



TCTAP 2021 Virtual RDN clinical update: OFF MED & GSR Subgroups

Tzung-Dau Wang (王宗道)

Honorary President of Taiwan Hypertension Society

Professor of Medicine

Cardiovascular Center and Division of Cardiology

Department of Internal Medicine

National Taiwan University Hospital

Taipei City, Taiwan

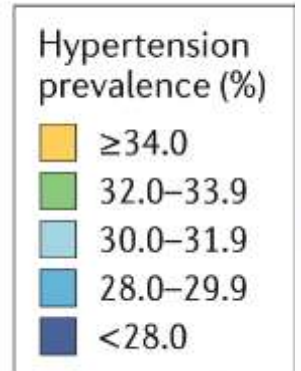
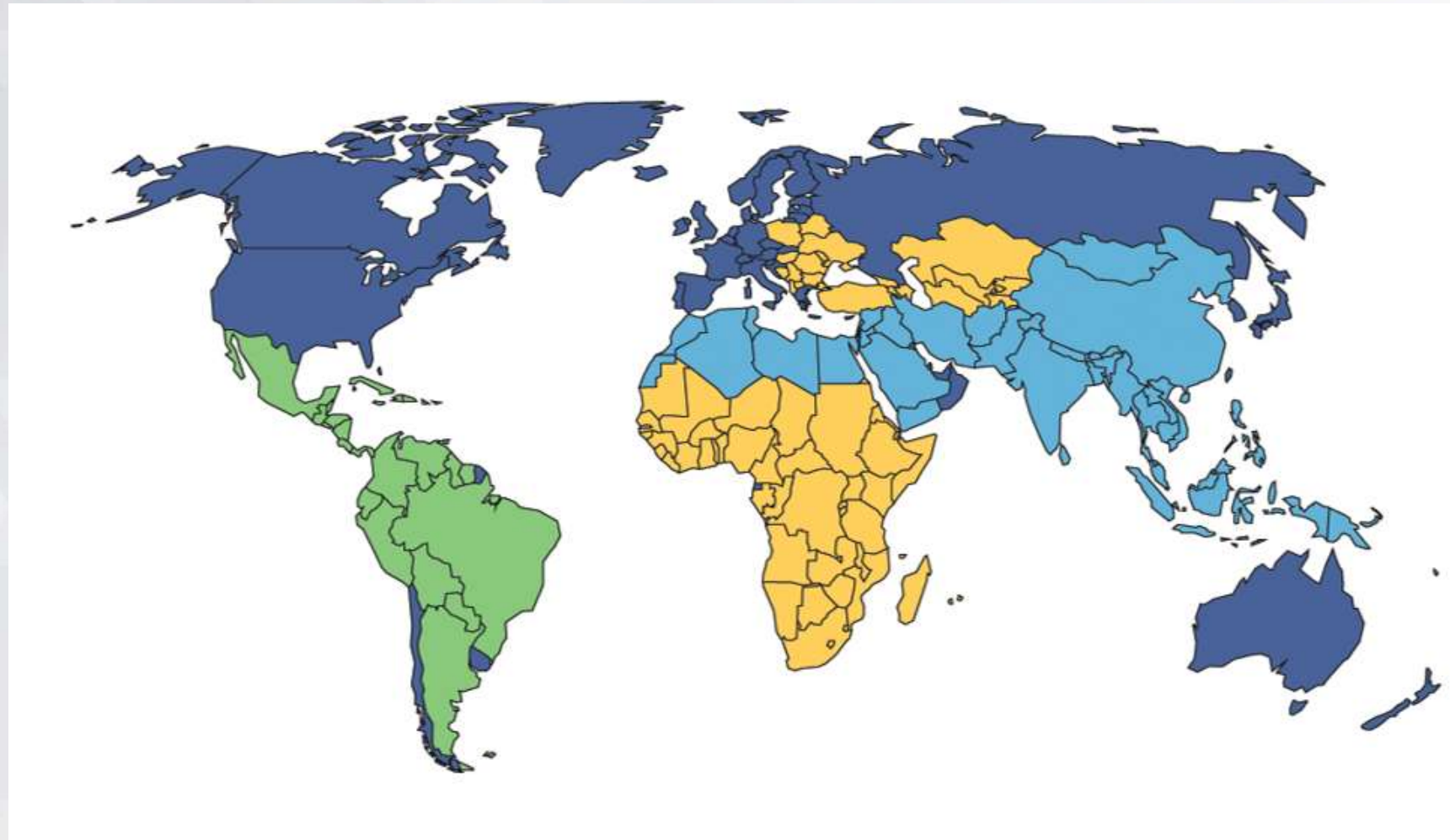


