A study of cellular counting to determine minimum thresholds for adequacy for liquid-based cervical cytology using a survey and counting protocol

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Plain English summary

Minimum thresholds for adequacy for LBC

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Plain English summary

The introduction of liquid-based cytology, using the commercial SurePath™ (SP; BD Diagnostics, Burlington, NC, USA) and ThinPrep™ (TP; Hologic, Inc., Bedford, MA, USA) systems, to the UK Cervical Screening Programme has resulted in the proportion of inadequate slides falling from 7–8% to 1–2%. There is uncertainty regarding the minimum number of cells needed within these preparations to provide a reliable reading because an important reason for inadequate slides is insufficient cells.

This study, which was performed between 2008 and 2011 using routinely obtained cervical screening samples, sought to address this uncertainty by means of (1) surveying current laboratory practice; (2) assessing the reliability (between experienced readers) of counting the number of cells on a slide; (3) evaluating the relationship between cell counts and the grade of cellular abnormalities reported across a range of laboratories; and (4) evaluating the effect of cell dilution on the reliability of reporting.

The participating laboratories reported variable practice in defining an adequate cell count and cell counting protocol. When a pre-specified cell counting protocol was adhered to, counting was moderately/strongly reproducible. The currently reported ‘inadequate’ slides cover a wide range of cellularity, but the data indicate that minimum adequate cellular counts for the SP and TP systems of 15,000 and 5000, respectively, appear appropriate in terms of excluding slides suitable for reading below these counts, as detection rates fell in samples below these levels of cellularity.

It can be reasonably concluded that a standardised cell counting protocol would be valuable, setting a minimum adequate cellular count at 15,000 for the SP system and 5000 for the TP system.
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This report

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