

# TRENDS IN CONTEMPORARY CARDIOVASCULAR RISK ASSESSMENT IN CANADA

M. Gupta,<sup>1,2,3</sup> M. Tsigoulis,<sup>1</sup> M. Kajil,<sup>1</sup> S. Hirjikaka,<sup>1</sup> A. Quan,<sup>3</sup> H. Teoh<sup>1,3</sup> and S. Verma<sup>1,3</sup>

<sup>1</sup>Canadian Cardiovascular Research Network, Brampton, ON;

<sup>2</sup>Division of Cardiology, McMaster University, Hamilton, ON; <sup>3</sup>Division of Cardiac Surgery, St Michael's Hospital, Toronto, ON



## ABSTRACT

Cardiovascular risk stratification remains the cornerstone of preventive cardiology, yet there are limited data in the contemporary era as to how primary care physicians perform risk assessment. The present study was performed to gain insight into how Canadian primary care physicians incorporate traditional and emerging cardiovascular risk factors in determining cardiovascular risk.

We conducted a prospective cross-sectional survey of 652 Canadian primary care physicians with representation from each province. Using a validated questionnaire we evaluated their perceptions around cardiovascular risk assessment, treatment thresholds, and novel biomarkers of vascular risk.

The majority of physicians (75%) perform CV risk assessment in eligible patients on an annual basis with 67% using the Framingham Risk Score (FRS) to estimate CV risk. However, 31% of physicians estimate risk by counting the number of risk factors or by relying on clinical experience. Usage of other risk calculators such as PROCAM or Reynolds Risk Score was negligible. Although 88% of physicians were aware that FRS estimates 10 year risk of CHD death and MI, 31% were unable to characterize FRS thresholds for high risk. Family history was identified as the most important single risk factor more often (27%) than was age (21%), hypertension (16%), central obesity (11%), dyslipidemia (8%) or smoking (8%). Although family history was considered to be important, only 43% of physicians correctly used a positive family history to roughly double the FRS, as per the Canadian Lipid Guidelines. Eighty-four percent of physicians considered waist circumference as a vital sign, although only 6% reported measuring this routinely. Importantly, 46% of physicians consider the presence of metabolic syndrome (MS) to equate with high FRS, and only 13% felt that MS equates with intermediate FRS. In addition to clinical and biochemical assessments, 58% of physicians identified carotid ultrasound as the best imaging technique for screening in primary prevention. Coronary CT was considered the best imaging technique for screening asymptomatic individuals by 24% of physicians.

This study indicates that 2/3 of Canadian primary care physicians employ the FRS for risk stratification, but also consider family history and central obesity/MS as important risk markers. However, waist circumference is rarely documented. The majority of physicians did not appropriately stratify risk based upon the presence of either a positive family history or the MS. Of some concern is the observation that one quarter of physicians felt that coronary CT was the imaging modality of choice for screening in primary prevention.

## INTRODUCTION

Appropriate cardiovascular risk stratification is imperative for the optimal application of preventive therapies. Despite the availability of evidence-based guidelines for cardiovascular prevention, studies continually demonstrate a persisting care gap in clinical medicine.

## OBJECTIVE

To evaluate the current perceptions of primary care physicians regarding cardiovascular risk assessment and treatment thresholds.

## STUDY DESIGN

### Recruitment of Participants

2225 primary care physicians, from 10 Canadian provinces, were invited by mail between October 2008 and May 2009 to complete a validated 32-question survey aimed at determining their current practice of global cardiovascular risk assessment and the subsequent treatment algorithms employed.

### Data Handling

Completed surveys were returned to the Canadian Cardiovascular Research Network where the entries were read with DataFax 3.9 software. The data were analyzed by two investigators (H.T. and A.Q.) who were blinded to the identities of the physicians.

## RESULTS

The blue bar in each figure denotes the most correct answer.