Disclosure

- Nothing to disclose related to this work

High Global Incidence of Hypertension

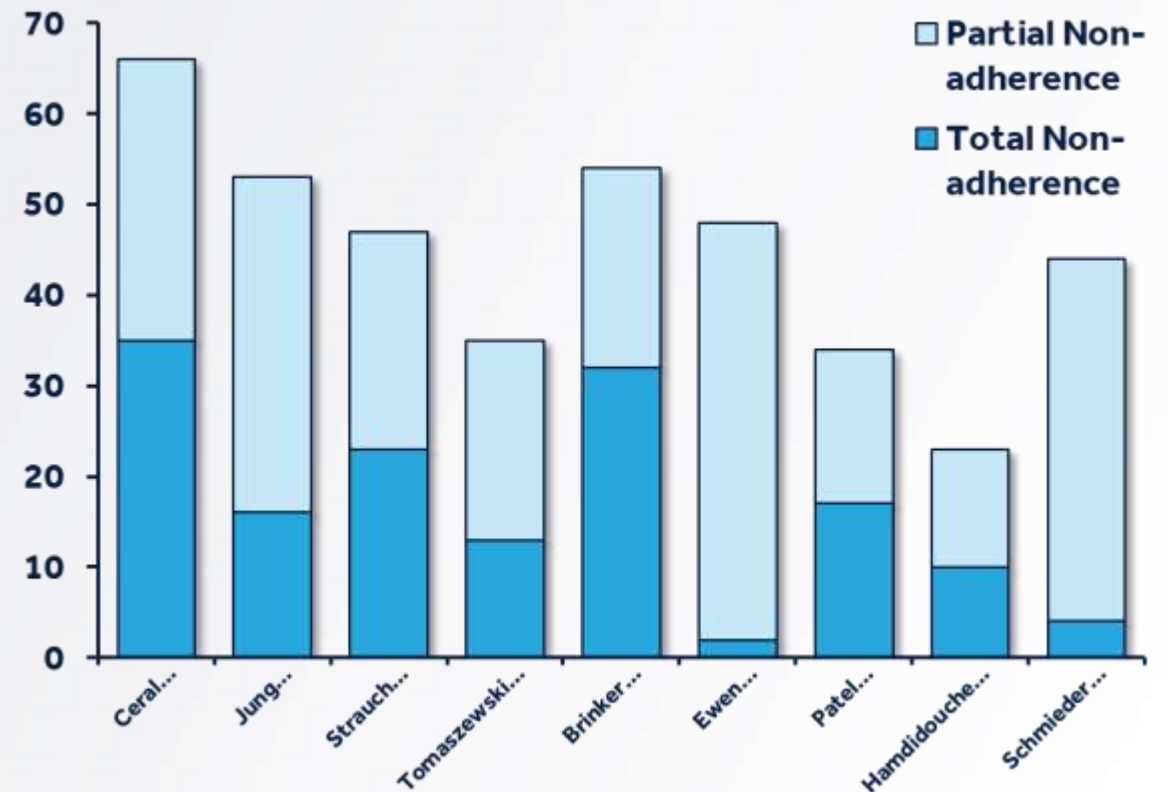
Hypertension Prevalence is ~30% Worldwide





Non-Adherence to Prescribed Antihypertensive Drugs in Clinical Studies

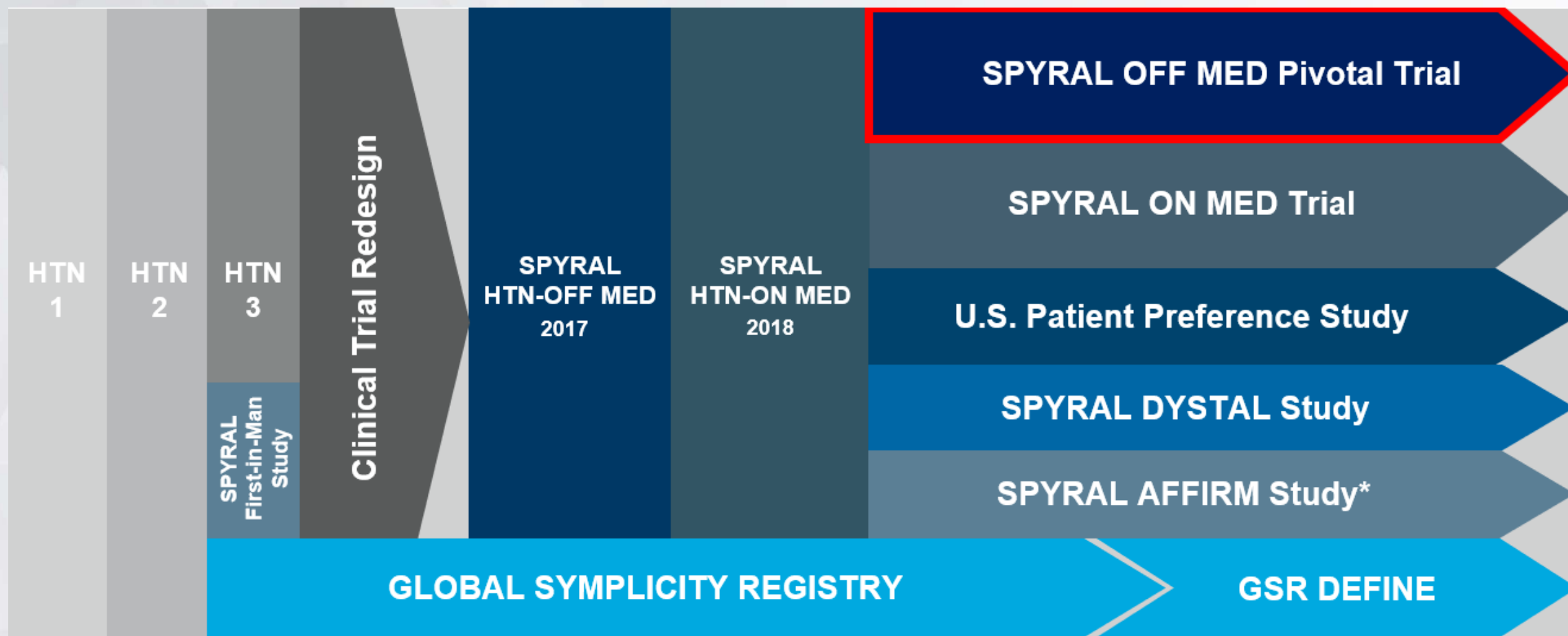
- 30 to 50% non-adherence rate is consistent between clinical trials and medical practice
- Poor and dynamic adherence introduces variability to trial endpoints
- Not easily controlled, even with rigorous trial design





