

PRIMARY CARE PHYSICIAN PERSPECTIVES REGARDING HS-CRP IN GLOBAL RISK ASSESSMENT AND TREATMENT

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ABSTRACT

Recent data suggest that the inflammatory biomarker, hs-CRP, may provide incremental value beyond current CV risk algorithms, and may help identify patients eligible for statin therapy. There are however, limited data in the contemporary era as to how primary care physicians incorporate hs-CRP into clinical practice.

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.

Fifty percent of physicians surveyed identified inflammation as the main pathophysiological basis of atherosclerosis, whereas 33% of physicians indicated that atherosclerosis was a disease of deranged lipid metabolism and/or oxidation. One hundred percent of physicians surveyed had heard of hs-CRP in the context of cardiovascular disease, and 55% had measured hs-CRP for the purposes of assessing cardiovascular risk. Despite widespread awareness, approximately one-quarter of physicians were unsure as to the most appropriate patient-type in whom to measure hs-CRP, and only 31% correctly responded that hs-CRP was most useful in the intermediate risk patient. Additionally, 51% were unsure how to or incorrectly re-classified a hypothetical intermediate risk patient with an elevated level of hs-CRP. Furthermore, with respect to whether or not hs-CRP and LDL-cholesterol levels correlate with each other, 72% of physicians were either unsure or inaccurately identified a positive correlation between the two parameters. When presented with a patient at intermediate risk whose LDL was below treatment thresholds, 45% of physicians felt that hs-CRP would provide useful additional information, and 98% of this group appropriately identified a threshold for statin treatment at hs-CRP levels >2 mg/L. However, the majority (55%) of physicians did not consider measuring hs-CRP in this clinical setting. Of these physicians, the vast majority (90%) were either unsure of the utility of hs-CRP or felt that it would not aid in risk stratification.

Physician awareness of the role of inflammation in atherosclerosis, particularly in the context of hs-CRP and cardiovascular disease, is exceedingly high. However, this analysis reveals that there are substantial knowledge gaps with respect to the appropriate use of hs-CRP in risk stratification, particularly in the setting of identifying patients for therapy, who may not necessarily have hyperlipidemia.

INTRODUCTION

Results from the recently published JUPITER (Justification for the Use of statins in Primary prevention: an Intervention Trial Evaluating Rosuvastatin) trial strongly support the role of high sensitivity C-reactive protein (hs-CRP) in cardiovascular risk assessment. Whether this biomarker is routinely applied in primary practice in Canada is not known.

OBJECTIVE

To evaluate the perceptions of Canadian primary care physicians regarding the impact and incorporation of the novel biomarker, hs-CRP, in cardiovascular risk assessment and treatment strategies.

STUDY DESIGN

Participant Recruitment

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 role of hs-CRP plays in decisions regarding treatment strategies.

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 red bar in each figure denotes the most correct answer.

Respondents

Province	n	%
AB	53	6.3
BC	132	15.6
MB	53	6.3
NS	39	4.6
NB	47	5.6
NL	57	6.7
ON	255	30.1
PE	25	3.0
QC	131	15.5
SK	54	6.4

Table 1. Provincial representation of physicians who participated in the survey. Completed questionnaires were received from 846 primary care physicians.

