erectile dysfunction is approximately two fold higher in hypertensive patients compared to normotensive patients.

Due to the private nature of this problem, erectile dysfunction is often overlooked and left to the patient to initiate discussion. The consequences of unrecognized erectile dysfunction included medication non-adherence and decreased quality of life for the patient and the patient's partner.

Research suggests that erectile dysfunction is a risk predictor of cardiovascular disease. Physicians should therefore inquire about sexual dysfunction, understand the physiology, recognize medications that contribute to sexual dysfunction and risk stratify patients with erectile dysfunction.<sup>1</sup>

## Pathophysiology

Normally, the cavernosal nerves synthesize and release nitric oxide (NO) onto the smooth muscle cells of both the corpora cavernosa and the penile arterial system. The NO causes relaxation of the smooth muscle within the media of the penile arterial vessels and cavernosal bodies. With aging, the smooth muscle cells are replaced by collagen fibers. These cells are not able to relax and store blood as well as previously.<sup>2</sup>

Vasculogenic ED results from an impairment of smooth muscle relaxation and occlusion of the cavernosal arteries by atherosclerosis or a combination of these. Hypertension plays a role in ED through various mechanisms, including prolonged exposure to elevated systemic blood pressure, endothelial dysfunction and circulation of vasoactive substances such as angiotensin II. These mechanisms lead to structural and functional alterations in the penile arteries.<sup>3</sup>

## Relationship of ED and CV

ED is a risk predictor of cardiovascular disease. Approximately 40 percent of men who present with ED are shown to have occult cardiovascular disease. It has been shown that ED precedes the onset of symptomatic CAD by a mean of approximately 3 to 5 years. Men with ED appear to carry a 23 percent increased risk of cardiovascular death. Screening for erectile dysfunction may help to identify and improve the management of cardiovascular risk.<sup>2-3</sup>

## Treatment

It is important to exclude other causes of erectile dysfunction before vasculogenic sexual dysfunction is



diagnosed. The mainstay of treatment for ED is lifestyle modification. Moderate physical activity can reduce the risk of erectile dysfunction compared to a sedentary lifestyle. Caloric reduction, weight loss, alcohol reduction and smoking cessation may improve sexual function.

In terms of medical therapy, testosterone therapy may be helpful in men with testosterone deficiency. Regarding antihypertensives, thiazide-class diuretics have been shown to cause erectile dysfunction. Indapamide is rarely associated with an adverse effect on male sexual function.<sup>4</sup>

The incidence of sexual dysfunction linked to centrally acting antihypertensives such as clonidine has been estimated to be 20 percent.<sup>4</sup> Most beta blockers have the potential adverse side effect of erectile dysfunction. The first-generation beta blockers such as propranolol are more likely than the second-generation beta blockers, like metoprolol, to cause erectile dysfunction. Nebivolol, a third-generation beta blocker, may even improve erectile dysfunction through nitric oxide production. ACE inhibitors and calcium channel blockers have a neutral effect on erectile function.

Angiotensin receptor blockers also have a positive effect on erectile function. Angiotensin receptor blockers block the vasoconstrictive action of angiotensin II. Angiotensin receptor blockers are considered a first-line treatment in hypertensive patients with erectile dysfunction.

Phosphodiesterase-5 (PDE5) inhibitors are effective medications used to treat erectile dysfunction. They are useful even for patients on multiple drug regimens unless contraindicated. They cannot be used with long- or short-acting nitrovasodilators due to hypotension. They should be used with caution in patients taking alpha blockers.

When conservative management fails, surgical penile prosthesis (inflatable or semi-rigid) should be considered. An implantable prosthesis has a high satisfaction rate but carries the risks of mechanical failure and infection.

## Women

Research regarding female sexual dysfunction (FSD) is limited. The underlying pathophysiology of hypertension contributing to female sexual dysfunction is similar to the role of hypertension in erectile dysfunction. Decreased blood flow from vascular remodeling and atherosclerosis causes clitoral and vaginal insufficiency. In addition, fibrosis of the clitoral smooth muscle and vaginal wall leads to impaired sexual stimulation. The ultimate result is vasculogenic FSD.

Sexual dysfunction was found in 42.1 percent of women with essential hypertension compared with 19.4 percent of normotensive women.<sup>5</sup> The duration of hypertension, beta blockers and uncontrolled hypertension have been linked to sexual dysfunction in women. Hypertension is associated with decreased lubrication and orgasm and increased pain.<sup>6</sup>

Although there is limited data on female sexual dysfunction, it is critical to recognize that there is an association with antihypertensive therapy. Changes in medication may improve quality of life and compliance with therapy.

In August 2015, the FDA approved flibanserin for premenopausal women with hypoactive sexual desire disorder. This medication does not target vasculogenic sexual dysfunction but may improve libido in those suffering from the disorder. Flibanserin is a centrally acting serotonin receptor 1A agonist and serotonin receptor 2A antagonist that results in transient decreases in serotonin and increases in dopamine and norepinephrine in certain regions of the brain.<sup>7</sup> It has been associated with hypotension and dizziness and should not be taken with alcohol.