SPYRAL HTN Clinical Program

Over 4,000 Patients Studied Across Multiple Trials

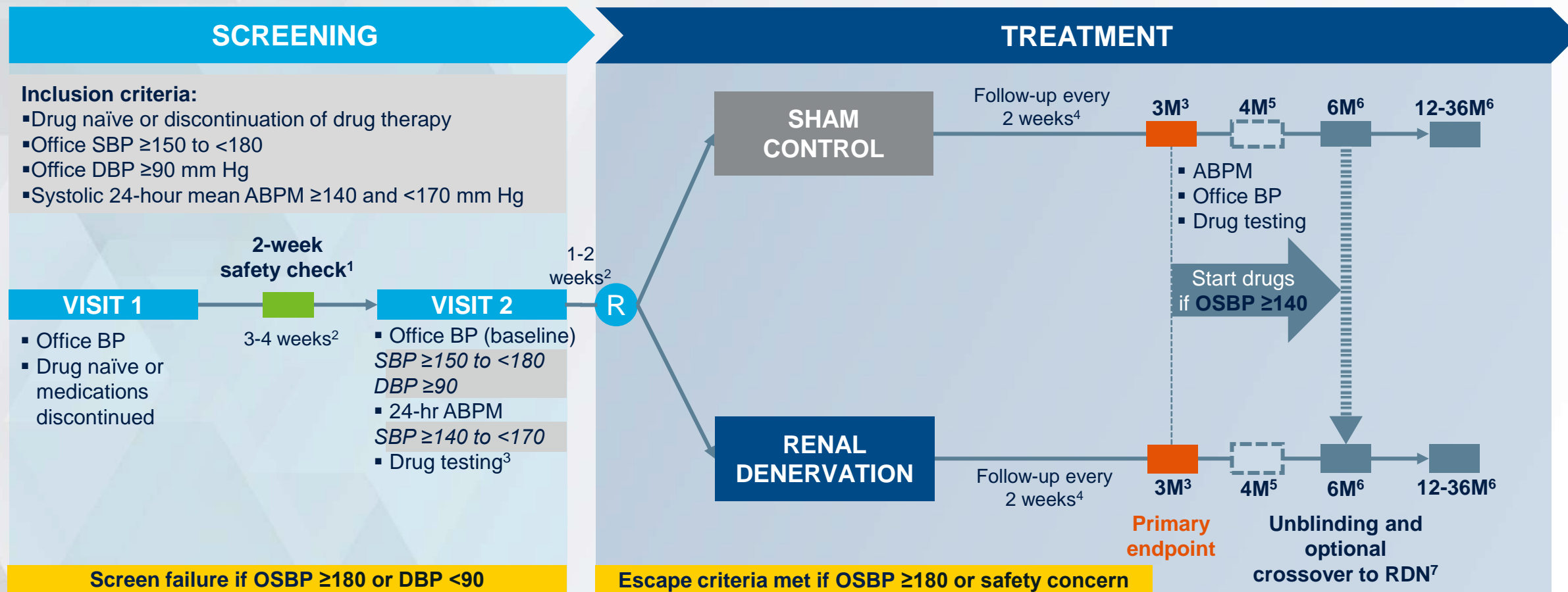


* Under development



SPYRAL HTN-OFF MED Pivotal Trial

Randomised, Sham-controlled Trial



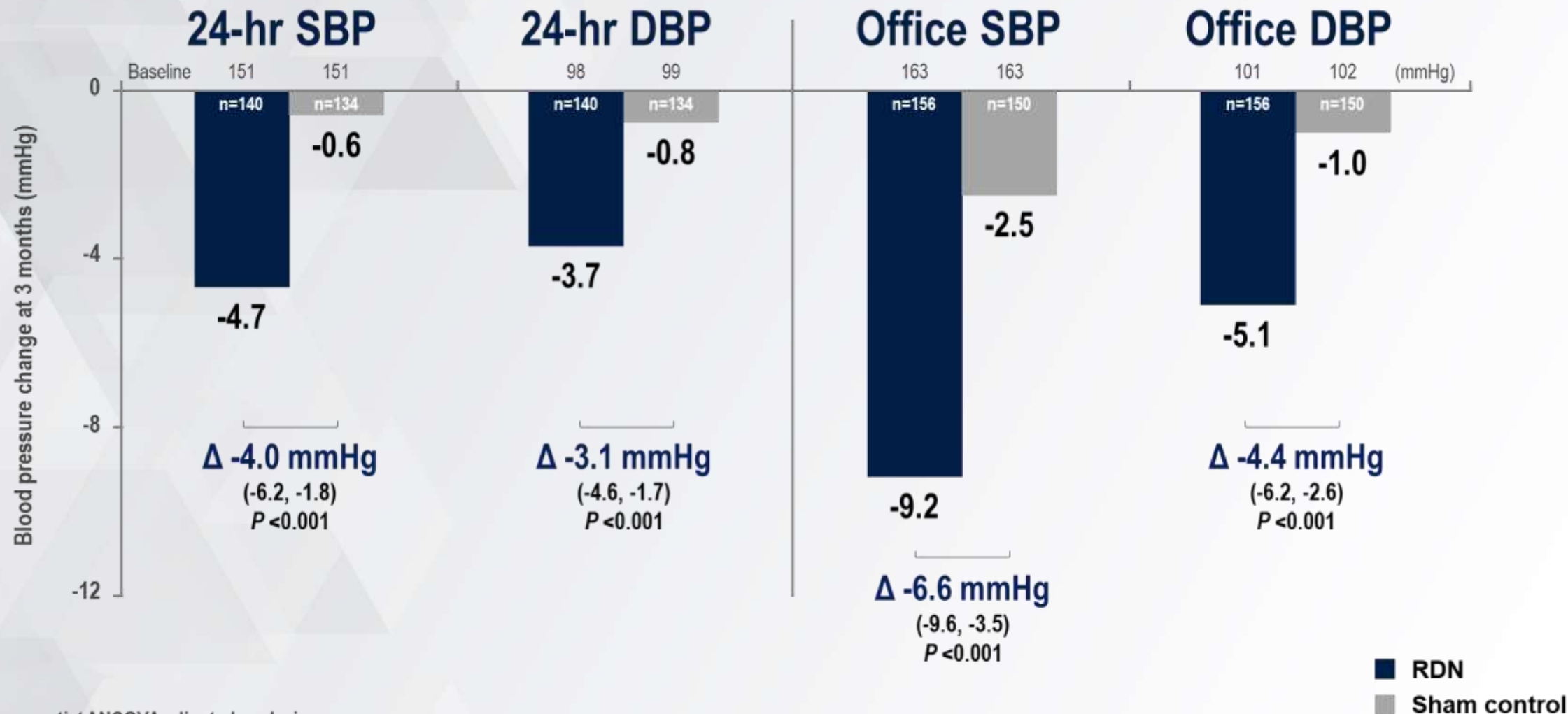
NCT02439749

Böhm M, et al. [Clin Res Cardiol.](#) 2020;109(3):289-302



SPYRAL HTN – OFF MED PIVOTAL

Blood Pressure Changes at 3 Months



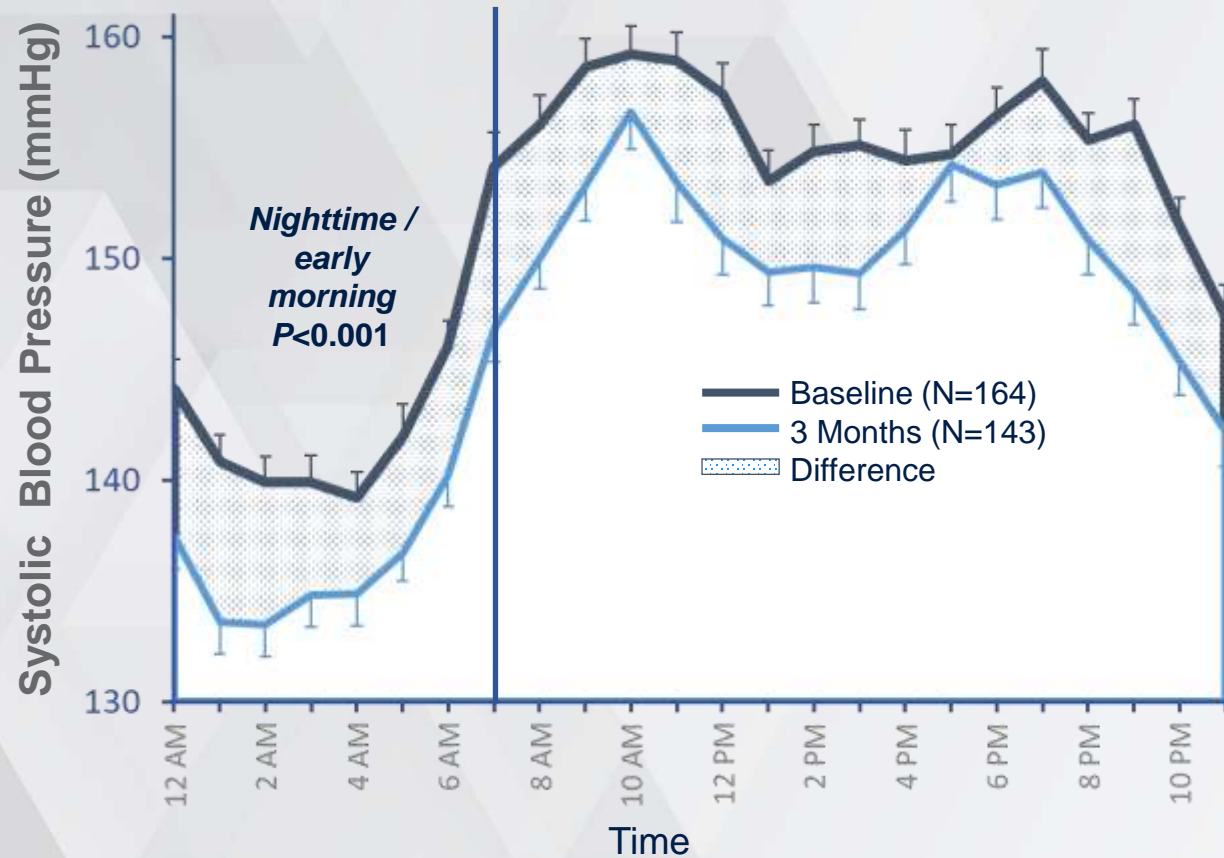
Frequentist ANCOVA adjusted analysis

Böhm M, et al. Lancet 2020

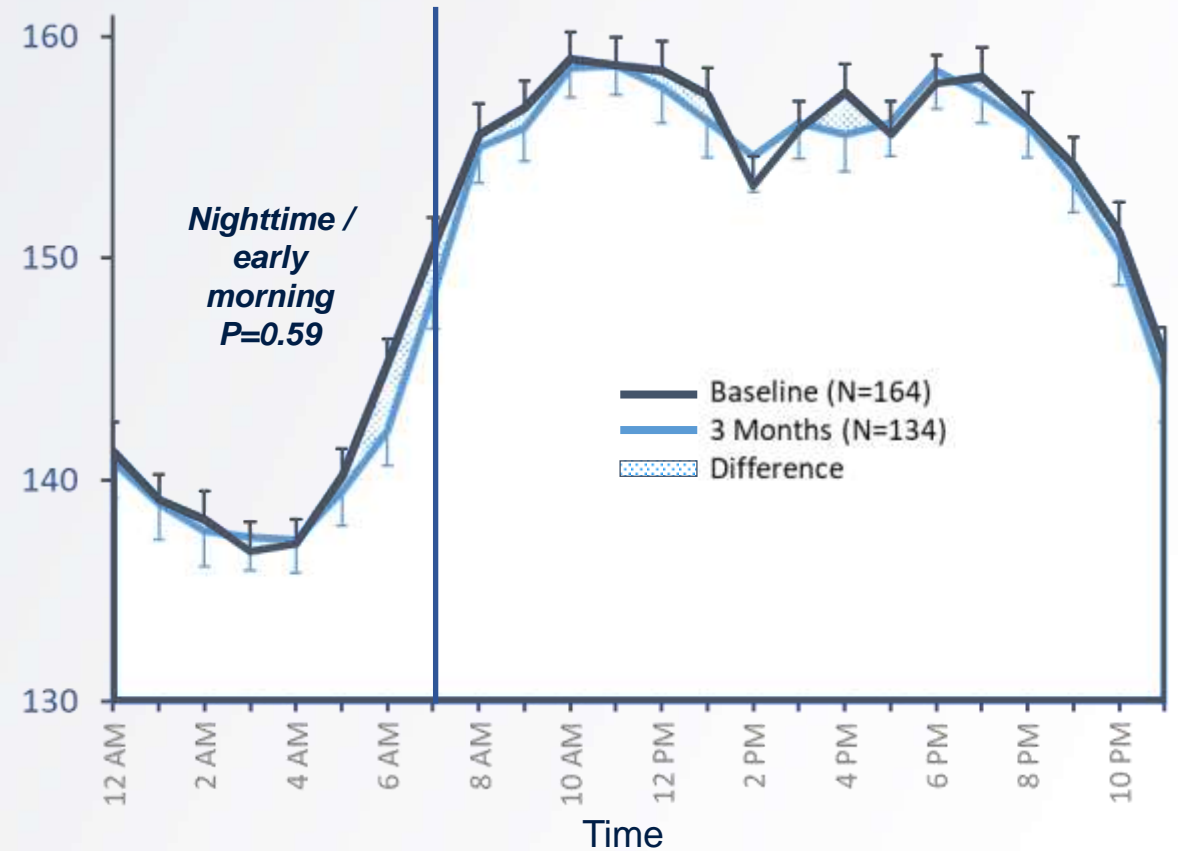