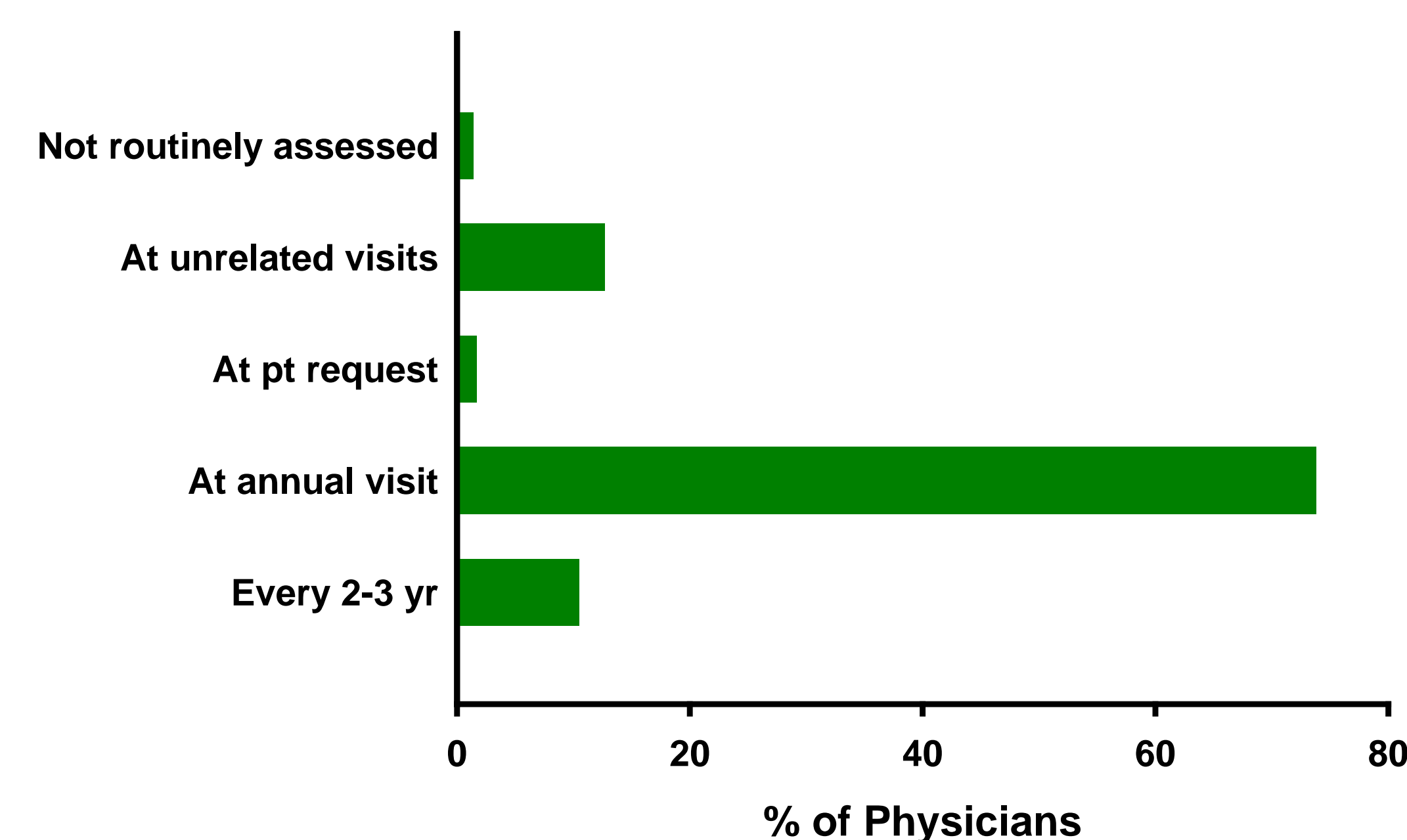


Fig. 1. Responses to "In men >40y and women >50y, when do you assess cardiovascular risk?".

