Microcytosis and possible early iron deficiency in paediatric in-patients: a retrospective audit

Reviewer Disclosure: The following review is done by a clinician specialized in Pediatric Emergency Medicine. I have published a study similar to this one that is referenced in the paper under review. I believe that I am positively biased towards this study.

Major Compulsory Revisions

1. In the methods, please detail how you assigned patients to the various subjective categories (explicable, potentially explicable etc). Later you state that two people independently made the assignments. What did you do with disagreements? Please report the inter-rater reliability.

2. Page 7 line 8: Not clear from the text whether you contacted the ethics committee or not. Are you able to document this exemption?

3. Methods – were the investigators amongst the clinicians who were being assessed? How many of the patients would this potential bias have affected? Had the retrospective study started AFTER the authors had made their clinical decisions for the patients?

4. Methods – please describe in more detail what your “educational’ intervention was. The increase in ascertainment is impressive so readers of your paper will want to replicate your methods. There is not enough detail specified for them to do so.

5. Results – Combine the two “tree” figures into one. In each box list the Phase 1, Phase 2 (perhaps w asterisks designating statistically signif results) and Overall frequencies.

6. Results – Please include age range of the patients, any dietary information that you have (is a screen done in your hospital?) and the list of diagnoses in each category.

7. Results – An MCV of 74 is not as worrisome as an MCV of 59. Your results do not include any indication of the severe values you might have seen. How many
were outliers? A scatterplot of the original data would give the reader an indication of this.

8. Discussion – paragraph 3 of page 9. Condense this paragraph – comparing 4 against 2 patients by listing 57% versus 10% is misleading. Just make the point that now that the documentation is better, there is still work to do.

· Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

1. Introduction nicely worded. Could additionally give the reader a sense of how many children with a low MCV will eventually go on to frank anemia. Is this figure known? How effective is MCV as a screening tool?

2. Methods – “prtest function” of STATA is better presented as the z-test and appropriately referenced. See the references in the STATA manual.

3. Methods – you would do well to go through an Evidence-based practice type of checklist to ensure that you had eliminated as much bias as possible. The one I use is Andrew Worster’s from McMaster (see PMID: 14759964)

4. Results – 319 out of how many total admissions during this time period?

5. Results – Be careful about your number of Significant Digits – presenting 4/7 as 57.1% probably misrepresents the level of precision in your data. Similarly, the p-values out to 4 decimal places is a bit much.

6. Results -- How many different clinicians do your results reflect?

7. Results – it would strengthen your paper if you determined from your lab system whether any of the low MCV patients had further lab testing reported in the year afterwards (e.g. did NONE of these 700 odd patients have a Ferritin or Free Erythrocyte Protoporphyrin test done in the subsequent year?).

8. Discussion – Line 2 Page 9: “however this must be balanced… small proportion that have true ID” I think it would interesting to speculate on how many cases of anemia you might pick up using this screening method. Xx FBC per year in the susceptible age group à x% MCV low à y% might progress on to Anemia à z% of anemics go on to have cognitive problems. Number needed to screen MCV is ___ to prevent one case of cognitive impairment. Your numbers will be fuzzy but the argument is that it is easy to screen MCVs. What might be harder is the subsequent investigation.

9. Conclusion – there should not be any new ideas in the conclusion. Move the discussion of changes in lab practice etc into the discussion section.

· Discretionary Revisions

These are recommendations for improvement which the author can choose to ignore. For example clarifications, data that would be useful but not essential.

1. Results – I personally would like to see a scatterplot of your data with MCV versus Age with the two phases of your study distinguished using points of a
different colour. In this way, at a glance, the reader could compare the two populations on the two likely most important parameters.

2. Discussion – might mention that there are collateral benefits to this type of screening such as picking up thal, lead poisoning etc.