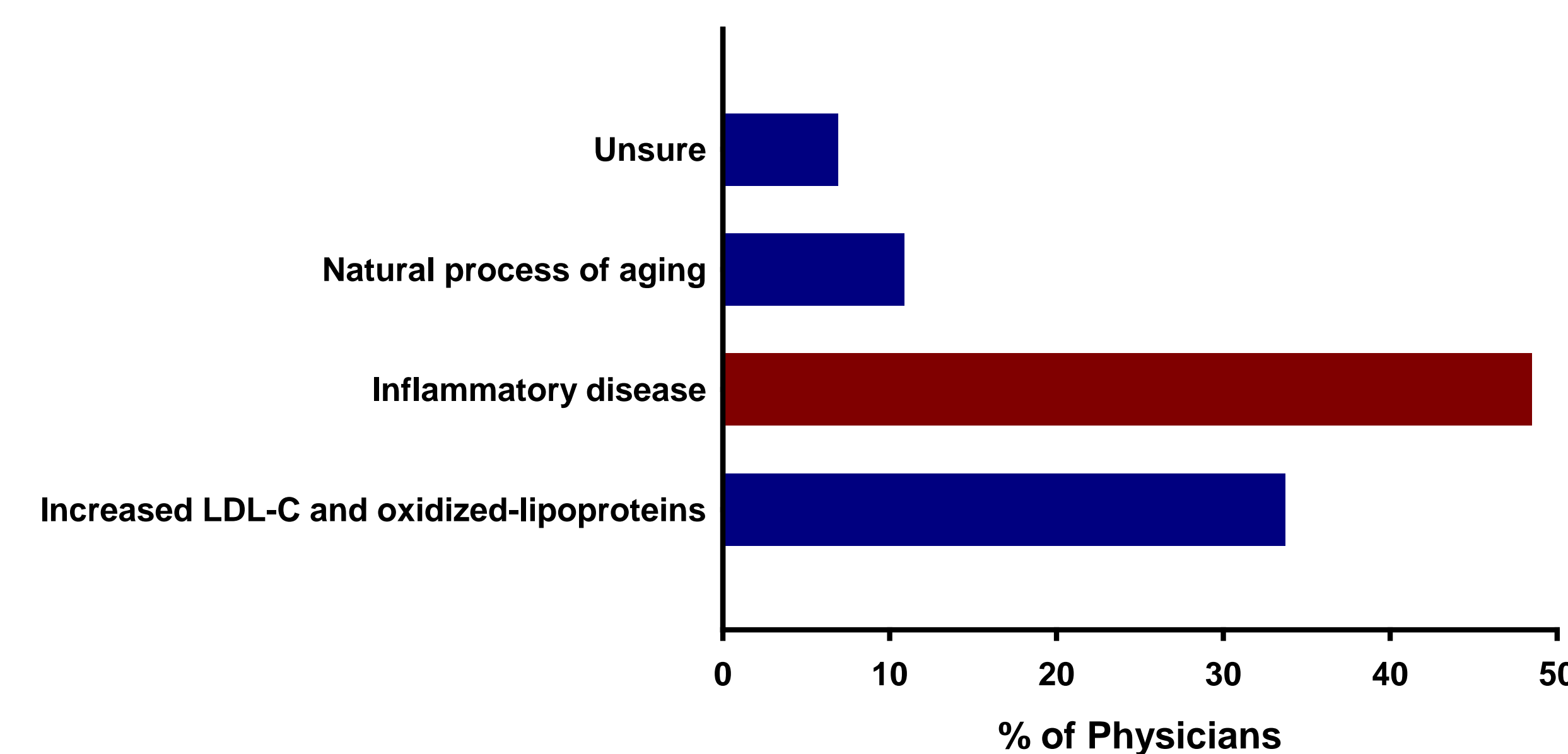


Fig. 1. Responses to "Which of the following statements do you think best characterizes atherosclerosis in most patients?"