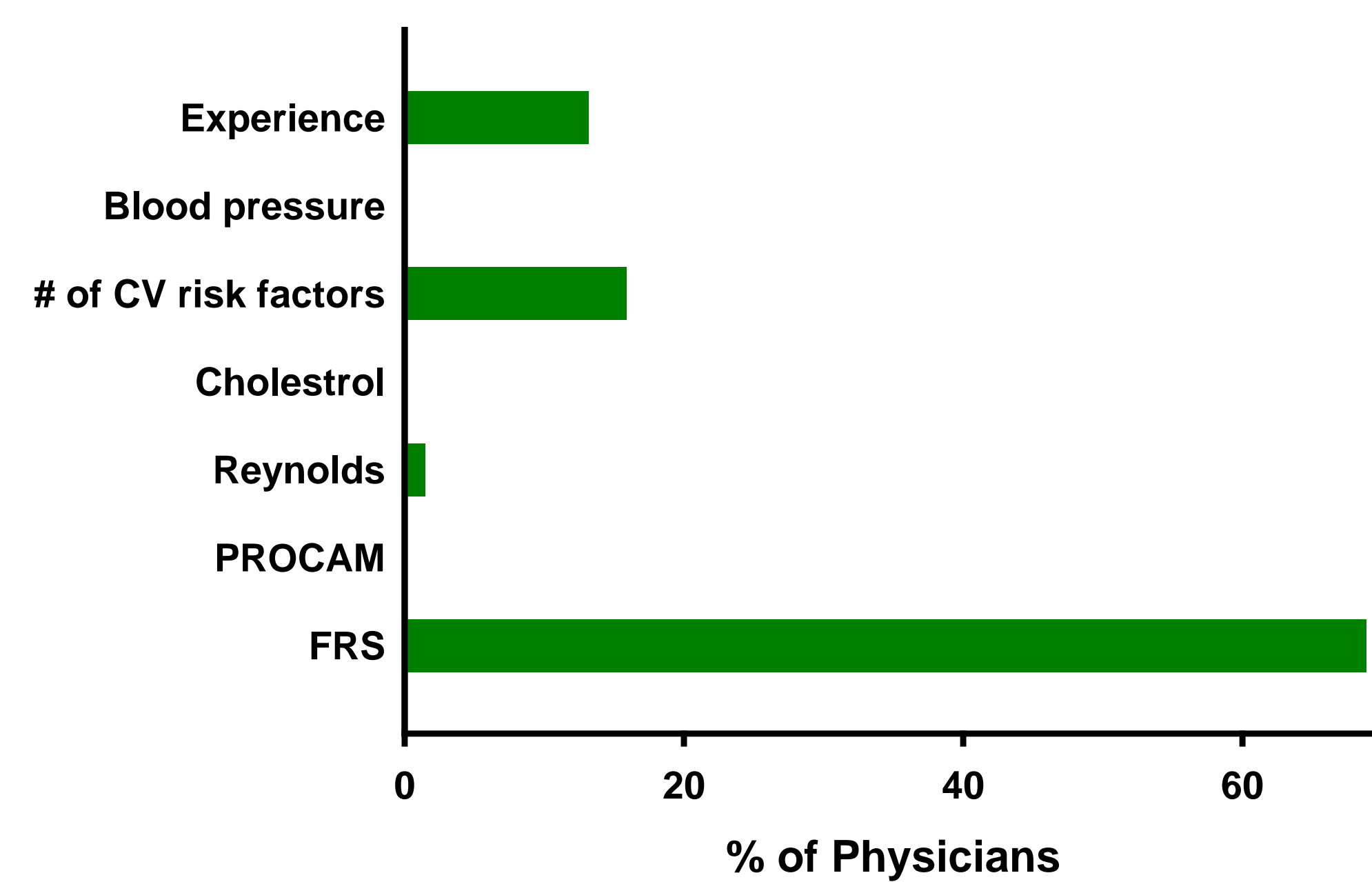


Fig. 2. Responses to "How do you estimate cardiovascular risk in clinical practice?".