Sexual dysfunction is commonly associated with hypertension and antihypertensive medications in both men and women. It is time to start conversations with patients regarding this matter to improve quality of life, medication adherence and risk factor reduction. ■

## References

1. Viigimaa M, Vlachopoulos C, Lazaridis A, Doumas M. Management of erectile dysfunction in hypertension: Tips and tricks. *World Journal of Cardiology*. 2014;6(9):908-915.
2. Clavijo RI, Miner MM, Rajfer J. Erectile Dysfunction and Essential Hypertension: The Same Aging-related Disorder? *Reviews in Urology*. 2014;16(4):167-171.
3. Vlachopoulos C. et al. Erectile dysfunction in the cardiovascular patient. *European Heart Journal*. 2013;34 (27): 2034-2046.
4. Al Khaja et al. Antihypertensive drugs and male sexual dysfunction: A review of Adult hypertension Guideline Recommendations. *Journal of Cardiovascular Pharmacology and Therapeutics*. 2015.
5. Doumas M et al. Female sexual dysfunction in essential hypertension: A common problem being uncovered. *Journal of Hypertension*. 2006; 24(12):2387-2392.
6. Duncan et al. Does hypertension and its pharmacotherapy affect the quality of sexual function in women? *American Journal of Hypertension*. 2000;13(6):640-647.
7. Simon JA et al. Efficacy and safety of flibanserin in postmenopausal women with hypoactive sexual desire disorder: results of the SNOWDROP trial. *Menopause*. 2014;21(6):633-40.

# Should We SPRINT To A Lower Blood Pressure Goal?

## A Hypertension 2016 Update

By Janice P. Lea, M.D., MSc, FASN

**H**ypertension is a major independent risk factor for coronary artery disease, stroke, heart failure and renal failure. One of every three American adults — or approximately 67 million adults (31 percent) — has hypertension (HTN). Only 54 percent of hypertensive Americans have their blood pressure (BP) controlled below 140/90 mm Hg, with lower control rates in African-Americans and Hispanics.<sup>1,2</sup>

There has been much debate regarding recent BP guidelines that led to the lateness of the Joint National Committee (JNC)-8 report. We will review differences in the recent JNC-8 report from the 7th report, review the African-American Study of Hypertension and Kidney Disease trial (AASK) and discuss the recently published Systolic Blood Pressure Intervention Trial (SPRINT). Through this review, you will gain awareness of the key differences and controversies among the multitude of new hypertension practice guidelines and clinical trials, be able to select

optimal drug regimens to improve hypertension control rates, and become familiar with novel non-pharmacologic therapies for the treatment of hypertension.

### JNC-8 Guideline

In 2014, JNC-8 (nicknamed JNC-Late) published the evidence-based guideline for the management of high BP in adults. JNC-7, which was published more than 10 years ago, recommended a BP goal of <140/90 in the general population but emphasized a lower BP goal of < 130/80 in patients with diabetes or chronic kidney disease (CKD). It also made specific BP class recommendations based on compelling indications.

The most recent JNC report is characterized by a systematic review of the literature with an emphasis on randomized, controlled clinical trials.<sup>3,4</sup> The committee provided nine graded recommendations based on the strength of the available evidence: grade A – E. The recommendations are summarized in Table 1.

**Table 1: JNC-8**

**Recommendation 1:** Goal BP of < 150/90 for the general population at 60 years of age or older (Grade A).

**Recommendation 2 and 3:** The target BP for subjects younger than 60 years of age is <140/90mmHg.

**Recommendation 4 and 5:** In the population age 18 years or older with chronic kidney disease or diabetes, BP goal < 140/90 (Grade E).

**Recommendation 6:** Initial drug therapy for nonblack patients (including diabetic patients) should include a thiazide-type diuretic, a calcium channel blocker (CCB), an angiotensin-converting enzyme inhibitor (ACEI), or an angiotensin receptor blocker (ARB) (Grade B).

**Recommendation 7:** Initial drug therapy for black patients should include a thiazide-type diuretic or a CCB. This includes patients with diabetes mellitus (Grade B; for diabetic black patients, Grade C).

**Recommendation 8:** For patients 18 years and older with chronic kidney disease, initial or additional therapy should include an ACEI or ARB, regardless of race or diabetic status (Grade B).

**Recommendation 9:** An algorithm to reach target BP: increase the dose of the initial drug or add a second drug from one of the classes in recommendation 6, then add a third drug if needed. It was also recommended that ACE inhibitors should not be combined with angiotensin receptor blockers due to concerns for hyperkalemia.

# One of every three American adults — or approximately 67 million adults (31 percent) — has hypertension (HTN).

One of the major and somewhat controversial differences from JNC-7 is the recommendation to use a thiazide diuretic or long-acting CCB as initial monotherapy in black patients who do not have kidney disease. This is the first major guideline to specify differences in BP meds according to race and with somewhat weak evidence (Grade B and C).

This was based on a subgroup analysis of The Antihypertensive and Lipid Lowering Treatment to Prevent Heart Attack Trial (ALLHAT), which reported that ACEIs led to worse CV outcomes than thiazides or CCBs in persons of African ancestry.<sup>4</sup> However, emphasis must be placed on the fact that this recommendation does not apply to African-Americans with kidney disease or proteinuria as several trials, including the African-American Study of Kidney Disease and Hypertension (AASK) Trial, showed benefit of ACEI therapy in slowing renal disease progression.<sup>5</sup>

## AASK Trial

The AASK Trial was the largest cohort of African-Americans with hypertensive renal disease. This study was published in the early 2000s when ACEI use was considered

ineffective in controlling BP in African-Americans. Results from the AASK trial revealed a significant benefit of initial antihypertensive therapy with an ACEI, ramipril, in comparison to a dihydropyridine (CCB), amlodipine or a beta blocker, metoprolol, for reducing the clinical composite outcome: decline in glomerular filtration rate (GFR), development of end-stage renal disease (ESRD) or death.