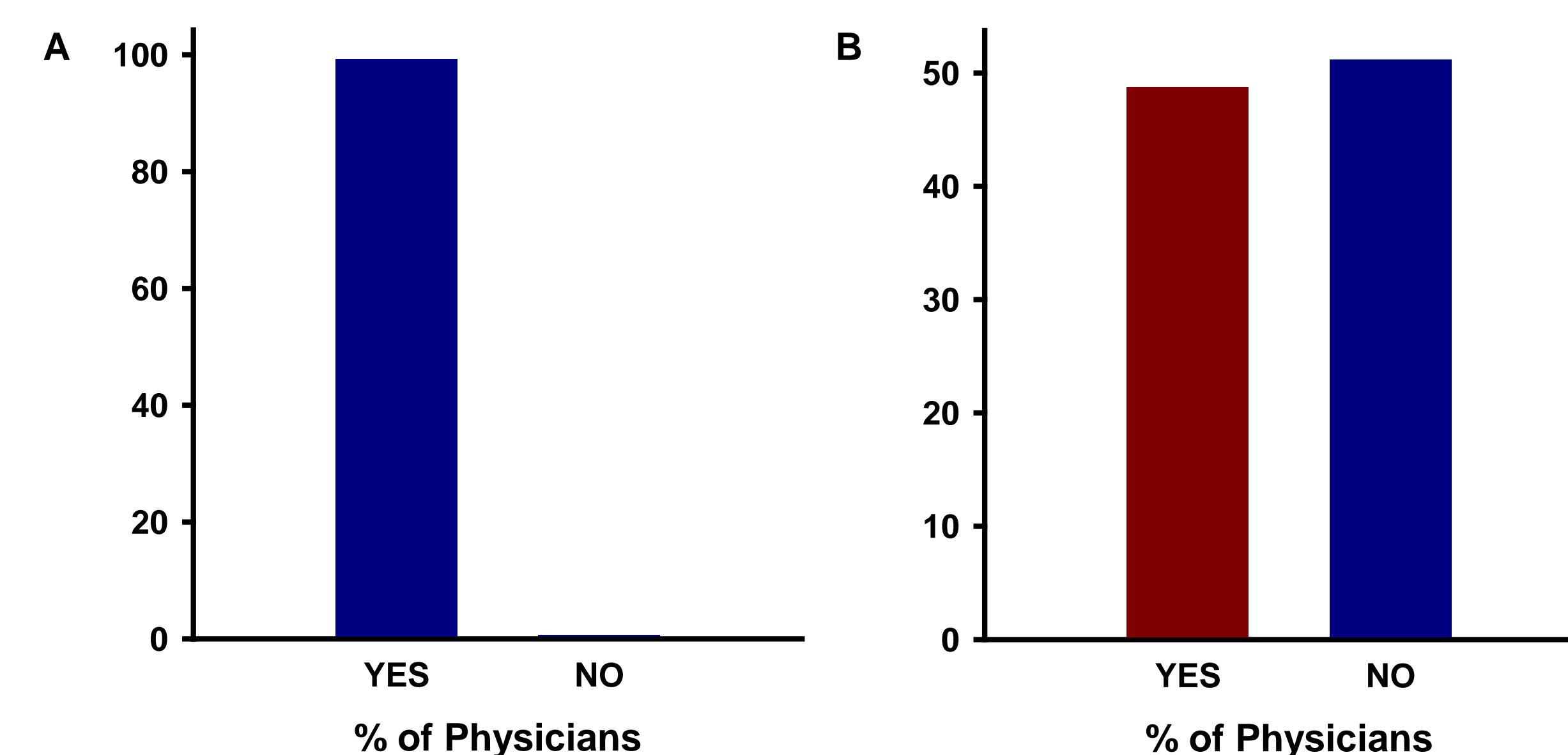


Fig. 2. Responses to (A) "Have you heard of high sensitivity C-reactive protein (CRP) in the context of heart disease?" (B) "If Yes to A, have you measured high sensitivity C-reactive protein (CRP) in patients to assess their risk of future cardiovascular events?"

Statement	n	%
Poor correlation	208	24.7
Increased cholesterol associated with increased hs-CRP	299	35.6
Low cholesterol associated with increased hs-CRP	11	1.3
Unsured	323	38.4

Table 2. Responses to "What statement about the relationship between CRP and other risk factors is correct?"