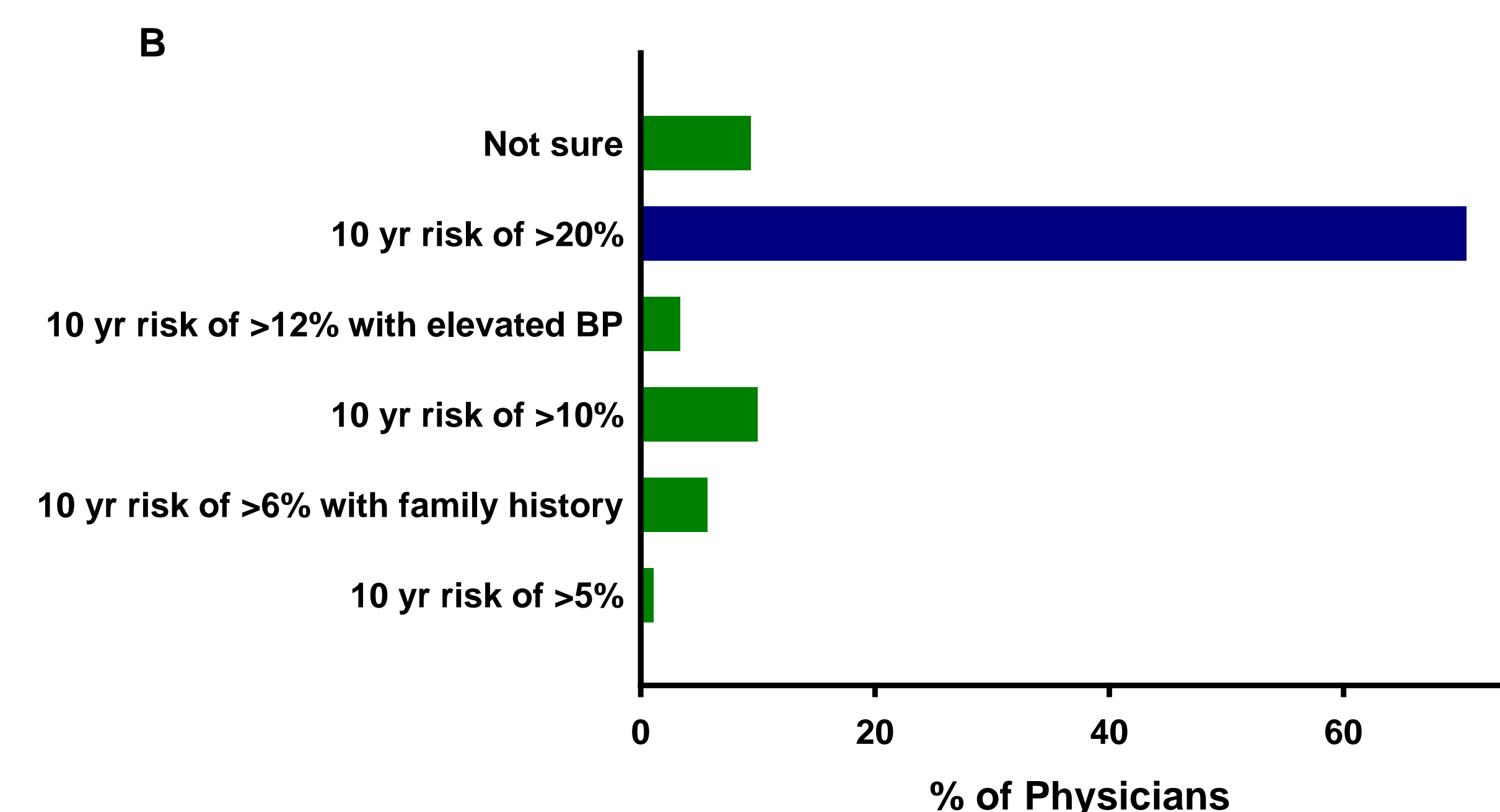
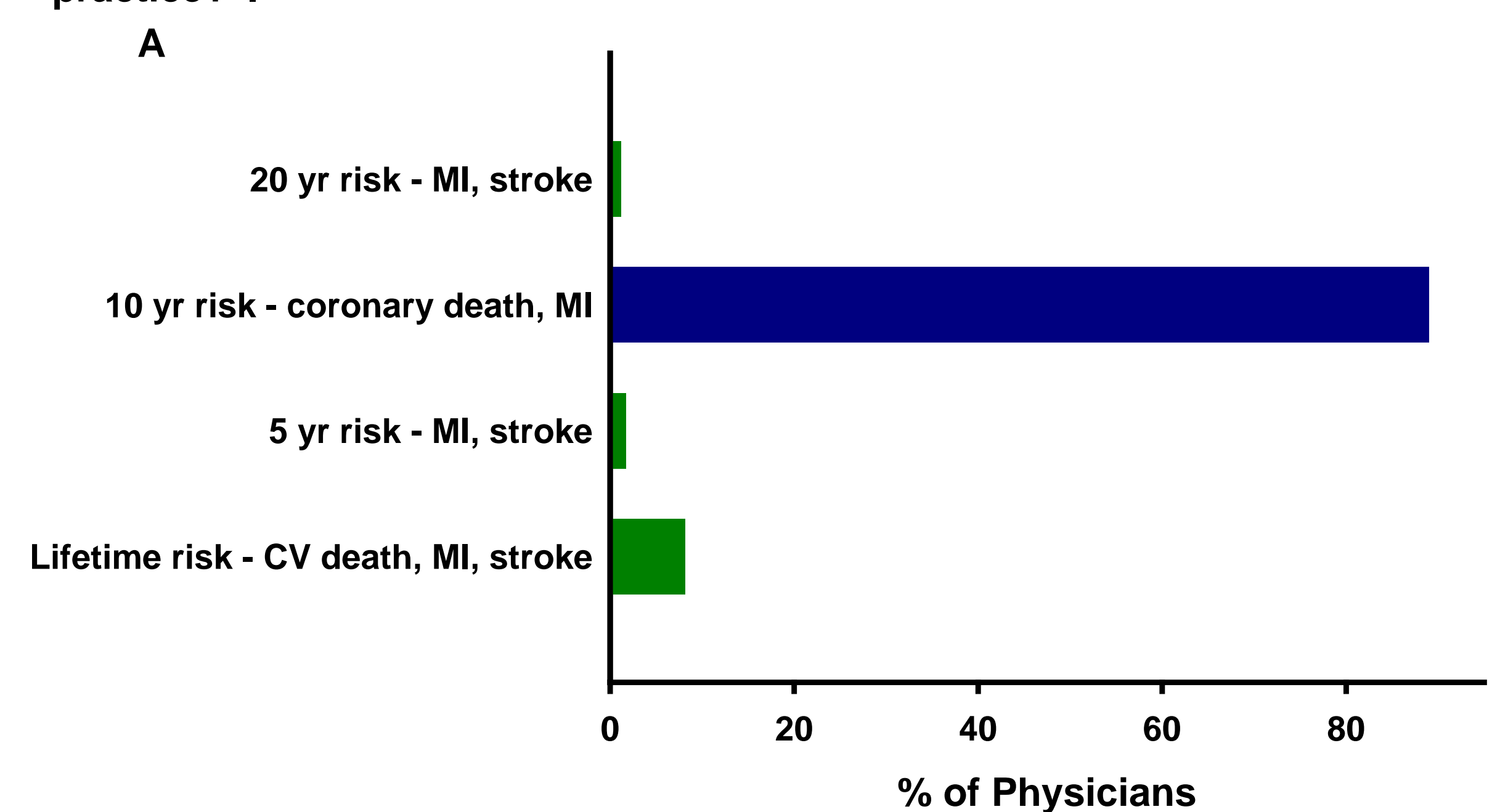


Fig. 3. Responses to (A) "What does the Framingham Risk Score (FRS) actually estimate?". (B) "Which one of the following option is consistent with high risk as estimated by the FRS?".