In addition, the AASK Trial compared the effect of strict BP < 125/75 mmHg vs. usual BP control - 140/90 mmHg. However, there was no difference in the clinical endpoints according to BP goal.<sup>6</sup> In long-term follow-up, there was a slower rate of renal disease progression with the lower BP goal but only in those with >300 mg proteinuria.

Finally, this study reported that the magnitude of proteinuria reduction impacted the rate of progression.<sup>7,8</sup> Other major and kidney-specific guidelines still recommend the lower BP goal of <130/80 in proteinuric CKD patients.<sup>9,10,11</sup>

## SPRINT Trial

The potential benefit of lowering the systolic blood pressure (SBP) goal to <120 mmHg (compared with <140



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**Table 2: SPRINT**

1. Intensive as compared with standard treatment significantly reduced the rate of the primary end point, a composite of myocardial infarction, acute coronary syndrome, stroke, heart failure or cardiovascular death (5.2 percent versus 6.8 percent).
2. Intensive treatment also significantly reduced mortality (3.3 percent versus 4.5 percent).
3. Among the 2,646 patients who had CKD at baseline (defined as an eGFR of 15 to 59 mL/min, but < 1 gm proteinuria), intensive treatment did not alter the risk of kidney disease progression.

mmHg) in nondiabetic older adults with risk factors for cardiovascular disease (CVD) or with CKD was evaluated in the recently published Systolic Blood Pressure Intervention Trial in 2015.

When SPRINT was first designed, well-established clinical guidelines, including JNC-7, recommended a SBP of less than 140 for healthy adults and 130 for adults with kidney disease or diabetes. SPRINT enrolled more than 9,000 patients 50 years or older who had a SBP of 130 to 180 mmHg with at least one cardiovascular risk factor. It is important to emphasize that SPRINT excluded patients with diabetes, symptomatic heart failure, a history of stroke and proteinuria ( $\geq 1$  g/day total protein or  $\geq 600$  mg/day albumin).<sup>12</sup>

Antihypertensive therapy consisted of an ACE I or ARB (but not both), a long-acting dihydropyridine CCB (typically amlodipine) or a thiazide-like diuretic (ie, chlorthalidone rather than hydrochlorothiazide), or a combination of these drugs to achieve the blood pressure target; other antihypertensive medications were added if needed. The trial was halted early for benefit after a median follow-up of 3.26 years; the key findings from SPRINT are shown in Table 2.

Whether or not these trial findings will swing the pendulum towards more aggressive BP lowering for cardiovascular protection remains to be determined. However, clinicians need to be aware that participants in SPRINT had a significant increase in some serious side effects, including bradycardia, hypotension and syncope, and thus they will need to weigh potential benefits vs. risks, especially when treating elderly patients.

### New Devices for Treatment of Hypertension

Experimental therapies for hypertension include catheter-based radiofrequency ablation of the renal sympathetic nerves and electrical stimulation of the carotid sinus baroreceptors. Several unblinded studies suggested that renal denervation could substantially lower blood pressure in patients with resistant hypertension.

Subsequently, a blinded randomized trial (SYMPPLICITY-HTN-3) failed to demonstrate benefit, then (SYMPPLICITY-HTN-4) was halted prematurely.<sup>13,14</sup> However, new studies (with a new catheter providing more complete renal sympathetic nerve ablation) are ongoing, including SPYRAL-ON and SPYRAL-OFF. In addition, feasibility studies have shown reductions in blood pressure after implantation of a device designed

to stimulate the carotid baroreflex system (baroreflex activation therapy).<sup>15</sup> Both of these interventional trials are currently being conducted at Emory University.

### Conclusion

Most guidelines and recommendations, including those made by panel members from JNC- 8 and others, support the use of any of these classes as initial therapy in many patients: thiazide diuretics, CCBs, ACEIs or ARBs. Beta blockers are no longer recommended as initial monotherapy in the absence of a specific (compelling) indication for their use, such as ischemic heart disease or heart failure with decreased ejection fraction.

Recent guidelines have also emphasized the need for 24-hour control of BP and encourage use of ambulatory BP monitoring to guide treatment rather than just office BP measurements. At this time, BP goals for persons <60 and for diabetics remain <140/90, but for CKD with proteinuria > 1 gm, most kidney specific guidelines suggest a BP goal of <130/80.

However, findings from SPRINT challenge existing guidelines by reporting that, among older, hypertensive, nondiabetic adults at high risk for cardiovascular disease, targeting a SBP of <120 mmHg can reduce mortality and prevent cardiovascular events, which is in direct contradistinction from JNC-8's suggestion of a BP goal in the elderly of not less than 150/90. Furthermore, this study excluded persons who might benefit from stricter BP control such as diabetics or persons with a previous stroke.