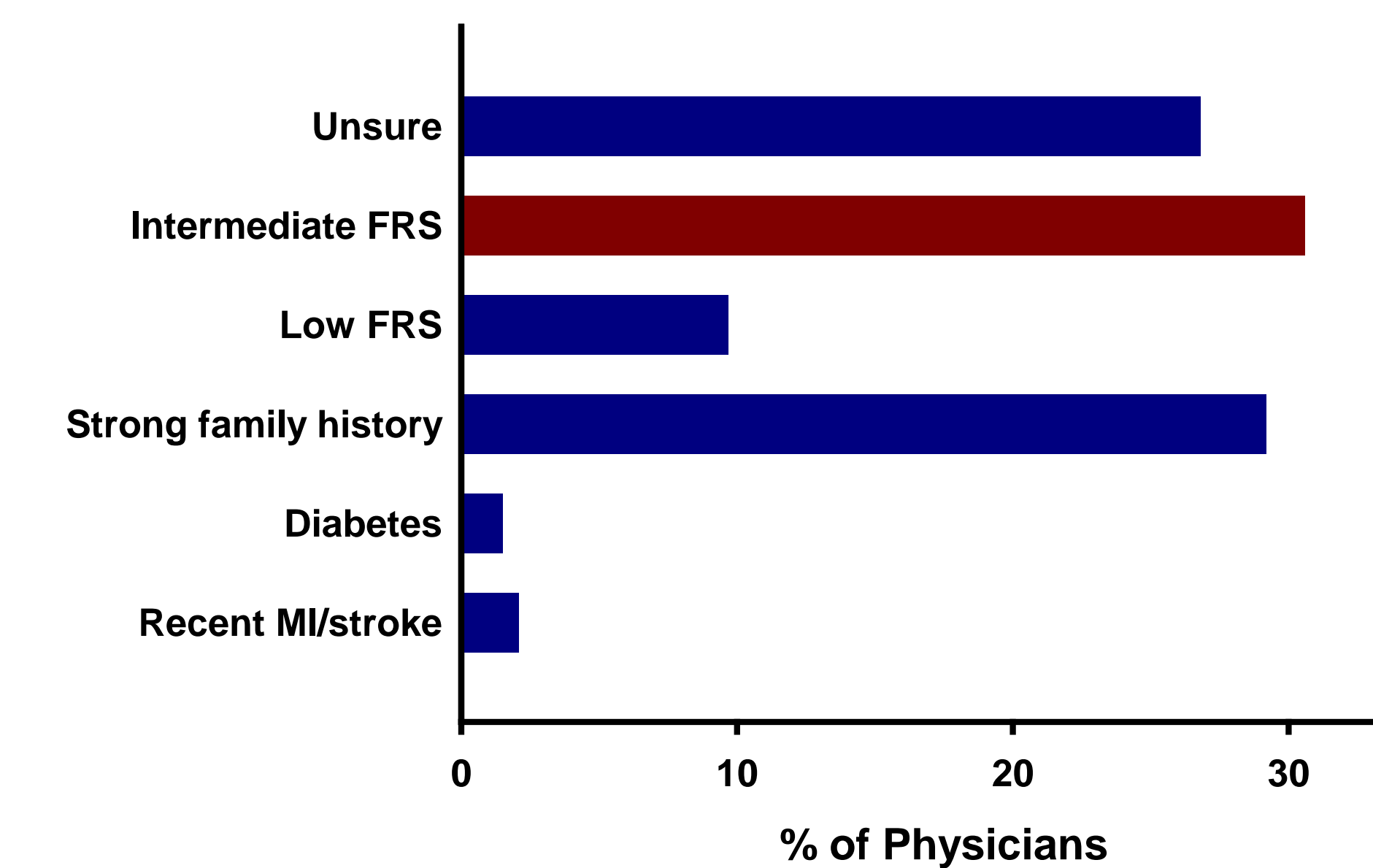


Fig. 3. Responses to "In which type of patient would it be most appropriate to measure hsCRP?"