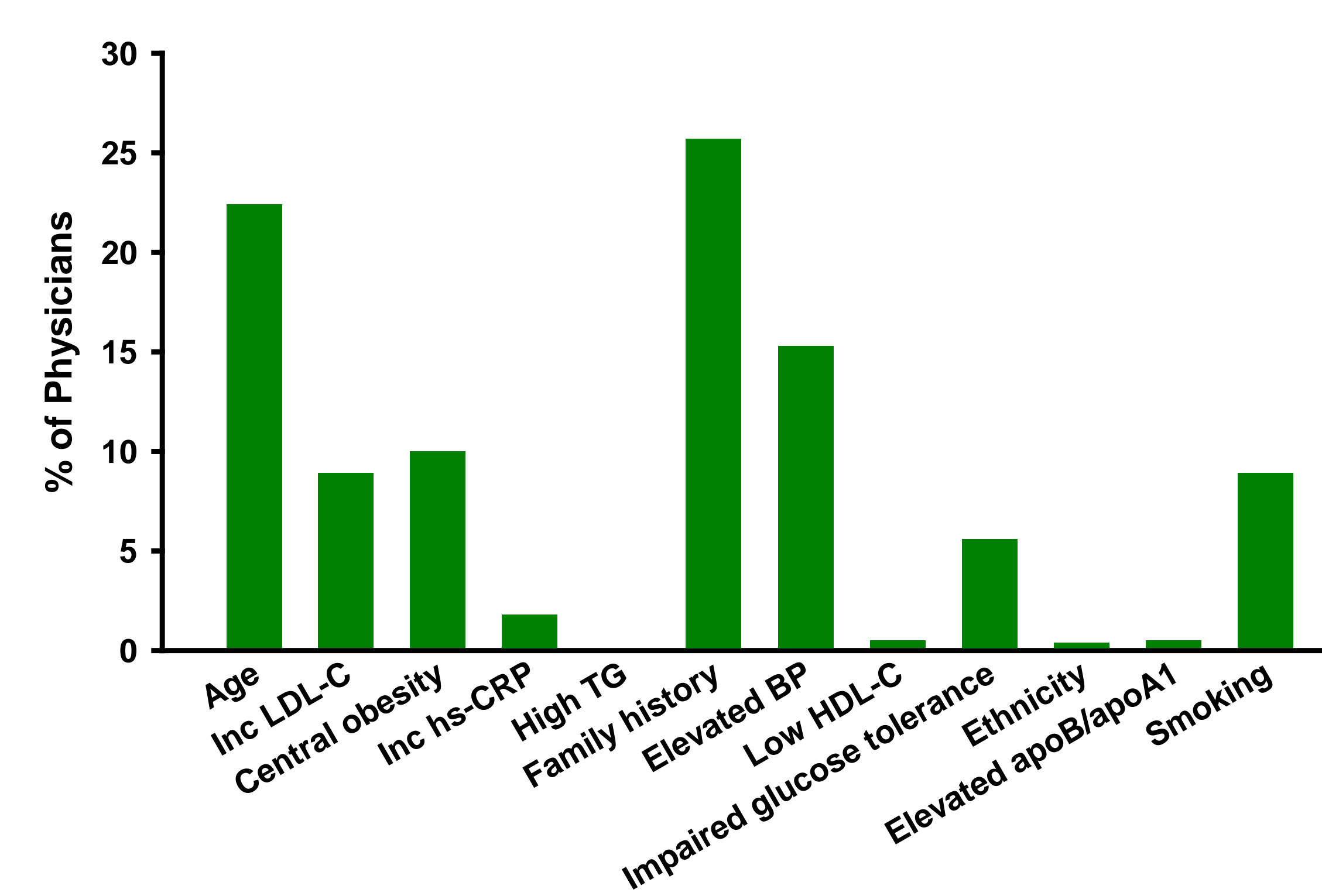


Fig. 4. Responses to "In an asymptomatic patient, please mark the single factor you consider to be the most important in making your decision to perform a formal cardiovascular risk assessment."

