Reading and Critiquing Papers

In the Biostatistics and Research Design in Dentistry course we begin the process of being critical consumers of the medical/dental literature. We do this by explicitly teaching “how to read the literature” and then by discussing example literature. This discussion involves three roles:

1. Two or three students will be assigned to prepare a written critique and to lead the discussion*.
2. All other students will read the paper and be prepared to ask questions**.
3. The instructor will comment on the statistical methods used in the paper.

Note that the papers were chosen partly to illustrate statistical methods and partly to broadly represent dental research interests. The instructor (a statistician) will comment on the statistical methods. You (dentists) will comment on the dental aspects and you (researchers) will also consider how this paper may relate to the research project you will undertake. By discussing the literature we also move you from being critical consumers to also thinking more like dental researchers.

* Note that at least two students will be assigned as discussion leaders—See “How to Critique Papers”. Before the assigned class period they should briefly meet to agree on who will present what. All assigned students must present; neither should dominate the discussion.
** See “How to Participate in a Paper Critique”
How to Critique Papers

Bring 19 copies of your short (1-2 pages) written critique. The critique should probably cover*

1. What was the purpose/aim of the study? Was the study design appropriate?
2. Who was studied, how were they recruited, where was the study carried out? Is the number of subjects sufficient? Assess the representativeness of the sample.
3. Was the study adequately controlled? Assess control groups, including random allocation (see Harrison’s Table 5).
4. Were the assessors blind to the interventions received and are any measurements taken likely to be valid and reliable? Assess the possibilities for bias.
5. Assess the suitability of the statistical methods (were they appropriate? why or why not?) What were the variables used in the study? (Which were the predictor/explanatory variables? Which were the outcomes?)
6. Was basic data about the sample described and baseline comparisons made? What were the main findings and does the data support them? What is the statistical basis for each finding?
7. Given the quality of the study design, conduct and analysis what is the likelihood that the results are valid? Are the magnitudes of the findings clinically significant?
8. How could the study have been designed to be more conclusive? powerful? or efficient?

Grading Descriptions for Critique

4.0 = EXCELLENT – All of the above criteria were addressed (if applicable) in a way that demonstrates exceptional understanding and critical ability.

3.5 = OUTSTANDING - All of the above criteria were addressed (if applicable) in a way that demonstrates understanding and critical ability, allowing only minor deficiencies in two or fewer non-essential criteria.

3.0 = GOOD - All of the above criteria were except one addressed (if applicable) in a way that demonstrates understanding and critical ability. Only one major deficiency in one essential criteria.

2.5 = ABOVE AVERAGE - All of the above criteria were except two addressed (if applicable) in a way that demonstrates understanding and critical ability. Two major deficiencies in essential criteria.

2.0 = AVERAGE – More than two deficiencies in essential criteria. Only a minimal demonstration of understanding or critical ability.

1.0 = UNSATISFACTORY – Only a minimal critique of the paper. A failure to demonstrate understanding or to be critical.

Examples: “Can I use this clinically? How is this clinically relevant?”

0.0 = FAILING – Did not hand in a one-page summary; or did not make a presentation; or made incorrect statements regarding more than half of the above criteria.
How to Participate in a Paper Critique
Name: ____________________________

All students are to read all papers that are to be presented. In class, students will ask clarifying questions of those making a presentation. Questions for the presenters should

1. help the class in our desire to understand the rationale, methods, analysis, and justifications for the interpretations made in the paper, and
2. demonstrate that you had read the paper ahead of time.

Note:
- Each student should ask at least one question to the presenters
- No student should dominate the discussion.

Write your question below:

Circle the number corresponding to your grade:

Grading Descriptions for Participants

4.0 = EXCELLENT – Both of the above criteria were met.
3.0 = GOOD – Helpful to the class but the paper was not read ahead of time.
2.0 = AVERAGE – Not helpful to the class but the paper was read ahead of time.
1.0 = UNSATISFACTORY – Neither helpful nor prepared.
0.0 = FAILING – Did not ask any clarifying questions or were not present.