If a specific secondary cause of hypertension is suspected or if the blood pressure remains elevated despite six months of more intensive treatment, referral to a hypertension specialist is recommended. In the United States, the American Society of Hypertension (ASH) provides a list of hypertension specialists who are members of ASH. This list can be accessed at: [www.ash-us.org/htn-specialist/htn-specialists-directory.aspx](http://www.ash-us.org/htn-specialist/htn-specialists-directory.aspx). ■

## References

- Centers for Disease Control and Prevention (CDC) Vital signs: awareness and treatment of uncontrolled hypertension among adults—United States, 2003–2010. *MMWR Morb Mortal Wkly Rep.* 2012; 61:703–709.[PubMed]
- Heidenreich P. A., Trogdon J. G., Khavjou O. A., Butler J., Dracup K., Ezekowitz M. D. et al. Forecasting the future of cardiovascular disease in the United States: a policy statement from the American Heart Association. *Circulation.* 2011;123(8):933–44. [PubMed]
- Chobanian A. V., Bakris G. L., Black H. R., Cushman W. C., Green L. A., Izzo J. L., Jr et al. Seventh report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure. *Hypertension.* 2003;42(6):1206–52.[PubMed]
- James, P, Oparil, S et al. 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report from the panel members appointed to the Eighth Joint National Commission (JNC 8). *JAMA* 2014; 311 (5): 507-520.
- Yamal, J-G, Oparil, S et al: Stroke outcomes among participants randomized to chlorthalidone, amlodipine, or Lisinopril in ALLHAT. *Journal of the American Society of Hypertension* 8 (11) (2014), p. 808-819. The Antihypertensive and lipid lowering treatment to prevent heart attack trial.
- Agodoa L, Appel L, Bakris G, Beck G, Bourgoignie J, Briggs J, Charleston J, Cheek D, Cleveland W, Douglas J, Douglas M, Dowie D, Faulkner M, Gabriel A, Gassman J, Greene T, Hall Y, Hebert L, Hiremath L, Jamerson K, Johnson C, Kopple J, Kusek J, Lash J, Lea J, et al for the AASK Study Group: Effect of Ramipril vs. Amlodipine on Renal Outcomes in Hypertensive Nephrosclerosis. *JAMA* 285: 2719-2728, 2001.
- Appel, L, Wright, J, Greene, T, Agodoa, L, Astor, B, Bakris, G, Cleveland, W, et al, Lea, J, et al, Wang, X, and AASK investigators. The Long-term Effects of a Lower Blood Pressure Goal on Progression of Hypertensive Chronic Kidney Disease in African-Americans. *NEJM* 363:918-929, 2010.
- Lea J, Greene T, Hebert L, Lipkowitz M, Massry S, Middleton J, Rostand S, Miller EP, Smith W, and Bakris GL for the AASK Study Investigators. The Relationship between Magnitude of Proteinuria Reduction and Risk of End-Stage Renal Disease: Results of the AASK Trial. *Archives Int. Med* 165:947-953, 2005.
- Weber MA, et al. Clinical practice guideline for the management of hypertension in the community: a statement by the American Society of Hypertension and the International Society of Hypertension. *J Clin Hypertens* 2014; 16:14-26.
- Flack,J, Sica, D., Bakris, G., Brown, A., Ferdinand, K., Grimm, R., Hall, D., Jones, W., Kountz,D., ,Lea,J., Nasser, S., Nesbitt, S., Saunders, E., Scisney-Matlock, M., Jamerson, K. ISHIB Guidelines for Hypertension in African-Americans. *Hypertension* 56: 780-800, 2010.
- KDIGO Blood Pressure Work Group. Clinical practice guideline for the management of blood pressure in chronic kidney disease. *Kidney Int* 2012; Suppl 2(1):337-414.
- A Randomized Trial of Intensive versus Standard Blood-Pressure Control. The SPRINT Research Group. *N Engl J Med* 2015; 373:2103-2116.
- Bakris GL, et al. Impact of renal denervation on 24-hour ambulatory blood pressure: results from SYMPPLICITY HTN-3. *J Am Coll Cardiol* 2014; 64:1071-1078.
- Symplcity HTN-1 Investigators . Catheter-based renal sympathetic denervation for resistant hypertension: durability of blood pressure reduction out to 24 months. *Hypertension* 201; 57(5):911.
- Baroreflex activation therapy lowers blood pressure in patients with resistant hypertension: results from the double-blind, randomized, placebo-controlled reos pivotal trial. Bisognano JD, Bakris G, Nadim MK, Sanchez L, Kroon AA, Schafer J, de Leeuw PW, Sica DA *J Am Coll Cardiol.* 2011;58(7):765.



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# TEAMING UP TO TREAT HYPERTENSION

By Jennifer Zrelhoff, M.D., and Jason Higdon, M.D.

It is estimated that approximately 30 percent of American adults have hypertension. According to data from the National Health and Nutrition Examination Survey (NHANES), the proportion of those patients whose blood pressure is under control has improved but is still only about 50 percent.

With our focus ever moving towards higher-quality care, we need to shift our practice style away from episodic care to comprehensive, longitudinal care that can help more of our patients reach their health goals. Instead of treating only the patients that are on our schedule in the grinding “get them in and get them out” mentality, we can start viewing their care on a continuum.