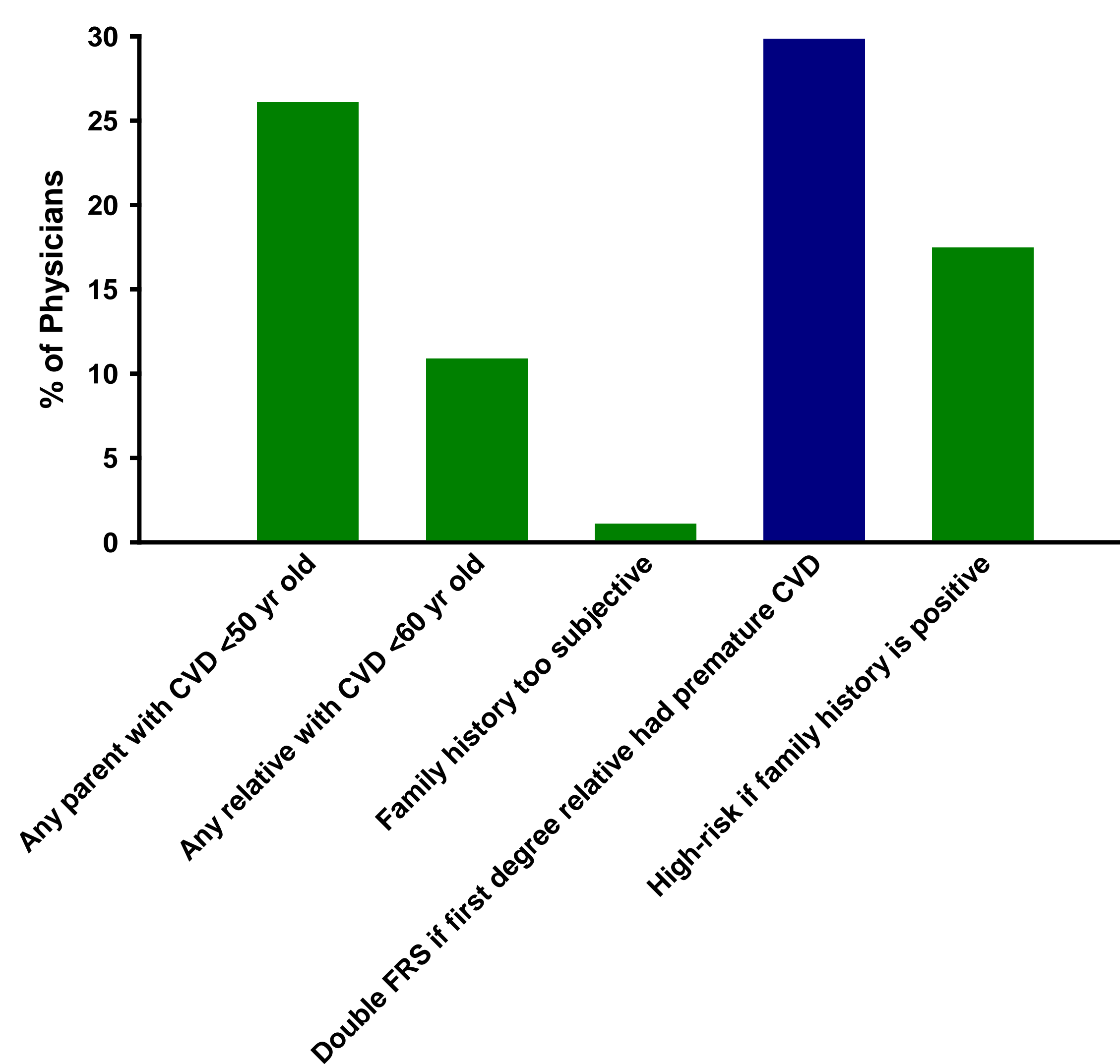


Fig. 5. Responses to "How do you incorporate family history into CV risk stratification?".

