

Do we see what we think we see? The complexities of morphological assessment

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Abstract

Reliable pathological interpretation is vital to so many aspects of tissue-based research as well as being central to patient care. Understanding the complex processes involved in decision-making is the starting point to improve both diagnostic reproducibility and the definition of diagnostic groups that underpin our experiments. Unfortunately, there is a paucity of research in this field and it is encouraging to see *The Journal of Pathology* publishing work in this area. This review attempts to highlight the opportunities that exist in this field and the technologies that are now available to support this type of research. Key amongst these are the use of decision analysis tools such as inference networks, and virtual microscopy that allows us to simulate diagnostic decision-making. These tools have roles, not only in studying the subtleties of diagnostic decision-making, but also in delivering new methods of training and proficiency testing. Research which helps us to better understand what we see, why we see it, and standardizing interpretative reasoning in pathological classification is essential for improving the wide range of activities that pathologists support, including clinical diagnosis, teaching, training, and experimental research.

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