

**[Three of the authors respond:]**

Maggie Mamen claims that using IQ ignores the possibility that marijuana may have an impact on multiple domains of cognitive functioning. Far from being ignored, this was raised in both the interpretation of the results and in the abstract of our article.<sup>1</sup> We emphasized that the drug's impact on particular domains of intelligence (memory and attention were highlighted) must be ascertained and may differ from a broadly based measure of intelligence represented by IQ. This is ongoing in our research at the moment.

IQ was chosen for our report of preliminary findings for many reasons. Primarily, this work was intended to contrast our findings with previous research in which no premorbid cognitive values were available. The vast majority of these studies employed IQ as a concurrent outcome variable and thus our use of IQ was a matter of permitting an "oranges to oranges" comparison with the other studies. Furthermore, although intelligence is unquestionably multifaceted, the IQ measure remains a major, widely used barometer of intellectual performance. For example, in most school boards (including the 2 boards in the Ottawa, Ont. area) it is the cornerstone of initial assessment of children and, in examining the outcome of exposure to drugs (prenatal or concurrent), IQ values are ubiquitously cited.

Regarding the use of marijuana during pregnancy, our research group has published over 100 papers on prenatal marijuana exposure and its impact on a host of outcomes. This putative relationship will, in fact, be the subject of future reports. However, (in part due to space limitations imposed by *CMAJ*) for the purposes of the published article, prenatal exposure was found not to be associated with IQ change.

Paul Yong suggests a possible similarity in marijuana use between former users and non-users. What follows is a more detailed description of these 2 groups. Of the 37 non-users, 18 had

never used marijuana and 19 had used marijuana but never at the level of at least once a week. Of the 19 non-users who had tried marijuana in the past, only 7 had used it in the past year. In contrast, all 9 of the former users had smoked at least once a week previously with an average use of 21.4 joints per week for an average of 2.2 years.

Regarding the power issue with the sample size of heavy former users, 5 former heavy users showed an average IQ difference score of 0.8, which did not differ significantly from the non-users. Definitely, this comparison suffers from lack of statistical power and was meant only as an initial foray to compare heavy former use with heavy current use.

Ian Shrier asks if there was an increase in the proportion of people below 77.5 in our sample. The lowest IQ measured in our relatively small sample was 84. The projection of our results onto standard cutpoints was an example of the potential impact on society at large.

Shrier's suggestion that heavy users with higher IQ scores initially might be affected differentially from those initially scoring lower is interesting. Although not originally addressed in our article, that analysis has now been done. The correlation between initial IQ and the IQ difference score is not significant ( $r = -0.34$ ,  $p = 0.21$ ). In addition, when the initial IQ is dichotomized at the median, no difference exists between the IQ difference scores ( $F = 0.21$ ,  $p = 0.65$ ). When former users were examined in the same fashion, the results were the same, and no effect on difference scores was related to initial IQ.

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**Reference**

1. Fried P, Watkinson B, James D, Gray R. Current and former marijuana use: preliminary findings of a longitudinal study of effects on IQ in young adults. *CMAJ* 2002;166(7):887-91.

**Canadian medical students voice their concerns**

I read with great interest the article by Irfan Dhalla and colleagues on the demographics of Canadian medical students.<sup>1</sup> However, as a student from the province of Quebec, I was disappointed that data from the Quebec universities were not included.

As reasons for excluding Quebec students, the authors list a poor response rate, incomplete email databases and a "large number of premedical students." To correct these problems, the survey could have been better publicized and a more thorough search for emails should have been conducted. In addition, the authors' concern about premedical students is unfounded; they could have easily eliminated those responses from the final analysis if they wished to do so.

To make pan-Canadian inferences about Canadian medical students without including a quarter of Canadian medical faculties is a grave error.

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**Reference**

1. Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Characteristics of first-year students in Canadian medical schools. *CMAJ* 2002;166(8):1029-35.

Jeff Kwong and colleagues article on the effects of rising tuition fees<sup>1</sup> was insightful; however, I believe the authors missed an opportunity to suggest mechanisms to help ease the financial burden on students. Provincial governments must recognize that professional degrees are now more expensive than undergraduate degrees, and therefore they must make greater amounts of money available to professional students. Furthermore, provincial governments must remove archaic rules that prevent many students from receiving the money they need. For example, students from Ontario who are less than 5 years out of high school are not eligible