

# A Polygenic Risk Score to Identify Risk of Incident Stroke and Benefit from Primary Prevention Statin Therapy

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## BACKGROUND & OBJECTIVES

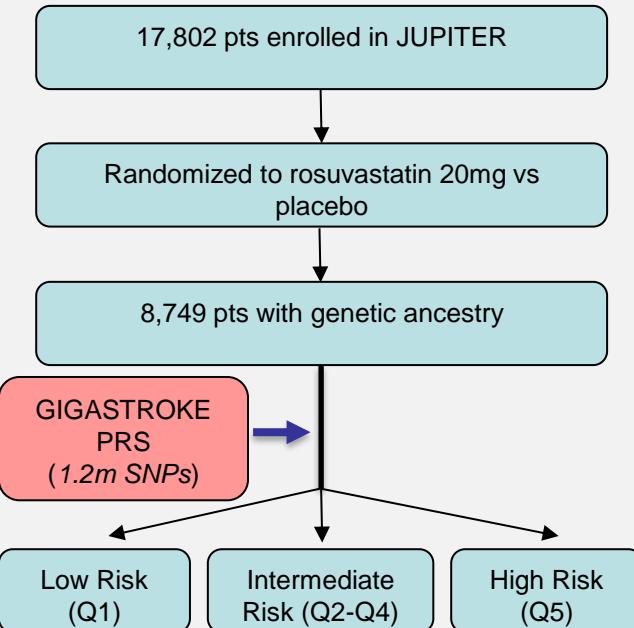
- Primary prevention statin use can significantly reduce incidence of stroke
- Widely used clinical risk scores for statin eligibility do not specifically predict risk of stroke, particularly in primary prevention
- Polygenic risk scores (PRS) may identify individuals at high risk of stroke and select those more likely to benefit from statin therapy

### We aimed to determine:

- *whether a novel PRS predict stroke in a primary prevention clinical trial population*
- *if those with higher PRS achieve greater benefit with primary prevention statin therapy*

## METHODS

- JUPITER tested rosuvastatin in primary prevention and enrolled pts with LDL-C <130 mg/dL and hsCRP > 2 mg/L
- Primary outcome was occurrence of stroke
- Stroke rate was modeled per 1-SD increase in PRS, and hazard ratios calculated for intermediate & high-risk groups
- We also tested for a PRS by statin interaction, to determine if those at high PRS derive greater benefit