This is not something providers can successfully achieve and maintain on their own. In order to do this, we need to embrace concepts of team-based care, including population management, evidence-based protocol-driven care and a commitment to process improvement. Team-based care has been shown to improve blood pressure control<sup>1</sup> and lower physician burnout.<sup>2</sup> In this article, we will highlight key principles of team-based care that can be adapted to meet the needs of your practice.

## Population Management

Being able to identify all of your patients with hypertension is key. Fortunately, this is one of the things that should be made easier because of electronic medical records. Using data extracted from the health record, the ideal report includes meaningful and actionable information at both the patient and practice levels.

Our report shows the current percentage of patients at goal and allows us to follow that percentage over time. We are also able to select those patients who are not at goal and

view their last blood pressure reading, date of their last visit and when their next visit is scheduled. Stratifying patients by demographics, co-morbidities and number of medications may help identify subsets of patients who are vulnerable to gaps in care. A good place to start in your EMR are your meaningful use reports, but most vendors also have other population health reporting capabilities. Having access to these types of reports will help lay the foundation for team-based outreach and process improvement.

## Standardization of Care

An equally important building block in providing team-based care is creating a standard of care in your clinic/system so that all providers agree on evaluation, medications and treatment targets. If there is wide variation, it makes it difficult to empower a team to provide protocol-driven care.

Using evidence-based guidelines to create your standard can help your team know how to do their part. JNC8<sup>3</sup>, ACCORD<sup>4</sup>, and SPRINT<sup>5</sup> are worth reviewing before coming up with the protocol suited for your clinic. Other factors to consider in your protocol are factors that impact compliance (e.g. cost and dosing frequency), surveillance lab tests needed, follow-up intervals and education on lifestyle modifications.

Once you have your standards in place, you can define what roles different team members will play. A useful tool to help document your protocol is [millionhearts.hhs.gov/Docs/Hypertension-Protocol.pdf](http://millionhearts.hhs.gov/Docs/Hypertension-Protocol.pdf).

## Team Empowerment

Once you've identified your patients with uncontrolled high blood pressure and agreed on treatment standards, you can engage and empower your team to help these patients reach

their goal. Patient education, medication refill protocols and nurse visits for routine follow-up are three ways that your team can make a positive impact.

Patient education is a critical step in patient engagement and can be highly successful with team delivery. Patients may be more candid about their habits with other team members. By teaching your team about lifestyle factors that impact blood pressure and about the consequences of uncontrolled blood pressure, they can take advantage of opportunities to discuss these when working with patients. They may be able communicate these concepts in a way that patients can better understand.

Our EMR has educational handouts that can be added to patients' discharge paperwork. We've reviewed these materials and selected high-yield handouts to be used by the team. Any team member involved in a patient's in-office care can add appropriate materials to their discharge paperwork.

Medication compliance is key to achieving and maintaining blood pressure control. By employing standing orders for medication refills, your staff help reduce the likelihood that a patient will run out of medication by reducing turnaround time on refill requests.

In our protocol, we require that the original prescription was written with at least a six-month supply and that the patient has been seen and has a basic chemistry on file within the past year. For patients who are due for follow-up, our team contacts the patient to schedule appropriate follow-up while sending in a prescription to bridge the gap until their follow-up.

Finally, your staff can also manage follow-up visits for hypertension. By using a protocol driven by medical assistants (MAs), Kaiser in Northern California increased their rate of patients at goal from 43.6 percent in 2001 to 85.7 percent in 2012.<sup>6</sup> Our licensed practical nurses (LPNs) and registered nurses (RNs) do protocol-driven visits for blood pressure follow-up (Figure 1). The nurse forwards the note to the patient's provider to review and make additional recommendations as necessary. This has been effective at increasing our rate of patients at goal from 64 percent to 80 percent.

In Georgia, physicians must still write the medications for an individualized patient, but the nurse can play a key role in data acquisition, documentation and patient education. Of note, the most successful test of change we noted was empowering our staff to automatically schedule any patients who were not at goal for a one-month follow up nurse visit.

## Process Improvement

When implementing new processes, it can be helpful to use formal process improvement tools. Setting a specific goal with a deadline (i.e. an aim statement) can help your team get engaged. Once your team agrees on the goal, identifying hurdles to blood pressure control (i.e. using a fishbone) can help identify what steps your clinic can take to help improve control rates for your population.

Beyond patient specific factors, it is important to consider factors from your clinic as well as factors from the system. For example, a

Figure 1

## Nurse Visit Protocol for Hypertension Follow-up

1. Review last MD note (or clinical message) to verify patient specific orders for nurse visit
  2. Take history from patient
    - a. Medication compliance: "Have you missed any doses of your medication in the last 14 days?" If yes, how many doses?
    - b. Medication side effects: "Have you experienced any side effects from your medication(s)?" If yes, clarify what side effects.
    - c. Self Management Goals: follow-up on progress from most recent goals
      - i. If applicable, identify any barriers to achieving those goals
  3. Take vitals and document in EMR: Blood pressure, pulse, weight
    - a. Make sure to allow the patient to sit for 5 minutes prior to checking blood pressure and that cuff size is appropriate for their arm
    - b. If patient complained of dizziness/lightheadedness (after starting a new blood pressure medicine or increasing the dose) then check orthostatic vital signs (blood pressure and pulse first with them lying down and then with them standing up)
      - i. Document if they felt lightheaded during this
- \*\*Notify MD immediately if:
1. SBP: <90 or >200
  2. DBP: <50 or >120
  3. HR: <40 or >110
  4. Orthostatics are abnormal if:
    - a. SBP drops by more than 20 points
    - b. DBP drops by more than 10 points
    - c. HR increases by more than 20 points
4. Set Self Management goals:
    - a. If achieved prior goals, set new ones
    - b. If have not achieved prior goals, modify existing goals or change goals depending on barriers identified
      - i. Offer nutrition referral if appropriate

5. Document visit in GenMed NSG Note and forward note to MD

## Being able to identify all of your patients with hypertension is key. Fortunately, this is one of the things that should be made easier because of electronic medical records.