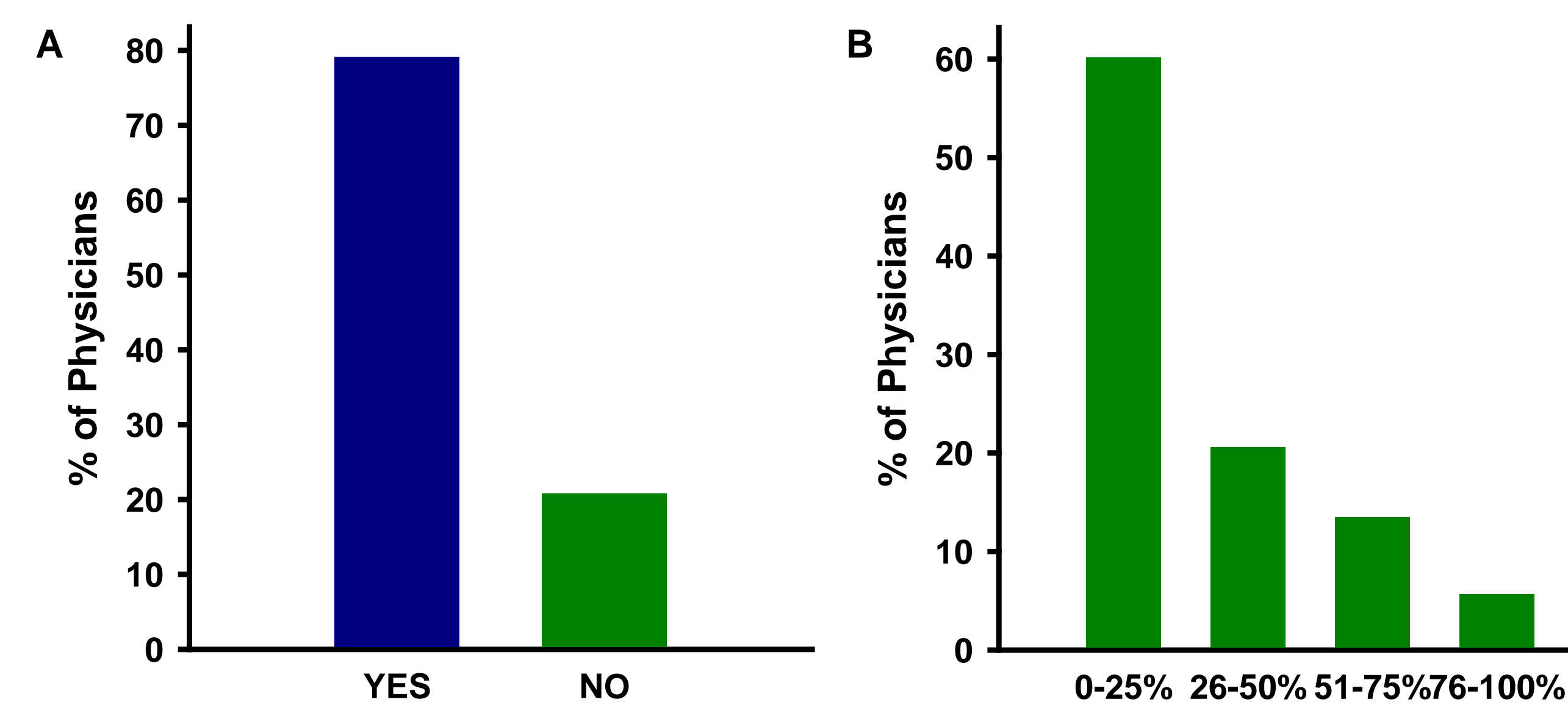


Fig. 6. Responses to (A) "Do you consider Waist Circumference to be a 'Vital Sign'?". (B) "What percentage of your patients' charts have a waist circumference documented?".

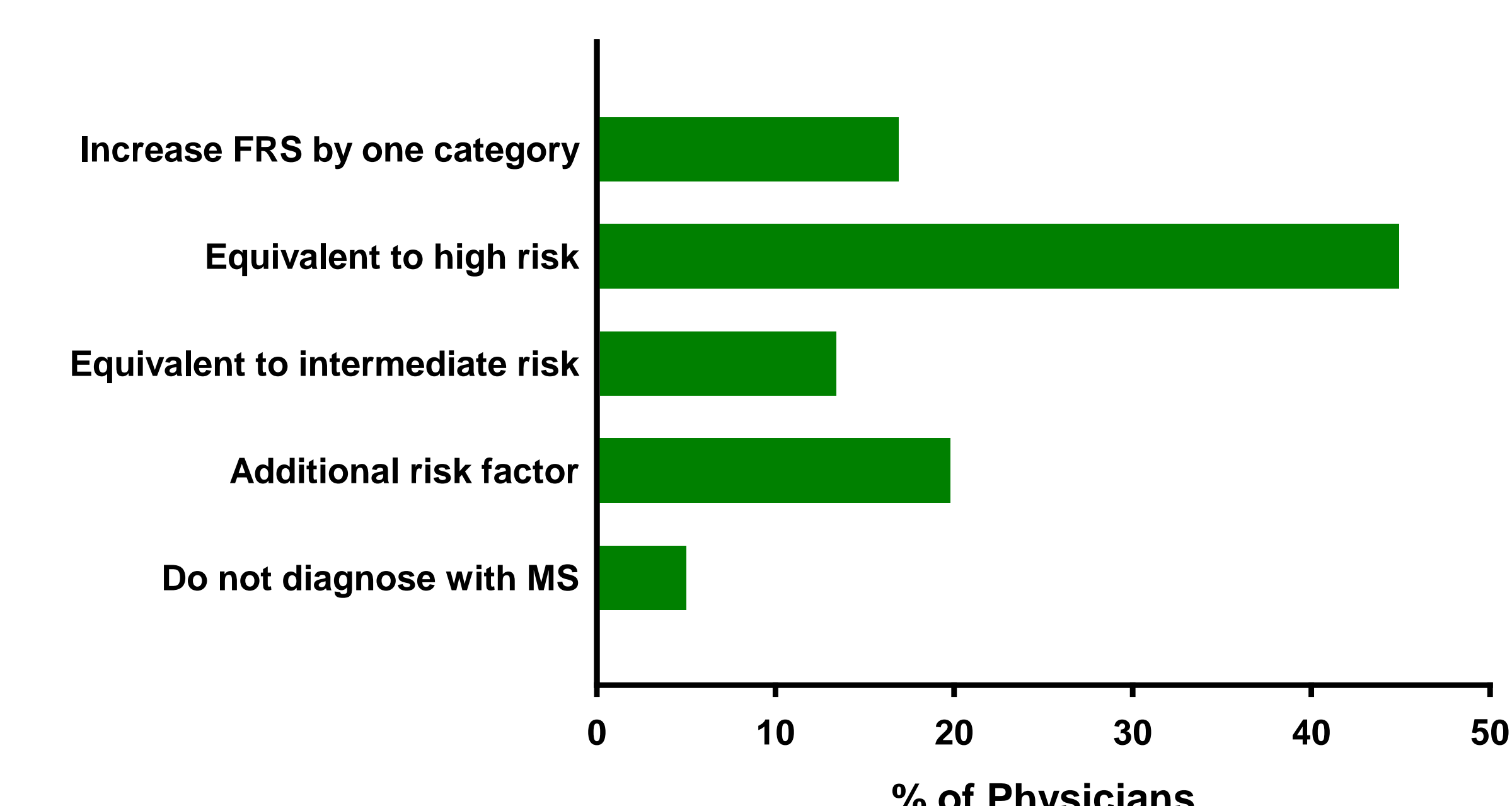


Fig. 7. Responses to "How do you incorporate the metabolic syndrome (MS) in a non-diabetic patient into CV risk stratification?".