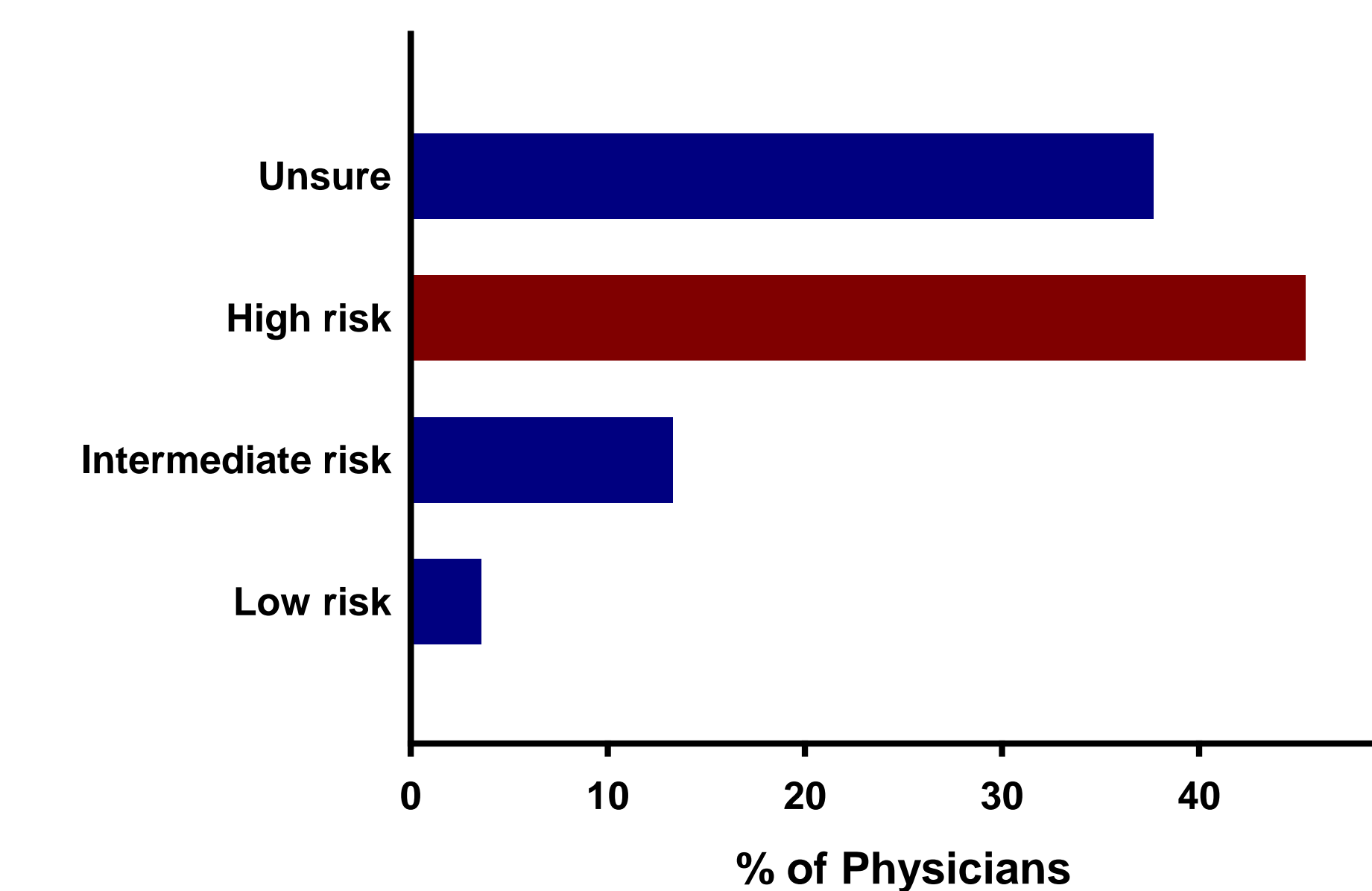


Fig. 4. Responses to "In a 60 year old man with intermediate risk by FRS, how does a hsCRP level of 4 mg/L affect his risk stratification?"

