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Author response

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Thank you for raising these comments in your Letter to the Editor.<sup>1</sup>

Although likelihood ratios (LRs) are usually calculated based on the qualities of a diagnostic test and used when deciding whether to order one,<sup>2</sup> we understand the temptation to extrapolate the idea of LRs to decision making around risk factors. We accept that LR of 1-2 for body mass index  $\geq 30\text{kg/m}^2$  only minimally increases the likelihood of having endometrial hyperplasia or cancer in this population. However, risk factors currently used in the decision to perform endometrial biopsy in premenopausal women with abnormal uterine bleeding include age, irregular menstrual cycle and infertility; using our data, LRs for these factors are similarly low. We challenge other researchers in this area to continue to develop a greater understanding of risk factors in premenopausal women, to better target invasive diagnostic testing.

With respect to the comment that the risk of atypical hyperplasia is very low (1.3%) and rarely requires biopsy, we note that the population included in that review<sup>3</sup> was premenopausal women with abnormal bleeding. This is very helpful for primary care practitioners, and fills a gap in the literature. However, in our population of women seen in secondary care, 36% were already taking hormonal medical therapy; the prevalence of disease was 4.9%, and these higher risk women warrant invasive testing.

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<sup>1</sup> Gianenella L, Paganelli S. Abnormal uterine bleeding in premenopausal women and the role of body mass index: when all that glitters is not gold. *Am J Obstet Gynecol* 2016.

<sup>2</sup> Grimes DA, Schulz K. Refining clinical diagnosis with likelihood ratios. *Lancet* 2005;365:1500-5.

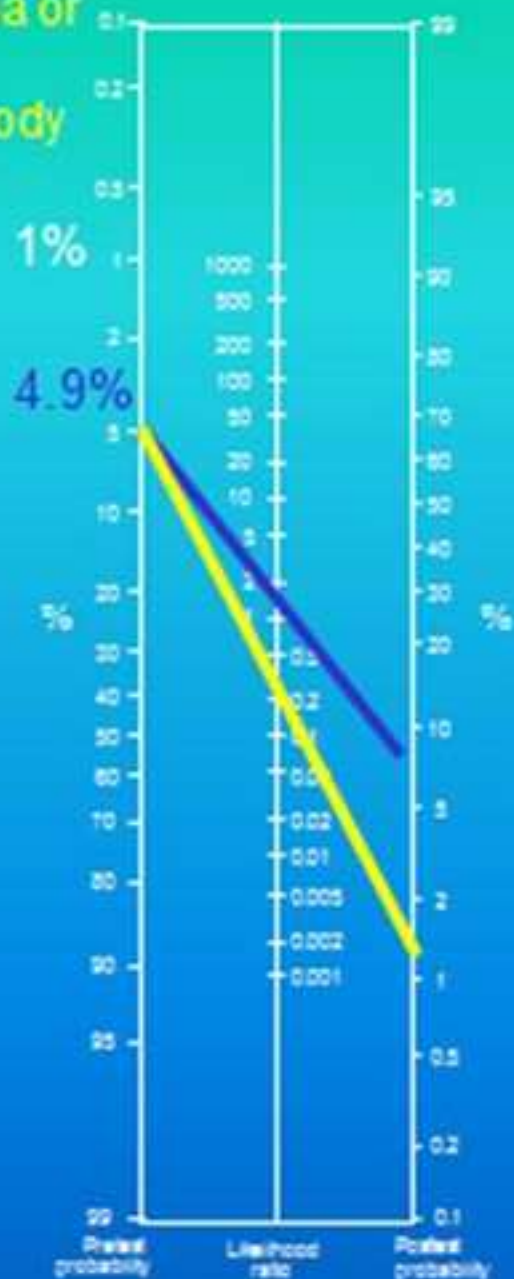
<sup>3</sup> Pennant ME, Mehta R, Moody P et al. Premenopausal abnormal uterine bleeding and risk of endometrial cancer. *BJOG* 2016.

## Likelihood of atypical hyperplasia or cancer in symptomatic premenopausal women using body mass index

### Likelihood Ratios:

Positive test: LR 1.6

Negative test: LR 0.46



7.5% likelihood of outcome if BMI  $\geq 30$

1.5% likelihood of outcome if BMI  $< 30$