

reasons for this, with one of the primary reasons being inconsistent laboratory reporting.

Prior to the most recently published reference range in the WHO 5th edition (2010), the second most recent edition (1999) is now approaching 20 years old. It is not invalid to report a result alongside an outdated reference range; however, when labs do not follow the most current standard of reporting, it represents a “red flag” to the clinician that the lab may not only perform semen analyses infrequently, but also, more importantly, may be out of touch with modern andrology assessment techniques. The resulting drawback is particularly evident with sperm morphology, which went through a significant change when Kruger strict morphology was adopted for the 5th edition. The light microscopy version of morphology assessment, which was part of the 1999 and earlier WHO reference standards, is now obsolete and relatively useless to clinicians. Nevertheless, this change in morphology reporting is likely a factor in why some laboratories have not adopted the most current standard.

Not only are nonconforming labs out of touch and potentially less accurate, but results reported by such labs can lead to mischaracterizations of patients’ reproductive potentials, missed diagnoses, and ultimately can heighten the barriers to male reproductive care. It is about time that CLIA-certified laboratories be required to conform to modern reference values in reporting semen analyses in order to maintain compliance.

R. Matthew Coward, Department of Urology, University of North Carolina School of Medicine, Chapel Hill, NC; UNC Fertility, Raleigh, NC

Reference

1. Place reference for present study (currently unknown): “Inconsistent Adoption of World Health Organization V (2010) Semen Analysis Reference Ranges in the United States Six Years After Publication”.

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AUTHOR REPLY

We appreciate the reviewer's comments regarding our manuscript. The inconsistent adoption of WHO V (2010) semen analysis reference ranges can result in numerous unintended consequences, including inconsistencies in the diagnosis and treatment of male factor infertility depending simply on the location of the patient's evaluation. Patients commonly express confusion and dismay when being categorized as “normal” at one center and “infertile” at another, and this scenario can also result in uncertainty on the part of physicians unfamiliar with the field of reproductive medicine. We agree with the reviewer that more consistent adoption of contemporary WHO semen analysis reference ranges would greatly help rectify this situation and provide patients and clinicians alike with great clarity. However, we suspect that a primary reason for the inconsistent adoption of the WHO V reference ranges is the fact that these values do not represent a true boundary between the “fertile” and “infertile” states. Rather, these values are arbitrary cut-points selected at the 5th centile value for each parameter, derived from data from an international cohort of fertile males. Given the fact that the contemporary reference values are not derived to differentiate fertile from infertile men, many centers continue to use the older reference ranges because they feel that they do a better job discriminating fertility from infertility. Until reference ranges that more clearly separate these two groups are implemented, inconsistent adoption will likely persist. Unfortunately, given the high degree of overlap in semen analysis values for fertile and infertile men, we suspect that such reference ranges will not be generated any time soon.

Robert E. Brannigan, Northwestern Feinberg School of Medicine, 676 N. St. Clair St., Arkes 23-015, Chicago, IL 60611

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