Figure 2

patient might not be able to afford the medicine, the provider might not notice the elevated blood pressure for an urgent visit, or the medicine regimen might be too complex. It is important to go through the exercise with your team to identify particular hurdles specific to your patient population.

The next step is to define specific interventions based on the hurdles identified. Implementing nurse visits for blood pressure follow-up and standing orders may be tests of change you can start with. Once you have implemented a new process, it is important to measure its success or failure using the data acquired in your population management strategies. Reviewing your data as a team or posting the data in your clinic will help engage your staff and potentially patients.

### Episodic Care Versus Longitudinal Care

Team-based care changes the paradigm of patient care from episodic care to longitudinal care. Episodic care is defined by care given at discrete times, such as during an appointment, and is therefore dependent on patients coming into the office for care to be received.

Longitudinal care shifts care to a continuum where the office visit is just one of many “touches” your team may be performing to keep your patient population healthy. The paradigm of longitudinal care can be viewed more like a cycle (Figure 2). The cycle can begin with the initial visit, when the provider defines the care plan and goals for the patient. The second part of the cycle is post-visit follow up. The team member responsible for these tasks can vary depending on the staffing of your clinic and can include MAs, LPNs, RNs and nutritionists.

For hypertension, this can be phone calls to patients to see if they are taking and tolerating their medication. It can also include nurse follow-up visits as discussed above.

The next part of the cycle is population outreach, which is essential to fill in gaps in care. This key step helps identify those who have been missed in the routine episodic care paradigm and bring them back in to your clinic to get them the care they need.

The final part of the longitudinal care cycle is pre-visit planning, when a team member will review the services your patients are due for at their upcoming visit and order them. Examples of services may include urine protein surveillance, electrolytes or an ECG. For more complicated patients, this may include getting notes from any referrals that were made at the prior visit (e.g. nephrology consult). Even if your patient is scheduled for another complaint, having an alert that your patient has hypertension can help facilitate a more comprehensive visit, enabling better control of your hypertensive patients.

Payment models in healthcare are beginning to shift away from solely fee-for-service reimbursement structures. Medicare and many private insurers are moving towards a value-based modifier or quality bonuses based on clinical performance including hypertension control.

Shifting the paradigm from episodic visits where the sole responsibility is on the provider to longitudinal care delivered by a team can help keep you competitive in the shifting medical environment. Applying team-based care delivery strategies can help improve quality of care, decrease burnout rates and keep compensation competitive. ■

#### References:

1. Proia et al. Team-Based Care and Improved Blood Pressure Control, A Community Guide Systematic Review. *American Journal of Preventive Medicine* 2014;47(1):86-99
2. Helfrich et al. Elements of Team-Based Care in a Patient-Centered Medical Home are associated with Lower Burnout Among VA primary Care Employees 2014;29(SUPPL 2):S659-66
3. James et al. 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults. *JAMA*. 2014;311(5):507-520
4. The ACCORD Study Group. Effects of Intensive Blood-Pressure Control in Type 2 Diabetes Mellitus. *New England Journal of Medicine* 2010;362:1575-1585
5. The SPRINT Research Group. A Randomized Trial of Intensive versus Standard Blood-Pressure Control. *New England Journal of Medicine* 2015;373:2103-2116.
6. Jaffe et al. The Kaiser Permanente Northern California Hypertension Project 2001-2012: How an integrated care delivery system increased and maintained blood pressure control rates from 44% to 86% in 11 years. *Journal of the American Society of Hypertension* 2014;8(4S)

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# STAT!

## SPECIALTY CLINIC BRINGS IMMEDIACY TO LUNG CANCER CARE

By Helen K. Kelley

William Mayfield, M.D., says that it was knowing “time is of the essence” that led to the creation of a specialty clinic within WellStar Health System that’s making a tremendous difference in the lives of lung cancer patients and their families.

“As a thoracic surgeon, I would see patients who had been identified with lung, chest or esophageal abnormalities months before their first appointments with me. Their route from their primary care physician’s office to diagnosis included seeing various specialists such as pulmonologists, oncologists and radiologists, along with multiple tests,” he says. “On average, it took between 56 and 90 days for the patient to get from Point A, an abnormal chest X-ray, to Point B, treatment. If the patient did have lung cancer, he or she had waited three months to get diagnosed and the cancer had had time to advance. The whole process did not seem right to me at all.”

Mayfield brought his concerns to Dr. Rob Lipson, then-CEO of WellStar, and their discussion centered on the idea of creating a specialty clinic that would serve people with lung, esophageal or chest abnormalities. They visited the University of North Carolina,

where they observed a multidisciplinary thoracic oncology clinic in which patients were able to see all of the necessary physicians on the same day.