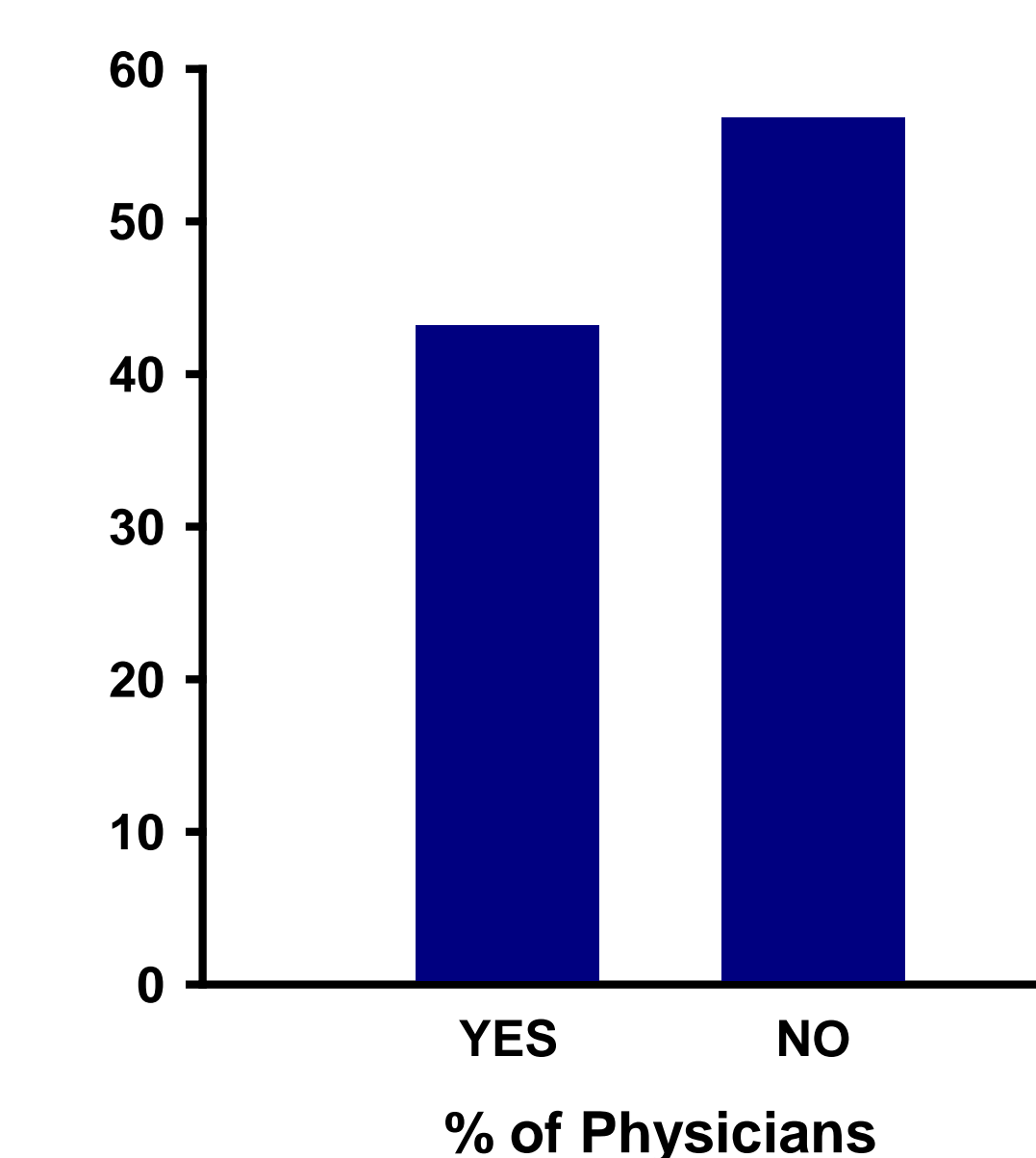


Fig. 5. Responses to "You are screening an asymptomatic non-diabetic 66-year old male for future vascular risk in your office. He is a non-smoker. His LDL cholesterol is 3.2 mM and total cholesterol 5.1 mM. His BMI is 28 and his blood pressure is 124/70 mmHg. He currently takes ASA 81 mg/dy. There is no family history of early atherosclerosis. Would you measure hsCRP in this patient?"