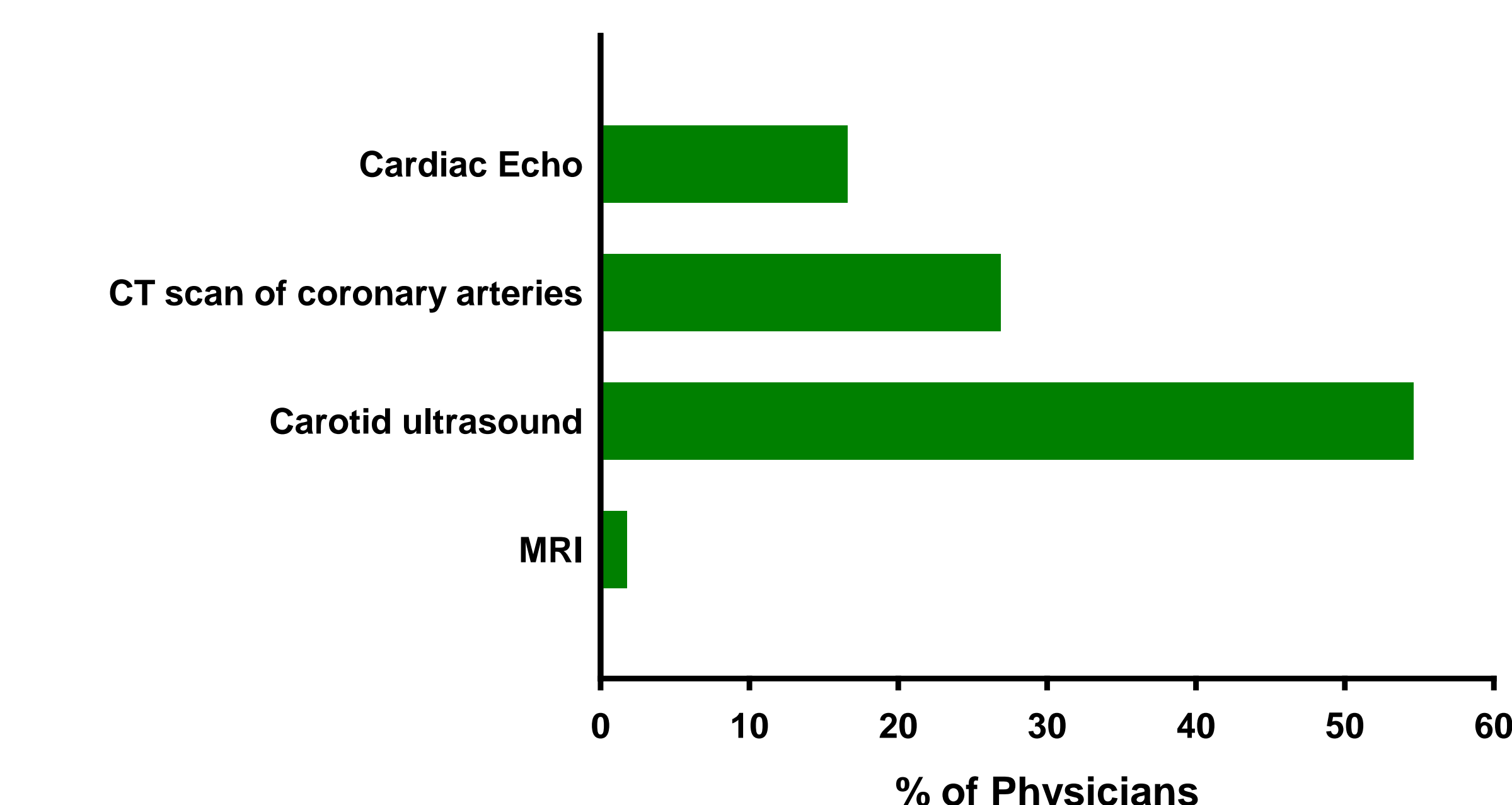


Fig. 8. Responses to "In addition to biochemical assessments, what imaging test do you believe is best suited for screening in primary prevention?".

## SUMMARY

- ◆ 73.8% of physicians performed annual cardiovascular risk assessments with 68.9% using the Framingham Risk Score (FRS)
- ◆ 89% of physicians were aware of the outcomes of FRS estimates but 29.5% could not characterize FRS thresholds for high risk
- ◆ Family history was considered by 25.7% of physicians to be the most important single risk factor but only 44.4% correctly used a positive family history to roughly double the FRS, as per the Canadian Lipid Guidelines
- ◆ 79.2% of physicians considered waist circumference as a vital sign but only 5.7% routinely documented this measurement
- ◆ 44.9% and 13.4% of physicians respectively equated metabolic syndrome with high and intermediate risk
- ◆ 54.6% of physicians considered carotid ultrasound the best imaging technique for screening in primary prevention

## CONCLUSIONS

- ◆ Despite the wide dissemination of the 2006 Canadian Lipid Guidelines, significant knowledge gaps persist regarding optimal methods for CV risk assessment.

## ACKNOWLEDGEMENTS

This work was supported by an investigator-initiated research grant from AstraZeneca Canada to M Gupta and S Verma.