Impressed with what they saw, Mayfield and Lipson returned home and in 2006 established a treatment center modeled on UNC’s clinic. Today, the Specialty Teams And Treatments (STAT) Cancer Clinic at Kennestone Hospital gives patients the opportunity to receive comprehensive diagnostic testing and treatment by the appropriate physicians and clinicians, all in one place at one time.

### Focus on Patient-centered Care

Every element of the STAT Clinic has been designed for the benefit of patients and their family members. The clinic’s nurse navigator plays a critical role in the delivery of patient-centered care.

Gigi Bellamy, BSN, RN, who serves as the STAT Clinic’s Lung Cancer Nurse Navigator, says the acronym stands for so much more than Specialty Teams And Treatment.

“In medical terms, STAT implies urgency,” she says. “Here, our whole clinic is centered around the urgency of the patients’ needs. We are focused on immediacy of diagnosis and treatment so that patients and their families don’t have to struggle with a long time lapse between testing and making decisions about their care.”

Bellamy assists patients and their families in navigating every aspect of their journey through the STAT clinic – from assisting them with the scheduling of their treatments and testing to helping them understand their test results and diagnosis – as well as ensuring that their psychosocial needs have been met. She is their “go-to” person throughout the entire process.

“The nurse navigator gives patients and their families the relief of having one face they can count on to help them keep things in order. It’s a stressful time, and they’re given so much information to process,” she says. “When a new patient comes to the STAT Clinic, they only have to remember my name. When they have questions later or they can’t keep track of what step comes next, all they have to do is call my direct line for help.”

Additionally, the nurse navigator is part of the collaborative effort among physicians and clinicians in reviewing each case to determine the appropriate treatment path.

“By having all of the testing and evaluation available in one location at the same time, we can schedule whatever the patient needs – surgery, chemo or radiation – within a few days,” Bellamy says. “Our goal is always to make the process as easy on the patient and family as possible.”

The streamlined process also is easier on the patient’s family members, who often have to make arrangements to take time off work or travel to be with their loved one.

“The efficiency of the one-day clinic helps families plan their schedule,” Bellamy says. “Plus, they are able to sit in on the discussion and decision-making process with their family member and the medical team.”

### Lung Cancer Screening Now Available to Local Patients

Dr. William Mayfield encourages Atlanta-area primary care physicians to identify patients at highest risk and refer them only to centers that are accredited to perform lung cancer screening by the American College of Radiology.

“WellStar has a well-established lung screening program that has been providing safe, responsible screening since 2008,” he says. “Seventy percent of lung cancers detected through screening are found in the early stages 1 or 2 when it’s most survivable. Early-stage lung cancer often has no symptoms. By the time a person starts to show symptoms, the cancer has already advanced to stage 3 or 4. This is why screening is so important.”

#### Screening should be considered for those who are:

- A) Ages 55-80 with a 30-pack/year smoking history and either currently smoke or quit less than 15 years ago; or
- B) Age 50 and over with a 20-pack/year history of smoking and one of the following risk factors:
  - a. Exposure to cancer-causing agents
  - b. History of COPD or pulmonary fibrosis
  - c. History of cancer
  - d. Family history of lung cancer

For more information, contact Vickie Beckler, RN,  
at 470-793-4032 or 470-793-4AIR (4247)



Dr. Mike Andrews, chief cancer officer and Dr. Mayfield review a patient's case together.

### High Demand for Efficient Testing and Treatment

Until recently, WellStar had one STAT Clinic that operated out of Kennestone Hospital on a weekly basis. In early 2016, the health system added a second clinic day each week at Kennestone and opened STAT Clinics at its Cobb and Douglas locations. The Kennestone clinic has grown from seeing 15 to 18 patients per week to a volume of 20 to 25 each week. The Cobb and Douglas clinics are already seeing up to eight patients per week.

Each STAT Clinic has dedicated examination rooms with a waiting area, multiple computers that are tied into WellStar's medical records and a conference room where physicians, nurses and technicians can gather to review notes and discuss individual cases. Additionally, the clinics are co-located with each hospital's CT and PET scanners, which can be reserved for STAT Clinic patients. The level of organization, along with access to appropriate resources, has resulted in an ever-growing patient base.

"Many primary care physicians and pulmonologists are sending us all of their patients who exhibit chest abnormalities because our service is so good and the care is so efficient," Mayfield says. "We've grown because of that."

### Better Patient Outcomes, Improved Bottom Line

According to Mayfield, the STAT Clinic has ultimately garnered benefits that go beyond patient comfort, including reduced costs.

"In the past, someone with lung, esophageal or chest abnormalities would likely have had repeated CT and PET scans, going from doctor to doctor during their diagnosis period," he says. "Since all of the necessary physicians see the patient on the same day at the clinic, we're able to do fewer tests and they don't have to be repeated."

Mayfield adds that survival rates for lung cancer patients have improved as a direct result of the faster, more efficient diagnostic and treatment services provided by the clinic.

"The patient experience is better. Patient outcomes are better," he says. "It's a magical thing in medicine when you have faster diagnosis and treatment, improved outcomes and lower costs."

