

Universal screening of human immunodeficiency virus infection in pregnant women in Hong Kong

To the Editor—Tse et al's¹ prospective study on universal screening of human immunodeficiency virus (HIV) infection in pregnant women in Hong Kong was remarkable in terms of the large number of participants and high participation rate. However, the study suffered from problems in its design and analysis that make its findings difficult to interpret.

Firstly, the sensitivity, specificity, and positive predictive value of a screening test would be of interest to readers. However, the authors did not mention these in this paper. In fact, it is not possible to calculate the sensitivity and specificity of the screening test from the study data reported. According to the study protocol, all screened negative blood specimens were simply reported as 'negative'. In other words, the authors could not know whether a negative screening report was a true negative or a false negative result. They might have missed cases without being aware of such a possibility.

Secondly, the presentation of results was confusing. A Table in a format as shown would have been helpful. However, as mentioned before, it is not possible to add the numbers into the missing cells. Nevertheless, we can still obtain the positive predictive value for the test by dividing the number of true positive reports by the total number of positive screening reports, ie $3/16=18.8\%$. The false positive rate in the article, as calculated by the number of true positive reports divided by the total number of tests completed, is not meaningful. It largely reflects the low prevalence of HIV infection among pregnant women in Hong Kong rather than the performance of the screening test itself.

Thirdly, the authors did not address the potential adverse effect of such a screening practice. A significant proportion (13 of 16) of women with a positive screening test were

Table. Example of format for data presentation

		Confirmation test		Total
		Positive	Negative	
Screening test	Positive	True positive (3)	False positive (13)	16
	Negative	False negative (?)	True negative (?)	5443
Total		?	?	5459

eventually found to be negative for HIV on the confirmation test. They may have suffered unnecessary psychological stress, problems with their spouses, or may have even arranged an abortion due to the false screening result.^{2,3}

In summary, despite the impressive number of participants and participation rate, this study is not very helpful for making evidence-based decisions in health care. Nevertheless, vertical transmission of HIV infection is indeed a significant public health problem that is worthy of more attention. I fully appreciate the authors' contribution to tackling this issue.

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References

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2. Hennekens CH, Buring JE. *Epidemiology in medicine*. Boston/Toronto: Little, Brown and Company; 1987:327-47.
3. Doran TI, Parra E. False-positive and indeterminate human immunodeficiency virus test results in pregnant women. *Arch Fam Med* 2000;9:924-9.

Authors' reply

To the Editor—First of all, as stated in the beginning of the paper, the objective of our study was to evaluate whether universal screening for human immunodeficiency virus (HIV) infection in pregnant women with an opt-out approach was applicable in Hong Kong. There was no intention to evaluate the screening test itself. Information on the sensitivity and specificity of the test was included in the reference list.

Secondly, a positive screening test result is not sufficient for a diagnosis of HIV infection. A confirmation test is needed. In the study, if a positive screening test result was noted, the remaining serum was sent for confirmation study. Post-test counselling was conducted only when the confirmation test

result was available. Appropriate post-test counselling for individual women with a false positive screening result was provided by members of the research team.

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