RDN Demonstrated an “Always On” Effect on 24-hr BP Lowering

24-hr Systolic ABPM Trend at 3 Months

Renal Denervation



Sham Control





2019 Taiwan Consensus on Renal Denervation

Indication: “NOT” Restricted to Resistant Hypertension

Recommendations (for catheter-based renal denervation)	Class	Level
Office BP $\geq 150/90$ mmHg and daytime ambulatory SBP ≥ 135 mmHg or DBP ≥ 85 mmHg , irrespective of use of antihypertensive agents, with eligible renal artery anatomy and eGFR ≥ 45 mL/min/1.73m ²	Ila	B
24-h ambulatory BP $\geq 140/80$ mmHg , irrespective of use of antihypertensive agents, and with eligible renal artery anatomy and eGFR ≥ 45 mL/min/1.73 m ²	Ila	B

Spyral HTN-On Med
Spyral HTN-Off Med/Pivotal
RADIANCE HTN-SOLO

Masked or masked uncontrolled HT



2019 Taiwan Consensus on Renal Denervation

Acta Cardiologica Sinica

The Official Journal of the Taiwan Society of Cardiology

Acta Cardiol Sin 2019;35:199–230

doi: 10.6515/ACS.201905_35(3).20190415A

Consensus

2019 Consensus Statement of the Taiwan Hypertension Society and the Taiwan Society of Cardiology on Renal Denervation for the Management of Arterial Hypertension