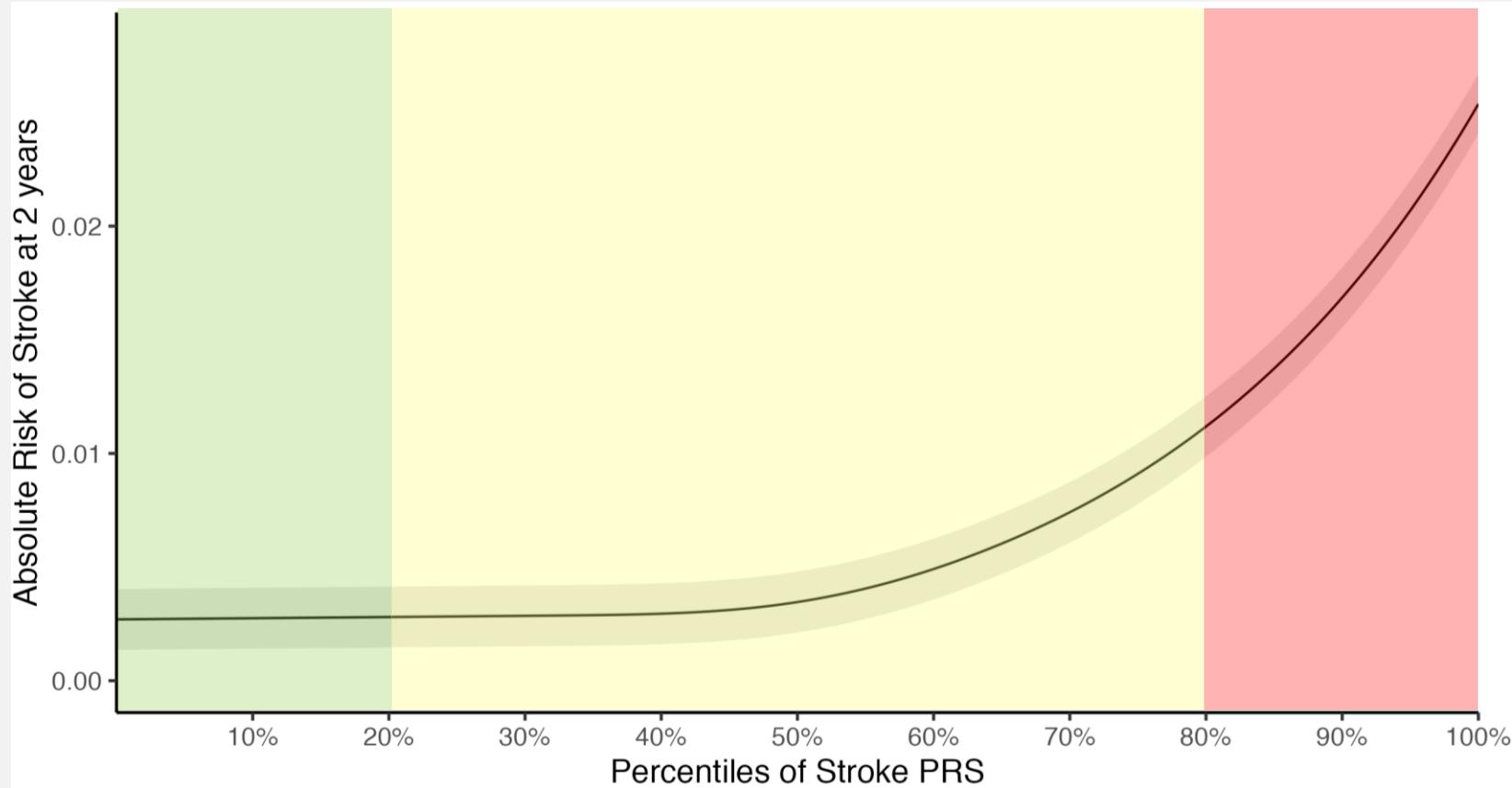
# BASELINE CHARACTERISTICS

## Baseline Demographics by PRS Subgroup

	Q1 n=1750	Q2-Q4 n=5250	Q5 n=1749	p-value
Age	67	66	65	<0.001
Male	31%	33%	32%	0.18
Hypertension	41%	65%	69%	<0.001
Atrial Fibrillation	2%	2.9%	3.3%	0.06
Smoking	11%	13%	15%	0.001
LDL-C, mean (mg/dL)	110	110	110	0.71
eGFR, mean (ml/min/1.73m <sup>2</sup> )	72	73	73	0.12
hsCRP, mean (mg/L)	3.9	4.0	4.2	0.13

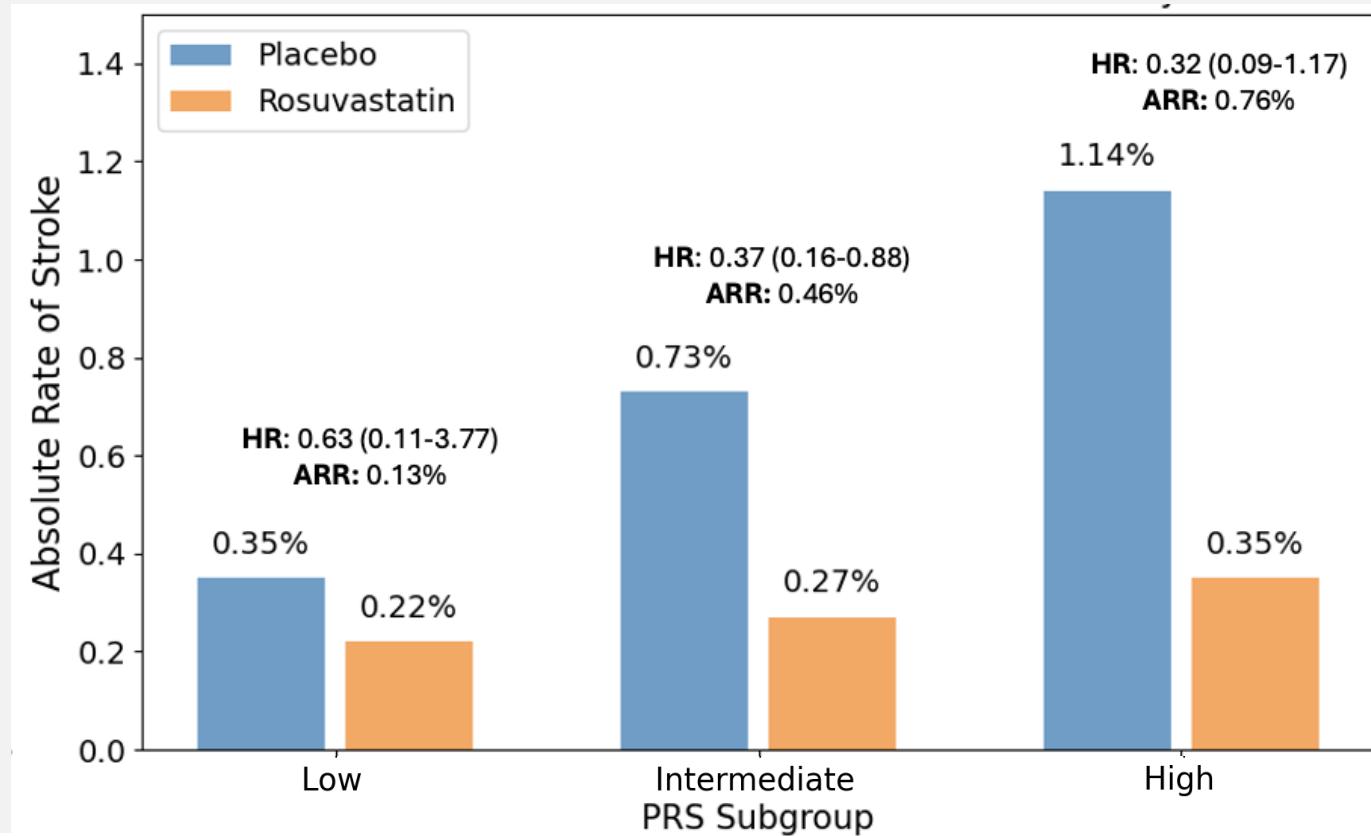
## RESULTS

### 2-Yr Risk of Stroke as a Function of PRS Percentile in Placebo Arm



## RESULTS

### Treatment Effect of Rosuvastatin on Rate of Stroke by PRS Category



## CONCLUSION

- The GIGASTROKE PRS can prospectively identify JUPITER patients with European ancestry with 2 to 4-fold increased risk of stroke
- Among those with high PRS, this risk may be offset by statin therapy, suggesting this tool may have clinical utility in primary prevention of stroke

# Thank You

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