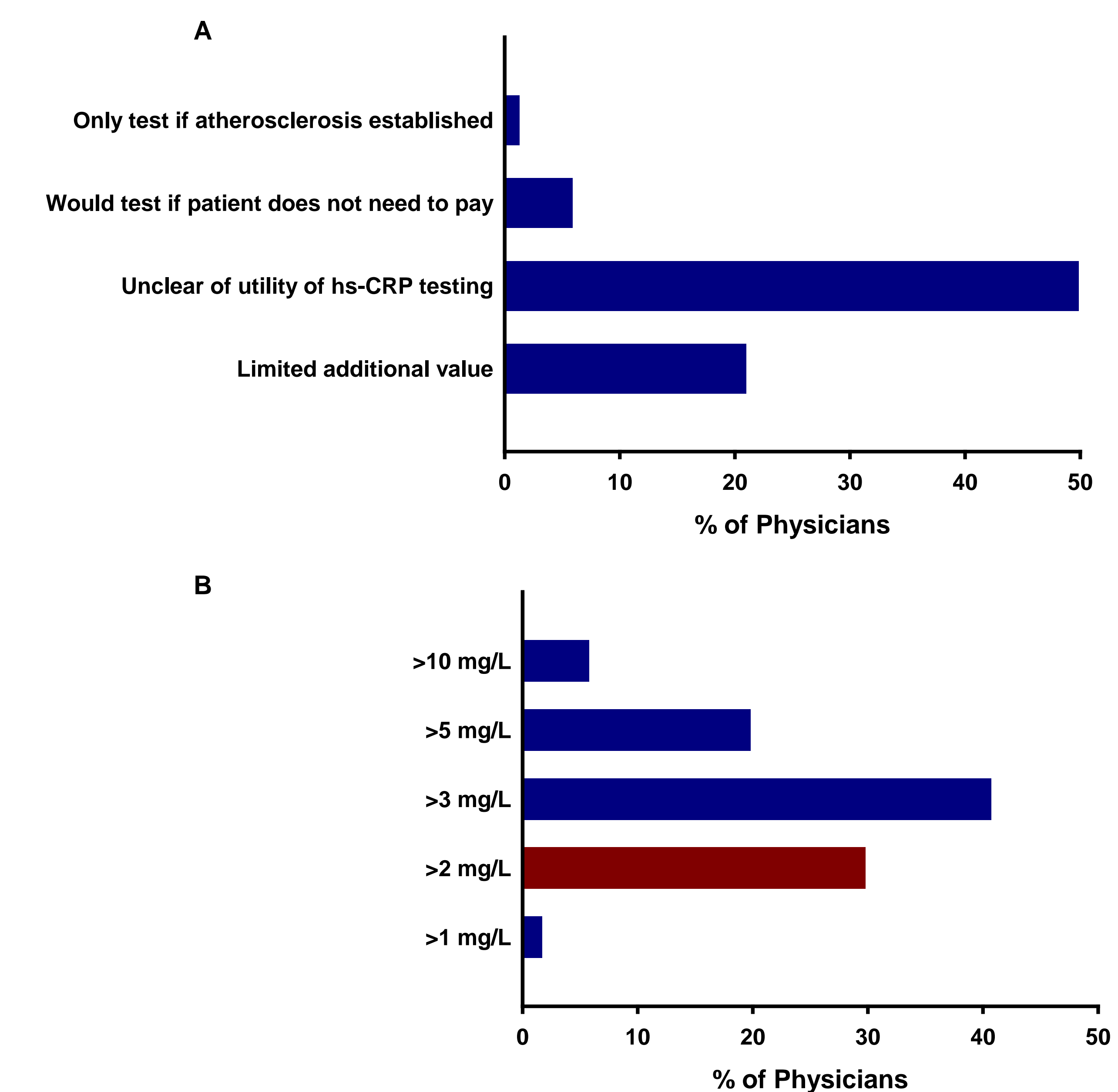


Fig. 6. Responses to "With reference to the same patient described in Fig. 5. (A) If you would not measure hsCRP, please identify why you would not do so. (B) If you would measure hsCRP, at what level of CRP would you consider statin therapy?"

SUMMARY

- ◆ 99.3% of physicians surveyed had heard of hs-CRP in the context of cardiovascular disease
- ◆ 26.8% of physicians surveyed were unsure of and 42.8% inaccurately identified the risk level that would most benefit from a hs-CRP assessment
- ◆ 64.4% of physicians surveyed were unsure of or erroneously defined the relationship between hs-CRP levels and risk factors
- ◆ 54.6% of physicians surveyed were unsure how to or incorrectly re-classified a hypothetical intermediate risk patient with an elevated level of hs-CRP
- ◆ 56.8% of physicians surveyed would not test hs-CRP levels in an intermediate risk patient whose LDL is below treatment thresholds

CONCLUSION

- ◆ Substantial knowledge gaps exist with respect to the appropriate use of hs-CRP for cardiovascular risk stratification

ACKNOWLEDGEMENTS

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