### STAT Stats

The WellStar Specialty Teams and Treatments (STAT) clinic is:

- Staffed by a team of experts, including a pulmonologist, thoracic surgeon, radiation and medical oncologists, oncology registered dietitian, nurse navigator, medical social worker, counselor and acupuncturist, among others
- An experienced training center for minimally invasive surgery and a member of the Mayo Clinic Care Network
- At the forefront of genetic tumor analysis, offering the latest genetic-based therapies and genomic profiling and tumor analysis
- Ranked in the top five centers nationally for CyberKnife radio surgery volume
- Available to patients in three WellStar locations – Kennestone, Cobb and Douglas



Two nurse navigators talk with Kathy DeJoseph, a patient with lung cancer who experienced the benefit of a faster treatment as a result of the STAT Clinic.

# RESIDENCY

Working Together to Increase Residencies in Georgia.

By Helen K. Kelley

Doctor shortages are critical throughout the country. To address this growing problem in Georgia, educational institutions, health systems, legislators and medical organizations are working to increase the number of residencies offered to medical school graduates.

## More Opportunity

“Georgia is in a ‘world of hurt’ for having enough physicians. In fact, some counties have only one or no physicians,” says Waldon Garriss, MD, who serves as the internal medicine director for WellStar Health System’s new residency program. “Georgia has traditionally been a net exporter of physicians. Newly graduated MDs and D.O.s have to leave Georgia to train because there is little opportunity here.

“What makes this situation particularly bad is that about 70 percent of physicians will end up practicing close to their last stop for training,” he adds. “If we’re sending our doctors elsewhere to train, they often don’t come back to Georgia.”

In answer to this need, WellStar has assembled a team of qualified clinicians and resources to achieve accreditation and begin a residency program that has already begun attracting applications from medical graduates. WellStar has completed its first interview season for its internal medicine and obstetrics/gynecology residencies, which will get underway this summer. The health system is currently working on accreditation for two additional residency programs in emergency medicine and surgery.

Garriss emphasizes the importance of reaching out to medical schools in Georgia and surrounding states to make them aware of these new residency opportunities.

“It’s obviously crucial and in keeping with our mission to have doctors who join WellStar and remain in our community, so it’s important for us to reach out to our state medical schools to make sure they know what we’re offering,” he says. “These are the students who already have some roots here in Georgia and the southeast because of school. They have the highest likelihood of staying.”

## Patient Base, Specialty Programs Grow

James R. Zaidan, MD, M.B.A., associate dean for graduate medical education (GME) at Emory University School of Medicine, says Emory’s residency programs, a great number of them established many decades ago, have continually expanded over the years in response to a growing patient base.

“There comes a point for most patients when they will need some form of specialized care. As our knowledge of different areas of medicine expands, little segments of those areas break away to become their own specialties, and we are constantly developing training programs for these new specialties,” he says. “When I started as the Associate Dean at Emory 16 years ago, I believe we offered about 67 accredited residency programs. Today, we offer more than 100.”

Zaidan emphasizes Emory’s ever-growing patient base as the driving force behind the growth of its residency program.

“This dramatic growth is directly attributable to the numbers and types of patients who come here. When a new need is identified, our GME faculty members, department chair and program directors will review the possibilities

of creating a new program, asking questions like, ‘Does it make sense?’, ‘Does Georgia need it?’, ‘Do we think this program will do a lot of good?’, and ‘Do we have a faculty member who will want to oversee it?’” he says. “If the answers are ‘yes,’ then we still have to undergo the rigorous accreditation process.”

Some of Emory’s newer residency programs, which will begin this summer, include epilepsy and medical biochemical genetics. Others, such as clinical informatics and interventional radiology, are undergoing the accreditation process.

“Georgia needs more physicians and certainly more primary care physicians. But we must keep in mind that primary care physicians will need experts to whom they can refer patients who require specialized care,” Zaidan says. “We need to have that specialized training here in Georgia.”

### Scholarships Benefit Emory and Morehouse Students

In an effort to increase the number of practicing physicians in Georgia, the Medical Association of Atlanta Board of Directors has created four \$5,000 scholarships, to be split evenly between senior medical students at Emory University School of Medicine and Morehouse School of Medicine.

To qualify for one of these scholarships, a senior medical student must have matched and committed to a residency program located in Georgia. Preference will be given to those students who have joined the Medical Association of Atlanta and attended MAA events.

### State Invests in Rural Practitioners

Gov. Nathan Deal recently announced that Georgia will invest an additional \$70 million in two medical schools as a result of a settlement agreement offer from the Centers for Medicare and Medicaid Services. The recipients, Morehouse School of Medicine and Mercer University, were selected based on their continued efforts to place graduates in rural and underserved areas throughout the state.

“The state should receive these funds as a result of a healthcare lawsuit settlement regarding Medicaid reimbursements,” Deal says. “It is only fitting that we in turn invest this money in healthcare education programs, particularly those that prioritize placing primary care physician graduates in high-demand areas throughout the state. We look forward to continue working with these two medical schools to advance their healthcare training and delivery efforts.”

Dr. Valerie Montgomery Rice, president and dean of Morehouse School of Medicine, says the medical school will use the money to help expand classes and its residency programs, as well as recruit new staff. Mercer University President William Underwood says their portion of money will be used to assist students with a commitment to providing primary care in areas of the greatest need.



Waldon Garriss, MD



James R. Zaidan, MD



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