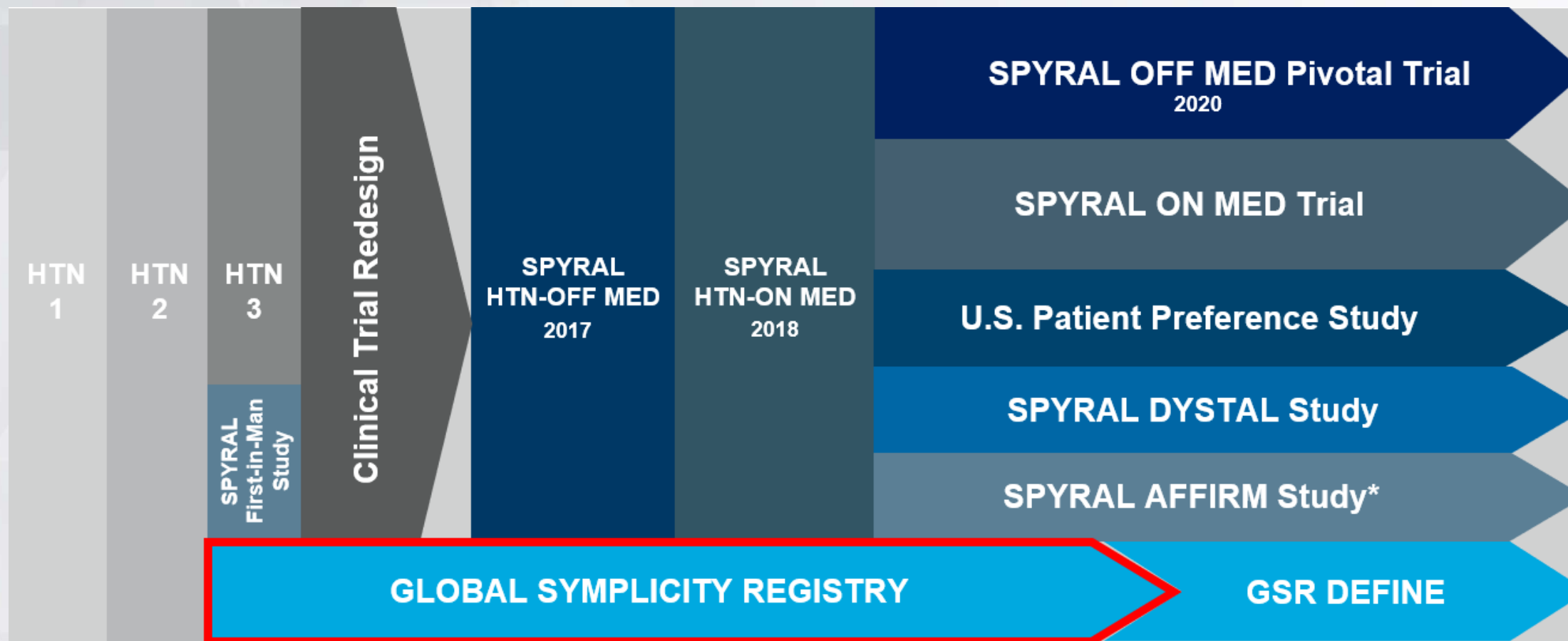
Tzung-Dau Wang,¹ Ying-Hsiang Lee,^{2,3} Shih-Sheng Chang,⁴ Ying-Chang Tung,⁵ Chih-Fan Yeh,¹ Yen-Hung Lin,¹ Chien-Ting Pan,¹ Chien-Yi Hsu,^{6,7} Chun-Yao Huang,⁷ Cho-Kai Wu,¹ Pei-Hsun Sung,⁸ Liang-Ting Chiang,⁹ Yu-Chen Wang,^{4,10} Wei-Chung Tsai,¹¹ Ting-Tse Lin,¹² Chia-Pin Lin,⁵ Wen-Jone Chen¹ and Juey-Jen Hwang¹

Sympathetic overactivity, an essential mechanism of hypertension, in driving sustained hypertension derives mostly from its effects on renal function. Percutaneous renal denervation (RDN) is designed to disrupt renal afferent and



SPYRAL HTN Clinical Program

Over 4,000 Patients Studied Across Multiple Trials



* Under development



Largest and Longest Investigation of Renal Denervation Global SymPLICity Registry Study Design

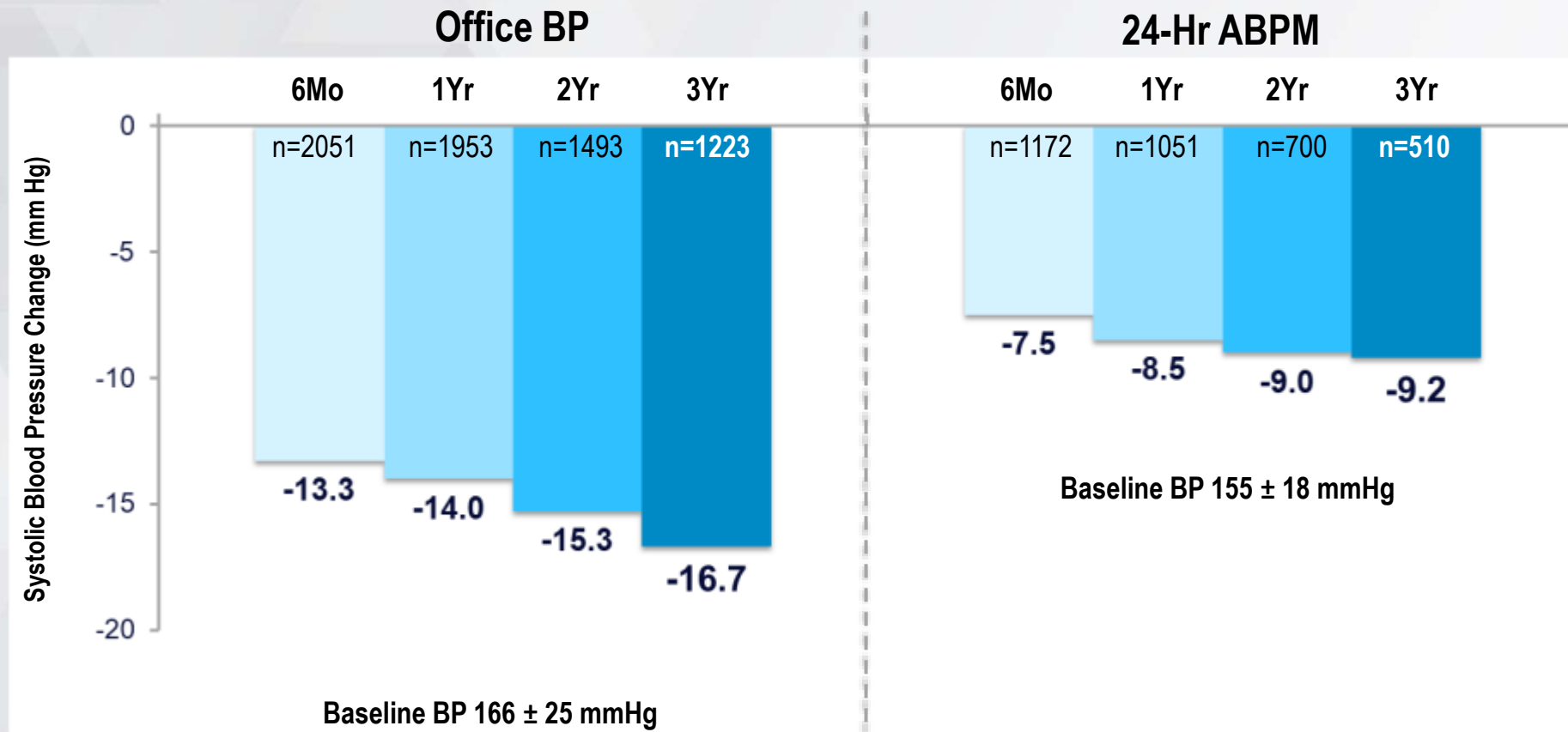
Prospective, open-label, single-arm, multi-center, all-comer observational registry
with data monitoring

**3000 Consecutive patients with uncontrolled hypertension
or other conditions associated with increased sympathetic activity
treated with SymPLICity™ (Flex or Spyral) RDN system**

Follow-up	6M	1Y	2Y	3Y
Follow-up eligible to date:				
Patients treated with SymPLICity Flex™ catheter	2231	2226	2211	2207
Patients treated with SymPLICity Spyral™ catheter	516	472	381	323
Total	2747	2698	2592	2530

Sustained Blood Pressure Reductions Out to Three Years

Blood Pressure Change- All Patients

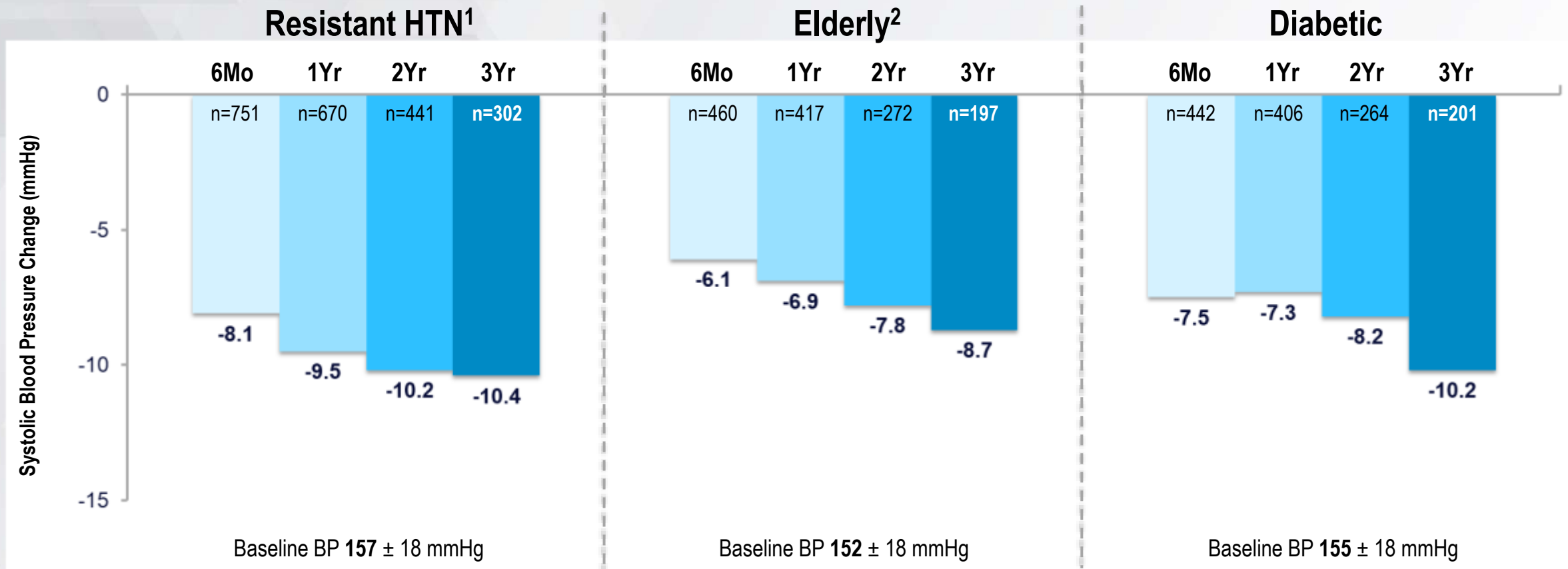


P < 0.001 at all timepoints vs. baseline BP



Reduced BP in a Variety of Patients Subgroups

24-hour Systolic ABPM Change



1 Resistant HTN defined as OSBP>150 mmHg, ≥3 anti-hypertensive medications.

2 Elderly defined as 65 years or older

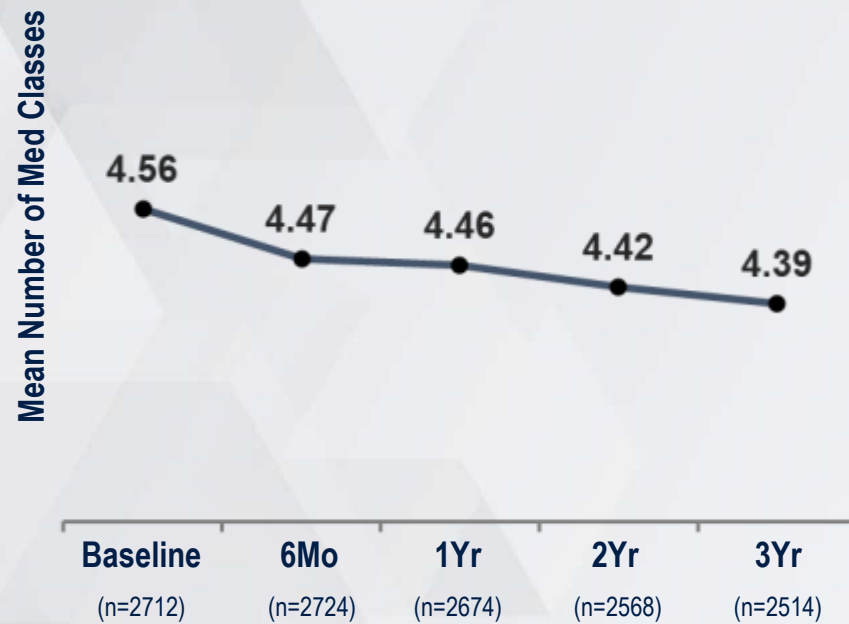
Mahfoud F, et al. J Am Coll Cardiol, 2020.

P < 0.001 at all timepoints vs. baseline BP

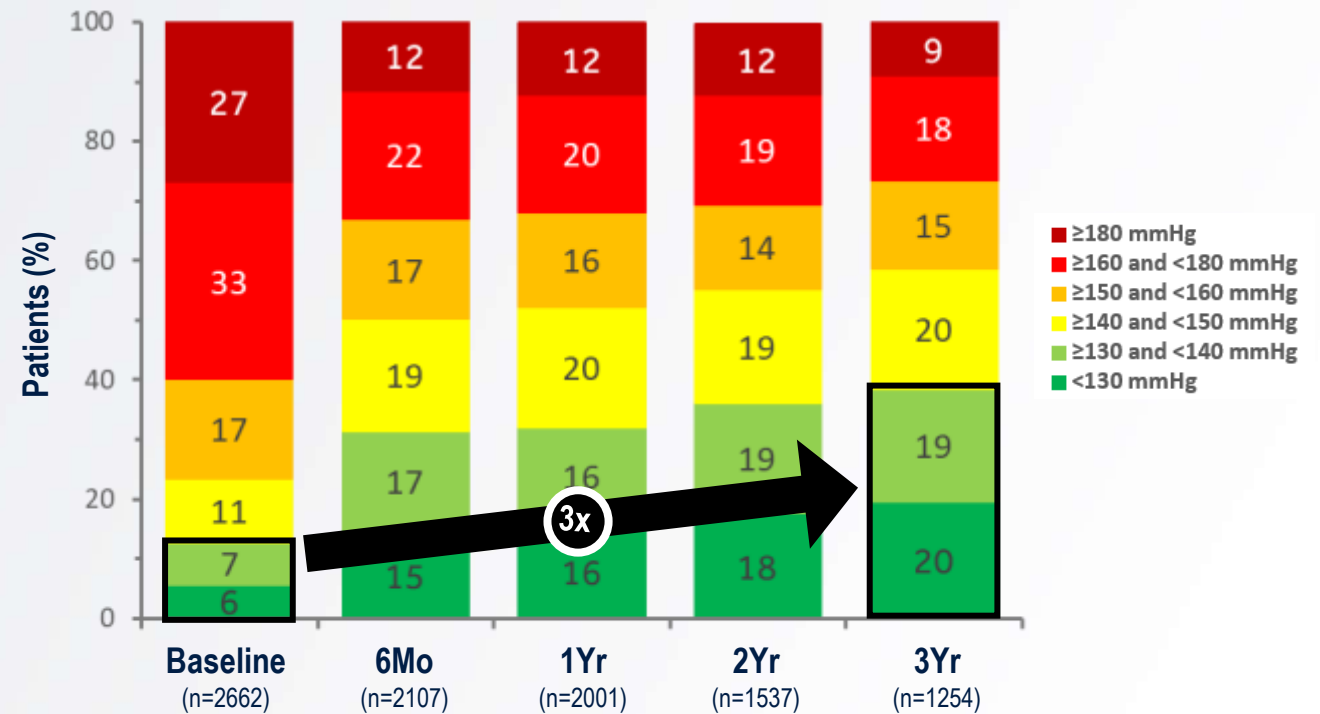
RDN Decreased BP Without Increasing Medication Burden

Three-fold Increase in % of Patients With BP <140 mmHg over 3 years

- Number of Medications



Office Systolic BP Distribution





Key Takeaways of SPYRAL HTN Clinical Program

- **Prospectively powered OFF and ON MED Sham-Controlled RCTs build on proof-of-concept trials**
 - **Statistically significant and clinically relevant blood pressure reductions** compared to sham and no major safety events, in both the **absence and presence** of antihypertensive drugs
 - **“Always on” effect**: blood pressure reductions following RDN were present throughout the day and night
- **The GSR study showed clinically meaningful and statistically significant BP reductions sustained out to 3 years post procedure, demonstrating the durability of RDN**
 - **Similar sustained reductions were observed in high-risk subgroups**, specifically patients with diabetes, CKD, resistant hypertension, ISH and AF
 - GSR continued to show **excellent safety** of the Symplicity™ RDN system
 - GSR is the largest RDN study with >2,000 patients enrolled to date, including more than 500 patients treated with the Symplicity Spyral™ catheter



**Thank You for
Your Attention**

